

Milton Keynes Local Transport Plan 4: Transport Infrastructure Delivery Plan

Strategic Environmental Assessment
Environmental Report

(updated following consultation)

Milton Keynes Council

October 2019

Quality information

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NOTE: *This Environmental Report was initially released for consultation alongside the Draft Transport Infrastructure Delivery Plan between June and August 2019.*

This version is an updated version of the Environmental Report to reflect consultation responses received during the consultation.¹

¹ These updates address comments number 78 and 79 as set out in section 3.4 of the *Transport Infrastructure Delivery Plan (TIDP) Consultation Response Report* (Milton Keynes Council, October 2019)

Non-Technical Summary

What is Strategic Environmental Assessment?

A Strategic Environmental Assessment (SEA) has been carried out to inform the development of the Milton Keynes Transport Infrastructure Delivery Plan (TIDP). Local Transport Authorities such as Milton Keynes Council use SEA to assess Local Transport Plans such as the TIDP against a set of environmental objectives developed in consultation with interested parties. The purpose of the assessment is to avoid adverse environmental and socio-economic effects, and identify opportunities to improve the environmental quality of Milton Keynes and the quality of life of residents through the TIDP.

What is the Milton Keynes Transport Infrastructure Delivery Plan?

Under the Transport Act 2000, as amended by the Local Transport Act 2008, local authorities in England are required to produce a Local Transport Plan (LTP). The 2008 Act requires that LTPs contain policies and implementation plans.

In this context, the Milton Keynes Local Transport Plan 4 (LTP4) will replace the Local Transport Plan 3 which was adopted in 2011. The umbrella document for the LTP4 is the *Mobility Strategy for Milton Keynes 2018-2036 (LTP4) Mobility for All*. Adopted in 2018, the LTP4 Mobility Strategy set out the framework for Milton Keynes' transport system, along with a series of interventions needed to achieve the growth ambitions of the borough.

This SEA Environmental Report accompanies the LTP4's Transport Infrastructure Delivery Plan (TIDP) for consultation. The TIDP, which builds on the *Mobility Strategy*, highlights the key transport challenges and opportunities in Milton Keynes along with the transport infrastructure that needs to be delivered within the short and medium term. This is with a view to enabling growth to come forward sustainably whilst supporting the existing local communities.

Purpose and content of this Environmental Report

This Environmental Report, which accompanies the public consultation version of the TIDP, is the second document to be produced as part of the SEA process. The first document was the SEA Scoping Report², which includes information about Milton Keynes' environment and communities and the 'framework' against which the TIDP has been assessed.

The purpose of this Environmental Report is to:

- Identify, describe and evaluate the likely environmental effects of the TIDP and alternatives; and
- Provide an opportunity for statutory consultees, interested parties and the public to offer views on the SEA process carried out to date.

The Environmental Report contains:

- An outline of the contents and main objectives of the TIDP and its relationship with other relevant policies, plans and programmes;
- Relevant aspects of the current state of the environment and key environmental issues;
- The SEA Framework of objectives and assessment questions against which the TIDP has been assessed;

² AECOM (February 2019) Milton Keynes LTP4 SEA Scoping Report

- An assessment of alternative approaches for the TIDP;
- The likely environmental effects of the TIDP;
- The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects as a result of the TIDP; and
- The next steps for the TIDP and accompanying SEA process.

Assessment of alternative approaches for the TIDP

A key requirement of the SEA Regulations is to assess 'reasonable alternatives for the TIDP.

The TIDP sits within the framework of the overarching LTP4 document, the Mobility Strategy. As such, the overarching strategy leading the TIDP has already been determined.

For this reason, there are no appropriate reasonable alternatives to be considered relating to the overall strategy within which the TIDP sits. Instead the key decisions to be made relating to the TIDP regard the schemes and projects which can potentially be implemented through the plan.

To support the development of the TIDP, Milton Keynes Council has considered a range of schemes for delivery through the plan period to 2031. During the first stage of this process the Council considered a 'long list' of 103 potential transport schemes.

These were considered through a Multi Criteria Appraisal Framework (MCAF) that assessed the likely impact of each option against the seven study specific scheme objectives and relevant strategic themes from the DfT Early Assessment and Sifting Tool (EAST).

From this exercise 70 schemes were identified as potential options to take forward through the TIDP.

The schemes proposed in the current version of the TIDP are not however the finalised list of schemes that will be implemented in the borough. Before implementation, the following steps will need to be undertaken:

- further engagement with stakeholders;
- public consultation on draft recommendations;
- ensuring that the schemes align with stakeholders' existing and emerging strategies;
- undertaking feasibility assessments to ensure the scheme is deliverable;
- undertaking a high-level costing exercise to assist with identifying and securing scheme funding;
- scheme impact assessment; and
- Business Case development.

In this context the TIDP will therefore be a 'living plan' that will regularly be reviewed throughout the plan period as further studies are undertaken and as more detail on proposed schemes become available. This will include: updates to the list of planned improvement schemes; additional clarity and detail on the scheme proposals; updates to delivery timescales; and updates to scheme funding sources.

At this stage therefore, the 70 schemes currently presented in the TIDP are in effect the 'reasonable alternatives' for the plan.

Assessment of the schemes presented in the current consultation version of the TIDP

The assessment has considered the likely environmental effects of 70 schemes currently presented in the consultation version of the TIDP. Findings have been presented through the seven environmental themes developed during scoping, i.e.:

- Air quality
- Biodiversity
- Climate change
- Historic environment
- Landscape
- Land, soil and water resources
- Communities
- Health and wellbeing

Under each of the above environmental themes, assessment findings have been discussed for each potential scheme. In response to the assessment findings, potential mitigation measures have also been proposed, and opportunities identified. This is with a view to informing the ongoing development of the schemes to implementation.

A summary of the assessment findings is presented below. **Detailed assessment findings**, including commentaries, are presented in **Chapter 4** and **Appendix B** of this Environmental Report.

Central Milton Keynes Infrastructure

Table NTS1: Summary of SEA scheme assessment findings: Central Milton Keynes

Central Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing
Scheme 59: High Quality Destination Cycle Parking								
Scheme 1: Redway Expansion within CMK								
Scheme 14: District Centre Public Realm Improvement								
Scheme 40: Bus Interchange								
Scheme 64: Central Car Park Management								
Scheme 61, 62 and 63: CMK Car Parking Review								
Scheme 60: Powered Two-Wheeler Parking								
Scheme 42: CMK Shuttle Bus Trial								
Scheme 43: CMK Bus Only Route								
Scheme 31: Zero Emission Zone								
Key								
Likely adverse effect (without mitigation measures)							Likely positive effect	
Neutral/no effect							Uncertain effects	

Table NTS2: Summary of proposed mitigation measures and enhancement opportunities: Central Milton Keynes

Central Milton Keynes Infrastructure scheme	Mitigation measures and enhancement opportunities
Scheme 59: High Quality Destination Cycle Parking	New cycle parking should be designed and located to support the setting of the historic environment and a high quality townscape in the town centre.
Scheme 1: Redway Expansion within CMK	The scheme should seek to ensure that the 'classic infrastructure' of Central Milton Keynes is conserved and retained.
Scheme 14: District Centre Public Realm Improvement	Public realm enhancements should seek to enhance ecological networks through appropriate planting and green infrastructure enhancements, and where possible, employing the premise of environmental net gain. The scheme should seek to ensure that the 'classic infrastructure' of Central Milton Keynes is conserved and retained.
Scheme 40: Bus Interchange	A new bus interchange should be designed to support a high quality townscape in the town centre.
Scheme 64: Central Car Park Management	None proposed
Scheme 61, 62 and 63: CMK Car Parking Review	None proposed
Scheme 60: Powered Two-Wheeler Parking	New two-wheeler parking provision should be designed and located to support the setting of the historic environment and the quality of the townscape and the built environment in the town centre.
Scheme 42: CMK Shuttle Bus Trial	None proposed
Scheme 43: CMK Bus Only Route	A new bus only route should be designed to support a high quality townscape in the town centre and the setting of the historic environment.
Scheme 31: Zero Emission Zone	None proposed

Urban Milton Keynes Infrastructure

Table NTS3: Summary of SEA scheme assessment findings: Urban Milton Keynes

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing
Scheme 5, 6: Redway Network Upgrades	Green	Blue	Green	Blue	Blue	Yellow	Green	Green
Scheme 3: New Urban Redway Super Routes	Green	Blue	Green	Blue	Blue	Blue	Green	Green
Scheme 59: High Quality Destination Cycle Parking	Green	Yellow	Green	Green	Green	Yellow	Green	Green
Scheme 15: Wayfinding	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Green
Scheme 9, 10: Cycle Hire Schemes	Green	Yellow	Green	Green	Green	Yellow	Green	Green
Scheme 14: District Centre Public Realm Improvement	Green	Green	Green	Green	Green	Yellow	Green	Green
Scheme 8: Bike Loan Schemes	Green	Yellow	Green	Green	Green	Yellow	Green	Green
Scheme 16: Local Community Pedestrian Improvements	Green	Yellow	Green	Green	Green	Yellow	Green	Green
Scheme 7: Grand Union Canal Upgrades	Green	Blue	Green	Green	Green	Yellow	Green	Green
Scheme 19, 20, 21, 22, 23: Travel Planning	Green	Yellow	Green	Green	Green	Yellow	Green	Green

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing
Scheme 28: Urban Car Clubs	Green	Yellow	Green	Green	Green	Yellow	Green	Green
Scheme 25: Multi-Modal Urban Travel Hubs	Green	Blue	Green	Blue	Blue	Yellow	Green	Green
Scheme 98: Variable Message Signage	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Yellow
Scheme 60: Powered Two-Wheeler Parking	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Yellow
Scheme 55: Rail Hubs	Green	Blue	Green	Blue	Blue	Yellow	Green	Green
Scheme 34: Demand Responsive Transit	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green
Scheme 39, 40, 72: Bus Priority Corridors	Green	Blue	Green	Blue	Blue	Yellow	Green	Green
Scheme 16: Premium Bus Network	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green
Scheme 89: SMART Sensors	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green
Scheme 84: UTC Expansion	Green	Yellow	Green	Blue	Blue	Yellow	Green	Green
Scheme 103: Autonomous Deliveries	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Yellow
Scheme 66: On-Street Parking Controls	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green
Scheme 27: Multi-Modal Hospital Travel Hubs	Green	Yellow	Green	Yellow	Blue	Yellow	Green	Green
Scheme 47: Orbital Bus Routes	Green	Yellow	Green	Green	Green	Yellow	Green	Green
Scheme 35, 36, 37: Mass Rapid Transit	Green	Blue	Green	Blue	Blue	Blue	Green	Green
Scheme 32: Park & Ride Sites	Green	Blue	Blue	Blue	Blue	Red	Green	Green
Scheme 53: Salden Chase Rail Station	Green	Blue	Green	Yellow	Blue	Yellow	Green	Green
Scheme 51: Bletchley Chord	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green
Scheme 38: Autonomous People Movers	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green
Scheme 11: Electric Scooters	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green
Scheme 67: Pinch Point Junction Improvements	Blue	Blue	Blue	Blue	Blue	Yellow	Green	Blue
Scheme 69: A5 Kelly's Kitchen Roundabout	Blue	Red	Blue	Red	Blue	Blue	Green	Blue
Scheme 68: A5 Old Stratford Roundabout	Blue	Yellow	Blue	Yellow	Blue	Blue	Green	Blue
Scheme 49: Marston Vale Level Crossing Closures	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green
Scheme 76: Bletchley Southern Bypass	Blue	Red	Red	Blue	Red	Red	Green	Blue
Scheme 65, 101, 102: Urban Logistics Network	Green	Yellow	Green	Green	Green	Yellow	Green	Green

Key

Likely adverse effect (without mitigation measures)	Red	Likely positive effect	Green
Neutral/no effect	Yellow	Uncertain effects	Blue

**Table NTS4: Summary of proposed mitigation measures and enhancement opportunities:
Urban Milton Keynes**

Urban Milton Keynes Infrastructure scheme	Mitigation measures and enhancement opportunities
Scheme 5, 6: Redway Network Upgrades	Enhancements to the Redway Network should seek to limit potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought where possible.
Scheme 3: New Urban Redway Super Routes	Enhancements to the Redway Super Route should seek to limit potential impacts on habitats, species and ecological linkages through appropriate avoidance and mitigation measures. Given the significant opportunities for ecological networks to be improved alongside an expansion of the Super Route network, appropriate planting, green infrastructure provision and other interventions to enhance biodiversity linkages should be secured. In this context the principle of environmental net gain should be applied to the provision of new Redway Super Route infrastructure. Enhancements to the Super Route network should also initiate enhancements to the quality of the public realm and townscape, and seek to conserve and enhance the fabric and setting of the historic environment.
Scheme 59: High Quality Destination Cycle Parking	New cycle parking should be designed and located to support the setting of the historic environment and a high quality townscape.
Scheme 15: Wayfinding	The design and location of signage should seek to support enhancements to townscape quality and the setting of the historic environment
Scheme 9, 10: Cycle Hire Schemes	The design, location and layout of new cycle hire provision should be sensitive to the quality of the townscape and the setting of the historic environment.
Scheme 14: District Centre Public Realm Improvement	Public realm enhancements should seek to enhance ecological networks through appropriate planting and green infrastructure enhancements, and where possible, employing the premise of environmental net gain.
Scheme 8: Bike Loan Schemes	None proposed.
Scheme 16: Local Community Pedestrian Connectivity Improvement	None proposed.
Scheme 7: Grand Union Canal Upgrades	Potential impacts on biodiversity habitats along the route should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored. This is given the Grand Union Canal corridor's role as a key element of Milton Keynes' ecological network. Enhancements to the corridor should be sensitive to the fabric and setting of the historic environment and facilitate opportunities for its enhancement.
Scheme 19, 20, 21,22, 23: Travel Planning	None proposed.
Scheme 28: Urban Car Clubs	None proposed.
Scheme 25: Multi-Modal Urban Travel Hubs	The design and layout of Multi-Modal Urban Travel Hubs should seek to support a high quality public realm and townscape, and support ecological networks in the borough.
Scheme 98: Variable Message Signage	Variable Messaging Signage should be designed and located to limit potential impacts on the quality of the townscape and the setting of the historic environment.
Scheme 60: Powered Two-Wheeler Parking	New two-wheeler parking provision should be designed and located to support the setting of the historic environment and the quality of the townscape and the built environment.

**Urban Milton Keynes
Infrastructure scheme**

Mitigation measures and enhancement opportunities

Scheme 55: Rail Hubs	The design and layout of new rail hub infrastructure should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.
Scheme 34: Demand Responsive Transit	None proposed.
Scheme 39, 40, 72: Bus Priority Corridors	The design and layout of bus priority should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.
Scheme 16: Premium Bus Network	None proposed.
Scheme 89: SMART Sensors	None proposed.
Scheme 84: UTC Expansion	Scheme-related infrastructure and signage should be designed and located to limit potential impacts on the quality of the townscape and the setting of the historic environment.
Scheme 103: Autonomous Deliveries	None proposed.
Scheme 66: On-Street Parking Controls	None proposed
Scheme 27: Multi-Modal Hospital Travel Hubs	None proposed.
Scheme 47: Orbital Bus Routes	None proposed.
Scheme 35, 36, 37: Mass Rapid Transit	The design and layout of infrastructure associated with the proposed Mass Rapid Transit should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.
Scheme 32: Park & Ride Sites	Opportunities for integrating new Park & Ride provision with cycle and pedestrian networks should be maximised. The design and layout of infrastructure associated with new Park & Ride provision should seek to support a high quality public realm and townscape/landscape, and seek to conserve the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.
Scheme 53: Salden Chase Rail Station	Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.
Scheme 51: Bletchley Chord	Opportunities for enhancements to ecological corridors in the area should be explored through scheme development.
Scheme 38: Autonomous People Movers	None proposed.
Scheme 11: Electric Scooters	None proposed.

**Urban Milton Keynes
Infrastructure scheme**

Mitigation measures and enhancement opportunities

Scheme 67: Pinch Point Junction Improvements	<p>Bus priority measures and walking and cycling improvements should be incorporated within junction capacity improvements.</p> <p>Junction capacity improvements should seek to support a high quality public realm and townscape, and seek to conserve and enhance the setting of the historic environment.</p>
Scheme 69: A5 Kelly's Kitchen Roundabout	<p>Potential impacts on biodiversity habitats (including the deciduous woodland present on the site) should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p> <p>Junction capacity improvements at this location should seek to appropriately recognise the potential for archaeological remains in the area, and seek to avoid impacts on significant remains, including associated with the scheduled monument. If this is not possible then such remains should be archaeologically recorded in order to "preserve by record" the significant aspects of the site. This should be informed by an evaluation of the importance and significance of the archaeology on the site.</p>
Scheme 68: A5 Old Stratford Roundabout	<p>Bus priority measures and walking and cycling improvements should be incorporated within junction capacity improvements.</p>
Scheme 49: Marston Vale Level Crossing Closures	<p>None proposed.</p>
Scheme 76: Bletchley Southern Bypass	<p>The potential route of the bypass runs close to three areas of deciduous woodland which have been identified as BAP Priority Habitat and ancient woodland. It also runs close to the Scrub east of Salden Wood Biological Notification Site/Milton Keynes Wildlife Site. These areas should be avoided when determining the final route of the scheme.</p> <p>Potential impacts on landscape character should be minimised through appropriate design and layout and screening.</p>
Scheme 65, 101, 102: Urban Logistics Network	<p>None proposed.</p>

Rural Milton Keynes Infrastructure

Table NTS5: Summary of SEA scheme assessment findings: Rural Milton Keynes

Rural Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing
Scheme 4: Rural Cycle Routes								
Scheme 9, 10: Cycle Hire Schemes								
Scheme 8: Bike Loan Schemes								
Scheme 29: Rural Car Clubs								
Scheme 26: Multi-Modal Rural Travel Hubs								
Scheme 34: Demand Responsive Transit								
Scheme 45: Taxibus								
Scheme 103: Autonomous Deliveries								
Scheme 77: Olney Bypass								
Key								
Likely adverse effect (without mitigation measures)			Likely positive effect					
Neutral/no effect			Uncertain effects					

Table NTS6: Summary of proposed mitigation measures and enhancement opportunities: Rural Milton Keynes

Rural Milton Keynes Infrastructure scheme	Mitigation measures and enhancement opportunities
Scheme 4: Rural Cycle Routes	Enhancements to the rural cycle network should seek to limit potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought where possible. Enhancements to the network should also seek to enhance and complement the quality of the public realm and villagescape quality.
Scheme 9, 10: Cycle Hire Schemes	The design, location and layout of new cycle hire provision should be sensitive to the quality of the landscape and the setting of the historic environment.
Scheme 8: Bike Loan Schemes	None proposed.
Scheme 29: Rural Car Clubs	None proposed.
Scheme 26: Multi-Modal Rural Travel Hubs	The design and layout of Multi-Modal Rural Travel Hubs should seek to support a high quality public realm and townscape, and support ecological networks in the borough. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.
Scheme 34: Demand Responsive Transit	None proposed.

Rural Milton Keynes Infrastructure scheme

Mitigation measures and enhancement opportunities

Scheme 45: Taxibus	None proposed.
Scheme 103: Autonomous Deliveries	None proposed.
Scheme 77: Olney Bypass	<p>Potential impacts on landscape character should be minimised through appropriate design and layout and screening.</p> <p>The benefits of the proposed bypass for the quality of the public realm and historic environment resulting from a reduction in traffic flows in Olney should be 'locked in' through appropriate interventions on the existing route of the A509.</p> <p>Key areas of sensitive biodiversity habitat should be avoided in routing the bypass, and potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through should be addressed through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought, supporting a premise of environmental net gain.</p>

District-wide Milton Keynes Infrastructure

Table NTS7: Summary of SEA scheme assessment findings: District-wide Milton Keynes

District-wide Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing
Scheme 13: Cycle training								
Scheme 24: Car/Cycle Share Scheme								
Scheme 44: Bus Stop Infrastructure								
Scheme 45: Taxibus								
Scheme 93: SMART MK Travel Portal								
Scheme 65: Electric Vehicle Charging Points								
Scheme 94: Superfast broadband								
Scheme 87: Electric Public Transport Fleet								
Scheme 86: MK Council Electric Vehicle Fleet								
Scheme 92: MaaS								
Scheme 90, 91: SMART ticketing								
Scheme 96: Shared Autonomous Vehicle Solution								
Scheme 95: Personal Autonomous Vehicle Solution								
Key								
Likely adverse effect (without mitigation measures)			Likely positive effect					
Neutral/no effect			Uncertain effects					

**Table NTS8: Summary of proposed mitigation measures and enhancement opportunities:
District-wide Milton Keynes**

District-wide Milton Keynes Infrastructure scheme	Mitigation measures and enhancement opportunities
Scheme 13: Cycle training	None proposed.
Scheme 24: Car/Cycle Share Scheme	None proposed.
Scheme 44: Bus Stop Infrastructure	None proposed.
Scheme 45: Taxibus	None proposed.
Scheme 93: SMART MK Travel Portal	None proposed.
Scheme 65: Electric Vehicle Charging Points	None proposed.
Scheme 94: Superfast broadband	None proposed.
Scheme 87: Electric Public Transport Fleet	None proposed.
Scheme 86: MK Council Electric Vehicle Fleet	None proposed.
Scheme 92: MaaS	None proposed.
Scheme 90, 91: SMART ticketing	None proposed.
Scheme 96: Shared Autonomous Vehicle Solution	None proposed.
Scheme 95: Personal Autonomous Vehicle Solution	None proposed.

Strategic Milton Keynes Infrastructure

Table NTS9: Summary of SEA scheme assessment findings: Strategic Milton Keynes

Strategic Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing
Scheme 70: Oxford to Cambridge Expressway	Blue	Red	Red	Red	Red	Red	Green	Blue
Scheme 48: East West Rail	Green	Blue	Green	Yellow	Blue	Yellow	Green	Green
Key								
Likely adverse effect (without mitigation measures)		Red	Likely positive effect				Green	
Neutral/no effect		Yellow	Uncertain effects				Blue	

Table NTS10: Summary of proposed mitigation measures and enhancement opportunities: Strategic Milton Keynes

Strategic Milton Keynes Infrastructure scheme

Mitigation measures and enhancement opportunities

Scheme 70: Oxford to Cambridge Expressway	<p>The development of the expressway should be accompanied by a comprehensive package of avoidance and mitigation measures, as well, where possible, enhancement measures. This should be informed at the project level by a robust EIA process.</p> <p>Potential impacts on landscape character and the setting of the historic environment should be minimised through appropriate design and layout and screening. Key areas of sensitive biodiversity habitat should be avoided in routing the expressway, and potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through should be addressed through appropriate avoidance and mitigation measures. Opportunities to enhance green infrastructure networks along the route should also be sought, supporting a premise of environmental net gain and delivering multifunctional benefits.</p>
Scheme 48: East West Rail	<p>The design and layout of enhanced links to the rail stations should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.</p> <p>Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>

Next steps

Following the closure of the consultation period on the TIDP, comments will be reviewed and analysed. The final TIDP will then be developed, with a view to adoption later in 2019. Any changes arising to the TIDP following consultation will be assessed where they alter the assessment findings presented in this report.

An SEA Adoption Statement will be then published to accompany the adopted TIDP and will present:

- The reasons for choosing the preferred measures for the TIDP as adopted in the light of other reasonable alternatives dealt with;
- How environmental considerations have been integrated into the TIDP;
- How consultation responses have been taken into account; and
- Measures that are to be taken to monitor the significant environmental effects of the TIDP.

1. Introduction

- 1.1 AECOM has been commissioned to undertake an independent Strategic Environmental Assessment (SEA) in support of the Milton Keynes Local Transport Plan 4 (LTP4).
- 1.2 Under the Transport Act 2000, as amended by the Local Transport Act 2008, local authorities in England are required to produce a Local Transport Plan (LTP). The 2008 Act requires that LTPs contain policies and implementation plans.
- 1.3 In this context, the Milton Keynes Local Transport Plan 4 (LTP4) will replace the Local Transport Plan 3 which was adopted in 2011. The umbrella document for the LTP4 is the *Mobility Strategy for Milton Keynes 2018-2036 (LTP4) Mobility for All*. Adopted in 2018, the LTP4 Mobility Strategy set out the strategic framework for the Milton Keynes transport system, along with a series of interventions needed to achieve the growth ambitions outlined in Plan:MK and support the longer-term growth planned by MK Futures 2050.
- 1.4 This SEA Environmental Report accompanies the LTP4's Transport Infrastructure Delivery Plan (TIDP) for consultation. The TIDP, which builds on the *Mobility Strategy*, highlights the key transport challenges and opportunities in Milton Keynes along with the transport infrastructure that needs to be delivered within the short and medium term. This is with a view to enabling growth to come forward sustainably whilst supporting the existing local communities.
- 1.5 Key information relating to the TIDP is presented in **Table 1.1** below.

Table 1.1: Key facts relating to the Transport Infrastructure Delivery Plan

Name of Responsible Authority	Milton Keynes Council
Title of Plan	Milton Keynes LTP4 Transport Infrastructure Delivery Plan (TIDP)
Subject	Transport plan
Purpose	The TIDP implements Milton Keynes' overarching LTP4 Mobility Strategy through identifying the potential transport infrastructure schemes that should be delivered in the borough in the period to 2031 (and, where relevant beyond to 2050).
Timescale	2019-2031
Area covered by the plan	The TIDP area covers the administrative area of Milton Keynes (see Figure 1.1)
Summary of content	The TIDP set out which transport schemes Milton Keynes intends to deliver during the LTP4 plan period, and how these schemes will be funded.
Contact point	James Povey Strategic Lead Transport Policy & Planning Milton Keynes Council Civic Offices 1 Saxon Gate East Central Milton Keynes MK9 3EJ Email: James.Povey@milton-keynes.gov.uk

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LEGEND

 Milton Keynes Boundary



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Purpose of Issue **FINAL**

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MILTON KEYNES COUNCIL

Project Title
SEA SCOPING REPORT FOR THE MILTON KEYNES LOCAL TRANSPORT PLAN 4

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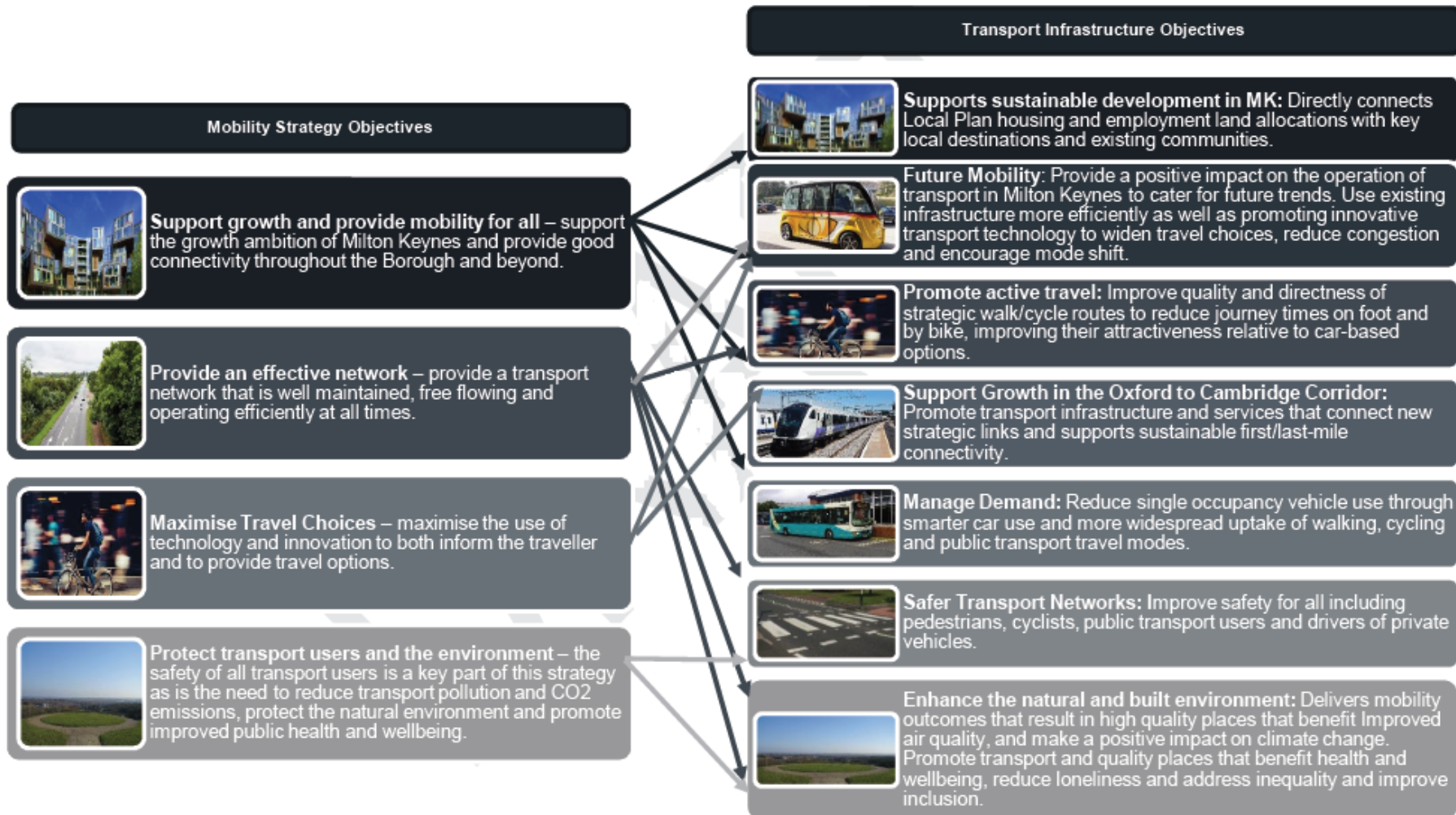
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FIGURE 1.1

Rev
01

File Name: 160311001_MiltonKeynesCouncilFigure 1.1 - Milton Keynes Borough Boundary (Rev 01).mxd

Priorities and objectives for the Transport Infrastructure Delivery plan

1.6 The overall objectives of the transport infrastructure identified in the TIDP are set out below. These infrastructure objectives are linked to the Mobility Strategy objectives to highlight the integrated approach to infrastructure delivery which is being adopted in Milton Keynes through the LTP4.



SEA explained

- 1.7 SEA is a mechanism for considering and communicating the environmental impacts of an emerging plan and potential alternatives. The aim of SEA is to inform and influence the plan-making process with a view to avoiding and mitigating negative impacts. Through this approach, the SEA seeks to maximise the environmental performance of the TIDP.
- 1.8 An SEA is required for Local Transport Plans in accordance with the procedures prescribed by the Environmental Assessment of Plans and Programmes Regulations 2004³.
- 1.9 Two key procedural requirements of the SEA Regulations are that:
 - When deciding on 'the scope and level of detail of the information' which must be included in the SEA Environmental Report there is a consultation with nationally designated authorities concerned with environmental issues; and
 - A report (the 'Environmental Report') is published for consultation alongside the Draft Plan that presents an assessment
- 1.10 This Environmental Report is concerned with the second point above. Scoping is discussed (the first point) is discussed in Chapter 2 below.

This Environmental Report

- 1.11 The SEA Regulations require that a report is published for consultation alongside the draft plan that 'identifies, describes and evaluates' the likely significant effects of implementing 'the plan, and reasonable alternatives'. The report must then be taken into account, alongside consultation responses, when finalising the plan.
- 1.12 In line with the SEA Regulations this report - which is known as the 'Environmental Report' – must essentially answer four questions:
 - What is the scope of the SEA?
 - What has Plan-making / SEA involved up to this point?
 - Preparation of the draft plan must have been informed by at least one earlier plan-making / SEA iteration. 'Reasonable alternatives' must have been assessed.
 - What are the assessment findings at this current stage?
 - i.e. in relation to the draft plan.
 - What happens next?
- 1.13 These questions are derived from Schedule 2 of the SEA Regulations, which present 'the information to be provided within the report. Table 1.2 presents the linkages between the regulatory requirements and the four SEA questions.

³ Directive 2001/42/EC <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042>

Table 1.2: Questions that must be answered by the Environmental Report in order to meet Regulatory⁴ requirements

Environmental Report question	In line with Schedule II the report must include...
What is the plan seeking to achieve?	An outline of the contents, main objectives of the plan and relationship with other relevant plans and programmes
What is the scope of the SEA?	The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan
	The environmental characteristics of areas likely to be significantly affected
	Any existing environmental problems which are relevant to the plan including those relating to any areas of a particular environmental importance
What are the key issues and objectives that should be a focus?	Key problems / issues and objectives that should be a focus of (i.e. provide a 'framework' for) assessment
What has plan-making / SEA involved up to this point?	Outline reasons for selecting the alternatives dealt with (and thus an explanation of the 'reasonableness' of the approach)
	The likely significant effects associated with alternatives Outline reasons for selecting the preferred approach in-light of alternatives assessment / a description of how environmental objectives and considerations are reflected in the draft plan.
What are the assessment findings at this current stage?	The likely significant effects associated with the draft plan
	The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects of implementing the draft plan
What happens next?	The next steps for plan making / SA process.

N.B. The right-hand column of Table 1.2 does not quote directly from Schedule II of the Regulations. Rather, it reflects a degree of interpretation.

⁴ Environmental Assessment of Plans and Programmes Regulations 2004

2. What is the scope of the SEA?

SEA Scoping Report

- 2.1 The SEA Regulations require that 'When deciding on the scope and level of detail of the information that must be included in the Environmental Report, the responsible authority shall consult the consultation bodies'. In England, the consultation bodies are Natural England, the Environment Agency and Historic England.⁵ As such, these authorities were consulted on an SEA Scoping Report in February 2019.
- 2.2 The SEA Scoping Report presented information for the following eight environmental themes:
- Air quality;
 - Biodiversity and geodiversity;
 - Climate change;
 - Historic environment;
 - Landscape;
 - Land, soil and water resources;
 - Communities; and
 - Health and wellbeing.
- 2.3 These environmental themes incorporate the 'SEA topics' suggested by Annex I(f) of the SEA Directive⁶ and reflect the purpose of the TIDP and its potential environmental effects.
- 2.4 Comments received on the Scoping Report, and how they have been considered and addressed through the ongoing development of the SEA process, are presented in Table 2.1.

Table 2.1 Consultation responses received on the SEA Scoping Report

Consultation response	How the response was considered and addressed
Natural England	
<i>Response received via email on 15th February 2019 from Eleanor Sweet-Escott: Lead Adviser, Sustainable Development Thames Team</i>	
In general, we are happy that the report covers all the matters we would wish to see, including objectives for the nationally designated sites, protected species, priority habitats and agricultural land quality. Please see Natural England's standing advice on protected species for further information to inform the process.	Comment noted
The objectives within the Air Quality chapter would benefit from an objective to minimise potential negative effects from air pollution on nationally designated sites. This could also be included/referenced within the Biodiversity chapter.	The SEA Framework for the air quality SEA theme has been updated to include the following assessment question: "Will the option/proposal help to minimise potential negative effects from air pollution on designated sites for biodiversity?"

⁵ In line with Article 6(3) of the SEA Directive, these consultation bodies were selected because 'by reason of their specific environmental responsibilities, [they] are likely to be concerned by the environmental effects of implementing plans and programmes.'

⁶ The SEA Directive is 'of a procedural nature' (para 9 of the Directive preamble) and does not set out to prescribe particular issues that should and should not be a focus, beyond requiring a focus on 'the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors' [our emphasis]

Consultation response

How the response was considered and addressed

<p>There are some significant areas of 'best and most versatile' agricultural land within the Plan area, in particular to the south east of Milton Keynes in the areas identified in 7.7 of the SEA Scoping report. For proposals involving transport infrastructure, you should seek to use areas of poorer quality agricultural land in preference to that of a higher quality in line with National Planning Policy Framework para 170. For more information, see our publication 'Agricultural Land Classification: protecting the best and most versatile agricultural land'.</p>	<p>Comment noted</p>
<p>The transport plan has the potential to affect access and recreation in the district. Natural England encourages any proposal to incorporate measures to help encourage people to access the countryside for quiet enjoyment. Measures such as reinstating existing footpaths together with the creation of new footpaths and bridleways are to be encouraged. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Relevant aspects of local authority green infrastructure strategies should be incorporated where appropriate. We support the inclusion of the objectives relating to access and recreation.</p>	<p>Comment noted</p>
<p>Historic England</p>	
<p><i>Response received via email on 7th March 2019 from Martin Small: Principal Adviser, Historic Environment Planning (Bucks, Berks, Oxfordshire, Hampshire, IoW, South Downs NP and Chichester)</i></p>	
<p>General advice on Sustainability Appraisal and the historic environment is set out in Historic England's Advice Note 8 "Sustainability Appraisal and Strategic Environmental Assessment": https://www.historicengland.org.uk/images-books/publications/sustainability-appraisal-and-strategic-environmental-assessment-advice-note-8/.</p>	<p>Comment noted</p>
<p>We are pleased to see the historic environment as a key SEA theme in its own right. We also welcome the key messages identified from the National Planning Policy Framework in paragraph 5.1. However, we suggest adding "Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification" (paragraph 194 of the Framework) as another key message.</p>	<p>The policy context within the 'Historic Environment' section of Appendix A has been updated to include the key message from the NPPF.</p>
<p>In paragraph 5.10, we suggest adding "the character or appearance of which it is desirable to conserve or enhance" after "Conservation areas are designated because of their special architectural and historic interest".</p>	<p>Recommended text has been included, as suggested.</p>
<p>In paragraph 5.13, we consider that it would be worth explaining that, although published annually, Historic England's Heritage at Risk Register is continually being updated and so assets can be added to or removed from the Register at any time, explicitly outside London, does not include Grade II listed secular buildings or places of worship used less than six times a year for worship. Has</p>	<p>Acknowledged within the Historic Environment section of Appendix A, the absence of a Grade II listed building survey is a gap in the existing baseline data.</p>

Consultation response

How the response was considered and addressed

the Council undertaken a survey of Grade II buildings in Milton Keynes to see if any are at risk? If not, this should be identified as a gap in the baseline.

We welcome, in principle, the SEA Objective for the historic environment theme, although we would suggest that it be "Conserve or enhance Milton Keynes's cultural heritage resource....." as three of the Assessment Questions refer to "conserve" rather than "preserve".

The SEA Objective has been updated to state "conserve" rather than "preserve".

Environment Agency

No comments received

Key issues for the SEA and SEA Framework

- 2.5 The SEA Scoping Report identified a range of sustainability problems / issues that provide the focus of the SEA process. Presented by each of the seven environmental themes, this drew on the review of the sustainability context and baseline.
- 2.6 The key issues were then translated into an SEA Framework of objectives and assessment questions. The SEA Framework provides a methodological framework for the assessment of likely significant effects on the baseline. This enables the environmental effects of the TIDP and alternatives to be defined and subsequently analysed based on a structured and consistent approach.
- 2.7 The key issues, objectives and assessment questions for each environmental theme are presented in Table 2.2.

Table 2.2 Key environmental issues and SEA Framework

SEA Theme	Key issues identified at scoping	SEA objective	Assessment Questions (Will the option/proposal help to...)
Air quality	<p>There is one AQMA within Milton Keynes, which has been designated for exceedances in the annual mean concentration objective of 40µg/m³ for nitrogen dioxide (NO₂).</p> <p>Cars and heavy goods vehicles (HGVs) are key contributors to nitrogen dioxide levels in Milton Keynes.</p> <p>Actions to address issues identified in the AQAP and ASR within the borough will directly impact levels of NO₂ and as such the success of the AQAP. The 2017 Air Quality Annual Status Report (ASR) concluded that in 2016 all air quality objectives were achieved at all monitoring locations throughout the borough, including those within the Olney AQMA. This could potentially lead to the revocation of the AQMA.</p>	<p>Deliver improvements in air quality in Milton Keynes</p>	<ul style="list-style-type: none"> • Reduce emissions of pollutants from transport? • Improve air quality within the designated AQMA? • Promote the use of low emission vehicles? • Promote enhancements in sustainable modes of transport, including walking, cycling and public transport? • Support enhancements to green infrastructure networks? • Minimise potential negative effects from air pollution on designated sites for biodiversity?
Biodiversity and geodiversity	<p>There are no European sites designated for biodiversity within or immediately adjacent to Milton Keynes</p> <p>Three SSSIs lie within Milton Keynes: Oxley Mead SSSI, Howe Park Wood SSSI and Yardley Chase SSSI. A number of other SSSIs lie adjacent to Milton Keynes</p> <p>There is one Local Nature Reserves (LNRs) within Milton Keynes which is Blue Lagoon, Bletchley</p> <p>There are fifteen designated Milton Keynes Wildlife Sites which have been designated on account of their special features or habitat, plant or animal communities, species or geology</p> <p>There are currently 15 Milton Keynes Wildlife Sites as well as a number of Biodiversity Action Plan (BAP) habitats within Milton Keynes</p> <p>Transport infrastructure enhancements have the potential to place increasing pressures on habitats and species and ecological networks in Milton Keynes.</p>	<p>Support the integrity of nationally and locally designated sites</p> <hr/> <p>Protect and enhance habitats and species in Milton Keynes</p> <hr/> <p>Minimise the potential for negative cumulative and synergistic effects resulting from the in-combination effects of LTP4 proposals and new development areas in Milton Keynes</p>	<ul style="list-style-type: none"> • Protect the integrity of the nationally designated SSSIs in and surrounding Milton Keynes? • Manage pressures on locally designated and regionally important sites for biodiversity and geodiversity in Milton Keynes? <hr/> <ul style="list-style-type: none"> • Protect and enhance semi-natural habitats? • Protect and enhance priority habitats, and the habitat of priority species? • Achieve a net gain in biodiversity? • Increase the resilience of Milton Keynes biodiversity to the potential effects of climate change? <hr/> <ul style="list-style-type: none"> • Limit the effects of new transport infrastructure on biodiversity? • Support enhancements to multifunctional green infrastructure networks? • Support access to, interpretation and understanding of biodiversity and geodiversity?

SEA Theme	Key issues identified at scoping	SEA objective	Assessment Questions (<i>Will the option/proposal help to...</i>)
Climate change	<p>Milton Keynes has recorded consistently higher greenhouse gas emissions per capita than both the South East and England since 2005. However, Milton Keynes has seen a slightly greater average reduction in emissions per capita between 2005 and 2016 than its regional and national counterparts. Regarding transport emissions, Milton Keynes has recorded higher emissions per capita than the South East and England but again has seen a greater average reduction between 2005 and 2016 compared to regional and national trends.</p> <p>A range of flood risk issues exist across Milton Keynes, including linked to fluvial, surface water, and groundwater flooding. The transport network can in many cases contribute to flood risk in the borough.</p> <p>The transport network has the potential to become increasingly vulnerable to the potential effects of climate change in forthcoming years. As such the resilience of the transport network to the likely impacts of climate change will be a key factor in its effective functioning.</p>	<p>Support climate change mitigation in Milton Keynes through limiting the contribution of transport to greenhouse gas emissions in the borough.</p> <hr/> <p>Support the resilience of Milton Keynes transport networks to the potential effects of climate change</p>	<ul style="list-style-type: none"> • Limit the increase in the carbon footprint resulting from new transport infrastructure provision? • Promote the use of sustainable modes of transport, including walking, cycling and public transport? • Reduce the need to travel? • Reduce energy consumption from non-renewable resources? • Encourage the update of electric and alternatively fuelled vehicles? <hr/> <ul style="list-style-type: none"> • Increase the resilience of the transport network to the potential effects of climate change? • Promote a coordinated approach to the management of flood risk across public infrastructure provision? • Improve and extend green infrastructure networks as part of transport infrastructure provision to support adaptation to the potential effects of climate change? • Sustainably manage water run-off, reducing surface water runoff? • Ensure the potential risks associated with climate change are considered through new transport network programmes? • Increase the resilience of biodiversity in Milton Keynes to the effects of climate change, including enhancements to ecological networks (e.g. through the use of green bridges / tunnels)?
Historic Environment	<p>There are a variety of heritage assets within Milton Keynes including 18 Grade I, 48 Grade II* and 1,046 Grade II listed buildings, three historic parks and gardens and 27 conservation areas.</p> <p>There are 49 scheduled monuments within Milton Keynes.</p> <p>The fabric and setting of heritage assets in Milton Keynes are sensitive to enhanced transport infrastructure.</p>	<p>Conserve and enhance Milton Keynes' cultural heritage resource, including its historic environment and archaeological assets</p>	<ul style="list-style-type: none"> • Conserve and enhance the significance of buildings and structures of architectural or historic interest, both designated and non-designated, and their setting? • Conserve and enhance the special interest, character and appearance of conservation areas and their settings? • Support access to, interpretation and understanding of the historic environment? • Conserve and enhance archaeological remains and support the undertaking of archaeological investigations and, where appropriate, recommend mitigation strategies?

SEA Theme	Key issues identified at scoping	SEA objective	Assessment Questions (<i>Will the option/proposal help to...</i>)
Landscape	<p>Milton Keynes crosses three different National Character Areas: Bedfordshire and Cambridgeshire Claylands NCA, Northampton Vales NCA and Yardley Whittlewood Ridge NCA.</p> <p>A Landscape Character Assessment was undertaken for Milton Keynes in 2016 which classifies the landscape of the borough into 17 Landscape Character Types.</p> <p>Milton Keynes lies adjacent to the London Metropolitan Greenbelt.</p> <p>New transport infrastructure has the potential to have an impact on local landscape character.</p>	<p>Protect and enhance the character and quality of Milton Keynes' landscapes and townscapes.</p>	<ul style="list-style-type: none"> • Support the management of greenspace and parks in Milton Keynes? • Support the distinctiveness of the LCAs within Milton Keynes? • Conserve and enhance locally important landscape features within Milton Keynes? • Improve accessibility to Milton Keynes landscape resources?
Land, Soil and Water Resources	<p>New transport infrastructure has the potential to directly or indirectly lead to the loss of areas classified as the best and most versatile agricultural land in Milton Keynes.</p> <p>New transport infrastructure has the potential to modify water flow regimes and lead to effects on water quality. Increased use of existing transport infrastructure, which may not be designed to current standards, has the potential to lead to a deterioration of water quality in controlled waters.</p> <p>The construction, maintenance and operation of transport infrastructure should seek to reduce the amount of primary materials required, make beneficial use of surplus materials and minimise the landfill disposal of waste generated throughout the asset's lifecycle.</p>	<p>Ensure the efficient and effective use of land</p> <hr/> <p>Promote sustainable waste management solutions that encourage the reduction, re-use and recycling of waste during construction</p> <hr/> <p>Manage Milton Keynes' water resources in a sustainable manner.</p>	<ul style="list-style-type: none"> • Facilitate the use of previously developed land? • Avoid the development of the best and most versatile agricultural land (Grade 1 to 3a agricultural land)? <hr/> <ul style="list-style-type: none"> • Encourage recycling of materials and minimise consumption of resources during construction, operation and maintenance of new transport infrastructure? • Encourage the use of alternative transport methods for the movement of waste in the county? <hr/> <ul style="list-style-type: none"> • Support improvements to water quality? • Help to minimise diffuse surface water pollution? • Protect surface water and groundwater resources?

SEA Theme	Key issues identified at scoping	SEA objective	Assessment Questions (<i>Will the option/proposal help to...</i>)
Communities	<p>The population of Milton Keynes increased by 20.2% between 2001 and 2011. This is greater than the percentage growth in population in the South East (7.9%) and England (7.9%).</p> <p>Generally, there are a slightly higher proportion of residents within the working age categories (25-44 and 45-59) in Milton Keynes (51.1%) in comparison to the totals for the South East of England (46.4%) and England (46.9%).</p> <p>A smaller proportion of residents in Milton Keynes use public transport compared to the South East and England.</p> <p>The most popular method of travelling to work in Milton Keynes is via car or van and there is a need to encourage a modal shift from reliance on private vehicles towards alternative modes of transport.</p>	Promote sustainable transport use and reduce the need to travel	<ul style="list-style-type: none"> • Encourage modal shift to more sustainable forms of travel? • Reduce the need to travel?
		Delivery of a transport infrastructure to meet the foreseeable needs of the varied communities of Milton Keynes	<ul style="list-style-type: none"> • Improve accessibility to services, facilities and amenities? • Meet the needs of a growing population? • Address the needs of all age groups? • Maintain or enhance the quality of life of residents?
		Support sustainable economic development in Milton Keynes	<ul style="list-style-type: none"> • Support sustainable economic development? • Improve accessibility to employment opportunities?
Health and wellbeing	<p>Health levels are favourable compared to averages in the South East and England.</p> <p>13.9% of residents in Milton Keynes reported that their daily activities were limited in some way, which is, 1.8% lower than the total for the South East of England and 3.9% lower than the national average.</p>	Improve the health and well-being of Milton Keynes residents.	<ul style="list-style-type: none"> • Reduce the impacts of air and noise pollution from transport on health? • Promote accessibility to a range of leisure, health and community facilities, for all age groups? • Encourage healthy lifestyles and reduce health inequalities? • Enhance the provision of, and access to, green infrastructure in the county, in accordance with national standards? • Improve access to the countryside and open space for recreation?
		Enhance road safety in Milton Keynes	<ul style="list-style-type: none"> • Improve road safety and reduce road accidents?

3. Assessment of reasonable alternatives for the TIDP

Reasonable alternatives in SEA

- 3.1 A key element of the SEA process is the assessment of 'reasonable alternatives' for the TIDP. The SEA Regulations⁷ are not prescriptive as to what constitutes a reasonable alternative, stating only that the Environmental Report should present an appraisal of the '*plan and reasonable alternatives taking into account the objectives and geographical scope of the plan*'.

Development of schemes for delivering through the TIDP

- 3.2 As discussed in Chapter 1, the TIDP sits within the framework of the overarching LTP4 document, the Mobility Strategy. As such, the overarching strategy leading the TIDP has already been determined.
- 3.3 For this reason, there are no appropriate reasonable alternatives to be considered relating to the overall strategy within which the TIDP sits. Instead the key decisions to be made relating to the TIDP regard the schemes and projects which can potentially be implemented through the plan. These are therefore the focus of the assessment of reasonable alternatives undertaken through the current SEA process.

Schemes considered for the TIDP

- 3.4 To support the development of the TIDP, Milton Keynes Council has considered a range of schemes for delivery through the plan period to 2031. During the first stage of this process the Council considered a 'long list' of 103 potential transport schemes.
- 3.5 These were considered through a Multi Criteria Appraisal Framework (MCAF) that assessed the likely impact of each option against the seven study specific scheme objectives and relevant strategic themes from the DfT Early Assessment and Sifting Tool (EAST).
- 3.6 From this exercise 70 schemes were identified as potential options to take forward through the TIDP.
- 3.7 The schemes proposed in the current version of the TIDP are not however the finalised list of schemes that will be implemented in the borough. Before implementation, the following steps will need to be undertaken:
- further engagement with stakeholders;
 - public consultation on draft recommendations;
 - ensuring that the schemes align with stakeholders' existing and emerging strategies;
 - undertaking feasibility assessments to ensure the scheme is deliverable;
 - undertaking a high-level costing exercise to assist with identifying and securing scheme funding;
 - scheme impact assessment; and

⁷ Environmental Assessment of Plans and Programmes Regulations 2004

- Business Case development.
- 3.8 In this context the TIDP will therefore be a 'living plan' that will regularly be reviewed throughout the plan period as further studies are undertaken and as more detail on proposed schemes become available. This will include: updates to the list of planned improvement schemes; additional clarity and detail on the scheme proposals; updates to delivery timescales; and updates to scheme funding sources.
- 3.9 At this stage therefore, the 70 schemes currently presented in the TIDP are in effect the 'reasonable alternatives' for the plan. These schemes are assessed in the following chapter of this Environmental Report.

4. Assessment of the current version of the TIDP

Background

- 4.1 The Environmental Report must include:
- The likely significant effects associated with the draft plan approach; and
 - The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects of implementing the draft plan approach.
- 4.2 This section of the Environmental Report therefore presents assessment findings in relation to the current consultation draft of the TIDP through presenting an assessment of the 70 schemes currently put forward through the plan. This is accompanied by a set of proposed mitigation and enhancement measures designed to offset the potential significant adverse effects identified.

Current version of the TIDP

- 4.3 At the current stage, Milton Keynes Council is consulting a full draft of the TIDP. As discussed above, the draft plan presents a vision and strategic objectives for the TIDP and supporting options. The options comprise a series of potential transport schemes and initiatives for different parts of Milton Keynes, and are grouped under the following:
- Central Milton Keynes Infrastructure
 - Urban Milton Keynes Infrastructure
 - Rural Milton Keynes Infrastructure
 - District-wide Milton Keynes Infrastructure
 - Strategic Milton Keynes Infrastructure
- 4.4 The schemes and initiatives are as follows.

Table 4.1 TIDP schemes

Scheme ID	Scheme name	Infrastructure category	Scheme description
59	High Quality Destination Cycle Parking	Central Milton Keynes	Implementation of secure, covered, high-quality cycle parking at key destinations including: regional centres; CMK; schools; nurseries and employment sites.
1	Redway Expansion within CMK	Central Milton Keynes	Expansion of the existing Redway cycle routes into CMK. The extensions would provide direct, high-quality segregated cycle routes and can be packaged with access to High-Quality Destination Cycle Parking (Option 59).
14	District Centre Public Realm Improvement	Central Milton Keynes	Improve connectivity in district centres including between public transport interchanges through improvements to the public realm. Reducing the car dominance and improving connectivity will bring social, environmental and economic benefits along with the opportunity for new community and commercial land-uses.
46	Bus Interchange	Central Milton Keynes	Bus interchange hub in CMK. A new bus interchange accessible from Redway routes / expansions, including cycle facilities (lockers, cycle parking) and real-time travel information. The location and design of the new interchange needs to be future-proofed to facilitate the introduction of a mass transit scheme.
64	Central Car Park Management	Central Milton Keynes	Review and revise the Central MK car parking management, including simplifying the types of car parking, reviewing the car parking charges and adopting a data led approach to demand management (increasing EV spaces). This could include dynamic supply/demand charging regime supported by Option 89 (SMART Sensors).
61, 62, 63	CMK Car Parking Review	Central Milton Keynes	Undertake a CMK parking review study to understand where demand may increase and the potential for capped or reduced parking provision to support modal shift ambitions.
60	Powered Two-Wheeler Parking	Central Milton Keynes	Implementation of secure high-quality powered two-wheeler (scooters and motorcycle) parking at key destinations in CMK. The powered two-wheeler parking should be secure (hoops for locks), well-overlooked and provide for a range of powered two-wheelers.
42	CMK Shuttle Bus Trial	Central Milton Keynes	Review the CMK shuttle bus trial provided by the Business Improvement District for employees. If successful the scheme would be implemented on a permanent basis, with upgrades to the service being implemented as technology advances, for example, Autonomous People Movers (Option 38).
43	CMK Bus Only Route	Central Milton Keynes	A public transport only spine route (Midsummer Boulevard) through Central MK (banning all private car access). As technology evolves this could be used by Autonomous People Movers (Option 38). Could also evolve into a mobility corridor providing a direct walk and cycle spine through CMK.
31	Zero Emission Zone	Central Milton Keynes	Introduction of a Zero Emission Zone across CMK, banning the use of all petrol and diesel vehicles from the designated area. This option could be implemented in phases, excluding the most polluting vehicles from a smaller area initially, before increasing the area and vehicle types excluded from the central area as electric vehicle ownership increases and technology advances.

Scheme ID	Scheme name	Infrastructure category	Scheme description
5,6	Redway Network Upgrades	Urban Milton Keynes	Upgrade the Redway network including improved wayfinding; widening; cycle priority at junctions / side roads; surface quality enhancements; improving lighting (Council's city-wide LED street lighting programme); providing CCTV and taking opportunities to improve junction safety, reduce the number of crossings and remove street furniture obstructions.
3	New Urban Redway Super Routes	Urban Milton Keynes	Expansion of the Redway Super Routes programme to provide additional links along key routes and desire lines.
59	High Quality Destination Cycle Parking	Urban Milton Keynes	Implementation of secure, high-quality cycle parking at key destinations including: regional centres; schools; nurseries and employment sites.
15	Wayfinding	Urban Milton Keynes	Implementation of a comprehensive wayfinding scheme, for Milton Keynes. The wayfinding scheme would provide a consistent set of information totems with local maps, walking and cycling times and directions to key local destinations. The wayfinding markers would be situated in key strategic locations on the main pedestrian and cycle routes (Redways), transport hubs and destinations.
9, 10	Cycle Hire Schemes	Urban Milton Keynes	Expand and promote cycle hire schemes (Santander, Lime, Dockless Bikes) to cover a larger area. New hire stations can be incorporated into existing and new developments, local centres and transport hubs. If legislation and technology advances this could expand to include electric scooters (Option 11).
14	District Centre Public Realm Improvement	Urban Milton Keynes	Improve connectivity in district centres including between to public transport interchanges through improvements to the public realm. Reducing the car dominance and improving connectivity will bring social, environmental and economic benefits along with the opportunity for new community and commercial land-uses.
8	Bike Loan Scheme	Urban Milton Keynes	Introduction of a cycle loan scheme (implemented and operated by Milton Keynes Council or a partner organisation). The scheme would include a range of cycles to suit all individuals, including adapted cycles and e-Bikes. The would be available direct from the scheme provider. Initiatives, such as trial periods, free hire to the unemployed and reduced prices for low-income groups could be implemented to encourage uptake.
16	Local Community Pedestrian Connectivity Improvement	Urban Milton Keynes	Package of local walking connections to enable improved local community connectivity. Implementation of a permeable network of direct, open and overlooked pedestrian routes that embrace the principles of the Manual for Streets. The pedestrian routes would be attractive to users by providing local connectivity to schools, shops, bus stops and adjacent residential areas and communities. The pedestrian network could provide high-quality at grade crossings that reduce the existing severance caused by the grid road network between neighbouring communities.
7	Grand Union Canal Upgrade	Urban Milton Keynes	Upgrade the quality of the Grand Union Canal towpath, through Milton Keynes to Wolverton Railway Station, in order to improve connectivity and accessibility and encourage walking and cycling. Potential upgrade measures include improving access, surface quality enhancements; cutback of overhanging and overgrown vegetation; improving lighting and providing CCTV along the route for safety purposes.

Scheme ID	Scheme name	Infrastructure category	Scheme description
19, 20, 21, 22, 23	Travel Planning	Urban Milton Keynes	Smarter Choices Travel Planning Team to work with schools, residential developers and employers to encourage travel behaviour change through the delivery of strategies (Travel Plans) and initiatives to decrease car dependency and increase sustainable travel.
28	Urban Car Clubs	Urban Milton Keynes	Expansion of car clubs across Milton Keynes, located at new developments, community centres, employment locations, and CMK. Car clubs are a cheaper alternative to owning your own vehicle, and only require a membership to a car club company to get started. Use of the vehicles is carried out through online booking systems or on the telephone.
25	Multi-Modal Urban Travel Hubs	Urban Milton Keynes	Multi-modal travel hubs would provide access to sustainable transport options. Urban Travel Hubs would provide: access to bus and Redway routes, car parking; cycle facilities (lockers, cycle parking) and real-time travel information. This option could also provide car-club vehicles, car-share pick-up points, cycle-hire, electric cycles and Demand Responsive Transit pick-up points.
88	Variable Message Signage	Urban Milton Keynes	Provision of city-wide Variable Messaging Signs (VMS) located on the main radial routes into Milton Keynes and throughout CMK, in order to encourage efficient usage of the existing car parking provision and routing through the city.
60	Powered Two-Wheeler Parking	Urban Milton Keynes	Implementation of secure high-quality powered two-wheeler (scooters and motorcycle) parking at key existing destinations including: regional centres; CMK; and key employment sites. The powered two-wheeler parking should be secure (hoops for locks), well-overlooked and provide for a range of powered two-wheelers.
55	Rail Hubs	Urban Milton Keynes	Milton Keynes West Coast Mainline station improvements including enhanced cycle access, high-quality cycle facilities (lockers, cycle parking, tools and pumps); high-quality bus and taxi interchange facilities and real-time travel information. This option could also provide car-club vehicles, cycle hire, electric cycles and Demand Responsive Transit pick-up points.
34	MK Demand Responsive Transit	Urban Milton Keynes	Expansion of Demand Responsive Transit (DRT) bus services, operated on a commercial basis. DRT is a form of micro-mass transit. Shared minibuses are booked, on demand, using a smartphone application, internet portal or by telephone. The shared minibus is then routed to collect passengers and take them to their destinations. A trial is currently in place in Milton Keynes with ViaVan, which, if successful, could be expanded across a Milton Keynes.
39, 40, 72	Bus Priority Corridors	Urban Milton Keynes	Bus priority measures to support bus service enhancements (Option 41). Option would include corridor improvements to junctions, implementation of extensive bus lanes / segregated routes and enhanced bus stop infrastructure. Bus lane usage policy will also be reviewed. Where bus priority measures are introduced, consideration will be given to permitting other vehicle classes to use the infrastructure where this aligns with the strategy.
41	Premium Bus Network	Urban Milton Keynes	Implementation of a premium bus network. This could be achieved by providing higher frequency services (every 10-15 minutes), operating throughout the week from early in the morning to late at night. The network would be branded, use high-quality vehicles (Wi-Fi and leather seats), potentially electric powered (Option 87). The option is supported by Bus Priority Corridors (Option 40), and Integrated Ticketing (Option 91).

Scheme ID	Scheme name	Infrastructure category	Scheme description
89	SMART Sensors	Urban Milton Keynes	Installation of SMART Sensors covering roads, Redways and parking spaces to enable the collection of real-time information. This data can then be linked to transport models, monitoring transport scheme impacts, network resilience, air quality, traffic conditions, asset maintenance, emergency planning, and providing open data to transport network users via a SMART Milton Keynes Travel Portal (Option 93) including car parking space availability, bus locations and dynamic vehicle routing.
84	UTC Expansion	Urban Milton Keynes	Expansion of the Urban Traffic Management Control System. This will include signalised bus priority measures at key pinch-point junctions (Option 40), signalisation at junctions and traffic and cycle counters. This option aims to gather data and maximise junction efficiency with the ability to monitor success.
103	Autonomous Deliveries	Urban Milton Keynes	Expansion of the autonomous 'last mile' delivery trial across Milton Keynes. The Co-op are currently trialling the use of hi-tech six-wheeled driving machines to deliver groceries ordered on a smartphone to customers. The use of autonomous / remote-controlled robot delivery vehicles could be expanded to other companies / services, including; pharmaceuticals, library services, groceries and electronic commerce (for example, Amazon deliveries).
66	On-street Parking Controls	Urban Milton Keynes	Implementation of on-street parking controls in locations that suffer from high-levels of on-street parking stress, in order to control and manage parking and encourage modal shift to more sustainable travel modes. To improve parking provision for residents, a permit-based system could be introduced.
27	Multi-Modal Hospital Travel Hub	Urban Milton Keynes	Multi-modal travel hub at Milton Keynes University Hospital providing access to sustainable transport options. The Travel Hub would provide: a bus interchange; high-quality waiting facilities; cycle-hire points; cycle parking; car-share points and Demand Responsive Transit pick-up points.
47	Orbital Bus Routes	Urban Milton Keynes	The existing network of bus routes are largely radial from CMK. This option will review the existing bus routes, and assess the opportunity to introduce orbital bus services to improve connectivity between jobs, homes, retail and leisure developments.
35, 36, 37	Mass Rapid Transit	Urban Milton Keynes	Implementation of a high-quality Mass Transit Scheme delivering a fast and attractive service on segregated routes across Milton Keynes, potentially linked to Park & Ride Sites (Option 32) and Travel Hubs (Options 25 & 26). The system would provide: dedicated running lanes; priority at junctions; distinctive stops with real-time passenger information; cashless payment systems (Option 90) and network branding.
32	Park and Ride Sites	Urban Milton Keynes	Implementation of Park & Ride sites strategically located at key radial locations into Milton Keynes. The sites would provide access to high frequency bus services and could also include access to bicycles (Park and Pedal). Suitable bus priority (Option 39 & 40) will be needed to support continued route development and reliability.
53	Salden Chase Rail Station	Urban Milton Keynes	Provision of a new railway station at Salden Chase (on the East-West Rail route) in order to support the delivery of new development in south-west Milton Keynes.

Scheme ID	Scheme name	Infrastructure category	Scheme description
51	Bletchley Chord	Urban Milton Keynes	Provision of a direct rail connection between the Marston Vale Line and the West Coast Mainline, enabling direct services from Bedford to Milton Keynes Central. This option could be implemented as an extension to, and linked with, East-West Rail. The provision of an extra and direct service into Milton Keynes Central may require an extra rail line into Milton Keynes Central.
38	Autonomous People Movers	Urban Milton Keynes	Trial and introduce micro-autonomous people movers for short local trips. The transit vehicles can be personal, or shared. Example journeys that could be undertaken using autonomous people movers include: movements between shopping centres in CMK; movements between key employment centres and Transport Hubs (Milton Keynes Central Railway Station); movements between Central Milton Keynes and key trip attractors such as the Milton Keynes University Hospital, Stadium MK and Bletchley.
11	Electric Scooters	Urban Milton Keynes	Introduction of shared electric scooter hire scheme(s). The scheme would require registration via a smartphone application, with the ability to locate and track the scooters. The scheme could also include a strategy for geofencing (the use of GPS to create a virtual geographic boundary), enabling software to trigger a response when a scooter leaves the scheme area. Currently, scooters are defined as 'power transporters', which can only be used legally on private land.
67	Pinch Point Junction Improvements	Urban Milton Keynes	Physical improvements at junctions identified as pinch points on the road network in and around Milton Keynes, where public transport improvements are a priority. Enhancements could include the introduction of traffic signals, junction widening and improving crossing provision, subject to traffic modelling to demonstrate overall network benefits.
69	A5 Kelly's Kitchen Roundabout	Urban Milton Keynes	This option would upgrade the A5 Old Kelly's Kitchen Roundabout to a grade-separated junction allowing the A5 to be free-flow with on / off-slips.
68	A5 Old Stratford Roundabout	Urban Milton Keynes	This option would upgrade the A5 Old Stratford Roundabout to a grade-separated junction allowing the A5 to be free-flow with on / off-slips.
49	Marston Vale Level Crossing Closures	Urban Milton Keynes	Closure of the at-grade level crossings along the Marston Vale Line (Bletchley to Bedford), due to the increase in rail frequency anticipated as a result of East-West-Rail. Locations where level crossings are proposed to be closed include: Simpson Road, V10 Brickhill Street and A5130 Station Road.
76	Bletchley Southern Bypass	Urban Milton Keynes	Delivery of the Bletchley Southern Bypass linking the A421 and A4146 to provide congestion relief to the A421 and Buckingham Road and support the delivery of strategic growth in the southwest. The indicative route for the Bletchley Southern Bypass would connect the A4146 Stoke Hammond Bypass to the A421, west of Bletchley.
85, 101, 102	Urban Logistics Network	Urban Milton Keynes	Assessment of the need for first-last mile goods delivery infrastructure. This option could include Freight Consolidation Centres and the provision of Collection Hubs (Click and Collect) at key local destinations including transport hubs and regional centres. Deliveries to the Collection Hubs can be made by consolidated delivery vehicles and electric low emission vehicles (vans / cargo bikes).
4	Rural cycle routes	Rural Milton Keynes	Expansion of existing cycle routes, beyond Milton Keynes, to provide a network of longer-distance cycle routes connecting to villages and rural employment centres and encourage the uptake of cycling.

Scheme ID	Scheme name	Infrastructure category	Scheme description
9, 10	Cycle Hire Schemes	Rural Milton Keynes	Expand and promote cycle hire schemes (Santander, Lime, Dockless Bikes) to cover a larger area. New hire stations can be incorporated into existing and new developments, local centres and transport hubs. If legislation and technology advances this could expand to include electric scooters (Option 11).
8	Bike Loan Scheme	Rural Milton Keynes	Introduction of a cycle loan scheme (implemented and operated by Milton Keynes Council or a partner organisation). The scheme would include a range of cycles to suit all individuals, including adapted cycles and e-Bikes. The would be available direct from the scheme provider. Initiatives, such as trial periods, free hire to the unemployed and reduced prices for low-income groups could be implemented to encourage uptake.
29	Rural Car Clubs	Rural Milton Keynes	Introduction of a car club outside the built-up area of Milton Keynes. Rural car club schemes are typically run by Community Interest Companies (CIC), charities or Trusts, and provide a cheaper alternative to owning your own vehicle, and only require a membership to a car club company to get started. Use of the vehicles is carried out through online booking systems or on the telephone. Rural car clubs could make an important contribution to rural accessibility and reduce social exclusion.
26	Multi-Modal Rural Travel Hubs	Rural Milton Keynes	Implementation of multi-modal travel hubs in the rural settlements outside Milton Keynes, in order to intercept car trips and provide access to sustainable transport options at small, flexible transport interchanges. The rural travel hubs would provide: access to bus and Redway routes / expansions; car parking; cycle facilities (lockers, cycle parking) and real-time travel information. This option could also provide car-club vehicles, car-share meeting points, cycle-hire, electric cycles and Demand Responsive Transit pick-up points.
34	MK Demand Responsive Transit	Rural Milton Keynes	Expansion of Demand Responsive Transit (DRT) bus services, operated on a commercial basis. DRT is a form of micro-mass transit. Shared minibuses are booked, on demand, using a smartphone application, internet portal or by telephone. The shared minibus is then routed to collect passengers and take them to their destinations. A trial is currently in place in Milton Keynes with ViaVan, which, if successful, could be expanded across Milton Keynes to include rural settlements.
45	Taxibus	Rural Milton Keynes	Provision of Taxibus services throughout Milton Keynes. The service would use taxi vehicles operating on fixed routes, providing connections between main trip attractors, including Milton Keynes Central Railway Station and key employment, leisure and social destinations. The service can be shared by multiple passengers, but unlike buses, users can alight anywhere on the route.
103	Autonomous Deliveries	Rural Milton Keynes	Expansion of the autonomous 'last mile' delivery trial across Milton Keynes. The Co-op are currently trialling the use of hi-tech six-wheeled driving machines to deliver groceries ordered on a smartphone to customers. The use of autonomous / remote-controlled robot delivery vehicles could be expanded to other companies / services, including; pharmaceuticals, library services, groceries and electronic commerce (for example, Amazon deliveries) in rural settlements.
77	Olney Bypass	Rural Milton Keynes	Provision of a bypass of Olney Village on the A509. The new bypass could route to the west of Emberton before heading north to cross the River Great Ouse south-west of Olney. The alignment would then cross the B5388 Yardley Road and re-join the existing A509, near Warrington.

Scheme ID	Scheme name	Infrastructure category	Scheme description
13	Cycle Training	District-wide Milton Keynes	Fund cycle training for businesses, schools and local communities through the Bikeability programme. The programme provides trainees with an understanding of how to cycle on roads safely, whilst learning the practical skills to gain confidence in cycling on the road. The programme has a variety of levels which take trainees from the basics of balance and control, to planning and undertaking an independent journey.
24	Car/Cycle Share Scheme	District-wide Milton Keynes	Implementation and promotion of a city-wide car-share / cycle-share scheme, by providing a free web-based matching service for both car and cycle journeys, for everyone who lives, works and travels in and around Milton Keynes. The database tool will also have the capability to match experienced cyclists with those less experienced who are keen to try cycling.
44	Bus Stop Infrastructure	District-wide Milton Keynes	Upgrades to existing bus stop infrastructure throughout Milton Keynes. Improvements would include: the introduction of real time passenger information; interactive travel dashboards for live bus tracking; cashless ticket payment; improved access for people with reduced mobility and cycle parking facilities.
45	Taxibus	District-wide Milton Keynes	Provision of Taxibus services throughout Milton Keynes. The service would use taxi vehicles operating on fixed routes, providing connections between main trip attractors, including Milton Keynes Central Railway Station and key employment, leisure and social destinations. The service can be shared by multiple passengers, but unlike buses, users can alight anywhere on the route.
93	SMART MK Travel Portal	District-wide Milton Keynes	Creation and promotion of a SMART Milton Keynes web-based travel portal that provides users with real-time travel information, in conjunction with a network of SMART Sensors (Option 89). This can include: parking data (space availability); live bus tracking; bus timetables; train departures; traffic maps; weather forecasts; incident messages; car club availability; cycle scheme availability; air quality and journey planning information.
65	Electric Vehicle Charging Points	District-wide Milton Keynes	Increase the number of electric car charging points across Milton Keynes to encourage the use of a more environmentally form of car travel. Additional charging infrastructure would be installed at key locations and trip attractors throughout Milton Keynes – including Central Milton Keynes, new development sites and employment sites – to increase accessibility to charging facilities for all users.
94	Superfast Broadband	District-wide Milton Keynes	Support for the delivery of superfast broadband across Milton Keynes, to support Mobility as a Service (MaaS) schemes (Option 92), access to application and web-based services and home working. The majority of Milton Keynes benefits from superfast broadband, and working with neighbouring councils, Milton Keynes Council are looking to extend fibre coverage throughout.
87	Electric Public Transport Fleet	District-wide Milton Keynes	Electrification of the taxi and bus fleet through Quality Partnership agreements and funding bids. The introduction of electric buses and taxis can help to improve air quality in the city centre and an increased frequency of bus services could help to break the reliance on personal vehicles.
86	MK Council Electric Vehicle Fleet	District-wide Milton Keynes	Replacement of the existing Milton Keynes Council's vehicle fleet with electric vehicles – for waste collection, maintenance vans and pool cars. A cycle pool could also be introduced to the Council fleet.

Scheme ID	Scheme name	Infrastructure category	Scheme description
92	MaaS	District-wide Milton Keynes	Implementation of a Mobility as a Service (MaaS) scheme (for example, Whim in Birmingham) by a private operator. MaaS schemes provide an application service which provides integrated access to public transport, taxis, cycle share schemes, Demand Responsive Transit (DRT), car clubs and car hire schemes on a pay as you go and monthly plan basis. Suitable bus services, taxi operators, cycle hire, car club, car hire will need to be provided to support the technology platform.
90, 91	SMART Ticketing	District-wide Milton Keynes	Introduction of cashless and integrated ticketing payment capability across all public transport operators (bus, rail, cycle hire) in Milton Keynes.
96	Shared Autonomous Vehicle Solution	District-wide Milton Keynes	Implementation of a widescale shared autonomous vehicle solution for Milton Keynes. The technology allows riders to have larger amounts of time available for work, play or to socialise, as they no longer need to be in control of the vehicle. Autonomous vehicles could also allow those who cannot currently operate a vehicle, to gain a new independence, as they no longer need to rely on driving themselves to destinations.
95	Personal Autonomous Vehicle Solution	District-wide Milton Keynes	Implementation of a widescale personal autonomous vehicle solution for Milton Keynes. The technology allows users to have larger amounts of time available for work, play or to socialise, as they no longer need to be in control of the vehicle. Autonomous vehicles could also allow those who cannot currently operate a vehicle, to gain a new independence, as they no longer need to rely on driving themselves to destinations.
70	Oxford to Cambridge Expressway	Strategic Milton Keynes	The Oxford to Cambridge Expressway is a dual carriageway proposal by Highways England broadly aligned with the East-West Rail route. Working with Highways England and wider stakeholders, benefits of the proposed Expressway can be maximised for local residents and businesses. This option includes: identifying potential junction locations with the Major Road Network and A-Roads (for example, the A4146 and A5); unlocking strategic growth sites and taking opportunities to deliver Park & Ride Sites (Option 32) and Travel Hubs (Options 25 & 26).
48	East West Rail	Strategic Milton Keynes	Enhancing connectivity to the railway stations on the western section of the East-West Rail route (particularly along the Marston Vale Line). Enhancements at stations along the Marston Vale Line would provide access to bus routes and Redway routes / expansions, cycle facilities (lockers, cycle parking) and real-time travel information.

Assessment methodology

4.5 The assessment identifies and evaluates the likely significant effects of the each potential scheme on the baseline, utilising the SEA Framework developed through scoping as a methodological framework (section 2.7). Findings have been presented through the seven environmental themes developed during scoping:

- Air quality
- Biodiversity
- Climate change
- Historic environment
- Landscape
- Land, soil and water resources
- Communities
- Health and wellbeing

4.6 Under each of the above environmental themes, assessment findings have been discussed for each potential scheme. In response to the assessment findings, potential mitigation measures have also been proposed, and opportunities identified. This is with a view to informing the ongoing development of the schemes to implementation.

Limitations of assessment

4.7 It is important to acknowledge the limitations of the approach to be undertaken to the assessment. These limitations relate to both the scope and coverage of the potential schemes and the nature of the SEA process.

4.8 The following considerations should therefore be acknowledged in regard to the assessment:

- Some interventions to be taken forward through the TIDP are not spatially specific and thus are deployed across the borough. This situation can reduce the confidence in forecasting potential environmental outcomes.
- Where the proposed intervention has a specific geographic location, the available scheme definition and the subsequent scheme design activities can lead to uncertainties as to the resultant impact. In such situations it is recognised that potential impacts identified in the SEA may well be capable of being avoided or mitigated during subsequent scheme design activities.

4.9 Where appropriate, the SEA will acknowledge these limitations throughout the process.

4.10 More generally, every effort is made to predict effects accurately; however, this is inherently challenging given the high level nature of the policy approaches under consideration, and limited understanding of the baseline.⁸ Because of the uncertainties involved there is inevitably a need to make assumptions. Assumptions are made cautiously, and explained within the text. The aim is to strike a balance between comprehensiveness and conciseness/accessibility to the public. In many instances, given reasonable assumptions, it is not possible to predict significant effects, but it is possible to comment on merits (or otherwise) in more general terms.

4.11 It is important to note that effects are predicted taking account of the criteria presented within Schedule 1 of the SEA Regulations.⁹ So, for example, account is taken of the probability, duration, frequency and reversibility of effects as far as possible. Cumulative effects are also considered. These effect 'characteristics' are described within the assessment as appropriate.

⁸ The implication being that it is difficult, if not impossible, to identify a 'cause-effect relationship' with any certainty.

⁹ Environmental Assessment of Plans and Programmes Regulations 2004

Scheme assessment findings

4.12 The following tables present a summary of the assessment findings relating to the 70 schemes proposed through the TIDP. These have been presented by the relevant infrastructure category (i.e. Central, Urban, Rural, District-wide or Strategic).

4.13 **Appendix B** presents the full assessment findings for each scheme and the mitigation measures/enhancements opportunities identified.

Table 4.2: Summary of SEA scheme assessment findings: Central Milton Keynes Infrastructure

Central Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 59: High Quality Destination Cycle Parking	Green	Yellow	Yellow	Green	Green	Yellow	Green	Green	<p>Summary Enhancements to cycle provision in the town centre will support accessibility to key amenities by cycling and promote healthier lifestyles. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new cycle provision.</p> <p>Mitigation measures and enhancement opportunities New cycle parking should be designed and located to support the setting of the historic environment and a high quality townscape in the town centre.</p>
Scheme 1: Redway Expansion within CMK	Green	Yellow	Green	Blue	Green	Yellow	Green	Green	<p>Summary The delivery of cycle enhancements in the town centre will support accessibility for residents and visitors, promote town centre vitality, and support the quality of life of residents. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape in the town centre. However, a poorly designed scheme has the potential to have impacts on the fabric and setting of the 'classic infrastructure' of Central Milton Keynes.¹⁰</p> <p>Mitigation measures and enhancement opportunities The scheme should seek to ensure that the 'classic infrastructure' of Central Milton Keynes is conserved and retained.</p>

¹⁰ As defined in the CMK Alliance Plan 2026, 'classic CMK infrastructure' includes the grid of tree-lined Boulevards, Gates, Streets, tree-lined North Row and South Rows, and the space for one, two or four rows of ground level car parking that flanks them; the associated grid of pavements, with underpasses, bridges and porte cocheres; the function and position of linkages to the adjacent grid squares; use of silver grey granite facings, granite quadrants, planters, and kerbs; the use of silver grey stone chippings rolled into asphalt road surfaces on Gates and Boulevards and silver grey blockwork for streets; and the use of Breedon Gravel or similar in Boulevard medians.

Central Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 14: District Centre Public Realm Improvement	Green	Green	Green	Blue	Green	Yellow	Green	Green	<p>Summary The scheme will promote accessibility, improve road safety for pedestrians and cyclists, and support the quality of life of residents. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape in the area and the setting of the historic environment. However, a poorly designed scheme has the potential to have impacts on the fabric and setting of the 'classic infrastructure' of Central Milton Keynes.</p> <p>Mitigation measures and enhancement opportunities Public realm enhancements should seek to enhance ecological networks through appropriate planting and green infrastructure enhancements, and where possible, employing the premise of environmental net gain. The scheme should seek to ensure that the 'classic infrastructure' of Central Milton Keynes is conserved and retained.</p>
Scheme 40: Bus Interchange	Green	Yellow	Green	Green	Blue	Yellow	Green	Green	<p>Summary The delivery of a new bus interchange in the town centre will increase the ease of public transport use, with benefits for accessibility, promoting town centre vitality, and supporting the quality of life of residents.</p> <p>Mitigation measures and enhancement opportunities A new bus interchange should be designed to support a high quality townscape in the town centre.</p>
Scheme 64: Central Car Park Management	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green	<p>Summary The scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents, promote health and wellbeing, and have benefits for air quality and climate change mitigation.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>
Scheme 61, 62 and 63: CMK Car Parking Review	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green	<p>Summary In the longer term (once the findings of the study are implemented), the scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents, promote health and wellbeing, and have benefits for air quality and climate change mitigation.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>
Scheme 60: Powered Two-Wheeler Parking	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Yellow	<p>Summary Enhancements to two-wheeler parking provision in the town centre will support accessibility to town centre amenities. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new two-wheeler parking provision.</p> <p>Mitigation measures and enhancement opportunities New two-wheeler parking provision should be designed and located to support the setting of the historic environment and the quality of the townscape and the built environment in the town centre.</p>

Central Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 42: CMK Shuttle Bus Trial	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary In the longer term (once the findings of the trial are implemented), the scheme will encourage modal shift to more sustainable modes of travel for those accessing central Milton Keynes for employment purposes. This will support the quality of life of employees, promote health and wellbeing, have benefits for air quality and climate change mitigation, and support the quality of the public realm and townscape.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>
Scheme 43: CMK Bus Only Route	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The delivery of a bus only route in the town centre will increase the ease of public transport use, with benefits for accessibility, promoting town centre vitality, and supporting the quality of life of residents.</p> <p>Mitigation measures and enhancement opportunities A new bus only route should be designed to support a high quality townscape in the town centre and the setting of the historic environment.</p>
Scheme 31: Zero Emission Zone	Green	Green	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme has significant potential to enhance air quality and limit greenhouse gas emissions from transport. The encouragement of zero emission vehicles has also the potential to limit the impacts of transport on the setting of the historic environment and townscape quality from noise pollution, and support enhancements to the public realm. This will support town centre neighbourhoods as places to live and work, promoting the quality of life of residents.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>

Key

Likely adverse effect (without mitigation measures)



Likely positive effect



Neutral/no effect



Uncertain effects



Table 4.3: Summary of SEA scheme assessment findings: Urban Milton Keynes Infrastructure

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 5, 6: Redway Network Upgrades	Green	Blue	Green	Blue	Blue	Yellow	Green	Green	<p>Summary Enhancements to the Redway Network will promote accessibility to services, facilities and amenities by cycle and promote health and wellbeing. Through encouraging modal shift, the scheme will support air quality and help limit greenhouse gas emissions from transport. Potential effects on townscape quality, the setting of the historic environment and ecological networks depend on the detailed location, design and layout of enhancements taken forward under this scheme.</p> <p>Mitigation measures and enhancement opportunities Enhancements to the Redway Network should seek to limit potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought where possible.</p>
Scheme 3: New Urban Redway Super Routes	Green	Blue	Green	Blue	Blue	Blue	Green	Green	<p>Summary An expansion of the Redway Super Route network will have significant positive effects for promoting accessibility to services, facilities and amenities by cycle and promoting health and wellbeing. This includes for those living in new growth areas in the borough. Through encouraging modal shift, the scheme will also support air quality and help limit greenhouse gas emissions from transport. Potential effects on biodiversity networks, townscape quality and the fabric and setting of the historic environment depend on the detailed location, design and layout of enhancements taken forward under this scheme. This is particularly relevant given that a number of the proposed routes are within locations with significant historic environment, townscape or biodiversity sensitivity.</p> <p>Mitigation measures and enhancement opportunities Enhancements to the Redway Super Route should seek to limit potential impacts on habitats, species and ecological linkages through appropriate avoidance and mitigation measures. Given the significant opportunities for ecological networks to be improved alongside an expansion of the Super Route network, appropriate planting, green infrastructure provision and other interventions to enhance biodiversity linkages should be secured. In this context the principle of environmental net gain should be applied to the provision of new Redway Super Route infrastructure. Enhancements to the Super Route network should also initiate enhancements to the quality of the public realm and townscape, and seek to conserve and enhance the fabric and setting of the historic environment.</p>
Scheme 59: High Quality Destination Cycle Parking	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary Enhancements to cycle provision will support accessibility to key amenities by cycling and promote healthier lifestyles. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new cycle provision.</p> <p>Mitigation measures and enhancement opportunities New cycle parking should be designed and located to support the setting of the historic environment and a high quality townscape.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 15: Wayfinding	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Green	<p>Summary Significant environmental effects of the scheme are likely to be limited by the small scale provisions of the scheme, which comprise signage and route information improvements. However impacts on townscape quality and the setting of the historic environment depend on the design and location of new signage and route information.</p> <p>Mitigation measures and enhancement opportunities The design and location of signage should seek to support enhancements to townscape quality and the setting of the historic environment</p>
Scheme 9, 10: Cycle Hire Schemes	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary Through enhancing opportunities for cycle use, and facilitating multi modal transport use, the scheme will support accessibility and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities The design, location and layout of new cycle hire provision should be sensitive to the quality of the townscape and the setting of the historic environment.</p>
Scheme 14: District Centre Public Realm Improvement	Green	Green	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme will promote accessibility, improve road safety for pedestrians and cyclists, and support the quality of life of residents. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities Public realm enhancements should seek to enhance ecological networks through appropriate planting and green infrastructure enhancements, and where possible, employing the premise of environmental net gain.</p>
Scheme 8: Bike Loan Schemes	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary Through enhancing opportunities for cycle use, the scheme will support accessibility, social inclusion and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 16: Local Community Pedestrian Connectivity Improvement	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme will support accessibility by walking, reduce barriers for pedestrians and improve road safety. This will support health and wellbeing and the quality of life of residents and promote community vitality. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 7: Grand Union Canal Upgrades	Green	Blue	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme will enhance leisure and recreation opportunities, support health and wellbeing and also support the visitor economy. It will also promote accessibility by cycle to key services and facilities and employment opportunities. Enhancements to the Grand Union Canal corridor, if sensitively designed, provide significant opportunities to enhance the fabric and setting of the historic environment and townscape character. The scheme offers opportunities to enhance the enjoyment and understanding of the historic environment and the landscape and contribute to heritage-led tourism. A variety of important biodiversity habitats are present along the route which may be affected by enhancements initiated by the scheme.</p> <p>Mitigation measures and enhancement opportunities Potential impacts on biodiversity habitats along the route should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored. This is given the Grand Union Canal corridor's role as a key element of Milton Keynes' ecological network. Enhancements to the corridor should be sensitive to the fabric and setting of the historic environment and facilitate opportunities for its enhancement.</p>
Scheme 19, 20, 21,22, 23: Travel Planning	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme, through facilitating travel planning across a range of organisations will support accessibility, promote healthy lifestyles and benefit residents' and workers' quality of life. It also has the potential to, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 28: Urban Car Clubs	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme has the potential to encourage modal shift from the private car and also enable access to mobility opportunities that would not otherwise be accessible. Car clubs also provide opportunities to increase the use of sustainable transport use through the greater flexibility enabled by making a car available as an option rather than a first choice. This will support accessibility, promote the quality of life of residents and support health and wellbeing.</p> <p>With positive effects for air quality and climate change mitigation, car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can also make a contribution to delivering emission reductions through facilitating the use of lower emissions vehicles.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 25: Multi-Modal Urban Travel Hubs	Green	Blue	Green	Blue	Blue	Yellow	Green	Green	<p>Summary Multi-Modal Urban Travel Hubs on the edge of the Milton Keynes urban area will have positive effects on accessibility, health and wellbeing, air quality and climate change mitigation by enhancing access to sustainable transport modes.</p> <p>Mitigation measures and enhancement opportunities The design and layout of Multi-Modal Urban Travel Hubs should seek to support a high quality public realm and townscape, and support ecological networks in the borough.</p>
Scheme 98: Variable Message Signage	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Yellow	<p>Summary The introduction of further Variable Messaging Signs may support air quality and climate change mitigation through helping to limit congestion on the local road network during peak commuting hours. Effects on air quality are however unlikely to be significant. Additional information relating parking provision fails to encourage a reduction in private vehicle trips, and as such is unlikely to encourage healthier modes of travel.</p> <p>Mitigation measures and enhancement opportunities Variable Messaging Signage should be designed and located to limit potential impacts on the quality of the townscape and the setting of the historic environment.</p>
Scheme 60: Powered Two-Wheeler Parking	Yellow	Yellow	Yellow	Blue	Blue	Yellow	Green	Yellow	<p>Summary Enhancements to two-wheeler parking provision will support accessibility to services, amenities and employment opportunities. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new two-wheeler parking provision.</p> <p>Mitigation measures and enhancement opportunities New two-wheeler parking provision should be designed and located to support the setting of the historic environment and the quality of the townscape and the built environment.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 55: Rail Hubs	Green	Blue	Green	Blue	Blue	Yellow	Green	Green	<p>Summary Enhancements to interchanges at the three railway stations on the West Coast Mainline will have positive effects for accessibility, health and wellbeing, air quality and climate change mitigation. Impacts on the fabric and setting of the historic environment, townscape quality and biodiversity networks depend on the detailed location, design and layout of new infrastructure, the incorporation of mitigation and avoidance measures, and enhancement measures.</p> <p>Mitigation measures and enhancement opportunities The design and layout of new rail hub infrastructure should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>
Scheme 34: Demand Responsive Transit	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 39, 40, 72: Bus Priority Corridors	Green	Blue	Green	Blue	Blue	Yellow	Green	Green	<p>Summary The scheme will enhance accessibility by bus, and improve the reliability of services. This will support the quality of life of residents and promote health and wellbeing. Impacts on the fabric and setting of the historic environment, townscape quality and biodiversity networks depend on the detailed location, design and layout of priority measures.</p> <p>Mitigation measures and enhancement opportunities The design and layout of bus priority should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 16: Premium Bus Network									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering higher quality bus services. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 89: SMART Sensors									<p>Summary Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme in the longer term will support the quality of life of residents.</p> <p>The scheme has the potential to have positive effects for air quality and climate change mitigation through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, as well as support targeted actions to address identified air quality issues.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 84: UTC Expansion									<p>Summary An expansion of the Urban Traffic Management Control System will support accessibility, air quality and climate change mitigation through helping to limit congestion on the local road network and implementing a control system favouring sustainable travel modes. Effects on townscape and the setting of the historic environment depend on the siting and design of associated infrastructure and signage.</p> <p>Mitigation measures and enhancement opportunities Scheme-related infrastructure and signage should be designed and located to limit potential impacts on the quality of the townscape and the setting of the historic environment.</p>
Scheme 103: Autonomous Deliveries									<p>Summary The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms. Whilst the scheme has the potential to have some positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 66: On-Street Parking Controls	Green	Yellow	Green	Yellow	Yellow	Yellow	Green	Green	<p>Summary The scheme will encourage modal shift to more sustainable modes of travel through managing car parking provision. This will support the quality of life of residents, promote health and wellbeing, and have benefits for air quality and climate change mitigation.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>
Scheme 27: Multi-Modal Hospital Travel Hubs	Green	Yellow	Green	Yellow	Blue	Yellow	Green	Green	<p>Summary The development of a Multi-Modal Travel Hub at the hospital will have positive effects on accessibility, health and wellbeing, air quality and climate change mitigation by enhancing access to the hospital via sustainable transport modes. Given the lack of sensitivity of the hospital in terms of biodiversity and the historic environment, no significant effects are anticipated in relation to these themes. Impacts on townscape character will depend on the design and layout of the Multi-Modal Hospital Travel Hub.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 47: Orbital Bus Routes	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme will enhance accessibility by bus, and improve the reliability of services through improving connectivity between radial services and improving access to those locations outside of central Milton Keynes. This will support the quality of life of residents, promote health and wellbeing help enhance air quality and limit greenhouse gas emissions from transport.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 35, 36, 37: Mass Rapid Transit	Green	Blue	Green	Blue	Blue	Blue	Green	Green	<p>Summary The scheme will secure significant enhancements to accessibility by public transport, and improve the reliability of services. This will support the quality of life of residents, promote health and wellbeing, contribute to air quality enhancements and support climate change mitigation.</p> <p>Impacts on the fabric and setting of the historic environment, townscape quality and biodiversity networks depend on the detailed location, design and layout of new infrastructure associated with the proposed mass transit schemes.</p> <p>Mitigation measures and enhancement opportunities The design and layout of infrastructure associated with the proposed Mass Rapid Transit should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.</p> <p>Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 32: Park & Ride Sites									<p>Summary Mixed effects. New Park & Ride provision will support modal shift for part of journeys. By encouraging modal shift for at least part of the journey, the option has the potential to support healthier modes of travel, promote air quality in the town centre and promote accessibility to services and amenities. However, the scheme encourages car usage by providing free parking on the outskirts of the city centre.</p> <p>Effects on habitats, species and ecological networks will depend on the detailed location of and design of Park & Ride sites, and the integration of biodiversity-friendly design within new infrastructure, and effects on the fabric and setting of the historic environment and landscape/townscape quality will depend on the detailed location, design and layout of new Park & Ride infrastructure</p> <p>Mitigation measures and enhancement opportunities Opportunities for integrating new Park & Ride provision with cycle and pedestrian networks should be maximised. The design and layout of infrastructure associated with new Park & Ride provision should seek to support a high quality public realm and townscape/landscape, and seek to conserve the setting of the historic environment. Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>
Scheme 53: Salden Chase Rail Station									<p>Summary The scheme will enhance public transport opportunities to the south west of Milton Keynes. This will support the quality of life of residents, promote health and wellbeing, contribute to air quality enhancements and support climate change mitigation. The potential location of the new railway station is not within an area of landscape or historic environment sensitivity.</p> <p>The potential location of the new railway station is in the vicinity of the Railway Siding east of Salden Wood Milton Keynes Wildlife Site and a number of BAP Priority Habitats.</p> <p>Mitigation measures and enhancement opportunities Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>
Scheme 51: Bletchley Chord									<p>Summary The scheme will enhance rail links from Bedford to Milton Keynes Central and from the eastern periphery areas of Milton Keynes to the West Coast Mainline. This will support the quality of life of residents, promote health and wellbeing, contribute to air quality enhancements and support climate change mitigation. The potential location of the new railway is not within an area of landscape or historic environment sensitivity.</p> <p>Mitigation measures and enhancement opportunities Opportunities for enhancements to ecological corridors in the area should be explored through scheme development.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 38: Autonomous People Movers									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible given the initial small scale of the scheme.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 11: Electric Scooters									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible initially.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 67: Pinch Point Junction Improvements									<p>Summary Mixed effects. Whilst the proposed junction capacity enhancements have the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support air quality improvements at particular pinchpoints, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm through stimulating an overall increase in car use.</p> <p>Mitigation measures and enhancement opportunities Bus priority measures and walking and cycling improvements should be incorporated within junction capacity improvements. Junction capacity improvements should seek to support a high quality public realm and townscape, and seek to conserve and enhance the setting of the historic environment.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 69: A5 Kelly's Kitchen Roundabout	Blue	Red	Blue	Red	Blue	Blue	Green	Blue	<p>Summary Whilst the proposed junction capacity enhancements at Kelly's Kitchen Roundabout have the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support localised air quality improvements, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm through stimulating an overall increase in car use. The roundabout is within an area of archaeological sensitivity, and important biodiversity habitats are present on the site.</p> <p>Mitigation measures and enhancement opportunities Potential impacts on biodiversity habitats (including the deciduous woodland present on the site) should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored. Junction capacity improvements at this location should seek to appropriately recognise the potential for archaeological remains in the area, and seek to avoid impacts on significant remains, including associated with the scheduled monument. If this is not possible then such remains should be archaeologically recorded in order to "preserve by record" the significant aspects of the site. This should be informed by an evaluation of the importance and significance of the archaeology on the site.</p>
Scheme 68: A5 Old Stratford Roundabout	Blue	Yellow	Blue	Yellow	Blue	Blue	Green	Blue	<p>Summary Whilst the proposed junction capacity enhancements at Old Stratford Roundabout have the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support localised air quality improvements, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm through stimulating an overall increase in car use.</p> <p>Mitigation measures and enhancement opportunities Bus priority measures and walking and cycling improvements should be incorporated within junction capacity improvements.</p>
Scheme 49: Marston Vale Level Crossing Closures	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	<p>Summary In terms of the health and wellbeing and communities SEA themes, the scheme has the potential to support road safety by removing potentially dangerous level crossings from increased rail movements resulting from a new East-West rail route. No significant effects relating to the remaining themes.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Urban Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities	
Scheme 76: Bletchley Southern Bypass									<p>Summary</p> <p>The scheme has the potential to relieve congestion and vehicular pressure on the A421 and Buckingham Road, support economic growth and the delivery of new development in south-west Milton Keynes.</p> <p>Whilst the proposed new bypass has the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support air quality improvements at particular pinchpoints, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm over a wider area through stimulating an overall increase in car use.</p> <p>A new bypass has the potential to impact on key biodiversity habitats present locally, landscape character and the setting of the historic environment, including in Newton Longville.</p> <p>Mitigation measures and enhancement opportunities</p> <p>The potential route of the bypass runs close to three areas of deciduous woodland which have been identified as BAP Priority Habitat and ancient woodland. It also runs close to the Scrub east of Salden Wood Biological Notification Site/Milton Keynes Wildlife Site. These areas should be avoided when determining the final route of the scheme.</p> <p>Potential impacts on landscape character should be minimised through appropriate design and layout and screening.</p>	
Scheme 65, 101, 102: Urban Logistics Network									<p>Summary</p> <p>Through helping to limit the amount of freight traffic on the road network, the scheme will help facilitate enhancements to the quality of the public realm, supporting townscape quality and the setting of the historic environment, and limit road safety issues from freight movements. The scheme will also help limit emissions from freight movements, supporting air quality and climate change mitigation.</p> <p>Mitigation measures and enhancement opportunities</p> <p>None proposed.</p>	
Key										
Likely adverse effect (without mitigation measures)								Likely positive effect		
Neutral/no effect								Uncertain effects		

Table 4.4: Summary of SEA scheme assessment findings: Rural Milton Keynes Infrastructure

Rural Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 4: Rural Cycle Routes	Green	Blue	Green	Green	Green	Yellow	Green	Green	<p>Summary Enhancements to the rural cycle network will promote accessibility to services, facilities and amenities by cycle and promote health and wellbeing. It also has the potential to support the borough's visitor economy. Through encouraging modal shift, the scheme will support air quality and help limit greenhouse gas emissions from transport.</p> <p>Well-designed cycle enhancements facilitated through the scheme may support the quality of the public realm, support landscape/villagescape character and the historic environment, and promote opportunities for its enjoyment.</p> <p>Direct effects on landscape/villagescape quality, the setting of the historic environment and ecological networks depend however on the detailed location, design and layout of enhancements taken forward under this scheme.</p> <p>Mitigation measures and enhancement opportunities Enhancements to the rural cycle network should seek to limit potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought where possible. Enhancements to the network should also seek to enhance and complement the quality of the public realm and villagescape quality.</p>
Scheme 9, 10: Cycle Hire Schemes	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary Through significantly enhancing opportunities for cycle use, and facilitating multi modal transport use, the scheme will support accessibility and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities The design, location and layout of new cycle hire provision should be sensitive to the quality of the landscape and the setting of the historic environment.</p>
Scheme 8: Bike Loan Schemes	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary Through enhancing opportunities for cycle use, the scheme will support accessibility, social inclusion and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Rural Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 29: Rural Car Clubs	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme has the potential to encourage modal shift from the private car and also enable access to mobility opportunities that would not otherwise be accessible. Car clubs also provide opportunities to increase the use of sustainable transport use through the greater flexibility enabled by making a car available as an option rather than a first choice. This will support accessibility, promote the quality of life of residents and support health and wellbeing. It will also support social inclusion, which is a key issue in rural areas.</p> <p>With positive effects for air quality and climate change mitigation, car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can also make a contribution to delivering emission reductions through facilitating the use of lower emissions vehicles.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 26: Multi-Modal Rural Travel Hubs	Green	Blue	Green	Blue	Blue	Yellow	Green	Green	<p>Summary Multi-Modal Rural Travel Hubs outside Milton Keynes will have positive effects on accessibility, health and wellbeing, air quality and climate change mitigation by enhancing access to sustainable transport modes. It will also support social inclusion, which is a key issue in rural areas.</p> <p>Mitigation measures and enhancement opportunities The design and layout of Multi-Modal Rural Travel Hubs should seek to support a high quality public realm and townscape, and support ecological networks in the borough.</p> <p>Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>
Scheme 34: Demand Responsive Transit	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. It will also support social inclusion, which is a key issue in rural areas.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 45: Taxibus	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. It will also support social inclusion, which is a key issue in rural areas.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Rural Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 103: Autonomous Deliveries	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	<p>Summary The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms. Whilst the scheme has the potential to have some positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 77: Olney Bypass	Green	Red	Red	Blue	Red	Red	Green	Green	<p>Summary The scheme has the potential to relieve congestion and vehicular pressures on the A509 through Olney. This has significant potential to enhance the quality of the public realm and built environment through the village, and support air and noise quality. This will support the quality of life of residents in Olney.</p> <p>The scheme is likely to have both positive and negative effects on the historic environment. Whilst a new bypass has significant potential to enhance the setting of Olney's significant historic environment resource through limiting traffic flows through the village centre, a bypass has the potential to impact on the historic setting of Emberton and Weston Underwood, both of which have a significant historic environment resource. The bypass is also likely to have inevitable impacts on landscape character to the west of Olney, and has the potential to impact on key biodiversity habitats in the area.</p> <p>Mitigation measures and enhancement opportunities Potential impacts on landscape character should be minimised through appropriate design and layout and screening. The benefits of the proposed bypass for the quality of the public realm and historic environment resulting from a reduction in traffic flows in Olney should be 'locked in' through appropriate interventions on the existing route of the A509. Key areas of sensitive biodiversity habitat should be avoided in routing the bypass, and potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through should be addressed through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought, supporting a premise of environmental net gain.</p>

Key	
Likely adverse effect (without mitigation measures)	Likely positive effect
Neutral/no effect	Uncertain effects

Table 4.5: Summary of SEA scheme assessment findings: District-wide Milton Keynes Infrastructure

District-wide Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 13: Cycle training									<p>Summary The scheme will promote active modes of travel through encouraging cycle use, supporting healthier lifestyles. The scheme also has the potential to improve road safety for cyclists.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 24: Car/Cycle Share Scheme									<p>Summary The scheme will support accessibility to services, facilities and amenities through supporting car sharing and cycle sharing. Whilst the scheme has the potential to have positive effects for air quality, climate change mitigation, landscape/townscape and the historic environment, overall effects in relation to these themes are likely to be negligible.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 44: Bus Stop Infrastructure									<p>Summary The scheme will support accessibility to services, facilities and amenities by bus through increasing the ease of bus use.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 45: Taxibus									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents.. It will also support social inclusion.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 93: SMART MK Travel Portal									<p>Summary Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme in the longer term will support the quality of life of residents. The scheme has the potential to have positive effects for air quality and climate change mitigation through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, as well as support targeted actions to address identified air quality issues.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

District-wide Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 65: Electric Vehicle Charging Points	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme has significant potential to enhance air quality and limit greenhouse gas emissions from transport. The encouragement of electric vehicles has also the potential to limit the impacts of transport on the setting of the historic environment and townscape quality from noise pollution, and support enhancements to the public realm. This will support neighbourhoods as places to live and work, promoting the quality of life of residents.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>
Scheme 94: Superfast broadband	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme will support home working, remote working and running a business from home. This will support access to economic opportunities and reduce the need to travel, with benefits for quality of life, health and wellbeing, air quality and climate change mitigation.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 87: Electric Public Transport Fleet	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme has the potential to enhance air quality in the town centre and limit greenhouse gas emissions from buses and taxis. The encouragement of electric vehicles has also the potential to limit the impacts of buses and taxis on the setting of the historic environment and townscape quality from noise pollution, and support enhancements to the public realm. This has the potential to in particular support the quality of the town centre as a place to live and work, promoting the quality of life of residents.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 86: MK Council Electric Vehicle Fleet	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The scheme has the potential to limit emissions from Council-related transport through promoting the use of zero emissions vehicles and the encouragement of cycling. This will support air and noise quality, and support climate change mitigation. The encouragement of electric vehicles and cycling also has the potential to limit the impacts of Council-related transport on the setting of the historic environment and townscape/landscape quality.</p> <p>Mitigation measures and enhancement opportunities None proposed</p>
Scheme 92: MaaS	Green	Yellow	Green	Green	Green	Yellow	Green	Green	<p>Summary The MaaS scheme will support accessibility to services, facilities and amenities through offering a flexible approach to alternative transport provision and providing local, accessible and inclusive mode of transport. This will support community cohesion and social inclusion.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

District-wide Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 90, 91: SMART ticketing									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a more flexible approach to public transport provision and increasing the accessibility and ease of use of the public transport network. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects in relation to these themes are likely to be negligible.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 96: Shared Autonomous Vehicle Solution									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible in the short and medium term given the initial small scale of the scheme.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>
Scheme 95: Personal Autonomous Vehicle Solution									<p>Summary The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible in the short and medium term given the initial small scale of the scheme.</p> <p>Mitigation measures and enhancement opportunities None proposed.</p>

Key

Likely adverse effect (without mitigation measures)



Likely positive effect



Neutral/no effect



Uncertain effects



Table 4.6: Summary of SEA scheme assessment findings: Strategic Milton Keynes Infrastructure

Strategic Milton Keynes Infrastructure scheme	Air quality	Biodiversity	Climate change	Historic Environment	Landscape	Land, soil and water resources	Communities	Health and wellbeing	Summary of assessment findings and mitigation measure and enhancement opportunities
Scheme 70: Oxford to Cambridge Expressway	Light Blue	Light Red	Light Red	Light Red	Light Red	Light Red	Light Green	Light Blue	<p>Summary Whilst the proposed new expressway has the potential to support accessibility by car and reduce congestion, the scheme has the potential to encourage car usage. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm over a wider area through stimulating an overall increase in car use. The new expressway also has the potential to impact on key biodiversity habitats present locally, landscape character and the setting of the historic environment.</p> <p>However, the development of the expressway is likely to be an important element of limiting the potential adverse effects from an increase in road traffic and congestion if the level of growth proposed in the Oxford Cambridge corridor materialises.</p> <p>Mitigation measures and enhancement opportunities The development of the expressway should be accompanied by a comprehensive package of avoidance and mitigation measures, as well, where possible, enhancement measures. This should be informed at the project level by a robust EIA process.</p> <p>Potential impacts on landscape character and the setting of the historic environment should be minimised through appropriate design and layout and screening. Key areas of sensitive biodiversity habitat should be avoided in routing the expressway, and potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through should be addressed through appropriate avoidance and mitigation measures. Opportunities to enhance green infrastructure networks along the route should also be sought, supporting a premise of environmental net gain and delivering multifunctional benefits.</p>
Scheme 48: East West Rail	Light Green	Light Blue	Light Green	Light Yellow	Light Blue	Light Yellow	Light Green	Light Green	<p>Summary Enhancing connectivity to the railway stations on the western section of the East-West Rail route will have positive effects for accessibility, health and wellbeing, air quality and climate change mitigation.</p> <p>Impacts on landscape and townscape quality and biodiversity networks depend on the detailed location, design and layout of new infrastructure, the incorporation of mitigation and avoidance measures, and enhancement measures.</p> <p>Mitigation measures and enhancement opportunities The design and layout of enhanced links to the rail stations should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.</p> <p>Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.</p>

Key	
Likely adverse effect (without mitigation measures)	Light Red
Neutral/no effect	Light Yellow
Likely positive effect	Light Green
Uncertain effects	Light Blue

5. What are the next steps?

Introduction

- 5.1 This section of the Environmental Report explains next steps that will be taken as part of the plan-making / SEA process.

Plan finalisation

- 5.2 This Environmental Report has been published to accompany the draft TIDP and released alongside the plan for consultation. Following the consultation period, comments will be reviewed and analysed. The final TIDP will then be developed, with a view to adoption later in 2019. Any changes arising to the TIDP will need to be assessed as part of the SEA process.
- 5.3 SEA Regulations 16.3c(iii) and 16.4 require that a 'statement' be made available to accompany the plan, as soon as possible after the adoption of the plan or programme. The purpose of the SEA Statement is to outline how the SEA process has influenced and informed the TIDP development process and demonstrate how consultation on the SEA has been taken into account.
- 5.4 As the regulations outline, the statement should contain the following information:
- The reasons for choosing the preferred measures for the TIDP as adopted in the light of other reasonable alternatives dealt with;
 - How environmental considerations have been integrated into the TIDP;
 - How consultation responses have been taken into account; and
 - Measures that are to be taken to monitor the significant environmental effects of the TIDP.
- 5.5 To meet these requirements, a SEA Adoption Statement will be published with the adopted version of the Milton Keynes Transport Infrastructure Delivery Plan.

Appendix A Policy and plan review and baseline information

Air Quality

Policy Context

The UK's Air Quality Strategy¹¹ details a long-term vision for improving air quality in the UK, which involves objectives and policies for the different pollutants and the environmental implications associated with these.

Key messages from the National Planning Policy Framework¹² (NPPF) include:

- 'Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.'
- 'Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health.'
- 'New and existing developments should be prevented from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of air pollution.'

Policy D1 of the Milton Keynes Local Plan¹³ (Impact of Development Proposals on Locality) seeks to address strategic issues in relation to air quality.

Baseline Summary

Summary of Current Baseline

In terms of the local context, Milton Keynes Council is required under Section 82 of the Environment Act (1995) to monitor air quality across the borough, report regularly to DEFRA, and take action where nationally set levels are likely to be exceeded. Monitoring is undertaken to assess levels of nitrogen dioxide (NO₂), sulphur dioxide (SO₂), ozone (O₃), benzene (C₆H₆), carbon monoxide (CO), 1,3-Butadiene (C₄H₆), Lead (Pb), and particulates (PM₁₀). Where exceedances exist, areas are declared as Air Quality Management Areas (AQMAs) and local authorities are required to produce an Air Quality Action Plan (AQAP) to improve air quality in the area.

In this context, there is one AQMA within Milton Keynes which is the Olney AQMA. The AQAP¹⁴ identifies that Olney AQMA was designated in 2008 because of a small exceedance in the annual mean concentration objective of 40µg/m³ for nitrogen dioxide (NO₂).

The AQAP further identifies that vehicle exhausts, engines, brakes, tyres and clutches are the key contributions to NO₂ emissions in the transport sector and should be the focus for improvements. Actions to address the air quality issues within the AQMA include (but are not limited to): heavy goods

¹¹ DEFRA (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf [accessed 15/01/19]

¹² MHCLG (2018) National Planning Policy Framework [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf [accessed 15/01/19]

¹³ Milton Keynes Council (2015) Adopted Local Plan [online] available at: <https://www.milton-keynes.gov.uk/planning-and-building/planning-policy/adopted-local-plan-pdf> [accessed 18/01/19]

¹⁴ Milton Keynes Council (2012) Local Air Quality Management – Olney Action Plan [online] available to access via: https://www.google.com/search?q=Olney+Air+Quality+Management+Area&rlz=1C1GCEA_enGB784GB784&oq=Olney+Air+Quality+Management+Area&ags=chrome..69i57.283i0i4&sourceid=chrome&ie=UTF-8 [accessed 15/01/19]

vehicles (HGV) routing and restricting; traffic management and air quality monitoring and traffic monitoring.

The 2017 Air Quality Annual Status Report (ASR)¹⁵ for Milton Keynes concluded that in 2016 all air quality objectives were achieved at all monitoring locations throughout the borough, including those within the Olney AQMA. If the annual mean objective for nitrogen dioxide continues to be met in future years, the process of revocation of the AQMA can be considered. However, much depends on continued improvements of emissions from vehicles and on meteorology throughout the calendar year, which has a strong influence on air quality; for example, monitored concentrations in 2016 were slightly higher on average when compared with 2015 levels.

Summary of Future Baseline

Improvements to future air quality are dependent, in part, on whether the aims of the DEFRA Clean Air Strategy are achieved and whether the measures within the AQAP are successfully implemented. The AQAP and ASR recognise that there have been improvements in air quality since 2008 within the borough. These improvements have the potential to be ongoing.

Cleaner vehicles, including the update of electric vehicles, have the potential to lead to improvements in air quality in the longer term. Significant progress has been made with the Go Ultra Low Cities programme run by the Department for Transport (DfT) and the Office for Low Emission Vehicles (OLEV). Milton Keynes already has one of the largest electric vehicles charging point networks in the country and this has expanded, and improvements made in 2016 to add more rapid charging points. The No 7 bus route (Wolverton – Bletchley) uses wirelessly charged electric buses and has proved very successful in reducing emissions from the bus fleet. Plans are progressing for a second electric bus route funded by a grant awarded from OLEV's Low Emission Bus Scheme. Priorities in Milton Keynes are to continue promoting the use of ultra-low emission vehicles (ULEVs) and the initiatives in the MK Go Ultra Low City scheme.

Biodiversity and Geodiversity

Policy Context

The EU Biodiversity Strategy¹⁶ was adopted in May 2011 in order to deliver an established new Europe-wide target to 'halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020'.

Key messages from the National Planning Policy Framework¹⁷ (NPPF) include:

- One of the three overarching objectives of the NPPF is an environmental objective to 'contribute to protecting and enhancing our natural, built and historic environment' including by 'helping to improve biodiversity.'
- 'Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value[...], take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'
- 'Planning policies and decisions should contribute to and enhance the natural and local environment by: protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with the statutory status or identified quality in the

¹⁵ Milton Keynes Council (2017): '2017 Air Quality Annual Status Report (ASR)', [online] available to access via: <
https://www.google.com/search?q=milton+keynes+air+quality+management+area&rlz=1C1GCEA_enGB784GB784&og=milton+keynes+air+quality+management+area&aqs=chrome..69i57.8080j1i9&sourceid=chrome&ie=UTF-8 [accessed 15/01/19]

¹⁶ European Commission (2011) Our life insurance, our natural capital: an EU biodiversity strategy to 2020 [online] available at:
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0244&from=EN> [accessed 15/01/19]

¹⁷ MHCLG (2018) National Planning Policy Framework [online] available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf [accessed 15/01/19]

development plan); and minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks that are more resilient to current and future pressures.’

- ‘To protect and enhance biodiversity and geodiversity, plans should:
 - a. Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
 - b. Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.’
- Take a proactive approach to mitigating and adapting to climate change, considering the long term implications for biodiversity.
- The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.

The Natural Environment White Paper (NEWP)¹⁸ sets out the importance of a healthy, functioning natural environment to sustained economic growth, prospering communities and personal wellbeing. It was in part a response to the UK’s failure to halt and reverse the decline of biodiversity by 2010, and it signalled a move away from the traditional approach of protecting biodiversity in nature reserves to adopting a landscape approach to protecting and enhancing biodiversity. The NEWP also aims to create a green economy in which economic growth and the health of our natural resources sustain each other, and markets, business and Government better reflect the value of nature. It includes commitments to:

- Halt biodiversity loss, support functioning ecosystems and establish coherent ecological networks by 2020;
- Establish a new voluntary approach to biodiversity offsetting to be tested in pilot areas;
- Enable partnerships of local authorities, local communities and landowners, the private sector and conservation organisations to establish new Nature Improvement Areas; and
- Address barriers to using green infrastructure to promote sustainable growth

Reflecting the commitments within the Natural Environment White Paper and the EU Biodiversity Strategy; the ‘Biodiversity 2020: A strategy for England’s wildlife and ecosystem services’¹⁹ aims to ‘halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people’.

The recently published 25 Year Environment Plan²⁰ sets out the Government’s environmental plan of action over the next quarter century, in the context of Brexit. The Plan aims to tackle the growing problems of waste and soil degradation, improving social justice through tackling pollution and promoting the mental and physical health benefits of the natural world. It also sets out how the Government will address the effects of climate change. These aims are supported by a range of policies which are focused on the following six key areas:

- Using and managing land sustainably;

¹⁸ HM Gov (2011) The Natural Choice: securing the value of nature [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228842/8082.pdf [accessed 15/01/19]

¹⁹ DEFRA (2011) Biodiversity 2020: A strategy for England’s wildlife and ecosystem services [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf [accessed 15/01/19]

²⁰ HM GOV (2018) A Green Future: Our 25 Year Plan to Improve the Environment [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf [accessed 15/01/19]

- Recovering nature and enhancing the beauty of landscapes;
- Connecting people with the environment to improve health and wellbeing;
- Increasing resource efficiency, and reducing pollution and waste;
- Securing clean, productive and biologically diverse seas and oceans; and
- Protecting and improving the global environment

In this context, Goal 3 'Thriving plants and wildlife' and the policies contained within Chapter 2 'Recovering nature and enhancing the beauty of landscapes' directly relate to the Biodiversity SEA theme.

Published in June 2015, the Highways England (HE) Biodiversity Plan²¹ identifies the approach which HE is taking to meet the challenge of a national decline in biodiversity. The Plan contains five specific outcomes, with a series of related actions. These outcomes aim to provide the most support for biodiversity across the HE networks, and include:

- Outcome 1: HE and our suppliers are equipped to produce good biodiversity performance;
- Outcome 2: The Strategic Road Network is managed to support biodiversity;
- Outcome 3: We have delivered biodiversity enhancements whilst implementing a capital programme of network improvements;
- Outcome 4: We have addressed the legacy of biodiversity problems on our network via a targeted programme of investment; and
- Outcome 5: We are fully transparent about our biodiversity performance (achieved via the production of annual progress reports)

The Milton Keynes Local Plan²² presents policies D1 (Impact of Development Proposals on Locality), Policy NE1 (Nature Conservation Sites), Policy NE2 (Protected Species) and Policy NE3 (Biodiversity and Geological Enhancement) to address the strategic issues in relation to biodiversity.

Baseline Summary

Summary of Current Baseline

The location of designated biodiversity sites and BAP Priority Habitats within and surrounding the borough of Milton Keynes is highlighted in the figure overleaf.

European protected sites

There are no European sites designated for biodiversity within or in close proximity to the borough of Milton Keynes.

Nationally designated sites

Oxley Mead SSSI²³

The Oxley Mead SSSI is a biological Site designated in 1994 and covers an area of 3.42ha. The reasons for notification are as follows:

"Oxley Mead is an ancient hay meadow located on the south-western edge of the City of Milton Keynes. The main plant community found here is of a nationally rare grassland type confined to the major river valleys of southern and central England. This rare grassland community has been

²¹ Highways England (2015): 'Biodiversity Plan', [online] available to access via:

<<https://www.gov.uk/government/publications/biodiversity-plan>> last accessed [15/01/19]

²² Milton Keynes Council (2015) Adopted Local Plan [online] available at: <https://www.milton-keynes.gov.uk/planning-and-building/planning-policy/adopted-local-plan-pdf> [accessed 18/01/19]

²³ Natural England (2019) Designated Sites View [online] available at:

<https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S2000053&SiteName=Oxley&countyCode=&responsi blePerson=&SeaArea=&IFCAAarea=> [accessed 15/01/19]

maintained at Oxley Mead by continuous traditional management involving a late annual hay cut followed by stock grazing, with no fertiliser or herbicide applications. A stream which runs through the middle floods the field regularly in winter which maintains the characteristic composition of the sward.

The soils are derived from the glacial drift that covers a major part of the Ouse basin. These slowly permeable calcareous clayey soils were once extensively cultivated during medieval times. This is demonstrated by the widespread occurrence of ridge and furrow upon these soils; indeed parts of Oxley Mead display this topography together with drier hummocks in the north eastern end of the field.

The meadow is fairly uniform in structure and composition throughout with only a small degree of variation towards the central stream and on the drier hummocky areas."

The whole site is considered to be in a 'favourable' condition.

Howe Park Wood SSSI²⁴

The Howe Park Wood SSSI is a biological Site designated in 1994 and covers an area 24.19ha. The reasons for notification are as follows:

"Howe Park Wood is an ancient semi-natural woodland on the south-western outskirts of Milton Keynes, and is one of the largest tracts surviving in this area. Records of the existence of Howe Park Wood date back to the 13th century and possibly to the 11th century. For much of its history it has evidently been managed as a coppice-with-standards woodland, although, as its name suggests, it is possible that in the early medieval period it was part of a medieval park. A number of surviving large ancient oaks *Quercus robur* and one ancient crab apple *Malus sylvestris* reflect the wood's past as a deer park. The wood is situated on heavy poorly drained calcareous boulder clays. The soils derived from these clays range from free draining loams to seasonally waterlogged gleyed clays, with some areas of drier acid soils. Some areas are seasonally waterlogged, the whole site draining down to the Loughton Brook which runs along the north-western boundary of the wood.

The range of soils and drainage and the long history and low intensity of past management has led to Howe Park Wood retaining a wide range of woodland trees and shrubs. On the more calcareous clays the wood consists of ash/maple/dog's mercury woodland while on the freer-draining and more acidic areas there are stands of oak/bracken/bramble woodland.

The drier soils support woodland vegetation of bramble *Rubus fruticosus* with hairy-woodrush *Luzula pilosa*, wood sage *Teucrium scorodonia* and honeysuckle *Lonicera periclymenum*, and extensive patches of bluebell *Hyacinthoides nonscripta* and wood anemone *Anemone nemorosa*.

The wood is known to support a rich diversity of moths with almost 300 species recorded including the buff footman *Eilima dephana*, the slender brindle *Apanema scolopacina*, the sycamore *Apateles aceris* and the pinion streaked snout *Schrankia costaestrigalis*. The wood also contains white admiral *Limenitis camilla*, purple hairstreak *Thecla quercus* and the nationally scarce wood white *Leptidea sinapsis*, while the dense blackthorn thickets support colonies of the nationally rare black hairstreak butterfly *Strymonidia pruni*, a Red Data Book species confined to fewer than 35 colonies between Oxford and Peterborough."

The whole site is considered to be in a 'favourable' condition.

Yardley Chase SSSI²⁵

The Yardley Chase SSSI is a biological Site designated in 1984 and covers an area of 358 ha. The reasons for notification are as follows:

"The great variety of semi-natural habitat, diversity of associated species and large total area makes Yardley Chase one of the foremost sites for nature conservation in the East Midlands. Much of the site was originally a Norman Hunting Chase and is now woodland, pasture and parkland. More recently,

²⁴ Ibid.

²⁵ Ibid.

military use over a large part has left a series of railway trackways, grassland glades and open pools. The value of these habitats, particularly for invertebrates, is enhanced by their long isolation from intensive agriculture and by their juxtapositions over a large area.

There is documentary evidence to indicate a long history of woodland on the site, although much of the former ancient semi-natural woodland has been replanted or modified. This has created a range of woodland types including plantations of oak, mixed broadleaves and conifers. The integrity of the woodland blocks as a whole is essential to their nature conservation importance, but the relatively unmodified areas are of particular significance. These are typically high forest of the ash *Fraxinus excelsior*-field maple *Acer campestre*-dog's mercury *Mercurialis perennis* woodland type having an understorey of relict coppice with hawthorn *Crataegus monogyna*, Midland hawthorn *C. laevigata*, hazel *Corylus avellana*, dogwood *Cornus sanguinea* and guelder rose *Viburnum opulus*. Honeysuckle *Lonicera periclymenum* is an abundant climber in places, and is important as the larval food plant for the uncommon butterfly white admiral *Ladoga camilla* which occurs here. Field layer species include bluebell *Hyacinthoides non-scripta* and dog's mercury *Mercurialis perennis* with a wide range of associated species such as wood-sedge *Carex sylvatica*, bugle *Ajuga reptans*, primrose *Primula vulgaris* and male fern *Dryopteris filix-mas*. Bramble *Rubus* spp. is locally abundant. Modified stands still retain ground flora species characteristically associated with ancient woodland such as herb Paris *Paris quadrifolia*. In many areas the plantations have failed and the woodland is reverting to a semi-natural mixture of native trees and shrubs. This explains the preponderance of birch species *Betula pendula* and *B. pubescens*. Natural regeneration of ash and field maple is also prolific."

3.22% of the site is considered to be in a 'favourable condition', 94.43% is considered to be in an 'unfavourable-recovering condition' and 2.35% is considered to be 'unfavourable-no change'

Other SSSIs and IRZs

Salcey Forest SSSI (159.56ha of ancient woodland), Mill Crook SSSI (5.85ha of hay meadow) and Kings and Bakers Woods and Heaths SSSI (211.63ha of woodland) are all directly adjacent to the borough of Milton Keynes.

SSSI Impact Risk Zones (IRZ) are a GIS tool/dataset which maps zones around each SSSI according to the particular sensitivities of the features for which it is notified. They specify the types of development that have the potential to have adverse impacts at a given location, including infrastructure, residential and rural non-residential. The areas of Milton Keynes within SSSI IRZs can be viewed using the MAGIC Interactive Mapping Tool²⁶.

Locally designated sites

Local Nature Reserves

Local Nature Reserves (LNRs) are designated by local authorities as habitats of local significance which contribute to both nature conservation and public appreciation and understanding of wildlife. There is one LNR in the borough at present which is Blue Lagoon, Bletchley. The main feature of this Nature Reserve is a large, deep, water-filled pit (known as the Blue Lagoon). The Blue Lagoon lies on part of the former site of the London Brick Company brickworks and is home to a variety of plants, mammals, birds, reptiles, amphibians, fish, crustacea and insects.²⁷

Milton Keynes Wildlife Sites

Milton Keynes Wildlife Sites (MKWS) meet a set of agreed criteria.²⁸ They are equivalent to the "County Wildlife Site" designation used by many other local authorities. They are designated on account of their

²⁶ MAGIC (2019): 'Magic Interactive Mapping Tool', [online] available to access via:<<http://www.magic.gov.uk/MagicMap.aspx>> last accessed [15/01/19]

²⁷ Milton Keynes Natural History Society (2019): 'Blue Lagoon', [online] available at: <https://mknhs.org.uk/blue-lagoon/> [accessed 15/01/19].

²⁸ Milton Keynes Council (2005): 'Natural Environment', [online] available to access via: https://www.google.com/search?q=Milton+Keynes+sites+of+importance+for+nature+conservation&rlz=1C1GCEA_enGB784G

special features or habitat, plant or animal communities, species or geology. Although not statutorily designated, they do receive protection through policies in development plans. Criteria used in evaluating sites for designation include their irreplaceability, diversity, size, rarity, position in the ecological unit and amenity, historical and educational value. The category of MKWS also includes Regionally Important Geological and Geomorphological Sites (RIGS). RIGS are sites that are considered worthy of protection for their educational, research, historical or aesthetic importance. RIGS are generally selected and conserved by an informally constituted, largely voluntary RIGS group organised at county level. Details of all sites currently identified as RIGS are held by Buckinghamshire and Milton Keynes Environmental Records Centre.

The Milton Keynes Wildlife Sites (MKWS) are:

- Costerpits
- Grand Union Canal, Stanton Low
- Jubilee Pit
- Newport Pagnell Gravel Pits
- Chalk grassland, Olney
- Valley Fen, Ravenstone
- Walton Lake
- Lavendon Wood
- Linford Wood
- Old Limestone Quarry
- Shenley Wood
- Threshire's Wood
- A509 East of Sherington
- Field at Yew Tree Farm
- Roadside verge, Olney

Wildlife Corridors

Wildlife Corridors are also given the same status as Milton Keynes Wildlife Sites.²⁹ They are linear pathways containing habitats that encourage the movement of plants and animals between important wildlife sites. The Wildlife Corridors in Milton Keynes were defined through a project in the mid-1990s, sponsored by the local authorities, CNT, the Parks Trust and English Nature. Four types of corridors were identified – wetland, woodland, railway and road corridors. Where development proposals lie within or adjoining a Wildlife Corridor, the Council will consider whether the proposals would damage the viability of the Corridor. Section 4 of “The Wildlife Corridors of Milton Keynes” (1996) sets out general recommendations for the protection and management of wildlife corridors. Specific management issues are set out in the evaluation of each individual wildlife corridor.

Biodiversity Action Plan (BAP) Priority Habitats

There are a number of Biodiversity Action Plan Priority Habitats within and surrounding the Neighbourhood Plan area, as depicted in the figure overleaf. The habitats include: broadleaved

[B784&og=Milton+Keynes+sites+of+importance+for+nature+conservation&q=chrome..69i57.12550j1j7&sourceid=chrome&e=UTF-8](https://www.google.com/search?q=Milton+Keynes+sites+of+importance+for+nature+conservation&q=chrome..69i57.12550j1j7&sourceid=chrome&e=UTF-8) [accessed 15/01/19].

²⁹ Milton Keynes Council (2005): 'Natural Environment', [online] available to access via:

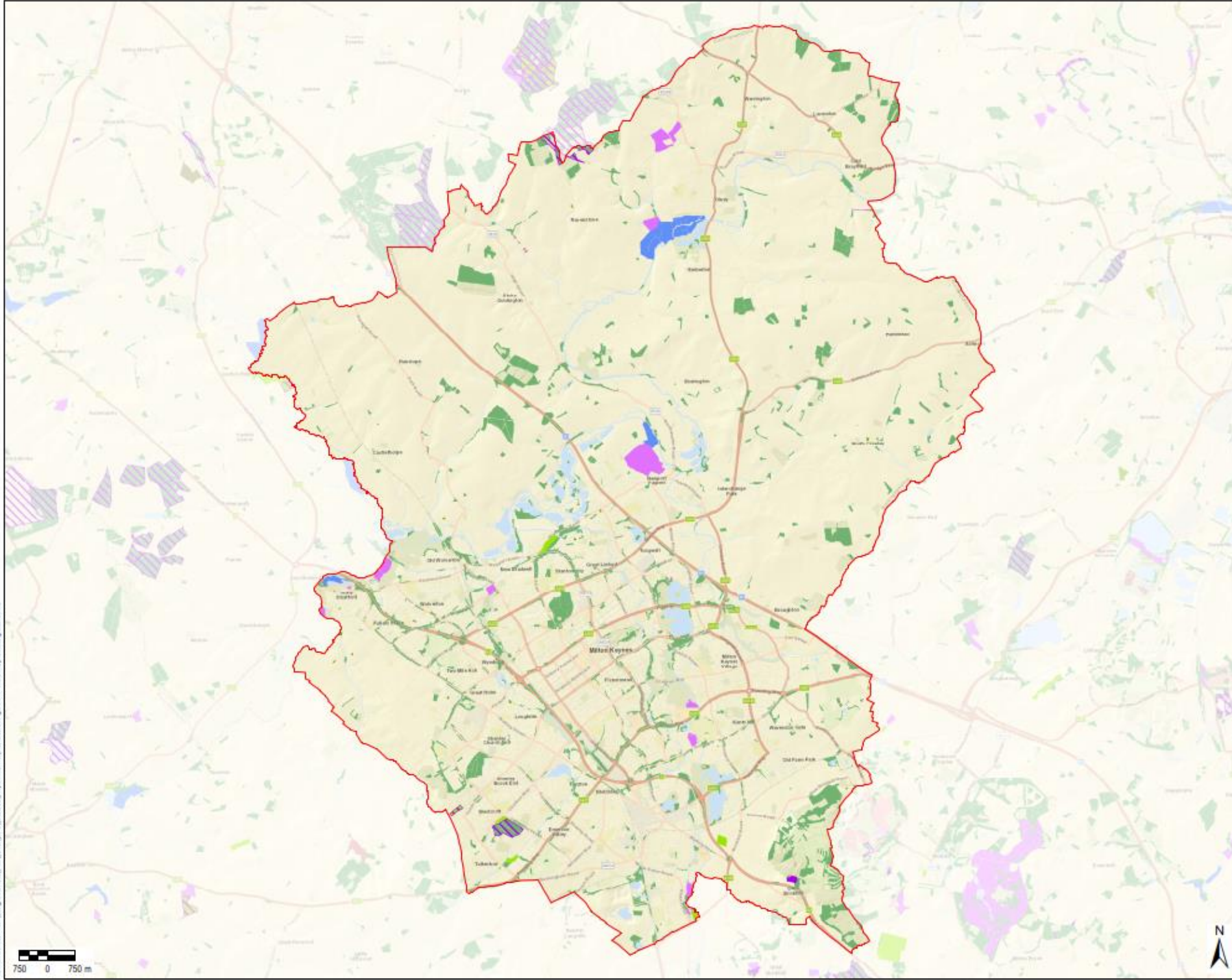
https://www.google.com/search?q=Milton+Keynes+sites+of+importance+for+nature+conservation&rlz=1C1GCEA_enGB784G_B784&og=Milton+Keynes+sites+of+importance+for+nature+conservation&q=chrome..69i57.12550j1j7&sourceid=chrome&e=UTF-8 [accessed 15/01/19].

woodland, deciduous woodland, good quality semi-improved grassland and coastal and floodplain grazing marsh.

Summary of Future Baseline

Habitats and species will potentially face increasing pressures from future housing, employment and infrastructure delivery within Milton Keynes, with the potential for negative impacts on the wider ecological network. This may include a loss of habitats and impacts on biodiversity networks. The potential impacts on biodiversity from climate change are likely to include changes in habitat, changes in species distribution, changes in hydrology, changes in ecosystem functioning and a range of others.

To maintain and improve the condition of biodiversity in the future, it will be important to not only protect and enhance important habitats but the connections between them. It will be crucial to effectively coordinate the delivery of infrastructure to ensure that the opportunities to improve green infrastructure and ecological corridors are maximised.



LEGEND

- Milton Keynes Boundary
- Site of Special Scientific Interest (SSSI)

Biodiversity Action Plan Priority Habitats

- Coastal and Floodplain Grazing Marsh
- Deciduous Woodland
- Good Quality Semi-improved Grassland
- Lowland Calcareous
- Lowland Dry Acid
- Lowland Fens
- Lowland Heathland
- Lowland Meadows
- Purple Moor Grass and Rush Pastures
- Reedbeds
- Traditional Orchard

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Proposed Issue: **FINAL**

Client: **MILTON KEYNES COUNCIL**

Project Title: **SEA SCOPING REPORT FOR THE MILTON KEYNES LOCAL TRANSPORT PLAN 4**

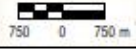
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Climate Change

Policy Context

In its 2007 strategy on climate change, the European Commission assesses the costs and benefits of combating climate change and recommends a package of measures to limit global warming to 2° Celsius.³⁰ In relation to energy, the Commission recommends that the EU's energy efficiency improves by 20% and the share of renewable energy grows to 20% by 2020.

The UK Climate Change Risk Assessment is published on a 5-yearly cycle in accordance with the requirements of the Climate Change Act 2008. It required the Government to compile an assessment of the risks for the UK arising from climate change, and then to develop an adaptation programme to address those risks and deliver resilience to climate change on the ground. For both the 2012 and the 2017 UK Climate Change Risk Assessment, the Adaptation Sub-Committee commissioned an evidence report to achieve the following:

- 'Based on the latest understanding of current, and future, climate risks and opportunities, vulnerability and adaptation, what should the priorities be for the next UK National Adaptation Programme?'³¹

The evidence report contains six priority risk areas requiring additional action in the next five years, see below:

1. Flooding and coastal change risks to communities, businesses and infrastructure;
2. Risks to health, well-being and productivity from high temperatures;
3. Risk of shortages in the public water supply, and for agriculture, energy generation and industry;
4. Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity;
5. Risks to domestic and international food production and trade; and
6. New and emerging pests and diseases, and invasive non-native species, affecting people, plants and animals

Key messages from the National Planning Policy Framework³² (NPPF) include:

- One of the three overarching objectives of the NPPF is an environmental objective to 'contribute to protecting and enhancing our natural, built and historic environment' including by 'mitigating and adapting to climate change' and 'moving to a low carbon economy.' 'The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.'
- 'Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.'

³⁰ Commission of the European Communities (2007) Limiting Global Climate Change to two degrees Celsius: The way ahead for 2020 and beyond [online] available at: < <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0002:FIN:EN:PDF> > last accessed [15/01/19]

³¹ GOV UK: 'UK Climate Change Risk Assessment Report January 2017', [online] available to download from: < <https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2017> > last accessed [15/01/19]

³² MHCLG (2018) National Planning Policy Framework [online] available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf [accessed 15/01/19]

- Direct development away from areas at highest risk of flooding (whether existing or future). 'Where development is necessary, it should be made safe for its lifetime without increasing flood risk elsewhere.'

The Flood and Water Management Act³³ highlights that alternatives to traditional engineering approaches to flood risk management include:

- Incorporating greater resilience measures into the design of new buildings, and retro-fitting properties at risk (including historic buildings);
- Utilising the environment in order to reduce flooding, for example through the management of land to reduce runoff and through harnessing the ability of wetlands to store water;
- Identifying areas suitable for inundation and water storage to reduce the risk of flooding elsewhere;
- Planning to roll back development in coastal areas to avoid damage from flooding or coastal erosion; and
- Creating sustainable drainage systems (SuDS)³⁴

Further guidance is provided in the document 'Planning for SuDS'.³⁵ This report calls for greater recognition of the multiple benefits that water management can present. It suggests that successful SuDS are capable of 'contributing to local quality of life and green infrastructure'.

Baseline Summary

Summary of Current Baseline

Greenhouse gas emissions

In relation to greenhouse gas emissions, source data from the former DECC suggests that Milton Keynes has had consistently higher per capita emissions total than both the South East of England and England since 2005. However, Milton Keynes has seen a slightly higher average reduction in emissions per capita between 2005 and 2016 (39.5%) compared to the South East (34.8%) and England (a 35.6% reduction).

Emissions from transport fell from 2.7 to 2.3 tonnes of CO₂ per capita in Milton Keynes between 2005 and 2016 (a 14.8% reduction). In the South East emissions from transport reduced by 16.7% and in England by 10.5%.

Potential effects of climate change

The outcome of research on the probable effects of climate change in the UK was released in 2009 by the UK Climate Projections (UKCP09) team³⁶. UKCP09 gives climate information for the UK up to the end of this century and projections of future changes to the climate are provided, based on simulations from climate models. Projections are broken down to a regional level across the UK and are shown in probabilistic form, which illustrate the potential range of changes and the level of confidence in each prediction.

As highlighted by the research, the effects of climate change for the South East of England by 2050 for a medium emissions scenario are likely to be as follows:

- The central estimate of increase in winter mean temperature is 2.2°C and an increase in summer mean temperature of 2.8°C; and

³³ Flood and Water Management Act (2010) [online] available at: <http://www.legislation.gov.uk/ukpga/2010/29/contents> [accessed 15/01/19]

³⁴ N.B. The provision of Schedule 3 to the Flood and Water Management Act 2010 came into force on the 1st of October 2012 and makes it mandatory for any development in England or Wales to incorporate SuDs.

³⁵ CIRIA (2010) 'Planning for SuDs – making it happen' [online] available to access via http://www.ciria.org/Resources/Free_publications/Planning_for_SuDS_ma.aspx last accessed [15/01/19]

³⁶ The data was released on 18th June 2009: See: <http://ukclimateprojections.metoffice.gov.uk> last accessed [15/01/19]

- The central estimate of change in winter mean precipitation is 16% and summer mean precipitation is –19%.

Resulting from these changes, a range of risks may exist for the Milton Keynes. These include:

- Increased incidence of heat related illnesses and deaths during the summer;
- Increased incidence of illnesses and deaths related to exposure to sunlight (e.g. skin cancer, cataracts);
- Increased incidence of pathogen related diseases (e.g. legionella and salmonella);
- Increase in health problems related to rise in local ozone levels during summer;
- Increased risk of injuries and deaths due to increased number of storm events;
- Effects on water resources from climate change;
- Reduction in availability of groundwater for abstraction;
- Adverse effect on water quality from low stream levels and turbulent stream flow after heavy rain;
- Increased risk of flooding, including increased vulnerability to 1:100 year floods;
- Changes in insurance provisions for flood damage;
- A need to increase the capacity of wastewater treatment plants and sewers;
- A need to upgrade flood defences;
- Soil erosion due to flash flooding;
- Loss of species that are at the edge of their southerly distribution;
- Spread of species at the northern edge of their distribution;
- Deterioration in working conditions due to increased temperatures;
- Changes to global supply chain;
- Increased difficulty of food preparation, handling and storage due to higher temperatures;
- An increased move by the insurance industry towards a more risk-based approach to insurance underwriting, leading to higher cost premiums for business;
- Increased demand for air-conditioning;
- Increased drought and flood related problems such as soil shrinkages and subsidence;
- Risk of road surfaces melting more frequently due to increased temperature; and
- Flooding of roads

Flood Risk

The borough is covered by the River Great Ouse catchment area. The River Great Ouse flows from Syresham in central England, eastwards through Milton Keynes and eventually enters the Wash. Additionally the River Ouzel which is a tributary of the River Great Ouse joins the Great River Ouse at Newport Pagnell.

The areas at the highest risk of flooding in Milton Keynes are those near these two rivers and their tributaries. Large parts of the rivers' catchment areas within Milton Keynes are in are in Flood Zone 3. Flood Zone 3 is of a high probability of flooding; representing that there is a 1% (1 in 100) or greater chance of flooding happening each year.

A general overview of flood risk present within Milton Keynes is found within the Strategic Flood Risk Assessment (SFRA).³⁷ The types of flood risk present, as described in the SFRA, are presented below.

Fluvial Flooding

Prior to the development of Milton Keynes new town there was regular flooding from the River Great Ouse, River Ouzel and Loughton Brook. During the floods of 1947 and 1968 a number of areas around Bletchley, Newport Pagnell, Bradwell, Loughton and Simpson were seriously affected. However, Milton Keynes is unusual as the development of the new town has meant there have been significant changes to the catchment characteristics, with increased run off from urban areas mitigated by a system of public storm sewers, reengineered watercourses and balancing lakes. These changes in the system should be considered when applying information about the location of flooding prior to the development of Milton Keynes to the present day.

Using a series of data sets, the SFRA has identified a number of areas in Milton Keynes which have a history of fluvial flooding including:

- Newport Pagnell, which flooded in Easter 1998 and March 1947 from the River Great Ouse and River Ouzel, and in September 1992 from the River Ouzel. The Environment Agency node measurements show several properties flooded in Lakes Lane, Newport Pagnell in the 1998 floods, and that in the 1992 floods there was flooding to Willen Lane, Nene Close, Dove Close, Trent Close, Riverside, Mill Street, and Northampton Rd. In addition, Silver Street, Tickford Street and Priory Street flooded due to the surface water drains surcharging in the 1992 floods.
- Stony Stratford, which is at risk of flooding from the River Great Ouse, flooded in March 1947 and 1998. The Stony Stratford re-feasibility study reports that part of the town was also flooded during the Easter 1998 event, and four non-residential buildings were inundated. Environment Agency measured levels show that flooding occurred to properties in Fegans Court, the High Street, Prospect Road, Temperance Terrace and Mill Lane. The nonresidential buildings were in Queen Eleanor Street and it is thought that the flooding was due to surface water drainage problems. There was further flooding to Fegans Court and the High Street in January 2003. The local newspaper reports that in the July 2007 floods there was flooding to the High Street and Temperance Terrace.
- Parts of Olney and Newton Blossomville are shown as having flooded in 1947 from the Great Ouse. However, the Olney, Newton Blossomville and Turvey pre-feasibility study found no properties at risk of flooding in Newton Blossomville below a 1 in 100 year event and states that the properties in Newton Blossomville are located on high ground along the edge of the river valley and as such are outside the river flood plain. In Olney the study found the standard of protection to be as low as 1 in 5 years for some properties in Mill Close. Environment Agency measurements record that the grounds of 2 properties in Church Street, Olney were flooded in April 1998, and that there was flooding to a goods yard on Carey Way, Olney in March 1947.
- Fenny Stratford is within the March 1947 flood outline for the River Ouzel. There are no recorded flood levels. The River Ouzel at Milton Keynes SoP Study identified 5 properties at risk of flooding at a 1 in 2 year return period just downstream of Fenny Stratford including Belvedere Farm and nurseries, with further properties at risk on Powel Haven, Mill Lane, Woolstone, Watling Street, Manor Field, and Watling Terrace from higher return periods.
- New Bradwell flooded in 1998 and 1947 from the River Great Ouse, and 1968 from Loughton Brook. The Environment Agency flood event outlines only show flooding to gardens and grounds, not buildings, for these events.

³⁷ URS (2005) Milton Keynes Level 1 Strategic Flood Risk Assessment [online] available to access at: https://www.google.com/search?rlz=1C1GCEA_enGB784GB784&ei=SAM-XJziENLDwQLww5OgBQ&q=milton+keynes+strategic+flood+risk+assessment&oq=milton+keynes+strategic+flood+risk+assessment&gs_l=psy-ab.3..0i22i30.4511722.4517984..4518039...0.0.0.382.4239.35i5i2i2...2.0...1..qws-wiz.....0i71i0i67i0i131i0i33i22i29i30.w3JXaiCxFUA last accessed [15/01/2019]

- Shenley Brook End, which flooded in August 1980 due to an obstruction or blockage of a culvert on Shenley Brook. The local newspaper reports flood damage to Long Meadow School but does not give a date.
- Walton Park. The local newspaper reports flooding to Wadesmill Lane, under the v10 road bridge in November 2004 and November 2007. It reports that a local resident claims that the street floods once or twice a year. The newspaper attributes the flooding to the brook next to the community centre.
- The newspaper reports flooding to Bourton Low in Walnut Tree due to blockage to a culvert on Caldecotte Brook.

Surface Water Flooding

Surface water flooding is a potential risk in urban areas. High intensity rainfall creates large volumes of surface water runoff over the impermeable surfaces. If the surface drainage system capacity is insufficient to drain the surface water quickly enough, flooding will occur.

Surface water flooding has occurred in: Newport Pagnell in 1992, Cosgrove in 1998, Old Stafford in 2004, Stoke Goldington 2007, Passenham in 2007 and in Lavendon in 2008.

There is a history of overland flooding in Stoke Goldington due to runoff flowing over the fields.

Surface water flooding incidents have been recorded at numerous locations throughout the borough, with flooding occurring on an annual basis at many places. Many of the localised flooding zones are caused by surface flooding.

Development may increase surface water flood risk by increasing impermeable surface area and thus runoff volume. The existing drainage system may not have the capacity to cope with this increase. Mitigation measures will be required in order to ensure development does not increase surface water flood risk.

Groundwater Flooding

Groundwater flooding has occurred in Olney in 1969, Ravenstone in 1976, Stony Stratford in 1998 and Newport Pagnell in 2003.

Sewerage Flooding

During and following heavy rainfall, flooding from sewer systems may occur if:

- The rainfall exceeds capacity of the sewer system/drainage system
- The system becomes blocked by debris or sediment
- The system surcharges due to high water levels in receiving watercourses

Within the borough there is potential for surface water outlets to become submerged due to high river levels. When this happens, water is unable to discharge. Once storage capacity within the sewer system itself is exceeded, the water will overflow into streets and potentially into houses. Where the local area is served by 'combined' sewers i.e containing both foul and storm water, if rainfall entering the sewer exceeds the capacity of the combined sewer and storm overflows are blocked by high water levels in receiving watercourses, surcharging and surface flooding may again occur but in this instance floodwaters will contain untreated sewage.

There have been a few historic events of sewerage flooding within Milton Keynes including in Fenny Stratford and Stony Stratford.

Local Flood Risk Management Strategy

Under the Flood and Water Management Act (2010), Milton Keynes Council was designated as Lead Local Flood Authority (LLFA). Under the Act, Milton Keynes Council was required to produce a Flood Risk Management Strategy.

As part of this process The Bedford Group of Drainage Boards prepared a joint Preliminary Flood Risk Assessment (PRFA) in 2011 on behalf of Milton Keynes Council, Bedfordshire Council and Bedford Borough Council.³⁸ The PRFA report looks at past flooding and where future flooding might occur across the area and the consequences it might have to people, properties and the environment. The report will help Milton Keynes Council to develop their Local Flood Risk Management Strategy,

The Great Ouse Catchment Flood Management Plan (CFMP) covers the Milton Keynes borough and identifies different policies for different 'sub-areas' of the River Great Ouse catchment. The administrative area of Milton Keynes falls within three CFMP sub-areas:

- Sub-area 1 Bedford Ouse Rural (Policy 3): Areas of low to moderate flood risk where existing flood risk is generally being managed effectively.
- Sub-area 2 Great Ouse River Corridor (Policy 6): Areas of low to moderate flood risk where we will take action with others to store water or manage run off in locations that provide overall flood risk reduction or environmental benefits.
- Sub-area 3 Milton Keynes/The Stratfords/Newport Pagnell (Policy 5): Areas of moderate to high flood risk where further action can generally be taken to reduce flood risk.

There are a number of flood defences within Milton Keynes at Newport Pagnell, Middleton and Fenny Stratford.

A primary objective in the original design of the City of Milton Keynes was that its development should not make flooding worse than that which would be experienced had the development not taken place. To achieve this, a series of balancing lakes were constructed on the River Ouzel, Loughton Brook and Tongwell Brook. These lakes compensate for increased runoff from urban areas and recreate storage that was lost as a result of floodplain development.

Summary of Future Baseline

Climate change has the potential to increase the occurrence of extreme weather events in Milton Keynes, with increases in mean summer and winter temperatures, increases in mean precipitation in winter and decreases in mean precipitation in summer. This is likely to increase the risks associated with climate change (including surface water and fluvial flood risk). This will result in an increased need for resilience and adaptation for transport infrastructure.

In terms of climate change mitigation, per capita emissions are likely to continue to decrease as energy efficiency measures, renewable energy production and new technologies become more widely adopted. This includes relating to the update of more energy efficient and less polluting vehicles, including electric cars.

Historic Environment

Policy Context

Key messages from the National Planning Policy Framework (NPPF) include:

- Heritage assets should be recognised as an 'irreplaceable resource' that should be conserved in a 'manner appropriate to their significance', taking account of 'the wider social, cultural, economic and environmental benefits' of conservation, whilst also recognising the positive contribution new development can make to local character and distinctiveness.
- Set out a 'positive strategy' for the 'conservation and enjoyment of the historic environment', including those heritage assets that are most at risk.

³⁸ Bedford Group of Drainage Boards (2011) Upper River Great Ouse Tri LLFA Preliminary Flood Risk Assessment for Bedford Borough Council, Central Bedfordshire Council and Milton Keynes Council [online] available at: http://www.centralbedfordshire.gov.uk/Images/preliminary-flood-risk-assessment_tcm3-7812.pdf last accessed [16/01/19].

- 'Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification'.

Additionally, the National Planning Policy Guidance states that Neighbourhood Plans should include enough information, where relevant, "about local heritage to guide decisions and put broader strategic heritage policies from the local plan into action at a neighbourhood scale" and "about local non-designated heritage assets including sites of archaeological interest to guide decisions".

Goal 6 'Enhanced beauty, heritage and engagement with the natural environment' of the Government's "A Green Future: Our 25 Year Plan to Improve the Environment" directly relates to the Historic Environment SEA theme.

The Government's Statement on the Historic Environment for England sets out its vision for the historic environment. It calls for those who have the power to shape the historic environment to recognise its value and to manage it in an intelligent manner in light of the contribution that it can make to social, economic and cultural life.

The CMK Alliance Plan 2026 sets out a number of policies relating to the historic environment. This includes Policy CMKAP G1 *Classic CMK Infrastructure*, which seeks to conserve and retain the 'classic CMK infrastructure' of central Milton Keynes, and Policy CMKAP G2 *Classic CMK Buildings & Public Art* seeks to protect the built heritage and public art of central Milton Keynes.

Baseline Summary

Summary of Current Baseline

Milton Keynes has a rich historic environment resource. There are a variety of historic features of interest located within or adjacent to the borough, including scheduled monuments, Grade I, II* and II listed building, as well as conservation areas.

Scheduled monuments are sites of national importance and protected by the Ancient Monuments and Archaeological Areas Act 1979. According to the National Heritage List for England, there are 49 scheduled monuments located within Milton Keynes.

Historic England is the statutory consultee for certain categories of listed building consent and all applications for scheduled monument consent. The historic environment is protected through the planning system, via conditions imposed on developers and other mechanisms. The borough of Milton Keynes contains 18 Grade I, 48 Grade II* and 1,046 Grade II listed buildings.

Historic parks and gardens are noted as a fragile and finite resource by Historic England³⁹, as they can easily be damaged beyond repair or lost. Historic England states that the emphasis of Historic England's register is on gardens, grounds and other planned open spaces, such as town squares. The majority of sites registered are, or started life as, the grounds of private houses, but public parks and cemeteries form important categories too. The register lists three within the Milton Keynes. These are Gayhurst Court, Tyringham and Chicheley Hall, all of which are located north of the city centre.

Conservation areas are designated because of their special architectural and historic interest, the character or appearance of which it is desirable to conserve or enhance. Conservation area appraisals are a tool to demonstrate the area's special interest, explaining the reasons for designation and providing a greater understanding and articulation of its character - mentioned within the 'Conservation Area Designation, Appraisal and Management' advice note by Historic England⁴⁰. Ideally, appraisals should be regularly reviewed as part of the management of the conservation area, and can

³⁹ Historic England (2019): 'Registered Parks and Gardens' [online] available at: <<https://www.historicengland.org.uk/listing/what-is-designation/registered-parks-and-gardens/>> last accessed [16/01/2019]

⁴⁰ Historic England (2016): 'Conservation Area Designation, Appraisal and Management Advice Note 1', [online] available to download from: <<https://www.historicengland.org.uk/images-books/publications/conservation-area-designation-appraisal-management-advice-note-1/>> last accessed [16/01/19]

be developed into a management plan. There are 27 conservation areas in Milton Keynes, all of which have had conservation area appraisals undertaken.⁴¹

Conservation area	Designated
Bletchley	26.2.1992
Bradwell	08.02.1978
Broughton	08.02.1978
Calverton	08.03.1971
Castlethorpe	06.03.1972
Clifton Reynes	31.10.1979
Emberton	22.03.2007
Great Lindford	10.03.2015
Hanslope	08.02.1978
Lavendon	10.03.1969
Little Brickhill	22.03.2007
Loughton	10.03.2015
Milton Keynes (Middleton)	08.02.1978
Newport Pagnell	10.03.1969
Newton Blossomville	14.09.1970
North Crawley	14.09.1970
Olney	10.03.1969
Ravenstone	14.09.1970
Shenley Church	08.02.1978
Sherington	14.09.1970
Stoke Goldington	08.02.1978
Stony Stratford	08.01.1973
Weston Underwood	15.03.1974
Willen	06.08.1975
Woburn Sands	10.03.1969

⁴¹ Milton Keynes Council (2019): 'Conservation Areas in Milton Keynes', [online] available at: <<https://www.milton-keynes.gov.uk/planning-and-building/conservation-and-archaeology/conservation-areas-in-milton-keynes>> last accessed [16/01/19].

Conservation area	Designated
Wolverton	04.09.2001
Woughton On-The-Green	08.02.1978

It should be noted that not all of the area's historic environment features are subject to statutory designations, and non-designated features comprise a large part of what people have contact with as part of daily life – whether at home, work or leisure. Although not designated, many buildings and areas are of historic interest and are seen as important by local communities.

Since 2008, Historic England has released an annual Heritage at Risk Register. The Heritage at Risk Register highlights the Grade I and Grade II* listed buildings, scheduled monuments, historic parks and gardens, registered battlefields, wreck sites and conservation areas deemed to be 'at risk'. Although published annually, Historic England's Heritage at Risk Register is continually being updated and so assets can be added to or removed from the Register at any time. According to the 2019 Heritage at Risk Register for Milton Keynes, there are six heritage assets at risk within Milton Keynes⁴². These are:

- Wolverton Conservation Area
- Church of St Peter, Gayhurst Court (Grade I listed building)
- Roman town of Magiovinium and Roman Fort, Bletchley and Fenny Stratford (scheduled monument)
- Moated site 70m south of Long Plantation, Hanslope Park (scheduled monument)
- St Martin's Chapel (scheduled monument)
- Former Chapel to Bradwell Abbey (scheduled monument)

However, it is important to recognise that the Heritage at Risk Registers for areas outside of London do not contain information about the status of Grade II listed buildings. As such, it is currently not possible to determine whether the Grade II listed buildings within the TIDP area are at risk.

The Historic Environment Record (HER) is the principal record of the historic environment in Milton Keynes, going beyond the national heritage list to record many non-designated heritage assets. This is identified in both the NPPF and NPPG as an important information source for the historic environment that should be used in planning decisions. The Milton Keynes Historic Environment Record is an information service that provides access to comprehensive and dynamic resources relating to the archaeology and historic built environment of the borough. It is a source of, and signpost to, information relating to landscapes, buildings, monuments, sites, places, areas and archaeological finds spanning more than 700,000 years of human endeavour.

The Milton Keynes HER provides a report detailing all the heritage records within the administrative area. Summary information from the Milton Keynes HER is available via the Heritage Gateway website, from which it is possible to gain a report detailing all the records within the administrative area of Milton Keynes. The Milton Keynes HER identifies that there are 6,836 local records within Milton Keynes.

Summary of Future Baseline

New housing, employment and infrastructure provision within Milton Keynes has the potential to impact on the fabric and setting of cultural heritage assets; for example, through inappropriate design and layout. It should be noted, however, that existing historic environment designations offer a degree of protection to cultural heritage assets and their settings, and there are a range of existing initiatives to enhance the historic environment of the borough.

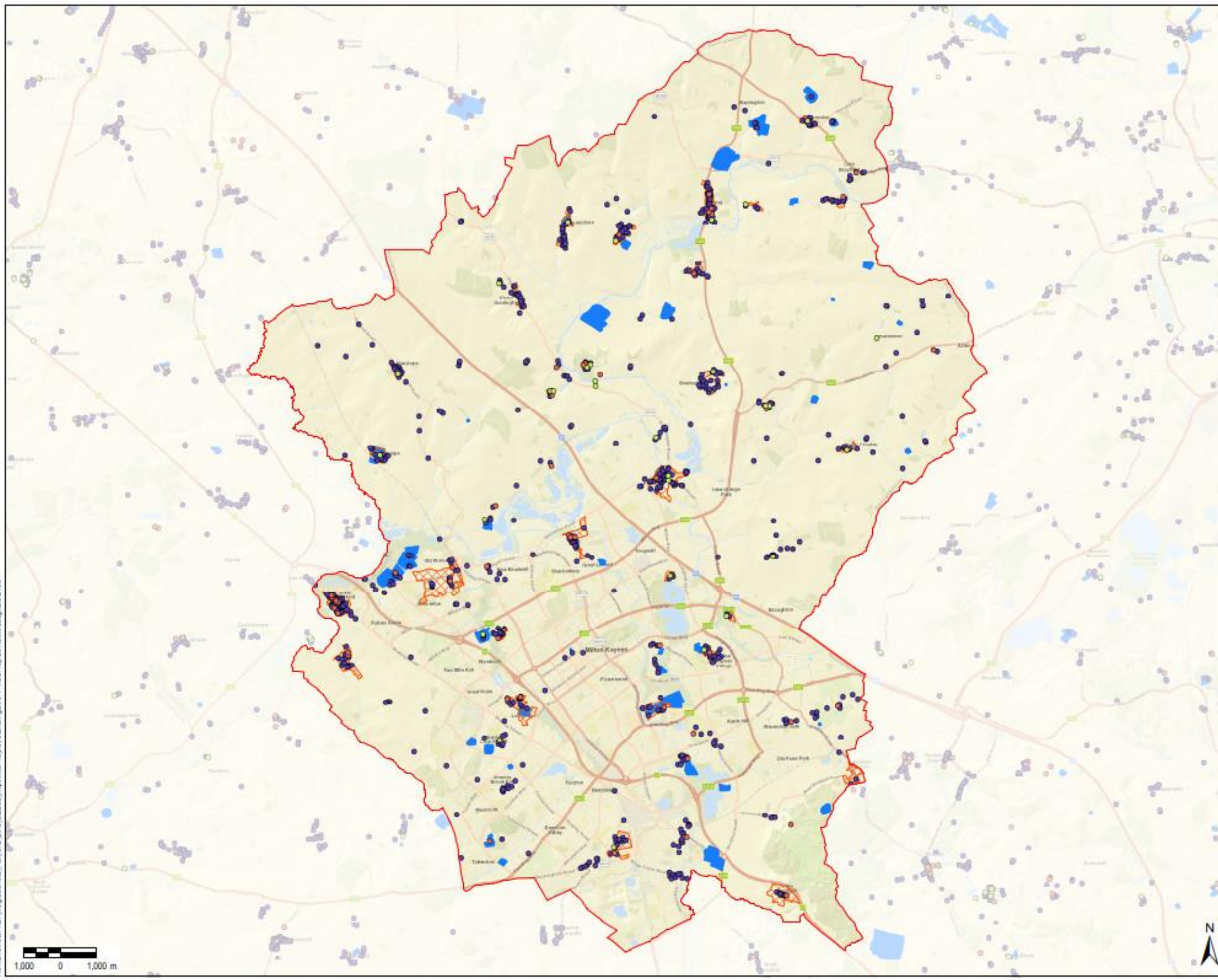
⁴² Historic England (2019) Heritage at Risk Register Search Results [online] available at: <<https://historicengland.org.uk/advice/heritage-at-risk/search-register/results?q=&searchtype=har>> [accessed 16/01/19]

Alongside, new development need not be harmful to the significance of a heritage asset, and in the context of the LTP4 there may be opportunity for new transport infrastructure to enhance the historic settings of localities and better reveal assets' cultural heritage significance.

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LEGEND

- Milton Keynes Boundary
- Listed Building**
 - Grade I
 - Grade II
 - Grade II*
- Conservation Area
- Record of Scheduled Monument



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Purpose of Issue
FINAL

Client
MILTON KEYNES COUNCIL

Project Title
SEA SCOPING REPORT FOR THE MILTON KEYNES LOCAL TRANSPORT PLAN 4

Drawing Title
HISTORIC ENVIRONMENT DESIGNATIONS

Drawn LL	Checked AD	Approved TS	Date 01/02/2019
Scale @ A3 1:95,000			

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Landscape

Policy Context

Key messages from the National Planning Policy Framework (NPPF) include:

- Protect and enhance valued landscapes, giving particular weight to those identified as being of national importance.
- Develop 'robust and comprehensive policies that set out the quality of development that will be expected for the area. Such policies should be based on stated objectives for the future of the area and an understanding and evaluation of its defining characteristics'.
- Consider the effects of climate change in the long term, including in terms of landscape. Adopt 'proactive strategies' to adaptation and manage risks through adaptation measures including well planned green infrastructure.
- Maintain the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast, and improve public access to and enjoyment of the coast.

The policies contained within Chapter 2 'Recovering nature and enhancing the beauty of landscapes' of the Government's 'A Green Future: Our 25 Year Plan to Improve the Environment' directly relates to the Landscape SEA theme.

The Milton Keynes Local Plan⁴³ presents policies S10 (Open Countryside), Policy S11 (Areas of Attractive Landscape), Policy NE4 (Conserving and enhancing landscape character), and Policy L2 (Protection of Public Open Space and Existing Facilities) to address the strategic issues in relation to landscape.

Baseline Summary

Summary of Current Baseline

National Character Areas

National Character Areas (NCAs) are landscape areas which share similar characteristics, following natural lines in the landscape rather than administrative boundaries. Developed by Natural England, NCA profiles describe the natural and cultural features that shape each of these landscapes, providing a broad context to its character. Milton Keynes predominantly falls within the Bedfordshire and Cambridgeshire Claylands NCA. However, two other NCAs also partly cover the borough: NCA 89 Northampton Vales and NCA 91 Yardley Whittlewood Ridge.

Milton Keynes Landscape Character Assessment

The Milton Keynes Landscape Character Assessment which was carried out in 2016⁴⁴ also describes the landscape of the borough as being predominantly characterised by an undulating clayland plateau which is divided by the shallow river valleys of the Ouse and Ouzel. To the fringes of the authority are two contrasting landscape types; a steep greensand ridge to the south and a limestone plateau on the northern boundary of the borough.

Away from the urban areas, the borough's landscape has a predominantly rural character despite the rapid expansion of Milton Keynes. The landscape is dominated by agricultural land use with dispersed villages and farmsteads. Pasture is more common in the river valleys with arable cultivation dominating the plateaus. The valley floor of the Ouse comprises a number of important flood meadows which still support traditional grazing however in many areas the ground is cultivated up to the river. The Ouse

⁴³ Milton Keynes Council (2015) Adopted Local Plan [online] available at: <https://www.milton-keynes.gov.uk/planning-and-building/planning-policy/adopted-local-plan-pdf> [accessed 18/01/19]

⁴⁴ Milton Keynes Council (2016): 'Milton Keynes Landscape Character Assessment' [online] available to download via: < <https://www.milton-keynes.gov.uk/planning-and-building/planning-policy/landscape-character-assessment> > [last accessed 16/01/2019]

Valley includes a number of restored and active mineral extraction sites many of which have been restored for wildlife and recreational uses. The poorer soils of the limestone plateau to the north and the greensand ridge to the south support a high proportion of woodland.

Settlement in the rural areas of Milton Keynes is often historic, ranging from picturesque villages to the individual houses, churches with prominent spires, and a number of historic parklands and estates. The range of building materials found within the area reflects the natural geology, making an important contribution to local architectural character and sense of place. Warm coloured limestone buildings characterise the Ouse Valley, while the distinctive local greensand is used in older buildings on the Brickhills. On the upland plateaus east of the River Ouse, local building materials comprise red brick and some timber frame. Many of the more prominent buildings in the borough are built from imported stone, such as the churches at Olney and Gayhurst and fine houses such as Tyringham.

The Landscape Character Assessment divides the borough up into six Landscape Character Types (LCTs) and provides detailed descriptions of each one. The key characteristics of each LCT are referred to below:

Landscape Character Type	Key Characteristics
LCT 1 Clay Plateau Farmland	<ul style="list-style-type: none"> • Gently undulating plateau landscape • Large to medium scale mixed woodlands • Medium to large arable fields with clipped hedges • Areas of pasture and smaller fields closer to the settlements • Sparsely settled rural landscape crossed by minor roads
LCT2 River Valley	<ul style="list-style-type: none"> • Slow flowing meandering river in sinuous valley floor • Areas of pasture close to the river • Open field patterns with ditches and wire fences • Weirs and historic mills • Historic parklands
LCT 3 Clay Plateau Farmland with Tributaries	<ul style="list-style-type: none"> • Elevated clay plateau • Incised by small tributaries creating rolling landform • Predominantly arable with some pasture • Small pockets of isolated broadleaved woodlands and mature hedgerow trees
LCT 4 Clay Lowland Farmland	<ul style="list-style-type: none"> • Low lying and generally flat landscape on the urban edge of Milton Keynes • Mixed arable pasture and recreational land uses • Wide range of urban fringe activities and uses including garden centres, allotments, individuals industrial premises to the south east of Milton Keynes • Limited woodland cover • Dominated by major transport routes
LCT 5 Undulating Clay Farmland	<ul style="list-style-type: none"> • Undulating lowland landscape which slopes down towards the river valley floor • Secondary valleys provides local enclosure • Large scale arable fields with unclipped hedges • Pasture on lower slopes and near settlements

Landscape Character Type	Key Characteristics
LCT 6 Greensand Ridge	<ul style="list-style-type: none"> • High proportion of woodland cover including areas of both deciduous and conifer plantations • Patchwork of pasture fields to the lower slopes and open land on the slopes with over mature hedges • Small areas of original existing heath habitat on the plateau with parcels of pasture

Green Belt Coverage

The purpose of Green Belt is to check the unrestricted sprawl of large built-up areas. Whilst it is not a landscape designation, it has a significant influence on landscape character.

Milton Keynes is not within an area of Green Belt, but lies adjacent to the London Metropolitan Green Belt which is located to the south.

Summary of Future Baseline

New housing, employment and infrastructure provision has the potential to lead to incremental but small changes in landscape and townscape character and quality in Milton Keynes. This includes from the loss of landscape features and areas with an important visual amenity value.

Land, Soil and Water Resources

Policy Context

The EU's Soil Thematic Strategy⁴⁵ presents a strategy for protecting soils resources in Europe. The main aim of the strategy is to minimise soil degradation and limit associated detrimental effects linked to water quality and quantity, human health, climate change, biodiversity, and food safety.

The Water Framework Directive (WFD) drives a catchment-based approach to water management. In England and Wales there are 100 water catchments and it is Defra's intention to establish a 'framework for integrated catchment management' across England. The Environment Agency is establishing 'Significant Water Management Issues' and recently presented second River Basin Management Plans to ministers. The plans seek to deliver the objectives of the WFD namely:

- Enhance the status and prevent the further deterioration of aquatic ecosystems and associated wetlands which depend on aquatic ecosystems;
- Promote the sustainable use of water;
- Reduce the pollution of water, especially by 'priority' and 'priority hazardous' substances; and
- Ensure the progressive reduction of groundwater pollution.

Key messages from the National Planning Policy Framework (NPPF) include:

- Protect and enhance soils. The value of best and most versatile agricultural land should also be taken into account.
- Prevent new or existing development from being 'adversely affected' by the presence of 'unacceptable levels' of soil pollution or land instability and be willing to remediate and mitigate 'despoiled, degraded, derelict, contaminated and unstable land, where appropriate'.
- Encourage the effective use of land' through the reuse of land which has been previously developed, 'provided that this is not of high environmental value'. Whilst there is no longer a

⁴⁵ European Commission (2006) Soil Thematic Policy [online] available at: <http://ec.europa.eu/environment/soil/index_en.htm>

national requirement to build at a minimum density, the NPPF requires local planning authorities to 'set out their own approach to housing density to reflect local circumstances'.

- Produce strategic policies to deliver the provision of a variety of infrastructure, including that necessary for water supply.
- With regards to waste, the NPPF does not contain any specific waste policies as waste planning policy will be published as part of the National Waste Management Plan.

Other key documents at the national level include Safeguarding our Soils: A strategy for England⁴⁶, which sets out a vision for soil use in England, and the Water White Paper⁴⁷, which sets out the Government's vision for a more resilient water sector. It states the measures that will be taken to tackle issues such as poorly performing ecosystems, and the combined impacts of climate change and population growth on stressed water resources. In terms of waste management, the Government Review of Waste Policy in England⁴⁸ recognises that environmental benefits and economic growth can be the result of a more sustainable approach to the use of materials.

The Milton Keynes Local Plan⁴⁹ presents policies S14 (Protection of the best and most versatile agricultural land) and Policy D4 (Sustainable construction) to address the strategic issues in relation to land, soil and water resources.

Baseline Summary

Summary of Current Baseline

Quality of Agricultural Land

The Agricultural Land Classification (ALC) classifies land into six grades (plus 'non-agricultural' and 'urban'), where Grades 1 to 3a are recognised as being the 'best and most versatile' land and Grades 3b to 5 are of poorer quality.

In terms of the location of the best and most versatile agricultural land, a detailed classification has been undertaken in limited areas of the borough including Newport Pagnell, Calverton, Loughton, Fenny Stratford, Woburn and Milton Keynes Village. The majority of land in these areas has been classified as 'Grade 3b', however parts of it are classified as 'Grade 2' and 'Grade 3a' which are considered 'best and most versatile'. A small amount is also classified as 'Grade 4' and 'Other'⁵⁰.

It is not possible to confirm if land elsewhere in the borough comprises land classified as the best and most versatile agricultural land, as a detailed classification assessment has not been undertaken. Based on the 1:250,000 series of ALC maps produced by Natural England and utilised for strategic purposes, many undeveloped areas of the borough have land classified as Grade 3 'good to moderate'. However, there is no detailed information available as to whether this land is Grade 3a land (i.e. land classified as the best and most versatile) or Grade 3b (which is not).

Watercourses

The Water Framework Directive (WFD) drives a catchment-based approach to water management with a view to improving the overall water quality of watercourses in any given catchment.

⁴⁶ Defra (2009) Safeguarding our Soils: A strategy for England [online] available to download from: <<https://www.gov.uk/government/publications/safeguarding-our-soils-a-strategy-for-england>>

⁴⁷ Defra (2011) Water for life (The Water White Paper) [online] available at <<http://www.official-documents.gov.uk/document/cm82/8230/8230.pdf>>

⁴⁸ Defra (2011) Government Review of Waste Policy in England [online] available at:

<<http://www.defra.gov.uk/publications/files/pb13540-waste-policy-review110614.pdf>>

⁴⁹ Milton Keynes Council (2015) Adopted Local Plan [online] available at: <https://www.milton-keynes.gov.uk/planning-and-building/planning-policy/adopted-local-plan-pdf> [accessed 18/01/19]

⁵⁰ MAGIC Interactive Map (2018): 'Landscape; ; Post 1988 Agricultural Land Classification (England)' [online] layer available to view using the following mapping tool: <<http://www.magic.gov.uk/MagicMap.aspx>> last accessed [06/09/18]

The main watercourse flowing through the borough is the River Great Ouse and the River Ouzel which is a tributary of the River Great Ouse. The River Great Ouse begins in Syresham in central England and flows north eastwards into East Anglia and enters the Wash. The River Ouzel begins in the Chiltern Hills and joins the River Great Ouse at Newport Pagnell.

The River Great Ouse has moderate water quality, although its chemical status is classified as good. Reasons that the river's overall status hasn't been classified as good are because of sewage discharge, livestock and poor nutrient management. The River Ouzel is also classified as moderate, although its chemical status is also classified as good. Reasons that the River Ouzel has not achieved good status are because of sewage discharge and agricultural and rural land management.⁵¹

Summary of future baseline

In terms of water quality, the requirements of the Water Framework Directive (and likely successor) are likely to lead to continued improvements to water quality in watercourses in the wider area. However, water quality also has the potential to be affected by pollution incidents in the area, including those created by diffuse surface water pollution which can be exacerbated through the increase in the land area of impermeable surfaces through infrastructure development such as transport.

With regards to soil resources, areas of the best and most versatile land in Milton Keynes may be lost to infrastructure development in the future, and the threat of soil erosion is likely to increase in line with the effects of climate change.

Communities

Policy Context

Key messages from the National Planning Policy Framework (NPPF) include:

- The NPPF attaches great importance to the design of the built environment. It explains how good design is a key aspect in sustainable development, and how development should improve the quality of the area over its lifetime, not just in the short term. Good architecture and landscaping are important, with the use of design codes contributing to the delivery of high-quality outcomes. Design should reinforce local distinctiveness, raise the standard more generally in the area and address the connections between people and places.
- The social role of the planning system involves 'supporting vibrant and healthy communities
- The planning system can play an important role in facilitating social interaction and creating healthy, inclusive communities
- Promote the retention and development of local services and community facilities such as local shops, meeting places, sports venues, cultural buildings, public houses and places of worship
- Ensure that developments create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion. Places should contain clear and legible pedestrian routes, and high-quality public spaces, which encourage the active and continual use of public areas
- Ensuring that there is a 'sufficient choice of school places' is of 'great importance' and there is a need to take a 'proactive, positive and collaborative approach' to bringing forward 'development that will widen choice in education

The 'Ready for Ageing?' report, published by the Select Committee on Public Service and Demographic Change⁵² warns that society is underprepared for an ageing population. The report states that *'longer lives can be a great benefit, but there has been a collective failure to address the*

⁵¹ Environment Agency (2019) Ouzel and Milton Keynes [online] available at: <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3349> [last accessed 04/02/19]

⁵² Select Committee on Public Service and Demographic Change (2013) Ready for Ageing? [online] available at: <http://www.parliament.uk/business/committees/committees-a-z/lords-select/public-services-committee/report-ready-for-ageing/> last accessed [17/01/19]

implications and without urgent action this great boon could turn into a series of miserable crises'. The report recognises that the supply of specialist housing for the older generation is insufficient for the demand. There is a need for central and local Government, housing associations, and house builders to ensure that these housing needs are better addressed, giving as much priority to promoting an adequate market of social housing for the older generation as is given to the younger generation.

Policies contained in Chapter 1 'Using and managing land sustainably' and Chapter 4 'Increasing resource efficiency and reducing pollution and waste' of the Government's 'A Green Future: Our 25 Year Plan to Improve the Environment' directly relates to the population and community SEA theme.

The Milton Keynes Local Plan⁵³ presents policies C1 (Location of Community Facilities) and Policy C2 (Protection of Community Facilities) to address the strategic issues in relation to communities.

Baseline Summary

Summary of Current Baseline

Population

The population of Milton Keynes increased by 20.2% between 2001 and 2011, which is greater than the trends for the South East and England.

Age Structure

Generally, there is a lower proportion of residents within the 60+ age category in Milton Keynes (16.4%) in comparison to the totals for the South East of England (23.4%) and England (22.3%). The total percentage of residents within the working age categories (25-44 and 45-59) in Milton Keynes (51.1%) is also greater than the totals for the South East of England (46.4%) and England (46.9%). The total percentage of younger residents (0-15 and 16-24) in Milton Keynes (32.5%) is lower than the totals the South East of England (30.2%) and England (30.8%).

Index of Multiple Deprivation

The Index of Multiple Deprivation 2015 (IMD) is an overall relative measure of deprivation constructed by combining seven domains of deprivation according to their respective weights, as described below. The seven deprivation domains are as follows:

- **Income:** The proportion of the population experiencing deprivation relating to low income, including those individuals that are out-of-work and those that are in work but who have low earnings (satisfying the respective means tests).
- **Employment:** The proportion of the working-age population in an area involuntarily excluded from the labour market, including those individuals who would like to work but are unable to do so due to unemployment, sickness or disability, or caring responsibilities.
- **Education, Skills and Training:** The lack of attainment and skills in the local population.
- **Health Deprivation and Disability:** The risk of premature death and the impairment of quality of life through poor physical or mental health. Morbidity, disability and premature mortality are also considered, excluding the aspects of behaviour or environment that may be predictive of future health deprivation.
- **Crime:** The risk of personal and material victimisation at local level.
- **Barriers to Housing and Services:** The physical and financial accessibility of housing and local services, with indicators categorised in two sub-domains.
 1. 'Geographical Barriers': relating to the physical proximity of local services
 2. 'Wider Barriers': relating to access to housing, such as affordability.

⁵³ Milton Keynes Council (2015) Adopted Local Plan [online] available at: <https://www.milton-keynes.gov.uk/planning-and-building/planning-policy/adopted-local-plan-pdf> [accessed 18/01/19]

- **Living Environment:** The quality of the local environment, with indicators falling categorised in two sub-domains.
 1. 'Indoors Living Environment' measures the quality of housing.
 2. 'Outdoors Living Environment' measures air quality and road traffic accidents.
- Two supplementary indices (subsets of the Income deprivation domains), are also included:
 1. Income Deprivation Affecting Children Index: The proportion of all children aged 0 to 15 living in income deprived families.
 2. Income Deprivation Affecting Older People Index: The proportion of all those aged 60 or over who experience income deprivation.

Lower Super Output Areas (LSOAs) are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales. They are standardized geographies designed to be as consistent in population as possible, with each LSOA containing approximately 1,000 to 1,500 people. In relation to the IMD 2015, LSOAs are ranked out of the 32,844 in England and Wales, with 1 being the most deprived. Ranks are normalized into deciles, with a value of 1 reflecting the top 10% most deprived LSOAs in England and Wales.

Although many of the electoral wards within Milton Keynes lie within the 30% least deprived LSOAs, towards the centre of Milton Keynes there are a number of electoral wards which are within the 30% most deprived LSOAs and some more which are within the 50% most deprived.

Availability of Cars and Vans

Based on the 2011 census data, 81.1% of households in Milton Keynes have access to at least one car or van. This is similar to the total for the South East of England (81.4%) but greater than the total for England (74.2%).

Travel to Work

The most popular method of travelling to work in Milton Keynes is via driving a car or van (46%), greater than the total for the South East of England (41.3%), and the national total of 36.9%. Comparatively, 3.1% of the working population in Milton Keynes choose to take the train to work. This is lower than the average for the South East of England (5.0%) but similar to England (3.0%). Fewer residents walk or cycle to work in Milton Keynes (4.4%), compared the South East (9.4%) and England (9.0%). Fewer residents in Milton Keynes get a bus, minibus or coach to work (4.0%) compared to the average for the South East of England (3.0%) and England (5.0%).

Summary of Future Baseline

In common with many other parts of England, the population of Milton Keynes is likely to age. This has the potential to increase issues relating to accessibility to services, facilities and amenities.

New housing and employment provision has the potential to increase traffic and cause congestion at key pinch points on Milton Keynes transport network. A smaller proportion of residents in Milton Keynes use public transport compared to the South East and England. There is therefore a need to continue to encourage a modal shift from a reliance on private vehicles towards alternative modes of transport.

Health and Wellbeing

Policy Context

Key messages from the NPPF include:

- The social role of the planning system involves 'supporting vibrant and healthy communities'.
- A core planning principle is to 'take account of and support local strategies to improve health, social and cultural wellbeing for all'.
- The planning system can play an important role in facilitating social interaction and creating healthy, inclusive communities'
- Promote the retention and development of local services and community facilities such as local shops, meeting places, sports venues, cultural buildings, public houses and places of worship.
- Set out the strategic policies to deliver the provision of health facilities.
- Access to high quality open spaces and opportunities for sport and recreation can make an important contribution to the health and well-being of communities.

The policies contained in Chapter 3 'Connecting people with the environment to improve health and wellbeing' of the Government's 'A Green Future: Our 25 Year Plan to Improve the Environment' directly relates to the health and wellbeing SEA theme.

In relation to other key national messages in relation to health, Fair Society, Healthy Lives⁵⁴ ('The Marmot Review') investigated health inequalities in England and the actions needed in order to tackle them. Subsequently, a supplementary report was prepared providing additional evidence relating to spatial planning and health on the basis that there is: "overwhelming evidence that health and environmental inequalities are inexorably linked and that poor environments contribute significantly to poor health and health inequalities".

Baseline Summary

Summary of Current Baseline

General Health

Air pollution is a major environmental risk to health. In this context air quality is a significant contributor to poor health nationally, and according to the NHS air pollution kills 40,000 people a year.

Deprivation is a significant contributor to poor health and can have adverse effects on wellbeing, with elements related to poor housing quality, living environment, income and employment previously discussed in detail in the 'Communities' section. Based on 2011 Census data, 85.0% of residents in Milton Keynes consider themselves as having 'very good health' or 'good health', broadly aligning to the totals for the South East of England (83.7%), but slightly higher than the total for England (81.4%). Similarly, the percentage of residents in Milton Keynes considering themselves to have 'bad health' or 'very bad health' is 4.1%, similar to the total for the South East (4.3%), but lower than the total for England (5.4%).

The total percentage of residents within Milton Keynes who report that their activities are limited 'a little' is less than the regional and national totals. There are also slightly fewer residents within Milton Keynes who report that their activities are limited 'a lot' (6.4%) in comparison to the South East of England (6.9%) and England (8.3%). Overall, 86.1% of residents in Milton Keynes report that their activities are 'not limited', slightly greater than the totals for the South East of England (84.3%) and England (82.4%).

⁵⁴ The Marmot Review (2011) The Marmot Review: Implications for Spatial Planning [online] available to download from: <<http://www.instituteofhealthequity.org/resources-reports/the-marmot-review-implications-for-spatial-planning>> last accessed [10/09/18]

Summary of Future Baseline

The population of Milton Keynes is predicted to grow and age in the future. In this context accessibility to existing and new health and community facilities is likely to become increasingly important.

Obesity is seen as an increasing issue by health professionals, and one that will contribute to significant health impacts on individuals, including increasing the risk of a range of diseases, including heart disease, diabetes and some forms of cancer. Transport planning will play a key role in encouraging active transport choices (e.g. walking and cycling) as well as accessibility to sports and recreation facilities.

Health and wellbeing levels within Milton Keynes are generally better than the South East and England averages, with a higher percentage of residents reporting 'good' or 'very good' health, and a higher lower percentage of residents reporting that their activities are limited in some way.

Changes in air quality and noise quality in the vicinities of certain routes in Milton Keynes are likely to take place with the implementation of ongoing transport improvements in the borough.

Appendix B Scheme assessment tables

Table B.1: Central MK 01

Scheme 59: High Quality Destination Cycle Parking

Description: Implementation of secure, covered, high-quality cycle parking at key destinations including: regional centres; CMK; schools; nurseries and employment sites.

Air quality	The scheme will have positive indirect effects on air quality in the town centre and wider borough by increasing the ease of use and attractiveness of cycling as an alternative to the private car.		
Biodiversity	Milton Keynes town centre is not within an SSSI Impact Risk Zone for transport schemes. As such town centre schemes are unlikely to have adverse effects on SSSIs in the vicinity of the borough. There are no BAP Priority Habitats or Milton Keynes Wildlife Sites on or in the immediate vicinity of the locations which have the potential to be affected by the proposal. The scheme will comprise limited interventions, and will not require additional landtake. As such the scheme is not likely to have significant impacts on key habitats or species.		
Climate change	The scheme will promote cycling through enhancing cycle parking provision. This will support modal shift to lower carbon modes of travel. Additional on street cycle parking is unlikely to increase fluvial or surface water flood risk in Milton Keynes town centre.		
Historic environment	Whilst additional cycle parking if inappropriately designed, may detract from the setting of the historic environment, the scheme will encourage cycle use, which will help enhance the setting of the distinctive historic environment of the town and promote opportunities for its enjoyment.		
Landscape	Given the scheme will be located in the town centre of Milton Keynes, there are unlikely to be significant effects on the wider landscape character of the area. Impacts on the townscape will depend on the design and location of new cycle provision. However enhancements in cycle provision will promote cycle use, which will support the quality of the public realm.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	Enhancements to cycle provision in the town centre will support accessibility to key amenities by cycling. Enhancements to cycle provision supported by the scheme will also promote community and town centre vitality.		
Health and wellbeing	The scheme will promote active modes travel through enhancing cycle provision in Milton Keynes town centre. This will support healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Enhancements to cycle provision in the town centre will support accessibility to key amenities by cycling and promote healthier lifestyles. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new cycle provision.

Mitigation measures and enhancement opportunities

New cycle parking should be designed and located to support the setting of the historic environment and a high quality townscape in the town centre.

Table B.2: Central MK 02

Scheme 1: Redway Expansion within CMK

Description: Expansion of the existing Redway cycle routes into CMK. The extensions would provide direct, high-quality segregated cycle routes and can be packaged with access to High-Quality Destination Cycle Parking.

Air quality	The scheme will have positive indirect effects on air quality in the town centre and wider borough by increasing the ease of use and attractiveness of cycling as an alternative to the private car.		
Biodiversity	Milton Keynes town centre is not within an SSSI Impact Risk Zone for transport schemes. As such town centre schemes are unlikely to have adverse effects on SSSIs in the vicinity of the borough. There are no BAP Priority Habitats or Milton Keynes Wildlife Sites on the routes proposed for the new Redway extensions proposed through the scheme. As such the scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks.		
Climate change	The scheme will promote cycling through delivering improved cycle network connections in the town centre. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the new links are not likely to impact on flood risk if appropriate design and layout is incorporated within scheme design. Potential effects are also limited through the expansion of the network taking place on the existing street network.		
Historic environment	Three Grade II listed buildings are on the proposed routes for extending the Red Routes, including Former Bus Station, Station Square, the Shopping Building and Milton Keynes Central Library. There is also a Scheduled Monument close to the Central Library (Secklow Hundred Mound). It is anticipated though that cycleway improvements will help enhance the setting of the historic environment and contribute to users' awareness and enjoyment of these features. However, a poorly designed scheme has the potential to have impacts on the fabric and setting of the 'classic infrastructure' of Central Milton Keynes. ⁵⁵		
Landscape	The scheme will not require additional landtake, and will utilise existing roads. As such the scheme is not likely to have significant impacts on townscape character. An encouragement of cycling also has the potential to support modal shift from the private car, with potential benefits through reducing the impact of transport on the quality of the built environment.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme will enhance accessibility by non-car modes of transport, support the quality of the public realm, and enhance health and wellbeing.		
Health and wellbeing	The scheme will promote active modes travel through the contributing to enhanced cycle linkages in the borough. This will support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

⁵⁵ As defined in the CMK Alliance Plan 2026, 'classic CMK infrastructure' includes the grid of tree-lined Boulevards, Gates, Streets, tree-lined North Row and South Rows, and the space for one, two or four rows of ground level car parking that flanks them; the associated grid of pavements, with underpasses, bridges and porte cocheres; the function and position of linkages to the adjacent grid squares; use of silver grey granite facings, granite quadrants, planters, and kerbs; the use of silver grey stone chippings rolled into asphalt road surfaces on Gates and Boulevards and silver grey blockwork for streets; and the use of Breedon Gravel or similar in Boulevard medians.

Summary

The delivery of cycle enhancements in the town centre will support accessibility for residents and visitors, promote town centre vitality, and support the quality of life of residents. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape in the town centre. However, a poorly designed scheme has the potential to have impacts on the fabric and setting of the 'classic infrastructure' of Central Milton Keynes.

Mitigation measures and enhancement opportunities

The scheme should seek to ensure that the 'classic infrastructure' of Central Milton Keynes is conserved and retained.

Table B.3: Central MK 03

Scheme 14: District Centre Public Realm Improvement

Description: Improve connectivity in district centres including between to public transport interchanges through improvements to the public realm.

Air quality	The scheme would promote walking and cycling and enhance road safety for vulnerable users. This has the potential to support modal shift from the private vehicle, with potential benefits for air quality.	
Biodiversity	Whilst effects are uncertain, given the detail of interventions are unclear, public realm improvements have the potential to enhance biodiversity habitats and support ecological networks.	
Climate change	The scheme will promote modal shift through securing pedestrian and cycle enhancements and improving road safety. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Public realm enhancements have significant potential to enhance the setting of the historic environment with high quality design and layout. Modal shift encouraged by the scheme also has the potential to limit impacts of motorised vehicles on the quality of the public realm. However, a poorly designed scheme has the potential to have impacts on the fabric and setting of the 'classic infrastructure' of Central Milton Keynes. ⁵⁶	
Landscape	A key focus of the scheme is on enhancing the public realm and reducing the impact of the car on the quality of the built environment. This will help enhance townscape character in the area.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Accessibility to services and facilities is a key influence on the quality of life of residents. In this context public realm enhancements will help reduce perceptual barriers for pedestrians and cyclists, and enhancements will increase accessibility to services, facilities and amenities. Enhancements to the public realm will also promote community vitality.	
Health and wellbeing	The scheme will promote active modes of travel through public realm enhancements. This will have positive effects on road safety, and will support healthier lifestyles. The scheme will also support enhancements to the built environment and the quality of the public realm. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will promote accessibility, improve road safety for pedestrians and cyclists, and support the quality of life of residents. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape in the area and the setting of the historic environment. However, a poorly designed scheme has the potential to have impacts on the fabric and setting of the 'classic infrastructure' of Central Milton Keynes.

Mitigation measures and enhancement opportunities

Public realm enhancements should seek to enhance ecological networks through appropriate planting and green infrastructure enhancements, and where possible, employing the premise of environmental net gain. The scheme should seek to ensure that the 'classic infrastructure' of Central Milton Keynes is conserved and retained.

⁵⁶ See above

Table B.4: Central MK 04

Scheme 40: Bus Interchange

Description: Bus interchange hub in CMK. A new bus interchange accessible from Redway routes /expansions, including cycle facilities (lockers, cycle parking) and real-time travel information. The location and design of the new interchange needs to be future-proofed to facilitate the introduction of a mass transit scheme.

Air quality	The scheme will have positive indirect effects on air quality in the town centre and wider borough by supporting modal shift from the private car.		
Biodiversity	Milton Keynes town centre is not within an SSSI Impact Risk Zone for transport schemes. As such town centre schemes are unlikely to have adverse effects on SSSIs in the vicinity of the borough. The potential locations of a new bus interchange (i.e. Saxon Gate and off Avebury Boulevard) are not the locations of BAP Priority Habitats, Milton Keynes Wildlife Sites or local wildlife corridors. As such the scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks.		
Climate change	The scheme will promote modal shift to non-car modes of transport. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the new links are not likely to impact on flood risk if appropriate design and layout is incorporated into scheme design.		
Historic environment	No features of areas of significant historic environment interest are in the vicinity of the potential locations of a new bus interchange (i.e. Saxon Gate and off Avebury Boulevard). More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.		
Landscape	Impacts on townscape character will depend on the design and layout of the new bus interchange. Uncertain direct effects therefore. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme will enhance accessibility by non-car modes of transport and support the vitality of the town centre.		
Health and wellbeing	The scheme will encourage the use of active modes travel through promoting non-car modes of transport. This will support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The delivery of a new bus interchange in the town centre will increase the ease of public transport use, with benefits for accessibility, promoting town centre vitality, and supporting the quality of life of residents.

Mitigation measures and enhancement opportunities

A new bus interchange should be designed to support a high quality townscape in the town centre.

Table B.5: Central MK 05

Scheme 64: Central Car Park Management

Description: Review and revise the Central MK car parking management, including simplifying the types of car parking, reviewing the car parking charges and adopting a data led approach to demand management (increasing EV spaces). This could include dynamic supply/demand charging regime supported by Option 89 (SMART Sensors).

Air quality	The scheme has the potential to have positive effects on air quality in the town centre by encouraging electric vehicle use. It also has the potential to have positive effects through encouraging modal shift to more sustainable modes of travel through limiting and managing car parking provision.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Climate change	The scheme has the potential to limit greenhouse gas emissions by encouraging electric vehicle use. It also has the potential to have positive effects through encouraging modal shift to more sustainable modes of travel through limiting and managing car parking provision. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.		
Communities	The scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents.		
Health and wellbeing	The scheme will encourage the use of active modes travel through limiting and managing car parking provision. This will support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents, promote health and wellbeing, and have benefits for air quality and climate change mitigation.

Mitigation measures and enhancement opportunities

None proposed

Table B.6: Central MK 06

Scheme 61, 62 and 63: CMK Car Parking Review

Description: Undertake a CMK parking review study to understand where demand may increase and the potential for capped or reduced parking provision to support modal shift ambitions.

Air quality	In the longer term (once the findings of the study are implemented), the scheme has the potential to have positive effects on air quality in the town centre by encouraging modal shift to more sustainable modes of travel through limiting and managing car parking provision.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required as a result of the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Climate change	In the longer term (once the findings of the study are implemented), the scheme has the potential to limit greenhouse gas emissions by encouraging modal shift to more sustainable modes of travel through limiting and managing car parking provision. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure.		
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that the scheme is in effect a parking review study at this stage.		
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that the scheme is in effect a parking review study at this stage.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given that the scheme is in effect a parking review study at this stage.		
Communities	In the longer term (once the findings of the study are implemented), the scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents.		
Health and wellbeing	In the longer term (once the findings of the study are implemented), the scheme will encourage the use of active modes travel through limiting and managing car parking provision. This will support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

In the longer term (once the findings of the study are implemented), the scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents, promote health and wellbeing, and have benefits for air quality and climate change mitigation.

Mitigation measures and enhancement opportunities

None proposed

Table B.7: Central MK 07

Scheme 60: Powered Two-Wheeler Parking

Description: Implementation of secure high-quality powered two-wheeler (scooters and motorcycle) parking at key destinations in CMK. The powered two wheeler parking should be secure (hoops for locks), well-overlooked and provide for a range of powered two-wheelers.

Air quality	There is likely to be a negligible overall effect on air quality from the scheme given it will continue to support the used of motorised transport.		
Biodiversity	Milton Keynes town centre is not within an SSSI Impact Risk Zone for transport schemes. As such town centre schemes are unlikely to have adverse effects on SSSIs in the vicinity of the borough. There are no BAP Priority Habitats or Milton Keynes Wildlife Sites on or in the immediate vicinity of the locations which have the potential to be affected by the proposal. The scheme will comprise limited interventions, and will not require significant additional landtake. As such the scheme is not likely to have significant impacts on key habitats or species.		
Climate change	There is likely to be a negligible overall effect on greenhouse gas emissions from the scheme given it will continue to support the used of motorised transport.		
Historic environment	Additional powered two-wheeler parking, if inappropriately designed, may detract from the setting of the historic environment.		
Landscape	Impacts on the townscape will depend on the design and location of new two-wheeler parking provision. Given the scheme will be located in the town centre of Milton Keynes, there are unlikely to be significant effects on the wider landscape character of the area.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	Enhancements to two-wheeler parking provision in the town centre will support accessibility to town centre amenities.		
Health and wellbeing	The scheme is unlikely to bring benefits for health and wellbeing given the motorised form of transport it is encouraging and potential road safety issues associated with such use.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Enhancements to two-wheeler parking provision in the town centre will support accessibility to town centre amenities. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new two-wheeler parking provision.

Mitigation measures and enhancement opportunities

New two-wheeler parking provision should be designed and located to support the setting of the historic environment and the quality of the townscape and the built environment in the town centre.

Table B.8: Central MK 08

Scheme 42: CMK Shuttle Bus Trial

Description: Review the CMK shuttle bus trial provided by the Business Improvement District for employees. If successful the scheme would be implemented on a permanent basis, with upgrades to the service being implemented as technology advances, for example, Autonomous People Movers (Option 38).

Air quality	In the longer term (once the findings of the trial are implemented), the scheme has the potential to have positive effects on air quality in the town centre by encouraging the use of more sustainable modes of travel by those working in central Milton Keynes.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required as a result of the scheme.		
Climate change	In the longer term (once the findings of the trial are implemented), the scheme has the potential to limit greenhouse gas emissions by encouraging modal shift to lower carbon modes of travel for those accessing central Milton Keynes for employment purposes. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	In the longer term (once the findings of the trial are implemented), the scheme may help enhance the setting of the historic environment through encouraging modal shift away from the private car for those accessing central Milton Keynes for employment purposes.		
Landscape	In the longer term (once the findings of the trial are implemented, the scheme may help enhance townscape quality in the town centre through encouraging modal shift away from the private car for those accessing central Milton Keynes for employment purposes.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given that the scheme will not require significant landtake.		
Communities	In the longer term (once the findings of the trial are implemented), the scheme will encourage modal shift to more sustainable modes of travel for those accessing central Milton Keynes for employment purposes. This will support enhancements to the quality of the public realm, and promote the quality of life of residents.		
Health and wellbeing	In the longer term (once the findings of the trial are implemented), the scheme will, through promoting modal shift for at least part of the journey, support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

In the longer term (once the findings of the trial are implemented), the scheme will encourage modal shift to more sustainable modes of travel for those accessing central Milton Keynes for employment purposes. This will support the quality of life of employees, promote health and wellbeing, have benefits for air quality and climate change mitigation, and support the quality of the public realm and townscape.

Mitigation measures and enhancement opportunities

None proposed

Table B.9: Central MK 09

Scheme 43: CMK Bus Only Route

Description: A public transport only spine route (Midsummer Boulevard) through Central MK (banning all private car access). As technology evolves this could be used by Autonomous People Movers (Option 38). Could also evolve into a mobility corridor providing a direct walk and cycle spine through CMK

Air quality	The scheme will have positive indirect effects on air quality in the town centre and wider borough by supporting modal shift from the private car to public transport (and potentially walking and cycling).		
Biodiversity	Milton Keynes town centre is not within an SSSI Impact Risk Zone for transport schemes. As such town centre schemes are unlikely to have adverse effects on SSSIs in the vicinity of the borough. The potential locations of a new bus only route are not the locations of BAP Priority Habitats, Milton Keynes Wildlife Sites or local wildlife corridors. As such the scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks.		
Climate change	The scheme will promote modal shift to non-car modes of transport. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the new link is not likely to impact on flood risk if appropriate design and layout is incorporated into scheme design.		
Historic environment	The scheme may help enhance the setting of the historic environment through encouraging modal shift away from the private car for those accessing central Milton Keynes.		
Landscape	The scheme may help enhance townscape quality in the town centre through encouraging modal shift away from the private car for those accessing central Milton Keynes.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given that the scheme will not require significant landtake.		
Communities	The scheme will enhance accessibility by non-car modes of transport and support the vitality of the town centre.		
Health and wellbeing	The scheme will encourage the use of active modes travel through promoting non-car modes of transport. This will support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The delivery of a bus only route in the town centre will increase the ease of public transport use, with benefits for accessibility, promoting town centre vitality, and supporting the quality of life of residents.

Mitigation measures and enhancement opportunities

A new bus only route should be designed to support a high quality townscape in the town centre and the setting of the historic environment.

Table B.10: Central MK 11

Scheme 31: Zero Emission Zone

Description: Introduction of a Zero Emission Zone across CMK, banning the use of all petrol and diesel vehicles from the designated area. This option could be implemented in phases, excluding the most polluting vehicles from a smaller area initially, before increasing the area and vehicle types excluded from the central area as electric vehicle ownership increases and technology advances.

Air quality	The scheme has significant potential to enhance air quality through promoting the use of zero emissions vehicles, and encouraging the use of low emissions modes of transport such as walking and cycling, as well as public transport use.	
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision. However the scheme may have positive effects for limiting the effects of poorer air quality on habitats and species.	
Climate change	The scheme has significant potential to limit greenhouse gas emissions from transport through promoting the use of zero emissions vehicles, and encouraging the use of low emissions modes of transport such as walking and cycling, as well as public transport use. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision. However the encouragement of zero emission vehicles has the potential to limit the impacts of transport on the setting of the historic environment from noise pollution.	
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision. However the encouragement of zero emission vehicles has the potential to limit the impacts of transport on townscape quality from noise pollution.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.	
Communities	The provision of a zero emission zone has the potential to encourage modal shift from the private car to sustainable modes of transport. Enhancements to the public realm stimulated by the scheme will support the quality of town centre neighbourhoods as places to live and work, promoting the quality of life of residents.	
Health and wellbeing	The scheme will support health and wellbeing through reducing air and noise pollution, enhancing the quality of the public realm and encouraging the use of healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme has significant potential to enhance air quality and limit greenhouse gas emissions from transport. The encouragement of zero emission vehicles has also the potential to limit the impacts of transport on the setting of the historic environment and townscape quality from noise pollution, and support enhancements to the public realm. This will support town centre neighbourhoods as places to live and work, promoting the quality of life of residents.

Mitigation measures and enhancement opportunities

None proposed

Table B.11: Urban MK 01

Scheme 5, 6: Redway Network Upgrades

Description: Upgrade the Redway network including improved wayfinding; widening; cycle priority at junctions / side roads; surface quality enhancements; improving lighting (Council's city-wide LED street lighting programme); providing CCTV and taking opportunities to improve junction safety, reduce the number of crossings and remove street furniture obstructions.

Air quality	Delivering significant Redway network upgrades would promote modal shift from the private car to cycling. This includes through increasing the attractiveness of cycling as a realistic alternative to motorised modes of transport. This will support enhancements to air quality through helping to limit emissions from transport.	
Biodiversity	Potential effects on biodiversity may result from loss of trees, vegetation and other features important to the borough's ecological networks as a result of widening and reconfiguration of the Redway network. New and improved lighting may also affect nocturnal insect and mammal species, and indirectly affect vegetation and habitats. Impacts however depend on the location, design and mitigation/avoidance measures implemented through the scheme.	
Climate change	Delivering significant Redway network upgrades would promote modal shift from the private car to cycling. This includes through increasing the attractiveness of cycling as a realistic alternative to motorised modes of transport. This will help limit greenhouse gas emissions through encouraging the use of lower carbon modes of transport. In relation to adapting to the effects of climate change, Redway network enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Well-designed cycle enhancements facilitated through the scheme may support the setting of the historic environment at some locations. This depends however on the location, design and layout of enhancements taken forward under this scheme.	
Landscape	Well-designed cycle enhancements facilitated through the scheme may support the quality of the public realm and townscape. This depends however on the location, design and layout of enhancements taken forward under this scheme.	
Land, soil and water resources	The scheme is unlikely to lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Enhancements to the Redway network will promote accessibility to services, facilities and amenities by cycle, with benefits for the quality of life of residents. An increase in cycle use and associated modal shift also has the potential to support the quality of neighbourhoods through contributing to enhancements to the public realm.	
Health and wellbeing	The scheme will promote active modes travel through contributing to enhanced cycle linkages in the borough. This will support cyclists' safety and promote healthier lifestyles.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Enhancements to the Redway Network will promote accessibility to services, facilities and amenities by cycle and promote health and wellbeing. Through encouraging modal shift, the scheme will support air quality and help limit greenhouse gas emissions from transport.

Potential effects on townscape quality, the setting of the historic environment and ecological networks depend on the detailed location, design and layout of enhancements taken forward under this scheme.

Mitigation measures and enhancement opportunities

Enhancements to the Redway Network should seek to limit potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought where possible.

Enhancements to the network should also seek to enhance the quality of the public realm and townscape quality.

Table B.12: Urban MK 02

Scheme 3: New Urban Redway Super Routes

Description: Expansion of the Redway Super Routes programme to provide additional links along key routes and desire lines.

Air quality	<p>Delivering significant Redway Super Route upgrades would promote modal shift from the private car to cycling, including from new growth areas in Milton Keynes. This includes through increasing the attractiveness of cycling as a realistic alternative to motorised modes of transport. This will support enhancements to air quality through helping to limit emissions from transport.</p>	
Biodiversity	<p>Potential effects on biodiversity may result from loss of trees, vegetation and other features important to the borough's ecological networks as a result of widening and expansion of the Redway Super Routes network. A number of key habitats and ecological linkages are present along the proposed routes. For example the proposed expansion of the Super Route between Stoney Stratford and Newport Pagnell is likely to take place within the River Great Ouse Wildlife Corridor, and have the potential to affect Local Wildlife Sites and habitats in the vicinity of railway corridor, and in the south west, the expansion of the Super Route network is likely to take place along the North Bucks Way woodland wildlife corridor.</p> <p>Impacts however depend on the location, design and mitigation/avoidance measures implemented through the scheme, and there are significant opportunities to facilitate ecological enhancements through the expansion of the Super Route network.</p>	
Climate change	<p>Delivering significant Redway Super Route upgrades would promote modal shift from the private car to cycling, including from new growth areas in the borough. This includes through increasing the attractiveness of cycling as a realistic alternative to motorised modes of transport. This will help limit greenhouse gas emissions through encouraging the use of lower carbon modes of transport.</p> <p>In relation to adapting to the effects of climate change, Super Route network enhancements have the potential to help manage fluvial or surface water flood risk.</p>	
Historic environment	<p>Well-designed cycle enhancements facilitated through the scheme may support the setting of the historic environment at some locations. This depends however on the location, design and layout of enhancements taken forward under this scheme.</p> <p>This is significant given the routes proposed for the Super Routes are in areas sensitive for the historic environment. For example the proposed expansion of the Super Route between Stoney Stratford and Newport Pagnell is likely to pass through the Wolverton Conservation Area and be within the setting of numerous listed buildings and a number of scheduled monuments. It should however be noted that enhancements to the Super Route network offer opportunities to enhance the enjoyment of the numerous key heritage features in the areas linked by this significant new cycle provision.</p>	
Landscape	<p>Well-designed cycle enhancements facilitated through the scheme may support the quality of the public realm and townscape. This depends however on the location, design and layout of enhancements taken forward.</p>	
Land, soil and water resources	<p>The scheme may lead to some loss of productive agricultural land; however this depends on the final routing and level of land take required.</p> <p>No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.</p>	
Communities	<p>Enhancements to the Redway Super Route network will promote accessibility to services, facilities and amenities by cycle, with benefits for the quality of life of residents. This includes through linking proposed new housing and employment growth areas in the borough.</p>	
Health and wellbeing	<p>The scheme will promote active modes travel through contributing to significant enhancements to cycle linkages in the borough. This will support road safety, promote healthy modes of travel and support healthier lifestyles, including for those living and working in new growth areas in the borough.</p>	

Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

An expansion of the Redway Super Route network will have significant positive effects for promoting accessibility to services, facilities and amenities by cycle and promoting health and wellbeing. This includes for those living in new growth areas in the borough. Through encouraging modal shift, the scheme will also support air quality and help limit greenhouse gas emissions from transport.

Potential effects on biodiversity networks, townscape quality and the fabric and setting of the historic environment depend on the detailed location, design and layout of enhancements taken forward under this scheme. This is particularly relevant given that a number of the proposed routes are within locations with significant historic environment, townscape or biodiversity sensitivity.

Mitigation measures and enhancement opportunities

Enhancements to the Redway Super Route should seek to limit potential impacts on habitats, species and ecological linkages through appropriate avoidance and mitigation measures. Given the significant opportunities for ecological networks to be improved alongside an expansion of the Super Route network, appropriate planting, green infrastructure provision and other interventions to enhance biodiversity linkages should be secured. In this context the principle of environmental net gain should be applied to the provision of new Redway Super Route infrastructure.

Enhancements to the Super Route network should also initiate enhancements to the quality of the public realm and townscape, and seek to conserve and enhance the fabric and setting of the historic environment.

Table B.13: Urban MK 03

Scheme 59: High Quality Destination Cycle Parking

Description: Implementation of secure, high-quality cycle parking at key destinations including: regional centres; schools; nurseries and employment sites.

Air quality	The scheme will have positive indirect effects on air quality in the urban parts of Milton Keynes and wider borough by increasing the ease of use and attractiveness of cycling as an alternative to the private car.	
Biodiversity	The scheme will comprise limited interventions, and will not require significant additional landtake. As such the scheme is not likely to have significant impacts on key habitats or species or ecological networks.	
Climate change	The scheme will promote cycling through enhancing cycle parking provision. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, additional cycle parking is unlikely to impact on flood risk if appropriate design and layout is incorporated into scheme design.	
Historic environment	Whilst additional cycle parking if inappropriately designed, may detract from the setting of the historic environment, the scheme will encourage cycle use, which will help enhance the setting of the historic environment of the borough and promote opportunities for its enjoyment.	
Landscape	Given the scheme will initiate interventions in existing built up parts of Milton Keynes, there are unlikely to be significant effects on the wider landscape character of the area. Impacts on the townscape will depend on the design and location of new cycle provision. However enhancements in cycle provision will promote cycle use and modal shift, which will support the quality of the public realm.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Enhancements to cycle provision at key destinations will support accessibility to key services, facilities and amenities by cycling. Enhancements to cycle provision supported by the scheme will also promote community vitality.	
Health and wellbeing	The scheme will promote active modes travel through enhancing cycle provision. This will support healthier lifestyles.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Enhancements to cycle provision will support accessibility to key amenities by cycling and promote healthier lifestyles. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new cycle provision.



Mitigation measures and enhancement opportunities

New cycle parking should be designed and located to support the setting of the historic environment and a high quality townscape.

Table B.14: Urban MK 04

Scheme 15: Wayfinding

Description: Implementation of a comprehensive wayfinding scheme, for Milton Keynes. The wayfinding scheme would provide a consistent set of information totems with local maps, walking and cycling times and directions to key local destinations. The wayfinding markers would be situated in key strategic locations on the main pedestrian and cycle routes (Redways), transport hubs and destinations.

Air quality	The scheme, through improving the ease of use of pedestrian and cycle networks, will promote walking and cycling, will some benefits for air quality. However effects are likely to be negligible.	
Biodiversity	Given the scheme would comprise route signing and information, there are unlikely to be significant effects on biodiversity.	
Climate change	The scheme will promote walking and cycling through supporting pedestrian and cycle use. This will support modal shift to lower carbon modes of travel. However effects are likely to be negligible. Given the scheme would comprise route signing and information, there will be limited impacts in relation to climate change adaptation.	
Historic environment	Additional signage and route information has the potential to improve access to areas and features of historic environment interest. However poorly designed infrastructure can detract from the quality of the public realm, with impacts on the setting of the historic environment.	
Landscape	Impacts on townscape depend on the sensitivity of the signage and route information to the quality of the public realm and built environment. In this context poorly designed infrastructure can detract from the quality of the public realm, with impacts on townscape quality.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated given the type and scale of scheme.	
Communities	Accessibility to services and facilities is a key influence on the quality of life of residents. In this context, enhancements to route information and signage will support accessibility to key services and amenities by walking and cycling.	
Health and wellbeing	The scheme will promote active and healthier modes of travel through contributing to the enhancement of pedestrian and cycle links in the borough.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Significant environmental effects of the scheme are likely to be limited by the small scale provisions of the scheme, which comprise signage and route information improvements. However impacts on townscape quality and the setting of the historic environment depend on the design and location of new signage and route information.

Mitigation measures and enhancement opportunities

The design and location of signage should seek to support enhancements to townscape quality and the setting of the historic environment

Table B.15: Urban MK 05

Scheme 9, 10: Cycle Hire Schemes

Description: Expand and promote cycle hire schemes (Santander, Lime, Dockless Bikes) to cover a larger area. New hire stations can be incorporated into existing and new developments, local centres and transport hubs. If legislation and technology advances this could expand to include electric scooters (Option 11).

Air quality	The scheme would promote cycling through facilitating opportunities for cycle use, and enhances the potential for multi modal transport use. This will support modal shift from the private vehicle, with benefits for air quality.		
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.		
Climate change	The scheme would promote cycling through facilitating opportunities for cycle use, and enhances the potential for multi modal transport use. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	Whilst additional cycle hire provision if inappropriately designed, may detract from the setting of the historic environment, the scheme will encourage cycle use, which will help enhance the setting of the historic environment of the borough and promote opportunities for its enjoyment.		
Landscape	Given the scheme will initiate interventions in existing built up parts of Milton Keynes, there are unlikely to be significant effects on the wider landscape character of the area. Impacts on the townscape will depend on the design and location of new cycle hire provision. However enhancements in cycle provision will promote cycle use and modal shift, which will support the quality of the public realm.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme improves opportunities for cycle use, and enhances the potential for multi modal transport use. This will facilitate accessibility by cycling, contribute to enhancements to the public realm, and promote community vitality.		
Health and wellbeing	The scheme will promote active modes of travel through significantly enhancing opportunities for cycle use. This will support healthier lifestyles and promote road safety.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Through enhancing opportunities for cycle use, and facilitating multi modal transport use, the scheme will support accessibility and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

The design, location and layout of new cycle hire provision should be sensitive to the quality of the townscape and the setting of the historic environment.

Table B.16: Urban MK 06

Scheme 14: District Centre Public Realm Improvement

Description: Improve connectivity in district centres including between to public transport interchanges through improvements to the public realm.

Air quality	The scheme would promote walking and cycling and enhance road safety for vulnerable users. This has the potential to support modal shift from the private vehicle, with potential benefits for air quality.	
Biodiversity	Whilst effects are uncertain, given the detail of interventions are unclear, public realm improvements have the potential to enhance biodiversity habitats and support ecological networks.	
Climate change	The scheme will promote modal shift through securing pedestrian and cycle enhancements and improving road safety. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Public realm enhancements have significant potential to enhance the setting of the historic environment with high quality design and layout. Modal shift encouraged by the scheme also has the potential to limit impacts of motorised vehicles on the quality of the public realm.	
Landscape	A key focus of the scheme is on enhancing the public realm and reducing the impact of the car on the quality of the built environment. This will help enhance townscape character.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Accessibility to services and facilities is a key influence on the quality of life of residents. In this context public realm enhancements will help reduce perceptual barriers for pedestrians and cyclists, and enhancements will increase accessibility to services, facilities and amenities. Enhancements to the public realm will also promote community vitality.	
Health and wellbeing	The scheme will promote active modes of travel through public realm enhancements. This will have positive effects on road safety, and will support healthier lifestyles. The scheme will also support enhancements to the built environment and the quality of the public realm. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will promote accessibility, improve road safety for pedestrians and cyclists, and support the quality of life of residents. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

Public realm enhancements should seek to enhance ecological networks through appropriate planting and green infrastructure enhancements, and where possible, employing the premise of environmental net gain.

Table B.17: Urban MK 07

Scheme 8: Bike Loan Schemes

Description: Introduction of a cycle loan scheme (implemented and operated by Milton Keynes Council or a partner organisation). The scheme would include a range of cycles to suit all individuals, including adapted cycles and e-Bikes. They would be available direct from the scheme provider. Initiatives, such as trial periods, free hire to the unemployed and reduced prices for low-income groups could be implemented to encourage uptake.

Air quality	The scheme would promote cycling through enhancing opportunities for cycle use. This will support modal shift from the private vehicle, with benefits for air quality.		
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.		
Climate change	The scheme would promote cycling through enhancing opportunities for cycle use. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme will encourage cycle use, which will help enhance the setting of the historic environment of the borough and promote opportunities for its enjoyment.		
Landscape	Enhancements in cycle provision will promote cycle use and modal shift, which will support the quality of the public realm.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme enhances opportunities for cycle use. This will facilitate accessibility by cycling, promote social inclusion, contribute to enhancements to the public realm, and promote community vitality.		
Health and wellbeing	The scheme will promote active modes of travel through enhancing opportunities for cycle use. This will support healthier lifestyles and promote road safety.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Through enhancing opportunities for cycle use, the scheme will support accessibility, social inclusion and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

None proposed.

Table B.18: Urban MK 07

Scheme 16: Local Community Pedestrian Connectivity Improvement

Description: Package of local walking connections to enable improved local community connectivity. Implementation of a permeable network of direct, open and overlooked pedestrian routes that embrace the principles of the Manual for Streets. The pedestrian routes would be attractive to users by providing local connectivity to schools, shops, bus stops and adjacent residential areas and communities. The pedestrian network could provide high-quality at grade crossings that reduce the existing severance caused by the grid road network between neighbouring communities.

Air quality	The scheme would promote walking through significantly enhancing pedestrian connectivity across the area. This has the potential to support modal shift from the private vehicle, with potential benefits for air quality.	
Biodiversity	Given that the scheme will not require significant additional landtake, the scheme is unlikely to have significant impacts on habitats, species or ecological connections	
Climate change	The scheme will promote modal shift through securing walking enhancements and improving road safety. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	Well-designed pedestrian enhancements supported through the scheme may facilitate enhancements to the setting of the historic environment along the proposed routes. In addition, improvements in pedestrian connectivity have the potential to promote opportunities for the enjoyment of the historic environment.	
Landscape	Well-designed cycle and pedestrian enhancements supported through the scheme may facilitate enhancements to the townscape along the proposed routes.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The significant enhancements to pedestrian linkages proposed through the scheme has the potential to promote accessibility by reducing barriers for pedestrians, enhance the quality of the public realm and neighbourhoods, promote community vitality, and support the quality of life of residents.	
Health and wellbeing	The scheme will promote active and healthier modes of travel through initiating significant enhancements to pedestrian networks. It will also support road safety for pedestrians.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility by walking, reduce barriers for pedestrians and improve road safety. This will support health and wellbeing and the quality of life of residents and promote community vitality. It will also, through securing enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

None proposed.

Table B.19: Urban MK 07

Scheme 7: Grand Union Canal Upgrades

Description: Upgrade the quality of the Grand Union Canal towpath, through Milton Keynes to Wolverton Railway Station, in order to improve connectivity and accessibility and encourage walking and cycling. Potential upgrade measures include improving access, surface quality enhancements; cutback of overhanging and overgrown vegetation; improving lighting and providing CCTV along the route for safety purposes.

Air quality	The scheme would enhance opportunities for walking and cycling along the canal corridor. This will support modal shift, with benefits for air quality.	
Biodiversity	<p>Numerous key biodiversity habitats are present along the route of the Grand Union Canal, including deciduous woodland BAP Priority Habitat, wood-pasture and parkland BAP Priority Habitat, good quality semi-improved grassland BAP Priority Habitat and lowland meadows BAP Priority Habitat. These habitats support a significant number of protected species. The Grand Union Canal - Stanton Low Milton Keynes Wildlife Site is present along the route, as are a number of Biological Notification Sites, including: Galleon Aqueduct, Wolverton; Grand Union Canal, Great Linford; Grand Union Canal, Woolstone; Grand Union Canal, Tinkers Bridge; Grand Union Canal, Fenny Stratford to Water Eaton; and Waterhall Park. The corridor has also been assigned as a wildlife corridor by Milton Keynes Council.</p> <p>Due to the sensitivity of the corridor, enhancements to the canal route have the potential to have adverse effects on habitats, species and ecological corridors without the integration of appropriate mitigation and avoidance measures. The scheme also opportunities for enhancing the corridor as a key facet of the borough's ecological network.</p>	
Climate change	<p>The scheme would enhance opportunities for walking and cycling along the canal corridor. This will support modal shift to lower carbon modes of travel.</p> <p>In relation to adapting to the effects of climate change, improvements to the canal corridor is not likely to impact on flood risk if appropriate design and layout is incorporated into scheme design.</p>	
Historic environment	<p>The Grand Union Canal is a key heritage asset in Milton Keynes. Parts of the canal, such as the canal locks in the Ferry Stratford, are listed. The route of the canal also passes through a number of areas of sensitivity for the historic environment, including the Woughton on the Green Conservation Area, the Great Linford Conservation Area and the Wolverton Conservation Area. As such, enhancements to the canal corridor, if sensitively designed, have the potential to enhance the fabric and settings of heritage features associated with the canal, and facilitate opportunities for their enjoyment.</p> <p>More broadly, enhancements to the canal corridor offer opportunities to enhance the enjoyment of key heritage features across the borough by walking and cycle and contribute to heritage-led tourism.</p>	
Landscape	The scheme will not require additional landtake, and will utilise an existing routes, which will be enhanced. As such the scheme is not likely to have significant impacts on landscape character, and provides opportunities for the enhancement of townscape character. The scheme also offers opportunities for both residents and visitors to enhance the enjoyment and understanding of the townscape and landscape of the borough	
Land, soil and water resources	<p>The scheme will not lead to the loss of productive agricultural land.</p> <p>No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.</p>	
Communities	The scheme will increase opportunities for leisure and recreation and for accessing key services and facilities and employment opportunities by walking and cycling. It also provides opportunities for supporting the visitor economy of the area.	
Health and wellbeing	The scheme will promote active modes travel through the contributing to new and enhanced pedestrian and cycle linkages along the canal corridor. Enhancing the recreational offer of the area, this will support health and wellbeing and healthier lifestyles.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will enhance leisure and recreation opportunities, support health and wellbeing and also support the visitor economy. It will also promote accessibility by cycle to key services and facilities and employment opportunities.

Enhancements to the Grand Union Canal corridor, if sensitively designed, provide significant opportunities to enhance the fabric and setting of the historic environment and townscape character.

The scheme offers opportunities to enhance the enjoyment and understanding of the historic environment and the landscape and contribute to heritage-led tourism.

A variety of important biodiversity habitats are present along the route which may be affected by enhancements initiated by the scheme.

Mitigation measures and enhancement opportunities

Potential impacts on biodiversity habitats along the route should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored. This is given the Grand Union Canal corridor's role as a key element of Milton Keynes' ecological network.

Enhancements to the corridor should be sensitive to the fabric and setting of the historic environment and facilitate opportunities for its enhancement.

Table B.20: Urban MK 08

Scheme 19, 20, 21,22, 23: Travel Planning

Description: Smarter Choices Travel Planning Team to work with schools, residential developers and employers to encourage travel behaviour change through the delivery of strategies (Travel Plans) and initiatives to decrease car dependency and increase sustainable travel

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car.		
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.		
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car.		
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.		
Communities	Travel planning will encourage modal shift from the private car through encouraging alternative modes of transport and supporting walking, cycling and public transport use. This will promote the quality of life of residents and workers, facilitate accessibility and enhance community vitality.		
Health and wellbeing	The scheme will promote active modes of travel supporting walking, cycling and public transport use. This will support the use of healthier modes of travel, promote healthier lifestyles and benefit health and wellbeing.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme, through facilitating travel planning across a range of organisations will support accessibility, promote healthy lifestyles and benefit residents' and workers' quality of life. It also has the potential to, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

None proposed.

Table B.21: Urban MK 09

Scheme 28: Urban Car Clubs

Description: Expansion of car clubs across Milton Keynes, located at new developments, community centres, employment locations, and CMK. Car clubs are a cheaper alternative to owning your own vehicle, and only require a membership to a car club company to get started. Use of the vehicles is carried out through online booking systems or on the telephone.

Air quality	Car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can make a contribution to delivering emissions reductions through the use of more efficient fleet cars. Car clubs also offer transparency over the emissions used when travelling through better accounting. This enables the better management of emissions. Car clubs also offer opportunities to select ultra-low emission cars when car travel is needed in sensitive locations. As such the scheme has the potential to support air quality improvements.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	Car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can make a contribution to delivering carbon reduction benefits through less embedded carbon in fleet cars. Car clubs also offer transparency over the emissions used when travelling through better accounting of emissions. This enables the better management of emissions. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	Car clubs encourage modal shift from the private car, including by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Car clubs also enable access to mobility opportunities that would not otherwise be accessible, and have the potential to reduce individuals' expenditure on transport use through reducing the need for the private car. Car clubs also provide opportunities to increase the use of public transport use through the greater flexibility enabled by making a car available as an option rather than a first choice. These elements therefore have the potential to bring a range of benefits for the quality of life of residents.	
Health and wellbeing	Health and wellbeing can be supported by car clubs through encouraging modal shift from the private car, enabling access to mobility opportunities that would not otherwise be accessible, and providing opportunities to increase the use of public transport and walking and cycling through the greater flexibility enabled by making a car available as an option rather than a first choice.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme has the potential to encourage modal shift from the private car and also enable access to mobility opportunities that would not otherwise be accessible. Car clubs also provide opportunities to increase the use of sustainable transport use through the greater flexibility enabled by making a car available as an option rather than a first choice. This will support accessibility, promote the quality of life of residents and support health and wellbeing. With positive effects for air quality and climate change mitigation, car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can also make a contribution

to delivering emission reductions through facilitating the use of lower emissions vehicles.

Mitigation measures and enhancement opportunities

None proposed.

Table B.22: Urban MK 10

Scheme 25: Multi-Modal Urban Travel Hubs

Description: Multi-modal travel hubs would provide access to sustainable transport options. Urban Travel Hubs would provide: access to bus and Redway routes, car parking; cycle facilities (lockers, cycle parking) and real-time travel information. This option could also provide car-club vehicles, car-share pick-up points, cycle-hire, electric cycles and Demand Responsive Transit pick-up points.

Air quality	Multi-Modal Urban Travel Hubs on the edge of the Milton Keynes urban area will have positive effects on air quality in the borough by supporting modal shift from the private car through enhancing access to sustainable transport modes.	
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of new Multi-Modal Urban Travel Hubs, and the integration of biodiversity-friendly design within new infrastructure provision.	
Climate change	Multi-Modal Urban Travel Hubs on the edge of the Milton Keynes urban area will have positive effects on air quality in the borough by supporting modal shift from the private car through enhancing access to lower carbon modes of travel. In relation to adapting to the effects of climate change, new travel hubs are not likely to impact on flood risk if appropriate design and layout is incorporated into scheme design.	
Historic environment	Effects on the fabric and setting historic environment will depend on the detailed location of new Multi-Modal Urban Travel Hubs, and the integration high quality design and layout. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.	
Landscape	Impacts on townscape character will depend on the design and layout of Multi-Modal Urban Travel Hubs. Uncertain direct effects therefore. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.	
Land, soil and water resources	The scheme is unlikely to lead to the loss of significant areas of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme will enhance accessibility by non-car modes of transport through providing access to sustainable transport options at local interchanges. This will promote accessibility to services, facilities and amenities by a range of transport modes.	
Health and wellbeing	The scheme will enhance accessibility by non-car modes of transport through providing access to sustainable transport options at local interchanges. This includes through improving access to cycle infrastructure and increasing local travel options. This will support the use of healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Multi-Modal Urban Travel Hubs on the edge of the Milton Keynes urban area will have positive effects on accessibility, health and wellbeing, air quality and climate change mitigation by enhancing access to sustainable transport modes.

Mitigation measures and enhancement opportunities

The design and layout of Multi-Modal Urban Travel Hubs should seek to support a high quality public realm and townscape, and support ecological networks in the borough.

Table B.23: Urban MK 11

Scheme 98: Variable Message Signage

Description: Provision of city-wide Variable Messaging Signs (VMS) located on the main radial routes into Milton Keynes and throughout CMK, in order to encourage efficient usage of the existing car parking provision and routing through the city.

Air quality	The introduction of further Variable Messaging Signs may support air quality through helping to limit congestion on the local road network during peak commuting hours. Effects on air quality are however unlikely to be significant.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The introduction of further Variable Messaging Signs may help limit greenhouse gas emissions through limiting congestion. Effects on climate change mitigation are however unlikely to be significant.	
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and the scheme focuses on limited physical interventions. However, poorly sited and designed VMS can have effects on the setting of the historic environment.	
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme, and the scheme focuses on limited physical interventions. However poorly sited and designed VMS can have effects on townscape quality.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	VMS may support accessibility for some car users. However additional information relating parking provision fails to encourage a reduction in private vehicle trips, and as such is unlikely to encourage accessibility by sustainable modes of transport.	
Health and wellbeing	Additional information relating parking provision fails to encourage a reduction in private vehicle trips, and as such is unlikely to encourage healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The introduction of further Variable Messaging Signs may support air quality and climate change mitigation through helping to limit congestion on the local road network during peak commuting hours. Effects on air quality are however unlikely to be significant.

Additional information relating parking provision fails to encourage a reduction in private vehicle trips, and as such is unlikely to encourage healthier modes of travel.

Mitigation measures and enhancement opportunities

Variable Messaging Signage should be designed and located to limit potential impacts on the quality of the townscape and the setting of the historic environment.

Table B.24: Urban MK 12

Scheme 60: Powered Two-Wheeler Parking

Description: Implementation of secure high-quality powered two wheeler (scooters and motorcycle) parking at key existing destinations including: regional centres; CMK; and key employment sites. The powered two wheeler parking should be secure (hoops for locks), well-overlooked and provide for a range of powered two-wheelers.

Air quality	There is likely to be a negligible overall effect on air quality from the scheme given it will continue to support the used of motorised transport.		
Biodiversity	The scheme will comprise limited interventions, and will not require significant additional landtake. As such the scheme is not likely to have significant impacts on key habitats or species.		
Climate change	There is likely to be a negligible overall effect on climate change mitigation from the scheme given it will continue to support the used of motorised transport.		
Historic environment	Additional powered two-wheeler parking, if inappropriately designed, may detract from the setting of the historic environment.		
Landscape	Impacts on the townscape will depend on the design and location of new two-wheeler parking provision.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	Enhancements to two-wheeler parking provision will support accessibility to services, amenities and employment opportunities.		
Health and wellbeing	The scheme is unlikely to bring benefits for health and wellbeing given the motorised form of transport it is encouraging and potential road safety issues associated with such use.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Enhancements to two-wheeler parking provision will support accessibility to services, amenities and employment opportunities. Impacts on the townscape and the setting of the historic environment will depend on the design and location of new two-wheeler parking provision.

Mitigation measures and enhancement opportunities

New two-wheeler parking provision should be designed and located to support the setting of the historic environment and the quality of the townscape and the built environment.

Table B.25: Urban MK 13

Scheme 55: Rail Hubs

Description: Milton Keynes West Coast Mainline station improvements including enhanced cycle access, high-quality cycle facilities (lockers, cycle parking, tools and pumps); high-quality bus and taxi interchange facilities and real-time travel information. This option could also provide car-club vehicles, cycle hire, electric cycles and Demand Responsive Transit pick-up points.

Air quality	Enhancing the three rail hubs on the West Coast Mainline will have positive effects on air quality in the borough by supporting modal shift from the private car through enhancing access to sustainable transport modes. This includes through facilitating non-car use to access the stations.	
Biodiversity	The West Coast Mainline comprises a wildlife corridor with a number of BAP Priority Habitats present. Milton Keynes Central station and Wolverton station also both have areas of deciduous woodland BAP Priority Habitats present in the vicinity of the stations. As such potential effects on habitats, species and ecological networks will depend on the detailed design and layout of new facilities and the integration of biodiversity-friendly design within new infrastructure provision.	
Climate change	Enhancing the three rail hubs on the West Coast Mainline will have positive effects for climate change mitigation by supporting modal shift from the private car through enhancing access to sustainable transport modes. This includes through facilitating non-car use to access the stations.	
Historic environment	In terms of historic environment constraints, Wolverton station is adjacent to the Wolverton Conservation Area, the Grade II listed Former Bus Station, Station Square is present in the vicinity of Milton Keynes Central station, and the Bletchley Conservation Area is located to the north west of Bletchley station. As such, effects on the fabric and setting historic environment will depend on the detailed location and design of new infrastructure provision, and the integration of high quality design and layout. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.	
Landscape	Impacts on townscape character will depend on the design and layout new access provision to the railway stations. Uncertain direct effects therefore. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.	
Land, soil and water resources	The scheme is unlikely to lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme will enhance accessibility by non-car modes of transport through providing access to the rail network by sustainable modes of transport. This will promote accessibility to services, facilities and job opportunities by a range of transport modes.	
Health and wellbeing	The scheme will enhance accessibility by non-car modes of transport through providing access to the rail network via sustainable modes of transport. This includes through improving access to cycle and pedestrian infrastructure and increasing local travel options. This will support the use of healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Enhancements to interchanges at the three railway stations on the West Coast Mainline will have positive effects for accessibility, health and wellbeing, air quality and climate change mitigation.

Impacts on the fabric and setting of the historic environment, townscape quality and biodiversity networks depend on the detailed location, design and layout of new infrastructure, the incorporation of mitigation and avoidance measures, and enhancement measures.

Mitigation measures and enhancement opportunities

The design and layout of new rail hub infrastructure should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Table B.26: Urban MK 14

Scheme 34: Demand Responsive Transit

Description: Expansion of Demand Responsive Transit (DRT) bus services, operated on a commercial basis. DRT is a form of micro-mass transit. Shared minibuses are booked, on demand, using a smartphone application, internet portal or by telephone. The shared minibus is then routed to collect passengers and take them to their destinations. A trial is currently in place in Milton Keynes with ViaVan, which, if successful, could be expanded across a Milton Keynes.

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.

Mitigation measures and enhancement opportunities

None proposed.

Table B.27: Urban MK 15

Scheme 39, 40, 72: Bus Priority Corridors

Description: Bus priority measures to support bus service enhancements (Option 41). Option would include corridor improvements to junctions, implementation of extensive bus lanes / segregated routes and enhanced bus stop infrastructure. Bus lane usage policy will also be reviewed. Where bus priority measures are introduced, consideration will be given to permitting other vehicle classes to use the infrastructure where this aligns with the strategy.

Air quality	The scheme will have positive indirect effects on air quality borough by supporting modal shift from the private car to public transport.		
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of and design of new bus priority measures, and the integration of biodiversity-friendly design within new infrastructure provision.		
Climate change	The scheme will promote modal shift to non-car modes of transport. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, enhancements have the potential to help manage fluvial or surface water flood risk.		
Historic environment	Effects on the fabric and setting of the historic environment will depend on the detailed design and layout of bus priority measures. Uncertain direct effects therefore. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.		
Landscape	Impacts on townscape character will depend on the detailed design and layout of bus priority measures. Uncertain direct effects therefore. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.		
Land, soil and water resources	The scheme is unlikely to lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given that the scheme will not require significant landtake.		
Communities	The scheme will enhance accessibility by bus, and improve the reliability of services. This will support the quality of life of residents.		
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities by bus. This will support health and wellbeing.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme will enhance accessibility by bus, and improve the reliability of services. This will support the quality of life of residents and promote health and wellbeing.

Impacts on the fabric and setting of the historic environment, townscape quality and biodiversity networks depend on the detailed location, design and layout of priority measures.

Mitigation measures and enhancement opportunities

The design and layout of bus priority should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Table B.28: Urban MK 16

Scheme 16: Premium Bus Network

Description: Implementation of a premium bus network. This could be achieved by providing higher frequency services (every 10-15 minutes), operating throughout the week from early in the morning to late at night. The network would be branded, use high-quality vehicles (Wi-Fi and leather seats), potentially electric powered (Option 87). The option is supported by Bus Priority Corridors (Option 40), and Integrated Ticketing (Option 91).

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car to the bus. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car to the bus. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering higher quality bus services.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering higher quality bus services. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering higher quality bus services. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.

Mitigation measures and enhancement opportunities

None proposed.

Table B.29: Urban MK 17

Scheme 89: SMART Sensors

Description: Installation of SMART Sensors covering roads, Redways and parking spaces to enable the collection of real-time information. This data can then be linked to transport models, monitoring transport scheme impacts, network resilience, air quality, traffic conditions, asset maintenance, emergency planning, and providing open data to transport network users via a SMART Milton Keynes Travel Portal (Option 93) including car parking space availability, bus locations and dynamic vehicle routing.

Air quality	The scheme has the potential to have indirect positive effects for air quality through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes. It also has the potential to support targeted actions to address air quality issues identified through the collection of high quality data.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme has the potential to have indirect positive effects for limiting greenhouse gas emissions through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however in the short and medium term.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however in the short and medium term.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme will support accessibility to services, facilities and amenities.	
Health and wellbeing	Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme in the longer term will support the quality of life of residents.

The scheme has the potential to have positive effects for air quality and climate change mitigation through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, as well as support targeted actions to address identified air quality issues.

Mitigation measures and enhancement opportunities

None proposed.

Table B.30: Urban MK 18

Scheme 84: UTC Expansion

Description: Expansion of the Urban Traffic Management Control System. This will include signalised bus priority measures at key pinch-point junctions (Option 40), signalisation at junctions and traffic and cycle counters. This option aims to gather data and maximise junction efficiency with the ability to monitor success.

Air quality	An expansion of the Urban Traffic Management Control System will support air quality through helping to limit congestion on the local road network, including during peak commuting hours. It also has the potential to support air quality through implementing a control system favouring sustainable travel modes.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	An expansion of the Urban Traffic Management Control System will support a limitation of greenhouse gas emissions from transport through helping to limit congestion on the local road network, including during peak commuting hours. It also has the potential to support climate change mitigation through implementing a control system favouring sustainable travel modes.	
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and the scheme focuses on limited physical interventions. However, poorly sited and designed infrastructure and signage can have effects on the setting of the historic environment.	
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme, and the scheme focuses on limited physical interventions. However, poorly sited and designed infrastructure and signage can have effects on townscape quality.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme has the potential to support accessibility through implementing a control system favouring public transport and walking and cycling.	
Health and wellbeing	The scheme has the potential to support accessibility through implementing a control system favouring public transport and walking and cycling. This will promote health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

An expansion of the Urban Traffic Management Control System will support accessibility, air quality and climate change mitigation through helping to limit congestion on the local road network and implementing a control system favouring sustainable travel modes.

Effects on townscape and the setting of the historic environment depend on the siting and design of associated infrastructure and signage.

Mitigation measures and enhancement opportunities

Scheme-related infrastructure and signage should be designed and located to limit potential impacts on the quality of the townscape and the setting of the historic environment.

Table B.31: Urban MK 19

Scheme 103: Autonomous Deliveries

Description: Expansion of the autonomous 'last mile' delivery trial across Milton Keynes. The Co-op are currently trialling the use of hi-tech six-wheeled driving machines to deliver groceries ordered on a smartphone to customers. The use of autonomous / remote-controlled robot delivery vehicles could be expanded to other companies / services, including; pharmaceuticals, library services, groceries and electronic commerce (for example, Amazon deliveries).

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting more efficient deliveries. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme has the potential to have indirect positive effects for air quality through supporting more efficient deliveries. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through supporting more efficient deliveries. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through supporting more efficient deliveries. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms.	
Health and wellbeing	The scheme is unlikely to lead to significant effects for health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms. Whilst the scheme has the potential to have some positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.

Mitigation measures and enhancement opportunities

None proposed.

Table B.32: Urban MK 21

Scheme 66: On-Street Parking Controls

Description: Implementation of on-street parking controls in locations that suffer from high-levels of on-street parking stress, in order to control and manage parking and encourage modal shift to more sustainable travel modes. To improve parking provision for residents, a permit based system could be introduced.

Air quality	The scheme has the potential to have positive effects on air quality by encouraging modal shift to more sustainable modes of travel through limiting and managing car parking provision.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme.		
Climate change	The scheme has the potential to limit greenhouse gas emissions by encouraging modal shift to more sustainable modes of travel through limiting and managing car parking provision. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.		
Communities	The scheme will encourage modal shift to more sustainable modes of travel through limiting and managing car parking provision. This will support the quality of life of residents.		
Health and wellbeing	The scheme will encourage the use of active modes travel through limiting and managing car parking provision. This will support health and wellbeing and healthier lifestyles.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme will encourage modal shift to more sustainable modes of travel through managing car parking provision. This will support the quality of life of residents, promote health and wellbeing, and have benefits for air quality and climate change mitigation.

Mitigation measures and enhancement opportunities

None proposed

Table B.33: Urban MK 22

Scheme 27: Multi-Modal Hospital Travel Hubs

Description: Multi-modal travel hub at Milton Keynes University Hospital providing access to sustainable transport options. The Travel Hub would provide: a bus interchange; high-quality waiting facilities; cycle-hire points; cycle parking; car-share points and Demand Responsive Transit pick-up points.

Air quality	A Multi-Modal Hospital Travel Hub will have positive effects on air quality by supporting modal shift from the private car for hospital use through enhancing access to sustainable transport modes.		
Biodiversity	Milton Keynes Hospital is not located in an area of sensitivity for biodiversity, with no significant key habitats present. As such it is not anticipated that the development of a multi-modal travel hub will have significant effects on habitats, species and ecological networks.		
Climate change	A Multi-Modal Hospital Travel Hub will have positive effects for climate change mitigation by supporting a shift to lower carbon modes of transport for hospital use through enhancing access to sustainable transport modes. In relation to adapting to the effects of climate change, a new travel hub is not likely to impact on flood risk if appropriate design and layout is incorporated into scheme design.		
Historic environment	Milton Keynes Hospital is not located in an area of sensitivity for the historic environment, with no nationally or locally designated features in the vicinity of the site, and no features of archaeological interest present. As such it is not anticipated that the development of a multi-modal travel hub will have significant effects on the historic environment.		
Landscape	Impacts on townscape character will depend on the design and layout of the Multi-Modal Hospital Travel Hub. Uncertain direct effects therefore.		
Land, soil and water resources	The scheme is unlikely to lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme will enhance accessibility by non-car modes of transport to the hospital. This will promote accessibility to this key facility by a range of transport modes.		
Health and wellbeing	The scheme, through developing will support the use of healthier modes of travel, including walking and cycling. The scheme will also support accessibility to health services at the hospital.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The development of a Multi-Modal Travel Hub at the hospital will have positive effects on accessibility, health and wellbeing, air quality and climate change mitigation by enhancing access to the hospital via sustainable transport modes. Given the lack of sensitivity of the hospital in terms of biodiversity and the historic environment, no significant effects are anticipated in relation to these themes. Impacts on townscape character will depend on the design and layout of the Multi-Modal Hospital Travel Hub.

Mitigation measures and enhancement opportunities

None proposed.

Table B.34: Urban MK 23

Scheme 47: Orbital Bus Routes

Description: The existing network of bus routes are largely radial from CMK. This option will review the existing bus routes, and assess the opportunity to introduce orbital bus services to improve connectivity between jobs, homes, retail and leisure developments.

Air quality	The scheme will have positive effects on air quality in the borough by supporting modal shift from the private car to public transport.		
Biodiversity	The scheme is unlikely to lead to significant new physical infrastructure which is likely to impact on habitats, species and ecological networks.		
Climate change	The scheme will promote modal shift to non-car modes of transport. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme is unlikely to lead to significant new physical infrastructure which is likely to impact on the fabric or setting of the historic environment. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.		
Landscape	The scheme is unlikely to lead to significant new physical infrastructure which is likely to impact on the quality of the public realm. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.		
Land, soil and water resources	The scheme is unlikely to lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given that the scheme will not require significant landtake.		
Communities	The scheme will enhance accessibility by bus through improving connectivity between radial services. It will also improve access to those locations outside of central Milton Keynes. This will bring benefits for the quality of life of residents.		
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities by bus in the parts of the borough outside of central Milton Keynes. This will support health and wellbeing.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme will enhance accessibility by bus, and improve the reliability of services through improving connectivity between radial services and improving access to those locations outside of central Milton Keynes. This will support the quality of life of residents, promote health and wellbeing help enhance air quality and limit greenhouse gas emissions from transport.

Mitigation measures and enhancement opportunities

None proposed.

Table B.35: Urban MK 24

Scheme 35, 36, 37: Mass Rapid Transit

Description: Implementation of a high-quality Mass Transit Scheme delivering a fast and attractive service on segregated routes across Milton Keynes, potentially linked to Park & Ride Sites (Option 32) and Travel Hubs (Options 25 & 26). The system would provide: dedicated running lanes; priority at junctions; distinctive stops with real-time passenger information; cashless payment systems (Option 90) and network branding

Air quality	The development of a high quality Mass Rapid Transit system has the potential to have significant positive effects on air quality in the borough through supporting modal shift from the private car to public transport.	
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of and design of new mass transit provision, and the integration of biodiversity-friendly design within new infrastructure.	
Climate change	The development of a high quality Mass Rapid Transit system has significant potential to limit greenhouse gas emissions from transport in the borough through supporting modal shift from the private car to public transport. In relation to adapting to the effects of climate change, enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Effects on the fabric and setting of the historic environment will depend on the detailed design and layout of infrastructure associated with mass transit provision. Uncertain direct effects therefore. Modal shift stimulated by the scheme however has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout of bus priority measures. Uncertain direct effects therefore. Modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.	
Land, soil and water resources	It is uncertain whether the scheme will lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given that the scheme will not require significant landtake.	
Communities	The scheme will secure significant enhancements to accessibility by public transport, and improve the reliability of services. This will support the quality of life of residents.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities, with benefits for health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will secure significant enhancements to accessibility by public transport, and improve the reliability of services. This will support the quality of life of residents, promote health and wellbeing, contribute to air quality enhancements and support climate change mitigation.

Impacts on the fabric and setting of the historic environment, townscape quality and biodiversity networks depend on the detailed location, design and layout of new infrastructure associated with the proposed mass transit schemes.

Mitigation measures and enhancement opportunities

The design and layout of infrastructure associated with the proposed Mass Rapid Transit should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Table B.36: Urban MK 25

Scheme 32: Park & Ride Sites

Description: Implementation of Park & Ride sites strategically located at key radial locations into Milton Keynes. The sites would provide access to high frequency bus services and could also include access to bicycles (Park and Pedal). Suitable bus priority (Option 39 & 40) will be needed to support continued route development and reliability.

Air quality	Park and ride sites have the potential to improve air quality at locations within the town with elevated levels of air pollutants through supporting (within the town) modal shift from the private car to public transport.	
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of and design of Park & Ride sites, and the integration of biodiversity-friendly design within new infrastructure. In terms of the potential locations of Park & Ride sites, whilst no designated biodiversity sites are present in the vicinities of these locations, there are a number small areas of BAP Priority Habitat at the A509 / east M1 growth site, the A421 west, Kelly's Kitchen Roundabout), and in the vicinity of M1 Junction 13.	
Climate change	Park & Ride will support some limitation of greenhouse gas emissions through supporting modal shift from the private car to public transport. However, effects may be limited through the scheme encouraging car use for at least part of the journey. In relation to adapting to the effects of climate change, enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Effects on the fabric and setting of the historic environment will depend on the detailed location, design and layout of new Park & Ride infrastructure. In terms of the potential locations for Park & Ride, a scheduled monument and an archaeological notification site are present in the vicinity of Kelly's Kitchen Roundabout and archaeological notification sites are present in the vicinity of the potential the A421 west site. Uncertain effects therefore.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout of new Park & Ride provision. Uncertain effects therefore. Modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character in the town.	
Land, soil and water resources	Parking provision for new Park & Ride sites is likely to take place on greenfield land. A number of the proposed locations for Park & Ride sites are within areas of Grade 2 and Grade 3a land, which is land classified as the best and most versatile agricultural land. As such new Park & Ride facilities would be likely to lead to the loss of areas of productive land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	New Park & Ride schemes will support modal shift for part of journeys, and promote accessibility to services and amenities.	
Health and wellbeing	The scheme encourages car usage by providing free parking on the outskirts of the city centre. However, by encouraging modal shift for at least part of the journey, the option has the potential to support healthier modes of travel. There is also significant potential for Park & Ride sites to be linked up the Milton Keynes' Redway network, which will support cycle use.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Mixed effects. New Park & Ride provision will support modal shift for part of journeys. By encouraging modal shift for at least part of the journey, the option has the potential to support healthier modes of travel, promote air quality in the town centre and promote accessibility to services and amenities. However, the scheme encourages car usage by providing free parking on the outskirts of the city centre.

Effects on habitats, species and ecological networks will depend on the detailed location of and design of Park & Ride sites, and the integration of biodiversity-friendly design within new infrastructure, and effects on the fabric and setting of the historic environment and landscape/townscape quality will depend on the detailed location, design

and layout of new Park & Ride infrastructure

Mitigation measures and enhancement opportunities

Opportunities for integrating new Park & Ride provision with cycle and pedestrian networks should be maximised.

The design and layout of infrastructure associated with new Park & Ride provision should seek to support a high quality public realm and townscape/landscape, and seek to conserve the setting of the historic environment.

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Table B.37: Urban MK 26

Scheme 53: Salden Chase Rail Station

Description: Provision of a new railway station at Salden Chase (on the East-West Rail route) in order to support the delivery of new development in south-west Milton Keynes.

Air quality	A new railway station at Salden Chase has the potential to support enhancements to air quality at locations within the town through supporting modal shift from the private car to public transport.	
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of and design of the new railway station, and the integration of biodiversity-friendly design within new infrastructure. The potential location of the new railway station is in the vicinity of the Railway Siding east of Salden Wood Milton Keynes Wildlife Site. It is not within an SSSI Impact Risk Zone for the type of development likely to be taken forward.	
Climate change	A new railway station at Salden Chase has the potential to support enhancements to air quality at locations within the town through supporting modal shift from the private car to public transport. In relation to adapting to the effects of climate change, enhancements have the potential to help manage surface water flood risk present in the area.	
Historic environment	The proposed railway station is not in a location with features or areas of historic environment sensitivity, and is not located in the vicinity of an identified archaeological notification site.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout of the new railway station. Uncertain effects therefore. The location is not within an Area of Attractive Landscape.	
Land, soil and water resources	The development at a railway station at this location has the potential to lead to some loss of Grade 3b agricultural land. This is not land classified as the best and most versatile agricultural land. As such the scheme is unlikely to lead to the loss of areas of most productive land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme will secure enhancements to accessibility by rail, and improve the availability of railway services. This will support the quality of life of residents.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities, with benefits for health and wellbeing. The development of a new station also provides opportunities for enhanced pedestrian and cycle links to be introduced, which has the potential to encourage the use of healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will enhance public transport opportunities to the south west of Milton Keynes. This will support the quality of life of residents, promote health and wellbeing, contribute to air quality enhancements and support climate change mitigation. The potential location of the new railway station is not within an area of landscape or historic environment sensitivity.

The potential location of the new railway station is in the vicinity of the Railway Siding east of Salden Wood Milton Keynes Wildlife Site and a number of BAP Priority Habitats.

Mitigation measures and enhancement opportunities

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Table B.38: Urban MK 27

Scheme 51: Bletchley Chord

Description: Provision of a direct rail connection between the Marston Vale Line and the West Coast Mainline, enabling direct services from Bedford to Milton Keynes Central. This option could be implemented as an extension to, and linked with, East-West Rail. The provision of an extra and direct service into Milton Keynes Central may require an extra rail line into Milton Keynes Central.

Air quality	A new railway link which enables direct services from Bedford to Milton Keynes Central and from the eastern periphery areas of Milton Keynes to the West Coast Mainline has the potential to limit air pollutants through supporting modal shift from the private car to public transport.		
Biodiversity	The new rail corridor would not impact on designed sites or key biodiversity habitats. A new corridor provides opportunities for enhancements to ecological networks in this area.		
Climate change	A new railway link which enables direct services from Bedford to Milton Keynes Central and from the eastern periphery areas of Milton Keynes to the West Coast Mainline has the potential to limit greenhouse gas emissions through supporting modal shift from the private car to public transport. In relation to adapting to the effects of climate change, enhancements have the potential to help manage surface water flood risk present in the area.		
Historic environment	The proposed railway link would not pass through a location with features or areas of historic environment sensitivity, and is not located in the vicinity of an identified archaeological notification site.		
Landscape	Some impacts on townscape character may arise as a result of the scheme. This will depend on the detailed design of a new link however; it should also be noted that the area is not within a location of townscape sensitivity.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme will secure enhancements to accessibility to services, facilities and employment opportunities by rail, and improve the availability of railway services. This will support the quality of life of residents.		
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities, with benefits for health and wellbeing.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme will enhance rail links from Bedford to Milton Keynes Central and from the eastern periphery areas of Milton Keynes to the West Coast Mainline. This will support the quality of life of residents, promote health and wellbeing, contribute to air quality enhancements and support climate change mitigation. The potential location of the new railway is not within an area of landscape or historic environment sensitivity.

Mitigation measures and enhancement opportunities

Opportunities for enhancements to ecological corridors in the area should be explored through scheme development.

Table B.39: Urban MK 27

Scheme 38: Autonomous People Movers

Description: Trial and introduce micro-autonomous people movers for short local trips. The transit vehicles can be personal, or shared. Example journeys that could be undertaken using autonomous people movers include: movements between shopping centres in CMK; movements between key employment centres and Transport Hubs (Milton Keynes Central Railway Station); movements between Central Milton Keynes and key trip attractors such as the Milton Keynes University Hospital, Stadium MK and Bletchley.

Air quality	The scheme has the potential to have positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however given the initial small scale of the scheme.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however given the initial small scale of the scheme. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however given the initial small scale of the scheme.	
Landscape	The scheme would have indirect effects for townscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however given the initial small scale of the scheme.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible given the initial small scale of the scheme.

Mitigation measures and enhancement opportunities

None proposed.

Table B.40: Urban MK 28

Scheme 11: Electric Scooters

Description: Introduction of shared electric scooter hire scheme(s). The scheme would require registration via a smartphone application, with the ability to locate and track the scooters. The scheme could also include a strategy for geofencing (the use of GPS to create a virtual geographic boundary), enabling software to trigger a response when a scooter leaves the scheme area. Currently, scooters are defined as 'power transporters', which can only be used legally on private land.

Air quality	The scheme has the potential to have positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however given the small scale of the scheme.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however given the small scale of the scheme.	
Landscape	The scheme would have indirect effects for townscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however given the small scale of the scheme.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible initially.

Mitigation measures and enhancement opportunities

None proposed.

Table B.41: Urban MK 29

Scheme 67: Pinch Point Junction Improvements

Description: Physical improvements at junctions identified as pinch points on the road network in and around Milton Keynes, where public transport improvements are a priority. Enhancements could include the introduction of traffic signals, junction widening and improving crossing provision, subject to traffic modelling to demonstrate overall network benefits.

Air quality	Pinch point junction improvements have the potential to improve air quality at locations within the town with elevated levels of air pollutants through supporting a reduction of congestion. However, through contributing to an overall increase in traffic flows through enhancements to the road network, the scheme has the potential to increase traffic flows over a wider area. This may contribute to increases in emissions of key pollutants which affect air quality.	
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of and design of junction improvements, and the integration of biodiversity-friendly design within new infrastructure.	
Climate change	Junction improvements have the potential to increase overall traffic flows through improving congestion and reducing journey times by car. This has the potential to lead to increases in emissions from road transport. In relation to adapting to the effects of climate change, enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Effects on the fabric and setting of the historic environment will depend on the detailed location, design and layout of junction improvements. Uncertain direct effects therefore. The scheme, through encouraging car use, and potentially increasing traffic flows over a wider area, has the potential to impact on the fabric and setting of the historic environment.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout of junction improvements. Uncertain direct effects therefore. The scheme, through encouraging car use, and potentially increasing traffic flows over a wider area, has the potential to impact on landscape and townscape character	
Land, soil and water resources	The proposed junction improvements are unlikely to lead to the loss of significant areas of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Whilst the scheme has the potential to support accessibility by car, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm, with the potential to lead to impacts on the quality of life of residents. It should however be noted that junction capacity improvements may benefit the reliability of bus services, supporting accessibility by public transport.	
Health and wellbeing	The scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may discourage the use of alternative healthier modes of travel. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Mixed effects. Whilst the proposed junction capacity enhancements have the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support air quality improvements at particular pinchpoints, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm through stimulating an overall increase in car use.

Mitigation measures and enhancement opportunities

Bus priority measures and walking and cycling improvements should be incorporated within junction capacity improvements.

Junction capacity improvements should seek to support a high quality public realm and townscape, and seek to conserve and enhance the setting of the historic environment.

Table B.42: Urban MK 30

Scheme 69: A5 Kelly's Kitchen Roundabout

Description: This option would upgrade the A5 Old Kelly's Kitchen Roundabout to a grade-separated junction allowing the A5 to be free-flow with on / off-slips.

Air quality	Junction improvements at this location have the potential to improve air quality through supporting a reduction of congestion. However, through contributing to an overall increase in traffic flows through enhancements to a key pinch point at the road network, the scheme has the potential to increase traffic flows over a wider area. This may contribute to increases in emissions of key pollutants which affect air quality.	
Biodiversity	No designated biodiversity sites are present in the vicinity of the roundabout. However the area of woodland at the centre of the roundabout comprises deciduous woodland Biodiversity Action Plan Priority Habitat. As such the development of a grade-separate junction at this location has the potential to lead to the loss of this key biodiversity habitat.	
Climate change	Junction improvements have the potential to increase overall traffic flows through improving congestion and reducing journey times by car. This has the potential to lead to increases in greenhouse gas emissions from road transport. In relation to adapting to the effects of climate change, enhancements at the roundabout have the potential to help manage fluvial or surface water flood risk. However no areas of fluvial or surface water runoff are present at this location.	
Historic environment	The Roman Town Of Magiovinium And Roman Fort scheduled monument and an archaeological notification site are present in the vicinity of Kelly's Kitchen. Potential negative effects therefore from junction capacity enhancements.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout of junction improvements. Uncertain effects therefore.	
Land, soil and water resources	The proposed junction improvements have the potential to take place on land classified as Grade 2 and Grade 3a land, which is land classified as the best and most versatile. The scheme therefore has the potential to lead to the loss of areas of productive agricultural land (although the amount of land lost is unlikely to be significant). No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Whilst the scheme has the potential to support accessibility by car, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm, with the potential to lead to impacts on the quality of life of residents. It should however be noted that junction capacity improvements may benefit the reliability of bus services, supporting accessibility by public transport.	
Health and wellbeing	The scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may discourage the use of alternative healthier modes of travel. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Whilst the proposed junction capacity enhancements at Kelly's Kitchen Roundabout have the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support localised air quality improvements, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm through stimulating an overall increase in car use.

The roundabout is within an area of archaeological sensitivity, and important biodiversity habitats are present on the site.

Mitigation measures and enhancement opportunities

Potential impacts on biodiversity habitats (including the deciduous woodland present on the site) should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Junction capacity improvements at this location should seek to appropriately recognise the potential for archaeological remains in the area, and seek to avoid impacts on significant remains, including associated with the scheduled monument. If this is not possible then such remains should be archaeologically recorded in order to "preserve by record" the significant aspects of the site. This should be informed by an evaluation of the importance and significance of the archaeology on the site.

Table B.43: Urban MK 31

Scheme 68: A5 Old Stratford Roundabout

Description: This option would upgrade the A5 Old Stratford Roundabout to a grade-separated junction allowing the A5 to be free-flow with on / off-slips.

Air quality	Junction improvements at this location have the potential to improve air quality at this location through supporting a reduction of congestion. However, through contributing to an overall increase in traffic flows through enhancements to a key pinch point at the road network, the scheme has the potential to increase traffic flows over a wider area. This may contribute to increases in emissions of key pollutants which affect air quality.	
Biodiversity	No designated biodiversity sites are present in the vicinity of the roundabout, and enhancements to the junction would not affect sensitive biodiversity habitats. There are also no identified wildlife corridors at this location. No significant effects on biodiversity anticipated therefore.	
Climate change	Junction improvements have the potential to increase overall traffic flows through improving congestion and reducing journey times by car. This has the potential to lead to increases in greenhouse gas emissions from road transport. In relation to adapting to the effects of climate change, enhancements at the roundabout have the potential to help manage fluvial or surface water flood risk. Limited areas of surface water flood risk are present in the vicinity of the roundabout.	
Historic environment	The roundabout is not in a location with features or areas of historic environment sensitivity, and is not located in an identified archaeological notification site. No significant effects on the fabric or setting of the historic environment are anticipated therefore.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout of junction improvements. Uncertain direct effects therefore.	
Land, soil and water resources	The proposed junction improvements have the potential to take place on land classified as Grade 2 land, which is land classified as the best and most versatile. The scheme therefore has the potential to lead to the loss of areas of productive agricultural land (although the amount of land lost is unlikely to be significant). No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Whilst the scheme has the potential to support accessibility by car, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm, with the potential to lead to impacts on the quality of life of residents. It should however be noted that junction capacity improvements may benefit the reliability of bus services, supporting accessibility by public transport.	
Health and wellbeing	The scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may discourage the use of alternative healthier modes of travel. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Whilst the proposed junction capacity enhancements at Old Stratford Roundabout have the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support localised air quality improvements, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm through stimulating an overall increase in car use.

Mitigation measures and enhancement opportunities

Bus priority measures and walking and cycling improvements should be incorporated within junction capacity improvements.

Table B.44: Urban MK 32

Scheme 49: Marston Vale Level Crossing Closures

Description: Closure of the at-grade level crossings along the Marson Vale Line (Bletchley to Bedford), due to the increase in rail frequency anticipated as a result of East-West-Rail. Locations where level crossings are proposed to be closed include: Simpson Road, V10 Brickhill Street and A5130 Station Road.

Air quality	Overall effects on air quality are likely to be negligible given the limited role of the scheme in supporting modal shift.		
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.		
Climate change	Overall effects on greenhouse gas emissions are likely to be negligible given the limited role of the scheme in supporting modal shift.		
Historic environment	The removal of level crossings will not have significant effects on the fabric and setting of the historic environment.		
Landscape	The removal of level crossings will not have significant effects on landscape or townscape quality.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.		
Communities	The scheme has the potential to support road safety by removing potentially dangerous level crossings from increased rail movements resulting from a new East-West rail route.		
Health and wellbeing	The scheme has the potential to support road safety by removing potentially dangerous level crossings from increased rail movements resulting from a new East-West rail route.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

In terms of the health and wellbeing and communities SEA themes, the scheme has the potential to support road safety by removing potentially dangerous level crossings from increased rail movements resulting from a new East-West rail route. No significant effects relating to the remaining themes.

Mitigation measures and enhancement opportunities

None proposed.

Table B.45: Urban MK 32

Scheme 76: Bletchley Southern Bypass

Description: Delivery of the Bletchley Southern Bypass linking the A421 and A4146 to provide congestion relief to the A421 and Buckingham Road and support the delivery of strategic growth in the southwest. The indicative route for the Bletchley Southern Bypass would connect the A4146 Stoke Hammond Bypass to the A421, west of Bletchley.

Air quality	The scheme has the potential to improve air quality at locations within the town with elevated levels of air pollutants, including through limiting congestion on the A421 and Buckingham Road. However, through contributing to an overall increase in traffic flows on the road network, the scheme has the potential to increase traffic flows over a wider area. This may contribute to increases in emissions of key pollutants which affect air quality.	
Biodiversity	The potential route of the bypass runs close to three areas of deciduous woodland which have been identified as BAP Priority Habitat and ancient woodland. It also runs close to the Scrub east of Salden Wood Biological Notification Site/Milton Keynes Wildlife Site. These areas should be avoided when determining the final route of the scheme.	
Climate change	The bypass has the potential to increase overall traffic flows through improving congestion on the A421 and Buckingham Road and reducing journey times by car. This has the potential to lead to increases in emissions from road transport. In relation to adapting to the effects of climate change, the route crosses areas of fluvial and surface water flood risk. However these areas are not significant, and if embedded mitigation measures are incorporated within scheme design, no negative impacts are anticipated.	
Historic environment	The route is not in a location with features or areas of significant historic environment sensitivity, and is not located within areas identified as archaeological notification sites. The scheme however, through encouraging car use, and potentially increasing traffic flows over a wider area, has the potential to impact on the fabric and setting of the historic environment. The scheme also has the potential to impact on the historic setting of Newton Longville.	
Landscape	Impacts on landscape and townscape character will depend on the detailed design and layout the bypass. However the development of a new bypass in this location will have inevitable impacts on landscape character in the area and is likely to impact on the setting of Newton Longville.	
Land, soil and water resources	Parts of the proposed route will take place on Grade 3a agricultural land. The loss of this land classified as the best and most versatile will have impacts on the availability of productive agricultural land in the area. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme has the potential to relieve congestion and vehicular pressure on the A421 and Buckingham Road, support economic growth and the delivery of new development in south-west Milton Keynes. Whilst the scheme has the potential to support accessibility by car, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm over a wider area, with the potential to lead to impacts on the quality of life of residents. It should however be noted that the new bypass may benefit the reliability of bus services, supporting accessibility by public transport.	
Health and wellbeing	The scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may discourage the use of alternative healthier modes of travel. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm over a wider area.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme has the potential to relieve congestion and vehicular pressure on the A421 and Buckingham Road, support economic growth and the delivery of new development in south-west Milton Keynes.

Whilst the proposed new bypass has the potential to support accessibility by car, reduce congestion, enhance bus network reliability, and support air quality improvements at particular pinchpoints, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm over a wider area through stimulating an overall increase in car use.

A new bypass has the potential to impact on key biodiversity habitats present locally, landscape character and the setting of the historic environment, including in Newton Longville.

Mitigation measures and enhancement opportunities

The potential route of the bypass runs close to three areas of deciduous woodland which have been identified as BAP Priority Habitat and ancient woodland. It also runs close to the Scrub east of Salden Wood Biological Notification Site/Milton Keynes Wildlife Site. These areas should be avoided when determining the final route of the scheme.

Potential impacts on landscape character should be minimised through appropriate design and layout and screening.

Table B.46: Urban MK 33

Scheme 65, 101, 102: Urban Logistics Network

Description: Assessment of the need for first-last mile goods delivery infrastructure. This option could include Freight Consolidation Centres and the provision of Collection Hubs (Click and Collect) at key local destinations including transport hubs and regional centres. Deliveries to the Collection Hubs can be made by consolidated delivery vehicles and electric low emission vehicles (vans / cargo bikes).

Air quality	The scheme has significant potential to improve the efficiency of freight deliveries in Milton Keynes. This will help limit emissions from freight movements, supporting air quality.		
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.		
Climate change	The scheme has significant potential to improve the efficiency of freight deliveries in Milton Keynes. This will help limit greenhouse gas emissions from freight movements, supporting climate change mitigation. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme would have positive effects for the fabric and setting of the historic environment through supporting more efficient deliveries and limiting the amount of freight traffic on the road network.		
Landscape	The scheme would have positive effects for townscape and landscape character through supporting more efficient deliveries and limiting the amount of freight traffic on the road network.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.		
Communities	The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms. Through helping to limit the amount of freight traffic on the road network, the scheme will help facilitate enhancements to the quality of the public realm and the quality of neighbourhoods.		
Health and wellbeing	The scheme is likely to support health and wellbeing through helping to limit road safety issues from freight movements and enhancements to the quality of the public realm.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Through helping to limit the amount of freight traffic on the road network, the scheme will help facilitate enhancements to the quality of the public realm, supporting townscape quality and the setting of the historic environment, and limit road safety issues from freight movements. The scheme will also help limit emissions from freight movements, supporting air quality and climate change mitigation.

Mitigation measures and enhancement opportunities



None proposed.

Rural Milton Keynes Infrastructure Schemes

Table B.47: Rural MK 01

Scheme 4: Rural Cycle Routes

Description: Expansion of existing cycle routes, beyond Milton Keynes, to provide a network of longer-distance cycle routes connecting to villages and rural employment centres and encourage the uptake of cycling.

Air quality	An expansion of rural cycle routes would promote modal shift from the private car to cycling. This includes through increasing the attractiveness of cycling as a realistic alternative to motorised modes of transport in rural areas. This will support enhancements to air quality through helping to limit emissions from transport.	
Biodiversity	Potential effects on biodiversity may result from loss of trees, vegetation and other features important to the district's ecological networks as a result of expanding the cycle network. Impacts however depend on the location, design and mitigation/avoidance measures implemented through the scheme.	
Climate change	An expansion of rural cycle routes would promote modal shift from the private car to cycling. This includes through increasing the attractiveness of cycling as a realistic alternative to motorised modes of transport in rural areas. This will help limit greenhouse gas emissions through encouraging the use of lower carbon modes of transport. In relation to adapting to the effects of climate change, cycle network enhancements have the potential to help manage fluvial or surface water flood risk.	
Historic environment	Well-designed cycle enhancements facilitated through the scheme may support the setting of the historic environment at some locations and promote opportunities for its enjoyment. This depends however on the location, design and layout of enhancements taken forward under this scheme.	
Landscape	Well-designed cycle enhancements facilitated through the scheme may support the quality of the public realm and landscape/villagescape, and promote opportunities for its enjoyment. This depends however on the location, design and layout of enhancements taken forward under this scheme.	
Land, soil and water resources	The scheme may lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	Enhancements to the rural cycle network will promote accessibility to services, facilities and amenities by cycle, with benefits for the quality of life of rural residents. An increase in cycle use and associated modal shift also has the potential to support the visitor economy.	
Health and wellbeing	The scheme will promote active modes of travel through contributing to enhanced cycle linkages in rural areas in the borough. This will support cyclists' safety and promote healthier lifestyles.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Enhancements to the rural cycle network will promote accessibility to services, facilities and amenities by cycle and promote health and wellbeing. It also has the potential to support the borough's visitor economy. Through encouraging modal shift, the scheme will support air quality and help limit greenhouse gas emissions from transport.

Well-designed cycle enhancements facilitated through the scheme may support the quality of the public realm, support landscape/villagescape character and the historic environment, and promote opportunities for its enjoyment.

Potential effects on landscape/villagescape quality, the setting of the historic environment and ecological networks depend on the detailed location, design and layout of enhancements taken forward under this scheme.

Mitigation measures and enhancement opportunities

Enhancements to the rural cycle network should seek to limit potential impacts on habitats and species from

landtake, loss of vegetation and trees and light pollution through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought where possible.

Enhancements to the network should also seek to enhance and complement the quality of the public realm and villagescape quality.

Table B.48: Rural MK 02

Scheme 9, 10: Cycle Hire Schemes

Description: Expand and promote cycle hire schemes (Santander, Lime, Dockless Bikes) to cover a larger area. New hire stations can be incorporated into existing and new developments, local centres and transport hubs. If legislation and technology advances this could expand to include electric scooters (Option 11).

Air quality	The scheme would promote cycling through enhancing opportunities for cycle use, and enhances the potential for multi modal transport use. This will support modal shift from the private vehicle, with benefits for air quality.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would promote cycling through enhancing opportunities for cycle use, and enhances the potential for multi modal transport use. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	Whilst additional cycle hire provision if inappropriately designed, may detract from the setting of the historic environment, the scheme will encourage cycle use, which will help enhance the setting of the historic environment of the borough and promote opportunities for its enjoyment.	
Landscape	Whilst additional cycle hire provision if inappropriately designed, may impact on villagescape or landscape character, the scheme will encourage cycle use, which will help enhance the setting of the landscape character of the borough and promote opportunities for its enjoyment.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme improves opportunities for cycle use, and enhances the potential for multi modal transport use. This will facilitate accessibility by cycling, contribute to enhancements to the public realm, and promote community vitality.	
Health and wellbeing	The scheme will promote active modes of travel through significantly enhancing opportunities for cycle use. This will support healthier lifestyles and promote road safety.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Through significantly enhancing opportunities for cycle use, and facilitating multi modal transport use, the scheme will support accessibility and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

The design, location and layout of new cycle hire provision should be sensitive to the quality of the landscape and the setting of the historic environment.

Table B.49: Rural MK 03

Scheme 8: Bike Loan Schemes

Description: Introduction of a cycle loan scheme (implemented and operated by Milton Keynes Council or a partner organisation). The scheme would include a range of cycles to suit all individuals, including adapted cycles and e-Bikes. They would be available direct from the scheme provider. Initiatives, such as trial periods, free hire to the unemployed and reduced prices for low-income groups could be implemented to encourage uptake.

Air quality	The scheme would promote cycling through enhancing opportunities for cycle use. This will support modal shift from the private vehicle, with benefits for air quality.		
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.		
Climate change	The scheme would promote cycling through enhancing opportunities for cycle use. This will support modal shift to lower carbon modes of travel. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme will encourage cycle use, which will help enhance the setting of the historic environment of the borough and promote opportunities for its enjoyment.		
Landscape	Enhancements in cycle provision will promote cycle use and modal shift, which will support the quality of the public realm.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.		
Communities	The scheme enhances opportunities for cycle use. This will facilitate accessibility by cycling, promote social inclusion, contribute to enhancements to the public realm, and promote community vitality.		
Health and wellbeing	The scheme will promote active modes of travel through enhancing opportunities for cycle use. This will support healthier lifestyles and promote road safety.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

Through enhancing opportunities for cycle use, the scheme will support accessibility, social inclusion and promote healthy lifestyles. It will also, through contributing to enhancements to the public realm and built environment, have positive effects for the quality of the townscape and the setting of the historic environment.

Mitigation measures and enhancement opportunities

None proposed.

Table B.50: Rural MK 09

Scheme 29: Rural Car Clubs

Description: Introduction of a car club outside the built-up area of Milton Keynes. Rural car club schemes are typically run by Community Interest Companies (CIC), charities or Trusts, and provide a cheaper alternative to owning your own vehicle, and only require a membership to a car club company to get started. Use of the vehicles is carried out through online booking systems or on the telephone. Rural car clubs could make an important contribution to rural accessibility and reduce social exclusion.

Air quality	Car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can make a contribution to delivering emissions reductions through the use of more efficient fleet cars. Car clubs also offer transparency over the emissions used when travelling through better accounting. This enables the better management of emissions. Car clubs also offer opportunities to select ultra-low emission cars when car travel is needed in sensitive locations. As such the scheme has the potential to support air quality improvements.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	Car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can make a contribution to delivering carbon reduction benefits through less embedded carbon in fleet cars. Car clubs also offer transparency over the emissions used when travelling through better accounting of emissions. This enables the better management of emissions. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car.	
Landscape	The scheme would have indirect effects for villagescape, townscape and landscape character through encouraging modal shift from the private car.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	Car clubs encourage modal shift from the private car, including by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Car clubs also enable access to mobility opportunities that would not otherwise be accessible, and have the potential to reduce individuals' expenditure on transport use through reducing the need for the private car. Car clubs also provide opportunities to increase the use of public transport use through the greater flexibility enabled by making a car available as an option rather than a first choice. These elements therefore have the potential to bring a range of benefits for the quality of life of residents and support social inclusion, which is a key issue in rural areas.	
Health and wellbeing	Health and wellbeing can be supported by car clubs through encouraging modal shift from the private car, enabling access to mobility opportunities that would not otherwise be accessible, and providing opportunities to increase the use of public transport and walking and cycling through the greater flexibility enabled by making a car available as an option rather than a first choice.	

Key

Likely adverse effect (without mitigation measures)



Likely positive effect



Neutral/no effect



Uncertain effects



Summary

The scheme has the potential to encourage modal shift from the private car and also enable access to mobility opportunities that would not otherwise be accessible. Car clubs also provide opportunities to increase the use of sustainable transport use through the greater flexibility enabled by making a car available as an option rather than a first choice. This will support accessibility, promote the quality of life of residents and support health and wellbeing. It will also support social inclusion, which is a key issue in rural areas.

With positive effects for air quality and climate change mitigation, car clubs can help to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car. Using a car club can also make a contribution to delivering emission reductions through facilitating the use of lower emissions vehicles.

Mitigation measures and enhancement opportunities

None proposed.

Table B.51: Rural MK 10

Scheme 26: Multi-Modal Rural Travel Hubs

Description: Implementation of multi-modal travel hubs in the rural settlements outside Milton Keynes, in order to intercept car trips and provide access to sustainable transport options at small, flexible transport interchanges. The rural travel hubs would provide: access to bus and Redway routes / expansions; car parking; cycle facilities (lockers, cycle parking) and real-time travel information. This option could also provide car-club vehicles, car-share meeting points, cycle-hire, electric cycles and Demand Responsive Transit pick-up points.

Air quality	Multi-Modal Travel Hubs in the rural settlements outside Milton Keynes will have positive effects on air quality in the borough by supporting modal shift from the private car through enhancing access to sustainable transport modes.	
Biodiversity	Effects on habitats, species and ecological networks will depend on the detailed location of new Multi-Modal Urban Travel Hubs, and the integration of biodiversity-friendly design within new infrastructure provision.	
Climate change	Multi-Modal Travel Hubs in the rural settlements outside Milton Keynes will have positive effects on climate change mitigation in the borough through enhancing access to lower carbon modes of travel. In relation to adapting to the effects of climate change, new travel hubs are not likely to impact on flood risk if appropriate design and layout is incorporated into scheme design.	
Historic environment	Effects on the fabric and setting historic environment will depend on the detailed location of new Multi-Modal Rural Travel Hubs, and the integration high quality design and layout. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on the fabric and setting of the historic environment.	
Landscape	Impacts on landscape and villagescape character will depend on the design and layout of Multi-Modal Rural Travel Hubs. Uncertain direct effects therefore. More broadly, modal shift stimulated by the scheme has the potential to help limit the impact of the private car on landscape and townscape character.	
Land, soil and water resources	Landtake linked to the scheme is has the potential to lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme will enhance accessibility by non-car modes of transport through providing access to sustainable transport options at rural interchanges. This will promote accessibility to services, facilities and amenities by a range of transport modes and promote social inclusion, which is a key issue in rural areas.	
Health and wellbeing	The scheme will enhance accessibility by non-car modes of transport through providing access to sustainable transport options at rural interchanges. This includes through improving access to cycle infrastructure and increasing local travel options. This will support the use of healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Multi-Modal Rural Travel Hubs outside Milton Keynes will have positive effects on accessibility, health and wellbeing, air quality and climate change mitigation by enhancing access to sustainable transport modes. It will also support social inclusion, which is a key issue in rural areas.

Mitigation measures and enhancement opportunities

The design and layout of Multi-Modal Rural Travel Hubs should seek to support a high quality public realm and townscape, and support ecological networks in the borough.

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

Table B.52: Rural MK 11

Scheme 34: Demand Responsive Transit

Description: Expansion of Demand Responsive Transit (DRT) bus services, operated on a commercial basis. DRT is a form of micro-mass transit. Shared minibuses are booked, on demand, using a smartphone application, internet portal or by telephone. The shared minibus is then routed to collect passengers and take them to their destinations. A trial is currently in place in Milton Keynes with ViaVan, which, if successful, could be expanded across a Milton Keynes.

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. It will also support social inclusion, which is a key issue in rural areas.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. It will also support social inclusion, which is a key issue in rural areas.

Mitigation measures and enhancement opportunities

None proposed.

Table B.53: Rural MK 12

Scheme 45: Taxibus

Description: Provision of Taxibus services throughout Milton Keynes. The service would use taxi vehicles operating on fixed routes, providing connections between main trip attractors, including Milton Keynes Central Railway Station and key employment, leisure and social destinations. The service can be shared by multiple passengers, but unlike buses, users can alight anywhere on the route.

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. It will also support social inclusion, which is a key issue in rural areas.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. It will also support social inclusion, which is a key issue in rural areas.

Mitigation measures and enhancement opportunities

None proposed.

Table B.54: Rural MK 12

Scheme 103: Autonomous Deliveries

Description: Expansion of the autonomous 'last mile' delivery trial across Milton Keynes. The Co-op are currently trialling the use of hi-tech six-wheeled driving machines to deliver groceries ordered on a smartphone to customers. The use of autonomous / remote-controlled robot delivery vehicles could be expanded to other companies / services, including; pharmaceuticals, library services, groceries and electronic commerce (for example, Amazon deliveries).

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting more efficient deliveries. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme has the potential to have indirect positive effects for greenhouse gas emissions through supporting more efficient deliveries. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through supporting more efficient deliveries. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through supporting more efficient deliveries. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms.	
Health and wellbeing	The scheme is unlikely to lead to significant effects for health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to goods and services through supporting more efficient delivery mechanisms. Whilst the scheme has the potential to have some positive effects for air quality and climate change mitigation, overall effects are likely to be negligible.

Mitigation measures and enhancement opportunities

None proposed.

Table B.55: Rural MK 13

Scheme 77: Olney Bypass

Description: Provision of a bypass of Olney Village on the A509. The new bypass could route to the west of Emberton before heading north to cross the River Great Ouse south-west of Olney. The alignment would then cross the B5388 Yardley Road and re-join the existing A509, near Warrington.

Air quality	Through initiating a bypass around Olney, the scheme has significant potential to enhance air quality. This is given Olney village is the location of the only AQMA designated in the borough (due to exceedances in the annual mean concentration objective of 40µg/m ³ for NO ₂).
Biodiversity	The potential route of the bypass runs close to an area of good quality semi-improved grassland BAP Priority Habitat and crosses an area of coastal and floodplain grazing marsh BAP Priority Habitat. The bypass also has the potential to impact on small areas of deciduous woodland BAP Priority Habitat. A bypass also has the potential to affect (depending on final route) the Emberton Park Biological Notification Site, the Emberton Island Field Biological Notification Site, the River Ouse Biological Notification Site and the Chalk Grassland, Olney Milton Keynes Wildlife Site.
Climate change	The bypass has the potential to increase overall traffic flows through improving congestion on the A509 and reducing journey times by car. This has the potential to lead to increases in greenhouse gas emissions from road transport. In relation to adapting to the effects of climate change, the route crosses significant areas of fluvial and surface water flood risk, including associated with the River Ouse. However, if embedded mitigation measures are incorporated within scheme design, no significant negative impacts are anticipated.
Historic environment	A bypass to the west of Olney has the potential to impact on the fabric and setting of the historic environment. Key areas of historic environment sensitivity in the vicinity of the potential route are Emberton, which has in the region of 12 nationally listed buildings and is covered by the Emberton Conservation Area, and Weston Underwood, which has in the region of 40 listed buildings and is covered by the Weston Underwood Conservation Area. A new bypass which runs close to Emberton and to the east of Weston Underwood therefore has the potential to impact on the historic setting of these settlement and the key features and areas designated for their historic environment interest. A number of Archaeological Notification Sites are also present along the potential route of the bypass. It should also be noted though that a new bypass has significant potential to enhance the fabric and setting of the historic environment in Olney. The existing route of the A509 passes through an area of significant historic environment interest. In addition to passing through the Olney Conservation Area, approximately 90 nationally listed buildings are present on the route, and Olney Bridge, over which the route passes, has been designated as a scheduled monument. As such a new bypass has significant potential to enhance the setting of Olney's significant historic environment resource through limiting traffic flows through the village centre. Overall therefore, there are likely to be both positive and negative effects on the historic environment as a result of a new bypass of Olney.
Landscape	A new bypass in this location will have inevitable impacts on landscape character to the west of Olney and is likely to impact on the landscape setting of Emberton and Weston Underwood. The bypass however has significant potential to enhance the sensitive villagescape character present along the existing A509 through Olney through limiting traffic along the route.
Land, soil and water resources	Part of the proposed route is likely to take place on Grade 2 agricultural land. The loss of this land classified as the best and most versatile will have impacts on the availability of productive agricultural land in the area. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.

Communities	The scheme has the potential to relieve congestion and vehicular pressure on the A509 through Olney. This has significant potential to enhance the quality of the public realm and built environment through the village, and support air and noise quality. This will support the quality of life of residents in Olney.	
Health and wellbeing	The scheme has the potential to relieve congestion and vehicular pressure on the A509 through Olney. This has significant potential to enhance the quality of the public realm and built environment through the village, and support air and noise quality. It will also encourage healthier modes of travel in the village. This will support the health and wellbeing of residents in Olney.	

Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme has the potential to relieve congestion and vehicular pressures on the A509 through Olney. This has significant potential to enhance the quality of the public realm and built environment through the village, and support air and noise quality. This will support the quality of life of residents in Olney.

The scheme is likely to have both positive and negative effects on the historic environment. Whilst a new bypass has significant potential to enhance the setting of Olney’s significant historic environment resource through limiting traffic flows through the village centre, a bypass has the potential to impact on the historic setting of Emberton and Weston Underwood, both of which have a significant historic environment resource. The bypass is also likely to have inevitable impacts on landscape character to the west of Olney, and has the potential to impact on key biodiversity habitats in the area.

Mitigation measures and enhancement opportunities

Potential impacts on landscape character should be minimised through appropriate design and layout and screening.

The benefits of the proposed bypass for the quality of the public realm and historic environment resulting from a reduction in traffic flows in Olney should be 'locked in' through appropriate interventions on the existing route of the A509.

Key areas of sensitive biodiversity habitat should be avoided in routing the bypass, and potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through should be addressed through appropriate avoidance and mitigation measures. Opportunities to enhance ecological networks through appropriate planting and green infrastructure enhancements should also be sought, supporting a premise of environmental net gain.

District wide Milton Keynes Infrastructure Schemes




Table B.56: District wide MK 01

Scheme 13: Cycle training	
Description: Implementation of secure, high-quality cycle parking at key destinations including: regional centres; schools; nurseries and employment sites.	
Air quality	The scheme will have positive indirect effects on air quality in the district by increasing the ease of use and attractiveness of cycling as an alternative to the private car. Effects on air quality are likely to be negligible however.
Biodiversity	The scheme will comprise limited interventions, and will not require landtake. As such the scheme is not likely to have significant impacts on key habitats or species or ecological networks.
Climate change	The scheme will have positive indirect effects on emissions in the district by increasing the ease of use and attractiveness of cycling as an alternative to the private car. Effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the heat island effect.
Historic environment	The scheme will encourage cycle use, which will help enhance the setting of the historic environment of the borough and promote opportunities for its enjoyment. Effects are likely to be negligible however.
Landscape	The scheme will encourage cycle use, which will help enhance the setting of the landscape character of the borough and promote opportunities for its enjoyment. Effects are likely to be negligible however.
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.
Communities	The scheme will encourage cycle use, which will support the quality of life and wellbeing of users.
Health and wellbeing	The scheme will promote active modes of travel through encouraging cycle use. This will support healthier lifestyles. The scheme also has the potential to improve road safety for cyclists.
Key	
Likely adverse effect (without mitigation measures)	Likely positive effect
Neutral/no effect	Uncertain effects
Summary	
The scheme will promote active modes of travel through encouraging cycle use, supporting healthier lifestyles. The scheme also has the potential to improve road safety for cyclists.	
Mitigation measures and enhancement opportunities	
None proposed.	

Table B.57: District wide MK 02

Scheme 24: Car/Cycle Share Scheme

Description: Implementation and promotion of a city-wide car-share / cycle-share scheme, by providing a free web-based matching service for both car and cycle journeys, for everyone who lives, works and travels in and around Milton Keynes. The database tool will also have the capability to match experienced cyclists with those less experienced who are keen to try cycling.

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting car sharing and supporting modal shift. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme has the potential to have indirect positive effects for climate change mitigation through supporting car sharing and supporting modal shift. Overall effects on greenhouse gas emissions are however likely to be negligible. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through supporting car sharing and cycle sharing.	
Health and wellbeing	The scheme will promote healthier modes of travel through encouraging cycle sharing. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)	 Likely positive effect	
Neutral/no effect	 Uncertain effects	

Summary

The scheme will support accessibility to services, facilities and amenities through supporting car sharing and cycle sharing. Whilst the scheme has the potential to have positive effects for air quality, climate change mitigation, landscape/townscape and the historic environment, overall effects in relation to these themes are likely to be negligible.

Mitigation measures and enhancement opportunities

None proposed.

Table B.58: District wide MK 03

Scheme 44: Bus Stop Infrastructure

Description: Upgrades to existing bus stop infrastructure throughout Milton Keynes. Improvements would include: the introduction of real time passenger information; interactive travel dashboards for live bus tracking; cashless ticket payment; improved access for people with reduced mobility and cycle parking facilities.

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car to the bus. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car to the bus. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities by bus through increasing the ease of bus use.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through increasing the ease of bus use. The option also seeks to enhance cycle infrastructure at bus stops. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities by bus through increasing the ease of bus use.

Mitigation measures and enhancement opportunities

None proposed.

Table B.59: District wide MK 04

Scheme 45: Taxibus

Description: Provision of Taxibus services throughout Milton Keynes. The service would use taxi vehicles operating on fixed routes, providing connections between main trip attractors, including Milton Keynes Central Railway Station and key employment, leisure and social destinations. The service can be shared by multiple passengers, but unlike buses, users can alight anywhere on the route.

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. It will also support social inclusion.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to public transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents.. It will also support social inclusion.

Mitigation measures and enhancement opportunities

None proposed.

Table B.60: District wide MK 05

Scheme 93: SMART MK Travel Portal

Description: Creation and promotion of a SMART Milton Keynes web-based travel portal that provides users with real-time travel information, in conjunction with a network of SMART Sensors (Option 89). This can include: parking data (space availability); live bus tracking; bus timetables; train departures; traffic maps; weather forecasts; incident messages; car club availability; cycle scheme availability; air quality and journey planning information.

Air quality	The scheme has the potential to have indirect positive effects for air quality through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes. It also has the potential to support targeted actions to address air quality issues identified through the collection of high quality data.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme has the potential to have indirect positive effects for limiting greenhouse gas emissions through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however in the short and medium term.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however in the short and medium term.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme will support accessibility to services, facilities and amenities.	
Health and wellbeing	Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, and maximising opportunities to improve the function of public transport networks, the scheme in the longer term will support the quality of life of residents.

The scheme has the potential to have positive effects for air quality and climate change mitigation through helping to identify the likely interventions required to effectively manage traffic and congestion in Milton Keynes, as well as support targeted actions to address identified air quality issues.

Mitigation measures and enhancement opportunities

None proposed.

Table B.61: District wide MK 06

Scheme 65: Electric Vehicle Charging Points

Description: Increase the number of electric car charging points across Milton Keynes to encourage the use of a more environmentally form of car travel. Additional charging infrastructure would be installed at key locations and trip attractors throughout Milton Keynes – including Central Milton Keynes, new development sites and employment sites – to increase accessibility to charging facilities for all users.

Air quality	The scheme has the potential to enhance air quality through promoting the use of zero emissions vehicles.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Climate change	The scheme has the potential to limit greenhouse gas emissions from transport through promoting the use of zero emissions vehicles. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme is not likely to have significant direct impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and significant physical infrastructure will not be required. However the encouragement of electric vehicles has the potential to limit the impacts of transport on the setting of the historic environment from noise pollution.		
Landscape	The scheme is not likely to have significant direct impacts on townscape or landscape quality given that no additional landtake will be required for the scheme and significant physical infrastructure will not be required. However the encouragement of electric vehicles has the potential to limit the impacts of transport on townscape quality from noise pollution.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.		
Communities	Enhancements to the public realm stimulated by an uptake of electric vehicles will support the quality of neighbourhoods as places to live and work, promoting the quality of life of residents.		
Health and wellbeing	The scheme will support health and wellbeing through reducing air and noise pollution, and enhancing the quality of the public realm.		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme has significant potential to enhance air quality and limit greenhouse gas emissions from transport. The encouragement of electric vehicles has also the potential to limit the impacts of transport on the setting of the historic environment and townscape quality from noise pollution, and support enhancements to the public realm. This will support neighbourhoods as places to live and work, promoting the quality of life of residents.

Mitigation measures and enhancement opportunities

None proposed

Table B.62: District wide MK 07

Scheme 94: Superfast broadband

Description: Support for the delivery of superfast broadband across Milton Keynes, to support Mobility as a Service (MaaS) schemes (Option 92), access to application and web-based services and home working. The majority of Milton Keynes benefits from superfast broadband, and working with neighbouring councils, Milton Keynes Council are looking to extend fibre coverage throughout.

Air quality	The scheme has the potential to enhance air quality through limiting the need to travel and encouraging remote working, homeworking and running a business from home.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Climate change	The scheme has the potential to support a limitation of greenhouse gas emissions from transport through limiting the need to travel and encouraging remote working, homeworking and running a business from home. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and significant physical infrastructure will not be required. However the encouragement of remote and homeworking has the potential to limit the impacts of transport on the setting of the historic environment.		
Landscape	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and significant physical infrastructure will not be required. However the encouragement of remote and homeworking has the potential to limit the impacts of transport on landscape, townscape and villagescape character.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.		
Communities	The scheme will support home working, remote working and running a business from home. This will support access to economic opportunities and reduce the need to travel.		
Health and wellbeing	The scheme will support health and wellbeing through contributing to reducing air and noise pollution and enhancing the quality of the public realm and reducing the need to travel		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme will support home working, remote working and running a business from home. This will support access to economic opportunities and reduce the need to travel, with benefits for quality of life, health and wellbeing, air quality and climate change mitigation.

Mitigation measures and enhancement opportunities

None proposed.

Table B.63: District wide MK 08

Scheme 87: Electric Public Transport Fleet

Description: Electrification of the taxi and bus fleet through Quality Partnership agreements and funding bids. The introduction of electric buses and taxis can help to improve air quality in the city centre and an increased frequency of bus services could help to break the reliance on personal vehicles.

Air quality	The scheme has the potential to enhance air quality through promoting the use of zero emissions buses and taxis. Positive effects particularly have the potential to take place in the town centre given the higher concentrations of such vehicles in this location.	
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.	
Climate change	The scheme has the potential to limit greenhouse gas emissions from transport through promoting the use of zero emissions vehicles. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and significant physical infrastructure will not be required. However the encouragement of electric buses and taxis has the potential to limit the impacts of transport on the setting of the historic environment, including from noise pollution.	
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme and significant physical infrastructure will not be required. However the encouragement of electric vehicles has the potential to limit the impacts of transport on townscape and landscape quality, including from noise pollution.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.	
Communities	Enhancements to the public realm stimulated by an uptake of electric vehicles will support the quality of the town centre as a place to live and work, promoting the quality of life of residents.	
Health and wellbeing	The scheme will support health and wellbeing through reducing air and noise pollution, and enhancing the quality of the public realm in the town centre.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme has the potential to enhance air quality in the town centre and limit greenhouse gas emissions from buses and taxis. The encouragement of electric vehicles has also the potential to limit the impacts of buses and taxis on the setting of the historic environment and townscape quality from noise pollution, and support enhancements to the public realm. This has the potential to in particular support the quality of the town centre as a place to live and work, promoting the quality of life of residents.

Mitigation measures and enhancement opportunities

None proposed

Table B.64: District wide MK 09

Scheme 86: MK Council Electric Vehicle Fleet

Description: Replacement of the existing Milton Keynes Council's vehicle fleet with electric vehicles – for waste collection, maintenance vans and pool cars. A cycle pool could also be introduced to the Council fleet.

Air quality	The scheme has the potential to enhance air quality through promoting the use of zero emissions vehicles and the encouragement of cycling.		
Biodiversity	The scheme is not likely to have significant impacts on biodiversity habitats or species or ecological networks given that no additional landtake will be required for the scheme, and the scheme focuses on virtual rather than physical initiatives to manage parking provision.		
Climate change	The scheme has the potential to limit greenhouse gas emissions from Council-related transport through promoting the use of zero emissions vehicles and the encouragement of cycling. In relation to adapting to the effects of climate change, the scheme is unlikely to deliver significant physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.		
Historic environment	The scheme is not likely to have significant impacts on the fabric and setting of the historic environment given that no additional landtake will be required for the scheme, and significant physical infrastructure will not be required. However the encouragement of electric vehicles and cycling has the potential to limit the impacts of Council-related transport on the setting of the historic environment, including from noise pollution.		
Landscape	The scheme is not likely to have significant impacts on townscape or landscape quality given that no additional landtake will be required for the scheme and significant physical infrastructure will not be required. However the encouragement of electric vehicles and cycling has the potential to limit the impacts of Council-related transport on townscape quality, including from noise pollution.		
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme given the scheme is unlikely to deliver significant physical infrastructure.		
Communities	Enhancements to the public realm stimulated by an uptake of electric vehicles and cycling for Council-related transport will support the quality of the public realm.		
Health and wellbeing	The scheme will support health and wellbeing through reducing air and noise pollution, and encouraging cycle use for Council-related transport		
Key			
Likely adverse effect (without mitigation measures)		Likely positive effect	
Neutral/no effect		Uncertain effects	

Summary

The scheme has the potential to limit emissions from Council-related transport through promoting the use of zero emissions vehicles and the encouragement of cycling. This will support air and noise quality, and support climate change mitigation. The encouragement of electric vehicles and cycling also has the potential to limit the impacts of Council-related transport on the setting of the historic environment and townscape/landscape quality.

Mitigation measures and enhancement opportunities

None proposed

Table B.65: District wide MK 10

Scheme 92: MaaS

Description: Implementation of a Mobility as a Service (MaaS) scheme (for example, Whim in Birmingham) by a private operator. MaaS schemes provide an application service which provides integrated access to public transport, taxis, cycle share schemes, Demand Responsive Transit (DRT), car clubs and car hire schemes on a pay as you go and monthly plan basis. Suitable bus services, taxi operators, cycle hire, car club, car hire will need to be provided to support the technology platform.

Air quality	A MaaS scheme has the potential to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car in favour of alternative modes of travel. This will support modal shift, with the potential to support air quality improvements.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	A MaaS scheme has the potential to reduce car use by enabling individuals to sell/dispose of their cars, or defer the purchase of a car in favour of alternative modes of travel. This will support modal shift, with the potential to support climate change mitigation. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have positive effects for the fabric and setting of the historic environment through encouraging modal shift from the private car to alternative modes of transport.	
Landscape	The scheme would have positive effects for townscape and landscape character through encouraging modal shift from the private car to alternative modes of transport.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The MaaS scheme will support accessibility to services, facilities and amenities through offering a flexible approach to alternative transport provision and providing local, accessible and inclusive mode of transport. This will support community cohesion and social inclusion.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to public transport provision and providing local, accessible and inclusive modes of transport. The scheme will also support walking and cycling. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The MaaS scheme will support accessibility to services, facilities and amenities through offering a flexible approach to alternative transport provision and providing local, accessible and inclusive mode of transport. This will support community cohesion and social inclusion.

Mitigation measures and enhancement opportunities

None proposed.

Table B.66: District wide MK 11

Scheme 90, 91: SMART ticketing

Description: Introduction of cashless and integrated ticketing payment capability across all public transport operators (bus, rail, cycle hire) in Milton Keynes

Air quality	The scheme has the potential to have indirect positive effects for air quality through supporting modal shift from the private car. Overall effects on air quality are likely to be negligible however.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging modal shift from the private car. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible however. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Landscape	The scheme would have indirect effects for townscape and landscape character through encouraging modal shift from the private car. Overall effects are likely to be negligible however.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a more flexible approach to public transport provision and increasing the accessibility and ease of use of the public transport network. This will support the quality of life of residents.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a more flexible approach to public transport provision and increasing the accessibility and ease of use of the public transport network. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a more flexible approach to public transport provision and increasing the accessibility and ease of use of the public transport network. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects in relation to these themes are likely to be negligible.

Mitigation measures and enhancement opportunities

None proposed.

Table B.67: District wide MK 12

Scheme 96: Shared Autonomous Vehicle Solution

Description: Implementation of a widescale shared autonomous vehicle solution for Milton Keynes. The technology allows riders to have larger amounts of time available for work, play or to socialise, as they no longer need to be in control of the vehicle. Autonomous vehicles could also allow those who cannot currently operate a vehicle, to gain a new independence, as they no longer need to rely on driving themselves to destinations.

Air quality	The scheme has the potential to have positive effects for air quality through encouraging the uptake of electric vehicles and shared vehicles. Overall effects on air quality are likely to be negligible in the short and medium term however given the initial small scale of the scheme.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	<p>The scheme would have indirect effects for climate change mitigation through encouraging the uptake of electric vehicles and shared vehicles. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible over the short and medium term however given the initial small scale of the scheme.</p> <p>In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.</p>	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car to shared autonomous vehicles. Overall effects are likely to be negligible in the short and medium term however given the initial small scale of the scheme.	
Landscape	The scheme would have indirect effects for townscape character through encouraging modal shift from the private car to shared vehicles. Overall effects are likely to be negligible in the short and medium term however given the initial small scale of the scheme.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible in the short and medium term given the initial small scale of the scheme.

Mitigation measures and enhancement opportunities

None proposed.

Table B.68: District wide MK 13

Scheme 95: Personal Autonomous Vehicle Solution

Description: Implementation of a widescale personal autonomous vehicle solution for Milton Keynes. The technology allows users to have larger amounts of time available for work, play or to socialise, as they no longer need to be in control of the vehicle. Autonomous vehicles could also allow those who cannot currently operate a vehicle, to gain a new independence, as they no longer need to rely on driving themselves to destinations.

Air quality	The scheme has the potential to have positive effects for air quality through encouraging the uptake of electric autonomous. Overall effects on air quality are likely to be negligible in the short and medium term however given the initial small scale of the scheme.	
Biodiversity	Given that the scheme will not require additional landtake, the scheme is unlikely to have significant impacts on biodiversity.	
Climate change	The scheme would have indirect effects for climate change mitigation through encouraging the uptake of autonomous electric vehicles. This will support modal shift to lower carbon modes of travel. Overall effects on climate change mitigation are likely to be negligible over the short and medium term however given the initial small scale of the scheme. In relation to adapting to the effects of climate change, the scheme will not deliver physical infrastructure with the potential to affect fluvial or surface water flood risk, or other impacts associated with climate change such as the urban heat island effect.	
Historic environment	The scheme would have indirect effects for the fabric and setting of the historic environment through encouraging modal shift from the private car to private autonomous vehicles. Overall effects are likely to be negligible in the short and medium term however given the initial small scale of the scheme.	
Landscape	The scheme would have indirect effects for townscape character through encouraging modal shift from the private car to private autonomous vehicles. Overall effects are likely to be negligible in the short and medium term however given the initial small scale of the scheme.	
Land, soil and water resources	The scheme will not lead to the loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme.	
Communities	The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport.	
Health and wellbeing	The scheme will support accessibility to health, leisure and recreational services and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support health and wellbeing.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

The scheme will support accessibility to services, facilities and amenities through offering a flexible approach to transport provision and providing a local, accessible and inclusive mode of transport. This will support the quality of life of residents. Whilst the scheme has the potential to have indirect positive effects for air quality and climate change mitigation, overall effects are likely to be negligible in the short and medium term given the initial small scale of the scheme.

Mitigation measures and enhancement opportunities

None proposed.

Table B.69: District wide MK 14

Scheme 70: Oxford to Cambridge Expressway

Description: The Oxford to Cambridge Expressway is a dual carriageway proposal by Highways England broadly aligned with the East-West Rail route. Working with Highways England and wider stakeholders, benefits of the proposed Expressway can be maximised for local residents and businesses. This option includes: identifying potential junction locations with the Major Road Network and A-Roads (for example, the A4146 and A5); unlocking strategic growth sites and taking opportunities to deliver Park & Ride Sites (Option 32) and Travel Hubs (Options 25 & 26).

<p>Air quality</p>	<p>The Oxford-Cambridge Expressway will be integral to delivering the proposed levels of growth earmarked between Oxford and Cambridge. As such the scheme has the potential to support air quality at locations with the potential to be affected by the significant housing and employment growth earmarked for the area. However, through contributing to an overall increase in traffic flows on the wider road network, the scheme has the potential to increase traffic flows over a broader area. This may contribute to increases in emissions of the key pollutants which affect air quality.</p>
<p>Biodiversity</p>	<p>Whilst the route of the potential expressway has yet to be defined, the scheme has the potential to have significant impacts on biodiversity habitats, species and networks from land take, habitat loss and fragmentation and disturbance. There are a number of SSSIs located to the south east of Milton Keynes including the Wavendon Heath Ponds SSSI and the Kings and Bakers Woods and Heaths SSSI, numerous BAP Priority Habitats present and several Milton Keynes Wildlife Sites. Comprising important components of the area's ecological networks, these have the potential to be adversely affected by the road scheme without appropriate avoidance and mitigation measures.</p>
<p>Climate change</p>	<p>The expressway has the potential to increase overall traffic flows through limiting congestion and reducing journey times by car. This has the potential to lead to increases in emissions from road transport.</p> <p>In relation to adapting to the effects of climate change, the route crosses areas of fluvial and surface water flood risk. However, if embedded mitigation measures are incorporated within scheme design, significant negative impacts are not anticipated.</p>
<p>Historic environment</p>	<p>Whilst the route of the potential expressway has yet to be defined, the scheme has the potential to have impacts on historic environment assets and their settings. Particular clusters of features of historic environment interest in the broad area include Aspley, Bow Brickhill, Great Brickhill and Stoke Hammond. The road also has the potential to impact on archaeological remains, as highlighted by a number of Archaeological Notification Sites being present in the area.</p>
<p>Landscape</p>	<p>Whilst the route of the potential expressway has yet to be defined, the scheme has the potential to have significant impacts on landscape character. For example the route has the potential to pass through an area to the south east of Milton Keynes defined in the Local Plan as an 'Area of Attractive Landscape'.</p> <p>Impacts on landscape and vilagescape character will depend on the detailed design and layout the expressway. However, the development of a new expressway in this location will have inevitable impacts on landscape character in the area.</p>
<p>Land, soil and water resources</p>	<p>Part of the potential route for the expressway is located on Grade 2 and 3a agricultural land. The loss of this land classified as the best and most versatile will have impacts on the availability of productive agricultural land in the area.</p> <p>No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.</p>

Communities	<p>The scheme has the potential to support economic growth and the delivery of new development in the Milton Keynes area.</p> <p>Whilst the scheme has the potential to support accessibility by car, the scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm over a wider area, with the potential to lead to impacts on the quality of life of residents.</p> <p>However the development of such a link is likely to be of importance to limit potential effects from congestion if the level of growth proposed in the Oxford Cambridge corridor materialises.</p>	
Health and wellbeing	<p>The scheme has the potential to encourage car usage by enhancing journey times by car and limiting congestion. This may discourage the use of alternative healthier modes of travel. An increase in car use also has the potential to affect air quality, noise quality and the quality of the public realm over a wider area.</p>	

Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Whilst the proposed new expressway has the potential to support accessibility by car and reduce congestion, the scheme has the potential to encourage car usage. This may impact on air quality, noise quality, climate change mitigation and the quality of the public realm over a wider area through stimulating an overall increase in car use. The new expressway also has the potential to impact on key biodiversity habitats present locally, landscape character and the setting of the historic environment.

However, the development of the expressway is likely to be an important element of limiting the potential adverse effects from an increase in road traffic and congestion if the level of growth proposed in the Oxford Cambridge corridor materialises.

Mitigation measures and enhancement opportunities

The development of the expressway should be accompanied by a comprehensive package of avoidance and mitigation measures, as well, where possible, enhancement measures. This should be informed at the project level by a robust EIA process.

Potential impacts on landscape character and the setting of the historic environment should be minimised through appropriate design and layout and screening. Key areas of sensitive biodiversity habitat should be avoided in routing the expressway, and potential impacts on habitats and species from landtake, loss of vegetation and trees and light pollution through should be addressed through appropriate avoidance and mitigation measures.

Opportunities to enhance green infrastructure networks along the route should also be sought, supporting a premise of environmental net gain and delivering multifunctional benefits.

Table B.70: District wide MK 15

Scheme 48: East West Rail

Description: Enhancing connectivity to the railway stations on the western section of the East-West Rail route (particularly along the Marston Vale Line). Enhancements at stations along the Marston Vale Line would provide access to bus routes and Redway routes / expansions, cycle facilities (lockers, cycle parking) and real-time travel information.

Air quality	Enhancing connectivity to the railway stations on the western section of the East-West Rail route will have positive effects on air quality by supporting modal shift from the private car through enhancing access to sustainable transport modes. This includes through facilitating non-car use to access the stations.	
Biodiversity	The Marston Vale Line comprises a wildlife corridor (Woburn – Bletchley) with a number of small areas of deciduous woodland BAP Priority Habitats present. As such potential effects on habitats, species and ecological networks will depend on the detailed design and layout of new facilities and the integration of biodiversity-friendly design within new infrastructure provision.	
Climate change	Enhancing connectivity to the railway stations on the western section of the East-West Rail route will have positive effects for climate change mitigation by supporting modal shift from the private car through enhancing access to sustainable transport modes. This includes through facilitating non-car use to access the stations.	
Historic environment	In terms of historic environment constraints, part of the station building at Fenny Stratford railway station is Grade II listed and the Grade II listed 148 Railway House is located adjacent to Woburn Sands railway station. There are no further significant features or areas of historic environment in the vicinities of the stations along the route or the rail corridor itself. Whilst effects on the fabric and setting historic environment will depend on the detailed location and design of new infrastructure provision, and the integration of high quality design and layout, given the relatively low sensitivity of the Marston Vale Line in terms of historic environment constraints, no significant effects on the historic environment are anticipated as a result of the scheme.	
Landscape	Impacts on landscape townscape character will depend on the design and layout new access provision to the railway stations. The area located to the south east of Bow Brickhill Station is defined in the Local Plan as an 'Area of Attractive Landscape'. Uncertain effects therefore.	
Land, soil and water resources	The scheme is unlikely to lead to the significant loss of productive agricultural land. No significant impacts on water quality are anticipated from the scheme if the required embedded mitigation measures are incorporated within the construction stage.	
Communities	The scheme will enhance accessibility by non-car modes of transport through providing access to the rail network by sustainable modes of transport. This will promote accessibility to services, facilities and job opportunities by a range of transport modes.	
Health and wellbeing	The scheme will enhance accessibility by non-car modes of transport through providing access to the rail network via sustainable modes of transport. This includes through improving access to cycle and pedestrian infrastructure and increasing local travel options. This will support the use of healthier modes of travel.	
Key		
Likely adverse effect (without mitigation measures)		Likely positive effect
Neutral/no effect		Uncertain effects

Summary

Enhancing connectivity to the railway stations on the western section of the East-West Rail route will have positive effects for accessibility, health and wellbeing, air quality and climate change mitigation.

Impacts on landscape and townscape quality and biodiversity networks depend on the detailed location, design and layout of new infrastructure, the incorporation of mitigation and avoidance measures, and enhancement measures.

Mitigation measures and enhancement opportunities

The design and layout of enhanced links to the rail stations should seek to support a high quality public realm and townscape, and seek to enhance the setting of the historic environment.

Potential impacts on biodiversity habitats should be considered during scheme development, avoidance and mitigation measures implemented, and opportunities for net gain explored.

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