





Oxford, Milton Keynes,
Cambridge
Northampton Growth
Corridor

Strategy Assessment Report
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National Infrastructure
Commission

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1 Introduction

First-Mile Last-Mile Strategies

- 1.1 In March 2017, the National Infrastructure Commission (NIC) wrote to representatives of Cambridge, Milton Keynes, Northampton and Oxford to invite them – in collaboration with key partners and neighbours – to develop a detailed and developed transport strategy to deliver a shared vision for the future of transport in each city. In doing so, the NIC was keen to receive ambitious, evidence-based strategies which reflected the best in international practice.
- 1.2 In light of the above, the NIC invited strategies which:
- command wide stakeholder support;
 - are consistent with projections on increased commuter flows prepared for the NIC previously;
 - reflect projected development patterns, a spatial vision for the town / city and the distribution of jobs and homes;
 - reflect and maximise the potentially transformational benefits of East West Rail and the Oxford to Cambridge Expressway;
 - reflect existing transport assets and environmental constraints;
 - consider the future availability and impact of technology on infrastructure and travel behaviours;
 - consider policy measures to shape travel choices and manage demand for private transport;
 - present a phased approach to delivery – with clear priorities and plans for at least the next five to ten years, and longer where appropriate;
 - clearly identify new infrastructure requirements; and
 - are supported by an investment plan that minimises public expenditure, demonstrates a phased approach to delivery, and can maximise private / third-party investment leverage.
- 1.3 Reflecting the potential scale of the impacts of East West Rail and the Oxford to Cambridge Expressway, collectively these strategies are referred to by the NIC as first-mile last-mile strategies, although individually and collectively by looking at transport provision in their areas in the round they have a much wider coverage than just access and egress from these two schemes.

Approach

1.4 This report presents the outputs from an independent review of the quality and coherence of the four first-mile last-mile strategies delivered in response to the NIC's request. In doing so, Steer Davies Gleave:

- carried out an initial review of transport 'visions' presented to the NIC in April 2017 and prepared high-level advice to feedback to representatives of each city;
- developed further guidance and instructions to help ensure smooth progress and consistency of approach between local stakeholders in the development of their city transport strategies;
- met with each city to discuss their emerging strategy and delivered high-level advice for development of 2050 city transport strategies; and
- prepared a 'Strategy Assessment Framework' designed to reflect NIC objectives and interests, and which formed the basis of the assessments reported here.

1.5 Each strategy has been assessed against five criteria:

- *Strategic fit*: How coherent / realistic is the first-mile last-mile strategy? How compelling is its prognosis, and is this internally consistent? Does the scale of ambition set out in the strategy meet that of the NIC? Have a clear set of objectives for the strategy been identified? How good is the match between the spatial vision for the town / city and the transport strategy to accommodate it?
- *Option generation and sifting*: Is there evidence that a range of alternative development patterns have been considered to inform the spatial vision for the location? Given the preferred development pattern, is there evidence of a broad range of transport interventions being considered? Is the process by which transport options have been sifted transparent and robust / reasonable?
- *Benefits and costs*: Has any attempt to quantify the benefits of short-listed options been made? Is the approach reasonable? Is the scale (and nature) of benefits commensurate with the interventions proposed, and the places that are affected? Has any attempt to quantify the costs of short-listed options been made? On what basis have costs been estimated? Has allowance been made for risk, uncertainty, inflation, optimism bias, etc.? Does the strategy give confidence that its measures represent value for money?
- *Funding*: Do any of the preferred transport options generate revenue? If so, has any estimate of this been made? What is the total scale of capital cost funding required for the preferred options? Has a cost profile been provided? If so, is it reasonable? Does the funding package identify match the capital requirement? What is the balance between proven / existing funding mechanisms and 'innovative' approaches? What proportion of the capital requirement will be met by private / third-party sources? Is this considered plausible?
- *Delivery*: Does the strategy give confidence that its measures are deliverable? Does the timing of transport interventions match the anticipated patterns of growth in household and employer numbers? Is there a realistic timescale for delivery of preferred options? Does this align with the funding requirement? Has any attempt been made to align local and strategic transport interventions? Is there any mention of the delivery agencies and governance / legislation needed to deliver the strategy?

- 1.6 In addition, we have identified the strengths, weaknesses, opportunities and threats of each strategy, defined as follows:
- Strengths: Elements of the strategy that give the locality an edge over its competitors (both internal and external to the corridor).
 - Weaknesses: Elements of the strategy that can be harmful if used against the locality by its competitors (both internal and external to the corridor).
 - Opportunities: Favourable scenarios (both exogenous and endogenous) that can provide a competitive advantage to the locality (relative to locations internal and external to the corridor).
 - Threats: Unfavourable scenarios (both exogenous and endogenous) that may negatively impact upon the locality (relative to locations internal and external to the corridor).
- 1.7 When undertaking our reviews, we have been mindful that each of the first-mile last-mile strategies we have considered has been developed over a relatively short timescale. In addition, each area has its own particular, local contexts with their statutory transport and development plans at different stages of the adoption cycle, and that these consider a time horizon shorter than the NIC's. Understandably, the further the strategies consider the future, the greater the uncertainty. That further work will be needed to develop these strategies should not be read as a criticism of the work done to date, simply an acknowledgement that each of the longer-term elements of the strategies we have considered are relatively early stage of development.

2 Cambridge

Introduction

- 2.1 The Greater Cambridge Partnership¹ has developed a first-mile last-mile strategy that looks to 2050, but is largely bound by what is contained within existing and emerging planning documents covering the period through to the early / mid-2030s. This is largely due to not wanting to destabilise the final stages of consultation and adoption of the Local Plan process within the Greater Cambridgeshire area.
- 2.2 The strategy is supportive of East West Rail and the Oxford to Cambridge Expressway, and contains proposals for where and how strategic and local networks could meet (e.g. a Mass Rapid Transit network, a Cambridge South Rail Station, a Girton Interchange of the M11 / A14 / Expressway). The Greater Cambridge Partnership proposes that East West Rail have fewer stops than is currently proposed with the goal to increase agglomeration benefits by reducing journey time. Further proposals are made for how significant housing growth could be distributed around fewer hubs near Cambridge.
- 2.3 Beyond the next five- to ten-year horizon, funding and financing requirements are high-level, and do not exist beyond the mid-2030s. Many funding and financing options are outlined, including several which would require ‘freedoms and flexibilities’ being granted by Central Government, including some which would require changes in legislation.

Strategic Fit

- 2.4 Objectives for the 2050 first-mile last-mile strategy are presented in two sets – the first being the existing ‘City Access’ transport objectives for the Greater Cambridge Partnership, and the second being a broader set contained within an appendix which align more to housing, employment, skills, and quality of life.
- 2.5 The strategy presents a coherent strategic case through to the mid-2030s, in line with Local Plan planning timelines, aligning transport investment with the location of housing and employment growth. However, evidence of transport challenges and opportunities, particularly in the future, is largely anecdotal.

¹ The Greater Cambridge Partnership comprises Cambridgeshire County Council, Cambridge City Council, South Cambridgeshire District Council, Greater Cambridge Greater Peterborough Enterprise Partnership, and the University of Cambridge.

- 2.6 Beyond the mid-2030s, the ambition for investment in transport infrastructure, including Mass Rapid Transit, is bold. Again, it is not underpinned by a quantified evidence base relating to a quantum and distribution of housing and employment, employment type, or future transport challenges.
- 2.7 The scale of ambition in terms of households and jobs is in line with Local Plan levels to the early / mid-2030s, and therefore, falls somewhat short of the ambition of the NIC's assessment of the need for one million new homes by 2050. This is not due to a lack of local ambition, rather, a requirement to not interrupt the Local Plan process locally.
- 2.8 This is replicated in terms of identifying the quantum of employment. The strategy outlines the growth ambitions for the economy relating to jobs growth in innovation and knowledge-intensive sectors related to the city's universities and science parks. New jobs require high skill levels, but housing unaffordability is a major constraint. This is exacerbated for households with average and below average incomes.
- 2.9 The strategy recognises the importance of investment in the strategic transport networks, and seeks to promote their role in maximising agglomeration benefits, with housing and employment being accommodated around fewer nodes along the East West Rail / Oxford to Cambridge Expressway corridor. Within the Greater Cambridge area, plans are proposed for how local and strategic networks integrate to best improve connectivity and to support housing and employment growth locally.
- 2.10 More locally, the major focus is promoting sustainable modes of travel and managing demand by private car. This builds upon the areas existing high sustainable travel mode share.

Option Generation and Sifting

- 2.11 Evidence has largely been drawn from a synthesis of other studies to inform current thinking through to the early / mid-2030s, and as such, does not present options for transport investment and development patterns.
- 2.12 Consideration is given to housing patterns supported by East West Rail, with preference for an 'Express Service' to promote agglomeration benefits, rather than a 'Stopping Service'. Justification is given in the narrative, but is not supported with quantification of benefits other than journey times. Options for development patterns beyond to 2050 are not considered.
- 2.13 Shorter-term transport measures build on active travel, local public transport and station enhancements, minor highway capacity / junction enhancements, and demand management. Collectively, the short-listed schemes form a coherent package to support development. In the medium- to long-term, options are less clear, but do consider the role of emerging technologies, such as Connected and Autonomous Vehicles serving the Biomedical Campus; Mobility as a Service; Smart Logistics; the Internet of Things; Big Data; Intelligent Charging; and Mass Rapid Transit alternatives. Locally, two broad options for Mass Rapid Transit are presented:
- Affordable Very Rapid Transit: autonomous, segregated, high speed buses, with four radial links and an orbital perimeter in tunnels; and
 - Cambridge Connect: conventional Light Rail Transit, with some central tunnelled sections.

- 2.14 The options presented do align well with 2050 first-mile last-mile objectives and those of the NIC, but more detailed evidence and assessment on schemes would be required going forward. These options do not necessarily relate to different spatial patterns for development and the strategy does not state a preference, which is subject to a new study, along with other Mass Rapid Transit alternatives.
- 2.15 Certainly, the two broad concepts for Mass Rapid Transit would provide a step-change in capacity to accommodate additional future demand, however, the strategy does not contain analysis of the relationship between future supply with demand.

Benefits and Costs

- 2.16 Benefits are described and those that are quantified relate to rail journey times in comparison to current journey times. No further quantification has been undertaken. Qualitative discussion of benefits considers the transport, social and environmental benefits, with some initial consideration given to the spatial distribution of benefits.
- 2.17 Analysis connects transport investment to local and corridor-wide economic impacts, but it is descriptive with the transmission mechanisms described.
- 2.18 High-level costings are given for short-term schemes, with a budget envelope through to the early / to mid-2030s. Beyond to 2050, costings are not provided. As costings are at a high level, allowance has not been made for risk, uncertainty, inflation, optimism bias, etc. Consideration of funding mechanisms for operating, maintenance and renewals cost has been presented, but the costs themselves have not been quantified.
- 2.19 As a result, the value for money of investment in transport has not been assessed at this stage.

Funding

- 2.20 In terms of revenue generation, two key mechanisms are proposed within the strategy:
- Net Revenue Generating: options include a Land Value Capture / Tax Incremental Finance; changes to the Community Infrastructure Levy / Section 106 regimes; Workplace Parking Levy; Pollution Charging; Congestion Charging / Dynamic Road User Charging; Parking Controls.
 - Revenue Neutral: Public transport infrastructure and service enhancements (including Mass Rapid Transit): proposals to increase public transport ridership should increase revenue, but financial assessments have not yet been made.
- 2.21 Assessment of revenue costs against revenue generated has not been undertaken yet, so it is not clear if all revenue, and even capital costs can be covered. Revenue costs are not profiled either across the strategy planning period to 2050.
- 2.22 Capital costs for key major schemes through to 2024 (“Tranche 1” and some “Tranche 2” schemes) are identified, but estimates are not supported in the evidence provided, and only very broad per annum budget requirements beyond to 2034/35. It is not clear if the profile matches the capital funding requirement. Beyond to 2050, no assessment has been made yet.
- 2.23 Proposals combine making extensive use of existing mechanisms; mechanisms that have been used in a relatively small number of instances (e.g. Workplace Parking Levy, Tax Incremental Financing); and new, innovative mechanisms such as Dynamic Road User Charging.

2.24 Subject to HM Treasury and the Office for Budget Responsibility accounting, funding options are, in local consideration, largely aimed at generating income from the public/consumers and the private sector / other third parties. The options in their entirety would present an extensive administrative (and legislative) burden, and it is likely that to manage the development and operation of these funding mechanisms would require additional resources locally.

Delivery

2.25 Schemes within 'Tranche 1' to 2020, and the schemes identified and costed so far for 'Tranche 2' to 2025 are well within the experience and capability of the Local Authorities to deliver. A costed and funded delivery plan for longer term major scheme has not been provided, and as such, a high degree of confidence over the ability to deliver cannot be assured.

2.26 Throughout much of the Local Plan timescales to the early / mid-2030s, the timescale for the delivery of schemes matches the timing (and location) of housing and employment growth, and timescales appear realistic. Assessment has not been made yet of the deliverability and timescales for Mass Rapid Transit, and other key future transport and funding options.

2.27 The strategy outlines how local and strategic transport interventions could be aligned, but timescales have not been considered extensively due to limited information being available at this stage.

2.28 East West Rail is supported and a schematic network map is provided showing how it integrates with a future first-mile last-mile local transit network. Further consideration is given in the sections on the Royston to Cambridge Corridor and St Neots and Cambourne to Cambridge Corridor, and the potential for integration at a proposed Cambridge South Station adjacent to the major employment hub at the Cambridge Biomedical Campus, and on to Cambridge Station.

2.29 The Oxford to Cambridge Expressway is also supported, and further consideration is given in the section on the St Neots and Cambourne to Cambridge Corridor. Key strategic housing and employment sites along the corridor are linked. The importance of the M11, A14 and A428 are also noted. Capacity enhancements and interchange / junction schemes with / on the M11, A14 and A428 are identified.

2.30 No specific risk assessment has been conducted yet to identify barriers to success and appropriate mitigations. Very specific barriers to the take up of cycling and other sustainable transport options have been identified. Revenue funding options and policies to allow raising of funds locally and acceleration of the planning process are identified.

2.31 There is extensive reference to working closely with national delivery agencies such as Network Rail and Highways England, as well as Central Government departments and bodies more widely, to help bring forward East West Rail; the Oxford to Cambridge Expressway; Mass Rapid Transit; a Cambridge South Station; and a Girton Interchange. Certain transport schemes / proposals and funding options would require legislative change, including: legislation to allow for the operation of autonomous vehicles (which would be national and not unique to Greater Cambridge); additional local traffic enforcement powers (e.g. of 'yellow box' infringements); Land Value Capture / Tax Incremental Financing; and possible changes to the Community Infrastructure Levy (not specified in the strategy).

2.32 Further strategy and scheme / proposal development is required, working in partnership with key stakeholders. Specific actions and timescales are not yet identified.

Overall Assessment

2.33 Overall our assessment is that:

- The strategy, understandably, does not look in detail beyond the early / mid-2030s due to the emerging Local Plan still undergoing consultation / adoption.
- The strategy itself has multiple elements and there is no reason why early years elements cannot be progressed while further development on later years elements is undertaken (all subject to available funding).
- The approach and consensus for high levels of growth in housing and employment, and the alignment of transport investment to support this is beneficial, particularly since additional employment land is located in and around the city centre.
- The strategy is not extensively costed and the profile of schemes, costs, and funding options are not fully aligned beyond the early 2020s, although the Greater Cambridge Partnership provides greater certainty over funding.
- Extensive consideration has been given to how planned strategic infrastructure could integrate locally to support accelerated housing and employment growth. Similarly, how a local Mass Rapid Transit network could provide a step-change in additional capacity across Greater Cambridge to help accommodate growth in the demand for travel.
- A broad package of funding options has been considered that could support the delivery of an integrated package of transport schemes, that would transfer the burden of funding from ‘traditional’ Central Government grants to local forms of income generation.

Table 2.1: Strengths, Weaknesses, Opportunities and Threats (Cambridge)

Strengths	Weaknesses
<ul style="list-style-type: none"> • The approach and consensus for high levels of growth in housing and employment, and the alignment of transport investment to support this is beneficial. • From the evidence provided, there is little doubt that a significant proportion of new jobs will be from knowledge intensive sectors and be highly economically productive. 	<ul style="list-style-type: none"> • The strategy needs further work on a robust, quantified evidence base to underpin the need for investment in transport infrastructure and supporting policies and initiatives. • The strategy, understandably, does not look in detail beyond the early / mid-2030s due to the emerging Local Plan still undergoing consultation / adoption. • The strategy is not extensively costed and the profile of schemes, costs, and funding options are not fully aligned beyond the early 2020s.
Opportunities	Threats
<ul style="list-style-type: none"> • Extensive consideration has been given to how planned strategic infrastructure could integrate locally to support accelerated housing and employment growth. • Similarly, how a local Mass Rapid Transit network could provide a step-change in additional capacity across Greater Cambridge to help accommodate growth in the demand for travel. • A broad package of funding options has been considered that could support the delivery of an integrated package of transport schemes, that would transfer the burden of funding from ‘traditional’ Central Government grants to local forms of income generation. 	<ul style="list-style-type: none"> • Without a clear delivery plan for the strategy and proposals to address the above weaknesses, there is a risk the strategy, in its current state of development, is a) not deliverable in the medium- to long-term; and b) does not meet the ambition and full objectives of the NIC. This could readily be remedied through further work on the strategy, well within the expertise and capability of local partners.

3 Milton Keynes

Strategic Fit

- 3.1 The Milton Keynes first-mile last-mile strategy provides a strong vision for Milton Keynes which builds on the existing strengths of the city as a centre for innovation. The strategy is presented at a relatively high level and the prognosis lacks detail on specific investment proposals and an assessment of their expected impacts, relying instead on ambitious targets for mode switch, for example.
- 3.2 As stated, the objectives of the first-mile last-mile strategy are to:
- Ensure the maximum advantage is taken from new nationally significant infrastructure, putting in place transport solutions which remove the risk of congestion, promote sustainable transformational growth and ensure the region's economic capability, in line with NIC objectives.
 - Working with the cities and town of Cambridge, Oxford and Northampton ensure development of transport systems which will be the example for others worldwide.
 - Ensure that first-mile last-mile infrastructure schemes provide a basis for the future potential directions of growth for the city out to 2050, in line with the NIC's objectives.
- 3.3 The scale of the growth ambition within the Local Plan growth equates to 1,766 new homes every year until 2031. There is discussion of, but not commitment to, an ambition of delivering a further 50,000 to 60,000 new homes by 2050 (from 2031) as identified within the MK Futures 2050 Commission's report *Making a Great City Greater*, which recognised the benefits of planning growth at a significant scale.
- 3.4 The Local Plan includes 27,500 new jobs by 2031. Master-planning work beyond 2031 has been developed to highlight where new communities may be brought forward, but the detail remains confidential. Moreover, the strategy provides discussion of existing core sectors for business and jobs, but no analysis of where new jobs will occur (and in which industries) is presented. While this information is available within supporting documents (such as the MK Futures 2050 projections and Milton Keynes Economic Strategy 2017), it would be useful to understand these projections within the context of the proposed transport interventions, and vice versa. There is also a stated ambition for densification of jobs and houses, but it should be noted that the current Local Transport Plan rejected widespread densification of housing across the city.
- 3.5 Significant investment in Rapid Mass Transit and electric vehicle infrastructure is planned, although more evidence on the environmental credentials of specific technological solutions would be needed to form a firm view on the sustainability of the strategy. There is a statement that the strategy will enable growth ambitions to be realised, but more detail is

needed on the calculations and mechanisms by which this will be achieved. In the absence of this information it is not possible to reach any conclusions regarding whether this might be considered achievable.

- 3.6 There is a clear vision that runs through the strategy, and mode split targets are set out. Objectives for the strategy are at a very high level and it is unclear how alternate delivery options could be assessed against them. Nevertheless, a key stated objective is to align with the NIC's objectives in bringing forward ambitious growth and taking advantage of strategic transport investment. Supplementary information has been received that highlights draft objectives for the planned update to Milton Keynes' Local Transport Plan, and these accord well with the thrust of the first-mile last-mile strategy.
- 3.7 Key elements of the strategy include investment in interchanges at East West Rail and other rail stations, and Rapid Mass Transit corridors which link to strategic road and rail nodes (including East West Rail and the Oxford to Cambridge Expressway, both of which are expected to run south of the city centre). Thus, planned investment in the strategic transport network is recognised, although more detail would be welcome of how this would integrate with the first-mile last-mile strategy, and the economic interactions this connectivity would facilitate.

Option Generation and Sifting

- 3.8 The strategy demonstrates a broad level of alignment with NIC objectives, particularly in relation to a forward looking, innovative vision for the city transport network. However, there is insufficient evidence presented within the strategy itself on how it aligns with and supports the delivery of employment and housing growth ambitions.
- 3.9 The strategy incorporates a broad range of interventions including innovative rapid transit and automated travel in the longer term. These are phased according to an assumed rate of technological development, and are focused upon an Affordable Very Rapid Transit micro-rapid transit concept which is to be developed jointly with Oxfordshire and Cambridge. Development of this concept will include consideration of multiple technological solutions, and therefore the majority of option sifting is yet to take place.
- 3.10 The proposed delivery timetable is as follows:
- Phase 1 (2017 to 2024): The East West Rail phase:
 - feasibility and proof of concept for Affordable Very Rapid Transit fund (cross-corridor consortium approach);
 - first phase Affordable Very Rapid Transit;
 - multi-modal station hub improvement programme, Redways, Park & Ride, prioritised Affordable Very Rapid Transit access; and
 - potential for fast track pipeline developments, HIF bid integrated into transit corridor approach.
 - Phase 2 (2024 to 2031): The Plan:MK phase:
 - Affordable Very Rapid Transit city wide strategic network;
 - multi-modal station hub improvement programme; and
 - future tech network development – pods, e-bike.
 - Phase 3 (2032 to 2050): The MK Futures phase:
 - Super Growth Fund; and
 - exemplar transit city for growth led by Mobility as a Service and Affordable Very Rapid Transit fast connectivity.

- 3.11 While there is no overt discussion of an option development or sifting process, there is some evidence of this within development of the current Milton Keynes Local Transport Plan. Also missing is a credible transport planning-led capacity analysis, and therefore it is not possible to judge whether the forward planning of demand and supply of travel would be in balance. For example, supporting evidence on demand and revenue for new rapid transit appears to be based on the implicit assumption that all vehicles would be fully loaded.

Benefits and Costs

- 3.12 A broad funding requirement is presented at the intervention level (for Phase 1 and Phase 2), based on a finance programme approach. It is not clear, however, what the relationship is between these figures and the gross costs of the interventions. It is understood that capital costs for the Mass Transit proposals have been derived at a high level. There is no mention of risk, uncertainty, inflation or optimism bias, nor the price basis upon which capital costs have been estimated.
- 3.13 While a funding requirement for Phase 3 is provided (i.e. more than £500m), only limited information regarding the interventions this supports has been provided.
- 3.14 Limited supporting evidence has been provided on scenarios for operating costs and capacity of alternate options. More work would be needed on potential demand, maintenance and renewals cost for the proposals.
- 3.15 Within programme cost, an allowance is made for scheme development and proof of concept as a next stage, which appears to have been capitalised.
- 3.16 No evidence regarding the potential benefits of the first-mile last-mile strategy are provided, either qualitative or quantitative. It is not, therefore, possible to comment upon the absolute or relative value for money of the proposed interventions.

Funding

- 3.17 The total scale of capital cost funding required for the preferred option is more than £990m. A list of funding sources is presented that matches the expected requirement, although it is not clear whether the funding available matches the funding required on a year-by-year basis. At a 'broad brush' level the range of funding sources looks to be reasonable.
- 3.18 The funding split is broadly 50:50 public-private depending on the definition of certain measures such as stamp duty retention. There appears to be a broadly plausible mix of innovative and established funding sources. However, there are preconditions associated with some of the funds that would need to be considered ahead of confirming that the necessary level of funds is likely to be forthcoming.
- 3.19 For example, in order to achieve the proposed level of Section 106 funding (£150m) it will be necessary to remove pooling limits. Similarly, funding from Business Rate Retention requires 100% rate retention to be implemented as soon as possible. While the strategy identifies additional freedoms and flexibilities that would be necessary to ensure delivery, it would be strengthened by a clear plan for securing those flexibilities.

Delivery

- 3.20 The three-phase timescale for delivery look broadly achievable. The overall programme to 2024 (Phase 1) looks ambitious, but the strategy has multiple elements which means that it can be progressed as a programme with delivery by multiple agencies. Much of the strategy in early years is conventional, in that it comprises an intensification of what is already commonplace, and gives us confidence that worthwhile progress can be made over the next decade, subject to funding being available and there being a demonstrable Value for Money case. There is budget provision for collaboration with Cambridge and Oxford to carry out innovation, feasibility and concept development for micro-rapid transit approaches and to pilot the concept.
- 3.21 Beyond 2024 the strategy is far more ambitious and involves implementation of a micro-rapid transit system on key corridors. Naturally, this means confidence in the deliverability of the strategy declines the further we look ahead. To us, combining both innovative technology and potentially complex civil engineering, micro-rapid transit has the greatest delivery risk (as well as an untested Value for Money case).
- 3.22 Limited evidence has been provided to confirm whether the timing of transport interventions matches the anticipated patterns of growth in household and employee numbers.

Overall Assessment

- 3.23 Overall our assessment is that:
- The strategy is based upon a strong vision for Milton Keynes, and makes good use of technological innovation in the delivery plan. It is, however, unclear how the strategy would facilitate the desired growth plan and more work would be needed to make this link.
 - The strategy is focused upon delivering sustainable transport solutions, including micro-rapid transit, parking charge innovation and electric vehicle support.
 - The strategy presents a good mix of short, medium and long-term elements and there is no reason why early years elements cannot be progressed while further development on later years elements is undertaken (all subject to available funding).
 - No evidence presented of an option sifting process, with limited information presented on the robustness of costs or any quantification of impacts or benefits.
 - The funding package looks balanced between proven and innovative sources, with significant private sector contribution.
 - The following additional information would help to strengthen the strategy:
 - evidence of a robust option development and sifting process;
 - evidence of a phased transport-planning approach to realising growth potential over time been, in terms of trip generation, mode choice and capacity planning; and
 - information regarding the approach to estimating costs, including whether appropriate allowance for risk and optimism bias.

Table 3.1: Strengths, Weaknesses, Opportunities and Threats (Milton Keynes)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strong vision for MK and good use of technological innovation. • Innovative approach looking to exploit technological opportunities. • Spatial layout of the city means there should be less physical constraints to design. 	<ul style="list-style-type: none"> • The feasibility and viability of strategy elements is not yet demonstrated • Existing high car mode share makes a sustainable approach challenging.
Opportunities	Threats
<ul style="list-style-type: none"> • MK starts from a relatively low-cost base (land and labour) compared with its competitors, especially Oxford and Cambridge. • Measures look to build on East West Rail and Oxford to Cambridge Expressway opportunities. 	<ul style="list-style-type: none"> • Risks that the technological opportunities are less critical than anticipated.

4 Northampton

Introduction

- 4.1 Northampton Borough Council has developed a first-mile last-mile strategy that looks to 2050. The strategy is focused on the transport requirements of Northampton town centre but, due to significant land constraints within the borough, also considers residential and commercial developments beyond the Northampton boundary. The strategy builds upon the Northampton Town Transport Strategy (2013) which adopts a planning horizon of 2029. Beyond 2029 there is considerable uncertainty regarding the capacity of Northampton to accommodate further growth, and the transport interventions needed to support that growth.
- 4.2 The strategy acknowledges that Northampton is different to the conurbations of Cambridge, Milton Keynes and Oxford due to the fact that it is not likely to be served directly by either East West Rail or the Oxford to Cambridge Expressway, but instead benefits from proximity to the growth corridor. Alongside Milton Keynes, however, it may benefit from additional capacity on the West Coast Main Line released following the commencement of services on High Speed 2.

Strategic Fit

- 4.3 The Northampton strategy to 2029 is realistic and, subject to overcoming funding and administrative constraints, deliverable. The strategy focuses on current and anticipated problems, which largely relate to the performance of the local road network, the function of which has had to respond to local and regional pressures as both Northampton has grown and the trunk road network has expanded.
- 4.4 Despite being located close to the heart of the national motorway network, Northampton's current highway infrastructure limits access to the town centre and the Northampton Waterside Enterprise Zone. Northampton has a large number of underutilised city centre car parking spaces, with many businesses opting to locate in more accessible out-of-town retail, commercial and industrial parks.
- 4.5 Problems with the local road network are particularly acute during the morning peak period, during which approximately 27,000 people commute out of Northampton and a further 40,000 commute in from other local authority districts. While many of these inward commuting trips are likely to be from local dormitory towns and villages, they place considerable pressure on distributor roads in and around the town centre.

- 4.6 Northampton's rail connectivity is seen as relatively poor. It sits on a freight and slow-line passenger loop of the West Coast Main Line, and is not served by north-south express services. Passenger services are limited to London-Northampton-Birmingham semi-fast or stopping trains. Therefore, while connections to Milton Keynes (15 minutes) and some destinations within the West Midlands (Coventry, 33 minutes) are reasonable, journeys to London (58 minutes), Birmingham (66 minutes) and further afield are seen as less attractive, particularly when compared to the equivalent journey times available from Milton Keynes.
- 4.7 The Northampton Town Strategy identifies the following problems:
- Neither Northampton's Inner nor Outer Ring Roads are complete; this leads to traffic making unnecessary cross-town trips.
 - The network is congested in the AM and PM peaks, particularly on links with the strategic network and Inner Ring Road.
 - Bus services terminate in the town centre and Northampton has a lack of orbital services. The town also has limited evening and Sunday services.
 - Northampton experiences poor air quality around the town centre and on heavily trafficked routes.
 - Car parking within Northampton is plentiful, but difficult to locate due to poor signage. The town centre finds it difficult to compete with out of town retail and employment sites. Poor use of car parks is symptomatic of this.
 - Northampton similar to other towns in the county has too many internalised trips of under 5km made by cars.
- 4.8 In light of the above, the Northampton strategy focuses upon overcoming existing problems with the local road network, including a North West Bypass, dualling of the A43 north of Northampton and a programme of junction improvements with a combined cost of £109m. This is supplemented with a series of further interventions to support the complementary Public Transport Strategy, Cycling and Walking Strategy, Car Parking Strategy, and Air Quality Strategy.
- 4.9 The strategy says little about projections of the number and nature of jobs in the town and, as a consequence, it is not possible to assess the sustainability, density and compatibility of jobs and homes delivered. The Northampton Town Transport Strategy was developed alongside the preparation of the West Northamptonshire Joint Core Strategy. However, the timing of the Transport Strategy means that it does not address the more ambitious level of both housing and employment growth included in the Joint Core Strategy². Moreover, since the focus is upon overcoming existing constraints, the Transport Strategy (to 2029) does not provide significant additional capacity to accommodate the level of additional population or employment growth envisaged by the NIC.
- 4.10 This is reinforced by an acute shortage of sites suitable for development within the boundary of Northampton Borough. Northampton is under-bounded and there is, therefore, limited scope within the town to contribute to building targets. While development plans for sustainable urban extensions have been developed in collaboration with Northamptonshire County Council, land ownership in the vicinity of Northampton is complex and the number of

² In particular, the relocation of the University of Northampton campus and the designation of the Northampton Waterside Enterprise Zone.

sites coming forward for development is limited. Moreover, there may be public and political challenges associated with Sustainable Urban Extensions on land within other districts (e.g. Daventry and South Northamptonshire), particularly where currently separate villages may be incorporated into Northampton's urban growth.

- 4.11 Over the period 2030 to 2050 there may be some additional scope to enhance transport infrastructure and services to support additional housing and employment within Northampton. This is predicated upon early investment in the transport infrastructure and services needed to support such growth. However, beyond a list of high-level interventions it is not clear, from the information provided, the location or scale of what might be achievable and therefore where investment is required.
- 4.12 Indicative interventions put forward by Northampton include:
- new roads within the area focused on opening up further expansion of the town;
 - junction improvements focused on reprioritising to favour public transport, pedestrians and cyclists;
 - significant lengths of bus and cycle lane along inner sections of radial routes where road space permits;
 - more frequent bus services on town and inter-urban routes with longer hours of operation and low or zero emission vehicles;
 - Park & Ride facilities easily accessible from all radial routes into town; and
 - significant upgrading of cycling facilities (both on and off-road measures where these can be quicker and more direct).
- 4.13 These proposals reflect a vision for how Northampton's internal transport network might develop to 2050, segmented by area type (hinterland/rural, suburban, inner urban, town centre core) and highway type (outer, middle and inner ring roads). They are not, however, rooted in a clear set of objectives for a first-last mile transport strategy. Nor do they reflect potential changes to the economic geography of the corridor following the introduction of East West Rail and High Speed 2 services, and completion of the Oxford to Cambridge Expressway.
- 4.14 As noted previously, while it is an important centre within the Growth Corridor, Northampton is different to Oxford, Cambridge and Milton Keynes in that it is not currently proposed to be connected by the Expressway and East West Rail. There may be second order impacts that could influence the economy of Northampton. For example, Northampton may benefit from improved connections to Oxford and, in particular, Cambridge through the reduction of congestion on the A43/A34 (Oxford) and A14 (Cambridge). Moreover, capacity on the West Coast Main Line released by High Speed 2 may present opportunities for connectivity improvements to/from Northampton. However, no clear plan for maximising the opportunities (and minimising the threats) presented by these enhancements to national networks is provided.

Option Generation and Sifting

- 4.15 The development patterns used to inform the spatial vision for Northampton are those that were under development for West Northamptonshire Joint Core Strategy during the preparation of the Northampton Town Transport Strategy. However, the patterns of development ultimately adopted within the Joint Strategy (following modifications) were more ambitious than those used to inform the Transport Strategy.
- 4.16 Beyond the evidence base used to support the Joint Strategy (which considered a wide range of evidence regarding housing and employment projections and which presents projections of housing delivery and need by local authority district), the 2050 first-mile last-mile submission does not present any evidence to suggest that alternative development patterns have been considered to inform the spatial vision for Northampton.
- 4.17 On the basis of the preferred development pattern as put forward within the Joint Strategy, evidence regarding option generation and sifting is limited to options for highway and junction improvements as presented within the Northampton Town Transport Strategy.
- 4.18 As described in the previous section, beyond 2029 only a high level indication is provided of the broad interventions that could be adopted to support growth in housing and employment. As with the Northampton Town Transport Strategy, it is largely highway-based, and the potential impacts of novel or disruptive technology are not explored.

Benefits and Costs

- 4.19 No evidence regarding the potential benefits of the first-mile last-mile strategy are provided, either qualitative or quantitative. It is not, therefore, possible to comment upon the value for money of the proposed interventions.
- 4.20 High-level capital cost estimates for implementation of the interventions identified to 2029 are provided (see Table 4.1) with a further detailed breakdown available within the Northampton Town Transport Strategy document.

Table 4.1: Northampton Town Transport Strategy capital cost estimates

Intervention	Cost
Public transport improvements	£60.0m
Creation of an integrated hub north of Northampton	£2.0m
Highway improvements (north west bypass, A43 dualling, junction improvements)	£109.0m
Humanising and extension of inner ring road (town centre regeneration schemes)	£8.0m
Comprehensive cycling and walking network	£9.6m
Town centre parking strategy	£1.8m
Air quality improvements	£0.3m
Total	£190.7m

Source: Northampton Town Transport Strategy

- 4.21 While it is not possible to ascertain whether these estimates include adjustments for risk, uncertainty, inflation and optimism bias, or the price base used, the broad order of magnitude of capital cost estimates appear reasonable.
- 4.22 No costs for the indicative interventions proposed for the period 2030-2050 have been provided.

Funding

- 4.23 The Northampton Town Transport Strategy anticipated that funding to deliver the strategy would come from multiple sources, including:
- the Integrated Transport Block (Northamptonshire Transportation Plan);
 - Central Government grants;
 - Section 106 Agreement contributions from developers;
 - developer-led infrastructure delivery secured through Section 278 agreements;
 - localism (e.g. local transport bodies);
 - match funding from the public sector;
 - new sources of grant funding from public bodies;
 - Community Infrastructure Levy; and
 - partnership with commercial operators.
- 4.24 While multiple funding sources to 2029 are identified, the split and profile of funding between sources is not defined. It is not, therefore, possible to comment upon the reasonableness of the funding package both in terms of its scale and timing.
- 4.25 Notwithstanding the above, the Northampton first-mile last-mile submission highlights perceived weaknesses in the current funding environment, noting that:
- The system of pooled developer contributions known as a Highway Infrastructure Strategic Tariff and which Northamptonshire County Council had adopted with the agreement of developers in other towns, is now rendered unlawful following introduction of Community Infrastructure Levy regulations.
 - The reduction in Integrated Transport Block funding and its replacement with funding sources that involve regular ‘bidding rounds’ e.g. the Local Growth Fund:
 - reduces the certainty associated with funding availability; and
 - favours ‘spade-ready’ schemes.
- 4.26 As a consequence of these changes to the funding environment, there is a greater emphasis upon the requirement to prepare (and fund) development and feasibility studies. At a time when revenue budgets are under pressure this, in turn, drives conservatism in the options being explored due to the need for high success rate.

Delivery

- 4.27 The Northampton strategy provides confidence in delivery, largely because the options put forward use proven technology with limited mention of novel or disruptive approaches. Over the period to 2029 this approach is reasonable since the strategy envisages limited housing and employment growth over this time horizon and the focus of the strategy is on overcoming existing network constraints. Beyond 2029 it is not possible to comment upon the deliverability of the strategy as no programme of interventions (or a programme of work to resolve or determine those interventions) has been supplied.

- 4.28 A number of constraints have been identified by Northampton Borough and Northamptonshire County Councils as restricting growth. While these reflect challenges in delivering against current housing targets, if left unresolved they may affect the ability of Northampton to deliver its first-mile last-mile strategy. They include:
- Investment: timing mismatch between delivery of supporting infrastructure and the availability of up-front funding limits the number of sites coming forward for development.
 - Funding: competitive bidding rounds reduce funding certainty, increase the requirement for revenue-funded feasibility studies and favour solutions which use proven-technology.
 - Governance: ongoing uncertainty over replacement of Joint Committee arrangements with joint advisory arrangements is limiting Northampton's ability to progress with its plans for the future.
- 4.29 While the constraints above are likely to limit the ability of Northampton to make progress against the objectives set out in its Town Transport Strategy, no evidence has been supplied to indicate that a risk management and mitigation plan has been prepared and is being actively monitored to maximise the likelihood of success. Doing so would increase confidence in the ability of Northampton to deliver its proposed strategy.
- 4.30 In the absence of a detailed programme it is not possible to comment upon alignment between local and complementary strategic transport interventions. For both East West Rail and the Oxford to Cambridge Expressway this is unsurprising since neither intervention directly affects Northampton. However, greater emphasis should be given to exploring the opportunities presented by released capacity on the West Coast Main Line, and the prospect of a new railway station south of the M1.

Overall Assessment

- 4.31 Overall our assessment is that:
- A strength of the Northampton strategy is that it is clearly rooted in the Northampton Town Transport Strategy, which itself has been developed over some time with a strong appreciation of current transport problems and constraints, and informed by stakeholder consultation.
 - The strategy itself is firmly based upon overcoming existing issues which limit the movement of people to / from the town centre, and provides limited support for further population and employment growth in the period to 2029.
 - Beyond the Northampton Town Transport Strategy horizon of 2029 there is very little information regarding the investment that might be needed to support growth to 2050.
 - There is no consideration of Value for Money and this is a risk.
 - At present, it is not clear whether the Northampton Town Transport Strategy faces a funding gap. Beyond 2029 no information regarding the likely costs or potential benefits of the proposed interventions has been provided.
 - While the strategy lacks ambition, and relies upon proven technology, the low level of technological risk indicates that the strategy is deliverable.
 - Ongoing uncertainty over governance arrangements between Northampton, its neighbouring authorities and Northamptonshire County Council is limiting Northampton's ability to progress with its plans for the future.

Table 4.2: Strengths, Weaknesses, Opportunities and Threats (Northampton)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Good understanding of current situation, problems and constraints. • Ongoing delivery of bus priority measures. 	<ul style="list-style-type: none"> • Limited evidence of thinking beyond overcoming current problems and constraints e.g. to accommodate radial expansion of Northampton. • Timing mismatch between Northampton Town Transport Plan and West Northamptonshire Joint Core Strategy. • Majority of solutions highway-based.
Opportunities	Threats
<ul style="list-style-type: none"> • North-south focus of Northampton and prime location between London and Birmingham. • Good links to current national networks, with opportunities for better classic rail connectivity following commencement of High Speed 2 services. • Revised joint governance arrangements will allow Northampton to optimise trade-off between flexibility and collaborative working. 	<ul style="list-style-type: none"> • East West Rail and Oxford to Cambridge Expressway have the potential to make Milton Keynes relatively more attractive than Northampton due to improved east west connectivity. • Post-High Speed 2 rail services may remain inferior to other locations due to Northampton being served by the West Coast Mainline ‘slow lines’.

5 Oxfordshire

Introduction

- 5.1 Oxfordshire County Council and partners have developed a strategy that looks out to 2050. Rather than being a first-mile last-mile strategy per se, it is a transport strategy for the whole of Oxfordshire that has been augmented to bring in first-mile last-mile considerations. Reflecting both the substantial body of work that has been undertaken to develop Oxfordshire's Fourth Local Transport Plan, which looks to 2031, and the natural uncertainty that comes with looking further into the future, the Oxfordshire plan is more detailed and specific up to 2031 than for the period 2031 to 2050.
- 5.2 In the context of an overarching transport strategy for the county, the strategy notes the opportunities offered by East West Rail and the proposed Oxford to Cambridge Expressway. East West Rail has been developed over a number of years and the proposition has a degree of clarity and as a consequence, the strategy offers firm proposals with regard to East West Rail. The Expressway proposal is newer and as yet there is no preferred route through Oxfordshire. Reflecting this, and in contrast to East West Rail, quite reasonably the Oxfordshire strategy notes the need for further development once the Expressway proposals are clearer, while acknowledging the potential opportunities it may bring.

Strategic Fit

- 5.3 Underpinning the strategy to 2031 is the provision of 100,000 new homes and an increase in jobs of 85,000. The transport elements of the strategy are ambitious with the goal of supporting and facilitating this growth by promoting sustainable travel modes to enhance connectivity, reduce congestion, and to improve air quality and cityscape. Through supporting growth of more affordable housing and with the proposed enhancements to the transport system, the goal is to make it easier for employers to recruit the labour that they need if they are to grow.
- 5.4 At the core of the strategy is:
- enhanced cycle provision;
 - bus-based rapid transit;
 - enhanced Park & Ride;
 - rail enhancements, including stations and access to them;
 - cycle and bus priority brought together in "Smart Corridor" concept, which includes the reallocation of road space to sustainable modes;
 - best use of technology (Movement as a Service); and
 - Oxfordshire being a test bed for new technology.

- 5.5 In the period from 2031 to 2050 further housing (c.80,000) and employment growth (also c.80,000) is planned. The strategy includes:
- Further development of the Smart Corridor concept, for example taking advantage of Connected and Autonomous Vehicles to further reallocate road space to pedestrians and cyclists.
 - Taking opportunities offered by the Oxford to Cambridge Expressway, such as ‘downgrading’ other routes and opening-up additional sites for development.
 - Micro-rapid transit, with an underground city centre core. The goal is to remove surface-level buses from central Oxford. There is a commitment to develop the micro-rapid transit concept jointly with Milton Keynes and Cambridge.
- 5.6 From the material provided, there is an unanswered question regarding the compatibility and complementarity of the planned spatial location of the housing and employment growth and the transport strategy. Developable land within the City of Oxford is limited and no doubt reflecting this, the strategy suggests a minority of planned employment growth to 2031 will be in Oxford City, with most growth in the other four Oxfordshire districts³. Where within these districts this growth is planned to occur is not set out in the submitted documentation. These four districts also account for the majority of housing growth. Again, it is not possible from the submitted documentation to identify where in these districts the growth is planned to occur.
- 5.7 This pattern of development would tend to reinforce a dispersed pattern of trip making. In contrast, the transport strategy and in particular, its public transport elements are radially focussed. While a shift in existing demand from car to public transport as well as new radial trip making may be sufficient to support a case for these, the strategy implies a large growth in orbital travel, which will be challenging for public transport to provide an attractive offer and more likely than not would be accommodated by private travel.

Option Generation and Sifting

- 5.8 The Oxfordshire strategy presents a single development scenario and a preferred transport plan. While there is no evidence to indicate that a range of alternative development patterns were considered, when it comes to the transport interventions the submitted material does state that there are “clear arrangements for prioritising infrastructure” even though these are not described. There is also reference to consideration of the planned housing and employment growth when the investment packages were developed.
- 5.9 The submitted material sets out how Oxfordshire County Council and partners consider the strategy fits with the NIC’s objectives for first-mile last-mile strategies. Collectively, this looks reasonable. It is helpfully noted that local strategies and plans (e.g. the Local Transport Plan) have been subject to consultation.
- 5.10 There is no indication of how well the strategy balances capacity with anticipated demand.

³ While graphed in the provided documents, detailed numbers by district are not available.

Benefits and Costs

- 5.11 There is no quantification or qualitative assessment of benefits or impacts within the Oxfordshire submission. While no evidence is provided regarding the split between transport, environmental, social and distributional benefits, we note that a Strategic Environmental Assessment has been undertaken of the Local Transport Plan 4 Strategy (to 2031). As is to be expected with a Strategic Environmental Assessment, the assessment in this is qualitative.
- 5.12 Cost estimates are provided, although it is not clear how they have been developed. Costs for feasibility design and detailed design are set out for some items, these being percentage uplifts on the capital cost. There is no cost profile and it is unclear what the price base is and whether the costs include risk, uncertainty, inflation or optimism bias. There is no evidence that whole life costs have been considered.
- 5.13 The total funding needed is £8.4 billion and the combined cost of the top twelve transport priority schemes identified in the Oxfordshire Infrastructure Strategy to 2040 is £1.6 billion. There is no profile of this spend, or breakdown of how the £8.4 billion figure has been arrived at.
- 5.14 In the submitted material, there is no indication of the potential Value for Money case for the proposed package. Prime facie, a number of the options would appear to have challenging conventional Value for Money cases, that is they have high cost and potentially insufficient demand to provide a sufficiently strong benefit stream. An example of this would be bus and Bus Rapid Transit interventions more distant from Oxford city centre. Obviously, the Value for Money case for interventions within the City of Oxford will be dependent on the development of a specification that is proportionate to the level of benefits that could accrue.

Funding

- 5.15 Oxfordshire County Council and partners' assessment is that there is a shortfall between the overall package cost of £8.4 billion and the combined funding that can be anticipated to come from Central Government and from local sources. Oxfordshire identify:
- £5,816 million Central Government funding (including Highways England and Network Rail expenditure);
 - £820 million local funding; and
 - £1,764 million funding gap.
- 5.16 It is important to note that both the Central Government and local funding assume a level of success in bidding for competitive funding sources, greater flexibilities than currently available and a degree of contingency on future growth (e.g. business rate retention assumes a future level of business rates).
- 5.17 In terms of the funding gap, Oxfordshire assume that £864 million could be raised from private funding with the balance coming from a capitalised earn-back mechanism.
- 5.18 The bus, Bus Rapid Transit, micro-rapid transit and rail options within the strategy would all be revenue generative, as would Park & Ride if the choice is made to charge for its use. If such investments are to be shown to offer Value for Money it will be usual for the revenue to exceed operating costs over the life of the appraisal. However, while there may be an operating surplus, this is unlikely to be sufficient to make any meaningful contribution to the funding gap.

- 5.19 Mention is made of a potential workplace parking levy and congestion charging. However, in the submitted documentation no consideration is given to whether these could provide a substantive revenue source for financing investment.
- 5.20 To us, the approach to funding and finance should be considered by the NIC as an opening gambit than a fully formed proposal. What it does usefully highlight is:
- the scale of the proposed investment to 2050 is £8.4 billion;
 - that there is a shortfall between identified Central Government and local sources;
 - that the majority of the identified funding comes from Central Government sources; and
 - even the identified sources have a degree of uncertainty.
- 5.21 Moreover, the Oxfordshire submission usefully identifies that development funding for its capital programme leads to a call on its revenue resources and this creates a constraint on the rate and scale of scheme development. A development fund that has certainty over time would seem to be a prerequisite for delivery of the Oxfordshire programme.

Delivery

- 5.22 The overall programme to 2031 looks ambitious, but the Oxfordshire strategy has multiple elements, which means that it can be progressed as a programme with delivery by multiple agencies. Much of the strategy in early years is conventional, in that it comprises an intensification of what is already commonplace (bus priority, Park & Ride, rail enhancements, etc.) and is applying proven technology. Together this gives us confidence that worthwhile progress can be made over the next decade or so, subject to funding being available and there being a demonstrable Value for Money case.
- 5.23 In the medium to longer term, the strategy becomes more dependent on technology that currently does not exist (e.g. double-ended Bus Rapid Transit vehicles, various Movement as a Service (MaaS) solutions and micro-rapid transit). Naturally, this means confidence in the deliverability of the strategy declines the further we look ahead. To us, combining both innovative technology and complex civil engineering, micro-rapid transit has the greatest delivery risk (as well as an untested Value for Money case).
- 5.24 In addition, as presented the conceptual designs for smart corridors look difficult to implement in practice, but this does not mean that there are not solutions which deliver comparable outputs and outcomes. More detailed work would need to be undertaken to demonstrate both engineering feasibility and public and political acceptability of the solutions.
- 5.25 Funding and finance is a principal barrier to delivery and as noted above, there is work needed to develop the approach to funding. However, this does not mean that worthwhile progress cannot be made on developing and delivering early parts of the programme in parallel to resolving this matter.

Overall Assessment

5.26 Overall, our assessment is that:

- A strength of the Oxfordshire strategy is that it is clearly rooted in the 2031 Local Transport Plan strategy, which itself has been developed over some time with supporting analyses and stakeholder consultation.
- The strategy itself has multiple elements and there is no reason why early years elements cannot be progressed while further development on later years elements is undertaken (all subject to available funding).
- Early year elements also have low technology risk and are proven to be deliverable, both in Oxfordshire and elsewhere. In the medium to long term technology and deliverability risk increases.
- There is no explicit consideration of Value for Money and this is a risk.
- The majority of population and employment growth is outside Oxford City. This pattern of development would tend to reinforce a dispersed pattern of trip making. In contrast, the transport strategy and, in particular, its public transport elements are radially focussed. There is a danger that the projected housing and employment growth will reinforce travel patterns dominated by private car.
- At present, there is a funding gap between identified sources of Central Government and local money and the total cost of the strategy.
- For the strategy to be taken further to implementation, clarity is needed on the sources of development funding.

Table 5.1: Strengths, Weaknesses, Opportunities and Threats (Oxfordshire)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strategy has been developed from Local Transport Plan 4 Strategy to 2031, which itself has been developed over some time and with research. • Strategy is made up of multiple components that can be implemented independently. • Elements of the strategy can be implemented incrementally. 	<ul style="list-style-type: none"> • Multi-agency approach needed to implementation. • High overall net cost and a funding gap. • Not clear that strategy elements will offer Value for Money.
Opportunities	Threats
<ul style="list-style-type: none"> • Once there is clarity on Oxford to Cambridge Expressway alignment, there are opportunities to develop strategy further. • Oxford has good access to London Heathrow Airport when compared with other places in the O2C corridor, but this doesn't feature prominently. 	<ul style="list-style-type: none"> • In later years, dependence on technology that currently doesn't exist. • Misalignment of development timescales (i.e. build-out of housing and employment sites) and transport provision can mean unwanted travel patterns become embedded. • Land use development leads to a dispersed pattern of trip making that is not conducive to public transport/cycling.

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