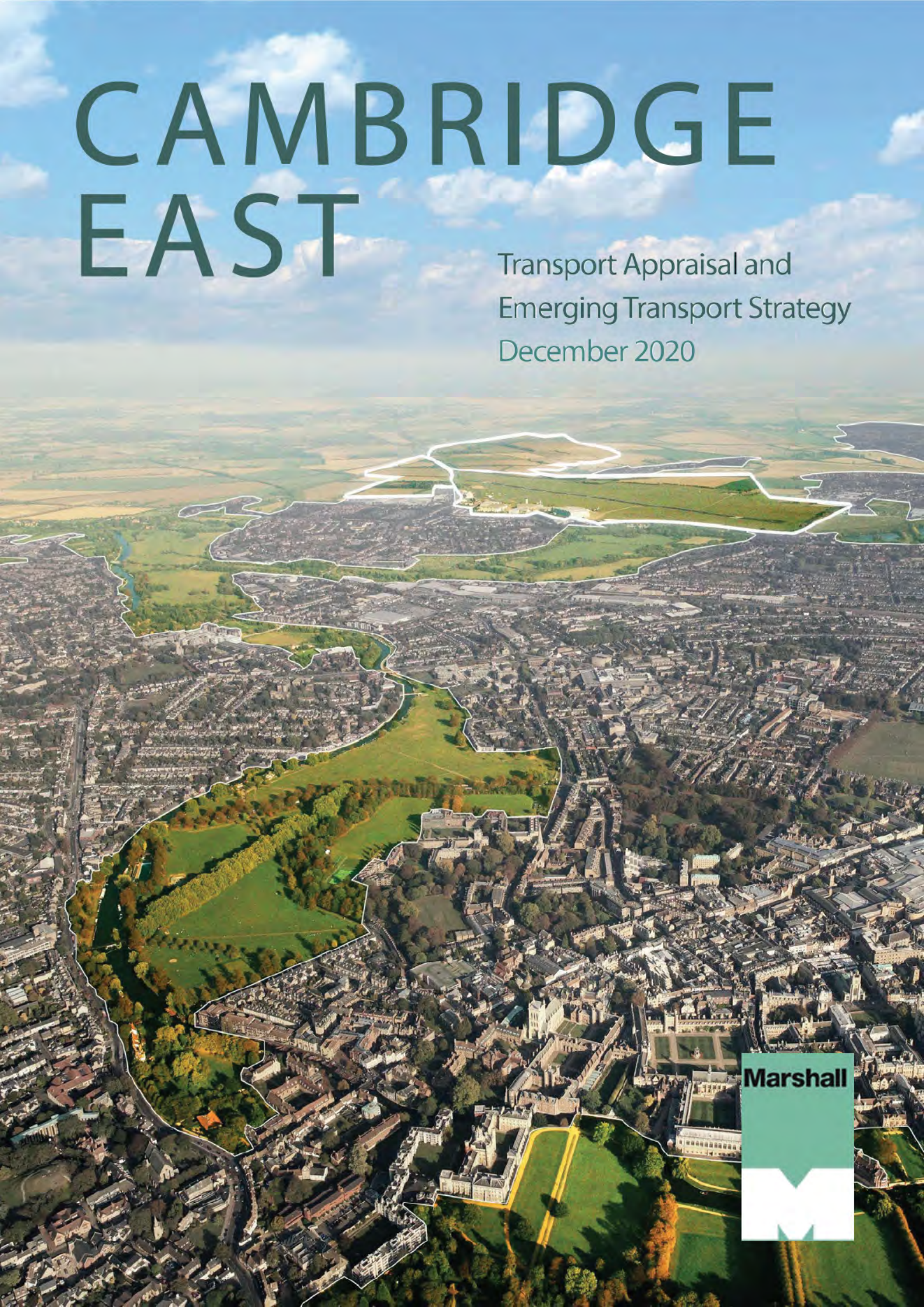
CAMBRIDGE EAST

Transport Appraisal and Emerging Transport Strategy

December 2020



Marshall

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For and on behalf of Stantec UK Limited				

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1	30-11-20	First Draft	KS	EP	
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Contents

Appendices

'Good Growth', as defined in this report, is growth which helps address issues that are relevant to today such as the housing affordability crisis, movement and connectivity, health and wellbeing, environmental and social value and the road to net zero. These issues align with the Big Themes identified within the Greater Cambridge Local Plan process and therefore addressing them is at the heart of what the next Greater Cambridge Local Plan must look to achieve. For the best chance of doing so, the Plan must ensure that it allocates and makes optimal use of the best sites available.

Marshall Group Properties Ltd (MGP) is promoting Cambridge East as having the potential to deliver 12,000 homes (in addition to Marleigh and Land North of Cherry Hinton) and six million square feet of educational, cultural, business and commercial space along with a range of supporting social and economic infrastructure. The use of the site for this level of growth would ensure that Cambridge East delivers thousands of new homes little more than 3 kilometres from central Cambridge and to thousands of jobs across the Greater Cambridge area. The delivery of homes in this location ensures that from a transport perspective travel patterns are inherently more sustainable than the same homes located elsewhere. Active travel and the potential for genuine low car living would be maximised.

Additional to the homes, a significant number of new jobs will be created through the allocation of the six million square feet of non-residential floor space. The inclusion of jobs within the scheme would create a new vibrant mixed-use quarter for Cambridge where home to work internalisation is maximised. However, and critically, the inclusion of jobs at the scale proposed can help Cambridge East facilitate transformational improvements to public transport capacity and connectivity in the longer term across the City. No other site under consideration through the Local Plan process has the ability to help fund and deliver the first phase of a mass transit system for the City and also potentially link the transport networks to the north of the City with those to the south. In recent times, there have been a series of highly successful City fringe developments, but none are connected to each other. As the connectivity has worsened, housing, as a result, has become more unaffordable. Cambridge East can, uniquely, help address these issues rather than further cement them.

MGP consider that Cambridge East will play a significant role in helping the next Greater Cambridge Local Plan deliver the objectives articulated through the Big Themes. However, the opportunity the site presents must be taken and it is in this context that MGP consider that the allocation of the site as proposed in this submission would be the optimal scale and mix of development to achieve it.

Executive Summary

Cambridge East is a unique, once in a generation, development opportunity. No other potential development site in the Greater Cambridge area has the same potential to deliver, at scale, Net Zero growth – the most single most important objective of the Local Plan.

Marshall Group Properties (MGP – referred to as Marshall for the remainder of this report) is promoting Cambridge East for development where the site comprises Cambridge airport which is classified as brownfield land and has been safeguarded for development through the adoption of the Cambridge East Area Action Plan resulting from the Cambridgeshire and Peterborough Structure Plan of 2003 and the Local Plans for Cambridge City and South Cambridgeshire District (2006/2007). The site sits across the administrative boundaries of Cambridge City Council (CCiC) and South Cambridgeshire District Council (SCDC) but is being promoted through the Greater Cambridge Local Plan process which covers both administrations. The centre of the site is just 3.5km as the crow flies from the centre of Cambridge.

This report refers to, but is independent of, the Strategic Options Assessment work recently published by the Greater Cambridge Shared Planning Service. That work provides an evidence base for the emerging Local Plan and has sought to appraise and compare the Strategic Spatial Options within the emerging Local Plan across several disciplines.

In addition to this report separate reports have been prepared by Steer who have looked specifically at the deliverability of a mass transit link from the site to Cambridge station (Cambridge East Transit Deliverability Study) and alternative public transport options (Complementary Public Transport Interventions). The key findings of Steer's work are summarised in this report and the high level forecasts generated by Stantec's work have been used in the Steer reports.

The work has drawn conclusions on a number of relevant matters, and these are summarised below:

- The Transport Evidence Report makes a compelling case for density in development and that city or edge of city growth is more sustainable than dispersed development because it has less transport impact due to access to existing jobs, services and facilities.
- Even without mitigation (the basis for all tests undertaken), the Spatial Options that include Cambridge East or relate to City densification or edge of City development have highest non car mode share, lowest distance and time travelled and delay, as well as the best carbon outcomes.
- The Zero Carbon study is clear that the carbon emissions from transport are the biggest challenge and must therefore be addressed through location and the sustainable distribution of growth. Distribution options focused on Cambridge achieve the most sustainable outcomes.

Whilst this report does not seek to duplicate the work undertaken for the Greater Cambridge Planning Service, these conclusions are consistent with our views on why Cambridge East should be allocated. The site represents a genuine opportunity low car sustainable development, and can serve as a stimulus for positive behavioural change and investment across the Greater Cambridge area. In this context the site needs to be used optimally through the right development mix to realise the full opportunity presented by the site.

Given the emerging Local Plan Evidence Base and early findings, this report looks to assess potential different scales of growth at Cambridge East and the principles of the transport

strategies required to deliver them. This has involved generating transport demands, analysing their spatial distributions and identifying transport strategies to facilitate this growth.

This report is cognisant of the need to develop an approach to transport infrastructure that is complementary to the schemes in the region being brought forward by, in particular, the Greater Cambridge Partnership (GCP) and the Cambridge and Peterborough Combined Authority (CPCA). This has been achieved through continued and ongoing engagement with these bodies and therefore the proposals are aligned with and supportive of the GCP's Eastern Access Study and the Cambridgeshire Autonomous Metro (CAM) proposals. On a practical basis, the Transport Strategy needs to be flexible and low car, is deliverable in the shorter term and for early phases of development without the need for strategic schemes to realise sustainable growth (although it may be that these schemes are in place) but plan so that the development and its supporting infrastructure can also then be expanded and further developed to work within a longer-term framework where the future of transport solutions, infrastructure and people's approach to living and lifestyles continues to evolve.

The Cambridge Context, the Stimulus for Positive Change for Cambridge & Delivering Good Growth

As most development in and around Cambridge over the past 30 years or more has been delivered at relatively low density and in a dispersed manner, car based travel across the Greater Cambridge region has continued to grow and Cambridge's roads have become more congested with average speed on all radial routes entering Cambridge from the surrounding region during the peak hour being now less than 60% of the 'free flow' speed. As well as an economic cost, congestion has detrimental environmental and social impacts on the City and its residents and those that work within it. The reasons for this growth and subsequent congestion are multifaceted and have manifest over many years. These include (but are not limited to) economic growth that has not been matched by the necessary investment in infrastructure, and land availability resulting in spatial planning decisions that are less optimal for sustainable transport solutions. Cross City public transport limitations have long constrained the ability for people to travel across a wider geography sustainably and this issue has been highlighted and forms the basis of the CAM proposals.

Therefore, and in response to what has gone before, Marshall as part of their legacy to Cambridge, believe that development for Cambridge and its environs needs to be executed differently. Development needs to address the issues that are relevant to today's challenges such as the housing affordability crisis, movement and connectivity difficulties, health and wellbeing, environmental and social value challenges and of course the road to Net Zero, as well as the need for Cambridge to continue to fulfil its economic potential. These matters can be considered as being essential for 'Good Growth' and transport has a role to play in all of them. Research undertaken by the Foundation for Integrated Transport looked at the relationship between the level of car dependency of sub-urban or rural housing development, and the quality of the resultant community. Emerging conclusions suggest that future outcomes such as levels of employment, provision of local facilities and amenities, and the quality of community cohesion are detrimentally affected if the default means of travel is the car. The opportunity to undertake development better and to reduce car dependency is central to the type of development and the community that Marshall want to create and deliver for Cambridge.

The Transport Vision & Principles for Cambridge East

The provision of homes and jobs, education and leisure development in this location must be undertaken in a way that is a befitting legacy to the Marshall family and its longstanding relationship to the city of Cambridge and most importantly helps the Cambridge authorities deliver their objective for Cambridge to reach 'net zero' carbon status by 2050. The Transport Vision for the site is therefore:

Making use of the sites unique location and scale, Cambridge East can be built to a higher density and will be genuinely mixed-use, net zero-carbon community where people will have the ability to meet most of their daily needs within a short walk from home and a development that is structured around safe and sustainable local transport options. Car dependency will be designed out as Cambridge East is integrated with, and acts as a catalyst for, a step change in sustainable transport for the greater Cambridge area, with the benefits being realised across this geography.

Our approach to achieve the vision, is based around the following key principles:

- **Designing a Great Place:** Daily activities will be convenient, with the site structured as a series of 20-minute neighbourhoods and where streets will be low trafficked and people friendly. This is based around the 15-minute cities principle which focuses on the four pillars of proximity, diversity, density and ubiquity in urban design, transforming urban spaces into connected and self-sufficient neighbourhoods. Encouraging active travel and reducing car use is central to this vision. As a result of the sites location, low car ownership and shared mobility services facilitated through Mobility Hubs, will become the norm. Movement will be structured safe, direct and attractive routes for low impact personalised transport with cars designed out of the heart of the neighbourhoods.

- **Recognising the inherent benefit of planning for Cambridge and surrounding areas' growth at Cambridge:** optimising the unique opportunity for delivering low car development and reducing the need for growth to take place in less sustainable locations.

- **Matching of jobs and homes** where local employment is provided appropriately to the demographic of the community and region.

- **Recognise "work from home" and local work-space hubs** as part of "movement demand" mix and cater for these with walk and cycle routes.

- **Cater for travel demands by enhancing the network as a whole** - a holistic approach to network capacity emerges whereby demand and supply can be balanced.

- **"Movement corridors" through the site** and to and from key destinations that provide for walking, and then segregated use by cycles and other personal and public transport modes.

- **Change the relationship to the car** and understand that local highway network capacity increases in respect of the peak hours is fundamentally unsustainable. Through the scale and potential of Cambridge East we would seek to demonstrate the potential of low car living and a successful transition away from personal car ownership.

The application of these principles has manifest in four development scenarios were generated by Allies and Morrison for the Cambridge East Site and definitions are provided below:

- **Scenario A** – a scheme covering the Safeguarded Airport land which is compliant with the adopted Cambridge East Area Action Plan.

- **Scenario B** - a scheme covering the Safeguarded Airport land, but which achieves a greater mix of uses than is envisaged in the AAP, including a significant increase in the provision of commercial development to enable and capitalise on the delivery of a research hub.

- **Scenario C** - a scheme covering the Safeguarded Airport land and additional Green Belt land to the east of Airport Way, which enables the delivery of a significantly greater quantum of development than Scenarios A or B, including a greater mix of uses, notably more residential units, and a greater scale of commercial development.

- **Scenario D** - a scheme which achieves the same amount of development as Scenario C but covering the Safeguarded Airport land only

Mobility Strategy

The location of Cambridge East so close to the city centre and its existing transport networks means that creating sustainable, low-carbon travel behaviours here has the highest probability of success compared to other, more dispersed sites further from the City Centre. The emerging evidence base for the Local Plan identifies emissions from transport as the largest influence on how well each spatial strategy is able to realise carbon and climate change objectives. The location allows an ambitious approach to design, embedding a healthy relationship between people and their transport choices, where the private car does not dominate. To deliver people focussed streets that are both safe and accommodating requires an approach to cars that is typically different from the norm. How we propose to manage car access becomes the tool to facilitate the vision and to ensure that the reduced car dependency that we need to achieve is achieved. This stems in part from the fact that the spatial location of the site allows us to move to this type of model i.e. proximity to services and existing transport networks and that Marshall as a long term custodian of the site can provide this stewardship and control.

The following structuring principles and are consistent to all scenarios:

- **20 Minute Neighbourhood Blocks –** This is based around the 15-minute cities principle which focuses on the four pillars of proximity, diversity, density and ubiquity in urban design, transforming urban spaces into connected and self-sufficient neighbourhoods. Encouraging walking and cycling and reducing car use is central to this vision. Services and facilities would be within a 20 minute walk and cycle from homes supported by car free or car lite streets

- **Public Transport at its Heart** - with a fully segregated public transport route through the site connecting both the new Newmarket Road Travel hub and the site itself to the wider city transport networks to the north, south and west via a rapid public transport link to Cambridge Station.

- **Low Car Parking Ratios** – restrictive car parking provision deliverable because of the higher levels of alternative accessibility unique to this location.

- **Shared Transport/ Mobility Hubs** – a focal point for shared transport solutions

- **Active Travel & Micro-mobility**[1] – structured around a green corridor connecting East Cambridgeshire with the City Centre, a network or connections away from conflicts with cars to support low impact forms of sustainable personal transport.

- **Last mile, Low Impact deliveries** – facilitating last mile deliveries by low carbon vehicles

- **Virtual Mobility**[2] – embracing and facilitating the most sustainable transport strategy of them all.

Away from the site, the necessary connections and particular the capacity of the connections become different based on the Development Scenario considered. For Scenario A the demand forecasts and corridors indicate that a transport strategy could be adopted that is not

[1] Micro-mobility refers to a range of small, lightweight vehicles operating at speeds typically below 25 km/h and driven by users personally. Micro-mobility vehicles include bicycles, Ebikes, electric scooters, electric skateboards, shared bicycles, and electric pedal assisted bicycles

[2] The use of information and communication technologies (ICT) to obtain the same benefits as one would have with physical mobility but without the need to travel e.g. remote working, workplace hubs.

reliant on CAM or a transit link but would provide cross-city connectivity through a network of high-quality bus routes to Cambridge North, the Station and City Centre and to Addenbrookes. This high-quality bus-based network would be supported by a network of high quality walk and cycle routes offering the same connectivity.

In contrast, Scenarios B, C and D will generate more trips, but offer the scale to support much greater public transport investment. Higher absolute trip volumes, particularly associated with the job provision within the site and the demand from multiple locations around Cambridge and the higher volumes of these demands means the cross-city connectivity solution for these scenarios is focused towards capturing those travelling into Cambridge East from outside the city and switching them to high capacity public transport, walking or cycling as well as addressing the challenge of connectivity within the city itself. This strategy is therefore similar to Scenario A, but the scale of public transport intervention is more substantial. This challenge of achieving high capacity, cross-city connectivity is ultimately ideally assumed to be met by CAM. However, to maintain consistency with the Local Plan evidence base, a transit link in combination with other public transport initiatives that build upon the bus-based networks envisaged in Scenario A have been explored as alternative approaches to delivering connectivity along the corridors important to Cambridge East.

Therefore, the tested strategy for Scenarios B, C and D includes a high quality transit link to Cambridge Station (consistent with CAM connectivity principles) and with a high quality public transport network including key links such as a surface connection between Cambridge East and Cambridge North. Providing access to the Station is a fundamental component of all development scenarios, acting as the interchange to national connectivity as well as being a hub for travel to Cambridge's central employment, leisure, and higher education centres. Realising a rapid connection to the station is a key part to realising the opportunity at Cambridge East for the Scenarios B, C and D. A rapid connection would promote the quick delivery of a commercial cluster at Cambridge East that has international connectivity, accelerating the delivery of a commercially attractive mixed-use site. In transport terms, the Station provides routes north and south out of the city along the rail corridors as well as connecting the site to the rest of the UK and also internationally via rail linkages to Stansted Airport.

These connections in combination have the potential to provide the basis for an integrated transport system for Cambridge that links the existing and committed schemes to the north of the City with the existing and committed schemes to the south via Cambridge East. Should CAM not come forward as envisaged, then these connections present the opportunity to deliver the connectivity that Cambridge needs. Cambridge East is the only significant growth site that can deliver this necessary missing link which integrates the networks to the north of the city with those to the south. Made viable through the employment proposed, Cambridge East can bring about transformational change for the region.

This report stresses that whilst Cambridge East can be a catalyst for transformational changes, incremental infrastructure delivery is a key part of the offer. Building off the back of the GCP's Eastern Access Study, developer led interventions would realise significant development in the short to medium term prior to the need for more strategic intervention. Marshall fully support the early delivery strategic investments and can play a significant and material role in the funding and delivery of such measures but are not reliant upon them in the short to medium term.

Testing

Cambridge East commits to working to the principle of a Vehicle Trip Budget (VTB) – a finite number of vehicular trips that are related to extant uses and any vehicle trips removed from the network as a result of sustainable transport investments. Cambridgeshire County Council (CCC) see the monitoring of vehicle trips against the VTB as a key control to acceptable impacts and have used this principle for a number of strategic sites in the area in recent times. Cambridge East, in combination with a transport strategy that benefits a number of corridors

within the City and delivers low levels of car parking, is well placed to work within this controlling feature. Testing indicates that all scenarios could operate within a VTB, but that Scenarios B,C and D would help to provide a greater stimulus for a wider positive change in travel behaviour across the City and therefore this would increase the VTB for these scenarios accordingly.

Furthermore, analysis indicates that additional jobs in Scenario C at Cambridge East rather than located elsewhere in the wider region would also result in less overall car trips and vehicle kms for work journeys as a whole. A more sustainable outcome for Greater Cambridge overall.

Conclusions Drawn

Given the above and through the work undertaken, Stantec consider that Scenario C is the best use of land in transport terms. Whilst Scenario A is a substantial residential scheme that has the potential to be a new sustainable community for Cambridge, the exclusion of jobs which has been identified by the CPIER as being necessary for Greater Cambridge, means that the full opportunity for the site is missed. Scenario C provides all the benefits of Scenario A but is also able to leverage its scale to be an economic and place based stimulus for a step change in transport in Greater Cambridge. Beyond any of the other scenarios, Scenario C can contribute more to a mass rapid transit system (CAM or other) which in turn has regional benefits in terms of helping to deliver an integrated transport system for Cambridge removing pressures from multiple radial routes into the City. Scenario C has also be shown to provide more sustainable outcomes through the location of jobs in this location when compared to other locations throughout Greater Cambridge – if the jobs are to be planned for then locating them based around a network of public transport made more viable by the same jobs is sensible land use and transport planning.

Marshall want a sustainable legacy for the Cambridge Airport site. It is hoped that the vision presented in this report can be considered by the Greater Cambridge Planning Service and a decision made around the sites allocation which delivers the best outcome for Greater Cambridge and which helps to address the climate emergency and best helps to deliver net zero growth.

1 Introduction and Context

1.1 Project Overview and Background

1.1.1 Cambridge East is a unique, once in a generation, redevelopment opportunity made possible by the relocation of the Marshall Aerospace and Defence Group business (MADG) headquarters from Cambridge. Cambridge East is the redevelopment of the existing airport site on the east side of Cambridge.

1.1.2 To help realise the redevelopment opportunity, Marshall Group Properties Ltd (MGP) has appointed Stantec to undertake an analysis of the potential development scenarios and to develop the principles of the necessary transport strategies to support the proposals. This work has been undertaken with Steer who have a specific remit to consider the deliverability of mass rapid transit as part of the broader public transport strategies.

1.1.3 The site being promoted for development comprises the airport and is classified as brownfield land which has been safeguarded for development through the adoption of the Cambridge East Area Action Plan resulting from the Cambridgeshire and Peterborough Structure Plan, 2003 as captured in the Cambridge City Local Plan (2006) and the South Cambridgeshire District Local Plan (2007).

1.1.4 The full extent of the area of land subject to the assessments reported in this document is shown in Figure 1.1 below.

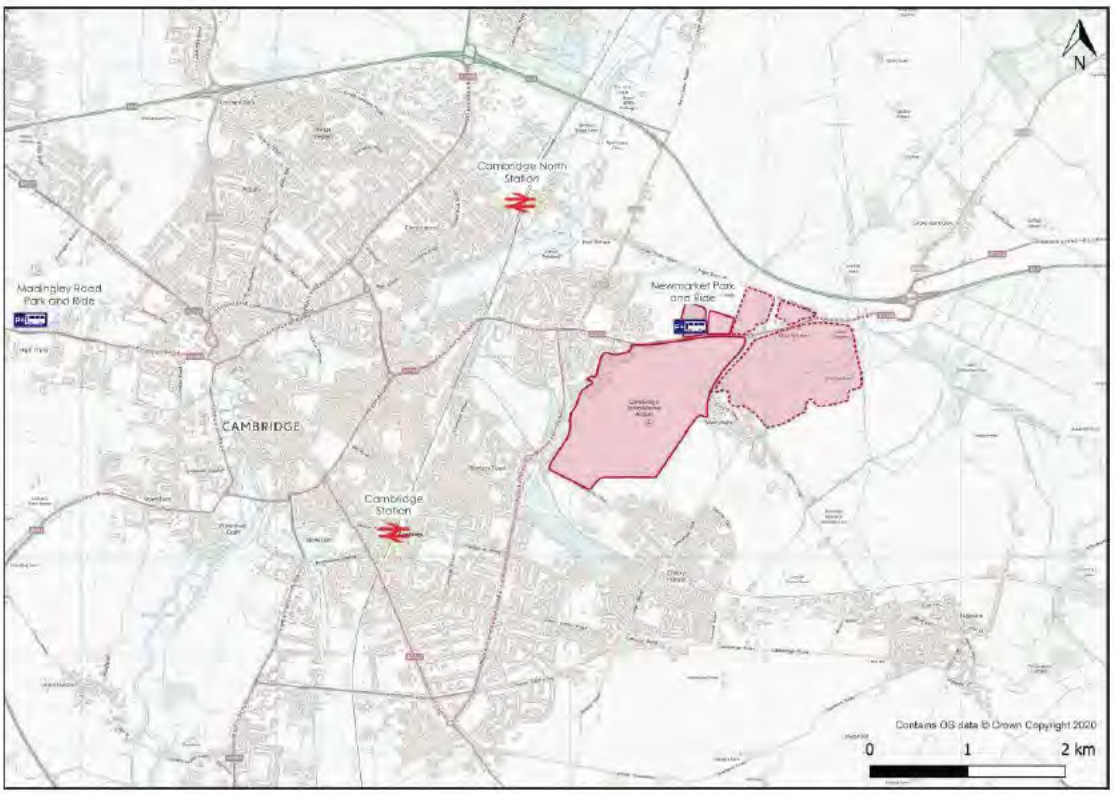


Figure 1-1 Site Location & Context (including existing Park and Rides)

1.1.5 The site sits across the administrative boundaries of Cambridge City Council (CCiC) and South Cambridgeshire District Council (SCDC) but is being promoted through the Greater Cambridge Local Plan process which covers both administrations.

1.1.6 This work forms part of the Marshall submission to Greater Cambridge Local Plan process where Cambridge East was submitted as part of the Greater Cambridge Local Plan Call for Sites. This submission indicated that the site would have capacity for up to 12,000 homes and 500,000m² of commercial floor space.

1.1.7 Given the longstanding and proud relationship to Cambridge and its people, Marshall will only commit to the relocation and redevelopment of the existing site if the proposals that come forward provide a full and proper legacy to their investment in the City. It is essential that the site achieves their vision of a sustainable future for Cambridge. The importance of this legacy has been central to the Development Scenarios and the Transport Vision that has been prepared in conjunction.

1.2 Greater Cambridge Local Plan: Strategic Options Assessment (November 2020) & Purpose of this Report

1.2.1 This report refers to, but is independent of, the Strategic Options Assessment work recently published by the Greater Cambridge Shared Planning Service. That work provides an evidence base for the emerging Local Plan and has sought to appraise and compare the Strategic Spatial Options within the emerging Local Plan across several disciplines.

1.2.2 The work has drawn conclusions on a number of relevant matters, and these are summarised below.

- The Transport Evidence Report makes a compelling case for density in development and that city or edge of city growth is more sustainable than dispersed development because it has less transport impact due to access to existing jobs, services and facilities.
- Even without mitigation (the basis for all tests undertaken), the Spatial Options that include Cambridge East or relate to City densification or edge of City development have highest non car mode share, lowest distance and time travelled and delay, as well as the best carbon outcomes.
- The Zero Carbon study is clear that the carbon emissions from transport are the biggest challenge and must therefore be addressed through location and the sustainable distribution of growth. Distribution options focused on Cambridge achieve the most sustainable outcomes.

1.2.3 Whilst this report does not seek to duplicate the work undertaken for the Greater Cambridge Planning Service, these conclusions are consistent with our views on why Cambridge East is an opportunity for sustainable development.

1.2.4 Given the context of the emerging Local Plan Evidence Base and early findings, this report looks to assess potential different scales of growth at Cambridge East and the principles of the transport strategies required to deliver them. This has involved generating transport demands, analysing their spatial distributions and identifying transport strategies to facilitate this growth. Whilst testing the deliverability at a level proportionate to this stage of the process, the work enables Marshall to rule out any transport schemes which are undeliverable.

1.2.5 This report is cognisant of the need to develop an approach to transport infrastructure that is complementary to the schemes in the region being brought forward by, in particular, the Greater Cambridge Partnership (GCP) and the Cambridge and Peterborough Combined Authority (CPCA). This has been achieved through continued and ongoing engagement with these bodies and therefore the proposals are aligned with and supportive of the GCP's Eastern Access Study and the Cambridgeshire Autonomous Metro proposals.

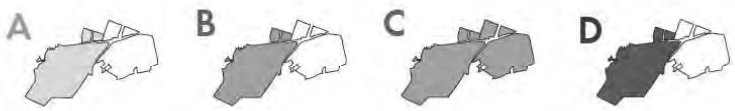
1.2.6 However, the Transport Strategy also needs to enable shorter term and early phases of development which do not require strategic schemes to realise sustainable growth (although it

may be that these schemes are in place) but plan so that the development and its supporting infrastructure can also then be expanded and further developed to work within a longer-term framework where the future of transport solutions, infrastructure and people's approach to living and lifestyles is more difficult to accurately predict.

1.3 Development Proposals Summary

1.3.1 The proposals for Cambridge East are not yet fixed but the suite of Development Scenarios which has been developed for testing all sit within the broad development quantum which formed the basis of the Call for Sites submission. These are summarised below and shown on Figure 1.2 and further details are provided in Section 5. All scenarios include education provision which plays a significant role in reducing the need to travel off-site.

- **Scenario A** – a scheme covering the Safeguarded Airport land which is compliant with the adopted Cambridge East Area Action Plan.
- **Scenario B** - a scheme covering the Safeguarded Airport land but which achieves a greater mix of uses than is envisaged in the AAP, including a significant increase in the provision of commercial development to enable and capitalise on the delivery of a research hub.
- **Scenario C** - a scheme covering the Safeguarded Airport land and additional Green Belt land to the east of Airport Way, which enables the delivery of a significantly greater quantum of development than Scenarios A or B, including a greater mix of uses, notably more residential units, and a greater scale of commercial development.
- **Scenario D** - a scheme which achieves the same amount of development as Scenario C but covering the Safeguarded Airport land only.



	A	B	C	D
Number of homes	9,500	9,500	12,000	12,000
NIA (sqf)				
Commercial (office, research, makerspace)	540,000	5,450,000	6,100,000	6,100,000
Retail	70,000	100,000	150,000	150,000
Leisure (entertainment, cultural, sports)	20,000	226,656	415,761	279,120
Hotel	-	155,000	193,750	193,750

Figure 1.2 | Development Scenario Summary (Source: Bidwells / Savills, 2020)

1.4 Stakeholder Engagement

1.4.1 This document has been developed with the benefit of a number of meetings and engagement exercises. Whilst significantly more consultation will take place as subsequent stages of the Local Plan process and prior to any planning application being made, engagement has been sought with the following bodies:

- Highways England
- Cambridgeshire County Council Highways
- Greater Cambridge Partnership
- Cambridge & Peterborough Combined Authority

- Network Rail
- East West Rail Company

1.5 Report structure

1.5.1 This report is composed of the following sections:

- *Section 2: The Cambridge Context:* This section summarises the baseline performance of the Cambridge Transport network, the emerging and committed transport investments being made in the Cambridge region and how these proposals and delivery partners interface with Cambridge East.
- *Section 3: Cambridge East: A Stimulus for Change:* This Section of the report highlights how Cambridge East can be a stimulus for further positive change to Cambridge and beyond.
- *Section 4: Transport Vision and Development Principles*: This covers the Transport Vision for the development and how the scheme can be brough forward as a low impact, low carbon new sustainable community for Cambridge.
- *Section 5: Development Scenarios:* This Section of the report provides a summary of the different Development Scenarios assessed as part of this report and the Transport Demands and travel patterns that relate to each.
- *Section 6: On Site Mobility Strategy (A-D):* Reflecting the Transport Vision, this section of the report details how On-Site Mobility is being considered and planned for.
- *Section 7: Emerging Off Site Mobility Strategy Approach:* This section sets out the approach taken to develop, sift and package transport measures.
- *Section 8: Off-Site Mobility – Connections to the Station and City Centre* - Connectivity to forecast Origins and Destinations will be key to mitigating transport impact and maximising benefit to existing Cambridge communities. This section of the report summarises the volume of demand to and from the station and city centre and the emerging measures identified to deliver the necessary connections.
- *Section 9: Off-Site Mobility – Connections to the North* - This section of the report summarises the volume of demand to and from the north and the emerging measures identified to deliver the necessary connections.
- *Section 10: Off-Site Mobility – Connections to the South* - This section of the report summarises the volume of demand to and from the south and the emerging measures identified to deliver the necessary connections.
- *Section 11: Off-Site Mobility – Connections to the East* - This section of the report summarises the volume of demand to and from the east and the emerging measures identified to deliver the necessary connections.
- *Section 12: Packaging the Transport Measures* - This section of the report sets out how the measures identified in the previous sections have been packaged relative to the growth scenarios set out in Section 5. It provides a summary of the transport strategies taken forward for high level testing in the Stantec spreadsheet tool.
- *Section 13: Impact of the Transport Strategies:* This section of the report summarises the outcomes from the high-level testing of the transport strategies.

- *Section 14: Delivering Cambridge East:* This Section of the report sets out how the transport strategies could be phased to deliver development over time in accordance with capacity created.

- *Section 15: Summary and Conclusion:* Confirms the opportunities that present themselves as part of the site's development potential

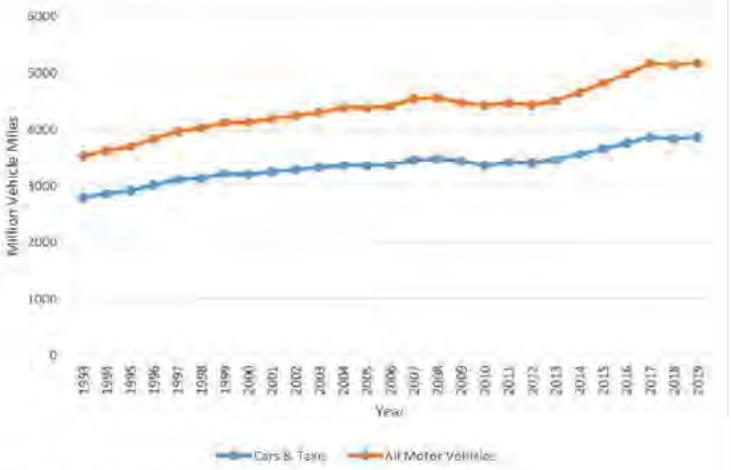
2 The Cambridge Context

2.1 Cambridge's Existing Transport Challenges - Baseline

2.1.1 As development has come forward at low densities and in a dispersed manner, car based travel across the Greater Cambridge region has continued to grow (as evidenced in Figure 2.1) and Cambridge's roads have become more congested with average speed on all radial routes entering Cambridge from the surrounding region during the peak hour being now less than 60% of the 'free flow' speed. As well as an economic cost, congestion has detrimental environmental and social impacts on the City and its residents and those that work within it.

2.1.2 The reasons for this growth and subsequent congestion are multifaceted and have manifest over many years. These include (but are not limited to) economic growth that has not been matched by the necessary investment in infrastructure, and land availability resulting in spatial planning decisions that are less optimal for sustainable transport solutions and the 'good growth' highlighted in Section 3.1 of this report.

2.1.3 The spatial location of growth outside the city over the years has placed pressure on transport networks and only in the last 10 or so years has there been a noticeable change in the pace of delivery of non-car based transport solutions and whilst this change is visible many of the schemes are lower impact and not of a strategic nature to make a genuine change to the infrastructure deficit that has built up over many years. Cross-city connectivity has been a longstanding problem in Cambridge. Whilst cycling provides enviable connectivity and utility compared to most cities, which is being reinforced by the Chisholm Trail, longer journeys whether by car or public transport have limited options other than to drive through the City's roads.

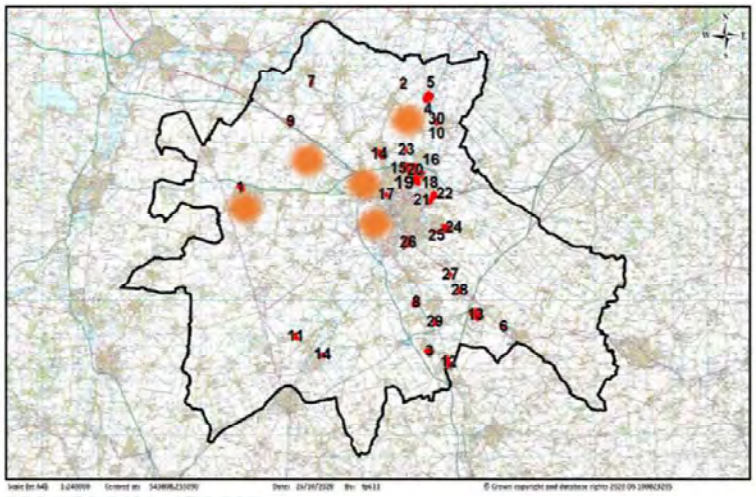


Source: https://roadtraffic.dft.gov.uk/local-authorities/97

Figure 2.1 | Annual Traffic by Vehicle Type in Cambridgeshire by Vehicle Miles (Source: Cambridgeshire County Council - Figure 6 Transport Existing Conditions Report November 2020)

2.1.4 In terms of public transport, only the rail corridor provides genuine cross-city connectivity but until Cambridge North was delivered, access was confined to Central Cambridge. The bus network suffers from the impact of traffic congestion and delay and as such is often unreliable and slow which again precludes the ability to travel across the City effectively.

2.1.5 As highlighted by the Local Plan Evidence, many of the major trip attractors are in more remote locations which are less readily accessible via alternatives to the private car. These locations also fail to tap into Cambridge's cycling culture as a result. In addition, many of the new allocated residential settlements are located to the north and west and away from the existing trip attractors and the services provided by the City itself. In contrast, the centre of the Cambridge East site sits just 3.5km as the crow flies from the Grand Arcade in central Cambridge.



Source: Cambridgeshire County Council

Figure 2.2 | Major Employment Areas and Major Housing Areas (Source: Stantec and Cambridgeshire County Council, Figure 22, Transport Existing Conditions Report November 2020)

2.1.6 With limited ability for sustainable transport over longer distances and employment growth dislocated from housing growth, car-based outcomes and congestion is perhaps unsurprising. South Cambridgeshire's car ownership levels are higher than the average for Cambridgeshire and indeed the East of England and this, together with the dispersed pattern of development helps to explain why 49% of journeys to work were by active mode in Cambridge compared to only 13% in South Cambridgeshire. Car usage is the largest mode share for Greater Cambridge and South Cambridgeshire but in Cambridge the car mode share is similar to cycling. Perpetuating this dependency directly contradicts a good growth agenda and the route necessary to achieve net zero.

2.1.7 The Cambridge and Peterborough Economic Review (CPIER) highlighted all of these issues. It concluded that if improved transport infrastructure and affordable well located housing is not provided then the successes of Cambridge will be lost and the 'costs' of living and working in the area will become too great for individuals and companies alike. This in turn runs the risk that the globally significant companies that are based in Cambridge will not just leave the City or region but the UK.

2.2 Strategic Transport Investments & Delivery Partners – Future Baseline

2.2.1 The site benefits from a unique set of public body funding opportunities that have emerged over the last few years in Cambridgeshire. Through the award of Devolution to Cambridge and Peterborough and the City Deal status awarded to Cambridge, two significant public bodies with decision making powers for strategic infrastructure planning and delivery have been born. These circumstances and the associated investments will result in significant benefits being felt in Greater Cambridge.

2.2.2 This Section of the report provides detail on these two organisations and the specific schemes that are being progressed.

Cambridge & Peterborough Combined Authority (CPCA)

2.2.3 Through the Governments 'devolution deals', councils across Cambridgeshire and Peterborough now have powers to directly control what happens in their area. The Combined

Authority work on the strategic issues that cross council borders and span the entire Cambridgeshire and Peterborough area, such as housing, transport and infrastructure needs.

2.2.4 The CPCA is made up of representatives from eight organisations. These are Cambridge City Council, Cambridgeshire County Council, East Cambridgeshire District Council, Fenland District Council, Huntingdonshire District Council, Peterborough City Council, South Cambridgeshire District Council and the Greater Cambridge, Greater Peterborough Local Enterprise Partnership (GCGP LEP). The Authority is led by a Mayor James Palmer, who was elected on 5th May 2017.

2.2.5 The CPCA is currently leading on the promotion and delivery of the Cambridgeshire Autonomous Metro (CAM). These proposals would provide an integrated mass rapid transit solution for the Greater Cambridge region. The CAM is recognised within the Cambridgeshire Local Transport Plan 3 and therefore has up to date policy stratus and support. A summary of the CAM is provided below.

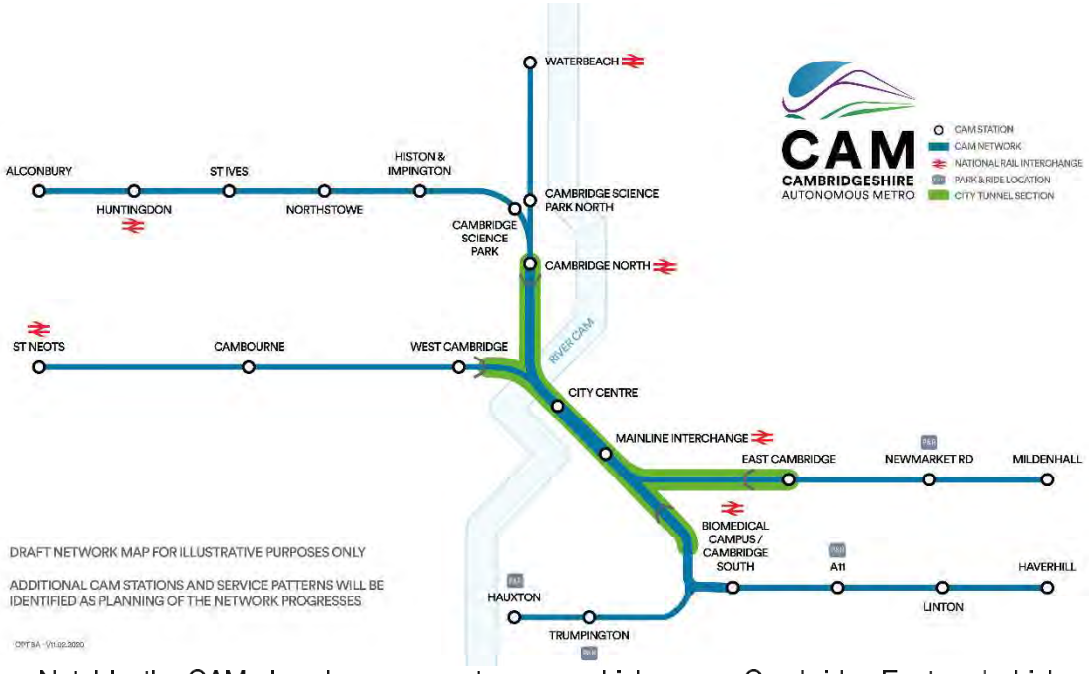
Cambridgeshire Autonomous Metro

2.2.6 As set out in Section 2.1, economic growth in the region has not been matched by infrastructure, particularly transport. To nurture and sustain this growth, new infrastructure is needed to support the delivery of new jobs and new homes. The CPCA propose that the CAM will connect key regional centres of employment, existing settlements, key railway stations, new homes and planned growth. The CPCA's vision is for an expansive metro-style network that seamlessly connects these trip generators. CAM is currently expected to use a technologically advanced, sustainable, highly flexible trackless electric vehicle.

2.2.7 The CAM network will comprise both tunnelled and surface elements and is programmed to be delivered over the next decade as follows:

- The City Tunnel Section which will include new underground tunnels and stations under the city of Cambridge, with planned major interchange hubs at the city centre and at Cambridge railway station;
- Four regional routes will connect St Neots, Alconbury, Mildenhall and Haverhill with the city of Cambridge and, through the central tunnelled section, with each other.

2.2.8 An indicative map of how the CAM network would look is shown below.



2.2.9 Notably, the CAM plan shows an eastern arm which serves Cambridge East and which extends east towards Mildenhall and west towards the main station and city centre.

2.2.10 The CAM's Objectives are set out below:

Improving Your Travel Experience

CAM will provide a reliable and regular service using modern vehicles, significantly reducing journey times between the wider region and the city of Cambridge through the utilisation of autonomous technology (where practicable) with dedicated routes which reduce congestion, improving the travel experience for all.

Expanding Your Range of Opportunities

By connecting existing and planned settlements with key regional centres of employment, CAM will greatly expand the opportunities available to residents of the region, including access to a greater number and variety of jobs. Students will also benefit from greater access to a wider range of training opportunities, apprenticeships, colleges and sixth form places. Access will also be improved to health care facilities and other essential services for all residents.

Improving Air Quality and Reducing Congestion

By providing a passenger transport system that offers a genuine alternative to using the car, CAM would help to reduce congestion and improve air quality within the city of Cambridge through the use of electric vehicles, improving the local environment for all.

Supporting Sustainable Regional Growth

CAM will connect key regional centres of employment, with existing settlements, railway stations and planned growth, to create a platform for sustainable and

inclusive growth across the region, in addition to the opportunity to provide more new and affordable homes.

Encouraging New Investment

By decreasing the relative distance between key 'clusters' around the city and across the region, CAM will link key growth areas, encouraging additional jobs by making the region a more attractive place to locate, expand and invest.

2.2.11 Given the ambition of CAM, the proposals are still evolving, and the Programme Level Business Case is still being prepared. As such, the Greater Cambridge Local Plan evidence base does not yet consider the CAM to be a committed scheme. Therefore, and in this Local Plan context, Cambridge East has been prepared to be fully complementary and supportive of the CAM proposals. However, in demonstrating deliverability of the site it has also been necessary to develop a suite of alternative but complementary measures and initiatives for specific connections important to the Cambridge East site itself.

2.2.12 Marshall fully support the principle of the CAM proposals and as such have made positive previous representations as part of the public consultations. All emerging masterplanning takes due account of the scheme in as so far is it as known at this point in time.

Greater Cambridge Partnership (GCP)

2.2.13 The Greater Cambridge Partnership was formed to include the local councils (Cambridge City, South Cambridgeshire and Cambridgeshire County), businesses and the University of Cambridge, and has secured hundreds of millions of pounds of investment towards transport infrastructure, housing and skills which are needed to support future economic growth for the areas of Cambridge City and South Cambridgeshire District Councils.

2.2.14 The GCP has been responsible for the planning and delivery of a number of cycle interventions in the area in recent years and these schemes are captured in Section 7 of this report.

Eastern Access Study

2.2.15 The GCP is currently consulting on transport options to tackle current and future transport problems to the east of the City by offering better and more sustainable ways to make journeys by public transport, cycling and walking.

2.2.16 The Cambridge Eastern Access corridor provides the main access into the city from the east and consists of the A1134/A1303 Newmarket Road between Quy Interchange (A14 Junction 35) and Elizabeth Way.

2.2.17 The project has a number of areas of focus and these are highlighted below:

- the potential for segregated high-quality public transport options;
- on-road public transport priority options including bus lanes;
- integration with the CPCA's CAM proposals;
- additional Park & Ride / interchange capacity and new travel hub;
- cycle and pedestrian links including both strategic and local options as and consideration of other forms of active travel such as horse riders;

- measures to physically integrate into other City Deal proposals such as the Chisholm Trail and the Horningsea, Bottisham and Swaffhams Greenways; and

- co-ordination with GCP's City Access project in and around the city centre.

2.2.18 The Eastern Access Study looks at both short and longer term interventions and considers compatibility with projects such as CAM and the eastern section of East West Rail i.e. from Cambridge to Ipswich, both of which could have a significant positive influence on sustainable mode choice. The options presented by the GCP in the Cambridge Eastern Access study for the longer term all envisage a segregated public transport route through the Cambridge East site, and / or stations within the site.

2.2.19 This GCP project, as with the CAM, has a clear and obvious relationship to Cambridge East. Not only will the interventions assist in reducing current transport challenges they will also assist in providing the basis for future sustainable growth at Cambridge East.

2.2.20 Through dialogue with the GCP, it is agreed that Cambridge East will need to come forward on the basis that a corridor through the site is safeguarded for segregated public transport services (including CAM) and that a Travel Hub (including P&R) is provided to the East of the site close to the A14 Quy Interchange. These principles are captured in each of the development scenarios.

2.2.21 Whilst the study is not yet concluded, Marshall fully support the principle of the Eastern Access Study proposals and all emerging masterplanning takes due account of the potential schemes in so far as they are known at this point in time.

2.2.22 The changes in the local governance and funding models have resulted in positive progress being made in terms of identifying future sustainable transport solutions and needs. Figure 2.3 below illustrates the proposed sustainable transport network for Cambridge in 2030.

Figure 2.3 | Future Connectivity of Cambridge – 2030 (Source: Greater Cambridge Partnership)

2.2.23 This plan illustrates that a convergence of GCP schemes is set to occur by 2030 and that the critical cross city connectivity would be addressed through the delivery of the tunnelled sections of CAM which will have the potential to deliver an integrated transport network for Cambridge making Cambridge more accessible from the wider Greater Cambridge region.

Cambridgeshire County Council

2.2.24 Cambridgeshire County Council plays a significant role in realising the successful delivery of housing and jobs in the area, both through their involvement on the GCP schemes but also within County-led transport projects and through support and coordination of transport input to CPCA projects in the area.

2.2.25 Furthermore, CCC are at the forefront of monitoring schemes and ensuring that forecast impacts are acceptable. CCC will through their role as the local highway authority ensure that schemes that embed positive behaviour change, either through their role in development management, or their influence within the projects underway elsewhere in the City, are optimised.

2.3 Summary

2.3.1 This Section has provided high level context on the challenges that are faced by the Cambridge transport network.

2.3.2 Transport investment across Greater Cambridge has traditionally failed to keep pace with the scale of growth in the past, accentuated by the boom of Greater Cambridge as a place of work, attracting people from surrounding authority areas. This has resulted in increased vehicle miles and congestion across Greater Cambridge.

2.3.3 Significant transport investment is now taking place in Greater Cambridge with a convergence of the GCP schemes by 2030 and the ambition from the CPCA for the Cambridgeshire Autonomous Metro. These all show a positive move towards a low-carbon, sustainable future for Greater Cambridge. Early evidence from testing within the Local Plan indicates growth close to the city results in the most sustainable outcomes, both for mode share and carbon emissions.

2.3.4 Cambridge East sits at the heart of Greater Cambridge, close to the city and the Cambridge Eastern Access Study run by the GCP, is consulting already on measures aimed at improving sustainable mode accessibility and journey times into the City. Until now, the site had not been available for development and large growth sites occurred further from Cambridge.

2.3.5 However, with confirmation of the relocation plans, and taking account of the location of the site relative to emerging major transport infrastructure schemes, the Cambridge East site provides an excellent opportunity for significant, transport orientated, sustainable growth.

3 Cambridge East: A Stimulus for Change

3.1 Introduction

3.1.1 Section 2 set out the historic and current challenges that existing in Cambridge in a transport context. This Section of the report considers the opportunity that is offered by Cambridge East to support positive change and growth which in line with local and national policy objectives.

3.2 Good Growth for Cambridge

3.2.1 Marshall as part of their legacy to Cambridge, believe that development in this location needs to be executed differently and needs to be used to address the issues that are relevant to today's challenges such as the housing affordability crisis, movement and connectivity difficulties, health and wellbeing, environmental and social value challenges and of course the road to Net Zero, as well as the need for Cambridge to continue to fulfil its economic potential. These matters can be considered as being essential for 'Good Growth' and transport has a role to play in all of them.

3.2.2 Research undertaken by the Foundation for Integrated Transport (Transport for New Homes[3]) looked at the relationship between the level of car dependency of sub-urban or rural housing development, and the quality of the resultant community. Emerging conclusions suggest that future outcomes such as levels of employment, provision of local facilities and amenities, and the quality of community cohesion are detrimentally affected if the default means of travel is the car. The opportunity to undertake development better and to reduce car dependency is central to the type of development and the community that Marshall want to create.

3.2.3 In the UK, the Local Plan process can be denied the opportunity to make use of land closest to existing settlements where genuine sustainable travel choices exist. As a result, sites are often allocated which are not optimally placed for more sustainable transport i.e. further from jobs and existing transport networks.

3.2.4 In many cases, these new settlements, despite local and national policy provision actually further entrench car dependency through a planning process that still requires the assessment of a future world in which traffic growth continues. As a result, managing the impact from cars inevitably becomes the primary test of acceptability.

3.2.5 However, the answer ought not to lie in more and better provision for cars. The answer lies in better provision for the movement needs of the community that will be living in the new housing – not measured in terms of highway capacity – but in terms of access to employment, education and other amenities – as well as issues such as road safety, health and wellbeing.

3.2.6 How Cambridge can contribute to this Good Growth agenda is expanded upon within this Section of the report.

3.3 The Opportunity provided by Cambridge East

In the Right Place

3.3.1 Future development growth has to be in the right place. The DfT has defined 'place-based solutions' as one of six strategic priorities for its Transport Decarbonisation Plan[4]. However, research from the RTPI, Transport for New Homes and the Place Alliance has found that too

[3] transport-for-new-homes-summary-web.pdf

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/932122/decarbonising-transport-setting-the-challenge.pdf

many major housing developments and urban extensions are not located or designed in ways that facilitate public and active travel, and therefore perpetuate and exacerbate car dependency. These factors are inconsistent with transport decarbonisation.

3.3.2 Rapid decarbonisation will be difficult to achieve if transport investment is focussed on road capacity to more rural locations. Investments should be focussed on public transport, walking, cycling and measures to reduce travel demand at source. The current imbalance has historically induced and locked-in high carbon travel patterns by increasing road accessibility to land further from services and jobs. This investment in these areas also then encourages the relocation of residents and businesses to cheaper, car dependent locations and incentivises low-density development on lower-value land. This can increase overall traffic volumes, congestion, air pollution and carbon emissions, including in urban centres, which makes active travel less attractive.

3.3.3 Cambridge East is the opposite of this scenario, where sustainable transport investments are viable, car dependency can be minimised, and density ensures best use of the land is achieved.

3.3.4 Cambridge East is located on the eastern edge of Cambridge just 3.5km as the crow flies from central Cambridge and is close to one of the most important existing and growing job markets in the UK enabling active travel to be at the heart of any transport strategy. The location of the site relative to other major employment areas is shown on Figure 3.1.

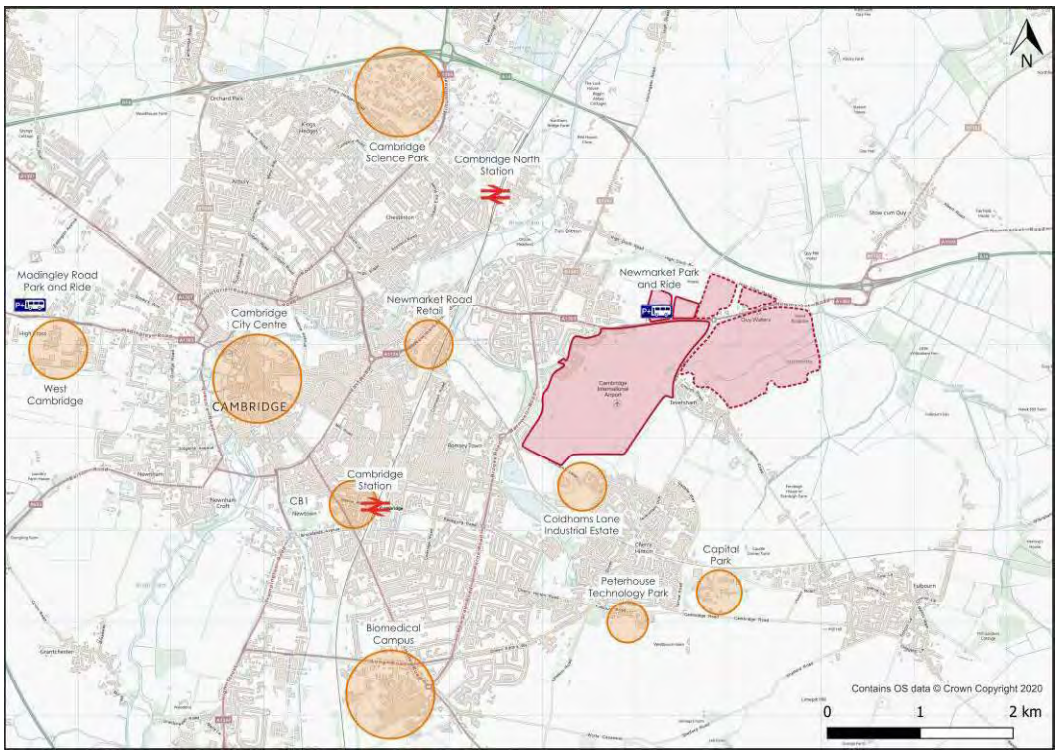


Figure 3-1 | Location relative to key employment areas and existing park and ride sites

3.3.5 As borne out by the Local Plan Strategic Options Assessment (November 2020), a development in this location can be considered beneficial in helping to reduce travel distances and to give sustainable transport strategies the best chance of success by creating critical mass and density around jobs and services.

3.3.6 It is also important to note as part of the spatial considerations, that people travel to access services, employment, or facilities. If jobs are being generated by growth, then these commuting trips will be generated with the only question being where these new workers will

live. The ability to reduce travel distances and increase the opportunities for more sustainable travel needs to be maximised if Cambridge wants to achieve Net Zero status by 2050.

Sustainable Scale

3.3.7 Strategic scale development has significant advantages in transport terms. Achieving a critical mass means that services, facilities, employment, and leisure opportunities can be provided on site meaning a significant amount of travel will occur only within the site itself. This again is illustrated through the Local Plan Spatial Options assessment.

3.3.8 Dispersed development is the opposite of this where all travel happens outside of the confines of the development and cumulatively results in more congestion and environmental impact across the region as a result of car based journeys but without anything material by way of mitigation.

3.3.9 Cambridge East needs to be at a scale whereby it can deliver these facilities and internalise a significant proportion of home-based trips. It also needs to be able to complement and work within the city. Its location close to the city centre means that the external trip making that does occur, for many journeys can be shorter and by modes other than the car. The propensity for internalisation relative to scale is explored more fully in Section 5 of this report.

3.3.10 Cambridge East is also uniquely placed to reduce private motorised travel through a compact settlement pattern with higher levels of density, land use mix and accessibility. The RTPI[5] has produced an evidence base to summarise the multiple co-benefits that can be achieved through planning compact settlements with higher levels of residential and transport density.

3.3.11 This work indicated that that these urban forms reduce the need to travel and facilitate public and active transport when compared to low-density and dispersed developments, and thereby reduce overall vehicle use. There is a close relationship between residential density and accessibility, with larger local populations providing patronage for a wider range of local shops and services in convenient locations, within easy walking or cycling distance. Higher levels of residential density and land use mix around public transport stops also helps to make high-frequency services financially viable and increases the number of public transport stops at the city-region scale. This in turn improves accessibility across the entire network, creating a virtuous cycle that reduces car dependency, increases levels of public and active transport and reduces the number of physically inactive 'door to door' trips.

3.4 Summary

3.4.1 Cambridge East can, and should, be a stimulus for transformational change across Cambridge. A substantial low car neighbourhood is possible resulting from the fundamentals of the site, an optimal mix of land uses, and the potential ability to create a critical mass for public transport provision for the benefit of the wider region. Anything less would be failing to realise the opportunity that the land presents given its immediate proximity to Cambridge.

3.4.2 Good growth for Cambridge is possible in this location and will help to address some of the challenges that have occurred previously as a result of spatial planning decisions made at a time when Cambridge East was not available.

3.4.3 The Cambridge East site provides an excellent opportunity to unlock sustainable mode connectivity with the city, both at a local and strategic level. With development at scale, it supports public bodies in the delivery of transformational transport infrastructure, creating a step-change in travel behaviour and the most sustainable outcomes from growth in the Greater Cambridge area.

[5] RTPI | Place-based solutions to net zero carbon transport: the role of spatial planning

4 Transport Vision & Development Principles

4.1 The Cambridge East Vision

4.1.1 The recently published National Infrastructure Study (NIS) notes that the Transport Decarbonisation Plan *"will be the biggest piece of work the government has ever done to tackle greenhouse gas emissions from transport"*. In total, more than £5bn will be spent on public transport and cycling infrastructure, with £1.3bn earmarked for EV charging. It is against this backdrop of reform that Cambridge East's Transport Vision comes forward.

4.1.2 Cambridge East is a unique, once in a generation, development opportunity. No other development site in the Greater Cambridge area has the same potential to deliver large scale housing, employment, leisure and education development and contribute positively towards Net Zero growth – the single most important objective of the Local Plan.

4.1.3 The provision of homes and jobs in this location must be undertaken in a way that is a befitting legacy to the Marshall family and its longstanding relationship to the city of Cambridge and most importantly, must help both councils deliver their Climate Change Strategies which includes an aspiration for Cambridge to reach 'net zero' carbon status by 2050.

4.1.4 This report is cognisant of the need to develop an approach to transport infrastructure that is complementary to the schemes in the region being brought forward by, in particular, the Greater Cambridge Partnership (GCP) and the Cambridgeshire and Peterborough Combined Authority (CPCA). This has been achieved through continued and ongoing engagement with these bodies and therefore the proposals are aligned with, and supportive of, the GCP's Eastern Access Study and the Cambridgeshire Autonomous Metro proposals.

4.1.5 The Transport Vision for the site is therefore:

Making use of the sites unique location and scale, Cambridge East will be a new mixed-use, net zero-carbon community where people will have the ability to meet most of their daily needs within a short walk from home and a development that is structured around safe and sustainable local transport options. Car dependency will be designed out as Cambridge East is integrated with, and acts as a catalyst for, a step change in sustainable transport for the greater Cambridge area, with the benefits being realised across this geography.

4.2 The Cambridge East Transport Principles

4.2.1 Our approach to achieve the vision, is based around the following key principles:

- **Designing a Great Place**: Daily activities will be convenient and be easily accessible on foot or by bicycle, with the scheme delivering genuine mixed used development and the site structured as a series of 15-minute neighbourhoods and where everyday needs can be catered for without the need to travel further afield enabling streets to be low trafficked and people friendly. As a result of the sites location, low car ownership and shared mobility services facilitated through Mobility Hubs, will become the norm. Movement will be structured safe, direct and attractive routes for low impact personalised transport with cars designed out of the heart of the neighbourhoods.

- **Recognising the inherent benefit of planning for Cambridge's growth at Cambridge**: optimising the unique opportunity for growth and reducing the need for growth to take place in less sustainable locations.

- **Matching of jobs and homes** where local employment is provided appropriately to the demographic of the community and region.

- **Recognise "work from home" and local work-space hubs** as part of "movement demand" mix and cater for these with walk and cycle routes.
- **Cater for travel demands in by enhancing the network as a whole** - a holistic approach to network capacity emerges whereby demand and supply can be balanced.
- **"Movement corridors" through the site and to and from key destinations** that provide for walking, and then segregated use by cycles and other personal and public transport modes.
- **Change the relationship to the car** and understand that local highway network capacity increases in respect of the peak hours is fundamentally unsustainable. Through the scale and potential of Cambridge East we would seek to demonstrate the potential of low car living and a successful transition away from personal car ownership.

4.3 Working to the Principle of a Vehicular Trip Budget

4.3.1 Through discussions with CCC, it has been stipulated that the site must work to the principles of a VTB. This is an approach which is consistent with other strategic schemes in the area and the emerging proposals for the North East Cambridge Area Action Plan. It rightly recognises that highway capacity in the east of the city is very limited.

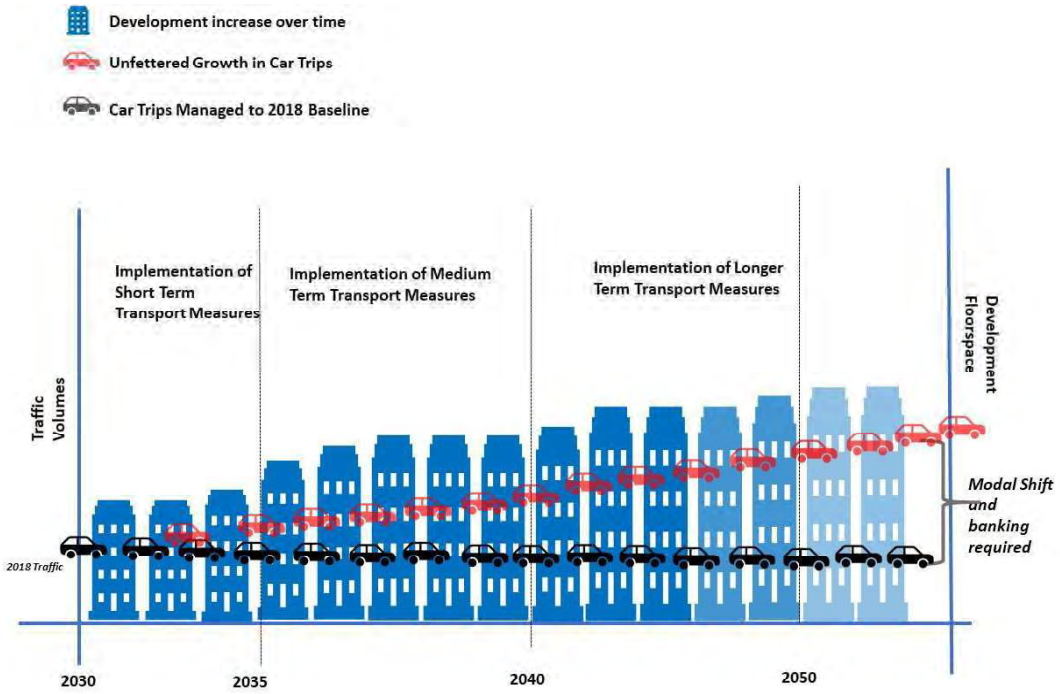
4.3.2 The principle of a VTB is based on the premise that there is no significant spare highway network capacity during the peak periods in the area, and there are limited opportunities or indeed the ambition to increase this capacity. Where spare capacity does exist, it may be limited and insufficient to support major new trip making activity without significant increase in the capacity of other modes. In either scenario, a VTB seeks to cap car based trips at the capacity of the highway network.

4.3.3 Therefore, as with other sites coming forward, the VTB is defined as the amount of vehicular trips that can be generated by overall development without resulting in unacceptable conditions, compared to the existing situation, based on 2017/18 traffic flows.

4.3.4 The VTB for Cambridge East is defined by a combination of the extant uses of the site and trips they currently generate, any identified residual highway capacity outside the central peak hours and any vehicular trips already on the network travelling into Cambridge that are able to be switched to sustainable modes and therefore the headroom 'banked' as a direct result of the investment from Cambridge East in sustainable infrastructure.

4.3.5 The specifics of the VTB would need to be agreed through subsequent stages of the planning and assessment process where a fuller appreciation of impacts and benefits of the scheme can be more accurately captured plus any long term changes to travel behaviour resulting from the global pandemic will need to be taken into account. However, Marshall accept the principle and high-level approach and see this as a complementary measure to their own non car-based ambition for the site.

4.3.6 The VTB is considered further in Section 5 and shown schematically in Figure 4.2 below.



5 Development Scenarios

5.1 Introduction

5.1.1 Using the Cambridge Sub-Regional Model 2 (CSRM2), the early transport-related outcomes from the testing of the spatial options within the Local Plan evidence indicate that growth close to the city achieves the most sustainable mode shares and lowest levels of carbon emissions, compared with growth further from Cambridge.

5.1.2 At the time of writing, the Local Plan evidence base focuses on cross-comparing spatial options. In transport terms, this has involved testing the outcomes from growth in these locations in terms of modal shares, distance travelled etc, but on a like for like basis and prior to the consideration of supporting transport infrastructure.

5.1.3 As the opportunity afforded by different scales of growth at Cambridge East has not yet been tested within the evidence base, Stantec was commissioned by MGP to undertake this supplementary but complementary piece of work. The purpose of the work has been to undertake high level analysis of the scale of development possible at Cambridge East and its deliverability in transport terms. This has involved generating transport demands, analysing their spatial distributions and identifying emerging transport strategies to facilitate this growth. This is a proportionate exercise relative to this stage of the Local Plan process which has included the ruling out any schemes which are undeliverable or unnecessary.

5.1.4 The remainder of this section is structured as follows

- **Cambridge East Development Scenarios** – this provides an overview of the scenarios tested.
- **Methodology** – this provides an overview of the methodology used to test these development scenarios and the supporting transport strategies.
- **Summary of outcomes of demand analysis** – this provides a high-level overview of the outcomes of the demand analysis, indicating the principles upon which the transport measures (set out in Sections 8 - 11) have been developed.

5.2 Cambridge East Development Scenarios

5.2.1 Four development scenarios were generated by Allies and Morrison for the Cambridge East Site using their expertise in planning of large-scale sites and in consultation with the wider project team and Marshall.

5.2.2 The land-use budgets of the scenarios are summarised in Table 5.1 and definitions are provided below:

- **Scenario A** – a scheme covering the Safeguarded Airport land which is compliant with the adopted Cambridge East Area Action Plan.
- **Scenario B** - a scheme covering the Safeguarded Airport land but which achieves a greater mix of uses than is envisaged in the AAP, including a significant increase in the provision of commercial development to enable and capitalise on the delivery of a research hub.
- **Scenario C** - a scheme covering the Safeguarded Airport land and additional Green Belt land to the east of Airport Way, which enables the delivery of a significantly greater quantum of development than Scenarios A or B, including a greater mix of uses, notably more residential units, and a greater scale of commercial development.

- **Scenario D** - a scheme which achieves the same amount of development as Scenario C but covering the Safeguarded Airport land only.

Table 5.1 | Land-Use Budget Scenarios (Source: Allies and Morrison Rev P5 dated 16.11.2020)

Land Use	Mix	Scenario A	Scenario B	Scenario C	Scenario D
Dwellings	Private Flats	2,185	1,758	2,220	2,664
	Private Houses	2,185	1,758	2,220	1,776
	Affordable Flats	1,805	1,520	1,920	2,304
	Affordable houses	1,805	1,520	1,920	1,536
	PRS	190	190	240	240
	Later Living	855	855	1,080	1,080
	Student Flats	475	1,900	2,400	2,400
	Total	9,500	9,500	12,000	12,000
Other Uses (sqft GEA)	Hotel	-	222,222	277,778	277,778
	Commercial	573,477	7,168,459	7,885,305	7,885,305
	Light Commercial and Maker Space	143,369	143,369	143,369	143,369
	Research Hub	57,348	501,792	716,846	716,846
	Retail and Ground Floor	97,221	138,885	208,332	208,332
	Entertainment	27,728	69,444	148,111	97,222
	Cultural	-	106,467	151,556	151,556
	Sports	-	138,889	277,778	138,889
	Health	12,386	11,194	14,140	14,140
	Police	14,950	14,950	14,950	14,950
	Total Floorspace	12,752,195	18,744,549	21,699,234	21,974,893
	Logistics / Transport Hub (ha)	1.0	1.0	5.5	1.0
	Stadium (ha)	-	-	3.0	-
	Education (ha)	13.5	12.25	15.5	14.75
	Total Jobs	4,000	28,000	38,000	38,000
Summary	**Homes**	**9,500**	**9,500**	**12,000**	**12,000**
	Jobs	**4,000**	**28,000**	**38,000**	**38,000**

5.2.3 The Local Plan transport evidence base is not explicit about the specific level of housing and job growth assumed at the Cambridge East site within the testing. However, it does state that in the scenario where Cambridge East is considered, growth is included at other locations too. Scenarios B, C and D represent a significant increase above that which has been tested to date. The purpose of this assessment work by Stantec is to test the impacts of greater scales of growth at Cambridge East than assumed previously.

5.2.4 High level testing of these scenarios in terms of the transport demands they generate has been undertaken. This work has been undertaken using tools available to Stantec and

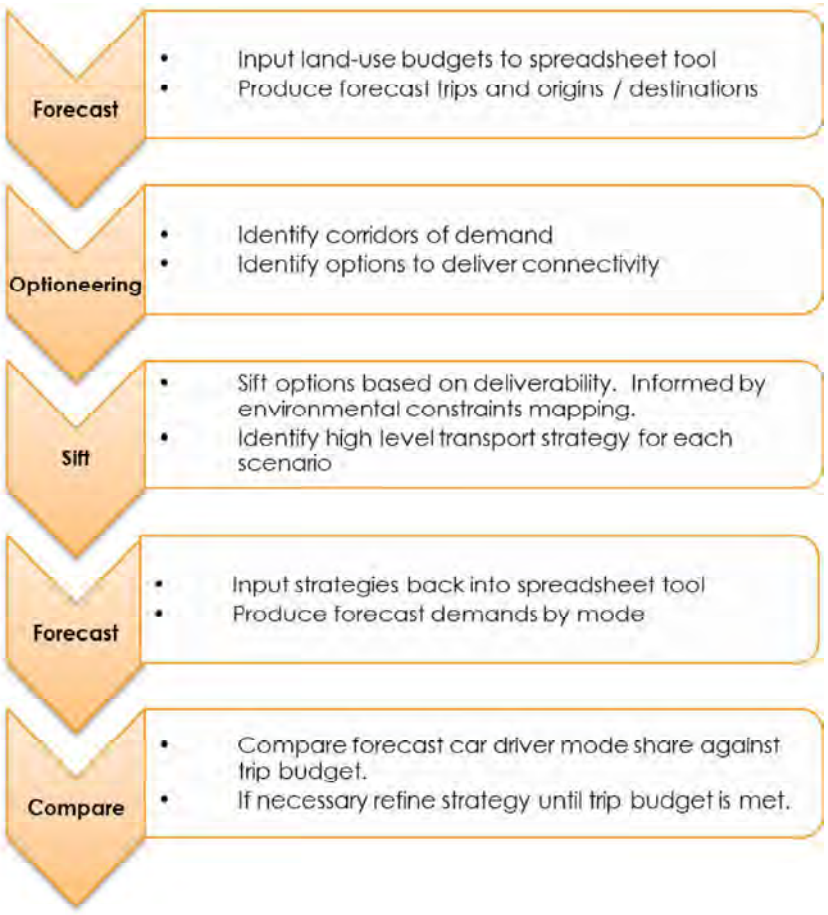
previously approved as part of planning application evidence for strategic sites in Cambridgeshire, e.g. Alconbury Airfield, Waterbeach New Town.

5.2.5 Where the Local Plan evidence base tests the impact of a range of spatial strategies for growth across the administrative area, the evidence base set out in this Stantec report focuses on the scale of opportunity available at Cambridge East and the potential transport strategies envisaged to deliver its vision.

5.3 Methodology

5.3.1 An overview of the technical approach used to test the scenarios in Section 5.2 is provided in Figure 5.1. The approach is a five-step process.

Figure 5.1 | Five Step Technical Assessment Process Utilised



Step 1: Forecast

5.3.2 The first step of the process involved generating forecast person trip volumes, origins and destinations for the land-use budgets set out in Table 5.1. This was calculated using a spreadsheet tool developed by Stantec, the principal stages of which have been previously agreed with Cambridgeshire County Council in relation to other schemes in the Cambridge area in the absence of the ability to use the Cambridge Sub-Regional Model (CSRM2) tool. The CSRM2 was not available for use as it is being used currently to form the transport evidence base for the Local Plan.

5.3.3 The assessment process uses projected employment and residential population to quantify changes in travel demand associated with the land-use budget scenarios. The internalisation of movement within the site can be forecast based upon the mix of land uses that will be provided within the development. As the tool is based upon National Travel Survey (NTS) data, it therefore captures journey purpose, based upon the mix of uses that will be provided in the development.

5.3.4 The main benefit of the tool for this specific application is that the overall level of internalisation is an output of the tool, rather than an input or assumption. The internalisation is effectively the result of multiple gravity models for each journey purpose, giving outputs of how far people are likely to travel for each trip purpose and how much the willingness to travel 'decays' with distance.

Step 2: Optioneering

5.3.5 With the key transport corridors of demand identified from Step 1, a long list of transport interventions was developed. This long list considered interventions within the following categories:

- **Site-wide Transport Measures and Initiatives** – i.e. developer led schemes for on-site management and travel incentivisation such as travel plans, servicing and delivery plans, parking management, behavioural change programmes, Maas etc.
- **Area-wide / City Wide Initiatives or Policies** – e.g. Area-wide travel planning, on-street parking bays / TROs.
- **Strategic Active Travel Links** – i.e. active travel options that provide strategic connectivity between the site and other parts of the Cambridge active mode network.
- **Local Active Travel Links** – i.e. active travel options that provide more focused localised improvements or connections to areas close to the site.
- **Strategic Public Transport Interventions** – i.e. options to improve strategic connectivity at the site by public transport, this included options from bus priority measures and high quality surface public transport, through to mass rapid transit systems.
- **Strategic and Local Highway Interventions** – i.e. identifying locations on the highway network where residual impacts may be felt from car trips associated with the proposals but also identifying junctions where improvements to pedestrian, cycle or public transport priority would be beneficial.

5.3.6 The deliverability and necessity of these options was considered at stage 3.

Stage 3: Sift

5.3.7 This stage of the process involved a high-level review of each of the options in the long-list in terms of their deliverability. Relevant categories within the DfT's Early Assessment and Sifting Tool (EAST) were selected and each option in the long list was considered in turn to identify and sift out any options that were considered undeliverable by virtue of:

- Potential for significant adverse impacts on:
  - air quality management areas;
  - the historic environment and built heritage (listed buildings, scheduled monuments, conservation areas)

- landscape (e.g. areas of outstanding natural beauty, greenbelt)
- Biodiversity (e.g. SSSIs, local nature reserves, special protection areas, national nature areas etc)
- Floodplain.

- Potential for significant physical constraints to delivery e.g. above ground major utility infrastructure.

5.3.8 Sections 8 to 11 set out the options that progressed through this initial high level sift. The assessment undertaken for this report is proportionate to the stage of the Local Plan process.

5.3.9 With the completion of this sift combined with details of the demands along the corridors, high level transport strategies were tested and formulated for each scenario.

Step 4: Forecast (2)

5.3.10 The new walking, cycling and public transport improvements identified for each land-use budget were coded into a parallel software called OmniTrans. This software allows all existing walking, cycling, public transport and highway networks to linked to the zoning system of the spreadsheet tool.

5.3.11 The OmniTrans software allows journey times and penalties to be calculated for each mode of transport between each origin and destination zone in the spreadsheet tool. In the case of public transport, the software calculates access times, egress times and waiting times based on the distance to the public transport stop and the timetable information for that mode of public transport. Costs can also be added to car travel, such as parking fees to disincentivise trips by car.

5.3.12 These costs feed back into calculations that determine what mode trips are likely to use between a particular origin and destination based on the transport strategy coded into the tool. The output from this stage is a set of forecast demands by mode.

5.3.13 Most importantly for this site in Cambridge, it is essential that future multi-modal schemes are taken into account and how they may influence mode share between origin destination pairs across the tool.

5.3.14 There are a number of transport schemes and projects ongoing within Greater Cambridge, some of which are more developed than others in terms of proposals at the time of writing. Future schemes were therefore coded in where there was information on the principles of the scheme and which were judged to have potential to have a significant impact on trip making around East Cambridge in the forecast year.

5.3.15 The forecast year for the tool is assumed to be 2051, so that the forecast year horizons do not pre-judge any decisions on the Local Plan but also because of the scale of the Cambridge East site, the build out could be anticipated to extend on to 2055 – 2060 depending on the scale of the proposal and the mix of uses.

5.3.16 The major transport schemes assumed to be in place within the transport network tool are:

- Greater Cambridge Partnership major corridor schemes – Waterbeach to Cambridge, Cambourne to Cambridge, Cambridge South East Transport Study.
- Greater Cambridge Partnership Greenways projects – particularly the Swaffham, Bottisham, Fulbourn, Horningsea and Waterbeach Greenways.

- The Chisholm Trail – completing the strategic north-south cycle route connecting the north of the city with the biomedical campus and Addenbrookes.

- East West Rail – central section – the preferred route for this section of east west rail (i.e. Bedford to Cambridge) was announced earlier in 2020. It understood that a feasibility study is now being undertaken for the section of east-west rail to the east of Cambridge, towards Ipswich and Norwich. However, only the section between Bedford and Cambridge is accounted for within the tool.

- Local improvements to cycle accessibility as part of the Land North of Cherry Hinton planning application, particularly along Coldhams Lane to Barnwell Road and the completion of improvements along Gazelle Way between the Airport and Tesco.

5.3.17 Consistent with the local plan evidence base to date, the Cambridgeshire Autonomous Metro is not included within the future baseline scenarios.

Step 5: Compare

5.3.18 This is the final step of the process where the forecast car driver mode share is compared against estimates of the VTB for Cambridge East. At this stage, without the use of a tool such as the CSRM2, the calculation of a vehicular trip budget is complex and defining a range was required. Assuming the spatial option for Cambridge East performs well enough to be taken to the next stage of analysis, work will be required to define a VTB in the context of transport commitments and the latest situation at that time.

5.3.19 The VTB takes account of the extant trip generation associated with the site, but also any residual capacity on the networks outside the peak hours and any "headroom" created by the transport strategies it implements.

5.3.20 The results of this stage of testing are set out in Section 13 of this report and are the outcomes of an iterative process.

Summary

5.3.21 A summary of the assessment approach is shown in Figure 5.2.

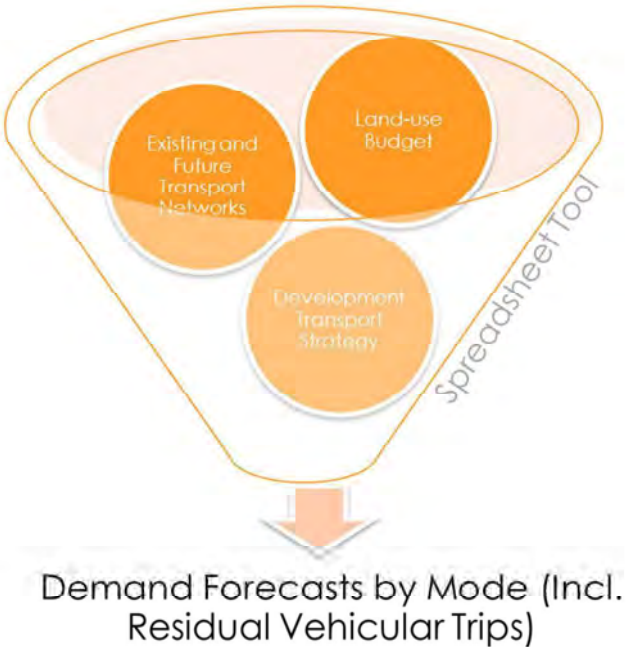


Figure 5.2 | Summary of Assessment Approach

5.3.22 In advance of gaining access to testing within the CSRM, the advantages of using this forecasting tool over other forecasting approaches are as follows:

- The trip generation, distribution and mode share is calculated per trip purpose, allowing greater detail in forecasting movement based on attractors.
- The National Travel Survey dataset is extremely flexible and allows you to extract data for custom time periods, obtain trip distance data and define trip purpose categories and distance bands.
- The spreadsheet tool uses a bespoke zoning system covering the development areas and external areas. Trips are generated based on the residential content of all zones, including external zones, with development workplaces. The tool is sensitive to the re-allocation of workplace trip ends (i.e. re-distribution) through the introduction of new workplaces in development zones or surrounding zones in the tool.
- The process is sensitive to the development housing mix and the proximity and connectivity of the development(s) to external residential areas and trip attractors.
- Future transport provision may be input into OmniTrans and the effect of this on travel behaviour may be assessed at a high level.

5.4 Demand Analysis

5.4.1 This section sets out the main findings of the demand analysis work which compares the performance of the four scenarios above.

Trip Generation

5.4.2 Table 5.2 provides a summary of the overall trip generation from the three Scenarios produced by the spreadsheet tool for the AM Peak Period (0700 – 1000) including both internal and external trips rounded. The raw outputs from the tool are contained in Appendix

A. Whilst Scenarios C and D have different densities, the overall land-use mix produces similar trip generations overall so Scenario D is not reported separately for the remainder of the report.

Table 5.2 | Person Trip Generation (Total – i.e. internal and external) – AM Peak Period (0700 – 1000)

Land-Use Mix	AM Peak Period (0700 – 1000)		
	In	Out	Total
Scenario A (9,500 homes, 4000 jobs)	9,900	11,900	21,800
Scenario B (9,500 homes, 28,000 jobs)	21,100	11,100	32,200
Scenario C / D (12,000 homes, 38,000 jobs)	28,600	14,200	42,800

5.4.3 This shows:

- the higher housing than jobs in Scenario A, compared with Scenario B results in higher outgoing trips in the AM peak period.
- Scenarios B and C/D with higher jobs than houses result in higher incoming trips in the AM peak period.
- The overall volume of outgoing trips are relatively comparable between scenarios, indicating the greater containment of work trips within the site from the greater level of employment in Scenarios B and C/D.

5.4.4 The balance of incoming vs outgoing trips was considered when developing the transport measures set out in Sections 8 to 11.

Self-Containment and Sustainable Scale Growth

5.4.5 Further interrogation of the trip generation figures in Table 5.2 was undertaken to understand the proportion of total trips that remain internal to Cambridge East with the different scales of growth at Cambridge East.

5.4.6 This showed:

- Whilst Scenario B has the same homes as Scenario A and seven times as many jobs, the relationship to external trip generation is far from linear. Scenario B has only twice the external trips of Scenario A but accommodates substantially higher housing and job growth.
- Scenario C/D has 1/3 more homes than Scenario A and over eight and a half times as many jobs, but again only has external trip volumes that are two and a half times greater than Scenario A.
- A greater proportion of trips generated by housing is internalised within Cambridge East in the scenarios where there is higher job growth (Scenarios B and C/D). For example, Scenario B has 15% higher home-based internalisation in the AM peak period than Scenario A. Scenario C/D has 25% home-based internalisation than Scenario A. This

suggests the range of opportunities within a larger site allows more journey purposes to be satisfied within the redline boundary.

- Whilst greater incoming trips are apparent in Scenarios B and C/D, the increase in employment is a requirement of the new Local Plan and it is important to ensure that it takes place at sustainable locations (such as Cambridge East).

5.4.7 This indicates that there are efficiencies in delivering jobs at scale alongside housing at Cambridge East. However, there is a balance to be struck in the provision of homes and jobs, as once the opportunities to internalise are maximised, additional growth simply adds to the external trip totals although that additional external trip making is still easier to then mitigate given the concentration of destination. It is also important, of course, that this level of growth is necessary and that optimising growth at this will inevitably produce greater efficiency than dispersing it to remote locations.

5.4.8 Higher levels of growth in the right location therefore, do not necessarily result in less sustainable outcomes if the balance between homes and jobs provision is optimised and suitable transport strategies to address external trip making are implemented.

5.4.9 Furthermore, in this context where there is an effective mix and a complementary transport strategy, there are complementary measures that can be implemented at employment areas that are often much more effective at providing a degree of influence and control over modal choice than when implemented at the home end of the trip. For example, limiting the number of car park spaces at workplaces and implementing car parking permit systems is a 'watertight' mechanism for controlling car trips. Additional positive measures are incorporated within the on-site strategy for residential elements of the site which are set out in Section 6.

5.4.10 The next section considers the origins and destinations of the external trips across the Scenarios, introducing important considerations for the transport strategy.

5.5 Origins and Destinations

5.5.1 The origins and destinations of the external trips for each scenario have been analysed using heat maps produced in GIS software. Outgoing and incoming trips are reported separately so that comparisons can be made between scenarios.

Outgoing Trips

5.5.2 Figures 5.3, 5.4 and 5.5 show the spatial distribution of outgoing trips from the Cambridge East site in the AM peak period (0700-1000) for Scenarios A, B and C/D respectively. As Scenarios C and D are of similar scale, the person trip distributions were similar and therefore the distribution for C is reported. The purple line on the map shows the location of Cambridge as a whole. It should be noted that Cambridge has a much smaller grain of zoning system and whilst trip differentials between Cambridge and further afield look less pronounced, cumulatively there are significant differences.

5.5.3 This shows:

- The distribution of outgoing trips in the AM peak period is relatively spatially consistent across all the scenarios.
- The focus of these outgoing trips is within the built-up area of Cambridge.
- Beyond Cambridge the main destinations are Huntingdon and St Ives to the north-west, Saffron Walden to the south and Newmarket, Bury St Edmunds and Mildenhall to the east. The critical mass of person trips is greater in Scenario C/D than Scenario A, lending itself better to providing alternatives to the car for these journeys.

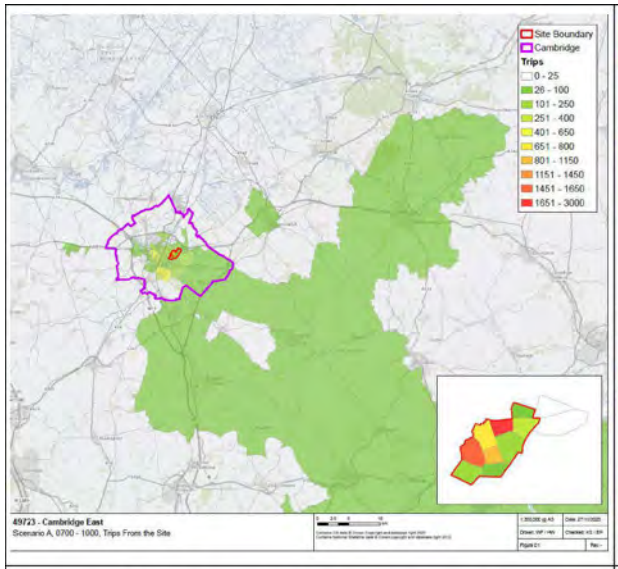


Figure 5.3 | Heat Map - Scenario A (0700 – 1000) – Person trips leaving Cambridge East (Source: Stantec)

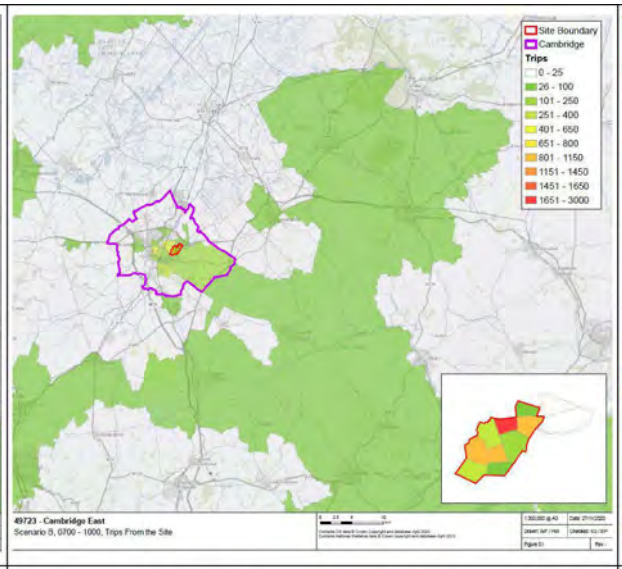


Figure 5.4 | Heat Map - Scenario B (0700 – 1000) – Person trips leaving Cambridge East (Source: Stantec)

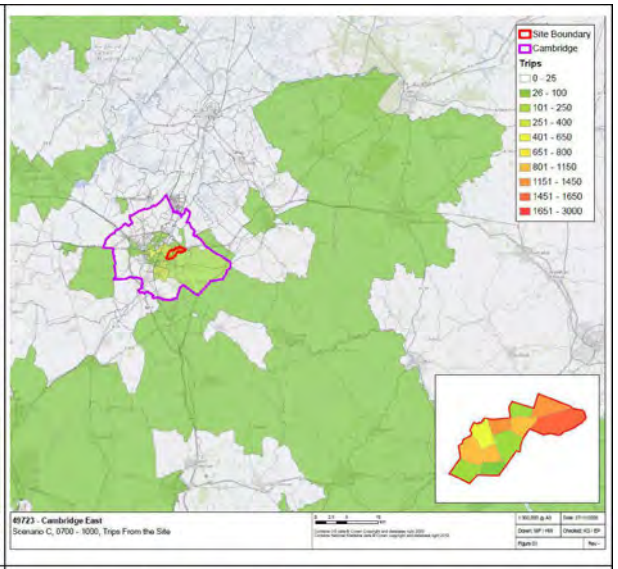


Figure 5.5 | Heat Map - Scenario C (0700 – 1000) – Person trips leaving Cambridge East (Source: Stantec)

Incoming Trips

5.5.4 Figures 5.6, 5.7 and 5.8 show the spatial distribution of outgoing trips from the Cambridge East site in the AM peak period (0700-1000) for Scenarios A, B and C/D respectively.

5.5.5 This shows:

- There is no single dominant origin or area (e.g. east, west, south or north) which attracts the majority of incoming trips to Cambridge East in all of the scenarios. The trip origins are dispersed in all directions.
- The volume of incoming trips increases significantly between Scenario A and Scenario B as the job provision on-site increases. Spatial distributions between Scenario B and C/D are similar, albeit the volumes are slightly larger.
- All scenarios indicate that transport strategies to support growth must be network-based, as there is no single dominant corridor or area of attraction outside the City.
- The scale of growth impacts the volumes of trips from surrounding zones and thus the critical mass for developing transport strategies to support them. However, the plots shown do not compare Cambridge East against any alternative distribution of jobs. However, what it does show is that, by concentrating jobs in Cambridge, which is the focus of the transport network, modal choice and opportunity is able to be maximised.

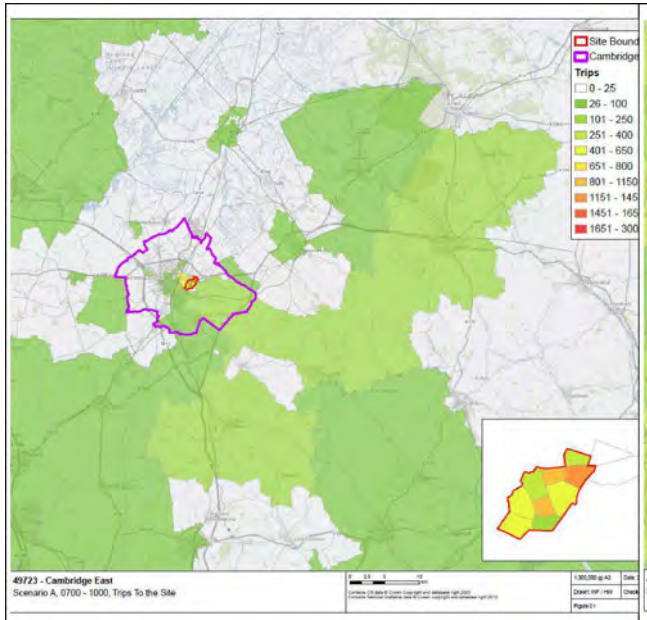


Figure 5.6 | Heat Map - Scenario A (0700 – 1000) – Person trips arriving at Cambridge East (Source: Stantec)

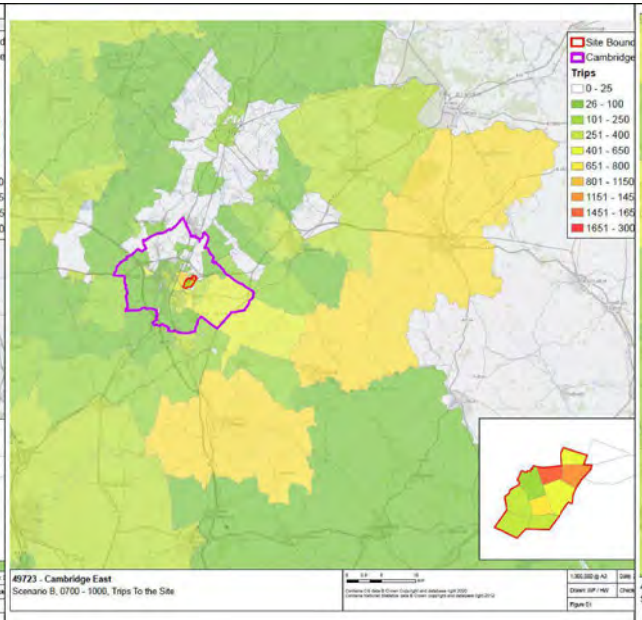


Figure 5.7 | Heat Map - Scenario B (0700 – 1000) – Person trips arriving at Cambridge East (Source: Stantec)

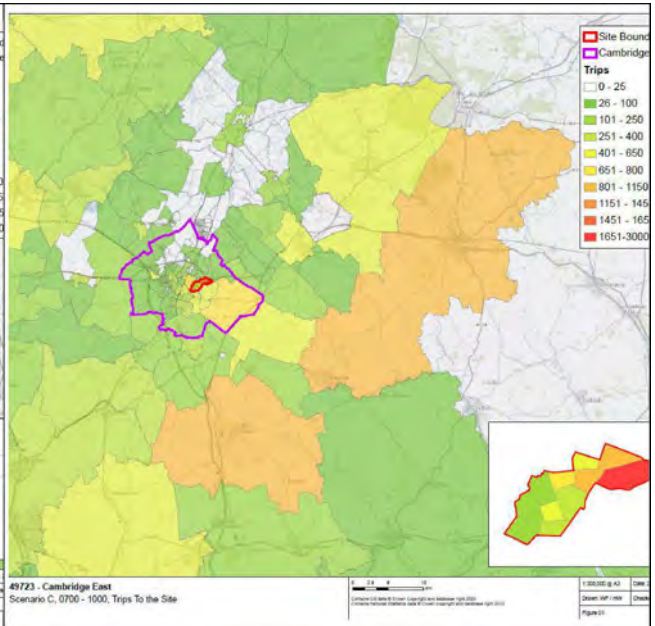


Figure 5.8 | Heat Map - Scenario C (0700 – 1000) – Person trips arriving at Cambridge East (Source: Stantec)

Origin Destination Summary

5.5.6 Figures 5.9 to 5.11 show a summary of the spatial distributions of Scenarios A, B and C/D for the AM peak period (0700 -100). This information is also provided in Appendix B. The diagrams show what proportion of trips were forecast to be using particular corridors of travel. The proportions exclude internal trips within the site itself which are set out later in this section. The origin destination information in this section informed the development of the transport strategies set out in Section 7 and that results in the outcomes reported later in this section.

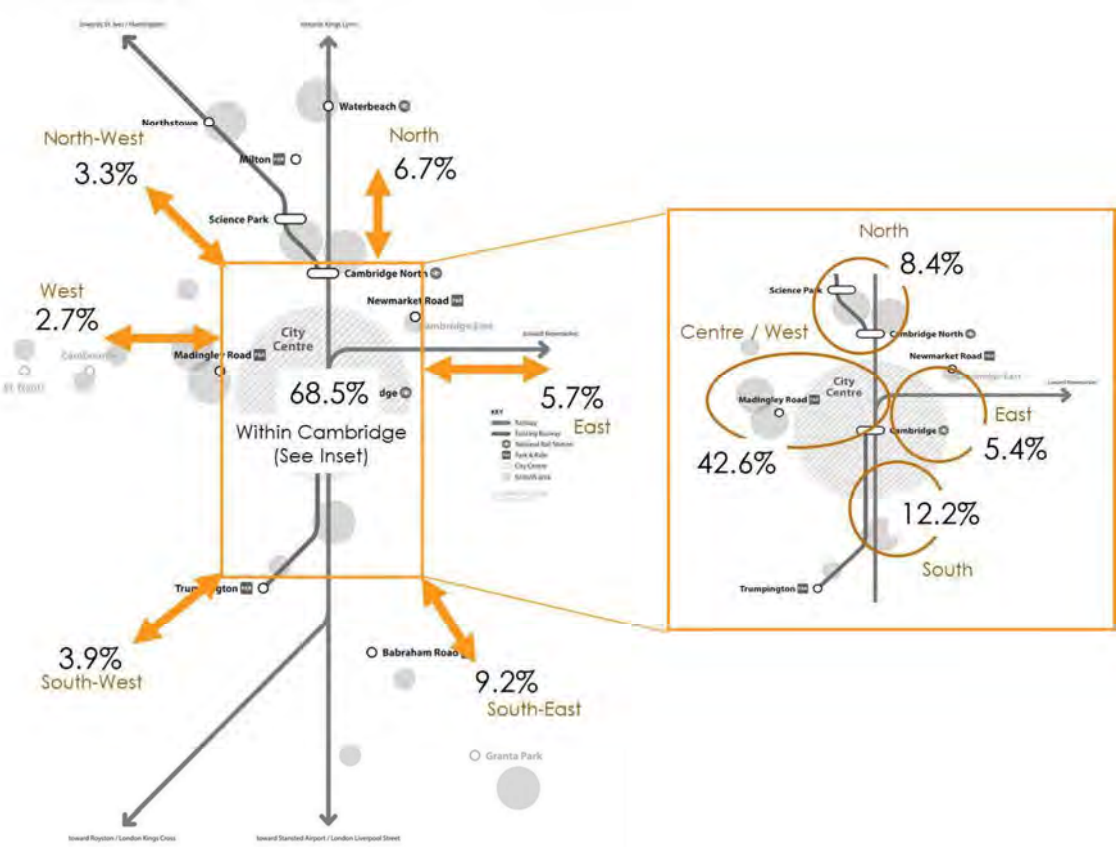


Figure 5.9 | Scenario A – Summary of external Origins and Destinations – AM Peak Period (0700-1000) (Source: Greater Cambridge Partnership and Stantec)

5.5.7 Figure 5.9 indicates that of the external (two-way) trips related to Scenario A in the AM Peak Period:

- circa 66% occur within Cambridge and 33% outside Cambridge.
- Serving multiple locations within the city is an important requirement of a transport strategy for Scenario A. The City Centre and West Cambridge combined comprises around 43% of total external trips and around 10% are around South Cambridge and the Biomedical Campus.
- Circa 18% are travelling between the Cambridge East and Cambridge North Area, as well as the external city corridors that feed this area.
- Furthermore, 11% occur within the east of Cambridge or destinations to the east outside Cambridge itself, e.g. Bury St Edmunds, Newmarket, Mildenhall.

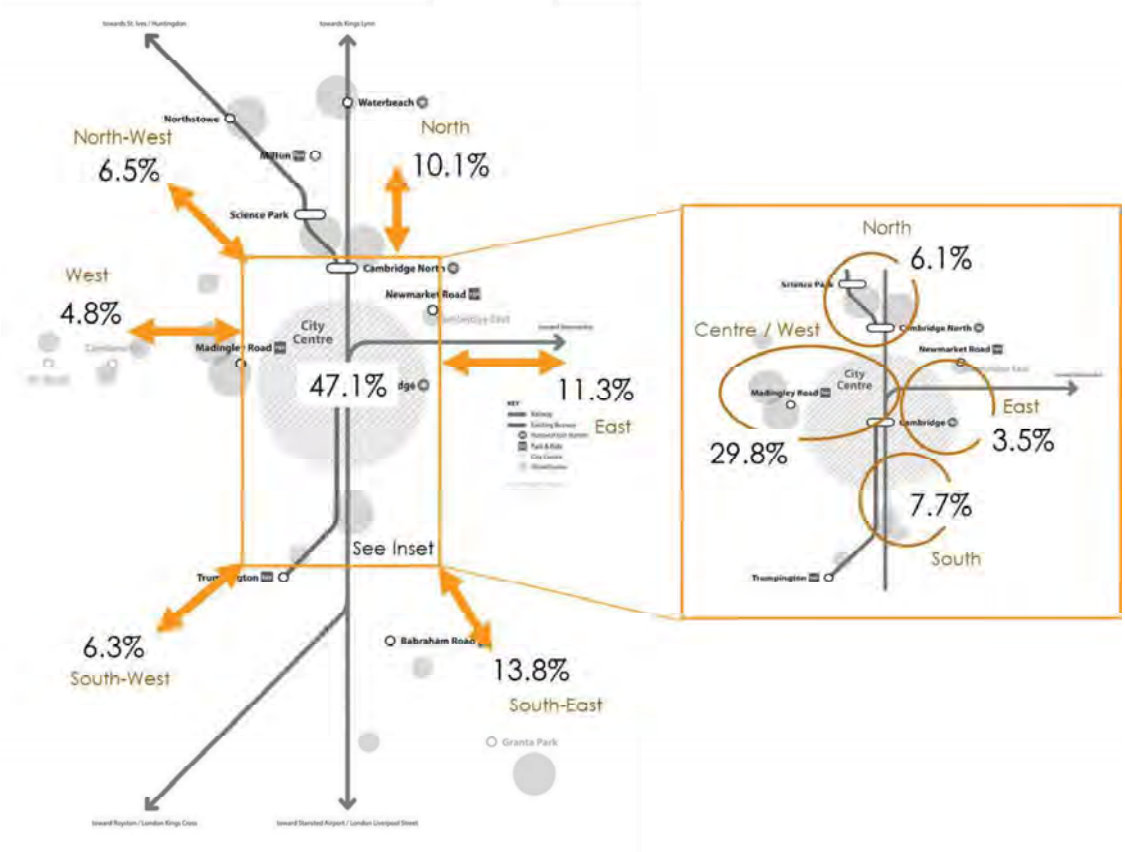


Figure 5.10 | Scenario B – Summary of external Origins and Destinations – AM Peak Period (0700-1000) (Source: Greater Cambridge Partnership and Stantec)

5.5.8 Figure 5.10 indicates:

- that of two-way external trips occurring within the AM Peak Period in Scenario B circa 47% occur within Cambridge and 53% outside Cambridge.
- Circa 23% of trips are forecast to travel between areas north and north-west of Cambridge and the Cambridge East site (6.5% plus 10.1% plus 6.1%).
- Circa 15% are forecast to travel between the east and Cambridge East (11.3% plus 3.5%).
- 7.7% are forecast to travel between Cambridge East and the Biomedical Campus and South Cambridge.
- Circa 35% are forecast to travel between Cambridge East and the City Centre and West (29.8% + 4.8%).
- Circa 20% are forecast to travel between Cambridge East and areas outside the City to the south-west and south-east.

5.5.9 Compared with Scenario A, for more significant growth to occur at Cambridge East (and the city as a whole), cross-city connectivity becomes increasingly important.

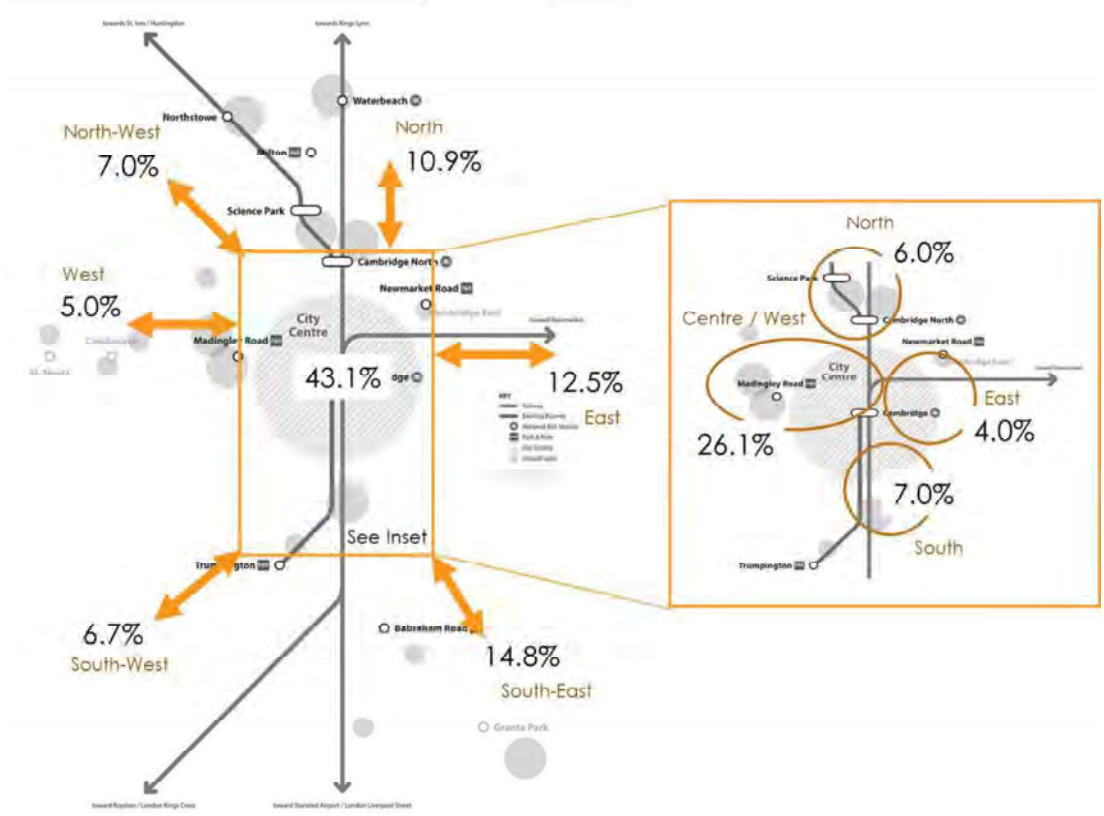


Figure 5.11 | Scenario C/D – Summary of external Origins and Destinations – AM Peak Period (0700-1000) (Source: Greater Cambridge Partnership and Stantec)

5.5.10 Figure 5.11 indicates:

- that of two-way external trips occurring within the AM Peak Period in Scenario C/D circa 43% occur within Cambridge and 57% outside Cambridge.
- There are more trips external to the City in Scenario C/D than Scenario B, but no single geographical area experiences a significant increase over others.

5.5.11 As for Scenario B, providing cross-city connectivity is an important component of when developing the transport strategy.

Origin and Destinations Conclusions

5.5.12 In conclusion, external trip patterns show origins and destinations around the city in all directions in all scenarios. The transport strategies developed for all three must therefore be based on building on existing networks, with the reach of these networks increasing with scale of the growth.

5.5.13 It is clear that external trip making from all scenarios results in a need to provide connectivity across the city. In Scenario A this is primarily to serve locations within the city with around 33% from outside the city, whereas Scenarios B, C and D has a slightly heavier capture of trips from outside Cambridge (53-57%). Key corridors of connectivity required from the Cambridge East site include:

- **Connectivity to the Station and City Centre.** Demand analysis shows the importance of connecting Cambridge Station with Cambridge East across all scenarios. It provides north-south connectivity across the city as well as for longer distance trips. Marshall

consider this connection important, particularly in realising connectivity between the planned commercial cluster at Cambridge East and key markets beyond. As well as the Station, by providing connections to the City Centre this unlocks access to and from the west of the city and the transport schemes that feed it.

- **Connectivity to the North** – i.e. to Cambridge North Station. By providing connectivity between Cambridge East and Cambridge North, this unlocks access to and from St Ives and Huntingdon to the north-west by guided bus, as well as destinations north along the A10 and the Waterbeach to Cambridge improvements. There is also the possibility to unlock accessibility to west Cambridge if connectivity is delivered from the University development sites in the west Cambridge into Cambridge North.

- **Connectivity to the South** – e.g. Addenbrookes and Cambridge Biomedical Campus. The biomedical campus is a major employer for the city, but also will act as a significant transport gateway in the future as Cambridge South Rail Station is delivered, served by East West Rail. Also it acts as the terminus for the Cambridge South East Transport Study Phase 2 (CSETS) proposals which provide connectivity out to Granta Park and the surrounding employment area.

- **Connectivity to the East** – this enables capture and switching of trips from villages and towns to the east.

5.5.14 These corridors are illustrated in orange on Figure 5.12.

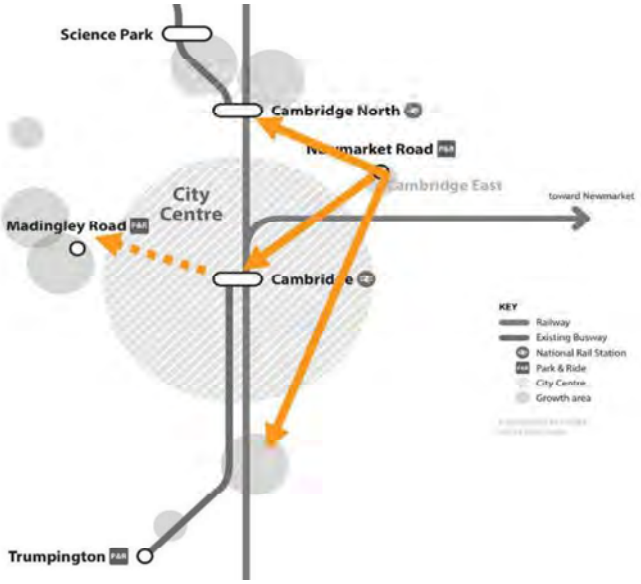


Figure 5.12 | Key Corridors of Connectivity for Cambridge East (Basemap source: Greater Cambridge Partnership)

5.5.15 As acknowledged in the introductory sections of this report, addressing these cross-connectivity constraints is the priority of the Cambridgeshire Autonomous Metro. The CAM scheme proposes to connect the north, east, south and west of the city via a number of tunnels, with spokes leaving the city and outside Cambridge to capture trips and switch them to sustainable modes before entering the city. The CAM represents the most comprehensive and highest capacity way to deliver this connectivity within Cambridge and beyond. The Strategic Outline Business Case for the CAM indicates the scale of opportunity created by CAM, with early high level testing indicating that around 44% of future ridership of the CAM would previously have been travelling by car. Work continues to build the Programme Business Case for the CAM although the timing for publication of this is currently unclear.

5.5.16 Importantly, the CAM does not currently form part of the core transport infrastructure schemes assumed in place within the future baseline in the Local Plan transport evidence base undertaken by Cambridgeshire County Council, so comparative spatial strategy testing has been undertaken in a no-CAM future.

5.5.17 Whilst there is little doubt that the CAM has potential to deliver significant benefit by addressing the transport needs of growth in Cambridge (including significant growth at Cambridge East), individual growth sites such as Cambridge East should always avoid a reliance on a single transport infrastructure solution. For the purposes of building a case for development at Cambridge East, the planning case for the achievability and deliverability of growth at Cambridge East is strengthened if assessment and evidence base considers alternative ways to deliver aspects of the cross-city connectivity required to allow growth to come forward at Cambridge East specifically.

5.5.18 Sections 8 to 11 set out potential component parts of the transport strategy for Cambridge East, focussing on different ways of achieving these key connections. Section 12 sets out the packaging of these measures and Section 13 of the report sets out the outcomes from the high-level testing of the transport strategies. This has been undertaken using the tool reported earlier in this section and draws conclusions on the opportunities available from greater growth ambitions at the site.

5.6 Development Scenarios Summary

5.6.1 Four development scenarios have been generated for the Cambridge East Site using their expertise in planning of large-scale sites and in consultation with the wider project team and Marshall. These range from 9,500 homes and 4,000 jobs in the lowest scenario (A) up to 12,000 homes and 38,000 jobs in the highest scenario (C/D).

5.6.2 The results of high-level trip generation analysis indicate:

- the higher housing than jobs in Scenario A results in higher outgoing trips in the AM peak period.
- Scenarios B and C/D with higher jobs than houses result in higher incoming trips in the AM peak period.

5.6.3 Additionally, a greater proportion of trips generated by housing is internalised within Cambridge East in the scenarios where there is higher job growth (Scenarios B and C/D). This suggests the range of opportunities within a larger site allows more journey purposes to be satisfied within the redline boundary.

5.6.4 However, the greater job numbers in Scenarios B and C/D results in higher incoming trips to the site in the AM which off-set the higher internalisation levels achieved from the housing.

5.6.5 Scenario C/D achieves higher internalisation of trips overall than Scenario B showing that higher levels of growth in the right location therefore, do not necessarily result in less sustainable outcomes if the balance between homes and jobs provision is optimised and suitable transport strategies to address external trip making are implemented.

5.6.6 In terms of the origins and destinations of these external trips, this shows origins and destinations around the city in all directions in all scenarios. The transport measures and strategies developed for all three must therefore be based on building on existing networks, with the reach of these networks increasing with scale of the growth. Enhanced connectivity must therefore be provided to the station and city centre, supported by routes to the north, east and south to unlock these network benefits.

5.6.7 The CAM represents the most comprehensive and highest capacity way to deliver this connectivity within Cambridge and beyond and is strongly supported by Marshall. For the purposes of building a case for development at Cambridge East, the planning case for the achievability and deliverability of growth at Cambridge East is strengthened if assessment and evidence base considers alternative ways to deliver aspects of the cross-city connectivity required to allow growth to come forward at Cambridge East specifically. This is considered in Sections 8 to 11 of this report.

6 On Site Mobility Strategy

6.1 Introduction

6.1.1 Section 3 of this report indicated that Cambridge East could be a stimulus for change. This focused primarily on how the sites location could deliver more sustainable travel patterns for necessary Local Plan growth due to its integration within Cambridge and how the scale of the proposals could help to facilitate the CAM or alternative mass rapid transit connections.

6.1.2 However, we consider that there are other less tangible changes that Cambridge East will bring about that relate in a broader sense to travel behaviours and choices and that these will stem from the type of environment created on the site and that these will positively affect wider parts of the community but in particular the eastern part of the City.

6.1.3 It should be stressed that the proposals are not yet fixed. A masterplan has not yet been prepared but the principles set out in this Section of the report will be embraced subject to continued discussion with stakeholders as part of the on-going planning and design process.

6.2 Structuring Principles

6.2.1 The location of Cambridge East so close to the city centre and its existing transport networks means that creating sustainable, low-carbon travel behaviours here has the highest probability of success compared to other, more dispersed sites further from the City Centre. The emerging evidence base for the Local Plan identifies emissions from transport as the largest influence on how well each spatial strategy is able to realise carbon and climate change objectives. The location allows an ambitious approach to design, embedding a healthy relationship between people and their transport choices, where the private car does not dominate. These design principles include:

- 20 Minute Neighbourhood Blocks[6]
- Public Transport at its Heart
- Low Car Parking Ratios
- Shared Transport/ Mobility Hubs
- Active Travel & Micro-mobility
- Last mile, Low Impact deliveries
- Virtual Mobility

6.2.2 To deliver people focussed streets that are both safe and accommodating requires an approach to cars that is typically different from the norm. How we propose to manage car access becomes the tool to facilitate the vision and to ensure that the reduced car dependency that we need to achieve is achieved. This stems in part from the fact that the spatial location of the site allows us to move to this type of model i.e. proximity to services and existing transport networks and that Marshall as a long term custodian of the site can provide this stewardship and control.

[6] https://www.tcpa.org.uk/the-20-minute-neighbourhood

20 Minute Neighbourhood Blocks

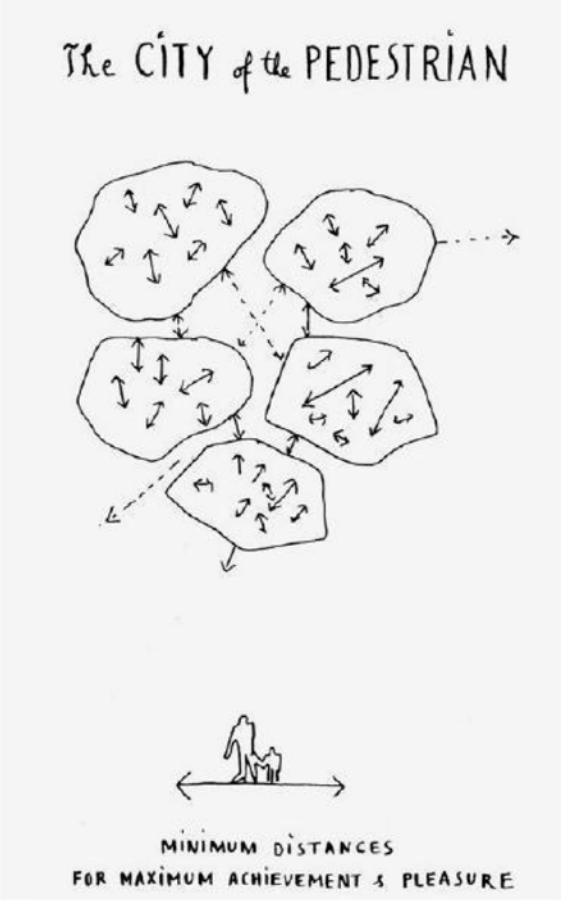
6.2.3 Daily activities will be convenient, with the site structured as a series of 20-minute neighbourhoods and where streets will be low trafficked and people friendly. This is based around the 15 minute cities principle which focuses on the four pillars of proximity, diversity, density and ubiquity in urban design, transforming urban spaces into connected and self-sufficient neighbourhoods. Encouraging active travel and reducing car use is central to this vision.

Source: Figure 1 – Plan Melbourn (2017-2050) https://www.planmelbourne.vic.gov.au/__data/assets/pdf_file/0003/509736/Brochure-January-20-min-neighbourhood-2019.pdf

6.2.4 The overall site is to be structured around a series of neighbourhoods which are bounded by existing features (roads, land ownerships and existing communities) or development proposals such as green corridors or mass rapid transit routes. These boundaries serve to create development neighbourhoods which will have all necessary day to day services and facilities within each meaning that residents can meet many of their daily needs on foot, bike or using micro-mobility.

6.2.5 These neighbourhoods will also be low traffic neighbourhoods where cars will be parked on the periphery of each block and will not be permitted to drive through a block into another block without leaving the site entirely. These simple design choices will result in several benefits:

- Streets away from the periphery road will be lightly trafficked or car free. Whilst managed car access will be provided for, routes between the blocks will be not be provided for, meaning that limited short-term access will be the only need for cars to occupy these streets.
- By designing in a further opportunity cost to car owners to access their car, decisions to use a car become more marginal against other modes and this reduces car-based transport accordingly.
- Cars parked or stored in single location rather than in the demise of buildings or on streets throughout the development means a more efficient and economic use of land and allows for further futureproofing should the ownership



Source: Walkability & Mixed Use, Making Valuable & Health Communities (2020)

model become further disrupted through autonomy and cars no longer needing to be stored on site at all i.e. it is easier to redevelop a series or plots previously used for car parking than to retro fit basement car parks, garages or the entire streetscape of a community.

6.2.6 These neighbourhood blocks are a guiding principle to mobility within the site as they facilitate many of the other aims and objectives that follow.

Public Transport at its Heart

6.2.7 Working alongside the GCP and the CPCA, Cambridge East is being promoted with a segregated public transport corridor running through the site. This route would be safeguarded within all land use scenarios and will be complementary to the CPCA CAM proposals and the GCP Eastern Access Study.

6.2.8 Whilst work is still ongoing, all scenarios assume a route from a newly provided Transport Hub close to the Quy Interchange to the southern end of the site close to Coldhams Lane. The components of the route are as follows:

- **Travel Hub:** The existing Newmarket Road Park and Ride would close, and the vacant site forms part of the land now being promoted. A new Travel Hub including a minimum of 2,000 spaces for Park & Ride would be provided close to the Quy Interchange. This location is safeguarded within all development scenarios and has been chosen so that cars are intercepted as close to the Strategic Road Network as possible.

  The multi-modal nature of this hub will allow transfer between the public transport system and walk/cycle, private vehicles, taxis, demand responsive transit services (DRT) and scheduled bus and coach services.

  Whilst the Travel Hub would provide a role in intercepting and switching trips to sustainable modes on entry to the city, it is considered that the most optimal use of the land would be that the site also integrates with other complementary land uses around it to provide broader benefits to users. Such land uses could be food and beverage, parcel pick up/ click and collect, childcare, white good pick-ups, workstations. These integrated uses are best achieved through Scenario C/D which includes development around the Travel Hub.

- **Segregated Public Transport Corridor**: The Travel Hub would be integrated into the segregated public transport corridor for onward travel to other destinations in the City and Greater Cambridge region. The safeguarded route is currently aligned to the south of the existing runway thereby allowing delivery of the route prior to the cessation of airport operations. All development scenarios include a Travel Hub and a segregated public transport corridor running through the site. Land is also safeguarded for a potential tunnel portal within the site. With the GCP's Cambridge Eastern Access Study exploring surface public transport connectivity to the city (see Section 8 for details), this safeguarding means that if a tunnelled solution comes forward, construction can occur without detriment to the surface options. This segregated public transport corridor is illustrated below and is consistent across all four development scenarios.

Source: Allies and Morrison Scenario B, Stantec (2020)

Through discussions with the GCP it is proposed that the corridor would be 21.3 metres width which would be made up of a minimum of 2 metre footways on both sides, 3 metre bi-directional cycle path on both sides, a landscape buffer of 2 metres on both sides and a 7.3 metre wide transport route. It would cross the strategic green corridor on a bridge structure which avoids severing pedestrian and cyclist movements. The number of crossing points within the site will be determined where a balance between pedestrian and cyclist permeability and the speed of the system will need to be achieved.

It is currently proposed that there would be three halts within the site (including at the Newmarket Road Travel Hub) which would provide broad spacing of around 1000 metres between stops.

6.2.9 At this stage, the ultimate public transport solution and wider network is yet to be determined but the safeguarding ensures compatibility with a range of proposals and technologies. Steer has undertaken a deliverability assessment with regard to mass rapid transit specifically the headlines of which are discussed in Section 8.

6.2.10 In addition to the primary and segregated public transport route it is proposed that a series of local bus services can pass through the site and between neighbourhood blocks. These would provide interchange with the segregated mass rapid transit network with onward connectivity to other key destinations within Cambridge. These services would be restricted to more primary routes within the scheme and prioritised in a number of key locations through bus gates which would preclude general traffic from using the same route.

6.2.11 Demand Responsive Transport (DRT) is likely to increase significantly from its current base. These smaller vehicles types will be facilitated in more central areas of the Neighbourhood blocks and as part of the mobility hub offering (explained more fully below).

Car Parking Provision & Car Clubs

6.2.12 The sites fundamentals allow a low car ownership model to be embraced. Residents (origin end of a trip) within the site will have access to jobs and services in close proximity (either within the site or within Cambridge) meaning car ownership and dependency is reduced and the employment land uses (destination end of a trip) can be controlled through low car parking

and controlled parking zones meaning that access to these jobs has to be via active modes and public transport afforded through the critical mass that Cambridge East provides.

6.2.13 It is therefore proposed that the following provision is made and it is assumed that all spaces would be EV given the Government's ambition for no new petrol or diesel cars to be sold by 2030:

Land Use	Proposed/ Likely Provision
Residential	0.33 spaces per unit and reducing over time
Office	1 space per 300m2
Retail & F& B	Food retail (>1,400m2) 1 space per 70m2 and on plot Food retail (<1,400m2), non-food retail F&B to be catered for as part of the wider block public parking stock – 1 space per 150m2

6.2.14 Parking will be accommodated in hubs on the fringes of the neighbourhood areas only, where as part of the UK's transition to non-petrol and diesel vehicles, only non-fossil fuelled vehicles will be allowed to park there. Similarly, only non-fossil fuelled vehicles will be permitted within the developed areas themselves and even then only for drop off and pick up, and other necessary and permitted activities.

6.2.15 To supplement the restricted car parking proposed, a significant EV car club scheme is necessary and deliverable because of the higher levels of alternative accessibility unique to this location. These vehicles would again be located towards the edge of each neighbourhood. Membership based access to cars, as part of wider membership access (Mobility as a Service – 'MaaS') is the future and we see the establishment of car club at scale to be viable and pragmatic as part the Cambridge East proposals.

6.2.16 Visitor parking will be provided but at levels significantly lower than standards permit and would again be close to the periphery roads so as to not blight the central streets within each block.

6.2.17 Visitor parking will be provided but at levels significantly lower than standards permit and would again be close to the periphery roads so as to not blight the central streets within each block.

6.2.18 It is acknowledged that the approach to car parking will need to be flexible over time. As car dependency reduces, the level of overall provision within the site can be balanced allowing opportunities to be opened up for using land set aside for car parking to be used more productively in the longer term e.g. amenity space.

Shared Transport/ Mobility Hubs

6.2.19 Given that the masterplan would seek to relegate cars to the edge of each neighbourhood, alternative access solutions are needed. Whilst much of this is achieved organically through removing the domination of cars from central areas i.e. walking and cycling becomes easier and safer, other mobility choices need to be planned and provided for to facilitate connectivity between blocks and for longer distance trips.

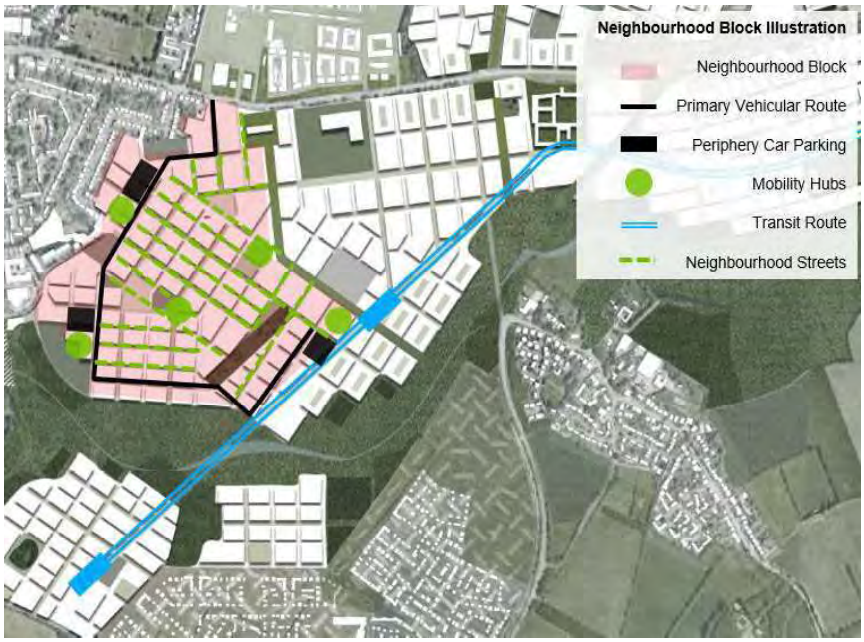
6.2.20 The concept of mobility hubs has evolved from thinking and delivery in Europe and parts of North America. They are increasingly featuring in mobility plans for new developments and towns and cities in the UK.

6.2.21 COMO UK is a market leader on shared mobility solutions and have prepared a number of guidance documents on Mobility Hubs. COMO UK has prepared the following definition:

A mobility hub is a recognisable place with an offer of different and connected transport modes supplemented with enhanced facilities and information features to both attract and benefit the traveller.

6.2.22 Within Cambridge East, mobility hubs will be located in strategic locations with a different scale of services provided subject to its role. Hubs will be located close to periphery car parks so that onward travel can be made to and from these and also adjacent to public transport halts. These hubs perform a role in supporting high frequency public transport within the central streets of the neighbourhood blocks. The hubs will be spread over an area, and provide an unambiguous recognisable network of defined areas providing services to connect people through sustainable travel and improve the public realm.

6.2.23 Each hub will be designed and organised in a way so as to facilitate access to and transport between modes, including human-powered and shared modes, as well as provide extra transport-related and digital services. The scale of these hubs would reflect their individual role and surrounding context within the site. The mobility hubs would also be home to a Community Concierge team



whose role it would be to actively manage mobility and encourage sustainable modes of transport amongst the community. Mobility hubs could also offer complementary service such as parcel pick up, drop off and locker facilities.

6.2.24 The principle of not providing vehicular permeability between parcels is illustrated opposite, with each block being separate from each other. Vehicular access is from perimeter road and mobility hubs are co-located at these accesses to remove traffic from the heart of the neighbourhood. Full permeability across the site is provided through cycle links and via the segregated public transport corridor.

Active Travel and Micro-mobility

6.2.25 Active travel modes are to be prioritised above all other modes. Whilst a hierarchy of users is often referred to by transport practitioners, the application of this philosophy is often contradictory to the ambition. In Cambridge East this will not be the case.

6.2.26 Micro-mobility is an emerging sub-set of personal transport. Whilst legislation is playing 'catch up' the organic growth in micro-mobility has become exponential in urban areas as people deal with 'last mile' connectivity challenges. In general terms micro-mobility refers to a range of small, lightweight vehicles operating at speeds typically below 25 km/h and driven by users personally. Micro-mobility vehicles include bicycles, Ebikes, electric scooters, electric skateboards, shared bicycles, and electric pedal assisted bicycles.

6.2.27 In addition to the choices that legislators are looking to make, infrastructure designers are also wrestling with how to accommodate micro-mobility safely and appropriately. Whilst Cambridge East is essentially a blank canvas able to evolve as legislation does, at this stage we consider the potential for micro-mobility to provide genuine mobility choices for a city such as Cambridge to be huge and one which should be embraced. At this stage therefore, we propose that no specific segregated infrastructure is provided in the heart of the neighbourhood blocks where vehicular traffic speeds are below 20mph and car use is light. Away from the neighbourhoods, we propose that micro-mobility would share the segregated infrastructure typically planned for cyclists.

6.2.28 The approach to the car is key. By removing the blight of high impact high carbon transport from the neighbourhood blocks, the streets and spaces become safe movement corridors for low speed, low impact, low carbon modes of transport such as walking and cycling and the aforementioned modes of micro-mobility.

6.2.29 It is envisaged that streets away from the periphery roads will be designed so that speeds are less than 20mph. This will enable cyclists to mix with slow moving and light traffic on some streets. However, through a combination of filtered permeability and restricted turning movements, a network of entirely car free streets and places will be created which will aim to allow pedestrians and cyclists to travel from the centre of a neighbourhood block to another without having to cross a vehicular trafficked street. This is an ambition which can only be achieved through the careful masterplanning of the site where car access is provided within the context of a holistic plan for sustainable movement.

6.2.30 The Green Corridor that runs through the heart of the scheme is, from a transport perspective, the single most significant asset of the site. It provides an opportunity to link the countryside east of Cambridge with Cambridge City Centre, Cambridge North, Cambridge South and St Ives with barely a road to cross due to the linking into the Cambridge's network of Commons, the Chisolm Trail and National Cycle Route 51. This connection truly reflects Cambridge's reputation as a European Cycle City.

6.2.31 Currently the airport acts as a barrier for through movement in the east of Cambridge as illustrated in Figure 6.1 as journeys are forced to travel around the edges of the airport site to reach their destination.

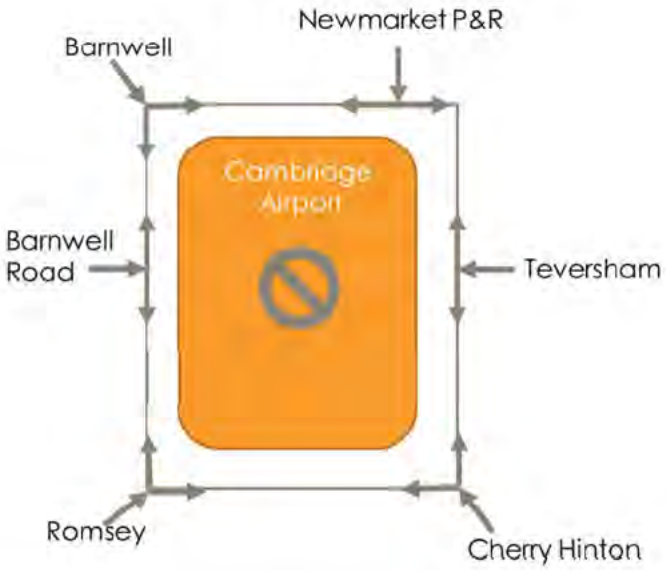


Figure 6.1 | Cambridge Airport as a barrier to sustainable movement.

6.2.32 Whilst a Green Corridor is achievable with all development scenarios, only Scenario C fully integrates the asset into an increased development footprint to the Quy Interchange.

6.2.33 At this stage it is proposed that the walking and cycling (and micro mobility) infrastructure through this space is segregated so that pedestrians are afforded a two metre network of paths and cyclists a 3.5m bidirectional path alongside. The width of these facilities will be confirmed and informed by more detailed demand modelling. A direct, shortest distance path follows the Watercourse through the corridor whilst a more meandering path intersect this path but provides access from each of the neighbourhood blocks. The conflict points with the segregated public transport corridor and Barnwell Road are both dealt with through substantial underpasses.

Last Mile and Low Impact Deliveries

6.2.34 On site mobility is not only about the mobility of people. The movement of goods means that effective servicing and delivery strategies are an increasing challenge for urban areas as e-commerce becomes an ever-greater part of our lives and communities. A 2020 report by the World Economic Forum[7] predicts that by 2030 the growth of e-commerce alone will result in 36% more delivery vehicles, generating an additional 32% of carbon emissions.

6.2.35 Cambridge East will look to provide safe, clean and efficient delivery and servicing activity aligned to the trends of increasing online consumer purchasing demand and service level i.e. same day delivery, proliferation of connected autonomous vehicles (CAVs), electric vehicles

[7] http://www3.weforum.org/docs/WEF_Future_of_the_last_mile_ecosystem.pdf

(EVs) and cycle logistics, 3D printing, drones and bots, integrating land uses i.e. logistics with retail or residential, and delivery consolidation.

6.2.36 The strategy will look to integrate the use of existing, emerging and future technology solutions but fundamentally will ensure the strategy is sustainable and aligned to the overarching Net Zero objective for Cambridge.

6.2.37 Zero-emission logistics fleets are considered one of the most impactful solutions in the fight against climate change, given that the transportation sector is often the biggest or second biggest producer of greenhouse gases. This past year, DHL, Amazon, FedEx, and UPS have all announced plans with automotive suppliers to collectively add hundreds of thousands of electric vehicles to roads in the coming years, citing various benefits from lower operational costs to successfully meeting local emission standards.

6.2.38 The electrification of fleets is not the only way in which zero-emission logistics can be realised. Cargo bikes, but particularly e-cargo bikes are increasingly finding favour as a sustainable means of servicing urban environments and whilst historically there have doubts as to their potential and use for large scale logistics there is an increasing body of evidence to demonstrate their efficiency in dense urban areas and that there is a real competitive advantage over cars and smaller vans. Marshall shares this opinion and would look to embrace this opportunity building upon some of the early moves into this area that have started to take hold within the City already.

6.2.39 Our approach would be developed over a significant lead time prior to any first occupations but would embed the following principles/ explore the following opportunities:

- As part of the UK's transition to non-petrol and diesel vehicles, only non-fossil fuelled small/medium vans would be permitted within the developed areas themselves and only for drop off and pick up and other necessary and permitted activities.
- Provide a basis and the necessary incentivisation and infrastructure for an e-cargo bike based last mile delivery network in tandem with micro-consolidation centres
- Intelligent (SMART) kerbside management
- Explore how land holdings can provide an opportunity for wider Cambridge advantages regarding consolidation and deliveries e.g. an Eastern Logistics Hub for Cambridge.

Virtual Mobility

6.2.40 The facilitation of virtual mobility and the reduced need to travel as a result, has been brought into sharp focus as a result of the recent pandemic. Our propensity to change appears to be greater than it was previously assumed to be as working patterns had remained frustratingly

entrenched despite the tools being available to deliver more flexible approaches to working and lifestyles.

6.2.41 Whether these changes will be lost and we revert to our previous travel and working patterns is unclear, but it seems highly unlikely that our outlook on whether we need to travel for some purposes will be the same as previously. The impact of these changes on socially excluded people and the general wellbeing of society must not be overlooked, but the benefit of these changes to the finite resource that is transport capacity is significant and must be embraced.

6.2.42 Therefore, Cambridge East will ensure that every household has 1gb broadband access as a minimum. Cambridge City already has 1gb broadband being rolled out to residents and again, a site in this location, provides an economic platform on which this level of digital connectivity is feasible.

6.2.43 In addition to home-based connectivity, Cambridge East will facilitate remote and communal working through the provision of agile connected local work hubs and home sizes that accommodate home-working. Subject to working patterns and demands at the time, it is envisaged that the work hubs will be located throughout the scheme with particular focus on the eastern Travel Hub, mobility hubs and in the heart of the Neighbourhood blocks. Working in tandem with other complementary land uses (childcare, F&B, parcels and delivery storage etc) these will become a focal point for the community distinct from wider commercial offer.

6.3 Summary

6.3.1 The On-Site Mobility Strategy will evolve. However, the principal desire to reduce car dependency and create a place where access to jobs services and facilities is achieved through alternative more sustainable modes will remain an absolute constant in all subsequent thinking and design. This is achievable through the fundamental of the site's location and scale. Embracing this potential fully is only possible in allocation with such ready access to the city and when development is planned at scale.

6.3.2 It is considered that a successful approach to non-car related design will also positively impact other parts of the City and existing trips. If a significant proportion of a person's journey (new resident or existing) can now be made on high quality infrastructure, then the potential to shift more trips on to more sustainable modes becomes greater.

7 Emerging Off Site Mobility Strategy Approach

7.1 Introduction

7.1.1 This section sets out the approach taken to develop transport measures for the different growth scenarios at Cambridge East. These options are set out in Sections 8 to 11 of this report.

7.1.2 As the options set out in these sections have differing carrying capacities, this section also provides an overview of the methodology adopted in Section 12 of this report to package measures together for the growth scenarios.

7.2 Optioneering, Sifting and Packaging Methodology

7.2.1 Following the identification of the main corridors of transport demand generated by the growth Scenarios set out in Section 5, a list of options was developed. The following process was adopted, informed by approaches typically used in transport appraisal:

- **Step 1 – Long List Development**: The forecast demands produced by each growth scenario along the transport corridors within and outside the city were reviewed. This was used to develop a long list of options to deliver connectivity between Cambridge East and these corridors based on the assessment of origin and destination demand.
- **Step 2 – Establish Sifting Criteria**: At this early Local Plan stage, it is important to demonstrate at a high level that sites are deliverable and there is flexibility within them. Local Plan stages do not require preliminary designs to confirm deliverability, but it should be clear that an assessment of the options at a high level has been undertaken to identify where there may be obvious significant physical or environmental constraints that would prevent delivery.

  The criteria used to sift options was based upon the following:

  - Environmental Constraints Analysis – i.e. consider whether schemes could be undeliverable due to proximity to nationally important biodiversity or landscape designations.
  - Historic environment and built heritage – i.e. consider whether proximity to listed buildings / scheduled monuments / conservation areas represents an insurmountable constraint.
  - Blue Infrastructure – i.e. consider whether flood risk represents an insurmountable constraint to delivery for example through compensation requirements.
  - Above ground utilities infrastructure – i.e. are any schemes constrained by significant above ground utilities infrastructure such as electricity towers.
- **Step 3 – Sift and package options by geography**: The options were sifted based on the analysis above with undeliverable schemes excluded. The short list of options was then packaged based on the geography of connectivity they deliver (e.g. north, east, south, centre). These options are reported in Sections 8 to 11. Two definitions are adopted within these sections which it is important to highlight:

  - High Quality Public Transport – these are surface, bus based rapid transit solutions which will operate in existing street corridors and will be supported by the priority measures and alongside design features to reduce delays caused by passengers boarding or leaving buses or purchasing fares.

- Mass Rapid Transit Link - fully segregated high capacity transit solutions, with the potential to be part of the CAM

- **Step 4 – Create scenario-based transport packages**: Based on the demand analysis in Section 5 and the volumes reported in Sections 8 to 11, growth scenario-based transport packages were created from components within the relevant geographical packages. The volumes were converted to an equivalent hourly number of cyclists and an equivalent public transport frequency (based on a typical 72 seater bus). This provided an indication of the scale of demand relative to carrying capacities of specific infrastructure. In addition, the number of trips along each corridor that are outside Cambridge were identified. This is important as those travelling from further afield will have fewer sustainable mode opportunities available to them, compared to those within the City, and therefore the carrying capacity for these trips may be more constrained.

  This information was used to judge to extent to which the demand could spread across other modes and reduce or increase the overall carrying capacity required for the different elements of the transport strategy. Clearly if CCC was minded to adopt any fiscal city-wide policies such as workplace parking levies, then more capacity could be released from the existing network, however, as this does not form any part of adopted policy, it is not considered any further in this assessment. The packages developed to support the scenarios are a first iteration based on this high-level first principles assessment and it is expected that further iteration would be undertaken as part of more detailed testing using CSRM2 in due course.

7.2.2 These growth scenario packages have then been tested at a high level in the spreadsheet tool and the outcomes are reported in Section 13.

8 Off Site Mobility - Connections to Cambridge Station and City Centre

8.1 Introduction

8.1.1 Based on the analysis of origins and destinations for Cambridge East, providing a network of sustainable mode connections across Cambridge will be important.

8.1.2 This section is the first of four that explores opportunities to improve connectivity for sustainable modes to these key areas of demand. These opportunities include shorter term "quick win" options as well as medium term solutions.

8.1.3 Providing access to the Station is a fundamental component of all development scenarios, acting as the interchange to national connectivity as well as being a hub for travel to Cambridge's central employment, leisure and higher education centre. Realising a rapid connection to the station is a key part to realising the opportunity at Cambridge East. A rapid connection would promote the quick delivery of a commercial cluster at Cambridge East that has international connectivity, accelerating the delivery of a commercially attractive mixed-use site. A rapid connection to the Station provides access to Cambridge's central business district, home to three of the World's 4 Strillion companies.

8.1.4 In transport terms, the Station provides routes north and south out of the city along the rail corridors as well as connecting the site to the rest of the UK and also internationally via rail linkages to Stansted Airport. It also links to the Guided Bus towards Trumpington Park and Ride and Addenbrookes. Connecting to the City Centre provides an interchange opportunity to reach locations to the west, but is also a significant destination in its own right.

8.1.5 This section reviews existing connectivity and future transport schemes from Cambridge East towards the Station and City Centre, before setting out further options for improving the connectivity, including how a rapid transport link could be delivered.

8.2 Existing Connectivity and Future Transport Schemes

Existing

8.2.1 The main cycle route from Cambridge East towards the Station is via the Tins to the south. This is located south of Coldhams Lane and connects Cherry Hinton High Street with Brookfields, opposite Mill Road. The Tins is largely off-road cycling but connectivity from the end of the Tins towards Cambridge Station is a mixture of on-road and off-road cycling. Connectivity onwards from the rail station into the city centre is largely a network of on-road routes, via Hills Road, Regent Terrace and Trumpington Road.

8.2.2 The nearest direct bus corridor providing a connection between the east of Cambridge and Cambridge Station is Cherry Hinton Road circa 1km south of the centre of the Cambridge East site. The Newmarket Road bus Corridor to the north does not provide connections to Cambridge Station currently. There are no direct public transport corridors from the Cambridge East site to Cambridge Station. Services to the station from Cambridge East either travel via Addenbrookes first, using Cherry Hinton High Street and Hills Road (Citi 1), or travel into the City Centre first from the Newmarket Road corridor to the north (Citi 3).

Future to 2030

8.2.3 The Chisholm Trail connects Cambridge North Station with Cambridge Station. With this connection complete, and the busways connecting into both stations, this creates a central north-south spine for cycling in the city.

8.2.4 There are proposals to improve future connectivity for cyclists between the Cambridge East site and the Chisholm Trail to the west within the recent outline planning approval for the Land North of Cherry Hinton site. The outline permission secured the delivery of a new cycle track in the northern verge of Coldhams Lane and an improved crossing point for cyclists on Barnwell Road. Contributions were also secured from the scheme to provide an improved cycle connection across Coldhams Common to link to the Chisholm Trail. This then creates a link between the Coldhams Lane access for the site and the Chisholm trail with as little on road cycling as was possible.

8.2.5 The scheme also includes for the delivery of improved cycle tracks on Airport Way to the east, linking into Teversham and improved crossing facilities for cyclists across Airport Way. Contributions were also secured from the site towards widening the existing tracks on Gazelle Way east of Cherry Hinton, connecting with the recent improvements to cycle facilities to the south of Tesco towards Yarrow Road and onto Cherry Hinton High Street.

8.2.6 In addition to these, the GCP is promoting the Fulbourn Greenway. This essentially comprises improvements to cycle connectivity either side of the Tins and with improvements to the Tins itself, including addressing the existing bridge. Once complete, the Fulbourn Greenway will connect Fulbourn and Cambridge Station, via Cherry Hinton, an improved Tins and a series of improvements to on-street priority between the Tins and the Station.

8.2.7 The GCP's Cambridge Eastern Access study is exploring opportunities to improve facilities for cyclists on the Newmarket Road corridor. Consultation is due to finish in December 2020 on some early concepts for improving connectivity in east Cambridge for cyclists so there is no confirmed scheme at present.

8.2.8 Figure 8.1 summarises the existing and future mode connectivity to the Station and City Centre and further details of the GCP's schemes and the relationship to CAM and East West Rail are contained in the remainder of this section.

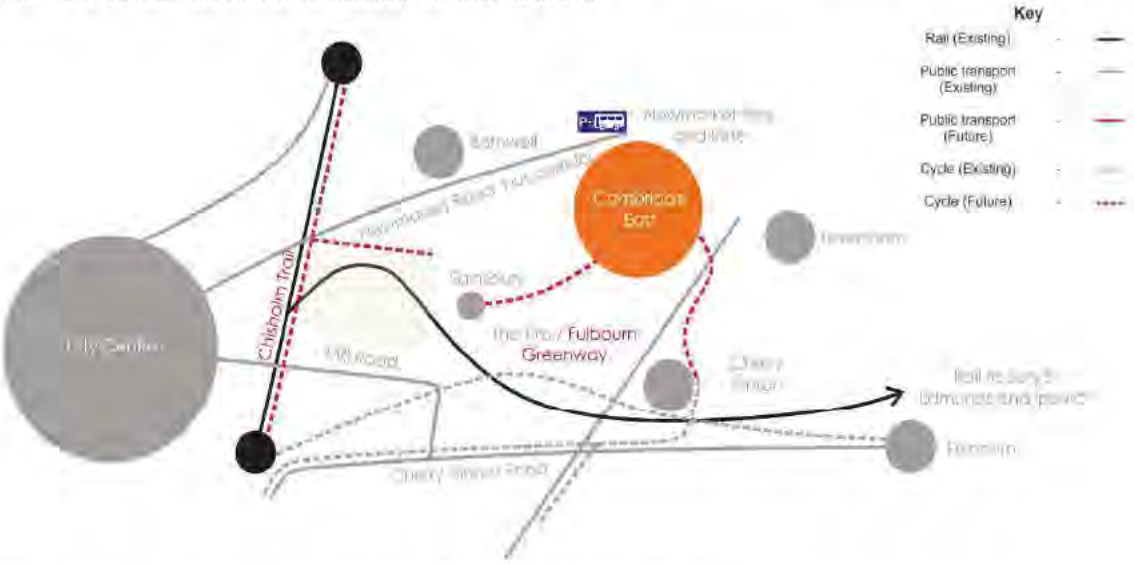


Figure 8.1 | Existing and Future Sustainable Mode Connectivity to the Station

8.2.9 Through the Cambridge Eastern Access Study, the GCP is currently consulting on five public transport corridor options, three of which assume use of some land within the Cambridge East site. As no preferred option has been identified yet, these schemes are not shown on Figure 8.1 but are illustrated on the following pages and incorporated as broad areas of interest on the Cambridge East proposal plans.

- **Option 1.1 – Newmarket Road**: This option includes an expanded Park and Ride site, segregated cycle lanes in both directions between the Park and Ride and inner ring road,

reconfiguration of junctions along the corridor to reduce junction capacity and provision of priority for public transport and cyclists, removing inbound bus lanes and improving coordination of traffic signals. This option is illustrated on Figure 8.2, extracted from the consultation material for the study.

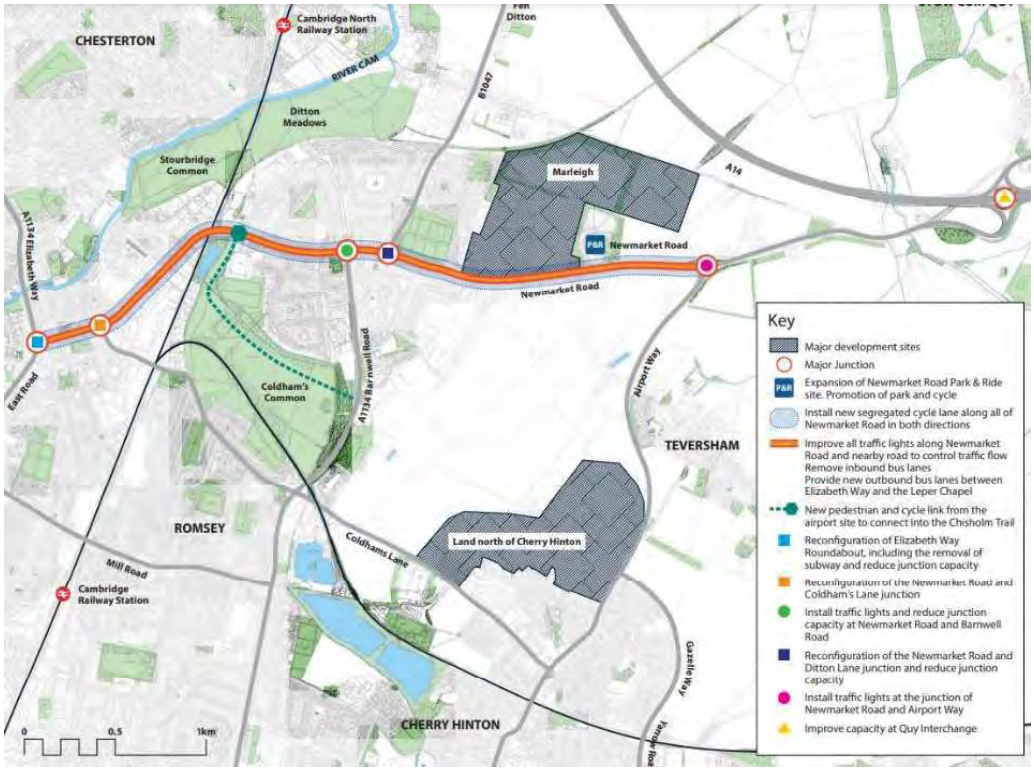


Figure 8.2 | Cambridge Eastern Access Study – Option A1 Newmarket Road (Source: Greater Cambridge Partnership Consultation Material)

- **Option 1.2 – Newmarket Road Park and Ride**: This option includes the same opportunities as for 1.1 but includes a relocation of the Park and Ride site further east along Newmarket Road. This is consistent with the area referred to as Cambridge East Option N1 in Section 9. This option is illustrated on Figure 8.3.

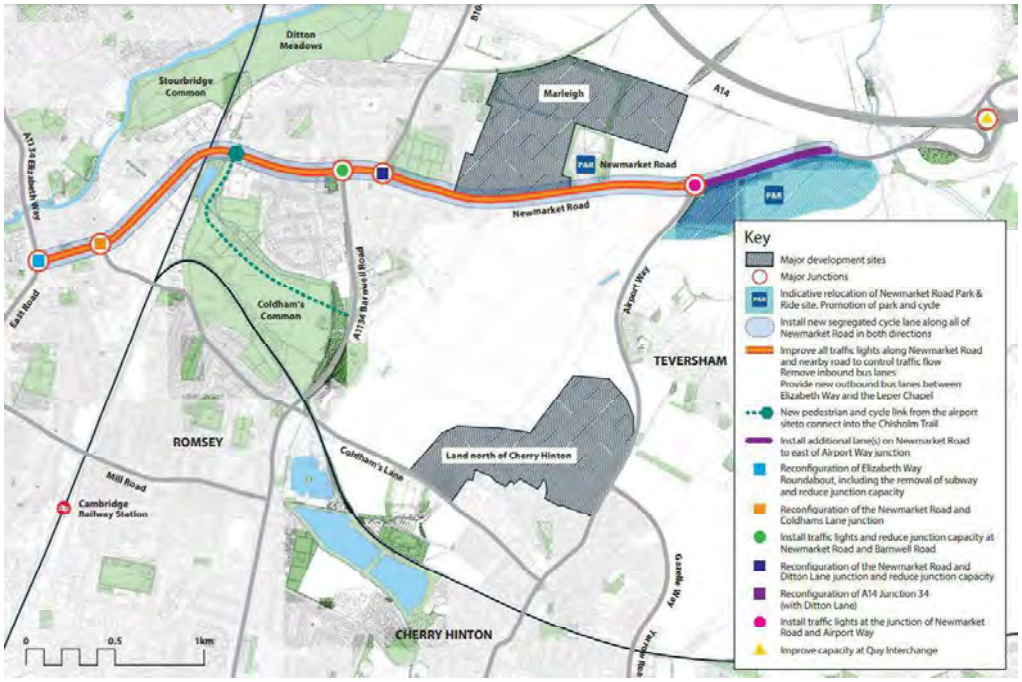


Figure 8.3 | Cambridge Eastern Access Study – Option A2 Newmarket Road Park and Ride (Source: Greater Cambridge Partnership Consultation Material)

- **Option 2.1 – High Quality Public Transport Route via Coldhams Lane**: This option is a longer term scheme which assumes land becomes available at Cambridge East. The proposals include for a high quality public transport route from Quy Interchange into a relocated Newmarket Road Park and Ride. Then a new off-road high quality public transport and cycle route is provided through the Cambridge East site emerging on Coldhams Lane. The route then continues west on Coldhams Lane, south on Brooks Road and west on Mill Road with a bus gate on Mill Road on the route into the City Centre. Cycle connectivity is also being explored either via Coldhams Lane or via a new bridge south of Coldhams Lane to connect to the Tins path. This scheme is illustrated on Figure 8.4 and an indicative alignment of CAM is also illustrated on the plans in yellow.

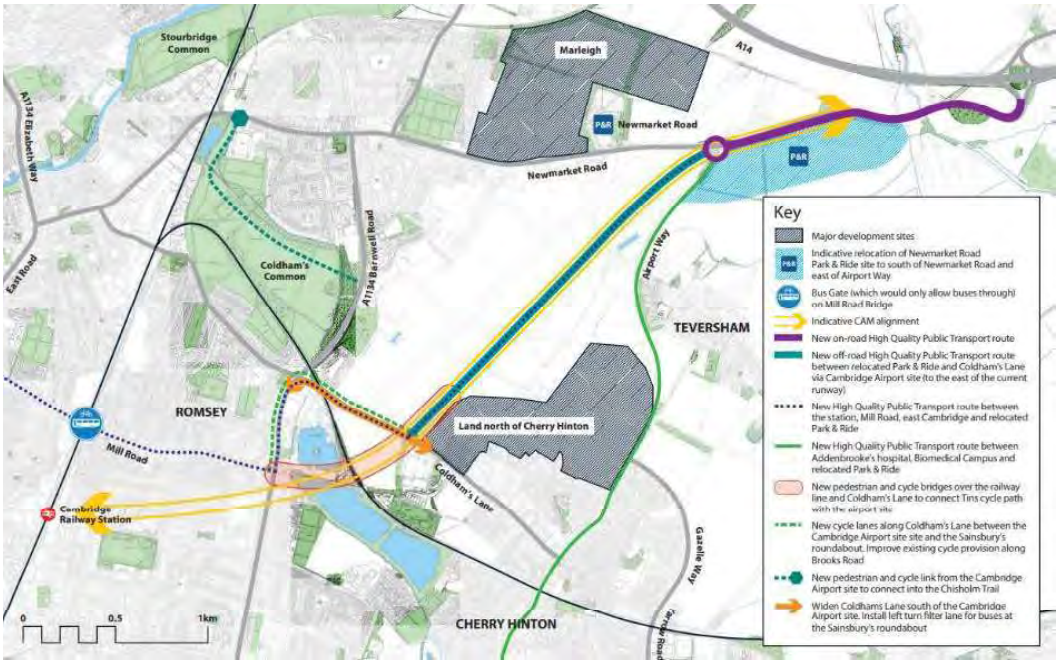


Figure 8.4 | Cambridge Eastern Access Study – Option B1 HQPT Coldhams Lane (Source: Greater Cambridge Partnership Consultation Material)

- **Option 2.2 - High Quality Public Transport Route via the Tins:** This option is a variation of Option 2.1, where connectivity for cyclists and public transport users is switched. A new bridge over the railway line is used to provide the high quality public transport route and connects into Mill Road, with provision for cyclists via new cycle lanes on Coldhams Lane and continuing south to Brooks Road. This option is shown on Figure 8.5.

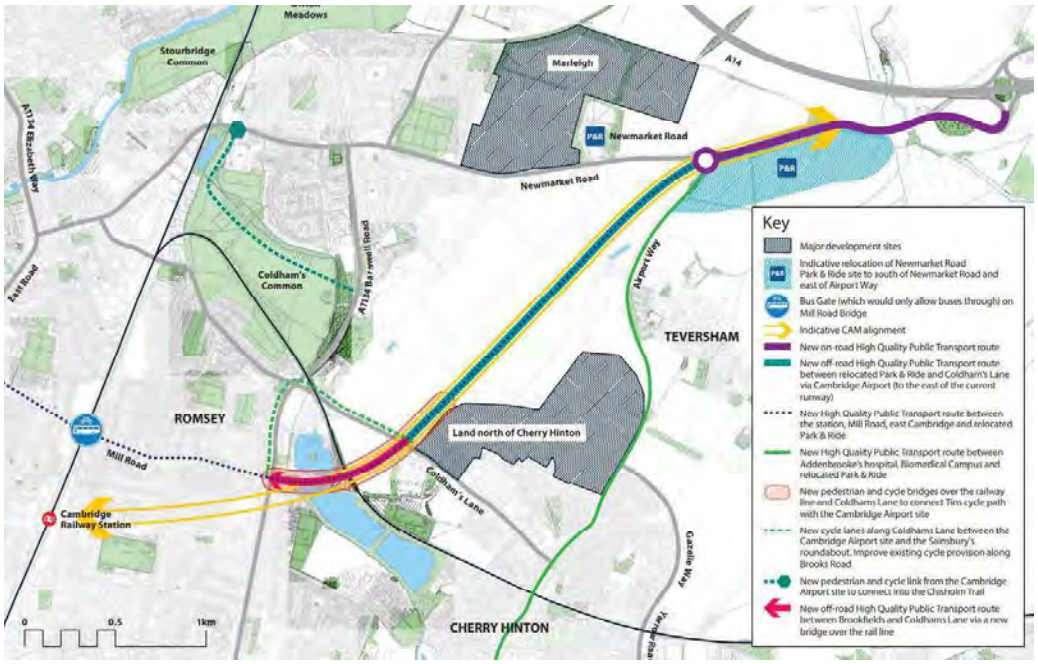


Figure 8.5 | Cambridge Eastern Access Study – Option B2 HQPT via the Tins (Source: Greater Cambridge Partnership Consultation Material)

- **Option 2.3 – Rail:** This option involves double tracking the existing Cambridge to Newmarket line and exploring opportunities for new stations at Cambridge East and further east of the city to provide connectivity into Cambridge Station. This option is illustrated on Figure 8.6 alongside the indicative CAM alignment in yellow. The East West Rail Consortium is currently looking into ways to deliver the connectivity east of Cambridge Station towards Ipswich and Norwich. Whilst this study is yet to report, this

option could potentially form part of one of these options.

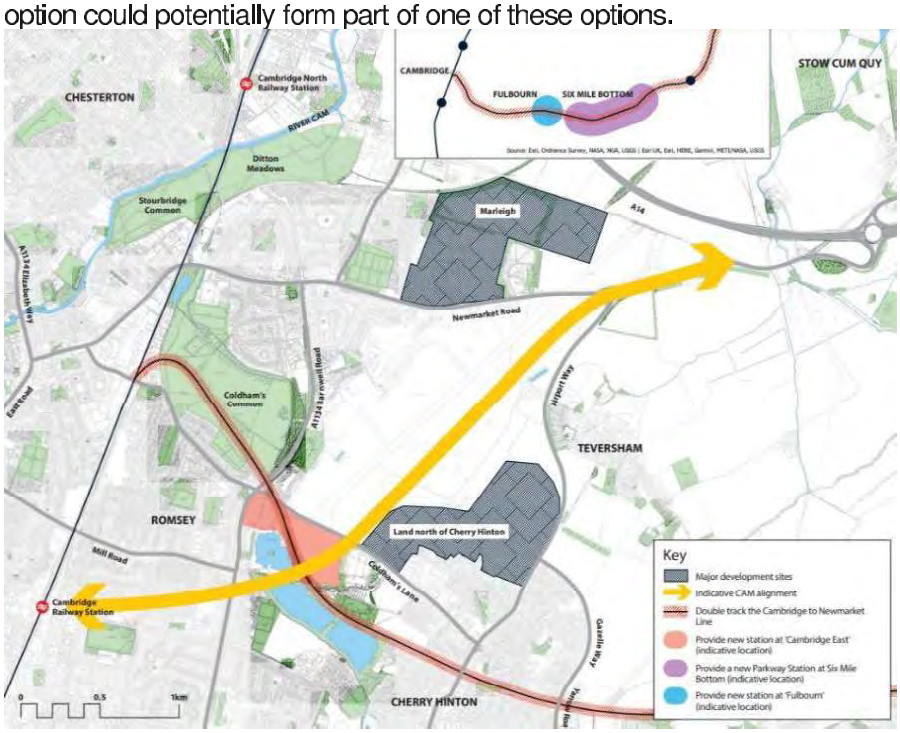


Figure 8.6 | Cambridge Eastern Access Study – Option B3 Rail (Source: Greater Cambridge Partnership Consultation Material)

Summary

8.2.10 The GCP's Eastern Access Study is exploring ways to deliver better public transport, walking and cycling links into the rest of the city, including the City Centre and the Station. This includes short term schemes focusing on connections into the City Centre via Newmarket Road and medium term schemes that can be compatible with CAM that provide connectivity towards the station and onwards into the City Centre from there. Based on the delivery programme for the GCP's Eastern Access Study, this suggests the short-term measures are likely to be in place prior to Cambridge East and therefore will be in place to support early stages of development.

8.2.11 In addition to the GCP, the CPCA's CAM system includes for a segregated route through the Cambridge East site which would enter a tunnel to the south of Cambridge East, connecting into Cambridge Station and other tunnels beneath the city. Cambridge Station also forms part of the East West Rail Central Section, delivering a connection from Bedford, via St Neots and Cambourne to arrive at Cambridge Station. The current programme for the project is for a more detailed preferred route alignment to be selected in 2021/2022, planning consent to be secured by 2024 and for construction to begin in 2025.

8.2.12 There is therefore already a number of short term "quick win" improvements planned for the area as well as significant ambition for more significant transport capacity delivering direct links towards the station and beyond to the west.

8.3 Why connect to Cambridge Station and City Centre?

8.3.1 Table 8.1 summarises the demands to and from the Station and City Centre in Scenarios A, B and C/D based on the analysis in Section 5 of this report. Demands from the west of Cambridge are also included within this analysis as interchange is required in the city centre to reach west Cambridge. Trips travelling outside Cambridge from the West are also included

here as the transport corridors they use will feed into the City Centre (e.g. Cambridge to Cambourne Corridor) or Cambridge Rail Station (East West Rail – Central Section).

Table 8.1 | Demand to Cambridge Station and City Centre

Geographical Area	Total external trips in AM Peak Period		
	Scenario A	Scenario B	Scenario C/D
Within Cambridge			
Cambridge Station and Centre and onwards to West Cambridge	4,450	6,250	7,000
Outside Cambridge			
Onward journeys to west outside Cambridge	300	1,000	1,350
Total	4,750	7,250	8,350

8.3.2 As shown in Table 8.1, Scenario has a lower overall volume of trips to the City Centre than Scenarios B and C/D. Scenarios B and C/D have higher volumes of people travelling into the city centre but there is also an increasing number from locations further west outside the city.

8.3.3 On this basis, providing sustainable mode connectivity to the area around Cambridge Station and to the City Centre is important because both act as important interchanges for onward connectivity, both within the city and beyond the city boundaries.

8.3.4 In the medium term, if the CAM is delivered in 2030, this would provide this sustainable mode connectivity to accommodate these demands. The CAM would provide a direct link into Cambridge Station and the ability to interchange to the key routes in all directions in and out of the city. In developing the on-site mobility strategy and concept layout, the project team worked closely with the CAM team to accommodate an alignment within the site that would be consistent with an eastern spur of CAM within the Cambridge East site.

8.3.5 This section has explored a range of ways this connectivity could be explored further and that would satisfy the requirements of Cambridge East. In terms of public transport connectivity, work has been undertaken to explore the deliverability of tunnelled options (medium term) and surface routes (shorter term) into the Station as this is a priority link for Cambridge East based on the demands above. It is the intention that these options would be mutually supportive in helping achieve the CAM objectives and also be supportive of a phased delivery of growth at Cambridge East.

8.4 Connectivity Opportunities to the Station and to City Centre

8.4.1 There is significant work already underway as part of the GCP's eastern access study to explore opportunities to improve connectivity from Cambridge East into the Station and City Centre. Engagement was undertaken with the GCP over the autumn to understand the options coming forward as part of the Cambridge Eastern Access Study and therefore many of the options presented in the next section are complementary to or additional to the GCP schemes. It is expected that once further clarity is provided regarding the sites allocated in the Local Plan, there is an opportunity for further engagement with the GCP to enable the schemes to be brought forward in a complementary way.

8.4.2 Figure 8.7 summarises the options identified to improve connectivity to the station and city centre for cycling and Figure 8.8 summarises the public transport opportunities. These

options are summarised in Table 8.2 and further detail of these schemes is provided in this section

Table 8.1 | Demand to the north of Cambridge

Ref on Figures 8.7 & 8.8	Option
SC1	High-quality green corridor linking a re-located Newmarket Road Park and Ride with the Chisholm Trail
SC2	Cycle Improvements to City Centre via Newmarket Road
SC3	Cycle Improvements to City Centre via Coldhams Lane
SC4	Cycle improvement to Cambridge Station via Mill Road
SC5	Cycle improvements to Cambridge Station via Davy Road
SC6	Coldhams Lane Modal Filter (Location 1)
SC7	Coldhams Lane Modal Filter (Location 2)
SC8	Mill Road Modal Filter
SC9	Cycle Improvements between Green Corridor and Coldhams Lane
SC10	Public Transport / Cycle improvements at junctions along A1134.
SC11	High Quality Surface PT Route to City Centre via Newmarket Road
SC12	High Quality Surface PT Route to City Centre via Coldhams Lane
SC13	High Quality Surface PT Route to Cambridge Station via Mill Road
SC14	Surface Mass Rapid Transit Route to Cambridge Station via Davy Road
SC15	Mass Rapid Transit Link to Cambridge Station.
GCP CEA 1.1	Newmarket Road Corridor Improvements
GCP CEA 1.2	Newmarket Road Corridor Improvements + Park and Ride
GCP CEA 2.1	High Quality Public Transport Route via Coldhams Lane
GCP CEA 2.2	High Quality Public Transport Route via the Tins
GCP CEA 2.3	Rail

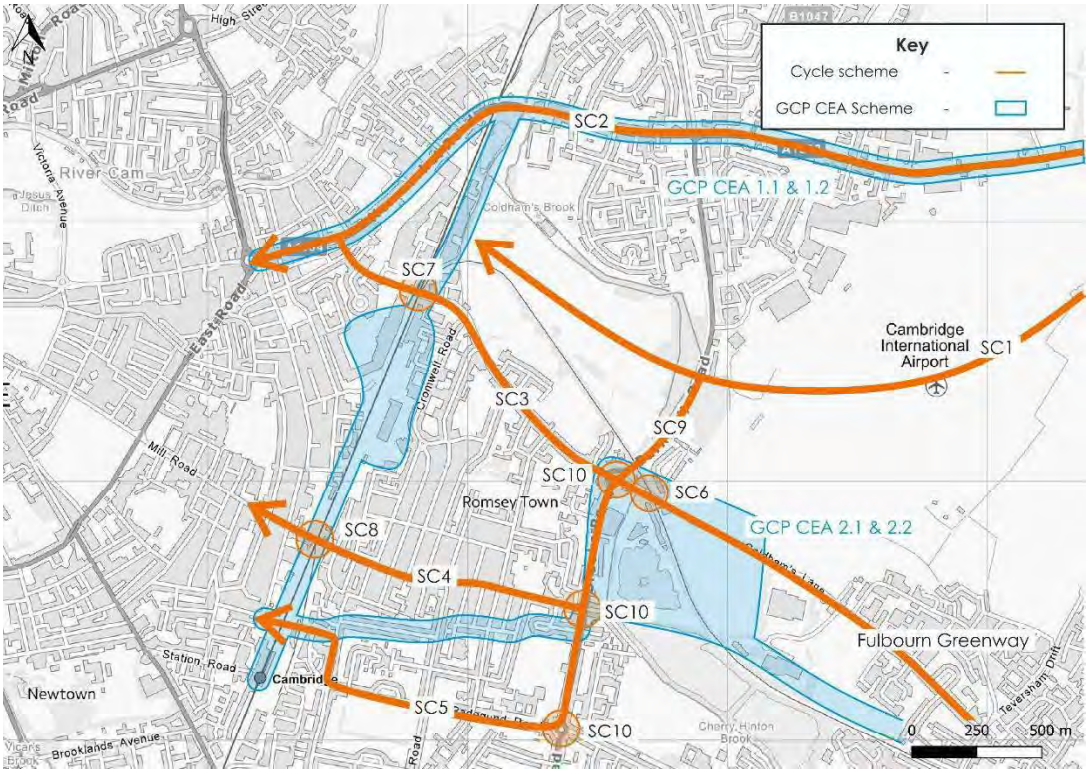


Figure 8.7 | Opportunities to improve connectivity to the Station (and city centre) – Cycle Opportunities

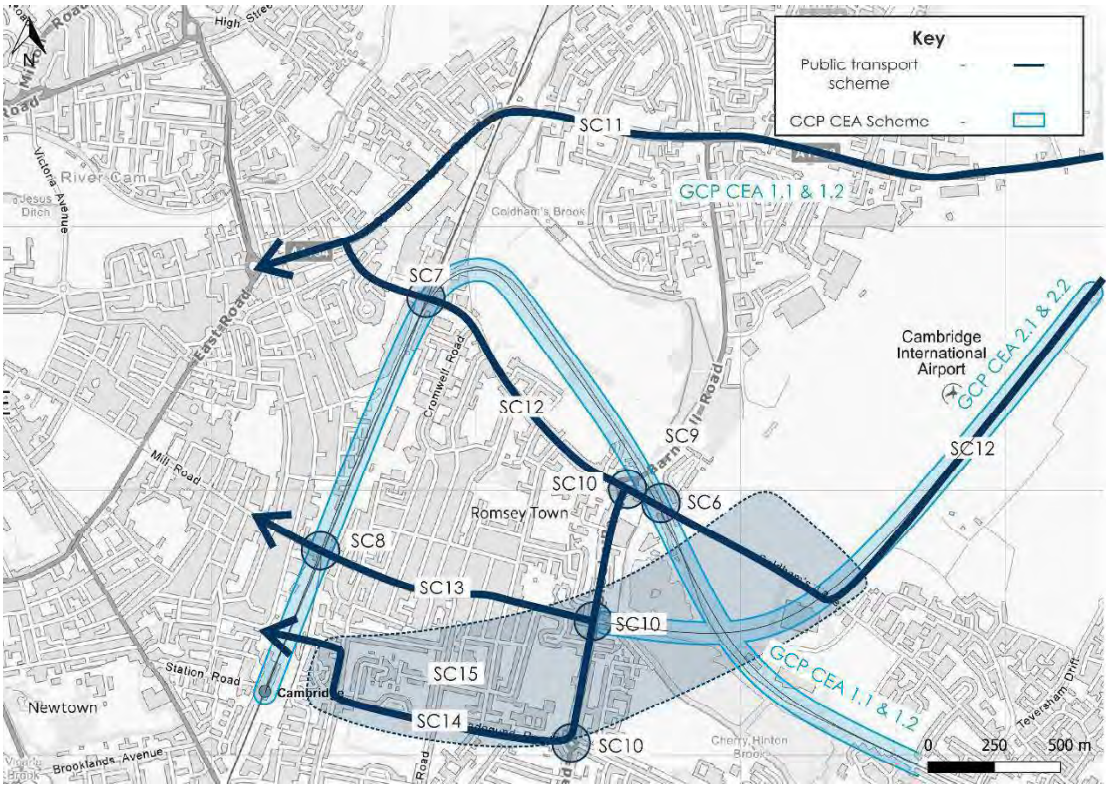


Figure 8.8 | Opportunities to improve connectivity to the Station (and city centre) – Public Transport Opportunities

Option SC1 and SC9 - High-quality green corridor linking a re-located Newmarket Road Park and Ride with the Chisholm Trail

8.4.3 This option is shown illustratively in paragraph 6.2.30. The Cambridge East site presents a unique opportunity to enhance green corridors within the east of the city and connect them into the city. This green corridor would include a high-quality continuous cycle connection from the Newmarket Road Park and Ride to the east, through Cambridge East, under Barnwell Road, across Coldhams Common into the Chisholm Trail to the west. This links Cambridge East to the main north-south cycling spine through the City, significantly reducing the need to travel by car for journeys into city centre from the east. Combined with improvements along Newmarket Road as part of the Cambridge Eastern Access study, this connection would deliver a step change in cycle connectivity for the east of Cambridge.

Option SC2 / SC3 - Cycle Improvements to City Centre via Newmarket Road and/or Coldhams Lane. Including Options SC6 and SC7 – Modal Filters on Coldhams Lane

8.4.4 Whilst there is already cycling provision along Newmarket Road to the east of the railway, the quality of journey for the cyclist is varied and the provision for cyclists is inconsistent and intermittent. To the west of the railway in particular, the road space is dominated by vehicles and bus lanes. The GCP EAS has identified two types of scheme for Newmarket Road, both would involve more intelligent use of signals to create waves of priority for buses and allow a reallocation of some areas of bus lane over to improve the pedestrian and cycle facilities through the corridor. In addition, package 1.2 includes measures at junctions that reduce capacity for general vehicles, but improve priority for sustainable modes. In addition to Newmarket Road, the study considers the potential to improve accessibility for cyclists and public transport from the Cambridge East site to Mill Road, including a bridge. Cambridge East supports the schemes being explored through the Cambridge Eastern Access Study to improve cycle connectivity along the Newmarket Road corridor and the Coldhams Lane corridor into the City Centre.

8.4.5 In addition to these schemes, there is an opportunity to consider improving the quality of route west on Coldhams Lane towards Newmarket Road, particularly focusing on the quality of route for cyclists on approach to junctions by considering if junction layouts can be adjusted to better reflect cycle desire lines, for example the Coldhams Lane / Cromwell Road junction and Coldhams Lane / TK Maxx roundabout. The option could also be explored to introduce modal filters on Coldhams Lane to discourage peak period journeys into the city by car. Two locations for these modal filters are shown on Figure 8.7 and 8.8.

8.4.6 As an alternative to providing an active modes bridge into Mill Road as considered by the GCP CEA study, a modal filter could be introduced on Coldhams Lane at the railway bridge to allow direct through travel for pedestrians, cyclists and buses and controlled access for vehicles. As an alternative, a modal filter could be located further west on Coldhams Lane, near the bridge. This would allow for better provision for cyclists along this section by reducing the speed and volumes of vehicles along this section.

8.4.7 There will be continued dialogue with the GCP to refine opportunities for improvements into the city along these routes to reflect the mutual objective to connect Cambridge East and the City Centre / Station.

Option SC11 / SC12 – High Quality Public Transport Route to City Centre via Newmarket Lane or Coldhams lane.

8.4.8 Cambridge East supports the recommendations from the Cambridge Eastern Access Study to improve public transport priority and services along the Newmarket Road into the City Centre and potentially via Coldhams Lane as an alternative. The use of modal filters on Coldhams Lane referred to earlier in this section would be explored as a means of providing priority for buses along these routes as part of a package.

Option SC4, SC8 and SC13 – Cycle Improvements to Cambridge Station via Mill Road, Mill Road Modal Filter and High Quality Surface PT Route to Cambridge Station via Mill Road.

8.4.9 The principle of this option is to provide an alternative cycle route towards the station via Mill Road as an alternative to the Tins. Currently Mill Road is temporarily closed at the bridge over the railway and this has reduced the level of traffic along Mill Road.

8.4.10 As part of exploring opportunities to improve connectivity for cyclists and public transport towards the Station, the implementation of a permanent modal filter on Mill Road could be explored. This would improve the directness of the journey from the site towards the station and reduce the level of traffic along this route. Depending on the traffic volumes on Mill Road with this modal filter in place, uni-directional cycle lanes and priority over side streets could be explored.

8.4.11 If a modal filter was not introduced, opportunities would be explored to provide cycle priority at side streets and for the wider sections of Mill Road. If traffic were reintroduced, alternative quieter routes around Mill Road would be explored in terms of their potential to provide cycle permeability, for example through implementing filtered permeability to provide a more direct route for cyclists and indirect routes for vehicles, particularly where carriageway widths are limited on Mill Road itself. Reallocation of parts of the highway corridor away from cars to sustainable modes to provide the more effective route would require a modal filter due to the likely traffic volumes involved. This is consistent with Steer's early feasibility studies for public transport, which concluded at the time that area wide traffic management or restrictions on general traffic use would benefit public transport service delivery along Mill Road.

8.4.12 Reviewing the widths along the Mill Road corridor, there are wider sections of carriageway for example around the Baptist Church and also to the east of Millcroft Court near Cycle King but there are narrower sections of carriageway in between which present a challenge for providing uni-directional cycle lanes if there is no modal filter introduced. Figure 8.9 shows the short section of the wider part of Mill Road around the Baptist Church, illustrating the corridor width.

Figure 8.9 | Extract of Mill Road (Source: Google Earth Pro)

8.4.13 In addition to cycle improvements on Mill Road, as part of improving connectivity to the Station, a high quality public transport service could be provided between the Newmarket Road Travel Hub, along the segregated corridor through the Cambridge East site, onto Coldhams Lane, Brooks Road and Mill Road towards the City Centre, stopping close to Devonshire Road to provide access to the Station from the north.

8.4.14 This would be as an alternative to Option SC14 – a Surface Mass Rapid Transit Road to Cambridge Station via Davy Road.

Option SC5 and SC14 – Cycle Improvements to Cambridge Station via Davy Road and Surface Mass Rapid Transit Route to Cambridge Station via Davy Road

8.4.15 This option includes the provision of cycle improvements towards the Station, using Davy Road and the existing bridge from Rustat Road which provides a more direct connection for pedestrians and cyclists into the Station.

8.4.16 Davy Road is accessed from Radegund Road to the east which is accessed from Perne Road (A1134). Radegund Road has a wide highway corridor, there is uncontrolled on-street parking, verges on both sides with trees and footways on both sides as illustrated in Figure 8.10. There are cycle lanes provided intermittently along its length with carriageway narrowing and speed humps to reduce the speed of vehicles. Davy Road has controlled on-street parking and wider verges with established trees, but no cycle provision until you reach Rustat Road.

Figure 8.10 | Extract of Radegund Road (Source: Google Earth Pro)

8.4.17 The corridor widths on Davy Road and Radegund Road are up to 20m in places which suggests there is sufficient room to accommodate uni-directional cycle lanes. The relationships between the need for car parking and cycle access will need to be given consideration however as well as the requirements for the recreational ground. Rustat Road is narrower at 10-14m although there is no through access for vehicles to the north of Davy Road so traffic volumes here are likely to be limited to those using the route for access. An extract of Rustat Road is provided on Figure 8.11.

Figure 8.11 | Extract showing highway corridor on Rustat Road

8.4.18 Steer has undertaken an assessment of the feasibility of providing a mass rapid transit link along Davy Road to connect to Cambridge Station from the east as an alternative to a tunnelled option (see later in this section). As shown on Figure 8.12 the deliverability assessment is based upon the assumption that there would be on-street shared running along most of the route on Davy Road and Radegund Road. This route includes a segregated running route over the railway and lakes and into Radegund Road.

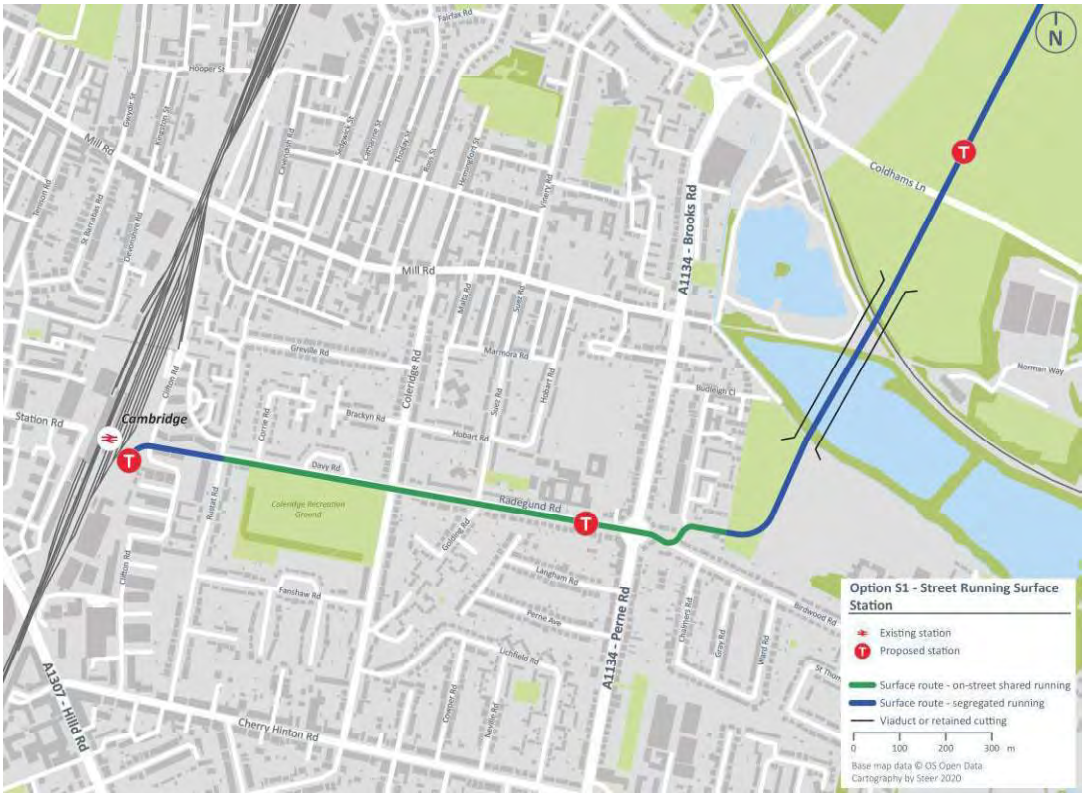


Figure 8.12 | Option SC14 – Surface Route Alignment – Mass rapid transit Link to Cambridge Station (Source: Steer)

8.4.19 At this stage, there is no preferred potential technology for any rapid transit link and there are a range of proven technologies available as well as more innovative approaches which could be appropriate. Assumptions were incorporated about specific technology types to allow a deliverability analysis to be undertaken, e.g. alignments, key interfaces etc but this is only to give confidence for the purposes of the Local Plan that alignments are achievable, it does not mean any preferred technologies have been identified.

8.4.20 This deliverability analysis concludes that there are opportunities that could be explored further on Davy Road to provide a mass rapid transit surface link into the station as an alternative to a tunnelled link.

SC 10 - Public Transport / Cycle improvements at junctions along A1134.

8.4.21 This option includes for cycle and public transport improvements at junctions along the A1134 to improve priority for these modes in support of the corridor strategies mentioned. The nature of these schemes will be informed by the public transport and cycle routes provided into the city and station. Key junctions identified include the A1134 / Coldhams Lane Roundabout, the A1134 / Mill Road junction and the A1134 / Radegund Road Roundabout. Stantec is aware that a cycle scheme has been worked up for the A1134 / Coldhams Lane Roundabout by CCC and that improvements were implemented at the A1134 / Radegund Road Roundabout in 2015.

SC15 Mass Rapid Transit Link to Cambridge Station.

8.4.22 In addition to surface mass rapid transit links, investigation has been undertaken regarding the deliverability of a mass rapid transit tunnelled link towards Cambridge Station. This could form a first phase of the CAM or be a stand-alone tunnel link.

8.4.23 Steer has investigated a range of options that could help deliver the connectivity required for large growth at Cambridge East. The findings are reported in Steer's report entitled "Cambridge East Transit Deliverability Study" dated December 2020.

8.4.24 The objectives of this report were to provide answers to questions that might arise in respect of the deliverability of a mass rapid transit system when it comes under consideration in the Local Plan process. Such questions include:

- its buildability;
- availability of suitable system providers and contractors;
- integrity and reliability of any adopted technologies;
- inter-dependencies with other projects and developments;
- the suitability of tunnelling in this particular area;
- acceptability of the scheme to those affected by its construction and operation;
- the ability to assure an attractive and high standard of operational performance that will discourage people from using cars to access the development;
- suitable levels of capacity to accommodate projected demand levels;
- consistency with wider environmental and strategic objectives for Cambridge; and
- achievement of transport investment benchmark tests set by Government for funding support.

8.4.25 To inform this assessment, high level forecasts of potential MRT transit use for these links were provided to Steer by Stantec, consistent with the trip cap principle outlined in Section 4.3. These flows are summarised in Appendix C.

8.4.26 The main option is for a mass rapid transit link extending from the Travel Hub on Newmarket Road, through the Cambridge East site, passing into a tunnel as it leaves the Cambridge East site to a station built below ground level on an east west orientation at Cambridge Station. This would allow for an underground station and connections into a future CAM system. This alignment through the site is shown on Figure 8.13 below.

Figure 8.13 | Mass Rapid Transit Link – Main Tunnelled Option (Source: A&M, 2020)

8.4.27 In addition to the main rapid transit link option above, alternatives have been explored regarding the tunnelled alignment as it leaves the Cambridge East site. These alternative options included consideration of a surface mass rapid transit link along Davy Road or along Mill Road (referred to earlier) and alternative shorter tunnel options. This work concludes that whilst there are alternatives available to a below ground station which could also be compatible with CAM and demonstrate flexibility, the main option is still preferred in terms of the quality of interchange it provides via an underground station.

8.4.28 Further details of the three alternative alignments considered within the assessment are summarised in the following figures for completeness. The longer tunnel option has a portal within the Cambridge East site, continues underground and emerges on Davy Road close to the Station. This option is shown on Figure 8.14.

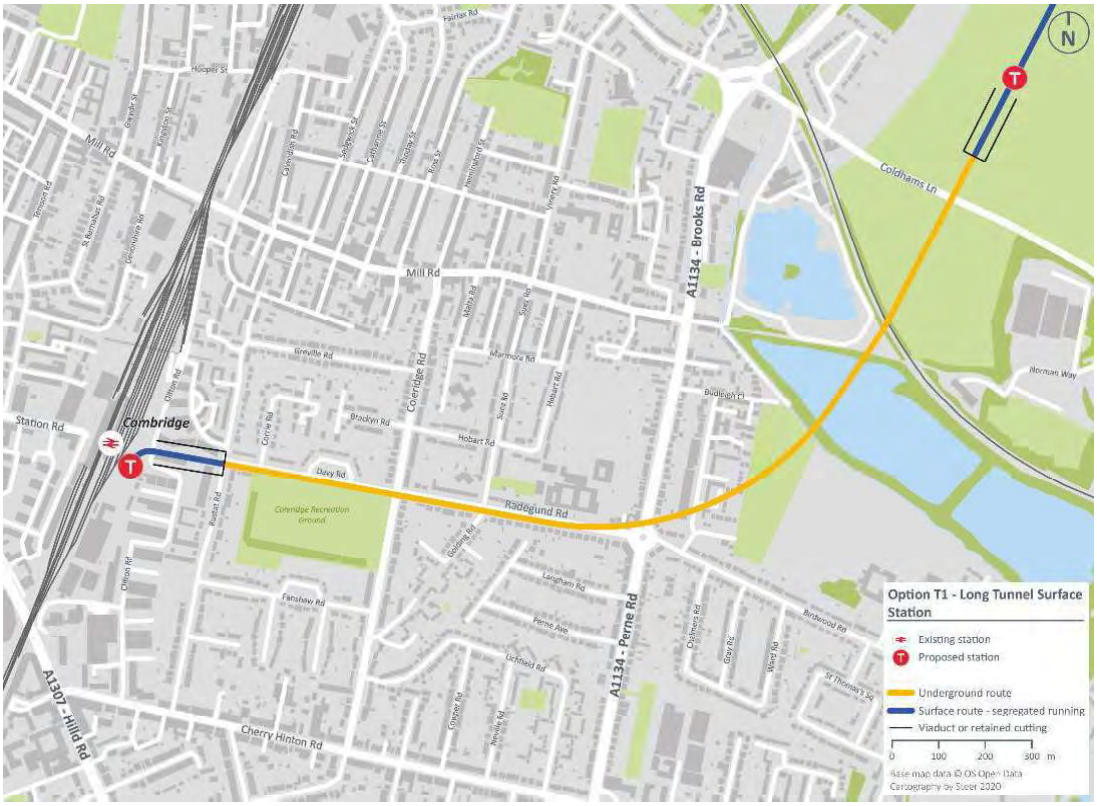


Figure 8.14 | Longer Tunnel Option (T1) (Source: Steer)

8.4.29 The shorter tunnel options involve bridging the existing lakes south of the Tins, either connecting to an underground tunnel close to Mill Road or closer to Birdwood Road. These two options are shown on Figures 8.15 and 8.16 respectively.

Figure 8.15 | Short Tunnel Option (T3) – via Mill Road (Source: Steer)

Figure 8.16 | Short Tunnel Option (T2) via Radegund Road (Source: Steer)

8.4.30 As set out in Section 9, if high quality public transport links were explored both to the north and south of Cambridge East, this would provide a continuous public transport route from the Guided Busway and Waterbeach to Cambridge Corridors to the north, into Cambridge East and towards the job opportunities around CB1 at Cambridge Station.

8.5 Summary

8.5.1 Providing a link to Cambridge Station and City Centre is a key part to realising the opportunity at Cambridge East. A rapid connection would promote the quick delivery of a commercial cluster at Cambridge East, accelerating the delivery of a commercially attractive mixed-use site. Deliverability work has indicated a range of ways to deliver a rapid transit link into Cambridge Station with the preferred route providing a link into an underground station compatible with the future CAM.

8.5.2 In transport terms, Cambridge Station provides routes north and south out of the city along the rail corridors as well as via the Guided Bus towards Trumpington Park and Ride and Addenbrookes. Connecting to the City Centre provides an interchange opportunity to reach locations to the west, but is also a significant destination in its own right.

8.5.3 There are a range of options for providing sustainable transport connectivity and these would complement schemes coming forward as part of the GCP's Cambridge Eastern Access Study as well as the CPCA's CAM. The GCP's short term schemes are programmed to be in place by 2025 and would therefore support the delivery of early phases at Cambridge East.

8.5.4 There is therefore a significant opportunity to provide a step change in accessibility from Cambridge East into the city centre and Cambridge station through the development of the Cambridge East site.

9 Off Site Mobility - Connections to the North

9.1 Introduction

9.1.1 Based on the analysis of origins and destinations for Cambridge East, providing a network of sustainable mode connections across Cambridge will be important.

9.1.2 The section reviews existing connectivity and future transport schemes in the north of Cambridge before setting out further options for improving the connectivity here.

9.2 Existing Connectivity and Future Transport Schemes

Existing

9.2.1 There are two national cycle routes which run through the area (see grey dashed lines on Figure 9.1). NCR 51 runs along the northern boundary of the Cambridge East site. It continues east-west and connects the Newmarket Road Park and Ride (and villages and towns to the east outside Cambridge) with the Science Park and St Ives to the north-west.

9.2.2 NCR 11 runs north to south through the area, following the River Cam, connecting Waterbeach to the north with the City Centre and Addenbrookes to the south. It can be accessed from NCR 51 but only at a limited number of crossings over the River Cam to the west.

9.2.3 Public transport corridors in the area (excluding rail) operate on radial routes via the City Centre. To travel between Cambridge East and Cambridge North, two separate public transport services are required with an interchange in the City Centre. The main public transport corridor at Cambridge East is along Newmarket Road. The regular Park and Ride services and Citi 3 currently use this corridor and provide connectivity to the City Centre. The Guided Bus, Milton Park and Ride service and Citi 2 service can be accessed from the City Centre. The Guided Bus and Citi 2 both serve Cambridge North Station. The rail station at Cambridge North offers connections north to Waterbeach and Ely and south towards Cambridge and west along the Guided Busway.

9.2.4 The existing schemes in grey highlight that there is no direct connectivity between Cambridge East and Cambridge North for public transport. Interchange is required at the City Centre to continue north. The River Cam and railway line create severance between Cambridge East and Cambridge North. For active modes, there are national cycle routes, but due to the sensitivity of Ditton Meadows, there are currently limited crossings of the river for active modes.

Future to 2030

9.2.5 Future cycle schemes that connect Cambridge East to the area north of Cambridge include the Chisholm Trail and Waterbeach Greenway, led by the GCP.

9.2.6 The Chisholm Trail provides a new crossing of the River Cam and connects Cambridge North Station with Cambridge Station. With this connection complete, and the busways connecting into both stations, this creates a central north-south spine for cycling in the city.

9.2.7 The Waterbeach Greenway scheme improves cycle provision between the City and Waterbeach, extending the cycle connectivity further north to the villages.

9.2.8 The main future public transport scheme is the Waterbeach to Cambridge Corridor project led by the GCP. This is one of four corridor schemes in the city aimed at providing better public transport, walking and cycling routes into the City for the growing communities to the north of

the City. The scheme forms an integral part of the delivery of the CAM, which includes a network of routes, including tunnels under Cambridge.

9.2.9 Figure 9.1 shows the existing and future sustainable mode connectivity to the north of Cambridge East.

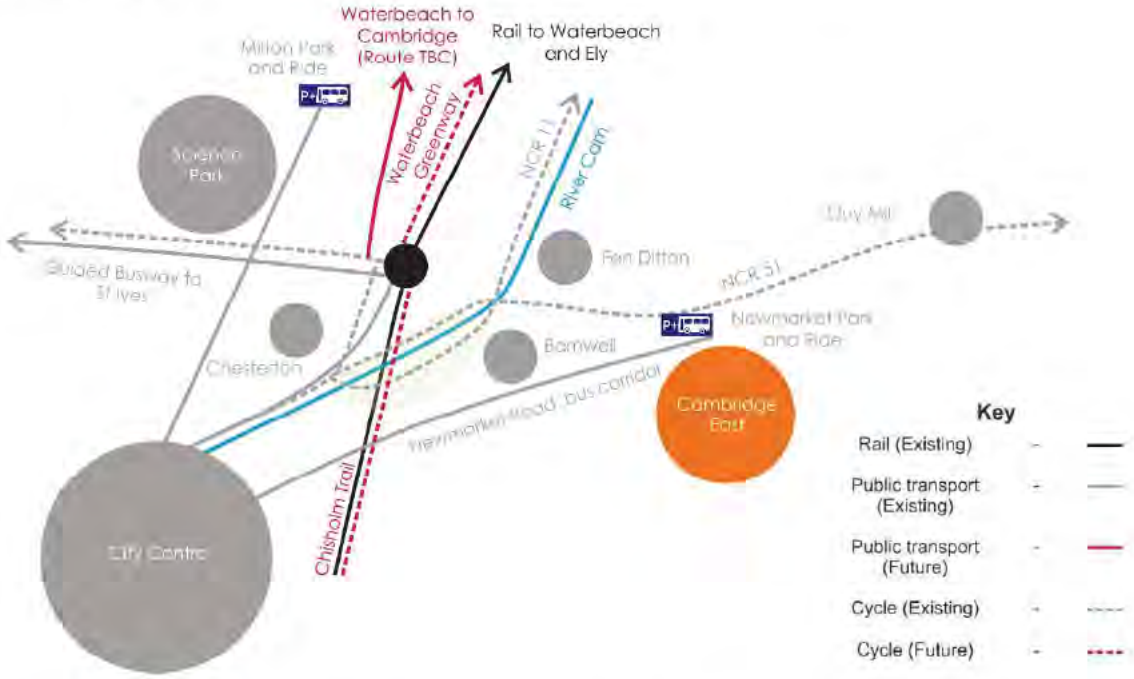


Figure 9.1 | Existing and Future Sustainable Mode Connectivity to the North

9.3 Why connect to the north?

9.3.1 Table 9.1 summarises the person trip demands to and from areas to the north of Cambridge in Scenarios A, B and C based on the analysis in Section 5 of this report. The table sets out trips to the north within the City itself (including Science Park) and those from outside Cambridge, i.e. along the A14 and A10 corridors.

Table 9.1 | Demand to the north of Cambridge

Geographical Area	Total external trips in AM Peak Period		
	Scenario A	**Scenario B**	**Scenario C**
Within Cambridge			
North Cambridge	900	1,300	1,600
Outside Cambridge			
North-west – i.e. A14 corridor	350	1,350	1,850
North – i.e. A10 Corridor	700	2,100	2,900
Total	1,950	4,750	6,350

9.3.2 As is shown in Table 9.1, for larger job growth scenarios, the role of connectivity to incoming routes from the north and from outside the city become increasingly important.

9.3.3 On this basis, providing sustainable mode connectivity to the area to the north of Cambridge is important because:

- The Guided Bus from Huntingdon and St Ives arrives into Cambridge North Station, capturing those living longer distances from Cambridge.
- Cambridge North Station acts an interchange currently for those living north of the city to enable them to switch onto rail to access Cambridge. It also provides access to longer distance journeys to and from the north of Cambridge.
- Milton Park and Ride also captures trips from the north and north-west for which there is no immediate sustainable mode alternative, allowing people to switch to bus to enter the city.
- Cambridge Science Park is a significant employer in the north of the city and will attract residents living at Cambridge East.
- North East Cambridge is a significant area of future growth.

9.3.4 In the medium term, if the CAM is delivered in 2030, this would provide this sustainable mode connectivity to accommodate these demands.

9.3.5 However, as set out in Section 5 it is important that the evidence base work is not reliant on a single approach to addressing this connectivity. Whilst individual schemes will not replicate the network benefits of a full CAM system, the following sections (9 – 11) highlight a range of ways this connectivity could be explored further and that would satisfy the requirements of Cambridge East.

9.4 Connectivity Opportunities to the North

9.4.1 Figure 9.2 summarises the options identified to improve connectivity to the north. These options are summarised in Table 9.2 and further detail of these schemes is provided in this section.

9.4.2 These are early concept options based on corridors of demand and high-level deliverability analysis. The efficacy of packaging of these options for development at Cambridge East would need more detailed testing. However, these are provided here to illustrate some early options that could be considered to support development at Cambridge East and deliver some of the connectivity requirements identified as well as provide benefit for the wider areas north and east of the city. If an allocation were to be secured at Cambridge East, any supporting transport strategy would need to be formulated with input from appropriate consultation and engagement with statutory and public bodies.

9.4.3 The options focus on improving direct connectivity into Cambridge North Station because this provides a gateway to enter the site from the north without needing to go via the City Centre. There are two options for public transport, one via existing roads and the second via a new segregated public transport corridor direct to Cambridge North. Cambridge North provides connections to the Guided Busway to St Ives and Huntingdon, the Waterbeach to Cambridge corridor, the rail corridors and to Milton Park and Ride. The table includes reference to the relevant GCP schemes which would also complement a transport strategy for Cambridge East.

Table 9.2 | Options for improving connectivity to the north

Ref on Figure 8.2	Option
N1	Closure of Newmarket Road Park and Ride and provide new Newmarket Road Travel Hub
N2	NCR51 Improvements
N3	Active mode bridge into Cambridge North
N4	High quality public transport service via Chesterton
N5	Fully segregated sustainable mode corridor via North East Cambridge
N6	Public transport priority at junctions– Elizabeth Way, Milton Road, Newmarket Road
N7	Peak hour bus gate in Fen Ditton (required with option N8)
N8	Fully segregated sustainable mode corridor via North East Cambridge + vehicular link to Newmarket Road + option to close Fen Road Crossing
N9	Expansion to Milton Park and Ride and optional direct service
N10	Expansion to St Ives Park and Ride.
GCP 1.1	GCP Option A1 – Improvements to Newmarket Road
GCP 1.2	GCP Option A2 – Improvements to Newmarket Road + Park and Ride

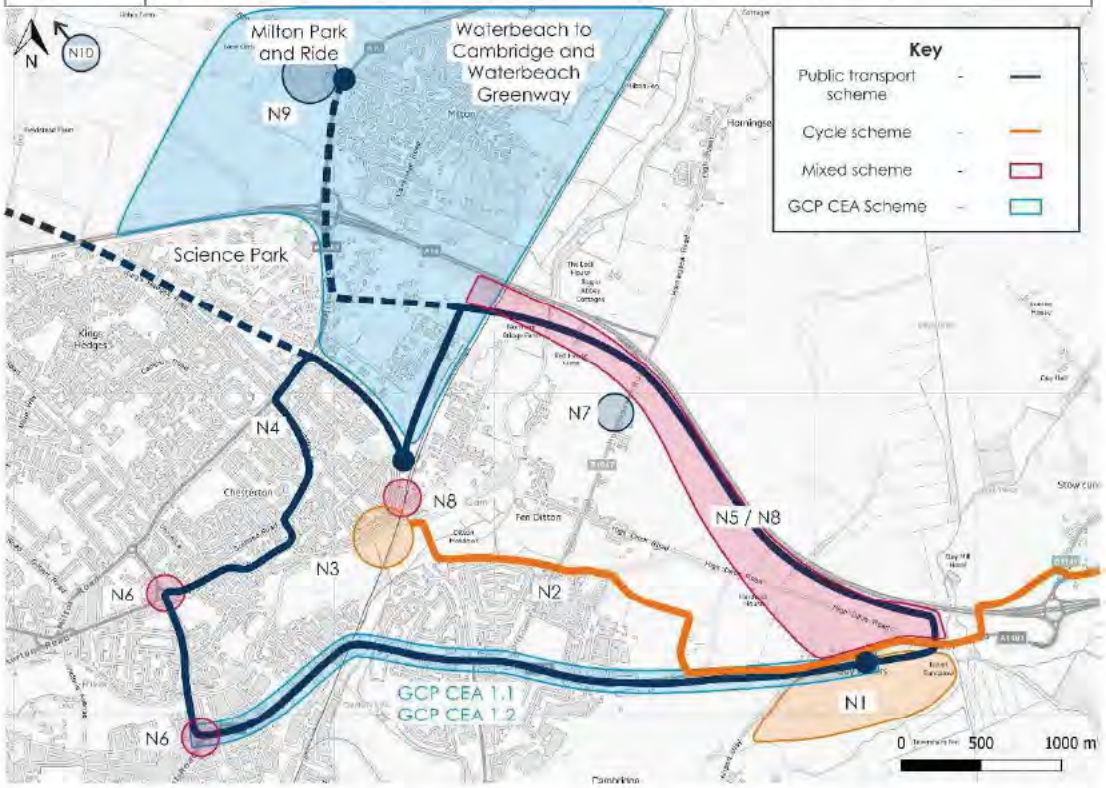


Figure 9.2 | Opportunities to improve connectivity to the north

Option N1 – Closure of Newmarket Road Park and Ride and provide new Newmarket Road Travel Hub

9.4.4 This option includes closing the Newmarket Road Park and Ride and providing a new Travel Hub further east along Newmarket Road. In Scenario C, the Travel hub is integrated into the built-up area of Cambridge East, providing an opportunity to provide complementary land-uses and density around the Travel hub. In Scenarios A, B and D the built-up area of Cambridge East does not extend to incorporate the Newmarket Road Travel Hub.

9.4.5 Demand forecasts indicate that an expansion of capacity of car parking would be required in the larger growth scenarios (B,C and D) to accommodate incoming trips during the AM Peak period from the East outside Cambridge. The Travel hub would offer a range of modes for onward journeys into the city from Cambridge East.

Option N2 - NCR51 Improvements

9.4.6 These improvements would focus on improving the quality of the journey from A14 J35 towards the north of Cambridge. Combined with Option N3 below it would provide a direct cycle link between the Newmarket Road Travel Hub and Cambridge North Station.

9.4.7 Improvements to this route include increasing priority for cyclists, particularly around the crossing point with Ditton Lane and exploring opportunities to improve accessibility onto the NCR51 from Barnwell additional to those already considered under the Marleigh planning permission. Part of this route already forms part of the Bottisham Greenway and therefore the improvements identified here would be supported by Cambridge East.

Option N3 - Active Mode Bridge

9.4.8 A direct public transport connection into Cambridge North across the Ditton Meadows was discounted by the Cambridge Eastern Access Study due to concerns about impact on the meadows. It is not proposed that any public transport or vehicular connection be explored here. As part of Option N2, opportunities would be explored to make the connection between Cambridge East and Cambridge North more direct for those cycling by exploring opportunities for an active mode bridge. Options here would need to respect the most sensitive parts around the River.

Option N4 - High Quality Public Transport Service via Chesterton

9.4.9 Option N4 provides a high quality public transport service that would link the Newmarket Road Travel Hub with Cambridge North, avoiding the need to interchange within the City Centre. Cambridge North is the terminus point for the Guided Bus currently as will also form part of the Waterbeach to Cambridge PT corridor. There are a number of options that could be tested further and these are explored in Steer's "Complementary Public Transport Interventions" report dated December 2020. For example, the service could be amended or extended to the Milton Road Park and Ride to pick up longer distance journeys as shown on the figure above, or opportunities could be explored to extend a Guided Busway service directly towards Cambridge East via Newmarket Road or Coldhams Lane as illustrated in Figure 9.3.

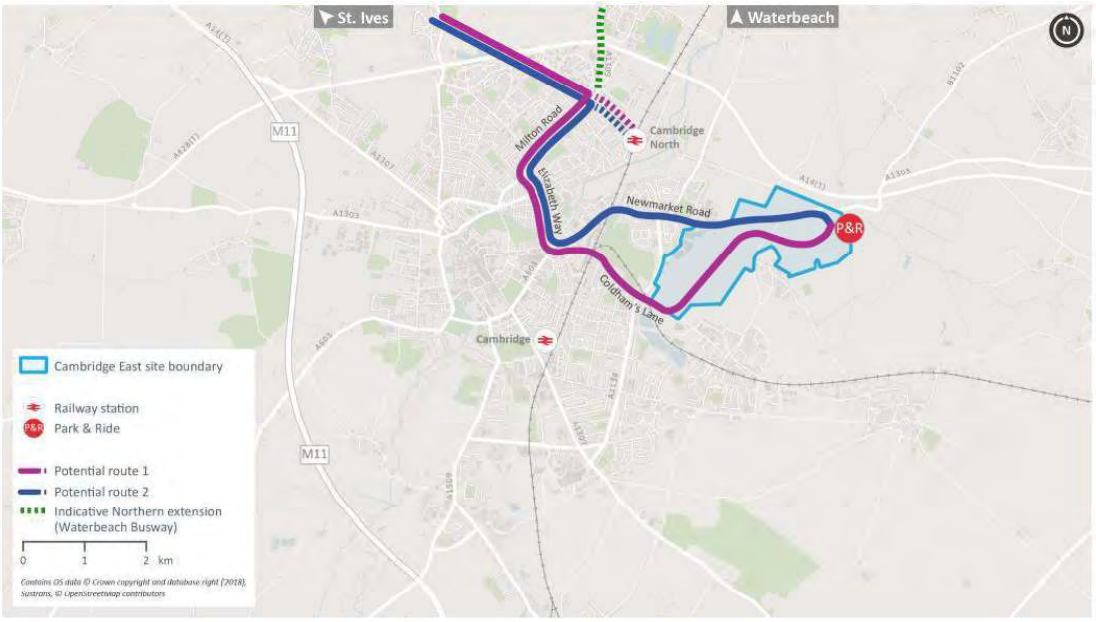


Figure 9.3 | Alternative Public Transport Routes (Source: Steer)

9.4.10 Based on the demands forecast for Scenario A and the zones served by an assumed route to Cambridge Station only via Chesterton, assuming the demand in Table 9.1 used public transport, this would equate to frequencies of around 10 minutes during the peak period and 20 minutes outside the peaks. This would require five vehicles in the peak period and three vehicles for the off peak period and would provide capacity of circa 1,700 seats for the full three hour period.

9.4.11 Scenarios B, C and D require a higher capacity and more direct solution (see Option N5) as whilst there is capacity for a 5 minute service to theoretically accommodate the level of demand in Scenario B (this would provide circa 5,200 seats), due to the length of the route, this would require ten vehicles to operate at a cost of circa £240k per annum each. Scenarios B,C and D therefore require a more cost-effective (i.e. direct) and higher capacity public transport offer. Further details of packaging of the measures is set out in Section 12.

9.4.12 The Cambridge Eastern Access Study is already exploring improvements to sustainable mode journey times along the Newmarket Road Corridor to the north of the site and this scheme could capitalise on the opportunities created by this (further details of the GCP proposals are provided in Section 8.2).

Option N5 - Fully Segregated Sustainable Mode Corridor via North East Cambridge (with options for part vehicular link and Fen Road Crossing (N8) and Fen Ditton Bus Gate – N7)

9.4.13 This would be a larger scale scheme which Cambridge East could part fund if growth was delivered at scale on the site, i.e. particularly Scenario C/D. The demand forecasts for Scenarios B, C and D are higher than Scenario A and therefore to deliver a quality turn up and go service, a higher capacity link would assist with this.

9.4.14 The principle for this connection is to allow seamless integrated public transport travel from the Guided Bus and Waterbeach to Cambridge Corridors into the Newmarket Road Travel Hub, into the Cambridge East site and then also towards Cambridge Station as part of the proposals for that section (see Section 8 of this report). If the CAM were to come forward, this connectivity would be addressed, and this link would not be required.

9.4.15 This direct connection could take a number of forms, ranging from an active modes route, to a segregated bus and active mode only corridor. The alignment considered by Steer in the "Complementary Public Transport Interventions" report rules out schemes around the sensitive Ditton Meadows and Stourbridge Common and looks to mitigate its impact by running close to the A14 and crossing the CAM and in an area considered less environmentally sensitive based on a desktop review of designations. With the A14 to the north bridging over this part of land, this part of the city is less sensitive in terms of constraints than the areas closer to the meadows. This route is reproduced from Steer's report in Figure 9.4.

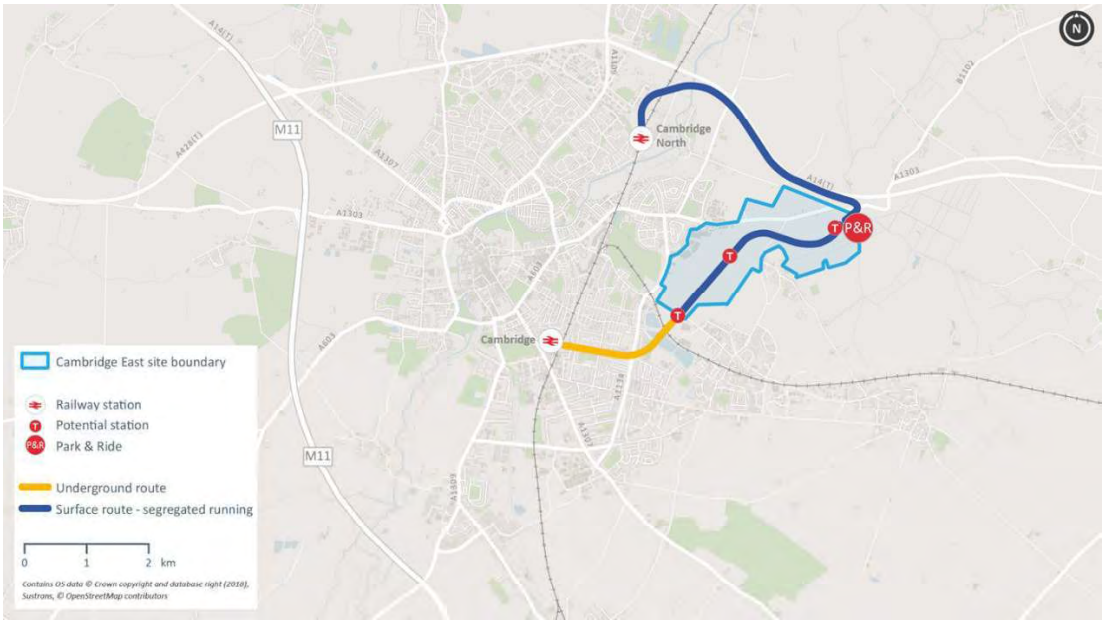


Figure 9.4 | Alternative Public Transport Options – Direct Connection to North (Source: Steer)

9.4.16 There is also the opportunity to explore using part of this link to address existing issues with peak hour congestion in Fen Ditton village and to provide an alternative route into Cambridge for those living on Fen Road. Opportunities could be explored as to whether an alternative vehicular access could be provided into the City for those currently on Fen Road so that the Fen Road level crossing could potentially be closed.

9.4.17 Regarding Fen Ditton village, this currently suffers from high volumes of through traffic from the A14 into Cambridge in the AM and outbound in the PM peak. One opportunity that could be explored is that vehicles leaving the A14 at junction 14 are diverted east on this new link around Fen Ditton onto Newmarket Road which is more appropriate as a distributor road into the city. This would involve a peak hour bus gate (N7) north of Fen Ditton village, prohibiting incoming vehicles in the AM peak and outgoing vehicles in the PM peak. This could potentially have benefit for the village and the conservation area within it.

9.4.18 This concept is illustrated overleaf in Figure 9.5.

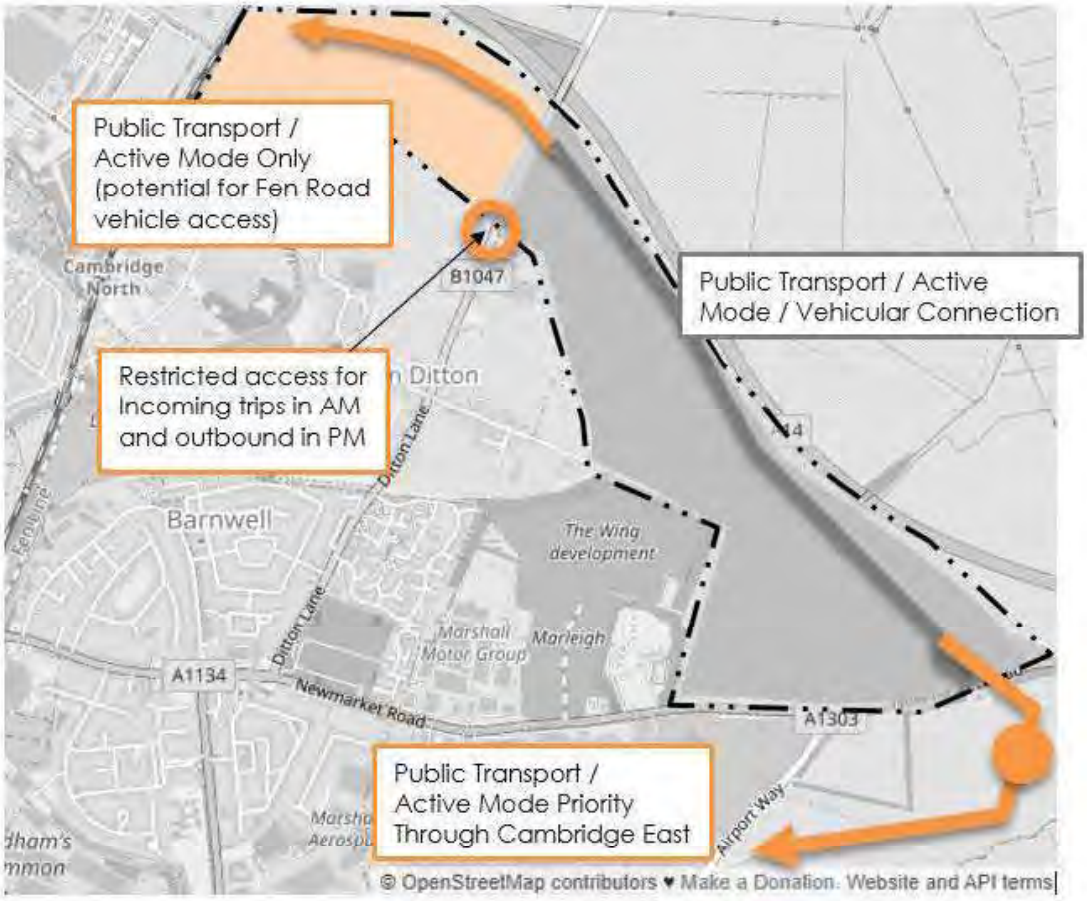


Figure 9.5 | Concepts of strategic connectivity to north

9.4.19 The concept on Figure 9.5 is one of a range of ways to deliver capacity and connectivity in this location, which will depend on the scale of growth coming forward at Cambridge East and within the city as a whole, but also critically whether the CAM is delivered. This opportunity would require coordination with North East Cambridge development area and thus would need to be a strategic scheme led by an appropriate body but clearly offers advantages for both sites. There is further feasibility and deliverability work that would need to be undertaken building upon that undertaken and reported by Steer.

9.4.20 By providing a direct public transport link between Cambridge East and Cambridge North, there is the potential to extend services on from Cambridge North, via Darwin Green and Eddington into West Cambridge. This would then offer the opportunity for trips wishing to travel into Cambridge East from the West to avoid the City Centre, opening up wider cross city connectivity. The route via Darwin Green is not proposed as part of the Cambridge East transport strategy but the direct connection into Cambridge North from Cambridge East presents an opportunity for greater cross city connectivity that avoids the need to interchange via the City Centre and thus increase the attractiveness of sustainable modes for these journeys rather than the car.

Option N6 – Public Transport Priority at junctions – Elizabeth Way, Milton Road, Newmarket Road

9.4.21 To support the high quality public transport route via Chesterton (Option N5), public transport priority would be explored at junctions along the route.

9.4.22 The ability to provide improved bus journey times and priority at key pinch points would be explored further as part of Option N6 and would be required to support this option. This would include reallocation of road space for inbound bus lanes to junctions and bus gates. A review indicates there is already some public transport priority provided within the ring road of Cambridge, but there is potential for further schemes, subject to the necessary processes.

9.4.23 Public transport priority has been explored in the past along Milton Road so it is not suggested that these previous proposals are revisited. The GCP CEA Study is already exploring priority options for the Newmarket Road corridor which this scheme would benefit from. Further details of the GCP CEA schemes are set out in Section 8.2.

Options N9 and N10 – Expansion of Park and Rides

9.4.24 Based on the attraction of more inward journeys to Cambridge East in Scenarios B, C and D, the volumes (3,450 – 4,750 person trips) and the distribution of these trips relative to the Guided Busway Corridor and future Waterbeach to Cambridge Corridor, there will be a need for people to travel to both the Milton and St Ives Park and Ride, as well as Longstanton. This option includes for an expansion of these sites to include for further parking, both for vehicles and for cyclists. The scale of these expansions should be determined through detailed modelling using CSRM once further spatial options are known so that collective need can be identified and planned for.

9.5 Summary

9.5.1 There are a range of options for providing sustainable transport connectivity around the north of the city and these would complement schemes coming forward as part of the GCP's Cambridge Eastern Access Study. This ranges from high quality bus routes and direct cycle connections to more ambitious schemes that have the potential for wider benefit, e.g. a segregated sustainable mode corridor direct to Cambridge North from Cambridge East.

9.5.2 Alongside a rapid transit link to Cambridge Station, there are opportunities to explore providing a rapid public transport link direct into Cambridge North in the higher job growth scenarios. If such a link did come forward, this helps address part of the city's current challenges with cross city connectivity. Cambridge east would then act as a stimulus for providing wider connectivity benefits, the impacts of which would be felt beyond the red line of the site.

10 Off Site Mobility - Connections to the South

10.1 Introduction

10.1.1 As mentioned in Section 9, providing a network of sustainable mode connections across Cambridge will be important. Addenbrookes and the Cambridge Biomedical Campus are a major attractor of trips and this area is expected to continue to grow in the future. The Research Parks such as Granta Park, Babraham Research Park and the Wellcome Genome Trust are located further south outside the city and are also a significant area of growth and attraction for jobs.

10.1.2 This section of the report reviews existing connectivity and future transport schemes from Cambridge East towards the south, before setting out further options for improving this connectivity.

10.2 Existing Connectivity and Future Transport Schemes

Existing

10.2.1 The main cycle route from Cambridge East towards the south of Cambridge is via Cherry Hinton High Street and Queen Edith's Way. This is a mixture of on-road and off-road cycling. Gazelle Way offers an alternative route around the eastern side of Cherry Hinton before accessing Queen Edith's Way from Cherry Hinton Road. However, as there is currently no off-road track connecting the existing airport site with the new facilities south of Tesco, this part of the route would be on-road.

10.2.2 There is only one bus corridor close to Cambridge East (Airport Way) which offers connectivity south with services to Addenbrookes. Services on the Airport Way corridor do not currently extend any further north than the Airport Way / Gazelle Way Roundabout. There is no north-south public transport corridor connecting Newmarket Road with the south of Cambridge as public transport corridors and routes within the city are largely radial.

Future to 2030 and beyond

10.2.3 Contributions were secured within the outline planning consent for the Land North of Cherry Hinton site to deliver cycle connectivity between the Airport Way / Gazelle Way roundabout and the existing, recently improved infrastructure between Tesco and Yarrow Road, Cherry Hinton. This alongside the recent improvements on Cherry Hinton Road, and the existing cycle provision on Queen Edith's Way would provide a connection between the Cambridge East site and the south of Cambridge. Improvements were also secured to widen the existing cycle track on Airport Way near Teversham. There are no other proposals for improvements to north-south cycle connectivity between the Cambridge East site and Addenbrookes / south Cambridge.

10.2.4 Whilst there are no proposals for public transport schemes between the Cambridge East site and the south of the city there are a number of significant public transport improvement schemes to the south of the city, aimed at improving sustainable mode connectivity into the city from the south.

10.2.5 These proposals include:

- **Cambridge South East Transport Study Phase 1** – this includes road safety, walking, cycling and bus priority measures along the A1307 between Haverhill and Cambridge. A continuous shared-use path for pedestrians, horse riders and cyclists is also planned between Addenbrookes and Linton (Linton Greenway). These are both GCP schemes.

- **Cambridge South East Transport Study Phase 2 (Also known as CAM Phase 1)**: this involves a new public transport route from the A11 via Sawston and Shelford to the Cambridge Biomedical Campus. Alongside this new public transport route will be a new path for walkers, cyclists and horse riders, similar to the one along the existing guided busways. The proposals also include a new travel hub near the A11/A1307 junction. This travel hub would be in addition to the existing Babraham Road Park & Ride. This is a GCP-led scheme but forms one of the outer corridors of the CAM.

- **Cambridge South Station:** A new rail station is proposed to be located adjacent to the Guided Busway and will provide a new transport choice available to patients, visitors and employees when travelling to and from the Cambridge Biomedical Campus. The station will also provide direct access to a range of potential routes on the rail network for those in South Cambridgeshire and better connections across the southern fringe of the city.

- **East West Rail (Central Section – Phase 2):** The preferred route for the Central Section (Phase 2) of East West Rail was announced in early 2020. The preferred route will link existing stations in Bedford and Cambridge with communities in Cambourne and the area north of Sandy and south of St. Neots. This scheme is being promoted by the East West Rail Consortium. When delivered, this scheme would connect Bedford, St Neots and Cambourne with Cambridge South and Cambridge Station.

10.2.6 Overall, whilst there are a number of projects that seek to connect communities outside the built up area of Cambridge to the south, there are fewer improvements planned for north-south connectivity within the immediate area of Cambridge East itself.

10.2.7 The existing and future schemes are summarised on Figure 10.1.

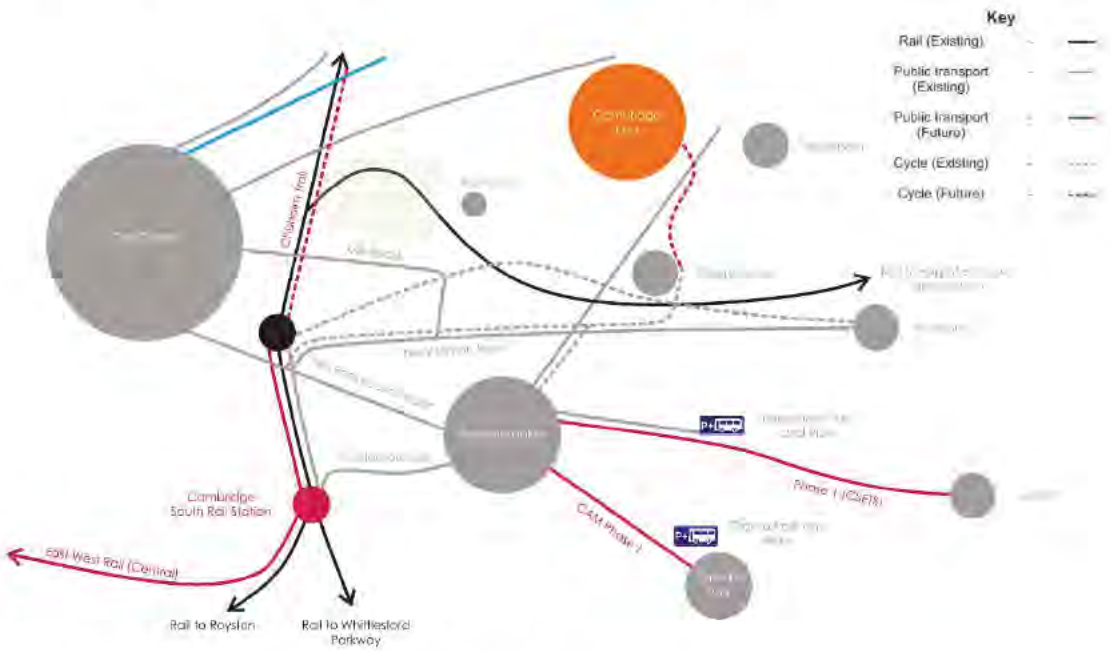


Figure 10.1 | Existing and Future Sustainable Mode Connectivity to the South

10.3 Why connect to the south?

10.3.1 Table 10.1 summarises the demands to and from areas to the south of Cambridge in Scenarios A, B and C/D based on the analysis in Section 5 of this report.

Table 10.1 | Demand to the South of Cambridge

Geographical Area	% of total external trips		
	Scenario A	Scenario B	Scenario C/D
Within Cambridge			
South (incl. Addenbrookes and Biomedical Campus)	1,300	1,600	1,850
Outside Cambridge			
South (incl. research parks)	1,400	4,200	5,750
Total	2,700	5,800	7,600

10.3.2 Analysis of the demand patterns indicate that whilst lower volumes overall, as an overall proportion of trips, Scenario A has higher demands for journeys to the south within Cambridge itself (48%), than Scenario B and C/D which attract most of the journeys from outside Cambridge (c.72 - 75%). The heat maps indicate demands in Uttlesford District but spread across a wide area.

10.3.3 Given the distances involved, it is likely that a proportion of the trips to and from the south outside Cambridge would enter the city by rail. These trips would therefore add to the overall levels of demand at Cambridge Station, emphasising the importance of a quality connection between Cambridge Station and the Cambridge East Site.

10.3.4 However, where rail is not an option, Park and Ride is the main sustainable mode alternative into the City. Trumpington is on the Guided Busway so again would deliver people into the Station, and Babraham Park and Ride also currently travels via the Station into the City.

10.3.5 Whilst connectivity is available between the south and Cambridge Station and could therefore make use of the options set out in Section 8, alternative ways of delivering this connectivity have been explored in this section.

10.4 Connectivity Opportunities to the South

10.4.1 Figure 10.2 shows some of the options identified to improve connectivity between Cambridge East and the south of the City and these are summarised in Table 10.2.

Ref on Figure 10.2	Option
S1	Improved cycle connectivity to Addenbrookes via Nightingale Avenue
S2	Improved cycle connectivity to Addenbrookes via Queen Edith Way
S3	Improved cycle connectivity onto Babraham Park and Ride
S4	Improved cycle facilities at junctions
S5	High Quality Public Transport Link to Addenbrookes and Cambridge Biomedical Campus
S6	Expansion to Babraham Park and Ride

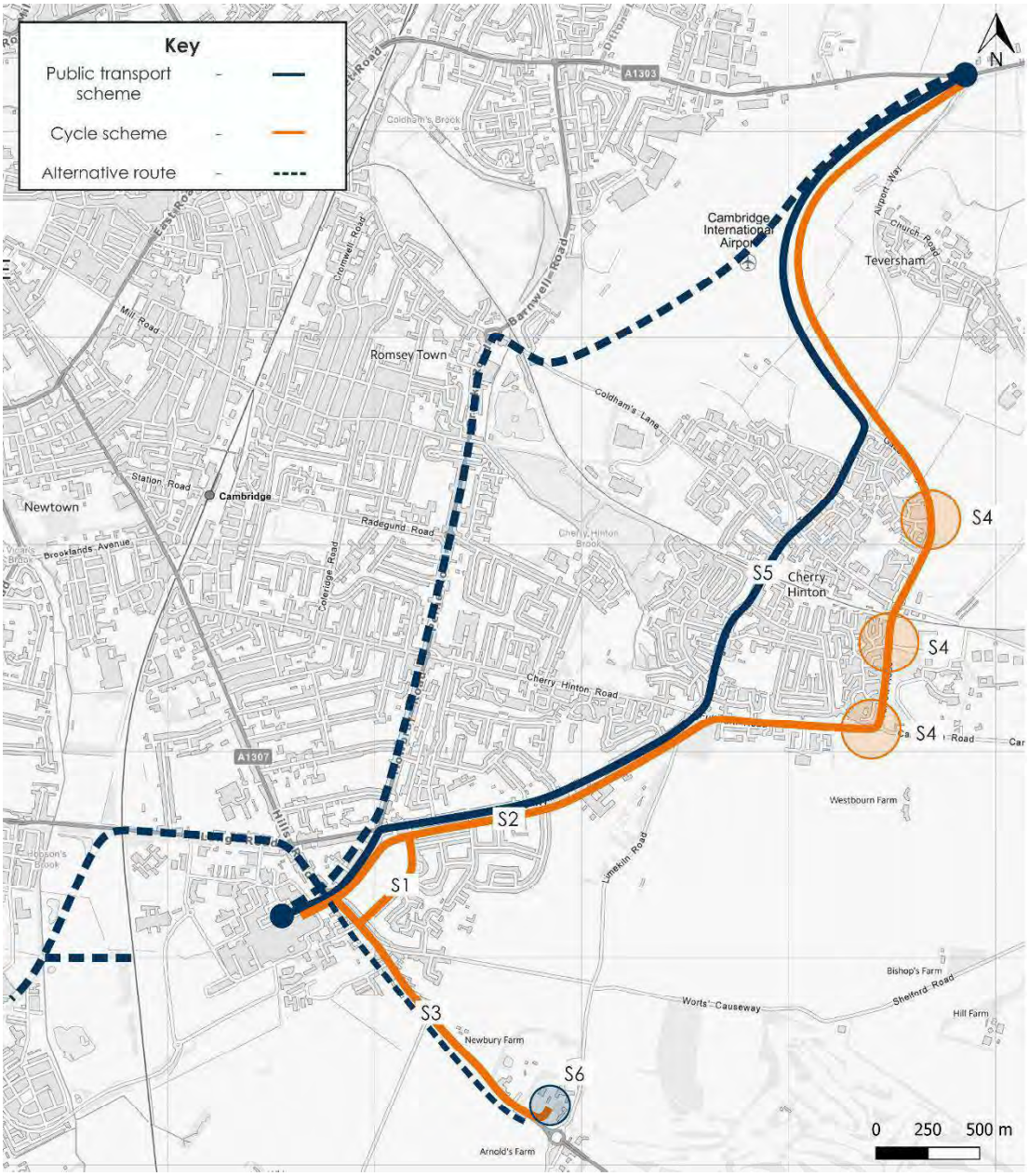


Figure 10.2 | Opportunities for Connectivity to the South

Options S1 to S4: Improved Cycle Access to Addenbrookes and Babraham Park and Ride (S3) via Nightingale Avenue (S1) and Queen Edith's Way (S2), including cycle priority at junctions (S4).

10.4.2 The principle of this option is to enable a high quality cycle link from the Newmarket Road Travel Hub at Cambridge East, via segregated infrastructure within the site and continuing on to Cherry Hinton and onto Addenbrookes and Babraham Road Park and Ride.

10.4.3 This would provide an opportunity for those arriving at Newmarket Road Travel Hub from the east, and those living within Cambridge East to travel directly to Addenbrookes via a high quality cycle route. It would also improve connectivity for Cherry Hinton residents to public transport services within the site and along the Newmarket Road corridor.

10.4.4 This option would make use of a widened cycle track on Gazelle Way proposed as part of the Land North of Cherry Hinton development, would continue past Tesco and continuing via the

recently improved infrastructure on Cherry Hinton Road before turning into Queen Edith's Way. Opportunities would be explored to provide greater priority for cyclists at junctions along Gazelle Way and Yarrow Road to the east of Cherry Hinton.

10.4.5 The option would also include improvements to the existing cycle tracks along Queen Edith's Way and the A1307 towards Babraham, this would include widening into verges where feasible and re-surfacing along the routes. The option also includes improving provision for cyclists via Nightingale Avenue. This road provides a direct linkage into part of Addenbrookes, avoiding the main access roundabout. Cyclists can continue south-east onto the A1307 towards Babraham Park and Ride. As shown on Figure 10.3, Nightingale Avenue currently has wide footways and opportunities could therefore be explored to provide for cycle tracks and directional lanes.

Figure 10.3 | Extract of Nightingale Avenue (Source: Google Earth Pro)

Option S5 - High Quality Public Transport Service from Newmarket Road Travel Hub to Addenbrookes via Cherry Hinton.

10.4.6 This option includes the provision of a high quality public transport service from the Newmarket Road Travel Hub, through Cambridge East and via Cherry Hinton to Addenbrookes and the Cambridge Biomedical Campus.

10.4.7 Figure 10.3 illustrates alternative routes and extensions that could be explored in the future also. For example, if a modal filter is installed on Coldhams Lane, a service could capitalise on this connection and route via the A1134 to Addenbrookes rather than via Cherry Hinton. Additionally, once Cambridge South Station is delivered, service extensions could be explored from Addenbrookes to Cambridge Station or onto Babraham Road Park and Ride. This would allow people travelling into Cambridge East from Babraham to access a direct public transport service, rather than having to interchange at Cambridge Station. A route alternative could also be explored east of Cherry Hinton to provide connectivity to Tesco and Peterhouse Technology Park / Capital Park.

Option S6 – Babraham Park and Ride Expansion

10.4.8 With the additional demand from outside the city in the larger scenarios, Cambridge East would support an expansion of the Park and Ride as well the other schemes in the area aimed at intercepting trip from the south and switching them to public transport before entering the City.

10.5 Summary

10.5.1 Demand analysis indicates increasing volumes of trips travelling from outside the city to and from the south with job growth at Cambridge East. Whilst these trips are likely to be spread across rail and park and ride services and therefore could access Cambridge East by capitalising on the connections from Cambridge East Station, alternatives have been explored to offer direct services from the Park and Ride and Addenbrookes / Cambridge Biomedical Campus into Cambridge East.

10.5.2 Whilst the options presented focus on specific routes, alternatives have also been identified which could be explored further if demand significantly changed with the opening of Cambridge East Station for example.

11 Off Site Mobility – Connections to the East

11.1 Introduction

11.1.1 Previous sections have already considered how to connect the east of Cambridge with the Station and City Centre, north and south.

11.1.2 The section reviews existing connectivity and future transport schemes to the east beyond the city and identifies options that would help improve this connectivity. Some of these will be schemes that have already been presented in the previous three sections so are not repeated in detail again here.

11.2 Existing Connectivity and Future Transport Schemes

Existing

11.2.1 NCR 51 provides the main cycle route out of Cambridge to the east. It continues east from Newmarket Road, under the A14 and via Bottisham before continuing north towards the Swaffhams and Burwell before continuing south again via Newmarket and Bury St Edmunds. NCR 11 connects into NCR 51 at multiple sections outside Cambridge, continuing north to Wicken.

11.2.2 Newmarket Road acts as a bus corridor east out of the city, with services operating on the A1303 through Bottisham to Newmarket and also via Bottisham, the Swaffhams and Burwell before continuing to Newmarket.

11.2.3 There are also existing rail services east from Cambridge Station towards Newmarket and Bury St Edmunds although the capacity of this line is limited as it is only a single track and there is also limited capacity at Cambridge Station.

Future to 2030

11.2.4 The GCP has proposals for two Greenways that will help connect Cambridge with towns and villages to the east. This includes the Swaffham Greenway and the Bottisham Greenway. Both include improvements to the east, but also further west around Barnwell and Ditton Lane.

11.2.5 As already set out earlier in this report there are also proposals to improve connectivity for cyclists within east Cambridge itself through the GCP's Cambridge Eastern Access Study. In addition to this, East West Rail Phase 3 (Eastern Section) has the potential to positively influence travel in the area in the future. The remit of this is to improve frequencies east of Cambridge towards Ipswich and Norwich. However, this is unlikely to be delivered within timescales to 2030 as it is at the early stages of consideration by the East West Rail Consortium and no route options have yet been published. However, as already set out in the consultation for the GCP's Cambridge Eastern Access study, East West Rail Phase 3 could potentially include improving the capacity of the existing railway line east out of Cambridge. If a stop were provided at Cambridge East, this would offer a direct, more frequent service from the towns to the east of the city into and out of Cambridge.

11.2.6 In addition, the current proposals for CAM envisage an outer route extending from the Newmarket Road Park and Ride towards Newmarket and Mildenhall. No connectivity is currently proposed to Bury St Edmunds so this would continue to only be accessible by rail and long distance bus service.

11.2.7 A summary of the existing and future schemes is provided on Figure 11.1.

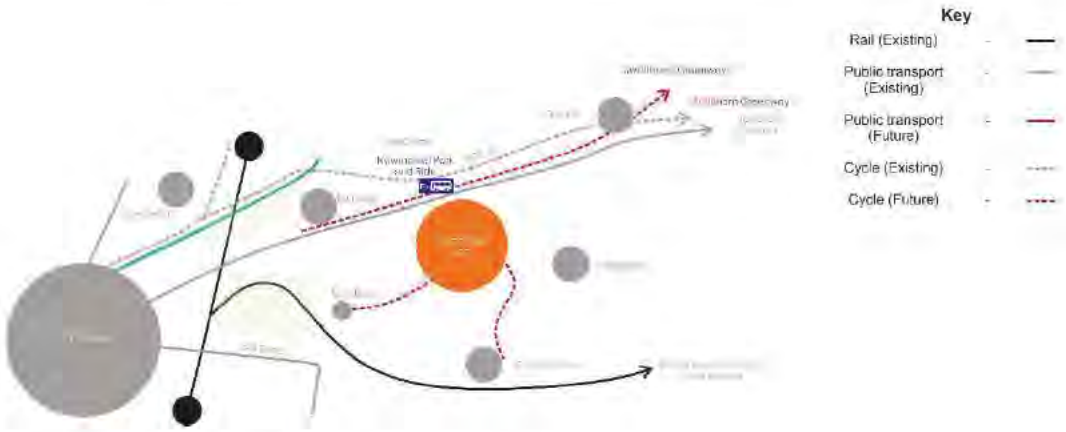


Figure 11.1 | Existing and Future Connectivity to the East

11.3 Why connect to the east?

11.3.1 Table 11.1 summarises the demands to and from areas to the east of Cambridge in Scenarios A, B and C/D based on the analysis in Section 5 of this report.

Table 11.1 | Demand to the East – AM Peak Period (0700 – 1000)

Geographical Area	% of total external trips		
	Scenario A	**Scenario B**	**Scenario C/D**
Within Cambridge			
East	550	750	1,050
Outside Cambridge			
East (e.g. A14, Newmarket, Bury St Eds)	600	2350	3,350
Total	1,150	3,100	4,400

11.3.2 The demands indicate that for the larger job growth scenarios, the role of connectivity to incoming routes from the east from outside the city become increasingly important. It is therefore important to provide connectivity in from the villages to the east by bicycle, but also provide enhanced opportunities for public transport and the capture and transfer of trips to sustainable modes before entering the city.

11.4 Opportunities to improve connectivity to the east.

11.4.1 The main focus of the strategy to the east focuses on maximising the ability to capture and switch trips to sustainable modes by providing a range of connectivity options from a new Newmarket Road Travel Hub.

11.4.2 As the origins of those travelling to Cambridge East from outside the city to the east are dispersed, private coach services could be offered based on the home destinations of their employees and subsidised by employers within the site so that services can be tailored specifically to demands, rather than corridors. This also means that employees are not required to drive to the Newmarket Road Travel Hub to get to their workplace from east of the city.

11.4.3 In addition, Cambridge East would support the GCP Greenway schemes for Bottisham and the Swaffhams illustrated on Figure 11.1, enhancing longer distance commuting by bicycle. Opportunities could be explored to extend these depending on the scale of demand from these villages.

11.4.4 In addition to connectivity east outside the City, there are measures within the east of Cambridge which have already been set out in earlier sections that would provide access to the Cambridge East site from other locations within the east of the city. These options include:

- **Relocation of Newmarket Road Park and Ride and expand and upgrade to Travel Hub** (See Section 9).
- **Green Corridor Cycle Link to Chisholm Trail** (See Section 9).
- **Delivering high quality public transport services from the Newmarket Road Travel Hub towards Addenbrookes, Cambridge North the Rail Station and City Centre** (See Sections 8, 9 and 10).
- **Delivering a Mass Rapid Transit Route through the site and connecting into Cambridge Station** (See Section 9).
- **Delivering a new connection between Newmarket Road Travel Hub and Cambridge North Station** (see Section 8).

11.4.5 In addition to the above, as part of the sustainability work by Logika, a 'suite' of opportunities, which can form the basis of a long term, potentially shared sustainability strategy, have been identified. These opportunities, seek to meet the ambitions of other nature conservation ambitions including the Wicken Fen Vision, the Nature Network Strategy and the Doubling Nature Vision, one of which identifies the potential for Scenario C/D to create an enhanced active travel link, including a more direct route from Airport Way to the underpass of the A14, and then north of the A14, towards the area of the Wicken Fen Vision.

11.5 Summary

11.5.1 Forecast demand to the east increases with the higher job growth scenarios due to incoming work trips. The CAM seeks to address this requirement for connectivity but due to the relatively dispersed nature of the towns and villages to the east, the interception of these trips forms an important part of the strategy. Enhancing the capacity and opportunities for onward travel from the Newmarket Road Travel Hub will be important even in a scenario where the CAM is delivered in full.

12 Packaging the Transport Strategies

12.1 Introduction

12.1.1 To enable the impact of the transport measures to be assessed, the transport measures set out in Sections 8, 9, 10 and 11 were packaged together. This packaging was informed by the demands generated by each of the development scenarios along each transport corridor.

12.1.2 This section provides an overview of the demands using each corridor by scenario and summarises the measures assumed to fall within the transport package for each scenario.

12.1.3 Section 13 goes on to summarise the outcomes of the testing of these transport strategies within the Stantec spreadsheet tool.

12.1.4 Whilst strategies have been identified for assessment and tested, there are range of alternatives available that achieve the same connectivity, including those set out in Appendix B of Steer's Cambridge East Transit Deliverability Report. The overall transport strategy for Cambridge East is flexible and will evolve with the development, allowing for at least the following:

- The full de-carbonisation of all public transport vehicles – so all buses to be zero emission/presumed electrically powered.
- Full deployment of personal IT support available for people of all ages and abilities to enable secure and safe navigation.
- Arrangements for charging systems (fares) that allow for seamless transfer between the most appropriate travel modes (including on the rail network)
- All of these modes designed for use by mobility impaired travellers.

12.2 Summary of transport demands

12.2.1 Figures 12.1, 12.2 and 12.3 summarise the overall travel demands within each of the scenarios, both for journeys within the city and outside for the AM Peak Period (0700 – 1000). These demands have informed the packaging of the transport strategies.

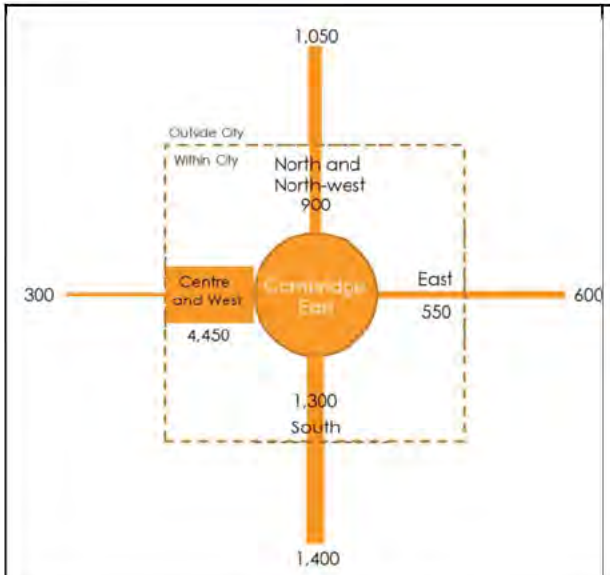


Figure 12.1 | Scenario A – Travel Demand Summary (AM Peak Period 0700 – 1000) (Source: Stantec)

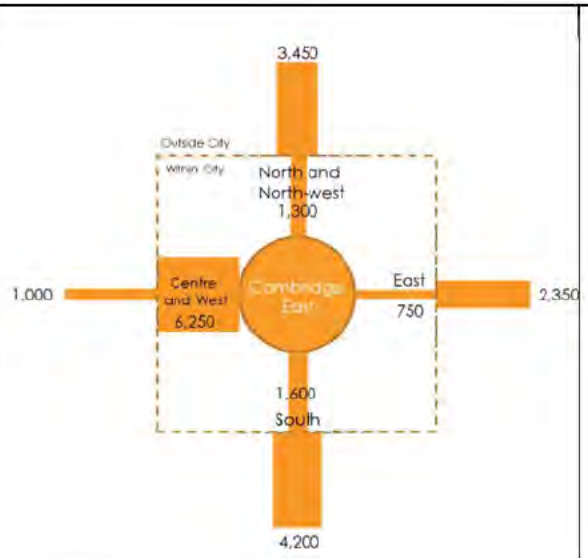


Figure 12.2 | Scenario B – Travel Demand Summary (AM Peak Period 0700 – 1000) (Source: Stantec)

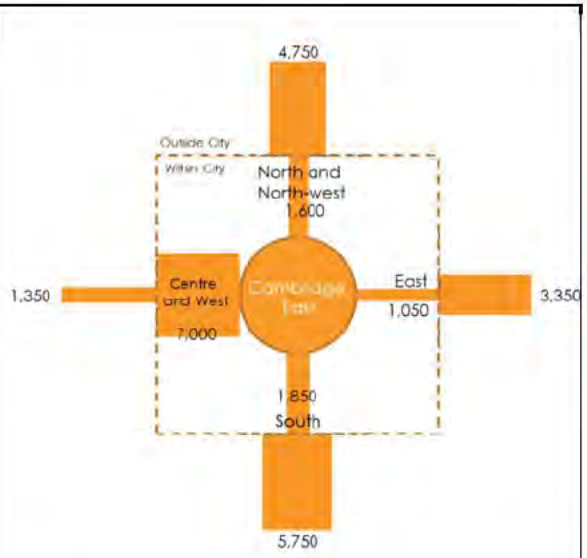


Figure 12.3 | Scenario C/D – Travel Demand Summary (AM Peak Period 0700 – 1000) (Source: Stantec)

12.3 Transport Packaging – Connectivity to Cambridge Station and City Centre

12.3.1 The demands on Figures 12.1, 12.2 and 12.3 indicate the following scale of demand on average per hour if all trips were to use a single mode. These are not forecast trips by mode, and are provided simply to gain an understand of potential relative carrying capacities for connections between the scenarios:

- Scenario A (4,750 trips of which 300 outside Cambridge)
  - 1,583 cyclists per hour
  - One bus per 2.7 minutes (assuming a 72 seater)
- Scenario B (6,250 trips of which 1,000 outside Cambridge)
  - 2,083 cyclists per hour
  - One bus per 2.1 minutes
- Scenario C/D (7,000 trips of which 1,350 outside Cambridge)
  - 2,333 cyclists per hour
  - One bus per 1.9 minutes

12.3.2 Based on the analysis above, all scenarios require a high quality link to the Station and City centre area for cycling and for public transport. Given the distance from the site to the city centre and station it is expected that with high quality connections provided across a number of routes, a significant portion of these would be undertaken by bicycle. The residual demand would then be accommodated through high quality public transport services.

12.3.3 However, in packaging this option together, consideration has also been given to the longer distance trips forecast from the south that could arrive via rail or the existing Park and Ride sites on the edge of the city which directly serve the station. These demands are significantly higher in Scenarios B,C and D and therefore in these scenarios, a higher capacity lower headway public transport option is required.

12.3.4 On this basis, whilst the cycle strategies are consistent between the scenarios, the transport package for Scenarios B, C and D includes for the fully segregated, higher capacity, lower headway public transport scheme.

12.3.5 Table 12.1 summarises the transport packaging assumed for each scenario justified by the demands at its end state. The strategies are summarised in full in Section 12.7

Table 12.1 | Packaging of Transport Measures – Connectivity to the Station and City Centre

	Scheme	Transport Packaging		
		Scenario A	Scenario B	Scenario C / D
SC1	High-quality green corridor linking a re-located Newmarket Road Park and Ride with the Chisholm Trail	✓	✓	✓
SC2	Cycle Improvements to City Centre via Newmarket Road	✓ - via GCP CEA	✓ - via GCP CEA	✓ - via GCP CEA

	Scheme	Transport Packaging		
		Scenario A	Scenario B	Scenario C / D
SC3	Cycle Improvements to City Centre via Coldhams Lane	✓ - via GCP CEA	✓ - via GCP CEA	✓ - via GCP CEA
SC4	Cycle improvement to Cambridge Station via Mill Road	✓ - via GCP CEA	✓ - via GCP CEA	✓ - via GCP CEA
SC5	Cycle improvements to Cambridge Station via Davy Road	✓	✓	✓
SC6	Coldhams Lane Modal Filter (Location 1)	✓	✓	✓
SC7	Coldhams Lane Modal Filter (Location 2)	✓ - as an alternative to SC6	✓ - as an alternative to SC6	✓ - as an alternative to SC6
SC8	Mill Road Modal Filter	✓	✓	✓
SC9	Cycle Improvements between Green Corridor and Coldhams Lane	✓	✓	✓
SC10	Public Transport / Cycle improvements at junctions along A1134.	✓ - via GCP CEA	✓ - via GCP CEA	✓ - via GCP CEA
SC11	High Quality Surface PT Route to City Centre via Newmarket Road (including bus priority)	✓ - via GCP CEA	✓ - via GCP CEA	✓ - via GCP CEA
SC12	High Quality Surface PT Route to City Centre via Coldhams Lane	✓ - as an alternative to SC11		
SC13	High Quality Surface PT Route to Cambridge Station via Mill Road	✓ - as an alternative to SC11		
SC14	Surface Mass Rapid Transit Route to Cambridge Station via Davy Road		✓	✓
SC15	Mass Rapid Transit Tunnelled Link to Cambridge Station.		✓ - as an alternative to SC14	✓ - as an alternative to SC14

12.4 Transport Packaging – Connectivity to the North

12.4.1 The demands on Figures 12.1, 12.2 and 12.3 indicate the following scale of demand on average per hour if all trips were to use a single mode. These are not forecast trips by mode, and are provided simply to gain an understand of potential relative carrying capacities for connections between the scenarios:

- Scenario A (1,950 trips of which 1,050 outside Cambridge)
  - 650 cyclists per hour
  - One bus per 6.6 minutes (assuming a 72 seater)

- Scenario B (4,750 trips of which 3,450 outside Cambridge)
  - 1,583 cyclists per hour
  - One bus per 2.7 minutes (assuming a 72 seater)
- Scenario C/D (6,350 trips of which 4,750 outside Cambridge)
  - 2,116 cyclists per hour
  - One bus per 2.0 minutes

12.4.2 As the proportionate demand for travel outside the city significantly increases in Scenarios B,C and D and the volumes increase, the ability to provide a longer distance public transport service connecting to the site becomes increasingly important.

12.4.3 The frequency requirements above for Scenarios B,C and D necessitate a higher capacity, smaller headway public transport service than Scenario A. For cycling, whilst these demands would be able to disperse across routes in the area, the volumes would support the investigation of an alternative more direct connection over the River Cam to reinforce the attractiveness of cycling as a mode of transport to and from the north.

12.4.4 Based on the demand analysis, Table 12.2 summarises the transport packaging assumed for each scenario justified by the demands at its end state. The strategies are summarised in full in Section 12.7

Table 12.2 | Packaging of Transport Measures – Connectivity to the North

	Scheme	Transport Packaging		
		Scenario A	Scenario B	Scenario C / D
N1	Closure of Newmarket Road Park and Ride and provision of Newmarket Road Travel Hub	✓	✓	✓ - Scenario C allows for complementary uses
N2	NCR51 Improvements	✓	✓	✓
N3	Active mode bridge into Cambridge North	✓ - can be explored but not a necessity	✓ - can be explored but not a necessity	✓ - can be explored but not a necessity
N4	High quality public transport service via Chesterton	✓		
N5	Fully segregated sustainable mode corridor via North East Cambridge		✓	✓
N6	Public transport priority at junctions– Elizabeth Way, Milton Road, Newmarket Road	✓	N/A	N/A
N7	Peak hour bus gate in Fen Ditton (required with option N8)		✓ - can be explored but not a necessity	✓ - can be explored but not a necessity

	Scheme	Transport Packaging		
		Scenario A	Scenario B	Scenario C / D
N8	Fully segregated sustainable mode corridor via North East Cambridge + vehicular link to Newmarket Road + option to close Fen Road Crossing		✓ - as a variation of N5	✓ - as a variation of N5
N9	Expansion to Milton Park and Ride and optional direct service	✓ - service could be considered but expansion unlikely	✓	✓
N10	Expansion to St Ives Park and Ride.		✓	✓

12.5 Transport Packaging – Connectivity to the South

12.5.1 The demands on Figures 12.1, 12.2 and 12.3 indicate the following scale of demand on average per hour if all trips were to use a single mode for journeys to the south. These are not forecast trips by mode, and are provided simply to gain an understand of potential relative carrying capacities for connections between the scenarios:

- Scenario A (2,700 trips of which 1,400 outside Cambridge)
  - 900 cyclists per hour
  - One bus per 4.8 minutes (assuming a 72 seater)
- Scenario B (5,800 trips of which 4,200 outside Cambridge)
  - 1,933 cyclists per hour
  - One bus per 2.2 minutes (assuming a 72 seater)
- Scenario C/D (7,600 trips of which 5,760 outside Cambridge)
  - 2,533 cyclists per hour
  - One bus per 1.7 minutes

12.5.2 Based on the analysis above, the number of journeys from outside Cambridge is significantly higher in Scenarios B,C and D than in Scenario A. Sustainable options available for these trips are rail (arriving at Cambridge Station) or the Park and Rides at Trumpington and Babraham and either switching to bus to Cambridge Station or cycle to Cambridge East. On this basis, providing accessibility to Cambridge Station is important to capture these trips. For this reason, the transport package for Scenarios B,C and D include a segregated, high capacity public transport link between Cambridge East and the Station.

12.5.3 For the journeys within Cambridge (1,300 – 1,850 trips across the three scenarios), given the distance between Cambridge East and areas to the south inside the City itself, e.g. Addenbrookes / Biomedical Campus, with improvements to the quality of cycle connections within the city, cycling could form a significant amount of these journeys. Public transport could accommodate the residual journeys with a direct service from Cambridge East to Addenbrookes and the Biomedical Campus.

12.5.4 Table 12.3 summarises the transport packaging assumed for each scenario justified by the demands at its end state. The strategies are summarised in full in Section 12.7

Table 12.3 | Packaging of Transport Measures – Connectivity to the South

	Scheme	Transport Packaging		
		Scenario A	Scenario B	Scenario C / D
S1	Improved cycle connectivity to Addenbrookes via Nightingale Avenue	✓	✓	✓
S2	Improved cycle connectivity to Addenbrookes via Queen Edith Way	✓	✓	✓
S3	Improved cycle connectivity onto Babraham Park and Ride		✓	✓
S4	Improved cycle facilities at junctions	✓	✓	✓
S5	High Quality Public Transport Link to Addenbrookes and Cambridge Biomedical Campus	✓	✓	✓
S6	Expansion to Babraham Park and Ride		✓	✓

12.6 Transport Packaging – Connectivity to the East

12.6.1 The demands on Figures 12.1, 12.2 and 12.3 indicate the following scale of demand on average per hour if all trips were to use a single mode for journeys to the east. These are not forecast trips by mode, and are provided simply to gain an understand of potential relative carrying capacities for connections between the scenarios:

- Scenario A (1,150 trips of which 600 outside Cambridge)
  - 383 cyclists per hour
  - One bus per 11.3 minutes
- Scenario B (3,100 trips of which 2,350 outside Cambridge)
  - 1,033 cyclists per hour
  - One bus per 4.1 minutes
- Scenario C/D (4,400 trips of which 3,350 outside Cambridge)
  - 1,466 cyclists per hour
  - One bus per 3.0 minutes

12.6.2 Based on the analysis above, the number of journeys from outside Cambridge is significantly higher in Scenarios B,C and D than in Scenario A. Sustainable options available for these trips are cycling (via Greenways) rail arriving at Cambridge Station (but this is currently limited in terms of capacity), the existing long distance public bus services or the Newmarket Road Park and Ride. Support for cycle and public transport connections east from the site towards the villages such at Bottisham and the Swaffhams, combined with the Newmarket Road Travel Hub would form a key part of this strategy. Employers within the site could also group

together to offer private coach services that are tailored to the home locations of staff, similar to how the research parks south of the city currently operate with great success. The longer term measures set out in the GCP's CEA Study, such as the CAM and rail improvements would also be stimulated and supported by this scale of growth at Cambridge East.

12.6.3 For the journeys within Cambridge (550 – 1,050 trips across the three scenarios), given the locality of these journeys, with improvements to the quality of cycle connections within the city, cycling could form a substantial portion of these journeys. Public transport could accommodate the residual journeys with the services planned from the Newmarket Road Travel Hub.

12.6.4 Table 12.4 summarises the transport packaging assumed for each scenario justified by the demands at its end state. The strategies are summarised in full in Section 12.7.

Table 12.4 | Packaging of Transport Measures – Connectivity to the East

Scheme	Transport Packaging		
	Scenario A	Scenario B	Scenario C / D
Relocation and Expansion of Newmarket Road Park and Ride to become Mobility Hub	See Table 12.1		
Green Corridor Cycle Link to Chisholm Trail	See Table 12.2		
High Quality Public Transport Link to Addenbrookes and Cambridge Biomedical Campus	See Table 12.3		
High Quality Public Transport Route from Newmarket Road Travel Hub to City Centre, Station and Cambridge North	See Tables 12.1 and 12.2		
Mass Rapid Transit Link to Cambridge Station (Tunnelled or Surface TBC)	See Table 12.2		
New direct connection between Cambridge East and Cambridge North	See Table 12.1		
Support for cycle improvements to the villages (i.e. Bottisham Greenway / Swaffham Greenway)	✓	✓	✓
Support for public transport schemes to the east being explored as part of the GCP CEA		✓	✓

12.7 Summary of Transport Strategies taken forward for testing

12.7.1 For Scenario A the demand forecasts and corridors indicate that a transport strategy could be adopted that is not reliant on CAM or a transit link but would provide cross-city connectivity through a network of high-quality bus routes to Cambridge North, the Station and City Centre and to Addenbrookes. This high-quality bus-based network would be supported by a network of high quality walk and cycle routes offering the same connectivity.

12.7.2 A summary of the strategy for Scenario A is provided in Figure 12.4 and further detail of the individual connections and bus-based transport network is set out in Sections 8 to 12.

12.7.3 In contrast, Scenarios B, C and D will generate more trips, but offer the scale to support much greater public transport investment. Higher absolute trip volumes, particularly associated with the job provision within the site. The demand from multiple locations around Cambridge and the higher volumes of these demands means the cross-city connectivity solution for these scenarios is focused towards capturing those travelling into Cambridge East from outside the city and switching them to public transport, walking or cycling as well as addressing the challenge of connectivity within the city itself.

12.7.4 This strategy is therefore similar to Scenario A, but the scale of public transport intervention is more substantial. This challenge of achieving high capacity, cross-city connectivity is ultimately assumed to be met by CAM. However, to maintain consistency with the Local Plan evidence base, a transit link in combination with other public transport initiatives that build upon the bus-based networks envisaged in Scenario A have been explored as alternative approaches to delivering connectivity along the corridors important to Cambridge East, as set out in Section 8, 9, 10 and 11.

12.7.5 The tested strategy for Scenarios B, C and D includes a high quality transit link to Cambridge Station (consistent with CAM connectivity principles) and with a high quality public transport network, including key links such as a surface connection between Cambridge East and Cambridge North.

12.7.6 These connections in combination have the potential to provide the basis for an integrated transport system for Cambridge that links the existing and committed schemes to the north of the City with the existing and committed schemes to the south via Cambridge East.

12.7.7 The strategy for Scenarios B,C and D is summarised on Figure 12.5 and shows the direct mass rapid transit links in place of the high-quality public transport schemes in Scenario A. The high-quality bus route between Cambridge East and the Cambridge Biomedical Campus (CBC) is retained although demand would likely fall given high quality interchange at Cambridge Station would form part of the transit proposals to the station which allow ease of access to the southern busway and therefore CBC. A bus service is also retained into the City Centre via Newmarket Road based on the existing frequency of the Park and Ride service.

12.7.8 Section 13 of this report summarises the findings of the high level testing of these transport strategies against the principle of a VTB and resulting necessary car driver mode share targets, as well as an indication of the impact of the transport strategies on other existing trips within Cambridge and South Cambridgeshire. However, as demonstrated within Sections 8 – 11 of this report and in Appendix B of Steer's Transit Deliverability Report, there are a range of alternative public options that could be explored and tested further at the next stage to deliver connectivity important to Cambridge East.

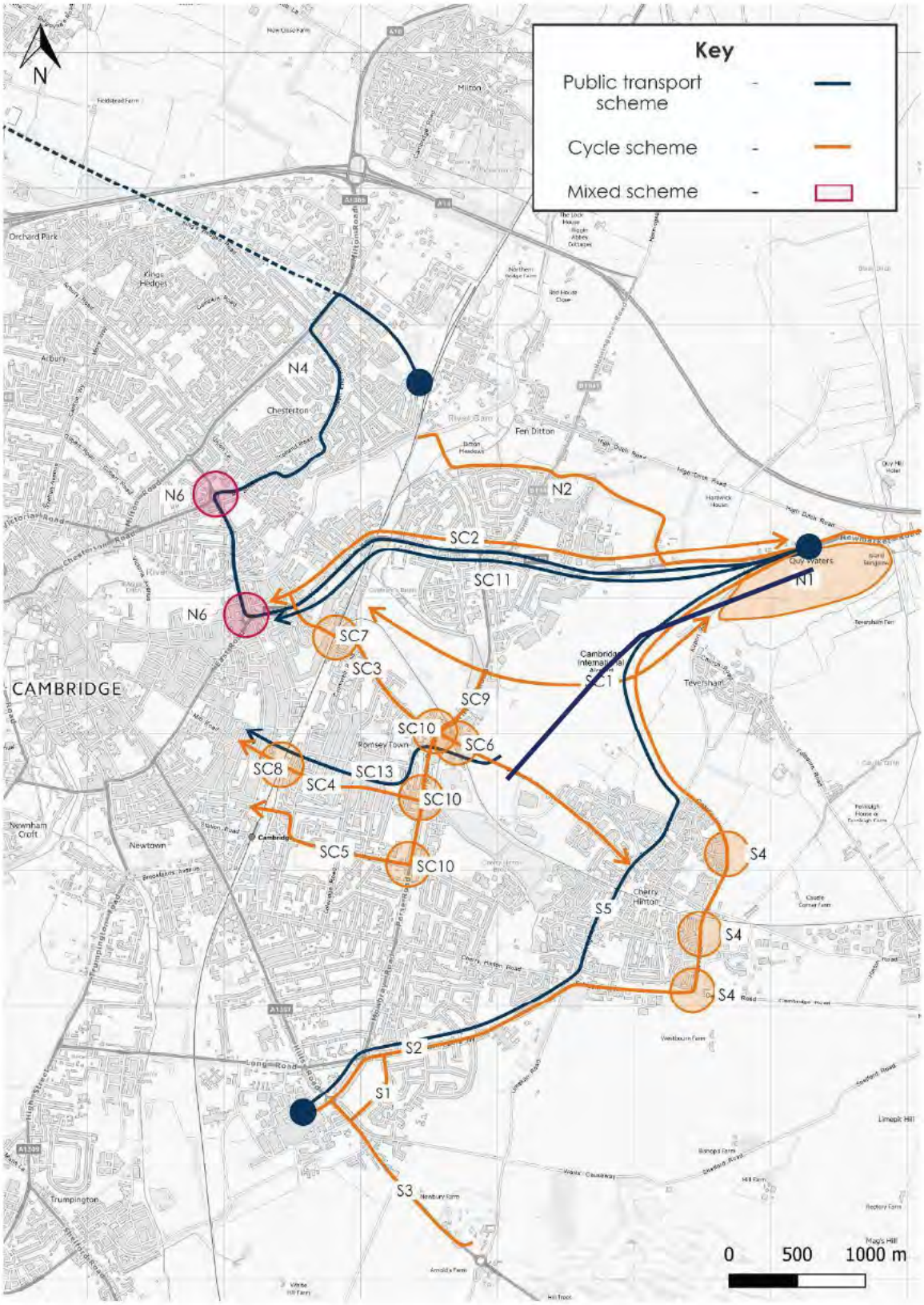


Figure 12.4 | Scenario A Transport Strategy - Summary of Measures

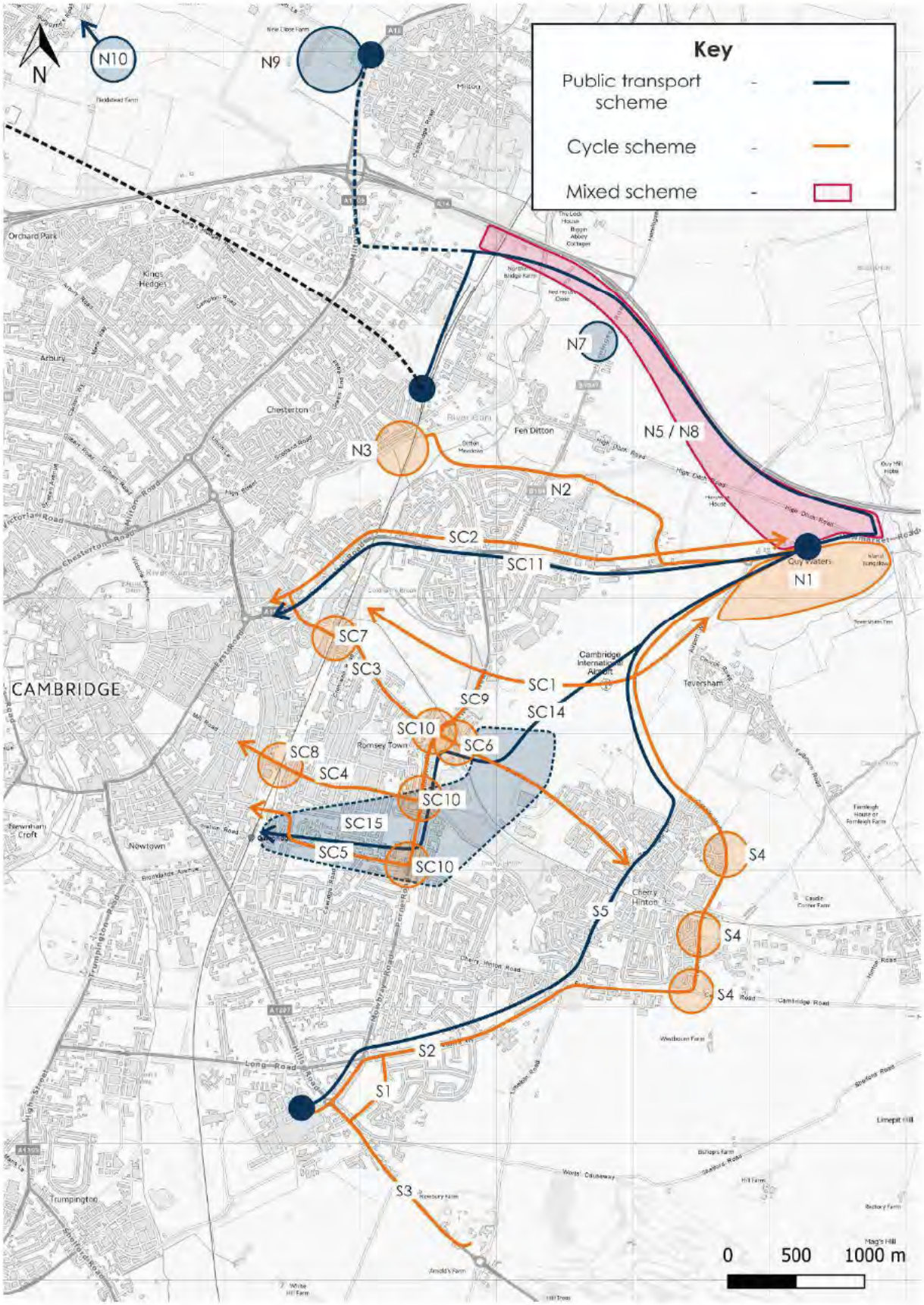


Figure 12.5 | Scenario B/C/D Transport Strategy - Summary of Measures

13 Impact of the Transport Strategies

13.1 Introduction

13.1.1 As shown in Section 5, the scale of growth assessed within this report varies from Development Scenario A which is residential led to more significant growth mixed used growth in Scenarios B, C and D. All scenarios require will require an element of cross city connectivity, the scale of which is a function of the scale of growth and ambition.

13.1.2 In summary, the external person trips generated by the Development Scenarios are represented below in Table 13.1 for the AM Peak Period.

Table 13.1 | External Person Trips by Scenario – AM Peak Period (0700 – 1000)

AM Peak Period (0700 – 1000)	Scenario A	Scenario B	Scenario C	Scenario D
Person Trip External to Site	10,550	20,900	26,700	26,200

13.1.3 Sections 8, 9, 10 and 11 of this report set out the key connections which have been identified as important for Cambridge East, informed by the forecast demands and origins and destinations. Connections to each of these locations form the basis for the transport strategies for Cambridge East. These connections can be considered as choices or options and are scalable depending on the ultimate ambition pursued at the site and of course demand over time.

13.1.4 The packaged transport strategies to deliver the end state Development Scenarios have been coded into the spreadsheet tool and high-level conclusions are drawn in the remainder of this section regarding the ability to deliver growth, at scale, at Cambridge East. It is acknowledged that detailed modelling using CCC's CSRM2 model will be required to validate these conclusions and finesse the measures and interventions. A summary of the strategies by Scenario is set out in Section 13.2 below.

13.2 Impact of Transport Interventions on Calculating the Vehicle Trip Budget

13.2.1 As stated previously there is a commitment by Marshall to work to the principles of a VTB. The detail of the VTB will need to be worked out in more detail through up to date surveys, detailed modelling of transport interventions and the 'banking' that can be achieved, the extant use generation and access strategies of the site. However, the principle is clear and understood – Cambridge East cannot rely upon a significant net increase in vehicle trips to be acceptable in transport terms and this therefore forms the test of the transport strategies.

13.2.2 Initial work has therefore been undertaken by Stantec to understand the potential scale of a VTB for Cambridge East for the AM and PM Peak Periods. The VTB will be broadly to be made up of the following aspects:

- Extant vehicle trips relating to the existing MADG uses
- Existing Residual highway capacity
- Existing vehicle trips that can be banked through the investment in sustainable transport measures.

Extant Vehicle Trips relating to Existing MADG Uses

13.2.3 MADG staff shift patterns were analysed to understand the numbers of the existing workforce already travelling during this period. These numbers were cross compared with 2011 Census travel to work data for the workplace zones that cover the site to identify a car driver mode share and potential car trips. The 2011 Census remains the most robust, comprehensive and up to date dataset for commuting patterns.

13.2.4 Using these data sources, the following vehicle trips have been calculated for the AM peak periods. These will need to be revalidated through comprehensive surveys post the current pandemic.

	AM Peak Period	PM Peak Period
Existing Vehicle Trips to Site	900	825

Existing Residual Highway Capacity

13.2.5 Analysis has been undertaken of the peak hour and peak period traffic flow profiles from data collected at junctions around the airport set, collected in 2016 and 2017 as part of the Land North of Cherry Hinton planning application. This was to identify whether there was any residual capacity outside the central peak hour on the networks surrounding the site. Overall spare capacity was shown to be limited across most approaches (c.150 – 300 trips) except Airport Way which had the most residual capacity (c.600 trips). However, potentially changed working practices resulting from the global pandemic may result in less stressed transport conditions across all modes during peak periods into the future and this will be reappraised in due course. At this stage, account has been taken of residual highway capacity by taking upper and lower figures to present a range. No account has been taken of the potential impact of city-wide fiscal schemes such as workplace parking levies as these do not form part of any adopted policy.

Existing Vehicle Trips that can be banked through investment in sustainable transport infrastructure

13.2.6 Whilst the extant uses and residual capacity are more transparent, the ability to bank existing vehicle trips through sustainable transport investments will require comprehensive modelling in due course. However, for the purposes of this report reference has been made back to estimates made by the CAM Strategic Outline Business Case and how many trips using transit may have transferred from the car. This work forecast that this could be up to 44% of transit users having been previously travelling by car. In the case of CAM, this is assumed to represent 44% of all existing highway trips to the Cambridge urban area being transferred to public transport.

13.2.7 As the alternative CAM strategies for Scenarios B, C and D do not capture the full connectivity and capacity achieved by the CAM, the number of people benefiting from this new connectivity will not be as extensive as a full CAM system but will still provide significant benefit over any measures proposed for Scenario A. The trip cap has therefore considered these elements.

13.2.8 Within Cambridge there are many competing modes and distances from anywhere within the city to Cambridge East are relatively small meaning walking and cycling and hugely viable for most trips. The transport packages presented therefore also have the potential to take cars off the network for journeys within the city itself. However, at this stage, the banked trips used to inform the indicative VTB only assumes the potential for vehicle trips previously travelling from outside Cambridge into the City to be captured and switched to alternative modes. Further testing informed by data from the CSRM would be required to update the VTB ranges

that also take account of headroom created by lower car trips within the city itself. The VTBs are therefore a reasonable but robust working assumption at this stage.

13.2.9 Table 13.2 provides a relative summary of the benefits from the different scale of transport interventions proposed to different approaches into the city, also including the CAM. This Table therefore gives an indication of the relative scale of trip banking that could potentially generate headroom for growth at Cambridge East from these different strategies. This is a qualitative summary, where CAM is used as a base, of how potential investments affect different corridors. It should again be noted that CAM remains the likely and preferred solution to solve Cambridge's transport challenges with the alternative strategies below being a combination of other measures to support growth.

Table 13.2 | Assumed relative benefits of transport strategies on trip making into Cambridge – CAM as a base.

Radial Routes into City	Relative scale of trip banking potential		
	Scenario A	Scenario B, C, D	CAM
North	✓	✓✓	✓✓✓✓
North-east (i.e. A10)		✓✓✓	✓✓✓✓
East	✓	✓✓✓	✓✓✓✓
South		✓	✓✓✓✓
West		✓	✓✓✓✓
North-west (i.e. A14)		✓✓✓	✓✓✓✓

13.2.10 The relative scale of trip banking from transport infrastructure has the single largest influence on the scale of the VTB. This is illustrated in Table 13.3 which shows how the scale of headroom and additional transport network capacity increases with each of the transport strategies, indexed to Scenario A. So higher values illustrate the greater amount of trip banking occurring when compared with Scenario A.

13.2.11 These comparisons have been derived by reviewing the total number of incoming car trips in the AM Peak Period from each of the areas. The scale of modal shift of these trips away from the car has been estimated with reference to the Strategic Outline Business Case for the CAM which indicates a full CAM system has the potential for 44% of its users to have previously been using a car. For consistency, this assumption has been applied to all incoming trips served by the CAM network. A lower shift of 22% is assumed as a starting point and is applied across zones that benefit from the MRT strategies in Scenarios B, C and D. As stated previously, the comparisons are provided for relative comparison of growth scenarios. This is a conservative assumption at this stage as the shift towards transit is likely to be significantly higher for those close to the route. Furthermore, the longer term impacts of the global pandemic on travel patterns and mode choice is not yet known which could potentially alter the baseline for these calculations.

Table 13.3 | Estimated relative headroom created by transport infrastructure (Indexed to A)

Scenario	Low	High
Scenario A	1	1
Scenario B / C / D (without East West Rail Ph2)	4.9	3.9
Scenario B / C / D (with East West Rail Ph2)	5.5	4.5
CAM	11.7	9.4

13.2.12 The application of these factors to traffic flows along key radial corridors i.e. the vehicle trips that could be banked are shown below in Table 13.4. These are presented as ranges given the high-level approach adopted to calculate them. The VTB could be greater if modelled outcomes indicated vehicular trip capture in excess of the 22% assumed for this exercise which has halved the forecast used by CAM.

Table 13.4 | Estimated trips banked (Three Hour Peak Periods, i.e. 0700 -1000 and 1600 – 1900)

Radial Routes into City	Relative scale of trip banking potential		
	Scenario A	Scenario B, C, D	CAM
North	110 – 170	240 – 360	970 - 1450
North-east (i.e. A10)	160 – 240	690 – 1,040	1,380 – 2,070
East	0	720 – 1,070	1,420 – 2,140
South	290 – 440	1,280 – 1,910	2,550 – 3,830
West (assumes EWR Ph2)	0	630 – 950	1,260 – 1,890
North-west (i.e. A14)	70 - 110	320 - 480	640 – 950

13.2.13 The ranges presented above will be confirmed through further scenario testing to support the Local Plan in 2021. It is anticipated that this work will demonstrate the value of transport investments relating to Cambridge East where the integration of transport networks north of the city and to the south can be achieved i.e. the cross-city connectivity.

13.2.14 The total VTB ranges calculated through the 3 stages highlighted above (taking the central value of the ranges in Table 13.4) are set out below in Table 13.5.

Table 13.5 | Estimated trips banked

Radial Routes into City	Relative scale of trip banking potential		
	Scenario A	Scenario B, C, D	CAM
Estimated VTB	1,850 – 2,200	5,800 – 6,300*	12,300 – 13,100

* If no connection is delivered from the west into either Cambridge North or Cambridge Station e.g. East West Rail or bus link via NIAB to Cambridge North, this reduces to 5,100 – 5,500

13.2.15 The VTBs in Table 13.5 show the scale of capacity generated by the CAM in terms of trip banking and illustrate why development scenario A (which only generates 10,500 external trips in total) would not be making the best use of the opportunity created by the CAM.

13.3 Modal Share

13.3.1 As set out above, elements of each of the transport strategies above were input into the spreadsheet tool. Although the tool is a high-level tool and does not have the same capabilities as the CSRM2, it is able to take into account the potential impact of these transport improvements at a high level through the modal shares it produces.

13.3.2 The testing is completed by updating the networks within Omnitrans and extracting information across the full network about cost of travel between zones taking these interventions into account. For example, if travel becomes quicker by public transport for a specific journey as a result of a transport measure, increased proportions of people will choose public transport over the car in the future.

13.3.3 As the CSRM2 tool is more sophisticated and is able to take into account multi-stage trips, the spreadsheet tool has been used primarily to compare what target car driver mode share is estimated in each scenario for the growth to be achieved within a the VTB range specified. Whilst the assessment has indicated that all Scenarios could operate within the VTB, different challenges are created by the scale of growth in terms of what this equates to for car driver mode share.

13.3.4 Table 13.6 summarises how the target car driver mode shares vary by scenario taking into account the variation within the VTBs.

Table 13.6 | Variance in Car Driver Mode Share Targets by Scenario

Scenario	VTB Car Driver Mode Share
Scenario A (9,500 homes, 4000 jobs)	18 – 21%
Scenario B (9,500 homes, 28,000 jobs)	28 – 30%
Scenario C (12,000 homes, 38,000 jobs)	22 – 24%

13.3.5 By comparison, the car driver mode share for residents in central Cambridge from the 2011 Census for journeys to work was 21%. The 2011 Census does not disaggregate car driver mode share into Park and Ride users and does not take account of the Guided Bus as this

opened in August 2011 and the census was completed in March 2011 and therefore can be considered conservative.

13.3.6 Earlier sections show that the external trip volumes for Scenarios B, C and D are between 2 and 2.5 times higher than Scenario A. However, the results in Table 13.4 indicate that whilst Scenario A is the lowest growth scenario, it also requires the most challenging target mode share for car driver trips. This is because Scenarios B and C benefit from a greater scale of trip banking as a result of the transport infrastructure that can be supported by higher growth.

13.3.7 As well as the higher VTBs, the trips generated in Scenarios B,C and D are incoming trips to employment and therefore easier to implement controls and influences on the mode share choice of those people e.g. through limited car parking.

13.3.8 The mode share for active modes and public transport in a VTB scenario is summarised in Table 13.7.

Table 13.7 | Variance in Car Driver Mode Share Targets by Scenario

Scenario	VTB Sustainable Mode Share
Scenario A (9,500 homes, 4000 jobs)	79 – 82%
Scenario B (9,500 homes, 28,000 jobs)	70 – 72%
Scenario C (12,000 homes, 38,000 jobs)	76 – 78%

13.3.9 By comparison, the active travel and public transport mode share for residents in central Cambridge from the 2011 Census for journeys to work was 76%.

13.3.10 In summary, all scenarios tested indicate that growth at Cambridge East is feasible within a VTB approach. Where significant growth is delivered in excess of Scenario A, the transport infrastructure schemes that it enables acts as a wider catalyst for behaviour change. This decreases the overall challenge of achieving a sustainable scale of trip making within the city itself as more overall transport network capacity is created. With little extra transport capacity across all networks through small scale interventions, car driver mode shares and VTBs become a more significant challenge.

13.4 Broader Sustainability Assessment of Value of Employment at Cambridge East

13.4.1 The work report thus far has focussed on the potential for each of the transport strategies to mitigate impact back to a VTB. However, this is only part of the story when considering strategic growth such as Cambridge East as the benefits should also be appraised in the context of whether this scheme and set of proposals is better in this location than another location or others. This *'if not here than where?'* assessment is predicated on the premise that Great Cambridge requires the housing and employment proposed by Marshall and which responds to CPIER.

13.4.2 This comparative exercise is similar to the work being undertaken by the Greater Cambridge Planning Service as part of the ongoing Local Plan Evidence Base production where spatial options are presented against one another. As previously reported, this work has shown thus far that development at density in areas close to the city deliver the most sustainable outcomes in transport terms.

13.4.3 To undertake this assessment, analysis has been undertaken of the relative impact of locating the additional job growth associated with Scenario C (compared to A) elsewhere across Cambridge and South Cambridgeshire. In each case the difference in jobs between Scenario A and C was re-allocated elsewhere in the Cambridge and South Cambridgeshire area. Two different approaches were tested:

- Re-allocating growth pro-rata across the existing identified growth sites within CPIER based on their relative size
- Re-allocating growth pro-rata across all zones within Cambridge and South Cambridgeshire based on their relative size.

13.4.4 The job totals were coded into the spreadsheet tool and the impact of this job growth on transport choice across Greater Cambridge was quantified by the tool in each of the scenarios above. The results are summarised in Table 13.8, using Scenario C at Cambridge East as a baseline for comparison. Higher numbers show an increase against the baseline and lower numbers show a decrease. All tests assume the Scenario C transport strategy, but no adjustments have been made to transport provision in other zones.

Table 13.8 | Differences in car and public transport trips and km across Cambridge and South Cambridgeshire – work trips – indexed against Scenario C.

Scenario	AM Peak Period (0700 – 1000)			
	Car Trips	Car km	PT Trips	PT km
Scenario C	1.0	1.0	1.0	1.0
Job growth allocated across CPIER locations	1.07	1.05	0.88	0.79
Job growth allocated across all zones	1.07	1.06	0.88	0.78

13.4.5 This indicates that the scale of job growth in Scenario C results in more sustainable travel behaviours for work trips than if the same growth was to be spread elsewhere across the area. This clearly demonstrates the value of allocating and concentrating jobs in a single locality where critical mass affords better public transport viability and the control of how people access jobs i.e. limited on site car parking.

13.5 Summary

13.5.1 Testing indicates that all scenarios could operate within a VTB, but that Scenarios B,C and D would help to provide a greater stimulus for a wider positive change in travel behaviour across the City and therefore this would increase the VTB for these scenarios accordingly. The VTB could be greater again if modelled outcomes indicated vehicular trip capture in excess of the 22% assumed for this exercise which has halved the forecast used by CAM, or if there is a longer term shift for parts of the population in Cambridge towards home working.

13.5.2 Furthermore, this section of the report has reported that additional jobs in Scenario C at Cambridge East rather than located elsewhere in the wider region would also result in less overall car trips and vehicle kms for work journeys as a whole. A more sustainable outcome for the region overall.

13.5.3 Based on the outcomes of this testing, it is recommended that the higher growth scenarios are explored and tested within the evidence base for the Local Plan at Cambridge East. As the testing indicates all scenarios can operate within a VTB approach, it is recommended that the

highest growth scenario, Scenario C is adopted for further analysis and testing as this has the greatest overall benefit in terms of work trips for Cambridge and South Cambridgeshire and the opportunity for a "ripple effect" of positive behaviour change in the communities surrounding the site from the wider connectivity benefits on offer.

14 Delivering Cambridge East

14.1 Introduction

14.1.1 The previous Sections of this report have highlighted the ongoing studies and proposals taking place in the Greater Cambridge Region which would bring about changes in sustainable transport capacity and increase access to and from Cambridge East. In addition, this report has also highlighted a number potential further interventions or alternatives that would help to deliver Cambridge East should these specific schemes not be progressed through the current public sector led studies.

14.1.2 This Section of the report sets out how the short term certainty of many of these measures can demonstrate confidence in the allocation of Cambridge East and how, through adaptive management and incremental delivery, the longer term solution can also be assured.

14.1.3 In relation to transport, the Local Plan will need to demonstrate that its preferred allocations will represent/achieve Sustainable Development.

14.1.4 The NPPF states that in allocating sites for development, it should be ensured that:

a. appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b. safe and suitable access to the site can be achieved for all users; and

c. any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

14.1.5 The NPPF states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

14.1.6 These tests have been used in the formulation of the delivery approach and strategy.

14.2 Local Plan Period up to 2041

14.2.1 In the shorter term, the ultimate Development Scenario matters less to the transport strategy in that in capacity and connectivity terms the measures promoted and which would be delivered would support the early phases of whichever scenario is ultimately being progressed.

14.2.2 First occupations for the site may not be until 2030 although this could potentially come forward sooner. It is likely that prior to first occupation significant transport investment will have been made into the east side of Cambridge. The GCP's Eastern Access Study is underway and the shorter term recommendations are programmed to be in place within 5 years include:

- Option 1.1: Newmarket Road improvements – this could include bus lanes, cycle lanes and improved facilities for pedestrians.

- Option 1.2: Newmarket Road Improvements + Park & Ride Relocation - this could include bus lanes, cycle lanes and improved facilities for pedestrians, equestrians and people using scooters as well as relocating the Newmarket Road Park & Ride site further out of the city

14.2.3 In addition to the GCP's proposals, Cambridge East would look to deliver developer led improvements in the short term with these being schemes which would be wholly developer funded, not dependent on 3rd party land and therefore delivery can be relied upon. These shorter-term measures are based around identifying existing gaps in the transport network, which reduce existing accessibility and mobility by modes other than the car. Through the identification of these gaps, a series of interventions have been formulated which will provide for journeys by future residents of the development but to also provide modal choice for existing residents and employees in the area which will in turn reduce some of the existing pressures from the existing transport networks. These are proposed as being complementary to the GCP's measures whereby connectivity to the south is focussed upon given the GCP schemes, in the shorter term, focus on the Newmarket Road Corridor. Consideration has also been given to ensure that the measures proposed to support the early phases of development during the Local Plan Period are not abortive, i.e. would not be subsumed by a more strategic scheme in the longer term.

14.2.4 The Shorter-term measures have been determined as follows:

- On Site Strategy implementation including: Travel Plan Management & Soft measures, Servicing and Delivery Strategy (including last mile logistics), Parking Management, Mobility Hub Management, PTP and Behavioural Change programmes, MaaS Programme, SMART technology integration
- Area Wide Travel Planning - "trip banking", Vehicle Trip Budget Monitoring Protocols, TRO's, Contribution to City Wide Policy Interventions
- Cycle Connections: Link via Green Corridor, Coldhams Common and under Barnwell Road to Chisolm Trail
- Cycle Connections: Link to Cambridge Station via Coldhams Lane or Mill Road supported through a modal filter close to Cromwell Road or on Mill Road bridge respectively
- Cycle Connections: Link to Cambridge North via Wing and Stourbridge Common
- Cycle Connections: Link to Cambridge South via Queen Edith's Way, Beaumont Road, Field Way
- Cycle Connections: Contributions to Greenway Schemes
- Public Realm Contributions to Cherry Hinton High Street Public Realm scheme, Teversham Village, Barnwell, Fen Ditton, Coldhams Lane between Cherry Hinton and LNCH access
- HQ Bus Services/ subsidy to Cambridge North via Newmarket Road, Elizabeth Way and Milton Road
- HQ Bus Services/ subsidy to Cambridge South / CBC via
- HQ Bus Services/ subsidy to Cambridge City Centre via Mill Road or Davy to provide station access supported through a modal filter close to Cromwell Road or on Mill Road bridge respectively.

14.2.5 These interventions in combination with the GCP focus on Newmarket Road and the relocation and expansion of the Newmarket Road P&R provide a significant improvement to sustainable transport in the east of the City. Whilst the precise timing of these schemes and the level of development that could be supported through them will be established through more detailed work streams, delivery risk is considered minimal given no land assembly is required.

14.2.6 Based on the assumed delivery profile of the Cambridge East scheme, the build out of the site during the Local Plan period is estimated to be 5,000 residential units and in excess of 100,000m2 of commercial floorspace. Given the packages assessed in this report, Stantec is confident that for a site in this location, this associated transport package could support this quantum or equivalent quantum of development and this has been tested through this report.

14.2.7 It should also be noted that the CAM's programme is that it will also have an opening date of 2030. Should this occur, then the potential early creation of capacity to support the first phases becomes of less importance given the capacity generated by this network. Additional connectivity would of course be provided but the integrated transport network needed by Cambridge to deliver more substantial growth and improved transport across the region would be in place.

14.3 In the longer term

14.3.1 It is accepted by Marshall that major strategic investment will be required to support growth in the longer term and to realise the full potential and opportunity that the site presents. This will be partially determined through future Local Plan Evidence Base testing and all subsequent Transport Assessment work necessary to deliver a scheme of this importance and magnitude. However, at this stage the exact nature and timings of the interventions is not yet know but the choice of potential interventions are plentiful. A lack of certainty over the precise nature of the infrastructure solution is not unusual and many schemes in the area have come forward where certainty over initial phases is guaranteed but that the longer-term solutions are less developed. However, in the case of Cambridge East there is significantly more confidence in the longer term strategic moves than many sites and this, coupled with the potential to materially contribute to these schemes, should be seen as a reason why Cambridge East should be allocated and indeed relied upon for longer term growth potential.

14.3.2 This report has previously confirmed that the CAM is set to become operational by 2030. These exciting proposals would provide access to Cambridge East and deliver an integrated transport network for Cambridge. Marshall fully support the CAM proposals and land has been safeguarded through the site to enable it. Further to this Steer's Transit Delivery Study has confirmed that a tunnel link between the site and Cambridge Station is deliverable and therefore could provide the first phase of the eastern arm of the CAM network. This progress is substantial and represents the dedication from the strategic transport authority (CPCA) and Marshall to deliver transformational investment in transport infrastructure for the region.

14.3.3 However, reliance on the CAM is not assumed. In accordance with the Local Plan Evidence base, the CAM is not treated as committed scheme and as such a suite of alternative public transport choices has been developed to demonstrate that should CAM not progress, the Greater Cambridge Region has alternatives to deliver the solutions required. These can be summarised as follows:

- Non-CAM Mass Rapid Transit tunnelled Link to Cambridge Station. Utilising the same tunnelled alignment and link to Cambridge Station could be provided from the Transport Hub close to the Quy interchange. This would provide access to CB1, the national rail network and could provide a direct connection (or high quality interchange as minimum) with the southern section of the current Cambridge Guided Busway which in turn provides access to the Cambridge Biomedical Campus, and the Southern Science Cluster via CSETS.

- Mass Rapid Transit surface connections to Cambridge Station via either Davy Road or Mill Road. Whilst the Level of Service would not be equivalent to CAM or the tunnelled Mass Rapid Transit option, a segregated arrangement could act as an alternative for Davy Road which would access the East Side of Cambridge Station and a new access to the railway. For Mill Road this report has indicated that a high quality surface arrangement could be provided that would require the currently in place modal filter to be made permanent.

- A rapid public transport surface connection that connects Cambridge East to Cambridge North on an alignment close to the A14. This arrangement would have the benefit of connecting the transport networks to the north of the city into those in the south in lieu of CAM providing the same cross city connectivity. The alignment would be segregated and would be required to cross the river and the railway and could potentially provide access to Fen Road allowing the level crossing to be closed.

- More regular train services and therefore capacity between Cambridge North and Cambridge Stations facilitated by Network Rail investments at Ely North. Feasibility work is underway to address the constraints to the rail network at Ely North. When addressed as anticipated in the next Control Period, more capacity is created on the Fen Line meaning increased passenger services can stop at Cambridge North and thereby creating increased cross city connectivity. This in combination with mass rapid transit from Cambridge Station to Cambridge East would also 'connect' Cambridge East to the transport networks to the north of the City.

- East West Rail Phase 3 and station at Cambridge East. Whilst the business case for the connection from Cambridge to Ipswich is only being prepared, there is longer term proposals that the existing rail corridor to the south of the site will be improved as part of East West Rail. The case for a station on the East side of the city becomes stronger with Cambridge East and the Development Scenarios that include significant commercial floorspace.

14.3.4 The above options are significant and would all be hugely beneficial to the Greater Cambridge area. Whilst the development will only proportionately fund the full strategic transport strategy, the delivery of a development on this scale proposed will require effective working partnerships with the authorities to ensure that the necessary improvements are brought about efficiently, effectively and when required. Having flexibility and not dependence on a single scheme for the longer-term delivery of strategic development de-risks delivery but critically, an allocation or a consent supports viability.

14.4 Phased Adaptive Delivery

14.4.1 The way in which development floorspace is delivered against infrastructure and strategic choices that exist is set out schematically on Figure 14.1. This does not preclude infrastructure coming forward sooner or in a different guise but simply indicates that growth in the longer term requires intervention and that there are ways, which through time become more visible and dependable. This approach to dealing with 'tackling uncertainty' is consistent with DfT Guidance where it is recommended that more scenario planning is undertaken. This is of particular relevance in addressing post C19 uncertainty and the DfT will expect that sensitivity testing is presented more prominently in business cases and the flexibility is built into the transport appraisal process.

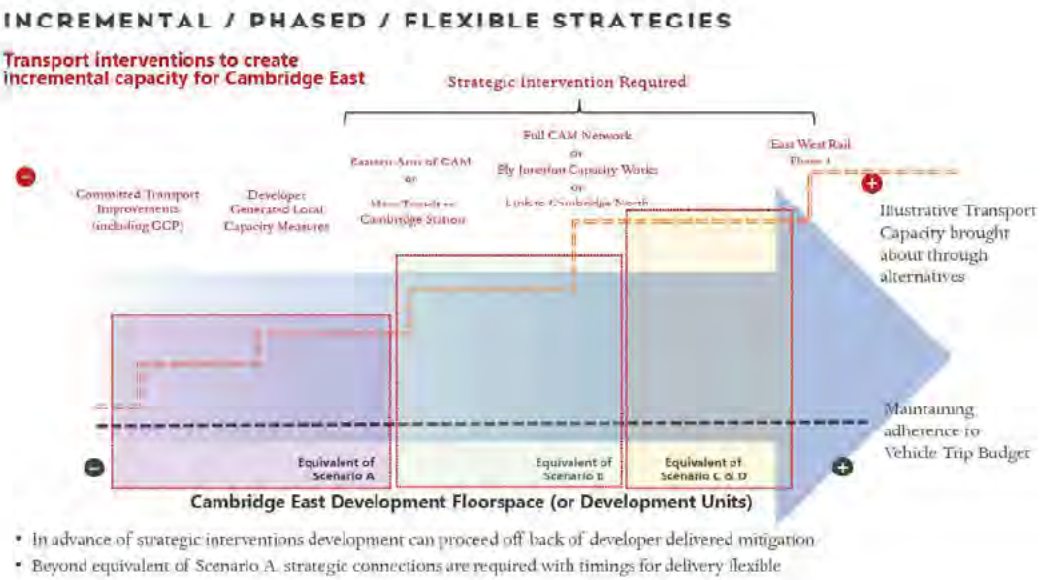


Figure 14.1 | Incremental / Phased / Flexible Strategies

14.5 Summary

14.5.1 A set out in the introduction to this Section there are a number of tests set out in the NPPF when considering the allocation of a site.

a. appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b. safe and suitable access to the site can be achieved for all users; and

c. any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

14.5.2 It is considered that against all these tests Cambridge East performs exceptionally.

14.5.3 Its location ensures that the opportunities to promote sustainable transport have been taken up. The Scheme is predicted on a network of walking, cycling and public transport connections. Linking to the City and the Countryside, the proposals facilitate sustainable movement from the new community and existing. The scheme acts as a catalyst for positive investment and behavioural change, offering city wide benefits in terms of enhanced connectivity, with the potential for ripple effects down to local communities benefiting from these improvements. Cambridge East can act as a catalyst for a step change in travel behaviour as a result of the networks that it would support throughout the city.

14.5.4 The site has multiple points of safe and suitable access for all users. Access points can be scaled accordingly and designed appropriately and in accordance with best practice. The site is a blank canvas and will be laid out in such a way that social value and health and wellbeing are pillars of the design philosophy.

14.5.5 The scheme will mitigate its impact and facilitate betterment elsewhere in the region. Placing residential development at density close to the city provides access to jobs and services and by providing jobs at scale on the site means that public transport viability is achieved and the value of a transformational integrated transport system for Cambridge will be more likely realised and funded.

15 Summary and Conclusion

15.1 Summary

15.1.1 Building upon the positive conclusions of the Greater Cambridge's Spatial Options Assessment which has been prepared as part of the Local Plan Evidence Base, this report has sought to demonstrate the merits and deliverability of a strategic settlement to the east of the City of Cambridge. The Spatial Options Assessment conclusions indicate that growth at density in, or around the fringes of, the city deliver more sustainable lower carbon outcomes than the other spatial options tested. In addition, options that include both homes and jobs also perform well with reduced car-based travel metrics resulting.

15.1.2 The site being promoted for development comprises Cambridge airport and which is classified as brownfield land and has been safeguarded for development through the adoption of the Cambridge East Area Action Plan resulting from the Cambridgeshire and Peterborough Structure Plan, 2003. The principle of development has therefore been long established. The scale, land use mix and principles of the necessary transport strategy are however yet to be fully determined and have been assessed within this report. It is acknowledged that the Great Cambridge Planning Service continues to develop its own evidence base and further transport modelling will be undertaken where the findings and recommendations of this report can be validated and tested further.

15.1.3 The Marshall family purchased the airport site during the 1930s and it was formally opened as Cambridge Airport in 1937. Through the operation of the airport and wider Marshall Group businesses, the Marshall family has been a significant employer and contributor to the Cambridge region over many years. This historic and significant investment in Cambridge has meant that a truly sustainable legacy has been part of the overall development vision from the outset. With the benefit of a long-term stewardship model, the generation of both economic and social value through job creation and positive community placemaking are requirements for the any scheme which is to be delivered on the Marshall land.

15.1.4 Four Development Scenarios have been prepared by Allies and Morrison. Scenario A is broadly consistent with the Cambridge East Area Action Plan from 2008. Scenarios B, C and D see significantly more employment brought into the land use mix to address the recommendations of the Cambridge and Peterborough Independent Economic Review (CPIER) which all relevant local authorities have accepted as a basis for the necessary continued economic growth that underpins the remits of the CPCA and the GCP. This report has considered the nature of the transport strategy which each of these development scenarios would require but also whether the development scenario itself or the supporting strategy would deliver more sustainable outcomes for the wider Greater Cambridge region as a broader stimulus for positive change or through the ability to support transformational investment in public transport. These considerations should then be used to determine the most appropriate and economic use of the valuable asset of the land if Cambridge East is to be allocated for development.

15.1.5 Regardless of which Development Scenario is ultimately progressed, it would be predicated on an onsite mobility strategy which seeks to reduce car dependency. Firstly, reduced car dependency can only really be achieved if the site is located in an appropriate sustainable location and at a scale which can provide accessibility to facilities, services and employment. Secondly, design approaches are required which remove convenience of using a car for everyday short trips and replacing this convenience with a network of movement corridors for less impactful, high carbon modes of transport. This is proposed at Cambridge East through the concept of Low Traffic Neighbourhoods whereby any car parking is located away from residential units and a network of safe streets for people are created with clear legible routes to more strategic movement corridors which link each neighbourhood. Shared mobility is designed for and embraced through the use or Mobility Hubs through the scheme. These

would provide a community focal point and access to shared private transport services and public transport more generally. The commercial viability for shared transport solutions and how these would play a role in a wider City system of mobility would of course be greater with Scenarios B, C or D where more development is proposed as a result of the commercial floor space included.

15.1.6 The assessment has, using a spreadsheet tool developed by Stantec, robustly forecast trip volumes by time, origin and destination. Working to the principles of a trip cap specified by CCC, whereby car trips within Cambridge will not exceed those generated by the extant uses of the site or those that can be 'banked' by the infrastructure investments made, a high level transport strategy has been identified and costed for each scenario. Whilst all Scenarios are compatible with CAM and the Eastern Access Study and would benefit from these investments being made, the assessment focuses on establishing what is needed to deliver the scenario rather than placing reliance on these significant investments being made. This approach therefore results in suite of options or choices that could be developed to achieve the necessary connectivity and capacity. At the Local Plan stage of the planning process, having this flexibility is hugely valuable for strategic land development whereby uncertainty over timing of delivery or funding can be mitigated. The detail of the various transport mitigation measures and/or funding contributions will, of course be, revisited as the situation becomes more certain over time.

15.1.7 This work has confirmed that Scenario A requires a different transport Strategy to Scenarios B, C or D. Scenario A is a smaller scale residential led scheme and it would see the majority of trips contained only within Cambridge and could therefore be delivered with investments in city focussed cycle infrastructure along with investments in high quality bus services to the key employment destinations of the Cambridge Biomedical Campus, Cambridge City Centre and the Northern Fringe. These improvements would have some benefit for the east side of Cambridge but limited positive impact on other parts of the Greater Cambridge region due to the more localised nature of the investments. Job growth, by definition, would need to be located elsewhere in the region and would then need an associated transport strategy to deliver sustainable development in a transport context in this alternative or multiple alternative locations.

15.1.8 Scenarios B, C and D require more significant transport investment given the volume of employment trips coming into the site. However, as required i.e. if CAM for example has been delayed, many of the interventions identified as appropriate to Scenario A would support the early delivery of development in the short to medium term. It is acknowledged however, that to deliver the full extent of the development, the quantum of employment in all three scenarios requires a significant step change in high capacity public transport to ensure that the principle of a trip cap is adhered to and that the net zero requirement is met.

15.1.9 This mass rapid transit solution is likely to be CAM with the ability to intercept trips at various regional halts along the current GCP corridors that are being delivered. The CAM programme is that the network will be operational by 2030 and therefore would be operating in advance of significant development at Cambridge East. Indeed, Cambridge East has safeguarded a route through site and Steer's Transit Delivery Study report confirms that a tunnelled link between the site and Cambridge station is deliverable and could therefore form an early eastern arm of the CAM network. However, should CAM not progress as envisaged the tunnelled link coupled with other alternative connections to Cambridge north could be delivered and through these connections would also provide the basis for an integrated alternative transport system for Cambridge where the transport networks to the north of the city are connected to those in the south i.e. cross city connectivity is achieved. Whilst these connections would be public sector led, Cambridge East would act as the catalyst for this transformational public transport investment if the allocation is commensurate with either Scenarios B, C or D.

15.1.10 The CAM network with Cambridge East and a possible alternative Mass Network with less tunnelling under the City is shown in Figures 15.1 and 15.2, respectively.

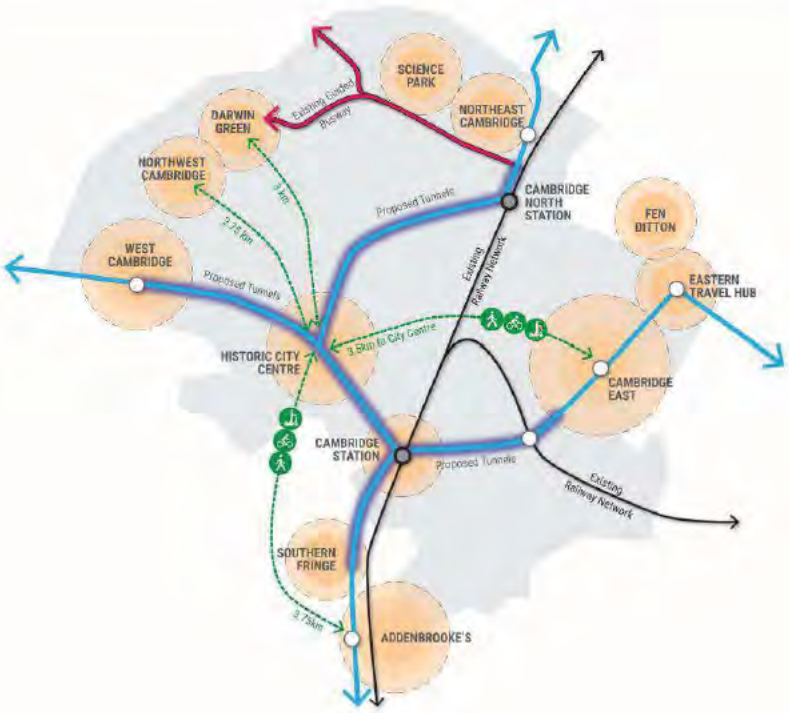


Figure 15.1 | Cambridge & CAM Network

Figure 15.2 | Cambridge & Alternative Mass Transit Network

15.1.11 Given the increased employment floorspace proposed, in viability terms, Scenario C and D can provide significantly more contribution towards the public sector led public transport

solutions, giving a critical mass and ridership in all directions during the AM, PM but also interpeak periods. This investment would not only have benefits for the east side of Cambridge but for wider Cambridge given the mass rapid transit proposals would facilitate an integrated network with the ability to 'bank' trips across all radial routes into the city. This in turn results in a higher trip cap but equally region wide benefits and more sustainable outcomes as a whole.

15.2 Conclusion

15.2.1 Throughout this report a number of aspects have been reported. These can be summarised as follows:

- Cambridge suffers from cross-city connectivity challenges.
- Cambridge has been negatively impacted by a lack of integrated residential and employment growth.
- Cambridge has seen employment and high trip generators located away from established transport networks meaning that car-based travel becomes the norm.
- More sustainable transport patterns occur if growth is located in or close to the City.
- The CPIER report indicates that significant job growth should be planned for.
- Should CPIER recommended employment growth be coming, locations within Cambridge result in the most sustainable outcomes, and transport packages at Cambridge East provide the opportunity to help tackle issues of cross-city connectivity and thus providing wider benefit beyond the site itself.
- As a result of the site location and committed GCP investments, a substantial quantum of residential focussed development can be achieved in the short to medium term.
- In the medium to longer term, a number of viable public transport connections exist to deliver the necessary capacity to support significant employment on top of the residential growth. This option includes CAM.
- Should CAM be delivered as envisaged, then significant capacity is created for growth and best use should be made of the opportunity at Cambridge East.

15.2.2 Given the above and through the work undertaken, Stantec consider that Scenario C is the best use of land in transport terms in this context.

15.2.3 Cambridge East is a unique development opportunity which must be developed in such a way that the land is made best use of. Whilst Scenario A is a substantial residential scheme that has the potential to be a new sustainable community for Cambridge, the exclusion of jobs which has been identified by the CPIER as being necessary for the Greater Cambridge Region, means that the full opportunity for the site is missed.

15.2.4 Scenario C provides all the benefits of Scenario A but is also able to leverage its scale to be an economic and place-based stimulus for a step change in transport in Greater Cambridge. Beyond any of the other scenarios, Scenario C can contribute more to a mass rapid transit system (CAM or other) which in turn has regional benefits in terms of helping to deliver an integrated transport system for Cambridge removing pressures from multiple radial routes into the City. Scenario C has also be shown to provide more sustainable outcomes through the location of jobs in this location when compared to other locations throughout the region – if the jobs are to be planned for then locating them based around a network of public transport made more viable by the same jobs is sensible land use and transport planning.

15.2.5 Marshall want a sustainable legacy for the Cambridge Airport site. It is hoped that the vision presented in this report can be considered by the Greater Cambridge Planning Service and a decision made around the sites allocation which delivers the best outcome for Greater Cambridge and which helps to address the climate emergency and best helps to deliver net zero growth.

Appendix A Stantec Spreadsheet Tool Outputs – Trip Generation

CAMBRIDGE EAST - TRIP GENERATION SUMMARY - FORECAST YEAR 2051

AM PEAK PERIOD 0700 - 1000

SCENARIO	HOUSING	RESIDENTS						JOBS		ALL MODES		INTERNALISATION		
		Age 0-15	Age 16-69 FT	Age 16-69 PT	Age 16-69 U	Age 70+	TOTAL			Departing	Arriving	Departing	Arriving	Total
A	9500	4270	6090	2116	3007	3384	18867	3659	Total	11858	9930	48%	57%	52%
									Internal	5645	5645			
									External	6213	4285			
B	9500	3540	5105	1773	4022	2974	17415	27606	Total	11056	21143	51%	27%	35%
									Internal	5645	5645			
									External	5411	15498			
C	12000	4443	6377	2215	5051	3728	21708	38370	Total	14197	28168	55%	28%	37%
									Internal	7811	7811			
									External	6386	20356			
D	12000	4411	6301	2189	5052	3697	21618	37877	Total	13920	27477	54%	28%	37%
									Internal	7583	7583			
									External	6337	19894			

PM PEAK PERIOD 1600 - 1900

SCENARIO	HOUSING	RESIDENTS						JOBS		ALL MODES		INTERNALISATION		
		Age 0-15	Age 16-69 FT	Age 16-69 PT	Age 16-69 U	Age 70+	TOTAL			Departing	Arriving	Departing	Arriving	Total
A	9500	4270	6090	2116	3007	3384	18867	3659	Total	9952	11044	32%	29%	30%
									Internal	3151	3151			
									External	6802	7893			
B	9500	3540	5105	1773	4022	2974	17415	27606	Total	19474	13644	19%	28%	23%
									Internal	3780	3780			
									External	15695	9864			
C	12000	4443	6377	2215	5051	3728	21708	38370	Total	26769	18120	22%	33%	27%
									Internal	6006	6006			
									External	20763	12114			
D	12000	4411	6301	2189	5052	3697	21618	37877	Total	25853	17316	21%	32%	25%
									Internal	5474	5474			
									External	20379	11842			

Appendix B Stantec Spreadsheet Tool – Trip Distribution – Area Summary

Two-Way Person Trips - AM 3Hour Peak (Excludes internal site trips)

Summary

Cambridge	Scenario A	B	C	D
Camb - North	8.3%	6.1%	6.0%	5.9%
Camb - Central/West	42.6%	29.8%	26.1%	28.4%
Camb - South	12.2%	7.7%	7.0%	7.4%
Camb - East	5.4%	3.5%	4.0%	3.2%
	68.5%	47.2%	43.1%	45.0%

Outside Cambridge	Scenario A	B	C	D
North	6.7%	10.1%	10.9%	10.5%
East	5.7%	11.3%	12.5%	12.1%
South East	9.2%	13.8%	14.8%	14.0%
South West	3.9%	6.3%	6.7%	6.5%
West	2.7%	4.8%	5.0%	5.0%
North West	3.3%	6.5%	7.0%	6.9%
	31.5%	52.8%	56.9%	55.0%

Incoming Trips

Cambridge	Scenario A	B	C	D
Camb - North	5.3%	5.4%	5.3%	5.5%
Camb - Central/West	30.2%	21.8%	19.6%	20.8%
Camb - South	6.2%	6.2%	5.9%	6.0%
Camb - East	3.9%	2.7%	2.5%	2.4%
	45.6%	36.0%	33.2%	34.8%

Outside Cambridge	A	B	C	D
North	10.6%	12.0%	12.4%	12.3%
East	10.7%	14.1%	14.9%	14.6%
South East	15.3%	16.3%	17.2%	16.3%
South West	7.1%	7.7%	7.9%	7.7%
West	4.8%	5.9%	6.0%	6.0%
North West	6.0%	8.0%	8.3%	8.3%
	54.4%	64.0%	66.8%	65.2%
Check	0.0%	0.0%	0.0%	0.0%

Outgoing trips

Cambridge	Scenario A	B	C	D
Camb - North	10.4%	7.9%	8.3%	7.4%
Camb - Central/West	51.1%	53.0%	46.9%	52.3%
Camb - South	16.3%	12.2%	10.5%	11.7%
Camb - East	6.4%	6.1%	8.8%	5.8%
	84.3%	79.3%	74.5%	77.2%

Outside Cambridge	A	B	C	D
North	4.0%	4.6%	6.1%	5.1%
East	2.3%	3.5%	4.7%	4.0%
South East	5.0%	6.5%	7.2%	6.8%
South West	1.7%	2.3%	2.8%	2.6%
West	1.2%	1.7%	2.0%	1.9%
North West	1.5%	2.1%	2.7%	2.5%
	15.7%	20.7%	25.5%	22.8%
Check	0.0%	0.0%	0.0%	0.0%

Two-Way Person Trips - PM 3Hour Peak (Excludes internal site trips)

Summary

Cambridge	Scenario A	B	C	D
Camb - North	7.5%	6.0%	5.9%	5.9%
Camb - Central/West	43.3%	30.9%	26.8%	29.4%
Camb - South	10.2%	7.4%	6.7%	7.1%
Camb - East	5.5%	3.6%	3.5%	3.3%
	66.6%	47.9%	43.0%	45.7%

Outside Cambridge	Scenario A	B	C	D
North	7.1%	10.1%	11.2%	10.6%
East	5.7%	10.7%	12.1%	11.5%
South East	9.9%	13.9%	15.1%	14.1%
South West	4.4%	6.3%	6.7%	6.5%
West	2.9%	4.6%	5.0%	4.9%
North West	3.4%	6.3%	6.9%	6.7%
	33.4%	52.1%	57.0%	54.3%

Incoming Trips

Cambridge	Scenario A	B	C	D
Camb - North	9.4%	7.3%	7.3%	7.0%
Camb - Central/West	44.6%	36.0%	31.3%	35.0%
Camb - South	12.4%	8.8%	7.8%	8.5%
Camb - East	5.7%	4.2%	4.3%	3.9%
	72.1%	56.3%	50.8%	54.3%

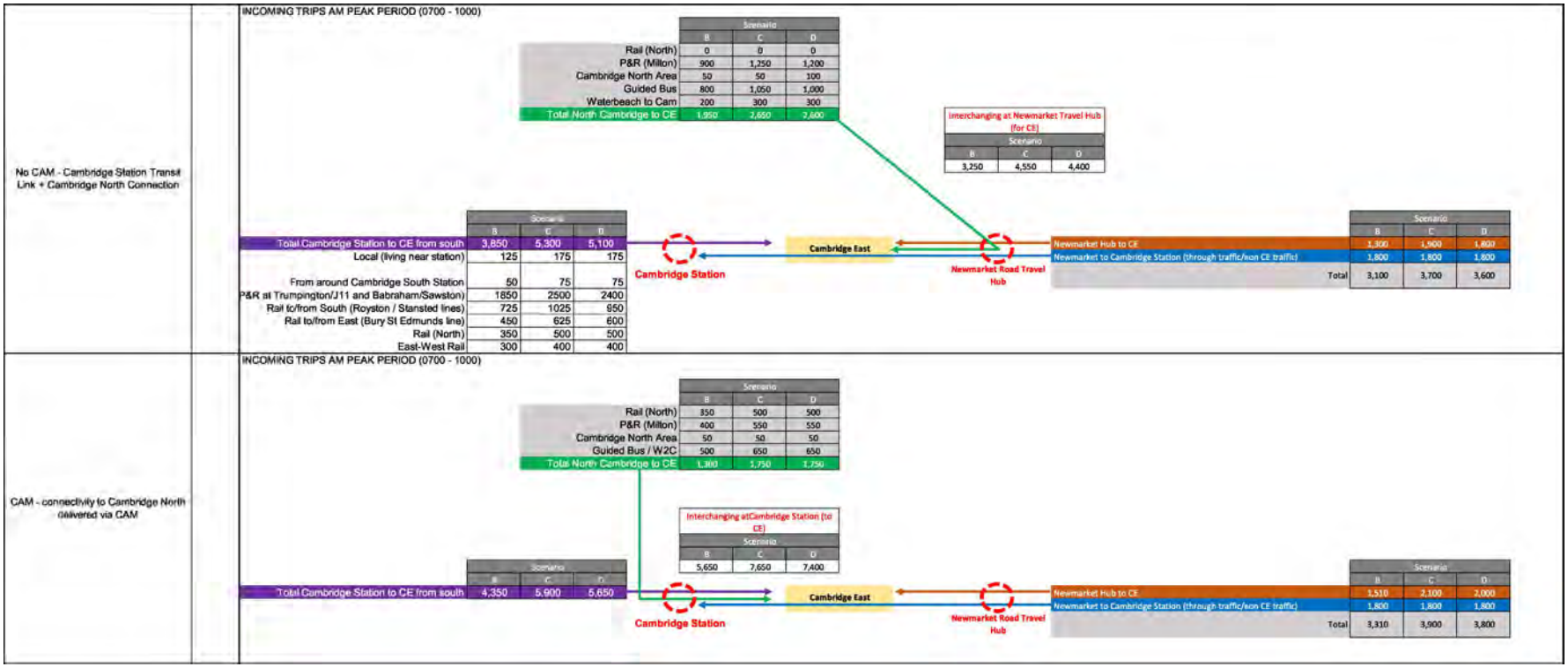
Outside Cambridge	A	B	C	D
North	6.4%	9.2%	10.2%	9.3%
East	4.3%	8.2%	9.7%	8.9%
South East	8.5%	12.3%	13.6%	12.6%
South West	3.7%	5.3%	5.8%	5.5%
West	2.3%	3.7%	4.2%	4.0%
North West	2.7%	5.0%	5.7%	5.4%
	27.9%	43.7%	49.2%	45.7%
Check	0.0%	0.0%	0.0%	0.0%

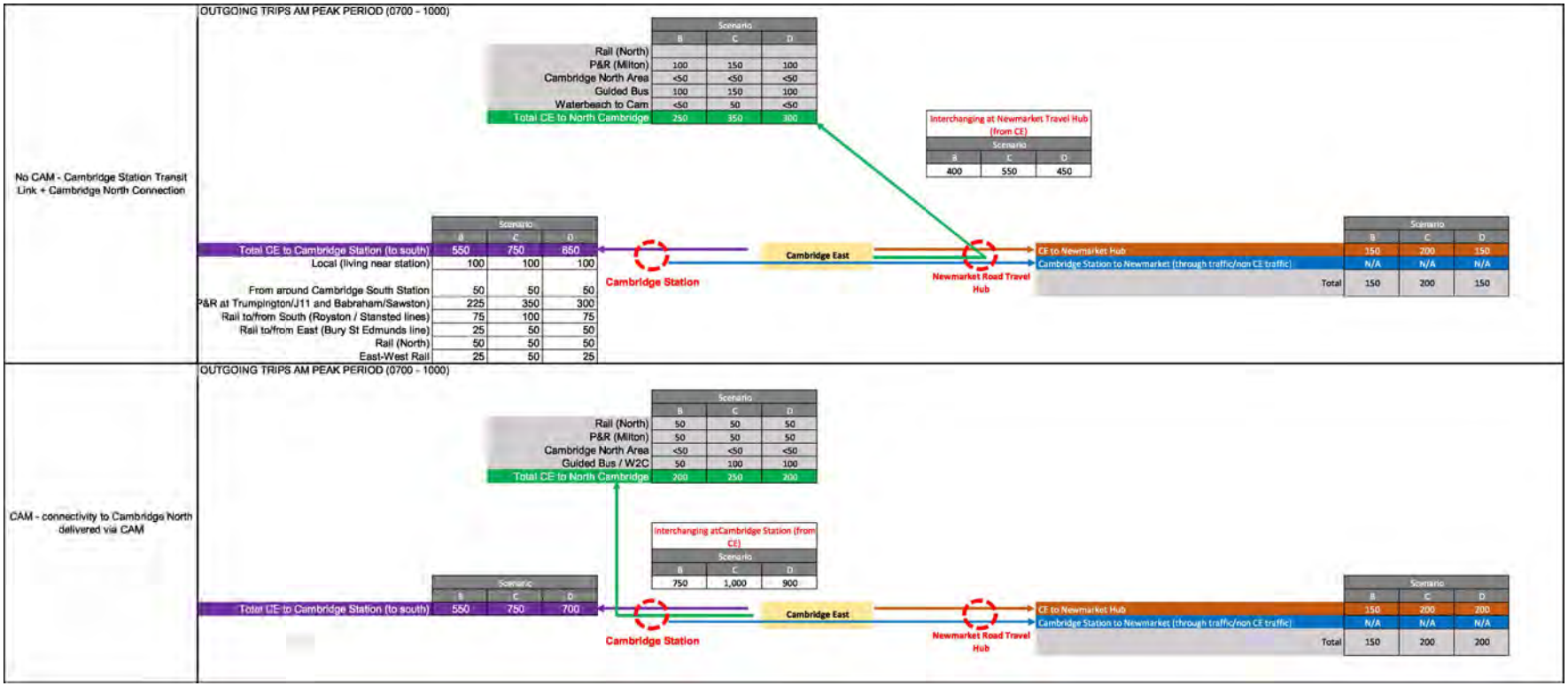
Outgoing trips

Cambridge	Scenario A	B	C	D
Camb - North	5.2%	5.3%	5.1%	5.2%
Camb - Central/West	41.9%	27.7%	24.2%	26.2%
Camb - South	7.6%	6.5%	6.1%	6.3%
Camb - East	5.4%	3.2%	3.0%	2.9%
	60.1%	42.7%	38.4%	40.6%

Outside Cambridge	A	B	C	D
North	8.0%	10.8%	11.7%	11.3%
East	7.3%	12.4%	13.5%	13.0%
South East	11.5%	14.9%	16.0%	15.0%
South West	5.2%	6.9%	7.3%	7.0%
West	3.5%	5.2%	5.5%	5.5%
North West	4.3%	7.1%	7.6%	7.5%
	39.9%	57.3%	61.6%	59.4%
Check	0.0%	0.0%	0.0%	0.0%

Appendix C High-level MRT Flows – Cambridge East (AM Peak Period 0700 – 1000)


No CAM - Cambridge Station Transit Link + Cambridge North Connection
INCOMING TRIPS AM PEAK PERIOD (0700 - 1000)
Scenario
B C D
Rail (North) 0 0 0
P&R (Milton) 900 1,250 1,200
Cambridge North Area 50 50 100
Guided Bus 800 1,050 1,000
Waterbeach to Cam 200 300 300
Total North Cambridge to CE 1,950 2,650 2,600
Interchanging at Newmarket Travel Hub (for CE)
Scenario
B C D
3,250 4,550 4,400
Scenario
B C D
Total Cambridge Station to CE from south 3,850 5,300 5,100
Local (living near station) 125 175 175
From around Cambridge South Station 50 75 75
P&R at Trumpington/J11 and Babraham/Sawston) 1850 2500 2400
Rail to/from South (Royston / Stansted lines) 725 1025 950
Rail to/from East (Bury St Edmunds line) 450 625 600
Rail (North) 350 500 500
East-West Rail 300 400 400
Cambridge Station
Cambridge East
Newmarket Road Travel Hub
Scenario
B C D
Newmarket Hub to CE 1,300 1,900 1,800
Newmarket to Cambridge Station (through traffic/non CE traffic) 1,800 1,800 1,800
Total 3,100 3,700 3,600
CAM - connectivity to Cambridge North delivered via CAM
INCOMING TRIPS AM PEAK PERIOD (0700 - 1000)
Scenario
B C D
Rail (North) 350 500 500
P&R (Milton) 400 550 550
Cambridge North Area 50 50 50
Guided Bus / W2C 500 650 650
Total North Cambridge to CE 1,300 1,750 1,750
Interchanging atCambridge Station (to CE)
Scenario
B C D
5,650 7,650 7,400
Scenario
B C D
Total Cambridge Station to CE from south 4,350 5,900 5,650
Cambridge Station
Cambridge East
Newmarket Road Travel Hub
Scenario
B C D
Newmarket Hub to CE 1,510 2,100 2,000
Newmarket to Cambridge Station (through traffic/non CE traffic) 1,800 1,800 1,800
Total 3,310 3,900 3,800


No CAM - Cambridge Station Transit Link + Cambridge North Connection
OUTGOING TRIPS AM PEAK PERIOD (0700 - 1000)
Scenario
B C D
Rail (North)
P&R (Milton) 100 150 100
Cambridge North Area <50 <50 <50
Guided Bus 100 150 100
Waterbeach to Cam <50 50 <50
Total CE to North Cambridge 250 350 300
Interchanging at Newmarket Travel Hub (from CE)
Scenario
B C D
400 550 450
Scenario
B C D
Total CE to Cambridge Station (to south) 550 750 650
Local (living near station) 100 100 100
From around Cambridge South Station 50 50 50
P&R at Trumpington/J11 and Babraham/Sawston) 225 350 300
Rail to/from South (Royston / Stansted lines) 75 100 75
Rail to/from East (Bury St Edmunds line) 25 50 50
Rail (North) 50 50 50
East-West Rail 25 50 25
Cambridge Station
Cambridge East
Newmarket Road Travel Hub
Scenario
B C D
CE to Newmarket Hub 150 200 150
Cambridge Station to Newmarket (through traffic/non CE traffic) N/A N/A N/A
Total 150 200 150
CAM - connectivity to Cambridge North delivered via CAM
OUTGOING TRIPS AM PEAK PERIOD (0700 - 1000)
Scenario
B C D
Rail (North) 50 50 50
P&R (Milton) 50 50 50
Cambridge North Area <50 <50 <50
Guided Bus / W2C 50 100 100
Total CE to North Cambridge 200 250 200
Interchanging atCambridge Station (from CE)
Scenario
B C D
750 1,000 900
Scenario
B C D
Total CE to Cambridge Station (to south) 550 750 700
Cambridge Station
Cambridge East
Newmarket Road Travel Hub
Scenario
B C D
CE to Newmarket Hub 150 200 200
Cambridge Station to Newmarket (through traffic/non CE traffic) N/A N/A N/A
Total 150 200 200


AECOM


Allies and Morrison


Logika
CONSULTANTS


ARUP


BIDWELLS


Cambridgeshire
County Council


MONTAGU
EVANS


GummerLeathes


HOK


Kim Wilkie


Marshall


No6
DEVELOPMENTS


Quod


savills


Stantec


steer