

PART 2 DEVELOPMENT ACCESS AND MOVEMENT DETAILS

Part 2 of the Transport Assessment contains the following sections:

Section 5 - Access and Movement Strategy

Section 6 - Pedestrian and Cycle Strategy

Section 7 - Public Transport Strategy

Section 8 - Car Parking Provision, Vehicular Access and Site Layout

Section 9 - Travel Demand Management Strategy

Section 10 - Construction Access Strategy

5 Movement Strategy

5.1 Introduction and Policy background

- 5.1.1 As summarised in Section 4, both national and local planning / transport policy have a series of objectives to integrate planning and transport at all levels, through the promotion of development uses located to enable good accessibility by non-car modes of transport.
- 5.1.2 This policy context for sustainable travel is established within the National Planning Policy Framework. This Framework emphasises that development and transport systems should be planned in order to reduce the need to travel and increase the use of sustainable transport modes to encourage people to move about by foot, cycle and bus, to minimise the use of car-based trips.
- 5.1.3 This section introduces the West Cambridge Development Access and Movement Strategy, that responds to these policy requirements.

5.2 Transport Objectives

- 5.2.1 The overall transport strategy for the Development responds to a number of important national regional and local objectives, which may be summarised as follows:
- i. providing development components, development layout and disposition of uses designed from the outset to be inherently sustainable, pedestrian and cyclist friendly, being based upon the provision of an integrated transport system as well as minimising the distance to travel overall;
 - ii. encouraging the use of sustainable forms of transport such as walking, cycling, and public transport, thus reducing the dependency on the motor vehicle;
 - iii. minimising the traffic impact of the Development by implementing travel demand management measures to reduce vehicle trip generation;
 - iv. assisting in reducing the number and severity of personal injury collisions on the local roads;
 - v. integrating the Development proposals with the wider existing transport network, as well as supporting emerging strategic proposals such as area-wide strategic schemes such as one between a Cambourne to Cambridge to enable quality public transport movements, or for cycle improvements along Madingley Road;
 - vi. reducing “greenhouse gas “vehicle emissions; and
 - vii. implementing a Travel Plan / Travel Demand Management strategy for the Development.

5.3 Summary of the Development Access and Movement Strategy

- 5.3.1 The Access and Movement Strategy set out in the following five sections reviews the overall accessibility of the Site for pedestrians, cyclists and public transport users, which enable the mode use targets stated in Section 10 to be set. It also sets out the accessibility strategies for each mode to enhance connectivity and accessibility both on- and off-site to encourage local journeys by sustainable modes of travel.
- 5.3.2 The basis for the access and movement strategy for the Development is set out on the Access Parameters Plan for the Development prepared by Aecom, reproduced in Appendix 2.2.

- 5.3.3 This strategy provides public transport connections for the major residential and employment areas along a high-density development public transport priority route.
- 5.3.4 The elements of this Development Access and Movement Strategy are considered individually in the following sections:
- Section 6 – Pedestrian and Cycle Strategy;
 - Section 7 – Public Transport Strategy;
 - Section 8 – Site Layout, Vehicular Access and Parking Provision;
 - Section 9 – Travel Demand Management Strategy;
 - Section 10 – Construction Access Strategy.

6 Pedestrian and Cycle Strategy

6.1 Introduction

- 6.1.1 It is widely acknowledged that walking forms the most important mode of travel for local trips, and across the UK offers the greatest potential to replace short distance car trips of less than 2km - as set out in the previous Government Policy PPG13. Similarly, the same source stated that across the UK, cycling offers the greatest potential to replace short- and medium-distance car trips up to 5km. Indeed, local evidence referred to by the Highway Authorities suggests that people within Cambridge walk and cycle further distances than the national average. As such, Walking and Cycling form essential elements of the Access and Movement Strategy for the Development.
- 6.1.2 This Section considers further the following aspects of Pedestrian and Cycle movement:
- i. Summary of the Policy background;
 - ii. Travel Demand Management measures to promote Walking and Cycling usage;
 - iii. On-site infrastructure strategy;
 - iv. Off-site infrastructure strategy – considered by the three individual major corridor routes.
- 6.1.3 This Section identifies that the Development is well-located for Walking and Cycling with respect to existing Pedestrian and Cycle facilities, and to connect to other emerging developments and infrastructure proposals in the area. The Development will deliver safe, high-quality infrastructure in the area further to support and encourage Walking and Cycling. As such, it is concluded that Walking and Cycling will form a significant percentage of the mode share for local trips, reflecting and responding positively to local and national policy guidance and strategies.
- 6.1.4 The proposed strategy outlined in this section was derived following:
- i. a series of workshops with the West and North West Cambridge Cycling Group, a community group set up to seek local information relating to existing operational issues;
 - ii. responses from the Cambridge Cycling Campaign, and a series of meetings with the West Cambridge Active Travel Group;
 - iii. a review of existing Cycle movement data – including the Strava Heatmap, and an analysis of home postcode information for existing occupants of West Cambridge, as provided by the University; and
 - iv. further meetings with the Highway and Cycling Officers of Cambridge City and Cambridgeshire County Councils.
- 6.1.5 As agreed with the Joint Authorities, as equestrian movements will not contribute in any measurable degree towards the stated objectives of reducing car-based journeys to work, the provision of new equestrian facilities across the Site will not form a part of the strategy.

6.2 Policy background

- 6.2.1 The National Planning Policy Framework (NPPF) states that:
- a core land-use planning principle is that ... “opportunities to promote walking, cycling and public transport use are identified and pursued”; and

- “Developments should ... give priority first to pedestrian and cycle movements (and) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles.”
- 6.2.2 This policy context is supported by the objectives of the Cambridgeshire Rights of Way Improvement Plan, i.e., an emphasis of the need to improve and promote the public rights of way network in the area, give priority to Walkers and Cyclists throughout the Site, and to provide quality links to the surrounding Walking and Cycling network.
- 6.2.3 The proposed Development Walking and Cycling strategy further reflects fully the policy identified within the NPPF and the Transport Strategy for Cambridge and South Cambridgeshire by:
- i. implementing travel demand management strategy techniques to enhance the status of Pedestrian and Cycling modes;
 - ii. providing enhanced infrastructure where necessary to assist Pedestrian and Cyclist movements.
- 6.2.4 The University of Cambridge Transport Strategy 2019-2024 provides a framework to guide investments in improving transport facilities on the University estate and in line with the University’s vision for transport. This involves:
- i. supporting the day-to-day operations and planning growth of the University while maintaining the special character of Cambridge;
 - ii. ensuring that walking and cycling remain attractive and safe modal choices;
 - iii. improvements to pedestrian and cycle facilities on site; and
 - iv. working with partners to deliver strategic infrastructure in the area.

6.3 Likely Future Cycle Movements

- 6.3.2 Using the Stantec Spreadsheet Model, an assessment has been undertaken of the likely future AM cyclist movements to West Cambridge in 2021 (i.e., including for the existing occupiers, and those potentially relocating to West Cambridge).
- 6.3.3 This assessment contained in Appendix 6.1 supports the commentary to the existing Development Cycle movements reported in Section 3, with:
- i. around 24% of movement to / from the north, across Madingley Road;
 - ii. around 72% of movement to / from the east, along the existing facilities along Madingley Road and Coton Path towards the City; but
 - iii. with a very limited number, only around 4% of existing cycle movements, assigning to / from the west across the motorway.

Table 6.1: Likely Cycle to West Cambridge Movements (2021)

Corridor	Inbound		Outbound		Two-Way	
	Total	%	Total	%	Total	%
Eddington Avenue (North)	116	10%	25	12%	141	10%
Madingley Rise (North)	89	8%	1	0%	90	7%
Storey's Way (North-East)	89	8%	3	1%	92	7%
Madingley Road (East)	149	13%	57	27%	206	15%
Burrell's Walk (East)	125	11%	0	0%	125	9%
West Road (east)	215	19%	47	22%	262	19%
Grange Road (South)	324	28%	69	33%	393	29%
Coton Path (West)	35	3%	5	2%	40	3%
Madingley Road (West)	14	1%	2	1%	16	1%

Source: PBA Spreadsheet Model.

6.4 Measures to promote Walking and Cycling usage

6.4.1 This section summarises a Walking and Cycle Strategy to be brought forward with the proposals for West Cambridge, in the context of the new development at the North West Cambridge and the surrounding existing Cycling infrastructure.

6.4.2 Reflecting the analysis of the likely 2021 Cycling movements in Table 6.1, and the routes likely to be used, the West Cambridge Development Strategy proposes changes to the wider network of routes to:

- ensure good permeability through West Cambridge;
- strengthen links between West Cambridge and the adjacent North West Cambridge;
- improve access to the surrounding area, including to the City Centre.

6.4.3 This Strategy is based on:

- a review of the existing Walking and Cycling network;
- Walking and Cycling infrastructure improvements already proposed or under construction by others; and
- the initial assessment of Walking and Cycle demand forecasts summarised in Table 6.1 to identify further improvements that may be required to ensure future levels can be safely and efficiently accommodated.

6.4.4 The measures that are to be implemented at the Development to encourage Walking and Cycling include:

6.4.5 **Design concept** – a principal objective is to deliver a compact mixed-use development that would encourage sustainable travel choices, particularly Walking and Cycling – as emphasised in the two Department for Transport's Manual for Streets documents (2007 and 2012);

6.4.6 **Site Design and Layout** – reference has been made to the guidance for potential peak hour flows reported in the London Cycling Design Standards (2014 - Transport for London) to ensure that the cycling facility is fit for purpose:

- to ensure that the focus of the accessibility strategy for the Site remains strongly in favour of sustainable modes of transport, the Site has been provided with permeable footways and low speed streets throughout the Development, with Pedestrian crossings delivered on the site access roads along the desire lines;
- for the on-site provision the following is proposed:
 - **North - South connections** - between Madingley Road and Coton Path using the Western Access / Ada Lovelace Road, High Cross, JJ Thomson Avenue and Clerk Maxwell Road. These links would be supported with improved crossings on Madingley Road delivered in conjunction with the proposed strategic walking and cycling transport scheme;
 - **East - West Shared Space Link** – in addition to Charles Babbage Road, new shared used paths and links would be provided within the Development - to the north (The Green), and to the south (the Southern Ecological Corridor):
 - **the Southern Ecological Corridor** route - to the south of Charles Babbage Road - would provide a more direct link than Coton Path through the Development to the motorway bridge – and potentially linking to the strategic transport scheme’s walking and cycling facilities;
 - **The Green** route to the north will connect High Cross with Clerk Maxwell Road with a slight diagonal alignment. This will assist in providing a more direct link from North West Cambridge towards the City Centre;
 - as with North West Cambridge, all vehicle routes on Site will be delivered as **20mph design speeds** using passive speed management measures - such as the use of shared surface areas. This low-speed environment is primarily to control vehicle speeds, but in so doing will create a safe and more attractive environment for Pedestrians and Cyclists;
- key cycleway / footways within the Development will be defined by use to ensure good connections between the main on-road routes and the network of traffic free routes and local links to areas of cycle parking.

6.4.7 **Services and Facilities** – a series of measures will be implemented within the Development to encourage Walking and Cycling, including:

- footways would be provided on both sides of the on-site streets and at the Site Access locations. Controlled crossing points would be provided, and traffic calming measures would be present to reduce traffic speed and to ease Pedestrian movement;
- high levels of quality Cycle parking – at a level at least to the adopted Cambridge Local Plan 2018 minimum Cycle parking standards - will be provided within private covered, secure, lit and well-located areas at the destinations, as well as further provision through the Development. The intention is to reflect the existing quality cycle parking provided on site, such as outside the Sports Centre (which, indeed, was complimented by the Cambridge Cycle Campaign in correspondence);
- all major employers would be required to provide associated shower and changing room facilities to support more active journeys such as those wishing to undertake longer distance cycling or to run or jog to and from the Development; and

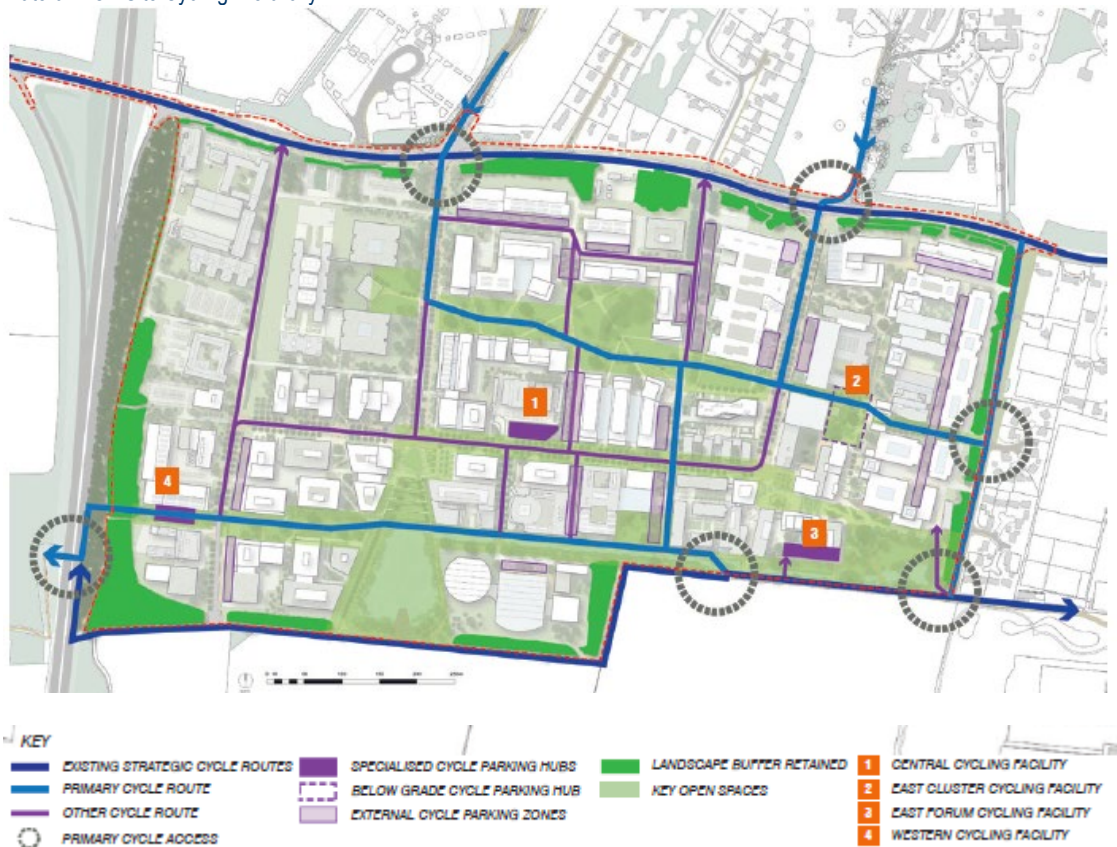
- application of a Cycle Parking Provision and Management Strategy – see Section 8. Cycle parking will be provided as near as possible to the main entrance of the buildings, and will be covered by natural surveillance and CCTV.

6.5 On-site Infrastructure

6.5.1 The Pedestrian and Cycle infrastructure strategy within the Development, shown on Plate 6.1, has been determined to respond to the following aspirations of:

- i. providing fully permeable and safe routes throughout the Development;
- ii. providing a hierarchy of cycling and walking links, with a network of strategic cycling routes providing high capacity corridors, and reasonable provision across the remainder of the site – this is shown in Plate 6.1, extracted from the Aecom Design and Access Statement Cycle Network:

Plate 6.1: On-Site Cycling Hierarchy



(Source Aecom 2020 Design and Access Statement – July 2020)

- iii. providing connectivity between the Development and the surrounding area; and
- iv. enhancing existing connectivity between surrounding areas using routes through the Development.

6.5.2 The on-site infrastructure strategy within West Cambridge responds to the following issues raised by Cambridge Cycling Campaign of:

- i. lack of attractive cycle routes through the Development and connectivity to the wider network;

- ii. two-tier provision – concerns over mixing with motor vehicles or pedestrians; and
 - iii. lack of route continuity, and the priority afforded to motor vehicles.
- 6.5.3 Whilst wide junctions formed with large radii are not generally approved by cyclists, the on-site road infrastructure has to reflect the likely range of users. Notwithstanding, all routes within the Development will be designed in accordance with the principles of the suite of Manual for Streets design guidance to contain vehicle speeds and flows, and to provide a quality streetscape.
- 6.5.4 These Pedestrian and Cycle connections through the Development would ensure safe, attractive connectivity to surrounding areas. They would also significantly enhance and improve the linkages between existing developments – such as Madingley and Coton and the City Centre, and Girton and North West Cambridge and the south of Cambridge – by providing direct quality links on desire lines through the Development.
- 6.5.5 The proposed cross-sections for the main roads within the Development are shown in Appendix 6.2, extracted from the Design and Access Statement prepared by Aecom.

Side Road Junctions

- 6.5.6 To ensure pedestrian and cyclist movement maintains an appropriate level of priority at side roads and along desire lines, junction treatments will create areas of shared space in which courtesy crossing activity can take place. These junction treatments will use consistent surface materials, tightened junction radii (where appropriate) and a removal of all road markings to create space where all movements can take place safely.
- 6.5.7 Inter-visibility between Cyclists and Motorists is essential to provide each with sufficient time to assess the situation on the approach and enhance safety. This means that the proposed landscaping – the tree species and hedgerows - will be designed so these should not inhibit inter-visibility between all road users on approach to all side roads and accesses to major occupiers.

Summary

- 6.5.8 The strategy outlined above has been derived in conjunction with the Joint Authorities, and provides a cycle route network defined by an on-road provision within a low speed and trafficked environment. This is achieved through narrow lanes widths; frequent courtesy crossings at side roads and on pedestrian desire lines; tighter corner radii and the removal of road markings (e.g. centre lines and give-ways).
- 6.5.9 This on-road provision is supported by a two new east - west shared use paths running through the site to the north and south of Charles Babbage Road. These routes will provide a comfortable route for both pedestrians and cyclists away from vehicular traffic. The final element to the on-site provision is the creation of shared-use footways on both sides of High Cross and JJ Thomson Avenue and which ensure good connections between the on-road and off-road routes but also to facilitate local links to areas of cycle parking.
- 6.5.10 With good signing this strategy meets the criteria that define good cycle routes and by keeping cyclists on-road ensures that the network can adapt to accommodate future increases in cycling across and through the site.

6.6 Committed off-site infrastructure enhancements

- 6.6.1 Due to the nature of the planning process, a number of proposals relating to this outline application (listed below from section 6.7 to 6.10) have already been committed within Phase 1 of the development in Full Planning Applications. These involve:

Civil Engineering Building

6.6.2 This application will deliver enhanced crossing facilities between Observatory Drive and Clerk Maxwell Road.

Cavendish III

6.6.3 Under this application, the University will deliver junction improvements at Adams Road / Grange Road / Burrells Walk and has provided funds for:

- the County Councils 'cycle street' enhancement to Grande Road and West Road;
- junction improvements at Storeys Way / Madingley Road;
- junction improvements at Grange Road / Madingley Road; and
- widening of the Bin Brook Bridge.

Shared Facilities Hub

6.6.4 In this application, the university has provided funds to the County Council to deliver a Shared Use Pedestrian and Cycle Crossing between Lady Margaret Road and Grange Road, alongside Real Time Passenger Information enhancements at two bus stops on JJ Thompson Avenue.

Whittle Laboratories

6.6.5 This application will remove the existing on-road car parking from both sides of the carriageway on Clerk Maxwell Road and replace with two cycle lanes.

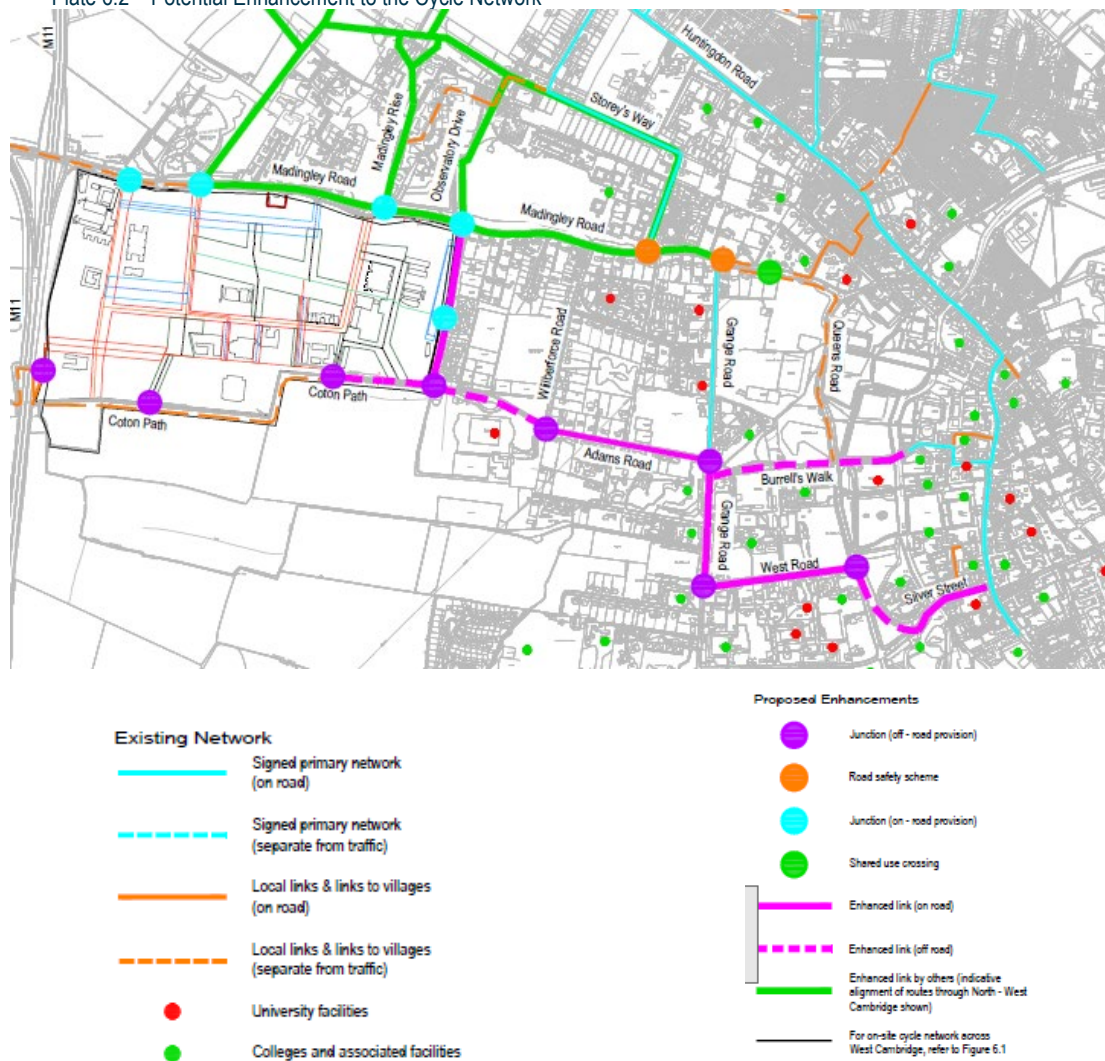
6.7 Off-site infrastructure enhancements

6.7.1 The Development is anticipated to generate increased levels of Cycling and Walking trips across the network. To enhance the existing Pedestrian and Cyclist connectivity shown on Figure 6.1 further, the following infrastructure enhancements will be provided by the Development. These proposals are entirely compatible with the proposals of the County Council and other developers in the area referred to previously.

6.7.2 The Off-site Walking and Cycling infrastructure enhancement strategy is shown on Figure 6.2, repeated in Plate 6.2. This responds to the comments of the North West Cambridge Cycling Group and the Cambridge Cycling Campaign and considers the following elements:

- resolving existing road safety issues;
- to the north – towards North West Cambridge, Girton and Huntingdon Road;
- to the City Centre – along Coton Path, Adams Road and Burrell's Walk;
- towards the City Centre – along Grange Road, West Street, and Silver Street.

Plate 6.2 – Potential Enhancement to the Cycle Network



6.7.3 Several of the infrastructure enhancements on these routes involve the delivery of a “Cycle Street”. As identified in the Sustrans Design Manual “Handbook for cycle friendly design”, a Cycle Street enhances the priority of Cycle movements over those of motor vehicles through a combination of measures including:

- the implementation of road markings emphasising the Cycle route;
- rationalised car parking bays - to achieve good inter-visibility between all road users;
- appropriate waiting and loading restrictions;
- removed centre line road markings;
- narrowed road carriageways and other traffic-calming measures – potentially using sinusoidal speed humps.

6.7.4 The objective of a Cycle Street design is to reduce vehicle speeds to those of a typical Cyclist - thereby removing a major potential conflict caused by overtaking manoeuvres.

Plate 6.3 - cars are "guests" on Cycle Streets



Source - Sustrans Design Manual "Handbook for cycle friendly design"

6.7.5 A combined cycleway / footway was delivered by Cambridgeshire County Council along much of Madingley Road - albeit that this is not contiguous between the City and the Park and Ride Site, with a gap being formed in the provision to the west of Madingley Rise. Reflecting comments received from the Joint Authorities that suggested the University provide the necessary infrastructure to complete this link:

- the University has offered appropriate proportionate contributions towards a strategic transport scheme along Madingley Road to improve walking and cycling, which would deliver strategic enhancements in a holistic manner; but
- this gap would not have affected the movements to West Cambridge - the on-site facilities would provide a quality alternative route, negating the need to use Madingley Road on this section.

6.7.6 Money has already been provided to Cambridgeshire County Council for 'cycle street' enhancements to Grange Road, West Road and/or Sidgwick Avenue within the Full Planning Application for Cavendish III.

6.8 Resolving existing road safety issues, and environmental improvements

6.8.1 As identified in the Road Safety Review in Section 3, there appear to be two existing road safety issues on the local network disproportionately affecting cyclists:

- i. a number of conflicts between cyclists / motor cyclists and motorists both passing from west to east at the Madingley Road / Storey's Way junction; and
- ii. a similar number of conflicts at Madingley Road / Grange Road traffic signal-controlled junction between left-turning motorists and cyclists travelling straight ahead.

6.8.2 In addition, the University will contribute towards the costs of implementing a reduction in the existing 40mph speed limit on Madingley Road (see below).

6.8.3 Whilst these may be resolved by a strategic cycle scheme along Madingley Road, to provide resilience should this scheme be delayed independent measures have been considered further.

Madingley Road / Storey's Way ghost island priority junction

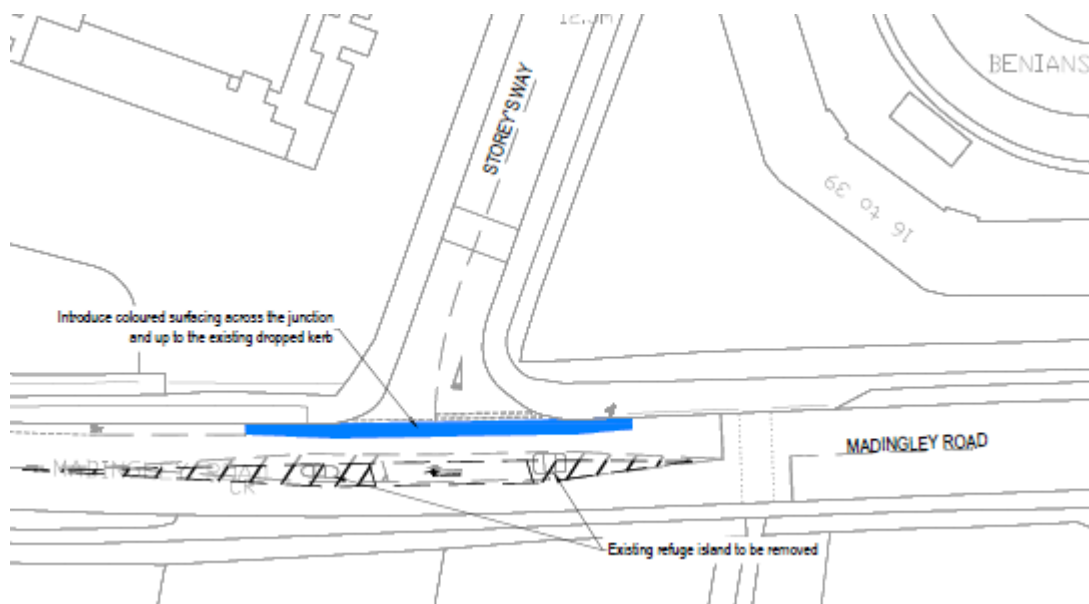
6.8.4 Four collisions have occurred at this junction between cyclists / motor cyclists and vehicles. The previously available road safety data indicated that all were passing from west to east – this level of detail is no longer available.

6.8.5 The Madingley Road / Storey's Way junction is a ghost island priority junction, with the extent of the right turning lane defined by two physical islands within the carriageway. A toucan crossing is located approximately 30m to the east of Storey's Way. Whilst a cycleway was delivered by Cambridgeshire County Council in the northern verge along Madingley Road,

from on-site observation a significant percentage of cyclists continue to travel on the carriageway of Madingley Road.

- 6.8.6 Whilst the physical islands provide some protection for vehicles waiting to turn into Storey's Way, as well as some limited protection for pedestrians crossing Madingley Road, they provide a constraint to the available carriageway width. It appears that this reduction in carriageway width results in vehicles drifting towards the channel where cyclists will generally be, and the conflicts occur.
- 6.8.7 It is suggested that these islands are unnecessary to provide the protection for the turning vehicles – especially within the Cambridge urban context – and that priority is provided for crossing Cyclists and Pedestrians at the toucan crossing immediately adjacent.
- 6.8.8 To assist in resolving this existing issue, the University will work with Cambridgeshire County Council or with any strategic scheme proposed along Madingley Road in promoting a scheme to remove the physical islands - to be replaced with at-grade carriageway construction, to extend the advisory cycle lane across the junction up to the dropped kerb to access the toucan to the east. This concept is shown on Figure 6.3, repeated in Plate 6.4:
- 6.8.9 The university has already provided funds for improvements to this junction within the Full Planning Application for Cavendish III.

Plate 6.4 – Potential Enhancement to Madingley Road – Storey's Way Junction



Madingley Road / Grange Road junction

- 6.8.10 Four collisions have occurred at this junction between cyclists and vehicles. The previously available road safety data indicated that the majority of cyclists were passing from east to west – this level of detail is no longer available.
- 6.8.11 On the eastern approach to this junction, the Advanced Stop Line is connected by a short length – approximately 15m - of feeder cycle lane. Whilst the western approach has an Advanced Stop Line, there is no feeder cycle lane. It is suggested that this feeder lane is encouraging cyclists to increase speeds through the junction, potentially undertaking, leaving them vulnerable to the motorists turning ahead of them.
- 6.8.12 To assist in resolving this existing issue, the University will work with Cambridgeshire County Council in promoting a scheme to resolve this. The works would include:

- i. extending the advanced stop line on both Madingley Road approaches to 7.5m;
 - ii. review whether cycle “head-start” green times can be included within the traffic sign controls; and
 - iii. providing a road-side safety mirror on the traffic signal posts – this will both alert motorists of this issue, as well as making approaching cyclists more conspicuous to motorists.
- 6.8.13 The university has already provided funds for improvements to this junction within the Full Planning Application for Cavendish III.

Environmental Improvements

- 6.8.14 A 40mph speed limit is in force on Madingley Road adjacent the West Cambridge Development between the M11 Junction 13 and the approaches to the JJ Thomson Avenue junction.
- 6.8.15 Whilst this speed limit was appropriate when the traffic regulation order was applied - for the suburban Madingley Road link, being on the outskirts of Cambridge - conditions along Madingley Road have changed significantly subsequently. With the implementation of the North West Cambridge Development and the West Cambridge Development proposals, Madingley Road will be increasingly used by pedestrians and cyclists. As such, a speed limit slower than 40mph would be appropriate.
- 6.8.16 To provide an environmental enhancement in the locality of West Cambridge, the University will provide a contribution towards the costs of the necessary traffic regulation order to implement this reduced speed limit. The lower vehicle speeds will provide safety benefits for existing users of Madingley Road, as well as for the pedestrians and cyclists generated by West Cambridge

6.9 Off-site infrastructure enhancements towards the north

- 6.9.1 As shown on Figure 6.1, movement towards the north on the Existing Cycle Network – along Madingley Road and through North West Cambridge to Girton and along Huntingdon Road – can make use of the extensive Walking and Cycling facilities provided by:
- Cambridgeshire County Council - along both Madingley Road and Huntingdon Road; and
 - the University - the facilities provided through North West Cambridge – including the Ridgeway, and via Eddington Avenue, Madingley Rise and Observatory Drive.
- 6.9.2 To enable the users of West Cambridge Development to utilise these facilities, quality crossings of Madingley Road would be required. Madingley Road is a major arterial road connecting central Cambridge with the strategic M11 Junction 13. As such, Madingley Road can present a barrier to accessibility; hence there is the need to ensure safe and efficient crossings for Pedestrians and Cyclists.
- 6.9.3 The University supports the aspirations of Cambridgeshire County Council's strategic Madingley Road Cycle Scheme, which would enhance pedestrian and cycle movements along and across this Corridor. Whilst provision has already been made for controlled crossing of Madingley Road by Pedestrians and Cyclists, these existing facilities would be further enhanced to accommodate the expected increased Pedestrian and Cyclist flows. The proposals being offered for public consultation are shown in Appendix 2.5, the programme for delivery is being considered with respect to other works in the area.
- 6.9.4 Whilst high levels of movement of Pedestrians and Cyclists are predicted at the High Cross and JJ Thomson Avenue junctions, to minimise the impact on vehicle movements along Madingley Road the strategy reflects the Madingley Road Cycle Scheme proposals for the

adoption of a series of crossings to disperse the movements to a series of locations. Indeed, this would also provide a benefit of offering Pedestrians and Cyclists more direct routes to their destinations within West Cambridge. Pedestrian and Cyclist controlled crossings exist, or are proposed, at the following locations on Madingley Road:

- around the existing Madingley Road / High Cross junction;
- at the JJ Thomson Avenue junction – albeit the County Council’s Madingley Road Cycle Scheme proposals have to be confirmed;
- between Madingley Rise and JJ Thomson Avenue at a new at-grade toucan crossing;
- between Observatory Drive and Clerk Maxwell Road – a new informal crossing with enhanced islands is proposed to improve movements between Observatory Drive / Storey’s Way and Clerk Maxwell Road – see below;
- the Storey’s Way junction – an existing toucan crossing which provides a link to the segregated path which connects Madingley Road to Clarkson Road; and
- between Lady Margaret Road and Grange Road – working with Cambridgeshire County Council and Cambridge City Council to investigate the need for a shared use pedestrian / cyclist crossing (a “Cycle Zebra” crossing). If shown to be appropriate, to make contributions towards its delivery;
- at a later phase, a new toucan crossing within the Madingley Road / Western Access Road traffic signal controlled junction, providing a connection between the combined facility within the northern verge, to the footway and Western Access Road to the south.

6.9.5 Further details are provided of these potential options.

Crossings of the Madingley Road / High Cross junction

6.9.6 Stantec’s Spreadsheet Modelling was used to assess the optimum location for crossings between West Cambridge and North West Cambridge Developments across Madingley Road. This work indicated that one ideal location would be at the High Cross junction, as:

- this appears best to reflect a key desire line for Cyclists and Pedestrians between the developments, resulting in the maximum usage; and
- it reduces the demand at the alternative at-grade toucan crossing at Madingley Road / Madingley Rise / JJ Thomson Avenue, thus reducing the impact on the vehicle network capacity.

6.9.7 Whilst the existing Madingley Road / High Cross junction facilities (delivered as part of the North West Cambridge Development) are appropriate for Key Phase 1, the predicted use at this junction by Pedestrians and Cyclists following the full delivery of West Cambridge suggests that these at-grade facilities would need to be reviewed. Within the context of the adopted Monitor and Manage Approach for assessing mitigation for West Cambridge, and the County Council’s strategic transport scheme along Madingley Road for cycling, the University will work with the County Council to deliver a quality junction providing a reasonable balance of capacity for all modes – albeit not during Key Phase 1, but at the appropriate time within the development delivery.

Enhanced crossing between Observatory Drive and Clerk Maxwell Road

6.9.8 To enhance direct movement between the Walking and Cycling route on Observatory Drive and Clerk Maxwell Road – accessing the eastern side of West Cambridge – an enhanced uncontrolled crossing of Madingley Road is proposed. This is shown on Figure 6.4.

6.9.9 This scheme is being delivered by the Civil Engineering Building Full Planning Application.

Clerk Maxwell Road

6.9.10 Uncontrolled car parking is allowed on-road along Clerk Maxwell Road, where approximately 85 - 90 car parking spaces are currently available. From observation, these spaces are regularly occupied, resulting in a poor-quality link for cyclists and local residents, as well as increasing vehicle activity along this link.

6.9.11 The parking on this road would be susceptible to overspill car parking from West Cambridge.

6.9.12 As discussed and agreed with the Joint Authorities, the University would contribute towards the costs of this existing on-road car parking being removed from both sides of the carriageway, and being replaced with two advisory cycle lanes. This would provide significant betterment for residents and cyclists, and improve the quality of the public realm on this link.

6.9.13 This scheme is being delivered as part of the Full Planning Application for Whittle Laboratories.

Shared use Pedestrian / Cyclist crossing between Lady Margaret Road and Grange Road

6.9.14 To assist westbound cyclists to cross Madingley Road, to make full use of the existing on- and off-road cycle facilities provided in the northern verges of Madingley Road, a shared use pedestrian / cyclist crossing (a "Cycle Zebra" crossing) located between Lady Margaret Road and Grange Road would assist. The University will work with Cambridgeshire County Council and Cambridge City Council to investigate the demand, and if concluded to be appropriate, to make contributions towards its delivery. The approximate location is shown on Figure 6.2, a plan is shown on Figure 6.5.

6.9.15 The university had paid a contribution to Cambridgeshire County Council to deliver this scheme as part of the Full Planning Application for the Shared Facilities Hub, including public consultation costs for the scheme.

Toucan crossing at the Western Access Road

6.9.16 To enhance direct movement between the combined facility in the northern verge, to the footway and Western Access Road to the south, a new toucan crossing will be provided within the Madingley Road / Western Access Road junction. These are shown on Figure 18.1.

6.10 Off-site infrastructure enhancements towards the East

6.10.1 Movement between West Cambridge and the East, to the City, is currently focused along Coton Path and Adams Road. It is intended further to enhance the existing infrastructure along this route. These elements are shown on Figure 6.6 and 6.7 and are considered individually.

6.10.2 In addition, whilst not the primary route for West Cambridge pedestrian and cyclist movements to / from the east, the County Council's Greater Cambridge Madingley Road Cycle Scheme, supported with appropriate contributions from the University, will enhance infrastructure along this corridor. This is also considered.

Area-wide strategic schemes – a Madingley Road Cycle Scheme

6.10.3 As part of the emerging area-wide strategy, the County Council is seeking to improve sustainable travel along the Madingley Road Corridor into the city. The University supports the aspirations of this scheme, and will make appropriate contributions towards this scheme.

- 6.10.4 As shown on the Consultation plans included in Appendix 2.5, it seeks to create clear, dedicated cycling and walking routes from the Park and Ride Site (to the west of the High Cross junction) through to the Northampton Street Roundabout.
- 6.10.5 In conjunction with the reduction in vehicle movements provided by a mass transit scheme along the A428 / A1303 Corridor, the existing junctions along the road would be reconsidered and redesigned – first, to improve access for those travelling on foot or by cycle, and secondly to improve the streetscene, with additional landscaping - including for more trees and planting.

Coton Path

- 6.10.6 The Coton Path is located along the southern boundary of West Cambridge, and forms part of a quality, direct link between Adams Road (the eastern side, leading to the City) and Coton (to the west) for Pedestrians and Cyclists.
- 6.10.7 The home post code data summarised in Section 3 identifies that only 3% of users of West Cambridge cycling in from the west, using the western end of this facility: and indeed, the County Council's proposals for the A428 / A1303 Corridor include for quality cycling infrastructure. As such, the proposed infrastructure enhancements for West Cambridge are focussed towards the east, being the greater percentages of existing users are resident – this ensures the maximum benefit from the mitigation.
- 6.10.8 To enhance Walking and Cycling, the University would make contributions towards the delivery of the following improvements to the existing Coton Path route, reflecting the concerns of the West and North West Cambridge Cycling Group, and the Cambridge Cycling Campaign:
- at the western end of West Cambridge, a new Cycle and Pedestrian route will be provided between the M11 bridge crossing and the Western Access Road within West Cambridge. This will reduce the distance between these two points by approximately 250 metres, providing better access to locations within West Cambridge;
 - the Coton Path will be widened within the boundary of the West Cambridge site, where achievable, to improve connections to the east;
 - improved connections to Coton Path will be redesigned to improve the layout for pedestrians and cyclists accessing West Cambridge. The key connections to be improved include those that connect Charles Babbage Road to the Southern Ecological Corridor and that at the end of Clark Maxwell Road. The existing link between the Hauser Forum and Broers Building will continue to be pedestrian use only;
 - as suggested by the Cambridge Cycle Campaign, maintenance to the existing vegetation that currently reduces the effective width of this route constraining forward visibility;
 - the route would be realigned where possible to remove the sharp turns along Coton Path directly to the south of West Cambridge; and
 - the eastern terminus of the Coton Path – the junction with Wilberforce Road and Adams Road – will be redesigned providing a more direct and continuous route for Cyclists while also slowing passing vehicles – thus prioritising Cycle movements. Details are shown on Figure 6.8.
- 6.10.9 The Coton Path is also part of the upcoming Greater Cambridge Partnership Comberton Greenway. The Comberton Greenway is a proposed route to enable cyclists, walkers and equestrians to travel sustainably from Comberton to Cambridge. Following a public consultation on this route, an analysis is now underway to determine how to best progress the project. This decision is expected to take place in 2020.

Adams Road

- 6.10.10 Adams Road is an 8.1m wide single carriageway accessing residential properties, University facilities and a sports field to the north.
- 6.10.11 The current road layout does not support active modes in a way that is consistent with those developed within the site. Footways on Adams Road are narrow, on-street parking obstructs visibility and the width of the road carriageway contributes to close-pass overtaking of cyclists by drivers.
- 6.10.12 Three possible options are considered to create a more supportive environment for walking and cycling (see Figure 6.7):
- the first option removes all on-street car parking to allow for the introduction of cycle lanes in both directions along Adams Road. As the residential properties are provided with off-road car parking, much of the on-street car parking is commuter parking, and as such, there is less justification to retain it as a more suitable use of the road space can be found. While this option provides a dedicated on-street provision for cyclists, the environment is only marginally improved for pedestrians with the removal of the on-street parking improving visibility and the effective width of the footway;
 - the second option delivers a cycle street concept by reducing the road width to 4.5m – this is wide enough for two cars to pass at low speed but allow cyclists to ride more comfortably in a primary riding position. The cross-section indicates new footway build-outs where additional tree planting or new crossing points could be provided. Vehicle passing places for larger vehicles would be provided within sections of the road with a driveway cross-over which is what currently happens;
 - the final option is a variation of the above two options, in that it removes parking from one side of the road to create wider more appropriate footway widths. The cycle street layout of the first option is retained.
- 6.10.13 The options may need additional traffic calming measures as well as the existing 20 mph speed limit to create a safe on-road environment for cyclists while a change to the traffic regulation orders will be required for those options that remove or limit parking.
- 6.10.14 All options would deliver a high capacity, two-way on-road Cycle route along Adams Road to enhance along the east – west axis, and indeed, these proposals reflect the aspirations of the Cambridge Cycling Campaign.

Grange Road / Adams Road / Burrell's Walk Traffic Signal Controlled Junction

- 6.10.15 The existing Grange Road / Adams Road / Burrell's Walk junction is a four-arm traffic signal controlled junction. Pedestrian and Cycle movements are assisted by the provision of advanced stop lines on each of the three carriageway approaches, and the provision of Push-to-Walk buttons on each corner.
- 6.10.16 Following the enhancements to the Pedestrian and Cyclist route to West Cambridge, the junction will be reviewed:
- the junction signal timings will be reset better to accommodate the increased Pedestrian and Cyclist movements along Adams Road;
 - consider whether cycle “head-start” green times can be included within the traffic sign controls; and

- to consider the delivery of further Cycle priority, by modifying the advanced stop line to increase Cycle stacking space.

6.10.17 The existing speed table infrastructure at this junction will remain, but the road markings will be renewed.

6.10.18 The university will deliver this junction improvement within the Full Planning Application for Cavendish III.

6.11 Off-site infrastructure enhancements towards the City Centre

6.11.1 Existing Pedestrian and Cycle movement to the east - beyond Adams Road towards the City Centre - is currently focussed on the existing Burrell's Walk.

6.11.2 Whilst acknowledging that there are some enhancements that could be made to the Burrell's Walk route shown on Figure 6.2 – generally focussing these enhancements towards Pedestrian measures - it is intended that further, alternative, parallel Cyclist links be provided to the City Centre both to reduce the demand on Burrell's Walk, and to enhance the available capacity. These would utilise the Grange Road – West Road – Queen's Green - Silver Street route.

6.11.3 This route is considered in greater detail, in addition to the potential measures along Burrell's Walk.

Grange Road – West Road – Queen's Green - Silver Street

6.11.4 An alternative quality Cycle route parallel to the Burrell's Walk route is considered between the Grange Road / Adams Road junction and the City Centre along the Grange Road – West Road – Queen's Green - Silver Street corridor.

6.11.5 As shown on Figure 6.6, the proposed route would follow along West Road to Queen's Road, crossing Queen's Road using new toucan crossing infrastructure, and across Queen's Green to Silver Street.

6.11.6 The existing Grange Road / West Road junction is currently a priority junction, with West Road forming the minor arm approach. As part of the enhancements to Pedestrian and Cyclist routes to West Cambridge, an improvement scheme shown on Figure 6.9 has been considered - the speed table at the junction remaining, but the road markings being renewed.

6.11.7 The Extant West Cambridge Development had a Section 106 commitment to provide contributions towards a traffic signal-controlled junction scheme at Queen's Road / West Road junction, and an enhanced cyclepath crossing of Queen's Green to Silver Street. This is shown on the Hannah Reed drawing reference 95044/ PC08A included in Appendix 6.3. The University would work with the County and City Councils to understand the issues involved in providing this enhancement to the proposed traffic signal-controlled Queen's Road / West Road junction enhancement, the cycle crossing facility of Queen's Road, and the crossing of Queen's Green. If the amended scheme is shown to be feasible, the University would make appropriate contributions to its delivery.

Burrell's Walk

6.11.8 The University has agreed contributions to the delivery of the following Burrell's Walk Enhancements as shown on Figure 6.10. These would be in addition to the alternative (West Road) cycle route enhancements (see above):

- widening the existing Bins Brook Bridge to provide a 3.0m wide running carriageway;
- widening Burrell's Walk on the approaches to the bridge to provide a 3.5m path;

- removing redundant street furniture; and
 - relocating the fencing to maintain the existing area of Cobbett's Corner.
- 6.11.9 The existing route will also be subject to a general maintenance to improve its quality – potentially including:
- the trimming back of the existing vegetation that currently reduces the effective width of this route, restricts daylight permeability, and constrains forward visibility;
 - a repainting of the existing road markings;
 - enhanced signage – identifying that Burrell's Walk is used by both Pedestrians and Cyclists to seek more considerate cycling.
- 6.11.10 This would enhance the environment for all users - in particular those with visual impairments - whilst improving the perceived personal security by reducing hiding areas, and increasing capacity.
- 6.11.11 As the Grange Road / West Road / Queen's Green / Silver Street route is being promoted for cyclists as an alternative higher capacity, quicker route into the City Centre, the importance of the existing single Burrell's Walk / Garret Hostel Lane route will be reduced.
- 6.11.12 Whilst Cyclists would not be restricted from using Burrell's Walk, new signs would direct Cyclists to access Burrell's Walk via the Pedestrian access 50 metres south along Grange Road, opposite the entrance to Robinson College. This will help reduce the conflict between Cyclists and Pedestrians at the junction of Burrells Walk with Grange Road and so allow an enhanced environment for Pedestrians.

6.12 Conclusions

- 6.12.1 The Development is well-located for Walking and Cycling with respect to existing Pedestrian and Cycle facilities.
- 6.12.2 The University supports the aspirations of a strategic Madingley Road Cycle Scheme to improve movement into the city, and will make appropriate contributions towards it.
- 6.12.3 The further infrastructure proposals for West Cambridge would:
- i. deliver quality Cycle and Pedestrian connectivity throughout the Development;
 - ii. enhance Pedestrian and Cyclist safety off-site for both users of West Cambridge, and for all other Walkers and Cyclists;
 - iii. deliver, and contribute towards improved strategic connections to key local destinations - such as the residential, employment and retail offer at North West Cambridge, and the residential development at Girton and at Darwin Green, as well as towards the facilities within the City;
 - iv. significantly enhance the existing Pedestrian and Cycle provision to the surrounding area by providing and improving direct routes across the Development; and
 - v. overall, preserve and enhance the attraction of Pedestrian and Cyclist modes of travel.
- 6.12.4 The Development will deliver direct, high-quality Walking and Cycling routes in the area, to support and encourage travel using these modes. In addition, the further infrastructure provided would enhance the connectivity to Cambridge City Centre. As such, it is considered

that Walking and Cycling will form a significant percentage of the mode share for local off-site trips, reflecting local and national policy guidance and strategies.

7 Public Transport Strategy

7.1 Introduction

- 7.1.1 Bus travel is an attractive alternative to the private car for many short- and medium- distance trips, offering the potential to replace car travel locally (such as to adjacent developments), to other destinations across Cambridge, and further afield. As such, public transport forms an essential element of the Access and Movement Strategy for the Development.
- 7.1.2 This section considers in detail the following aspects of a public transport strategy that would support the West Cambridge Development aspirations, would provide benefit to the surrounding area, and would be complementary to the emerging strategic mass transit scheme proposals:
- i. Policy background;
 - ii. Public Transport Requirement
 - iii. Development Services;
 - iv. Scenario Detail;
 - v. On-site public transport infrastructure; and
 - vi. Information and Incentives.
- 7.1.3 Initial discussions have also been held with various stakeholders to agree the potential public transport strategy for the Site, including with
- i. both of the main local bus operators – the Managing Director and senior management team at Stagecoach Cambridge and the Commercial Manager at Whippet; and
 - ii. the County Council’s Public Transport officers.
- 7.1.4 This section shows that the Development is well-located, being adjacent to well-established and successful existing bus services that connect to a range of destinations in Cambridge itself and more widely through Cambridgeshire.
- 7.1.5 It also identifies that the Development will contribute towards enhanced and additional bus services to increase bus usage, as well as providing quality infrastructure through the Development.
- 7.1.6 If delivered by Cambridgeshire County Council, the Development would further benefit from an area-wide strategic transport schemes to improve non-car movement in the Cambridge Sub-Region, especially along the A428 / A1303 Corridor, providing enhanced connectivity on an east – west corridor.
- 7.1.7 It concludes that whilst bus usage will provide a non-car alternative mode share for short, medium, and longer distance trips (reflecting local and national policy guidance and strategies), the Development bus strategy would also reduce car trips between other origins and destinations apart from the Development itself.

7.2 Bus Service Strategy

7.2.1 The scale of the proposed Development means that there will be both a high quantum of demand for public transport, and a number of locations that will need to be connected to West Cambridge.

7.2.2 The University has agreed developer contributions towards a strategic Cambourne to Cambridge mass transit scheme, the strategic infrastructure to support development in the west of Cambridge. Further new and enhanced bus services would be phased in to align with the Development quantum and consequent growth in demand. Ultimately, the links are expected to be as shown on Figure 7.1, derived with reference to the Travel Habit Survey undertaken in May 2015 by the University (see Section 7.8). These are summarised below:

- to the Milton Park and Ride site, to intercept car-based movements from the A10 (north) and A14 (east) of Cambridge;
- to the main local Rail Station – to Cambridge Station;
- to the City Centre;
- to the University / NHS sites in South Cambridge - including Addenbrooke's Hospital and the Cambridge Biomedical Campus;
- to various residential and employment / research sites around northern Cambridge - including North West Cambridge, Darwin Green and the Cambridge Science Park;
- residential areas along the A14 corridor - including St Ives and Huntingdon; and
- residential areas on the A428 corridor - including St Neots and the proposed Bourn Airfield proposals and Cambourne fringe developments.

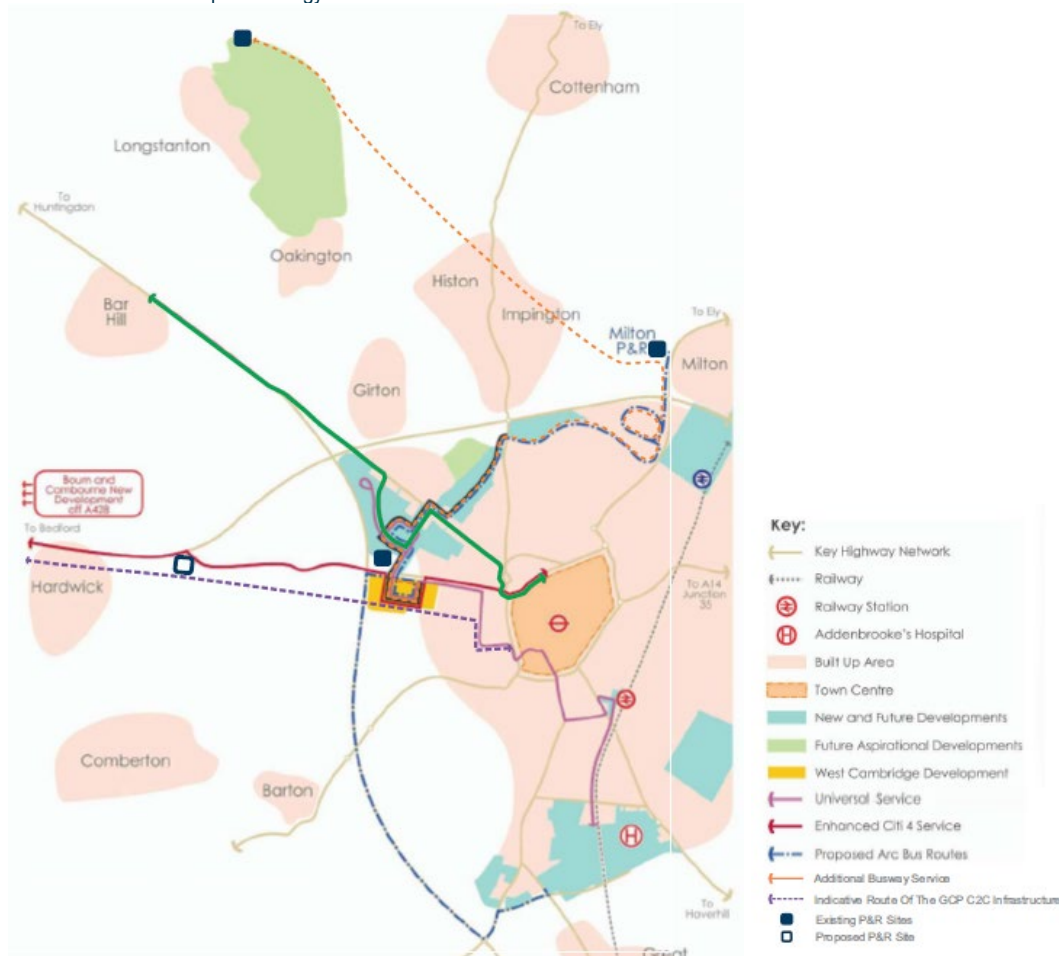
7.2.3 The Site would need to be well served by local bus routes to deliver mode shift away from the private car for Journey to Work trips. The University's already active travel policy encourages staff and students to use public transport, cycle or walk wherever possible; to date this has been a highly successful measure and the future development of bus services in this corridor would enable bus mode share to be further enhanced.

7.2.4 The Public Transport Strategy has been developed to cater for the demand flows identified earlier, and in the context of existing - and committed - public transport service proposals in the area. The proposals will cater for several user groups, including:

- staff working on various University (and other) employment sites, largely travelling at peak times;
- staff travelling between different University and NHS Trust sites within the city, generally during the working day;
- intercepting staff travelling into West Cambridge from the north and east by car;
- residents living in the Development sites accessing employment, retail and leisure activities in Cambridge city centre or via one of the rail stations, travelling throughout the day;
- Students travelling to and from the University teaching, research, leisure and accommodation facilities, travelling throughout the day; and
- business visitors to West Cambridge, largely travelling to the city by rail within the working day.

- 7.2.5 To make the bus network as accessible and simple to use as possible, the University will work with the County Council and operators to be able to offer network ticketing, allowing for passengers from destinations other than Cambridge city centre to make journeys on other services and transfer using the same ticket stored on a smartcard, mobile phone or EMV wave and pay card. Emerging developments in ticketing and payment technology mean that measures such as daily and weekly price capping could also be included within this aspiration in due course.
- 7.2.6 The Route Strategy is shown in Figure 7.1 repeated in Plate 7.1 below, showing proposed services for 2021 and, potentially longer term, for 2031.

Plate 7.1 – Public Transport Strategy



7.3 2021 Route Proposals

7.3.1 Universal:

- i. recently revised to serve Cambridge Rail Station, to and from Addenbrooke's Hospital and to operate on a loop around the Cambridge Biomedical Campus, enhancing access to developments on the site;
- ii. increased frequency, potentially to every 10 minutes over the core North West Cambridge to Cambridge Rail Station section, and operation extended to Saturdays between North West Cambridge and the rail station. The section between Cambridge Rail Station and Addenbrooke's would operate every 20 minutes on Monday to Friday only;

- iii. the university is reviewing the existing Universal service provision to determine whether improvements can be provided that would better serve the whole University, and discussions are to be held with the planning authorities.

7.3.2 Citi 4:

- i. Pending delivery of an area-wide strategic mass transit transport schemes to improve non-car movement in the Cambridge Sub-Region, for Key Phase 1 the Citi 4 is to be revised to divert from a section of Madingley Road via High Cross to JJ Thomson Avenue, to operate within the West Cambridge Development;
- ii. no changes would be made to the frequency of the Citi 4 service;

7.3.3 Arc Service:

- i. It is likely that the operation of an hourly orbital service from West Cambridge via North West Cambridge, Darwin Green and the Science Park to Milton Park and Ride will be delivered - as specified in the North West Cambridge outline planning consent;
- ii. service provided initially by high quality minibuses - reflecting the relatively low levels of demand - being upgraded to buses as the patronage increases.

7.4 2031 Route Proposals

7.4.1 Universal:

- i. as per the 2021 enhancement, subject to review of demand over the Silver Street to Addenbrooke's section with the introduction of an enhanced orbital service that extends to Addenbrooke's,
- ii. it may no longer be necessary to operate the Universal beyond the rail station (see below). This would require passengers travelling to/from Addenbrooke's to change buses at the rail station.

7.4.2 Citi 4:

Were the area-wide strategic mass transit transport schemes to improve non-car movement in the Cambridge Sub-Region, especially along the A428 / A1303 Corridor not be delivered, the following amendments to the Citi 4 Service enhancement would be required:

- i. to be revised to divert from a section of Madingley Road to operate via the West Cambridge Development (Stagecoach suggested that they may initially divert alternate journeys through the site);
- ii. increased frequency - potentially to every 10 minutes;
- iii. Citi 4 would provide links to West Cambridge from the city centre and the A428 corridor; and
- iv. whilst Stagecoach agree in-principle with this approach, this would be subject to confirmation with reference to the likely demand.

7.4.3 Arc Service:

- i. significant enhancement of the proposed Arc Service with increased frequency and higher quality vehicles;

- ii. the service would be extended beyond the currently proposed route to serve West Cambridge, then continue via the M11 motorway to Trumpington Meadows, the Cambridge Biomedical Campus and Addenbrooke's Hospital;
- iii. the service would then give links to West Cambridge from North Cambridge through to South Cambridge;
- iv. it is likely that the operation will be on a 20-minute frequency on Monday to Friday only.

7.4.4 Guided Bus:

- i. there is the potential for the introduction of a variation service to the existing Guided Busway Service B, running from Hinchingsbrooke– Huntingdon – Cambridge;
- ii. the variation would operate from Orchard Park via North West Cambridge and West Cambridge;
- iii. this would be in addition to the existing frequency on Service B and would provide direct links from the A14 corridor;
- iv. subject to confirmation of demand, operation on up to a 15-minute frequency at peak times, Monday to Friday.

7.4.5 Other alternatives:

- i. as there are interchange facilities between a range of high frequency services available in the City, it is not considered appropriate to operate direct through-services from eastern Cambridge to West Cambridge;
- ii. this will be reviewed regularly, and in the event that a critical mass of demand emerges, this could then be served by cross-linking of routes or additional services.

7.5 Bus Specification

7.5.1 Services would be delivered with high-quality, low-emission vehicles with low floor, step-free access.

7.5.2 Operation on the guided busway would require high specification buses with low-emission engines, luxury leather seats, air conditioning or air chill, power sockets for phones / laptops and free wireless internet. These measures have proved to be attractive to potential users, and the operation of vehicles with similar features on the other non-Guided Busway routes listed above would be encouraged to enhance their appeal and contribute to a higher take-up.

7.6 On-Site Bus Infrastructure

7.6.1 In order to facilitate an attractive bus service with good, safe headway through the Site and hence to users to the service, the following would be provided:

- high quality bus stops;
- bus priority measures - selected vehicle detection for buses through the traffic signal-controlled junctions to improve the flow of buses or enable passengers to access facilities (acknowledging that this would cause a decrease in capacity for other movements); and
- information and incentives.

7.6.2 These are considered further in this section.

Bus Stops

- 7.6.3 High quality bus stops act as the gateway to the network, and as such are the ‘shop window’ that are seen by travellers on all modes as they make their journeys. Bus stops would be equipped at this Development with the following:
- a high quality, 3-sided shelter;
 - seating and lighting;
 - comprehensive timetable information, including network maps and fare details;
 - a flag indicating services calling at the stop;
 - off-bus ticketing facilities to speed boarding times such as smartcards, renewable online and mobile applications to speed boarding times;
 - Real Time Passenger Information (RTPI) screens indicating departure times of the next bus;
 - a raised kerb to assist the less mobile or those with pushchairs to access the bus;
 - litter bins in close proximity but not obstructing access to and from the bus;
 - cycle stands to allow cycle-bus interchange; and
 - ‘Bus stop’ cage markings and an associated clearway order to keep bus stops free of other parked vehicles.
- 7.6.4 Provision of these facilities, and their prompt maintenance and repair by the bus operator or Development management, would ensure that the point of access to bus services is kept to a high standard, and would act as an attractor to public transport services within the Development.
- 7.6.5 Indicative locations on Charles Babbage Road for two bus stops that could serve a strategic mass transit service have been agreed in principle with the County Council, to the east of the High Cross junction. A further pair of bus stops would be required on the Development site. The provision of these, and a review of the existing provision, would be phased to reflect the progress of the emerging Development.

Bus priority measures

- 7.6.6 Bus priority would be provided by the use of Selective Vehicle Detection (SVD) technology at all traffic signals on the Site. These could include any on-site signals along the strategic transport scheme route, and to those controlling the entrances to the Site from Madingley Road – especially to the junctions with High Cross, and with JJ Thomson Avenue. This would detect approaching buses, and alter signal phases accordingly to ensure the minimum of delay to the bus.

Information and incentives

- 7.6.7 In addition to the provision of quality physical infrastructure, the provision of tailored information and incentives is now a mainstream method of attracting additional patronage to public transport networks around the UK.

- 7.6.8 To increase the use of public transport at the Development, journey planning and real time information on the services will be made readily available to residents, visitors, students and employees at the Development, be it at the bus stop, by telephone, SMS text messaging or the Internet.
- 7.6.9 Portals are already available for remote access to bus information, for example through <http://www.travelineeastanglia.co.uk> which provides details of timetables, <http://www.cambridgeshirebus.info> which provides Real Time Passenger Information, or <https://smartcambridge.org/transport/> which has live bus location, timetables and routes. Traveline also operate a telephone service.
- 7.6.10 The management of the Development will ensure the bus stop information will be well-maintained. Any alterations to services will be advertised in advance and correct timetables inserted at stops as close as possible to the change date. This includes alterations to the wider network as shown on timetable panels in the shelters.

7.7 Accessibility to Future Bus Routes

- 7.7.1 An assessment has been undertaken of the current and potential occupiers able to access easily the proposed development bus services.
- 7.7.2 This assessment uses the PBA Spreadsheet Model undertaken to support this assessment and considers those existing and future users resident within 400m of the routes traversed by the proposed bus routes (and 800m of the Guided Busway Service) to service West Cambridge. Whilst many responses would be resident within 400m to more than one of these service routes, each response is assumed to use one service only, this service assumed to be the most frequent.
- 7.7.3 The assessment of the net responses is contained in Appendix 7.1, and summarised in Table 7.1.

Table 7.1: Current and Potential West Cambridge Occupiers resident adjacent to the Development bus service routes

Service	2031
Universal	1,263
Citi 4	1,329
Arc	486
Guided Busway Services (within 800m)	1,064

Source: PBA Spreadsheet Model.

- 7.7.4 In addition to serving the West Cambridge occupiers resident along the routes, these services would be used for other journey purposes, including:
 - i. linked trips by rail – by serving Cambridge Rail Station, the Universal could be used by the 558 travelling by rail;
 - ii. linked trips by car to the park and ride sites – the Arc service serving the Milton Park and Ride site;
 - iii. trips to the adjacent North West Cambridge Development; and
 - iv. trips across Cambridge during the day – such as to the Cambridge Biomedical Campus and Addenbrooke’s Hospital.

7.7.5 This analysis of the home post code data of the current and potential occupiers of West Cambridge confirms that the service routes would both provide easy access to public transport, and would assist the commercial viability of these routes.

7.8 Summary

7.8.1 This section shows that the Development is well-located, being adjacent to well-established and successful existing bus services that connect to a range of destinations in Cambridge itself and more widely through Cambridgeshire.

7.8.2 It identifies that the West Cambridge Development would contribute towards additional bus services further to:

- i. enhance existing services to increase bus usage;
- ii. provide quality infrastructure through the Development; and
- iii. assist in the delivery of an area-wide strategic mass transit solution.

7.8.3 The provision of a quality bus strategy will encourage the use of bus to form a significant percentage of the mode share for short, medium, and longer distance trips, and would reflect local and national policy guidance and strategies.

7.8.4 The University's already active travel policy has encouraged staff and students to use public transport, cycle or walk wherever possible; to date this has been a highly successful measure and the future development of bus services in this corridor would enable this to be further enhanced.

7.8.5 The assessment of the home post code data of the current and potential occupiers of West Cambridge confirms that the service routes would both provide easy access to public transport, which would assist the commercial viability of these routes.

7.8.6 Initial discussions held with various stakeholders regarding the potential public transport strategy for the Site - including with the Traffic Managers of both of the main local bus operators and the County Council's Public Transport officers – support the proposed strategy in principle.

8 Car Parking Provision, Vehicular Access and Site Layout

8.1 Introduction

8.1.1 Appropriate levels of car and cycle infrastructure form an essential element of the travel demand management strategy. Providing for the necessary vehicular and cycle trips associated with the Development will help manage travel by car, and reflect the need to promote the use of other sustainable modes of travel.

8.1.2 This section considers in detail the following aspects:

- i. Car Parking Strategy;
- ii. Initial and Future car parking maxima;
- iii. Proposed cycle parking standards;
- iv. Site Layout and Vehicular Access.

8.1.3 It shows how the Development access strategy and site layout have been designed to ensure the focus of the accessibility strategy for the Site remains strongly in favour of sustainable modes of transport.

8.1.4 It further shows that:

- the cycle parking provision is in accordance with the Cambridge Local Plan minimum standards; and
- the level of car parking proposed by the University at West Cambridge is significantly lower than the Cambridge Local Plan standards.

8.1.5 Whilst this provision of car parking numbers lower than the Local Plan standards would need careful management to protect the quality of the local environment and the development, these measures in combination form a major element of the travel demand management strategy to minimise car-based travel.

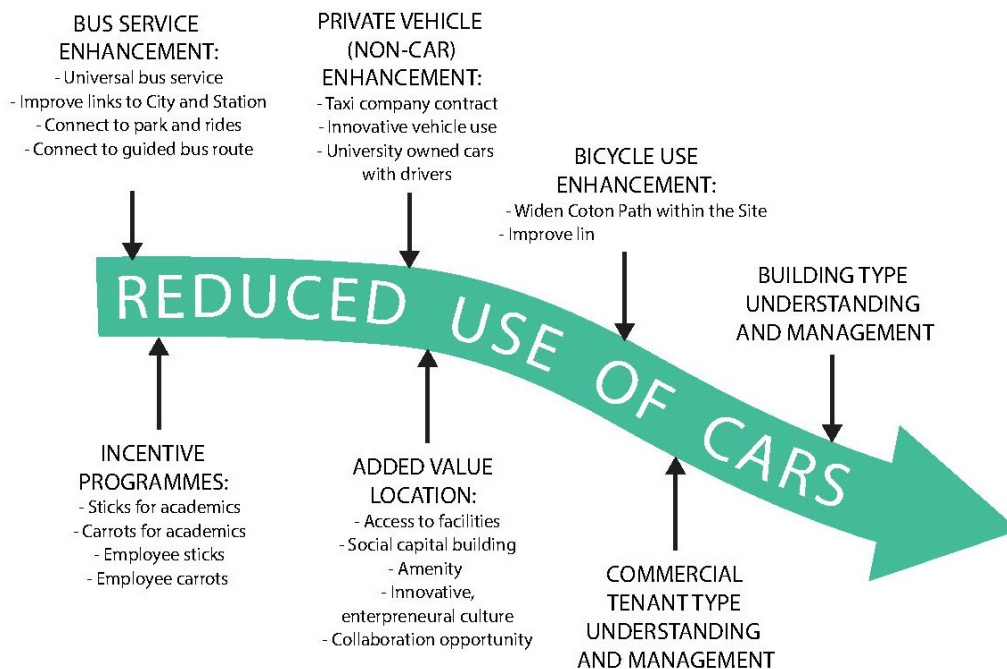
8.2 Car Parking strategy

8.2.1 The University is committed to delivering a high-quality development. Under-provision of car parking within the Site could be detrimental to the street-scene, with “fly-parking” occurring across the area. Similarly, an over-generous provision would be equally likely to be detrimental to the sustainability credentials of the Development, with excessive numbers of car driver trips attracted by the easy car parking provision.

8.2.2 The University’s Transport Strategy 2019-2024 acknowledges that “*Car parking spaces will be a diminishing resource and the University should manage this resource more effectively and with better regard to need and equity.*” Further, that reducing car journeys can be done either “*by providing realistic alternatives (for example by subsidising public transport) or by making such journeys less attractive (for example by eliminating or charging for parking).*”

8.2.3 To reflect that car use demand will decrease as the various transport mitigation measures are implemented as the Development progresses – such as public transport services increasing in frequency and coverage – and that non-car travel becomes easier, a less generous car parking provision will become less essential: it is proposed that the maximum car parking provision decreases towards the later phases of delivery of the West Cambridge Development. Any future reduction in car parking provision over time will need to be carefully managed and timed to follow wider transport improvements, and the University will need to ensure that any loss of provision reflects a demonstrable improvement in accessibility by non-car modes. This reduction in private car usage as the various transport measures are implemented was summarised figuratively by Aecom in Plate 8.1:

Plate 8.1 – Future car parking provision responding to improvements in accessibility



8.3 Initial and Future Car Parking Maxima

Existing Car Parking Provision

8.3.1 Occupancy of the existing numbers of car parking spaces across the West Cambridge Estate are monitored regularly, most recently surveyed in May 2019. This area reference plan, and the individual areas are included in Appendix 8.1.

8.3.2 The existing car parking was split into the three different uses, as follows:

- i. University Car Parking: car parking for general academic use – both controlled and uncontrolled by barrier;
- ii. Private Car Parking: car parking for specific commercial occupiers – again, both controlled and uncontrolled; and
- iii. University Park and Cycle: car parking in the Clerk Maxwell Park and Cycle site.

8.3.3 The existing car parking provision is as follows:

Table 8.1 – Existing West Cambridge Car Parking Provision – May 2019

Parking Use Type	Car Parking Spaces (No)
University Parking	1,109
Private Parking	410
University Park and Cycle	292
Total	1,811
Total – excluding Park and Cycle	1,519

(The University Parking total includes Permit and Contractor Car Parking)

- 8.3.4 Of the existing University car parks identified in Appendix 8.1:
- i. Parking Areas 49 and 59 (north of the William Gates Building) are controlled by permit;
 - ii. whilst Parking Area 15 (north of the Institute of Material Science and Metallurgy) is controlled by permit, the parking controls are removed at 3.30pm for the Sports Centre members. With reference to the observed occupancy of the car parks reported in Table 8.3, the demand for parking reduces around this time;
 - iii. Parking Area 41, to the east of the Institute of Manufacturing, provides:
 - residents' car parking;
 - visitor parking during the day; and
 - parking for the Broers Building and is not accessible by permit holders.
 - iv. Temporary Area 14, to the east of Ada Lovelace Road, is controlled by permit. It is used to accommodate event parking on site and is in use most days. The availability of this would be reviewed as permits holder numbers increase.

Existing Car Parking Patronage

- 8.3.5 The existing car parking patronage surveyed in May 2019 by ATR across the West Cambridge Estate was first surveyed throughout the day in March 2016 on a one-hour “beat” survey. In both cases, the surveyors identified:
- i. the patronage at each of the on-site car parking areas at each hour; and
 - ii. whether the car was specifically a contractor’s vehicle (i.e., one that should not be considered for when the development is complete).
- 8.3.6 The results for both surveys are contained in Appendix 8.1, and are summarised in Table 8.2:

Table 8.2 – Results of the West Cambridge Car Parking Beat Surveys for March 2015 and October 2016

Start time of beat	Other Vehicles		Contractor Vehicles		Total		% occupancy	
	2016 survey	2019 survey	2016 survey	2019 survey	2016 survey	2019 survey	2016 survey	2019 survey
08:00	514	1,067	32	19	546	1,086	29%	60%
09:00	1,033	1,157	36	21	1,069	1,178	57%	65%
10:00	1,234	1,209	39	25	1,273	1,234	68%	68%
11:00	1,278	1,249	41	23	1,319	1,272	71%	70%
12:00	1,219	1,247	35	19	1,254	1,266	67%	70%
13:00	1,218	1,245	33	19	1,251	1,264	67%	70%
14:00	1,220	1,217	33	18	1,253	1,235	67%	68%
15:00	1,145	1,122	22	16	1,167	1,138	63%	63%
16:00	1,009	943	15	18	1,024	961	55%	53%
17:00	567	529	11	19	578	548	31%	30%
18:00	455	358	9	15	464	373	25%	21%
19:00	258	276	8	15	266	291	14%	16%

Source – Advanced Transport Research. The change in percentages reflect the change in total car parking spaces

8.3.7 The patronage of the three component parking users of this survey are summarised below in Table 8.3 for the May 2019 survey, and Table 8.4 for the October 2016 survey:

Table 8.3 – Results of the West Cambridge Car Parking Beat Survey by parking user type (May 2019)

Start time of beat	University, Permit and Contractor Parking (1,109 sp)		Private Parking (410 sp)		Park and Cycle (292 sp)		Total (1,811 sps)		Total excl. P+C (1,519 sp)	
	Total	%	Total	%	Total	%	Total	%	Total	%
08:00	599	54%	351	86%	136	47%	1,086	60%	950	63%
09:00	620	56%	363	89%	195	67%	1,178	65%	983	65%
10:00	655	59%	363	89%	216	74%	1,234	68%	1,018	67%
11:00	694	63%	365	89%	213	73%	1,272	70%	1,059	70%
12:00	687	62%	366	89%	213	73%	1,266	70%	1,053	69%
13:00	685	62%	366	89%	213	73%	1,264	70%	1,051	69%
14:00	667	60%	355	87%	213	73%	1,235	68%	1,022	67%
15:00	654	59%	307	75%	177	61%	1,138	63%	961	63%
16:00	557	50%	289	70%	115	39%	961	53%	846	56%
17:00	359	32%	155	38%	34	12%	548	30%	514	34%
18:00	239	22%	102	25%	32	11%	373	21%	341	22%
19:00	191	17%	63	15%	37	14%	291	16%	254	17%

(University Parking includes the Permit and Contractor parking numbers)

Table 8.4 – Results of the West Cambridge Car Parking Beat Survey by parking user type (October 2016) – Excluding Contractor Parking

Start time of beat	University Parking		Private Parking		Park and Cycle		Total (1,861 sps)		Total excl. P+C (1,571)	
	Total	%	Total	%	Total	%	Total	%	Total	%
08:00	272	24%	140	35%	102	36%	514	29%	412	27%
09:00	551	49%	320	79%	162	57%	1,033	57%	871	57%
10:00	653	58%	397	99%	184	64%	1,234	68%	1,050	69%
11:00	698	62%	380	94%	200	70%	1,278	71%	1,078	70%
12:00	655	58%	361	89%	203	71%	1,219	67%	1,016	66%
13:00	654	59%	359	89%	205	72%	1,218	67%	1,013	67%
14:00	674	60%	343	85%	203	71%	1,220	67%	1,017	67%
15:00	649	58%	297	73%	199	70%	1,145	63%	946	62%
16:00	559	50%	265	66%	185	65%	1,009	55%	824	54%
17:00	357	32%	148	37%	62	22%	567	31%	505	33%
18:00	288	25%	125	31%	42	15%	455	25%	413	27%
19:00	176	16%	51	13%	31	11%	258	14%	227	15%

8.3.8 Comparison of the 2019 and 2016 information identifies that:

- i. the number of available parking spaces available across West Cambridge in 2016 has decreased since the 2019 survey – this reflects the changes to on-site car parking from recent construction;
- ii. the total peak total car parking occupancy has decreased marginally at West Cambridge by 1,278 to 1,272 vehicles in spite of further development being occupied generating further car parking need. This reduction could reflect a combination of:
 - the success of the emerging on-site Travel Plan and travel demand management measures reducing car usage;
 - awareness of the impact of car journeys, and the adoption of other modes;
 - a response to highway network congestion and journey time effects; and
 - the increased imposition of the on-site car parking management strategy;
- iii. whilst the 2019 Total Peak occupancy has decreased by 6 from the 2016 survey peak, due to the reduction in car parking availability on site this reflects the same percentage occupancy in the 2019 survey peaks – of 71%;
- iv. the occupancy of the Private car parking has reduced since 2016;
- v. the occupancy of the University Parking has stayed fundamentally the same since 2016 despite further development being occupied – from 698 to 694. This possibly reflects the increased imposition of the car parking management strategy, and the success of the emerging Travel Plan and travel demand management strategy;
- vi. the peak Park and Cycle patronage has increased by 11 since the 2016 survey – now peaking at 74% occupancy; and
- vii. there still remains around 30% total reserve car parking capacity throughout the day across the West Cambridge Estate. Whilst the level of reserve car parking would be used to accommodate the initial future development, some spare parking capacity would be required to cater for the daily variation, as well as variation throughout the day.

Existing Car Parking Demand (May 2019)

8.3.9 The existing car parking demand across the West Cambridge Estate was estimated with reference to the occupier type. This is summarised in Table 8.5:

Table 8.5 – Existing Car Parking Demand

Plot Number	Plot Name	GEA (m ²)	Car Parking Requirements
A03	Roger Needham	6,100	25
A04	Electrical Engineering (CAPE)	7,262	30
A08	Magnetic	440	2
A09A	William Gates – CS	10,300	59
A10	PoM and Maxwell Centre	5,795	24
A13	South Block / Hauser / Broers	7,898	133
A15	North Block	649	20
A20	IfM	4,634	19
A21	Chemical EB	10,829	33
A23	Material Science & Metallurgy	10,705	42
A25	Sports Centre Existing	6,060	10
B05A	Innes / MIRA	2,900	18
C08	Schlumberger Existing	9,972	132
D01	Schoefield	1,660	7
D02	BAS	13,500	177
D04	Aveva	4,000	100
D08	Data Centre	1,975	2
	TOTAL		833

8.3.10 When the predicted 833 space car parking demand identified in Table 8.5 is compared to the 2019 observed patronage within Table 8.3 (excluding the Park and Cycle) - of 1,059 - there is a higher patronage than anticipated. However, whilst this patronage is higher than anticipated, the excess has reduced since 2016. It is suggested that this trend, of the excess reducing will continue as:

- i. with the continuing success of the on-site Travel Plan and travel demand management measures reducing car usage being implemented to a wider target across West Cambridge;
- ii. the increased frequency and range of public transport services; and
- iii. the continued imposition of the on-site car parking management strategy.

Future Car Parking Provision

8.3.11 The proposed maximum car parking standards to be applied at West Cambridge have been derived with reference to several sources, including:

- i. the current car parking patronage at West Cambridge;
- ii. the maximum car parking standard applied at the adjacent North West Cambridge Development; and
- iii. the Cambridge Local Plan 2018.

8.3.12 The proposed car parking maximum standards through the life of the West Cambridge Development are summarised in Table 8.6. The University will review this provision, and positively seek to reduce car parking provision if appropriate as West Cambridge progresses.

Table 8.6: Car Parking Maximum Provision Proposals

Land-Use	Development Phase	Car Parking Provision
<i>Commercial and Academic Research – North West Cambridge Area Action Plan Standard</i>	<i>B1 Offices, General Industry – applied to Commercial Research</i>	<i>1 space per 40m² GFA maxima</i>
	<i>Non-residential higher education – applied to Academic Research</i>	<i>2 spaces for every 3 staff - to be applied as 1 space per 60m² GFA (The 2 spaces per 3 staff being the University's standard rate of car parking provision)</i>
<i>Cambridge Local Plan 2018</i>	<i>Business use – offices, general industry</i>	<i>1 space per 40m² GFA – including disabled car parking</i>
	<i>Non-residential higher and further education</i>	<i>2 spaces for every 3 staff</i>
Academic Research	Initial	1 car parking space per 4 staff
		No provision for students
	Later	1 car parking space per 5 staff
		No provision for students
Commercial Research	Initial	1 car parking space per 40m ² GFA
	Later	1 car parking space per 70m ² GFA

8.3.13 The proposed car parking provision by phase is considered further.

Key Phase 1 Parking Provision

8.3.14 Whilst forming only part of the proposals for West Cambridge, the development quanta in Phase 1, of 287,310m², remains a significant area of development.

8.3.15 Whilst subject to some future discussion and finessing, the potential and proposed car parking numbers have been derived using the provisions in Table 8.6. Car parking numbers have been derived using both the Local Plan provision on the gross floor areas by land-use type, and by considering the need arising from the proposed additional development provision for West Cambridge. These are summarised in Table 8.7:

Table 8.7: Key Phase 1 Car Parking Provision options

	Key Phase 1 Proposed Provision		Local Plan 2018 Potential Provision	
		Existing Provision (Table 8.5)	833	Existing Nursery, Sports Centre (Table 8.5)
Academic Research Area	Additional +66,000m ²	220	Total 168,259m ²	1,869
Rate of provision	1 staff / 60m ² 1 space / 5 staff		1 staff / 60m ² 2 spaces for every 3 staff	
Commercial Research Area	Additional +52,000m ²	1,300	Total 92,386m ²	2,309
Rate of provision	1 space / 40m ²		1 space / 40m ²	
Park and Cycle	292 spaces 212 occupied	212	292 spaces 212 occupied	212
TOTAL		2,565		4,420

8.3.16 Comparison of these two car parking provision rates identifies that in Key Phase 1:

- i. the University is proposing a significantly lower car parking provision than the Local Plan 2018 provision maxima – of only 58% of the Local Plan provision;
- ii. reflecting the current levels of unoccupied spaces, despite a significant increase in the Key Phase 1 development floor space in excess of 100,000m², an increase of only 760 car parking spaces is being sought at West Cambridge;
- iii. the car parking provision will reflect the proposed land-uses – and should less of the commercial land-uses (with high car parking demand) come forward in Key Phase 1, the total car parking provision would be significantly lower.

Full Development Parking Provision

8.3.17 The remaining proposals for West Cambridge consist of over 200,000m² of development - a further significant additional area of development.

8.3.18 Whilst subject to further discussion and finessing, the Full Development car parking quantum has been derived using the provisions in Table 8.6. Car parking numbers have been derived using both the Local Plan provision on the gross floor areas by land-use type, and by the proposed car parking provision rates for West Cambridge. These are summarised in Table 8.8:

Table 8.8: Full Development Car Parking Provision options

	Full Development Proposed Provision		Full Development Local Plan 2018 Provision	
	Existing Nursery, Sports Centre	30	Existing Nursery, Sports Centre	30
Academic Research Area	257,900m ² 1 staff / 50m ²	1,032	257,900m ² 1 staff / 60m ²	2,865
Rate of provision	1 space / 5 staff		2 spaces for every 3 staff	
Commercial Research Area	210,386m ²	3,006	210,386m ²	5,260
Rate of provision	1 space / 70m ²		1 space / 40m ²	
Park and Cycle	292 spaces 212 occupied	212	292 spaces 212 occupied	212
TOTAL		4,359		8,397

8.3.19 Comparison of these two car parking provision rates identifies that for the Full Development:

- i. the University is proposing a significantly lower car parking provision than the Local Plan 2018 provision maxima – of only 52% of the Local Plan provision;
- ii. despite a significant increase in the development floor space in excess of over 200,000m², an increase of only 2,548 car parking spaces is being sought at West Cambridge;
- iii. the car parking provision will reflect the proposed land-uses – and should less commercial land-uses come forward, the total car parking provision would be significantly lower;
- iv. whilst not directly proportionate to car parking provision, the West Cambridge trip generation will reflect the car parking provision. This enforces that Key Phase 1 would have a lower trip generation than the Consented Development, and that the increase in traffic for the Full Development will be lower than a proportionate increase in floorspace.

Provision for people with disabilities

8.3.20 At least 5% of the total number of car parking spaces should be reserved for disabled people, rounded up to the nearest whole space. Where parking provision is below the standards the required proportion of spaces reserved for disabled people will therefore be higher than 5%.

8.3.21 Higher ratios than the 5% given above may be required in some cases by the local planning authority, for example at medical facilities, residential care homes, community facilities and any other uses where a higher proportion of disabled users / visitors will be expected. It should be noted that provision at the above levels or any required by the local planning authority does not guarantee that the requirements of the Disability Discrimination Act will be met, which is the responsibility of the building occupier or service provider.

8.3.22 Spaces for disabled people should be located adjacent to entrances, be convenient to use; and have dimensions that conform to Part M of Building Regulations. If it is impossible to accommodate car parking spaces within the site, disabled car parking spaces should not be located at a distance more than 100 metres from the site.

Electric Vehicle Charging Infrastructure

8.3.23 Cambridge City Council adopted the Greater Cambridge Sustainable Design & Construction SPD in January 2020, which advises the following provision of electric vehicle charging points:

Table 8.9 – Provision of Electric Vehicle charging

	Slow Charger (7kW)	Fast Charger (22kW)	Rapid Charger (50kW)
AQAP rate of provision	50% provision	1 / 1,000m ²	1 / 1,000m ²

8.3.24 The University supports emerging green transport initiatives, and will provide an appropriate number of EV charging stations on the permanent car parking spaces to cater to make electric vehicles more attractive for visitors, pool vehicles, Car Clubs and taxis.

Off-site car parking

8.3.25 Whilst it appears from on-site observation that many drivers and passengers of those parked on Clerk Maxwell Road are not related to West Cambridge, the University would contribute towards measures to provide significant betterment for residents and cyclists, and to improve the quality of the public realm along Clerk Maxwell Road. These measures include for the replacement of the existing on-road car parking along Clerk Maxwell Road with mandatory cycle lanes.

8.3.26 In order to control further any overspill parking from West Cambridge, the University will work with local residents and the Highway Authority to review the potential for on-street parking control on local streets - such as Hedgerley Close, Wilberforce Road and Adams Road – as well as surrounding communities that could be affected such as Madingley. This could include:

- i. a Car Parking Zone scheme – similar to the scheme offered by North West Cambridge; or
- ii. a prohibition of on-street car parking.

8.3.27 The University will contribute towards the Highway Authority's costs for implementing any necessary traffic regulation orders to support this off-site car parking strategy.

Estate Car Parking Strategy Assessment

8.3.28 The University will commit to apply and manage the agreed Parking Strategy on a long-term basis.

8.3.29 Each individual Reserved Matters application will contain a Monitoring Review of the on-site Estate Car Parking Strategy Assessment across West Cambridge. This Review will reflect the Framework included in Appendix 8.2, and would include:

- existing car park provision
- existing car park occupation;
- existing car park permit allocations;
- short-term changes to the on-site car parking requirements, including:
 - building on car parks;
 - construction activity on car parks;

- completion of new car parking spaces;
- building floor space closures / occupations;
- accessibility car parking issues; and
- construction car parking.

8.4 Cycle parking

- 8.4.1 The cycle parking strategy is also intended to support the travel demand management strategy for the Development. The Cambridge area already has a strong cycle culture, and the Development is well-located with respect to existing and proposed cycle facilities.
- 8.4.2 Similarly, cycle parking spaces will be provided as a minimum in accordance with the standards set out in the Cambridge Local Plan 2018. These are summarised in Table 8.10.

Table 8.10: Minimum Cycle Parking Provision Proposals

Land-Use	Cycle Parking Provision - Minima
Offices	2 space for every 5 members of staff or 1 per 30 sq. m Gross Floor Area (whichever is greater) Some visitor parking on merit
Non-residential higher and further education	2 for every 5 members of staff Cycle parking for 70 per cent of students based on anticipated peak number of students on site at any one time

Source – Cambridge City Council - Cambridge Local Plan 2018 - Appendix L – Car and Cycle Parking Requirements

- 8.4.3 To accommodate the likely circa 3,600 students and 7,200 staff within Key Phase 1, this initial phase of Development would be provided with around 7,000 cycle parking spaces to reflect these standards.
- 8.4.4 Reflecting the Cambridge City Council requirements identified in Appendix L of the emerging Cambridge Local Plan 2014 Proposed Submission, to allow for cycles with large baskets, folding bikes and those with additional attachments, etc. a minimum of 20 per cent of the cycle parking spaces required should be of a Sheffield-type design.

8.5 Vehicular Access

Site Access

- 8.5.1 The local road network surrounding the Development is shown on Figure 2.3.
- 8.5.2 As shown on the Parameter Plan 02 – Access included in Appendix 2.2, vehicle access will be provided to the Development by a series of existing, enhanced and new vehicular access points off Madingley Road as shown on Figure 2.3. These will be delivered through the duration of the Development, to a programme to be determined. These access points are:
- i. the existing traffic signal controlled High Cross junction - which could be subjected during Phase 1 to an enhancement to include a ban on the right turn in to / right turn out from the site from Madingley Road, with these movements reassigning to the JJ Thomson Avenue junction;
 - ii. the existing JJ Thomson Avenue priority junction – which could be subjected during later Post - Phase 1 phases to a traffic signal-controlled upgrade;

- iii. the existing Clerk Maxwell Road priority junction, which could be used to access a potential car park (other access options are being considered); and
 - iv. a new traffic signal controlled, restricted movement (right in / left out), access junction onto Madingley Road at the western end of the site, which would connect to the Western Access road. This is shown on Figure 8.1 and would be delivered during later - Post Phase 1 phases. This junction would intercept strategic traffic movements between the site and the west, including from the M11 – this early interception would help to maintain conditions at other local junctions – such as High Cross.
- 8.5.3 The location of these access points to the Development is designed to intercept the maximum number of development-bound trips on the strategic highway network before these trips travel through the residential areas of Cambridge, thus minimising the impact of the Development.
- 8.5.4 In addition, a further limited-movement priority junction providing cycle and pedestrian access to the Vet School between JJ Thomson Avenue and High Cross, currently closed for vehicles, would provide service access only to the occupiers immediately adjacent to Madingley Road. This is shown indicatively on Figure 8.2.

Site Access Roads

- 8.5.5 All routes within the Development will be designed to contain vehicle speeds and flows to a maximum of 20mph, to provide a quality streetscape. This would be achieved primarily through the adoption of the design philosophies of the Department for Transport's 'Manual for Streets' for all roads. The adoption of these principles would not only encourage traffic speeds to reduce on these routes and increase car journey times relative to public transport, but would also help to provide a more desirable environment for pedestrians and cyclists as a result of the lower vehicle speeds and lower overall traffic levels.
- 8.5.6 The Site layout has been designed to ensure that it strongly favours sustainable modes of transport; the road hierarchy of the Site has been designed to limit the permeability of the Site for vehicles and to enhance accessibility for pedestrians and cyclists.

Servicing

- 8.5.7 The service access to individual plots will be provided from suitable development access routes. These service access routes will be identified within the individual reserved matters applications for each plot once further detail is available.
- 8.5.8 To assist in managing service vehicle exhaust emissions, the University will consider low or zero emission technology for their site-based vehicles.

8.6 Summary

- 8.6.1 This section considers aspects of car and cycle infrastructure associated with the Development.
- 8.6.2 The Development Access Strategy and site layout have been designed to ensure the focus of the accessibility strategy for the Site remains strongly in favour of sustainable modes of transport over the private car.
- 8.6.3 The maximum car and minimum cycle parking provision on the Development has been calculated with reference to local guidance and from observation of current usage. The University is committed to delivering a high-quality development, and under-provision of car and cycle parking within the Site could be detrimental to the street scene.

- 8.6.4 The University will respond in a flexible manner to the need for further car parking, and has committed to support each Reserved Matters Application with a Monitoring Review of the on-site Estate Car Parking Strategy Assessment across West Cambridge to guide the need for further car parking.
- 8.6.5 Comparison of the proposed car parking provision against that assessed with reference to the Cambridge Local Plan car parking maxima identifies that for all stages of development that:
- i. the University is proposing a significantly lower car parking provision than the Local Plan 2018 provision maxima;
 - ii. the additional car parking provision sought reflects the current levels of unoccupied spaces - despite significant increases in the development floor space, relatively modest increases of car parking spaces are being sought at West Cambridge; and
 - iii. the car parking provision will reflect the proposed land-uses – and should less commercial land-uses come forward in any Key Phase, the total car parking provision would be significantly lower.

9 Travel Demand Management Strategy

9.1 Introduction

- 9.1.1 To support the objectives of the transport strategy to maintain the existing low car-based mode share, and to achieve mode shift away from private car use, a comprehensive travel demand strategy has been developed for the Development to manage the number of vehicular trips generated by the Site. This will be achieved by the promotion of alternative means of travel, and on the locational and accessibility advantages of the Site.
- 9.1.2 A central element of the travel demand management strategy for the Development is the implementation of a site-wide Framework Travel Plan for the Site. Due to the scale of the Development, an overall Framework Travel Plan has been developed by the University to cover travel demand management issues for the whole Development site. This Transport Assessment is therefore supported by the Framework Travel Plan which should be read in conjunction with this document. The Framework Travel Plan sets out the overall travel demand management strategy and framework for the Development. The purpose of the Framework Travel Plan is to reduce the quantum of single occupancy private car trips associated with all activities at the Development.

9.2 Objectives

- 9.2.1 The main objective is to reduce the reliance on the private car and reduce the quantum of private car trips. In order to assess whether this objective is being met, the Framework Travel Plan reflects a target maximum 30% Single Occupancy Car Driver mode share for journey to work trips.
- 9.2.2 The overall broad objectives of the travel demand management strategy for the Development are:
- to reduce reliance on the private car with a long-term strategy of mode shift away from single occupancy car use;
 - to build upon good urban design principles that improve the permeability of the Development for promoting walking, cycling and public transport use;
 - to provide more appropriate levels of parking;
 - to promote the use of car sharing where appropriate;
 - to minimise costly road traffic congestion and further damage to the environment in the context of sustainable development which is consistent with Government policy; and
 - to encourage a high level of community involvement in travel behaviour change initiatives.

9.3 Summary of the Framework Travel Plan

- 9.3.1 The Framework Travel Plan, also submitted in support of the Outline Planning Application, also provides the over-arching framework within which the individual commercial Workplace Travel Plans will operate.
- 9.3.2 To ensure effective implementation and management of the Framework Travel Plan and transport strategy, the University will provide and support the following:

- sufficient staff resource be allocated to provide a Development Transport Coordinator – supported in this role by:
 - individual Sustainable Travel Behaviour Champions identified from within the community to assist in delivering sustainable travel proposals; and
 - individual workplace Travel Plan Coordinators to implement and manage their own measures and strategies;
- the establishment and running of the Transport Stakeholders' Group consisting of key stakeholders - including the University, planning and highway authorities, public transport operators, and representatives of the Development;
- a one-off fall-back Fund for the implementation, management, monitoring and review of the Framework Travel Plan and funding necessary measures in the event of significant variation from the forecast traffic impact for a sustained period of time.

9.3.3 The Framework Travel Plan has the following structure:

- a summary of the Development proposals for the Development;
- a review of the local and national policy context for travel planning;
- a review of the current transport-related context for the Development;
- a summary of the overall travel demand management strategy for the Development;
- details of the management structure, mode shift targets and monitoring arrangement of the Development Framework Travel Plan strategy;
- details of the individual developer / occupier Travel Plan obligations;
- a preliminary implementation and programme for the strategy.

9.3.4 The Framework Travel Plan has been prepared in accordance with current national and local guidance and best practice on travel planning - in particular, the Department for Transport's 'Planning Practice Guidance – (Travel plans, transport assessments and statements in decision-taking)' (March 2014), and Cambridgeshire County Council's 'Transport Assessment Guidelines' document (September 2019).

9.3.5 The Framework Travel Plan is the first issue of a working document that will be consistently monitored, reviewed and revised by the University's Travel Plan Co-ordinator. Given the length of time over which the Development will be implemented, changing transport and planning policies, and the potential for different outcomes to that set out in this Transport Assessment, the Framework Travel Plan and the transport measures need to be flexible and able to adapt to changing circumstances. Mechanisms for periodic review are therefore proposed so that outcomes can be compared with forecast.

9.3.6 In the event of significant variation from forecast values for a sustained period of time, the Development Transport Coordinator, working with the Transport Stakeholders Group, will consider the need for (and, if necessary, implement) measures designed to help meet the forecast outcomes over time.

10 Construction Access Strategy

10.1 Introduction

10.1.1 This section summarises the strategy to manage the traffic impact construction activity.

10.1.2 Until Contractors are appointed by the University, the details of the Construction Access Strategy will, perforce, be limited. The strategy will be defined in greater detail upon appointment.

10.2 Summary of the Construction Environmental Management Plan

10.2.1 As part of the Construction Access Strategy, a Construction Environmental Management Plan (CEMP) has been prepared, and is submitted in support of the Outline Planning Application. The CEMP will set out the University's aim to reduce the transport impacts of the construction traffic servicing the Site, and the movements associated with construction waste. It will apply to all the individual construction sites within the Development. The strategy consists of the following main elements:

- i. design:
 - minimising the requirement for material to be imported or exported. For example, the movement of earthworks material off-site will be reduced to a minimum by maximising the use of raised material into the landscaping;
 - specifying materials and construction techniques that are resource-friendly;
- ii. using locally sourced materials where possible, to reducing haulage lengths;
- iii. managing effectively the supply of goods to construction sites - this can significantly reduce both road vehicle mileage and construction costs and wastage;
- iv. encouraging the development of sustainable supply chains for construction materials; and
- v. managing the movement of workers into the Development - all construction sites within the Development will have comprehensive Construction Travel Plans, detailing how their workforce will travel to the Site.

10.2.2 Construction Environmental Management Plans will be prepared to provide details of all Construction traffic movements during the life of a construction project - i.e. from design to demobilisation. The Construction Environmental Management Plan will consider the following elements:

- i. Design;
- ii. On-site logistics;
- iii. Access Strategy;
- iv. Procurement strategy;
- v. Operational Efficiency;
- vi. Delivery Practice;
- vii. Demand Smoothing;

- viii. Managing Construction Traffic;
- ix. Pedestrian Routing;
- x. Targets and Monitoring; and
- xi. Waste Management

10.2.3 The developed CEMP will be supported by a Construction Travel Plan.

10.3 Further measures

10.3.1 The CEMP will also identify approaches that can be used to improve the efficiency of the logistics management for the Development. It also considers ways to link with and/or exploit construction activity and practices taking place on other parts of Cambridge. These measures would reduce the Site traffic, and the number of movements removing the generated waste.

10.3.2 A Construction Routing Strategy will be defined within the CEMP, specifying:

- i. the routes to be used for heavy vehicle construction movements – assumed to be from the M11 Junction 13 and Madingley Road;
- ii. identifying routes along which heavy vehicle construction may not pass – assumed to include Madingley Road to the east of Clerk Maxwell Road;
- iii. managing the movement of workers into the Development - all construction sites within the Development will have comprehensive Construction Travel Plans, detailing how their workforce will travel to the Site;
- iv. the cycle and pedestrian access routes during construction, to ensure that construction-related vehicles do not impact upon these users.

10.3.3 As well as implementing measures to increase the efficiency of the logistics operation and minimising the impact of the construction operation, the University will:

- i. require all construction contractors be members of the Construction Logistics and Cycle Safety initiative (CLOCS); and
- ii. seek that all construction vehicles are fitted with cycle safety equipment.