

TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

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POINT	Easting	Northing	Height
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Proposed Extension to Bio-Medical Campus, Cambridge

Preliminary Site Access Study

On behalf of

Carter Jonas

Project Ref: 36873/2001/001 | Rev: B | Date: October 2016



Document Control Sheet

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1 Introduction

1.1 The Brief

- 1.1.1 Peter Brett Associates LLP (PBA) has been commissioned to undertake an access study in relation to a proposed extension to the existing Bio-Medical Campus (BMC) in Cambridge. The BMC is located on the southern edge of Cambridge and an extension to it is proposed as a modification to the South Cambridgeshire Local Plan (ref: PM/SC/8/A).
- 1.1.2 This study has therefore been undertaken in support of the site promotion in order to consider how the site could interface with the existing BMC, proposals coming forward on adjacent land and the wider transport network. This context will then form the basis on which a number of access strategy principles are developed in order to demonstrate the deliverability of the site from a transport perspective.
- 1.1.3 The remainder of this report is structured as follows:
- Section 2 – provides a review of the existing pedestrian, cycle and public transport facilities and services, and the local highway network in the vicinity of the site;
 - Section 3 – identifies where there are plans or aspirations to deliver transport / highway infrastructure improvements in the area surrounding the site;
 - Section 4 – provides (1) an initial estimation of the trip generation for the proposed development for all modes of transport and (2) considers whether the proposed access junctions for the site directly to the north may have sufficient 'headroom capacity' to be able to accommodate the vehicle trips estimated to be generated by the proposed development;
 - Section 5 - presents the main elements of the suggested access strategy for the proposed development;
 - Section 6 – provides a conclusion to the report.

1.2 Site Location

- 1.2.1 The proposed site is approximately 22 acres in size and is located at the southern end of the BMC, directly to the south of the Phase 2 land, which has a resolution to grant planning permission.
- 1.2.2 The main vehicular accesses to the BMC are taken from:
- Hills Road / Babraham Road / Fendon Road / Addenbrooke's Access four arm signalised roundabout
 - Long Road / Robinson Way priority T junction
 - Long Road / Adrian Way priority T junction
 - Addenbrooke's Road / Francis Crick Avenue / Dame Mary Archer Way three-arm roundabout
- 1.2.3 **Figure 1** illustrates the location of the proposed site and how it sits in relation to the other development proposals coming forward within the Cambridge southern fringe. It also identifies key roads that are referred to within the remainder of the note.

1.3 Planning Context

1.3.1 The BMC was initially granted outline planning consent (06/0796/OUT) in October 2009 permitting the development of new hospital buildings and research led development on land to the west of Addenbrooke Hospital. The outline consent for Phase 1 development specifically included:

“Up to 215,000sqm floorspace (excluding plant areas) comprising 6 , sqm of clinical research and treatment (D1 and or clinical in-patient treatment), 115, sqm of biomedical and biotech research and development (B1(b)), 15, sqm of biomedical and biotech research and development (B1(b)) or clinical research and treatment (D1 and or clinical in-patient treatment), and 5, sqm of either clinical research and treatment (D1 and or clinical in-patient treatment) or higher education or sui generis medical research institute uses, and including related support activities within use classes A1, A , B1, D1 (creches nurseries) or sui generis uses, with no individual premises used for support activities to exceed 5 sqm; new areas of public realm; landscaping; parking areas; highway works; drainage works and all other associated infrastructure”.

1.3.2 Since this time a number of detailed planning applications at the BMC have been approved by Cambridge City Council (CCC). These include the following:

- **Astra eneca** – a biotech and biomedical research building located on the northern side of the BMC adjacent to The Forum. This represents the first phase of the AstraZeneca development which will provide a total floorspace of 80,705 sqm when completed. This is anticipated to be completed at the end of 2016 / early 2017.
- **The Energy Innovation Centre** – an energy centre for Addenbrooke’s Hospital located on the southern side of the BMC.
- **Papworth Hospital** – 32,300 sqm floorspace hospital that is anticipated to be completed in January 2018.
- **New MRC Laboratory of Molecular Biology** – 25,000 sqm floorspace with the building completed in 2013.
- **The Forum** – a mixed use development providing 35,000 sqm floorspace to the east of Robinson Way and north of Keith Day Road. This is anticipated to be completed in 2018.
- **Project Capella** – a new research and development building located on land between the Cancer Research UK building and multi storey car park which fronts Puddiscombe Way. This is anticipated to be completed in late 2017.
- **Circus, Pia a High Street** – planning permission was granted in 2015 for three new outdoor spaces for the public and staff. These will run east from Francis Crick Avenue to Robinson Way and will be bordered by AstraZeneca and Papworth Hospital. It is anticipated that these will be constructed by the end of 2016.
- **Project Gemma** – construction on a new research building started in July 2015 and is expected to be completed in late 2016.
- A multi-storey car park was recently constructed on Robinson Way to serve the growing parking needs of the campus.

1.3.3 A current planning application (16/0176/OUT) that represents Phase 2 of the BMC development has been submitted for the following:

“Development of up to 75,000 sqm floorspace (excluding plant areas) of Research and Development (B1b) and Clinical (C and or D1), sui generis and higher education uses, including related support activities within use class B1; ancillary uses in addition (A1, A , A , A5, D1 and or D); up to two multi storey car parks; open space and landscaping and all other associated supporting infrastructure”.

1.3.4 The Phase 2 development proposals are understood to have come forward due to a high demand for the clinical and commercial research and development facilities in the area. In terms of their location they are proposed to be accommodated on land immediately to the north of the proposed allocation site as shown in **Figure 1**. The proposed allocation site would therefore form Phase 3 if the supporting policy is adopted. Within the South Cambridgeshire Local Plan: Schedule of Proposed Modifications (2016) the site is considered within a new policy (E/1B) that has been added.

1.3.5 It is also noted that there are a number of other significant developments coming forward around the Cambridge southern fringe in the vicinity of the BMC including:

Clay Farm – this development is under construction and will provide 2,300 homes, a secondary school (Trumpington Community College), a primary school and a local centre. Clay Farm is located to the east of Trumpington village between Long Road and Shelford Road.

Trumpington Meadows – this development is under construction and will provide a total of 1,200 homes, an enhanced primary school, a 60 hectare country park and a local centre when completed. The site is located off Hauxton Road, close to the village centre of Trumpington.

Glebe Farm – this development is under construction and will provide a total of 286 homes when completed. The site is located on the northern side of Addenbrooke’s Road and sits between the Trumpington Meadows and Clay Farm sites.

Bell School – planning permission has been granted for the construction of up to 270 dwellings and accommodation for 100 students studying at the Bell Language School (located to the north of this site). The site is located immediately to the east of the proposed site and access to the development will be taken from Babraham Road. The development is under construction and is expected to be completed by 2018. As part of this scheme a committed cycle link will be delivered between Babraham Road and the adjacent National Cycle Route via the proposed Phase 3 development site.

2 Existing Transport Conditions

2.1 Walking and Cycling

The Site

- 2.1.1 The CCC Public Right of Way interactive mapping that can be viewed online identifies an existing footpath (reference 198/2) which runs immediately to the south of the site. It initially runs along an east-west alignment and then heads in a south-easterly direction beyond the eastern site boundary. In addition a cycleway path extends along the northern site boundary. It runs along the entire length and connects into Dame Mary Archer Way to the northeast and extends to the south to serve Great Shelford.
- 2.1.2 The cycle link that will be delivered by Bell School is proposed to connect into the above route as indicated in **Drawing 206** which is appended to this note. The proposed masterplan for the Phase 3 site has therefore been developed in order to cater for this improved linkage as it will stand to directly benefit the site.

BMC Walking and Cycling Network

- 2.1.3 There are a number of controlled crossing facilities within the BMC and on the roads surrounding the site which are provided in the form of Pelican, Puffin and Toucan crossings. The nearest controlled crossing facility to the site is provided at the Dame Mary Archer Way / Robinson Way signalised T junction.
- 2.1.4 Addenbrooke's Campus and the BMC is understood to be a major destination for cyclists with in the region of 3,000 people arriving by bicycle on a daily basis. Therefore, the walking and cycling infrastructure present in the vicinity of the site (discussed in further detail below) is generally high quality as a result of it being introduced in association with other developments that have been constructed in the area recently as indicated on the cycle map contained in **Figure 2** and the BMC campus map in **Figure 3**.

Dame Mary Archer Way

- 2.1.5 This road was opened in 2013 and provides a new link road at the BMC. It connects Addenbrooke's Road and Francis Crick Avenue to the southern side of the hospital and to Robinson Way to the east. The purpose of this road is to provide access to future developments coming forward in the southern part of the BMC, and to serve the second multi storey car park that is to be constructed once the Papworth Access Road is built.
- 2.1.6 A footway is provided along the northern side of Dame Mary Archer Way and on-carriageway cycle lanes are provided in both directions. There are currently no controlled or uncontrolled pedestrian crossings present in the vicinity of the site, other than the facilities located at the junction with Robinson Way as previously mentioned. A combination of on and off carriageway cycle facilities are provided around the roundabout with Addenbrooke's Road and Francis Crick Avenue in order to provide additional linkages.

Francis Crick Avenue

- 2.1.7 This road provides a north-south link between Robinson Way and Addenbrooke's Road forming part of a new perimeter road with Dame Mary Archer Way. On-carriageway cycle lanes are provided in both directions with footways present along the eastern and western sides of the road. Furthermore, a central refuge with tactile paving and dropped kerbs is provided on the Francis Crick Avenue arm of the Addenbrooke's Road / Francis Crick Avenue

/ Dame Mary Archer Way roundabout to allow pedestrians to cross the road in this location in a safe manner.

Access to Cambridge Guided Bus (CGB)

- 2.1.8 A path for use by both pedestrians and cyclists is provided alongside the CGB which links directly into the BMC at Francis Crick Avenue. The CGB provides connections to Clay Farm and Trumpington to the south west, and Cambridge City Centre, Cambridge Railway Station and other residential areas to the north.

National Cycle Network (NCN)

- 2.1.9 National Route 11 of the NCN connects Great Shelford to Waterbeach via Cambridge City Centre. This route is off-carriageway and takes a north-south alignment as it passes close to the western boundary of the site and can be accessed from Addenbrooke's Road.

Addenbrooke's Road

- 2.1.10 This road provides the most direct connection between the site and the Strategic Road Network (i.e. Junction 11 of the M11). After the three arm roundabout with Francis Clark Avenue and Dame Mary Archer Way, the road continues in a broad west-east direction providing access to the Clay Farm development before connecting with both Shelford Road and Hauxton Road.
- 2.1.11 Addenbrooke's Road has a footway and off-carriageway cycle facilities on the northern side of the road. There are staggered Puffin crossing facilities with dropped kerbs and tactile paving on the Addenbrooke's Road arms at the signalised crossroads junction with Shelford Road. There is also a further Toucan crossing on the Shelford Road arm of the junction.

Long Road

- 2.1.12 This road forms the northern boundary of the Addenbrooke's Campus and takes a broad east to west alignment, connecting with Hills Road at a signalised crossroad junction approximately 500 metres east of the junction with Robinson Way.
- 2.1.13 Long Road provides a shared footway / cycleway facility on both sides. This facility connects with the route that is present alongside the CGB which is located approximately 600 metres to the west of the junction with Robinson Way. Dropped kerbs and a central island are provided across Robinson Way at its junction with Long Road. A staggered Pelican crossing facility is also provided on Long Road approximately 60 metres west of the junction with Robinson Way, whilst a Toucan facility is provided approximately 160 metres east of the junction.

Links into Cambridge City Centre

- 2.1.14 It is considered that there are excellent pedestrian and cycle links available between the BMC and Cambridge City Centre and its associated transport hubs. This is due to the presence of footways and on and off-carriageway cycle lanes provided on both sides of Hills Road and Trumpington Road, as well as further facilities that are provided alongside the CGB route.
- 2.1.15 Cycling via Hills Road represents the shortest route between the site and Cambridge city centre (approx. 4.5km) and Cambridge Railway Station (approx. 3km).

2.2 Public Transport

Bus Services

- 2.2.1 The nearest bus stops to the site are located at Robinson Way, close to the Rosie Maternity Hospital, at a distance of approximately 600m from the centre of the site. These are therefore located slightly further than the 400m walking distance that is generally regarded as being a reasonable distance for accessing bus services. Both stops provide high quality passenger waiting facilities including timetable information, real-time information, seating and shelters.
- 2.2.2 **Appendix A** summarises the services currently available from the closest bus stops to the site at Robinson Way.
- 2.2.3 Additional services are available from the bus station at the hospital that is located around 900 metres from the site at the main access to the Addenbrooke's Campus off Hills Road. These are therefore located slightly further than the 800m walking distance that is generally regarded as being reasonable to walk to an interchange such as this. The routes serving the bus station provide additional links with the Park and Ride sites, Cambridge city centre and the Cambridge Railway Station as well as a number of residential areas, as shown in **Appendix A**.
- 2.2.4 Although the bus station is located slightly further than 800 metres away from the site, it is considered that people are likely to be willing to walk further than this distance as a result of the high quality linkages to it and the high frequency of bus services on offer.

Cambridge Guided Bus

- 2.2.5 The CGB opened in 2011 and comprises four routes – A, B, C and R which serve Cambridge City Centre, Cambridge Railway Station, Addenbrooke's Hospital, the Science Park, Trumpington, St Ives and Huntingdon.
- 2.2.6 The nearest bus stops to the site are served by CGB Route A which operates between St Ives and the Park and Ride site at Trumpington. It operates Monday to Saturday with a highly frequent service every 15 minutes during the day and every 30 minutes in the evening. Journey times from the stop are around 9 minutes to Cambridge Railway Station, 24 minutes to the city centre and 6 minutes to the Trumpington Park and Ride.
- 2.2.7 **Figure 4** illustrates the accessibility to existing bus services in the vicinity of the site, while **Figure 5** shows the existing routing of CGB services.

Park and Ride

- 2.2.8 There are a total of five Park and Ride sites situated around Cambridge, of which four of the sites, Milton, Trumpington, Babraham and Madingley, have direct bus links to the BMC. Babraham is located closest to the site at approximately 2km, and can be accessed by bus (approx. 5 minutes) and by foot (approx. 30 minutes).

Rail Services

- 2.2.9 Cambridge Railway Station is located approximately 3km north-east of the site on Station Road and is situated on the London Kings Cross to Kings Lynn mainline. Direct services are available to a number of locations including London Liverpool Street, Ipswich, Norwich, Birmingham New Street and Stansted Airport.
- 2.2.10 Although the station is located beyond a walking distance of 800 metres which is generally recommended in guidance documents, it is considered to be readily accessible by bus and

bicycle. This is because there are frequent bus services available from the BMC that provide a direct link to the station, while there are also a number of cycle routes available with the most direct probably being via Hills Road which has on-carriageway cycle lanes.

Car Sharing

- 2.2.11 CamShare is an online journey matching service for people working, living and travelling in and around Cambridge. The site matches people up with potential partners as a driver or passenger, and once matched, they can choose to share car journeys as little or as often as desired. CamShare is currently promoted and publicised by employers located at Addenbrooke's and the BMC.

Highway Safety

- 2.2.12 The Transport Assessment (TA) produced to support the current planning application for the Phase 2 BMC development contained a review of CCC Personal Injury Accident data relating to the road network surrounding the site. This review identified an existing safety issue at the Long Road / Hills Road / Queen's Edith Way signalised crossroads junction especially during hours of darkness. It was however established that CCC were already in the process of undertaking improvement works at this location to enhance the safety of vulnerable users. The TA therefore concluded that there were no safety issues that are likely to be exacerbated by the proposed Phase 2 development.

Local Facilities

- 2.2.13 There are a number of existing facilities and amenities on Campus. The majority of these are located at the main concourse at Addenbrooke's Hospital which is approximately an 500 metre walk from the site when utilising a shortcut through the hospital building. The services provided include a newsagents, shops, bank, hairdressers, dry cleaners, coffee shop and restaurants. Further to the north there is a leisure and fitness centre and a nursery facility. The presence of these facilities should reduce the need for future employees at the proposed development to travel off Campus during lunchtime / breaks.

3 Planned Transport Improvements

3.1 Introduction

3.1.1 Although the precise timing of some of the planned schemes identified is yet to be determined, there would appear to be a large number and variety of potential improvements that could significantly benefit access to the proposed site in addition to those that will be delivered by the Phase 2 Bio-Medical Campus scheme, especially those opting to travel by sustainable modes of transport.

3.2 Phase 2 Bio-Medical Campus

3.2.1 As part of the Phase 2 Bio-Medical Campus, measures are proposed to mitigate the impact of traffic at the Addenbrooke's Road / Francis Crick Avenue / Dame Mary Archer Way three arm roundabout, in the form of widening the Addenbrooke's Road approach and undertaking minor changes to existing kerb lines.

3.2.2 In addition, two improvement schemes are identified at the A1301 Shelford Road / Addenbrooke's Road signalised crossroad junction; one to mitigate the impact of the Phase 2 scheme in 2018 and one to mitigate its impact in 2026. The improvements proposed to be implemented in 2018 include providing a two lane exit eastbound on Addenbrooke's Road, lane reassignment on Addenbrooke's Road (West) approach, providing an internal stop line at the pedestrian crossing on Shelford Road (North) and revising the staging sequence of the signals. In terms of 2026, an additional lane is proposed to be provided on the Addenbrooke's Road (East) approach.

3.2.3 Although the Dame Mary Archer Way / Papworth Access signalised 'T' junction is shown to operate within capacity within the supporting Transport Assessment, the Phase 2 scheme proposes to provide a pedestrian phase on the Dame Mary Archer Way (West) approach to assist pedestrians crossing Dame Mary Archer Way.

3.3 Cambridge City Hills Road Cycle Scheme

3.3.1 This scheme is under construction and the proposals include the introduction of wide cycle lanes on Hills Road between Long Road and Cherry Hinton Road, a new bus stop and removal of two-way cycle lanes on the west side pavement. The cost of the scheme has been met by the Department for Transport's Cycle City Ambition Fund.

3.4 Transport Delivery Plan

3.4.1 A number of cycle schemes have been proposed for implementation through the CCC Transport Delivery Plan (2016-19). The following schemes have been identified as being beneficial to the proposed site:

- Works to improve safety for cyclists and pedestrians along Queen Edith's Way (funded by developer contributions)
- Provision of additional lighting along the CGB route to make this more attractive to cyclists

3.5 City Deal Schemes

- 3.5.1 Numerous pedestrian and cycle schemes have been proposed for implementation as part of the City Deal between 2015 and 2020 including:
- Cycle provision on Hills Road
 - Cycle provision included within bus priority on Hills Road
 - Better cycle facilities at the Hills Road / Long Road / Queen Edith's Way junction
 - Re-model of Addenbrooke's roundabout to a Dutch style design
 - Re-model of Mowbray Road / Cherry Hinton roundabout to a Dutch style design
 - Improved cycle provision on Cherry Hinton Road, Queen's Edith Way and Long Road
 - Re-model of Perne Road / Cherry Hinton roundabout to a Dutch style design
 - Cycle provision included within bus priority on Addenbrooke's to Cherry Hinton Way
 - A walking and cycle route from Cambridge Central Station to the planned Science Park Station, and a link between the Addenbrooke's and the St Ives Busway cycling routes
 - A1307 bus priority between Cambridge and Haverhill
 - Additional Park and Ride facility along Babraham Road between Linton and A11 or additional 500 spaces at the existing Babraham Park and Ride
 - Bus priority from Addenbrooke's to Cherry Hinton roundabout

3.6 Addenbrooke's Railway Station

- 3.6.1 CCC are also understood to be pushing forward plans to construct a new railway station at Addenbrooke's as a way of tackling congestion in Cambridge. CCC officers are believed to be undertaking technical studies to see how a station could be built in this location without the need for additional tracks – something that is understood to be a crucial barrier to progress so far. It is likely that the scheme would need to be delivered through the combination of public and private sector funding.

3.7 Cambridgeshire Guided Busway

- 3.7.1 The intention is for the CGB to eventually pass through the Campus via the proposed Circus and Piazza, to the Addenbrooke's bus interchange to provide good quality access to the BMC. In order to provide direct access to the CGB, a dedicated bus stop is proposed to the south of the AstraZeneca development to serve the BMC. Prior to this being constructed, the CGB would continue to serve the existing bus stops located at Robinson Way.

3.8 Re-routing of Bus Services

- 3.8.1 The TA supporting the proposed BMC Phase 2 development states that consideration has been given to diverting the Citi 8 service as part of the Clay Farm build out along Dame Mary Archer Way on its return to Cambridge. This would however require a new bus stop to be provided on the northern side of Dame Mary Archer Way.

4 Analysis

4.1 Trip Generation

- 4.1.1 This section of the note provides a preliminary estimation of the potential trip generation for the proposed development.
- 4.1.2 For the purposes of this coarse assessment, it has been decided to generate trip rates for the proposed research and development uses from the information provided in the TA for the Phase 1 BMC development (on the basis that they have already been approved by CCC). As result it is possible that this assessment may need to be refined at a later stage if other trip rates for the development are deemed more appropriate.
- 4.1.3 **Table 1** contains the approved trip rates for all modes of transport which are expressed per 100 sqm GFA.

Mode of Transport	AM In	AM Out	AM Total	PM In	PM Out	PM Total	12 Hour In	12 Hour Out	12 Hour Total	Modal Split
Walk	0.084	0.011	0.095	0.011	0.059	0.070	0.371	0.371	0.742	9%
Cycle	0.168	0.014	0.182	0.017	0.161	0.178	0.582	0.582	1.164	15%
Bus	0.171	0.022	0.193	0.019	0.090	0.109	0.637	0.637	1.274	16%
CGB	0.033	0.005	0.038	0.004	0.018	0.022	0.124	0.124	0.248	3%
Rail	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0%
Car Driver	0.526	0.030	0.556	0.005	0.470	0.520	1.500	1.536	3.036	39%
Car Pass.	0.068	0.002	0.070	0.000	0.061	0.061	0.194	0.194	0.388	5%
Motorcycle	0.017	0.000	0.017	0.000	0.016	0.016	0.048	0.048	0.096	1%
LGV	0.029	0.022	0.051	0.015	0.023	0.038	0.327	0.327	0.654	8%
HGV	0.010	0.008	0.018	0.005	0.008	0.013	0.112	0.112	0.224	3%
Total	1.106	0.114	1.220	0.075	0.905	0.980	3.895	3.931	7.826	100%

Table 1 Approved Phase 1 BMC trip rates

- 4.1.4 It should be noted that the rail trip rates are shown as zero because the Campus is not currently served directly by rail, and therefore any people using this mode of transport will be accounted for in the bus trip rate.

4.1.5 **Table 3** contains the resulting trip generation for all modes of transport based on the proposed development comprising the following research and development uses as set in the table below.

Land Use	GFA (sqm)
Laboratory	19,945
Office	10,740
Total	30,685

Table 2 Proposed Land Use

Mode of Transport	AM In	AM Out	AM Total	PM In	PM Out	PM Total	12 Hour In	12 Hour Out	12 Hour Total
Walk	26	3	29	3	18	21	114	114	227
Cycle	52	4	56	5	49	55	179	179	357
Bus	53	7	59	6	28	33	196	196	391
CGB	10	1	12	1	5	7	38	38	76
Rail	0	0	0	0	0	0	0	0	0
Car Driver	161	9	171	2	144	146	460	471	931
Car Pass.	21	0	21	0	19	19	59	59	119
Motorcycle	5	0	5	0	5	5	15	15	29
LGV	9	7	16	5	7	12	100	100	201
HGV	3	2	5	1	2	4	34	34	69
Total	339	35	374	23	278	301	1,195	1,206	2,402

Table 3 Proposed development trip generation estimation

4.1.6 The preliminary analysis undertaken suggests that the proposed development could potentially be expected to generate approximately 171 and 146 two-way car driver trips during the morning and evening peak hours respectively, and 931 trips over the course of a typical day.

4.2 Highway Capacity

- 4.2.1 This section of the note considers whether the two priority T junctions incorporating ghost island right turn lanes proposed to provide access to the Phase 2 BMC site, located directly to the north of the proposed site, may have sufficient 'headroom capacity' to be able to accommodate the vehicle trips likely to be generated by the proposed development.
- 4.2.2 It has not been possible to locate junction modelling output reports for the access junctions within the Phase 2 TA, so it has been necessary to re-generate these models.
- 4.2.3 The assessment of both priority controlled junctions has been undertaken using the PICADY module of JUNCTIONS 9 which is standard traffic modelling software. For priority junctions, it is generally considered that a junction is operating within capacity where the Ratio of Flow to Capacity (RFC) is less than 0.850. A junction is said to be operating at capacity between 0.900-1.000 RFC. All RFC values above 1.000 mean that a junction is operating above capacity and vehicle queues will begin to accumulate.
- 4.2.4 **Tables 4 and 5** contain PICADY results for both access junctions for the following traffic scenarios:
- 1) 2026 base traffic including Phase 2 BMC development
 - 2) As above, plus the proposed development

Western Access Junction to Phase 2 Site	Site Access Road		Dame Mary Archer Way	
	RFC	(pcu)	RFC	(pcu)
AM Peak				
2026 base + Phase 2 development	0.04	0	0.25	0
2026 base + Phase 2 development + proposed development	0.05	0	0.33	1
PM Peak				
2026 base + Phase 2 development	0.31	0	0.01	0
2026 base + Phase 2 development + proposed development	0.42	1	0.01	0

Table 4 Phase 2 western site access junction modelling results

- 4.2.5 The analysis shows that the proposed western site access is forecast to operate well within capacity under all scenarios considered as part of this assessment.

Eastern Access Junction to Phase 2 Site	Site Access Road		Dame Mary Archer Way	
	RFC	(pcu)	RFC	(pcu)
AM Peak				
2026 base + Phase 2 development	0.13	0	0.31	1
2026 base + Phase 2 development + proposed development	0.17	0	0.42	1
PM Peak				
2026 base + Phase 2 development	0.29	0	0.07	0
2026 base + Phase 2 development + proposed development	0.40	1	0.08	0

Table 5 Phase 2 eastern site access junction modelling results

4.2.6 The analysis shows that the proposed eastern site access is forecast to operate well within capacity under all scenarios considered as part of this assessment.

5 Site Access Strategy

5.1 Access Strategy

- 5.1.1 The proposed site is considered to be in a sustainable location and therefore suitable for development for the following reasons:
- There are a variety of local facilities and services available within the wider Campus that are in close proximity to the site, meaning that trips to these can potentially be made via sustainable modes of transport;
 - The Campus is generally very well connected to the existing walking and cycling networks surrounding the site, including along key routes into Cambridge City Centre and to public transport services;
 - The Campus is served by a large number of local bus services meaning that travel by bus will be a realistic proposition for future employees working at the site
 - Although the baseline transport conditions around the site are already very good, there is significant prospect of them being enhanced in the future as the remainder of the BMC is constructed and transport improvements are delivered through the Transport Delivery Plan and City Deal Schemes for example.
 - The proposed site access strategy for all modes will have no impact on Nine Wells nature reserve, which is located approximately 400m to the south west of the site.
- 5.1.2 In terms of achieving access to the proposed site, it is intended that this is gained via the Phase 2 development site. It is acknowledged though that in relying on the Phase 2 access proposals to allow development to take place on the proposed site that agreement will need to be sought with the landowner.
- 5.1.3 As previously stated, the Phase 2 development is intended to be accessed via two new priority T junctions located at Dame Mary Archer Way. From the northern boundary of the Phase 2 site, both access roads are shown to extend as far as the southern boundary before extending around the perimeter of the development as indicated in **Figure 6**. On this basis there is potential for these access roads to be extended further to the south beyond the southern boundary of the Phase 2 site and into the proposed development site. At this stage it is envisaged that there could be scope for junctions to be formed at these points by the creation of crossroads junction arrangements where north-south traffic would have priority with side road traffic giving way.
- 5.1.4 Pedestrians and cycle links may also be provided in order to tie in with the ones proposed as part of Phase 2 as a way of improving connectivity and permeability between both sites, and also the wider Campus. It is recommended that in locations where the access road crosses the Sustrans cycle route that cyclists retain priority over vehicular traffic and that the crossings themselves incorporate raised tables.
- 5.1.5 We note that the Phase 2 TA commits to delivering transport improvements in order to make that development suitably accessible by sustainable modes of transport. The improvements that have been identified are discussed below, and it is suggested that there could be potential for the proposed development to contribute towards delivery of these items if necessary:
- Three shared footway / cycleway facilities will be provided linking Dame Mary Archer Way with the perimeter road

- Pedestrian crossing facilities will be provided on Dame Mary Archer Way
 - There is potential for diversion of the Citi 8 service along Dame Mary Archer Way. This will require the provision of a new high quality bus stop in this location
 - At the western end of Red Cross Lane there is a stile/opening on the northern side of the gate which restricts access by bicycle. It is however understood that this deficiency will be resolved as further Reserved Matters applications progress for remaining plots on the Phase 1 BMC land.
- 5.1.6 Alternatively there appears to be the potential to contribute to some of the numerous transport improvements that are planned for the surrounding area as set out in Section 5 in order to assist their delivery.
- 5.1.7 The Phase 2 TA refers to a Parking Strategy that has been implemented at the BMC following identification of the need to provide an additional 945 parking spaces to cater for vehicles associated with the Phase 1 developments that have not yet been constructed. It is noted that the Phase 2 development proposals include the construction of two multi-storey car parks on the site; one will be used by those working at the commercial development, and the other will cater for staff, visitors and patients of the clinical developments located on both Phase 1 and Phase 2. On this basis it seems unlikely that the proposed multi-storey car parks would have sufficient capacity to absorb the parking demand arising from the proposed development, and therefore we suggest that this will need to be accommodated on-site. We have been advised that CCC advises a car parking standard of 1 space per 40 sqm GFA for this land use type so we suggest this provides a suitable starting point for estimating the amount of car parking that could be required for this development.
- 5.1.8 High quality cycle parking will also need to be provided on the site, although we note that the CCC parking standards does not define a level of cycle parking provision for Research and Development uses. We would therefore suggest that the level of provision on the site is determined from the trip generation figures (when finalised).
- 5.1.9 We would expect there to be a need to implement a Workplace Travel Plan at the development to encourage travel amongst future staff by sustainable modes of transport and to manage the number of single occupancy car journeys. The Travel Plan would commit to implementing a package of measures / initiatives that are designed to reduce the need to travel, and encourage / facilitate travel by non-car modes. The Travel Plan will need to be designed to be both consistent with and complementary to the Travel Plan that is already successfully operating at the Campus.
- 5.1.10 Based on a review of information provided in the Phase 2 development TA, it is evident that parts of the road network surrounding the BMC are already / expected in the future to operate with congestion at peak times. It may therefore be necessary for the development to deliver / contribute to off-site junction improvements in order to mitigate its impact.
- 5.1.11 **Figure** provides a visual summary of the proposed site access strategy for completeness.

6 Conclusions

6.1 Conclusions

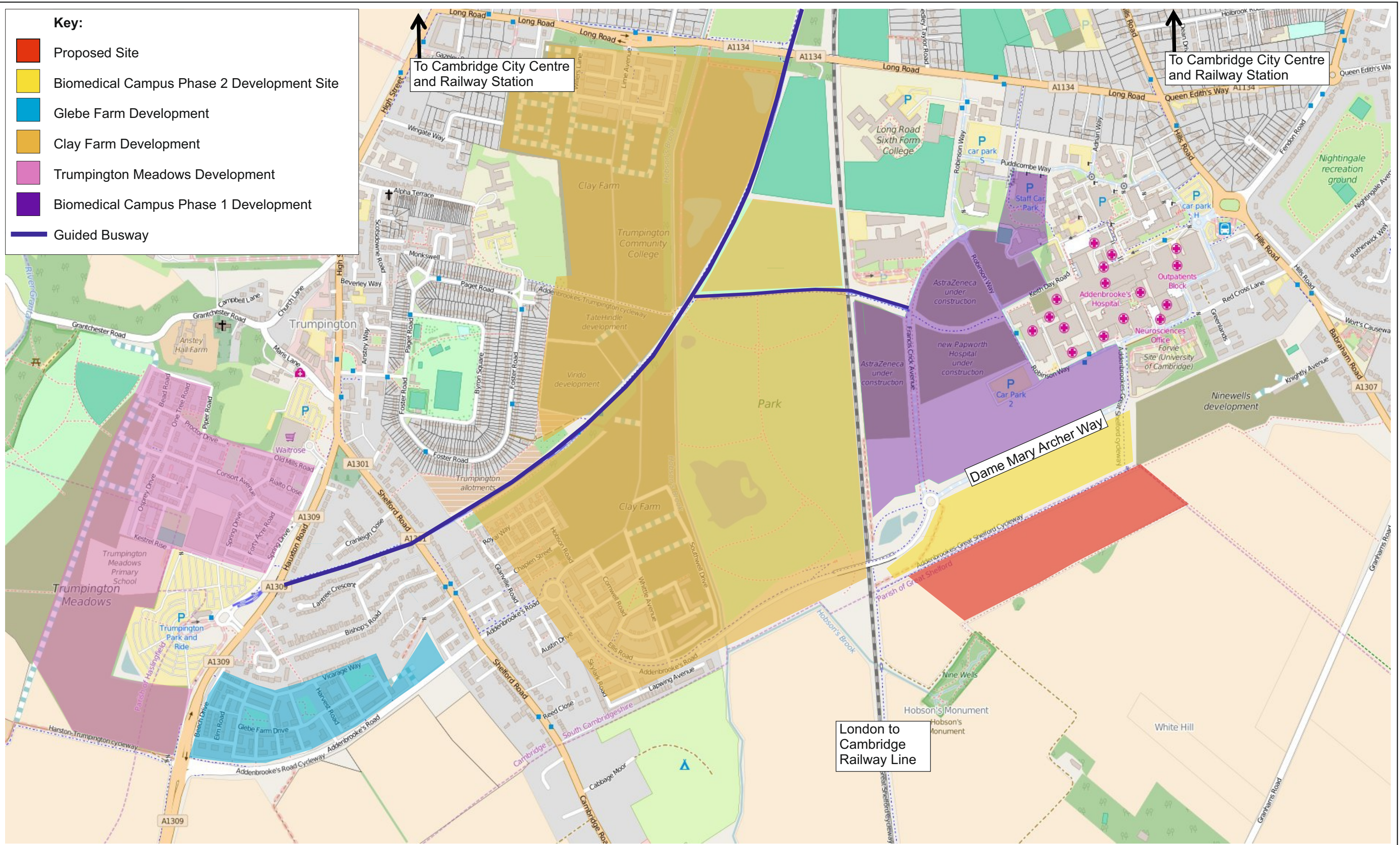
6.1.1 The findings of this Technical Note are summarised below:

- The proposed development site can accommodate approximately 30,685 square metres of Laboratory and Office land use.
- Vehicular access to the proposed development can be provided via two priority T Junctions from Dame Mary Archer Way. Dame Mary Archer Way was recently constructed in 2013 to provide access to future development in the area and is considered to be of a good quality and well aligned in the vicinity of the site.
- The existing cycle and pedestrian facilities in the vicinity of the site will ensure that the proposed development can be accessed sustainably and be well connected to existing and future developments adjacent to the site.
- Nearby bus stops at Addenbrooke's Hospital will ensure that the development will have excellent public transport access to Cambridge and the wider area, including access to the Cambridge Guided Busway that provides fast and frequent services around the city.
- Based on the multi modal analysis and the applied modal splits, the proposed development is forecast to generate 171 and 146 car driver trips during the AM and PM peak hours, and 931 car driver trips over the course of a typical day.
- The addition of vehicle trips associated with the proposed development on Dame Mary Archer Way is forecast to have a minimal impact on the operation of the east and west Phase 2 site access junctions as both are predicted to operate with a considerable amount of spare capacity in all scenarios assessed.

6.1.2 Taking into account the findings outlined above it is therefore concluded that the proposed site is considered to be suitable for development from a highways and transport perspective.

Figures

Figure 1



Client
Carter Jonas

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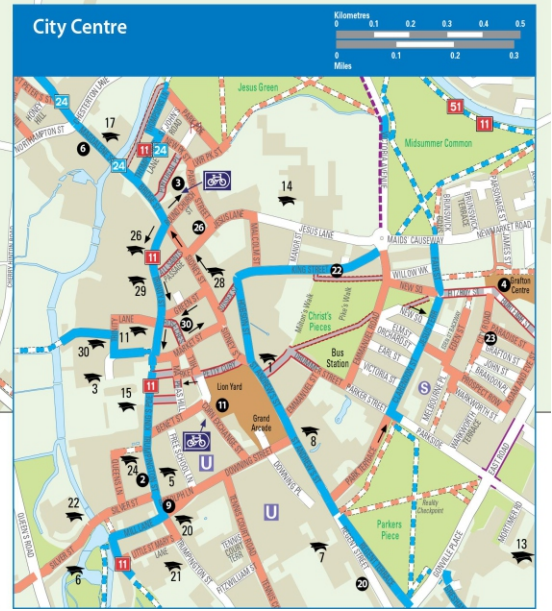
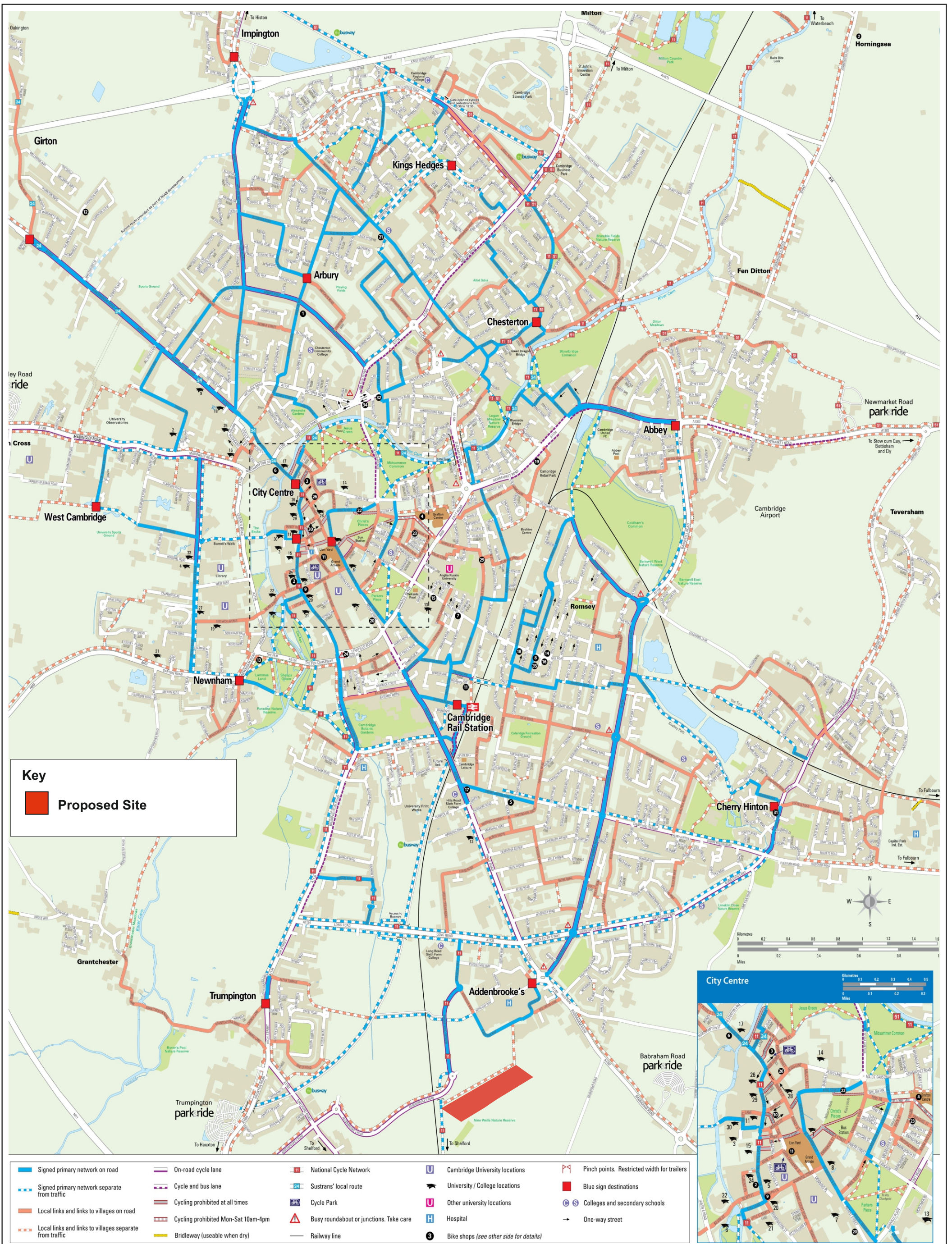
Proposed Extension to Cambridge Bio Medical Campus

Site Location Plan

Mark	Revision			
Date	18/07/2016			
Scale	N/A			
Drawn by	JH			
Checked by	CM			

FIGURE 1

Figure 2



Client
Carter Jonas

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Proposed Extension to Cambridge Bio Medical Campus

Cambridge City Cycle Map

Mark	Revision	Drawn	Date	Chkd
Date	18/07/2016			
Scale	A3 NTS			
Drawn by	JH			
Checked by	CM			

FIGURE 2