

TRANSPORT AND WORKS ORDER ACT 1992

TRANSPORT AND WORKS (INQUIRIES PROCEDURES) RULES 2004

INQUIRY INTO:

**THE PROPOSED NETWORK RAIL (CAMBRIDGE SOUTH INFRASTRUCTURE
ENHANCEMENTS) ORDER**

MAIN PROOF OF EVIDENCE

ON MATTERS RELATING TO TRANSPORT

Elliot Page, Director of Transport at Stantec, BA Hons, MCIHT, CMILT

ON BEHALF OF CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST

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1 POSITION, QUALIFICATION AND EXPERIENCE

- 1.1 My name is Elliot Page, and I am a Director of Transport at Stantec UK Limited (formerly Peter Brett Associates LLP) ("**Stantec**"). Stantec is a Development and Infrastructure consultancy and has advised private and public sector clients for over 50 years across a whole range of development sectors.
- 1.2 I hold an honours degree in Town and Country Planning (1999), and I am a member of the Chartered Institute of Highways and Transportation (MCIHT) and a Chartered Member of the Institute of Logistics and Transport (CMILT). I have 22 years of experience in dealing with transport-related development matters.
- 1.3 My evidence is given on behalf of Cambridge University Hospitals NHS Foundation Trust ("**CUH**").
- 1.4 Stantec assisted CUH to respond to the Cambridge South Transport Works Act Order ("**TWAO**") consultation which closed on Monday 2 August 2021. CUH registered its objection via a letter of response dated 30th July 2021. In this proof references to the "**Scheme**" means the scheme underlying the Order.

2 INTRODUCTION

2.1 Scope of Evidence

- 2.1.1 The evidence which I present is in relation to transport related concerns and possible impacts arising from the Scheme. Separately, Carin Charlton will speak on operational management issues which have been identified which could affect the hospital and how it functions, which include the transport related issues which I address below.
- 2.1.2 As Ms Charlton sets out in her proof, the overall principle of the Scheme is strongly supported by CUH. The issues which I address in my proof relate to matters of detail where further information is required, or where commitments are requested to ensure that any adverse impacts that could arise during the construction or operation of the Scheme are monitored and appropriately managed to ensure that CUH's ability to carry out their business and healthcare duties is not compromised.

2.2 Structure of Evidence

2.2.1 I have ordered my evidence in accordance with the Statement of Matters (“**SoM**”).

2.2.2 My evidence is therefore structured as follows:

- (i) **Section 3:** The Hospital Site and its Transport Context
- (ii) **Section 4: SoM 3:** The likely impact of the exercise of the powers in the proposed TWAO on local businesses, residents, Cambridge University, Cambridge Biomedical Campus, Cambridge University Hospital, and the Medical Research Council, including any adverse impact on their ability to carry out their business or undertaking effectively and safely and to comply with any statutory obligations applying to their operations during construction and operation of the Scheme relating to:
 - (b) impacts on the local road networks, including access arrangements, and the blue light routes for emergency traffic and impacts on parking provision and pedestrian routes.
 - (c) provision of cycle access and parking on cyclist’s safety
 - (d) how the project would align with other forms of public transport and sustainable modes of travel.
- (iii) **Section 5: SoM 5:** The impacts and interaction of the scheme with future planned developments including at Cambridge Biomedical Campus and proposed public transport schemes such as Cambridge South East Transport.
- (iv) **Section 6: SoM 7:** The adequacy of the Environmental Statement submitted with the application for the TWAO, having regard to the requirements of the Transport and Works (Application and Objections Procedure) (England and Wales) Rules 2006.

3 THE SITE AND TRANSPORT CONTEXT

- 3.1 Addenbrooke's Hospital is an internationally renowned teaching hospital and research centre with strong affiliations to the University of Cambridge. Located on the Cambridge Biomedical Campus ("**CBC**"), the hospital is operated by CUH and is a designated academic health science centre. It is also the East of England's major trauma centre.
- 3.2 The CBC has been subject to several planning applications in recent years. The most significant was an outline planning consent granted in 2009 for up to 215,000sqm of floorspace at the CBC, referred to as CBC Phase 1 (reference 06/0796/OUT).
- 3.3 In 2016, an outline planning application was consented for a further 75,000sqm of floorspace at CBC (CBC Phase 2 16/0176/OUT). This expansion was on Green Belt land to the south of Dame Mary Archer Way.
- 3.4 In October 2021, the Greater Cambridge Planning Service included further land to the south of Phase 2 as part the Preferred Option stage of the Local Plan process. This land is referred to as the 2050 CBC Vision.
- 3.5 The CBC is Cambridge's largest employment site and consequently one of the largest trip generators within the city. A Transport Needs Review of the CBC¹ commissioned from Atkins by Cambridgeshire County Council (CCC) on behalf of the Greater Cambridge Partnership (GCP) records that for the whole of CBC, there were around 21,220 staff registered as having the CBC as their workplace. As not all staff would be likely to be in each day, the study estimated around 17,250 staff could work on-site on a regular basis on a typical working day, and that 14,500 visitors travel to the CBC on a typical day.

Partners and Governance

- 3.6 The CBC is comprised of many different partner organisations. The CBC Delivery Group is formed of these organisations and has a governance role over the CBC Travel and Transport Group which is formed to specifically deal with transport matters that arise on campus. In addition to the on campus partners, CCC and the GCP are represented as key transport providers and bodies in the area. The Terms of

¹ Atkins Transport Needs Review is contained in Appendix R of The Transport Assessment (Core Document NR16 Main Environmental Statement: Volume 2 – Appendix 17.2)

Reference for the group would provide the opportunity for NR or the TOC to be also represented.

3.7 The CBC Travel and Transport Group commits partners to the ongoing monitoring of the following:

- Annual Traffic, Parking, and Person Survey (every October)
- Annual Staff Travel Survey (every October)
- Bi-annual Patient, Business, and Visitor Survey (every other October)
- Monitoring Use of Sustainable Transport Schemes
- Air Quality Monitoring

How do People Travel

3.8 The Staff and Visitor surveys consider all entries to and from the CBC and are therefore able to establish the mode share of CBC staff and visitors across the whole site. Additional interview surveys allow the identification of the mode share of the interviewee as well as the buildings to which they are travelling.

3.9 The results of the interview surveys for those staff or visitors with a CUH journey purpose have been disaggregated and the mode share of these trips identified. This is summarised in Table 01².

Mode	Staff	Patients & Visitors
Cycle	28%	7%
Car (on site)	21%	47%
Car (on street)	19%	8%
Car (P&R)	7%	10%
Train	2%	3%
Walk	18%	18%
Bus	4%	5%
Motorcycle	0%	0%
Other	1%	2%
Total	100%	100%

Table 01: CUH Mode Share for Staff and Visitors

² Whilst survey data was collected in October 2020, due to the pandemic, these were not considered representative of normal conditions at the site and therefore the modal share data from the October 2019 surveys have been reported here.

Car Parking Demand

- 3.10 There are currently 3,631 car parking spaces available to CUH, 2,453 of which are staff car parking spaces and 1,178 visitors. On June 2nd, 2021, a parking accumulation survey³ was carried out to establish the occupation of existing on-site car and cycle parking demand at the whole of CBC. All five car parks surveyed are available for CUH staff, however only two are open to CUH visitors (MSCP1 & 2). Car Park 2 (MSCP2) and Car Park 4 (Previously known as University (CRUK) MSCP) are also available to other campus partner organisations as well as CUH.
- 3.11 The temporal profile of occupancy across these car parks over the day of the survey indicates that occupancy builds rapidly after 07:00 with the fastest occupation occurring between 07:00 and 08:00. Occupation peaks at 11:00, decreases slightly between 11:00 and 15:00, and then reduces rapidly after 15:00 to around 1,600 spaces by 19:00.
- 3.12 Overall car park occupancy is in excess of 90% with little available spare capacity to accommodate any increase in parking demand without detriment to existing users.

Cycle Parking Demand

- 3.13 Hourly surveys were also undertaken to quantify the occupancy levels of cycle parking across the CBC and to identify locations where informal cycle parking was occurring, indicating a shortfall in capacity. These surveys indicated that the overall volume of cycle parking is sufficient to accommodate current demand across the CBC as a whole with occupancy peaking at 88% at the time of the 12:00 beat. However, there are multiple locations where informal cycle parking occurs as cycles are chained to street furniture, creating obstructions on routes around the hospital. This indicates that the volume of cycle parking may not be available where it is needed, but also that the quality of the cycle parking in terms of security and weather protection also has an influence on where staff choose to park, and indeed whether they choose to cycle at all.

³ Car parking data was available for both October 2019 and October 2020 but new data was collected in June 2021. This was because since the October 2019 surveys, the area around Car Park 3 has been occupied by the Regional Surge centre and Nightingale facilities, constructed temporarily to accommodate additional patient demand associated with Covid-19, reducing overall parking capacity across the site. The October 2020 data could not be used as it was collected when temporary permit changes had been introduced to account for staff travel pattern changes as fewer people were able to travel by public transport. The car park data collected in June 2021 was collected at a time after these temporary permit changes had been rescinded, although staff in some buildings across Campus were still continuing to work from home despite most restrictions having been lifted. There are still some visitor limitations within the Hospital, so the occupancy data in the following sections may be slightly lower than pre-pandemic.

Existing Transport Networks

- 3.14 In the vicinity of the proposed Scheme, pedestrian routes are shared with cyclists on the Addenbrooke's Road and the Guided Busway as it crosses the railway. This creates greater interactions and potential conflicts between pedestrians and cyclists on the entry points to the Station area on the east of the railway. Along Francis Crick Avenue pedestrian and cycle routes are segregated but cycle routes are on carriageway.
- 3.15 National Cycle Route 11 runs from the Guided Busway and south along Francis Crick Avenue, continuing south adjacent to the railway line towards Great Shelford. National Cycle Route 11 (NCN 11) carries 1578 cyclists between 06:00 and 21:00 as detailed in Appendix E of the TA (**Core Document: NR16 - Environmental Statement: Volume 3 – Appendix 17.2**).
- 3.16 The current pedestrian and cycle infrastructure within the site is shown in **Figure 01 and 02** respectively. Large scale copies of the plans are included at **Appendix 1 and Appendix 2** respectively.

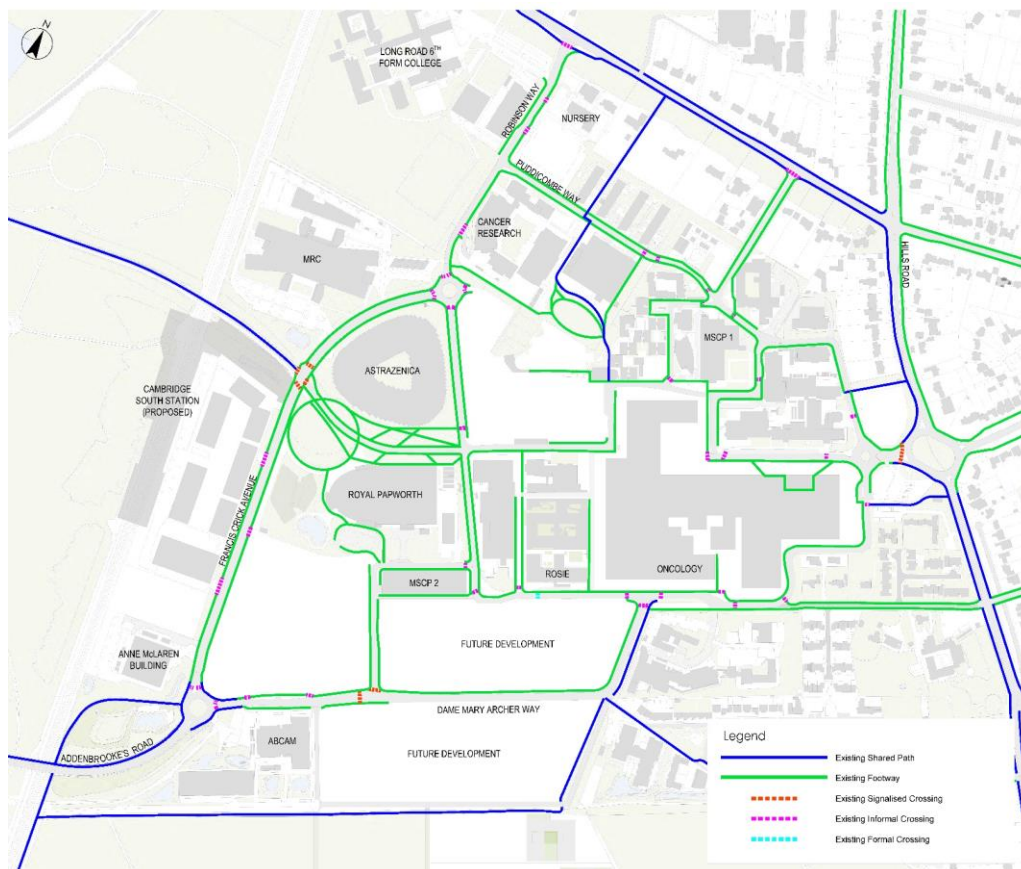


Figure 01: Existing pedestrian network (Source: Stantec)

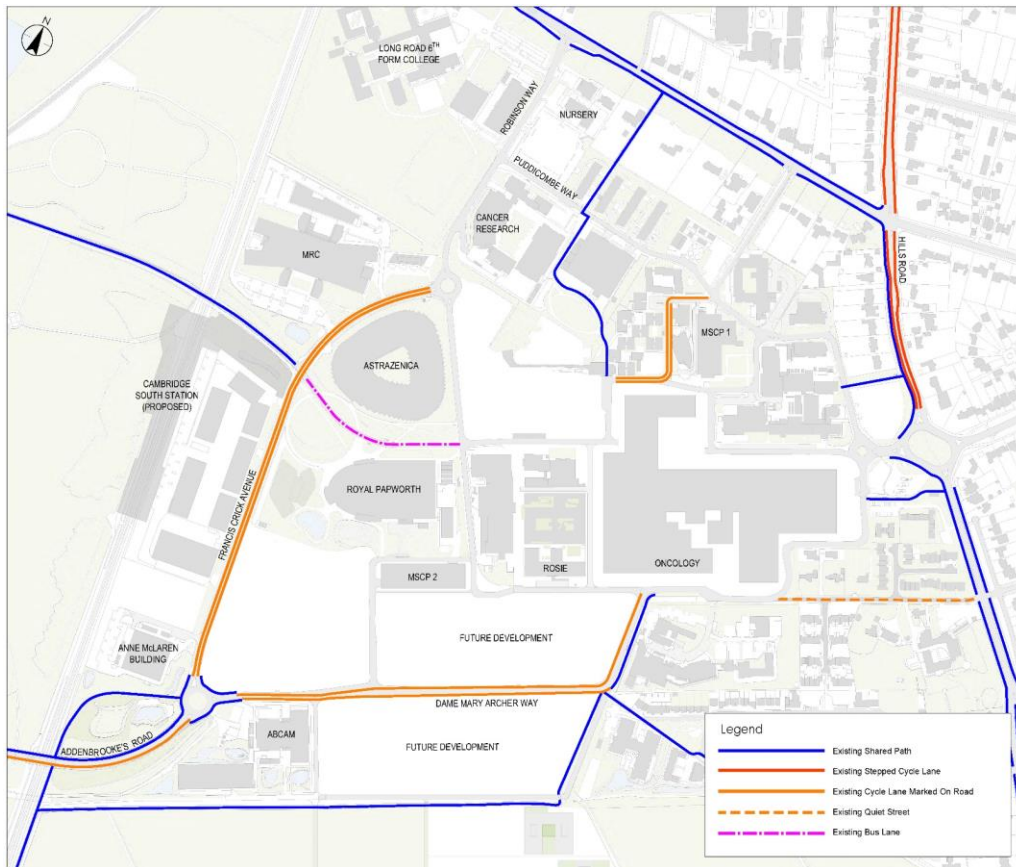


Figure 02: Existing Cycle Infrastructure (Source: Stantec)

- 3.17 A significant number of buses currently serve the campus, with bus stops being used by as many as 19 services pre-pandemic, although some of these are variants of one another depending on the time of day and time of service. This includes the Cambridge Guided Bus services, Trumpington and Babraham Park and Ride services, amongst other less frequent bus services run by local operators such as Stagecoach. A patient courtesy bus is also provided by CUH and operates around the site. Bus routes within the site are shown in **Figure 03**. A large-scale copy of the plan is included at **Appendix 3**.

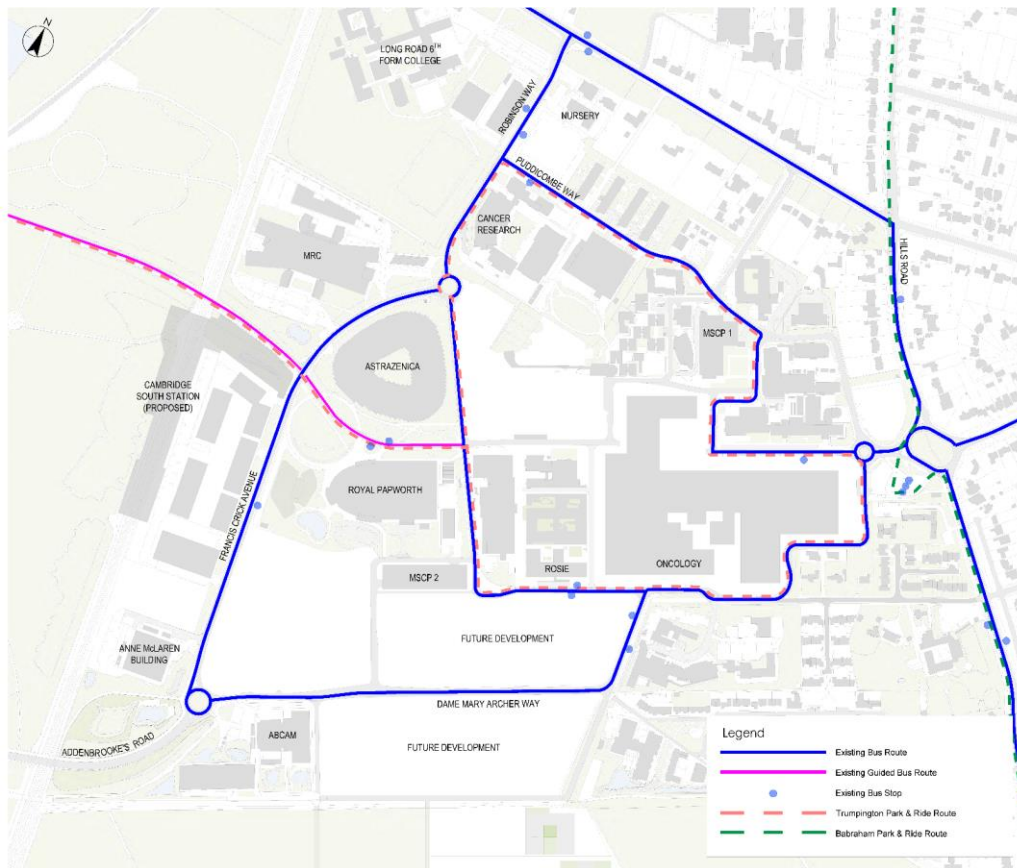


Figure 03: Existing Public Transport Movements and Stops (Source: Stantec)

- 3.18 From the west, the Guided Busway enters the site and is only guided up to Robinson Way, south of the AstraZeneca building where the buses then join the road network. This first stop outside AstraZeneca is where many passengers alight and continue their journeys on foot through the campus.
- 3.19 As a regional hospital and major trauma centre, there are designated Blue Light Routes⁴ for emergency vehicles to access and egress the campus. Addenbrooke's Road, Francis Crick Avenue and Robinson Way are designated as Blue Light Routes. The blue light network is shown in **Figure 04**. A large-scale copy of the plan is included at **Appendix 4**.

⁴ A blue light route is the designated route into and out of the campus for emergency vehicles. The selected routes reflect optimal approaches from different parts of the city to reduce journey times and risks of delay. Should any particular route be unavailable then the alternate route will be specified to the emergency vehicle driver.

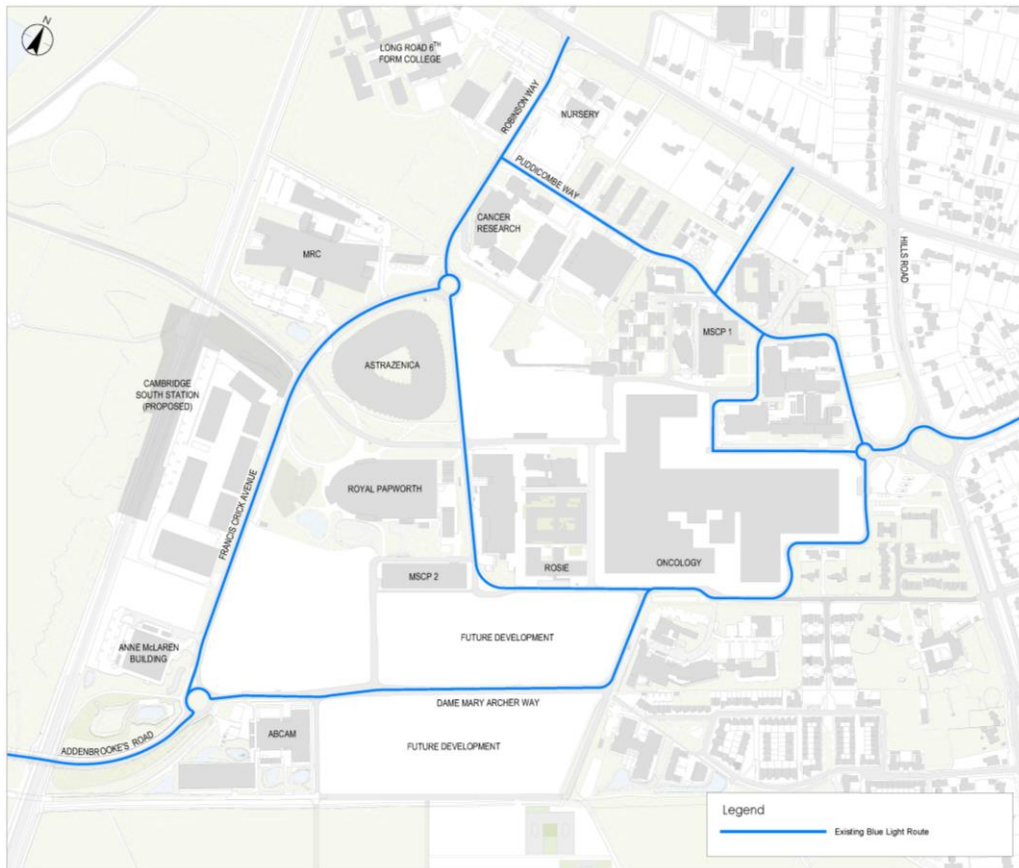


Figure 04: Blue Light Routes (Source: Stantec)

- 3.20 Vehicular access is currently permitted into the campus for staff, patients and visitors with appointments or those with emergency visits. Access is available via Hills Road to the east, Robinson Way to the north and Addenbrooke's Road to the south. The Addenbrooke's Road was built in 2010 as an access-only road constructed between Hauxton Road in Trumpington and Addenbrooke's Hospital.
- 3.21 To manage the use of the internal road network, minimise delay, and to prohibit through traffic, an Automatic Number Plate Recognition (ANPR) system is in place. As Ms Charlton explains in her proof, the ANPR was also required under the s106 agreement associated with planning permission 06/0796/OUT.
- 3.22 Vehicles are photographed as they enter and exit the campus, with times recorded to evidence drivers that are using the campus roads as a through route. Penalty charges are issued by the Police (by way of fixed penalty notice) and are £60 (discounted to £30 if paid within 14 days). Taxis are not exempt from fines.
- 3.23 Anyone driving onto the campus would be exempt from a penalty charge if:

- They are within the campus for longer than the period designated to trigger issue of a fixed penalty notice (indicating that they are not using the roads as a through route)
- They leave via the same access from which they arrived (indicating that they are not using the network as a through route).

3.24 The network of vehicular routes alongside the ANPR locations within the site are shown on **Figure 05**. A large-scale copy of the plan is included at **Appendix 5**.

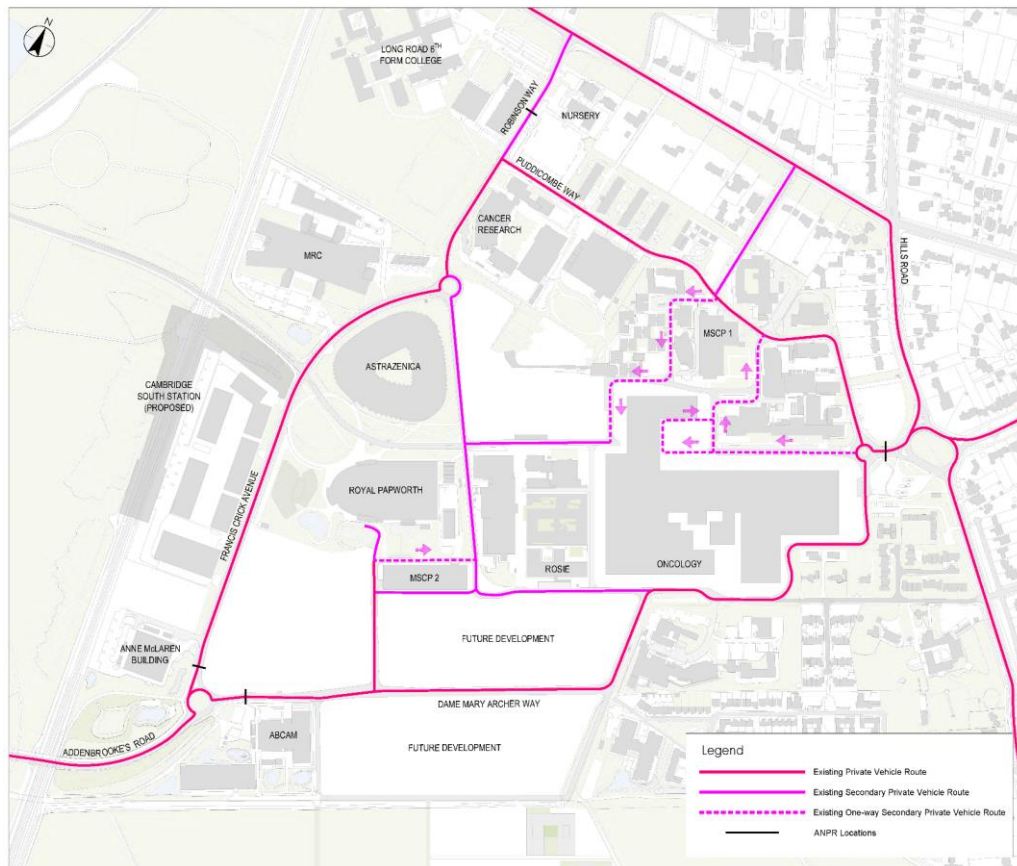


Figure 05: Vehicular Routes within CBC (Source: Stantec)

Site and Transport Context Summary

- The CBC has grown significantly over the last 10 years and is now the largest trip generator in the city. The CBC's transport networks have developed incrementally over time and significant management is required to ensure the operational resilience of the hospital is adequately maintained.
- The CBC is comprised of many different partner organisations. The CBC Delivery Group is formed of these different organisations and has a governance role over the CBC Travel and Transport Group which commits partners to the

ongoing transport monitoring of the site and specifically deals with transport matters that arise. This group is also attended by wider transport stakeholders such as CCC and the GCP.

- A network of Blue Light Routes is in place to help ensure reliable emergency access and egress to/from the site.
- To preclude through traffic from using the campus road network, ANPR is in place. Without the ANPR regime being implemented, significant additional through traffic has historically occurred to the detriment of the CBC and CUH.
- Car parking for staff and visitors is close to capacity and staff must apply (and pay for) for car parking permits to park on-site.
- Informal cycle parking takes place in a number of locations due to the local supply not matching demand or the quality of parking in certain areas.
- Walking and cycle networks are fragmented, and a lack of complete segregation means that conflicts in some areas can occur.

4 STATEMENT OF MATTERS 3 (bullets b, c, & d)

- 4.1 The Transport Assessment (**Core Document: NR16 - Main Environmental Statement: Volume 2 – Appendix 17.2**) (“TA”) provides the methodology used to calculate future transport demand across all modes. The appropriateness of the assumptions made and the subsequent mitigation, will determine whether the exercise of the powers in the proposed TWAO will adversely impact CUH during the construction or operation of the Scheme. The adequacy of the assumptions in the Environmental Statement (“ES”) is considered in Section 6 below.
- 4.2 As set out in Section 3 of my proof (The Site and Transport Context), the transport networks and assets around the campus are sensitive and are subject to pressures that require on-going management to ensure that CUH can continue to provide world class teaching, research, and healthcare services. Therefore, the addition of the Scheme is welcome as this will ultimately assist in providing greater transport capacity for more sustainable journeys to be made in the future. However, and notwithstanding any concerns that CUH have regarding the adequacy of the assumptions / forecasts within the TA, there are a number of distinct concerns relating to matters contained in SOM 3 that are now addressed. These are matters that may arise if the forecasts contained

in the TA and ES are exceeded and if suitable management measures are not in place to address those unreported impacts.

(b) Impacts on the local road networks, including access arrangements, and the blue light routes for emergency traffic and impacts on parking provision and pedestrian routes.

(c) provision of cycle access and parking and on cyclist's safety

- 4.3 The designated **Blue Light Routes** are critical corridors into the campus and hospital. Addenbrooke's Road, Francis Crick Avenue and Robinson Way are all Blue Light Routes and will all be subject to the effects of the Scheme during both construction and operation. These routes are all included within the site boundary of the Deemed Planning Drawings, Parameter Plans, Access and Movement (158454-ARC-ZZ-ZZ-DRG-LEP-000100).
- 4.4 Construction traffic and operational traffic all have the potential to adversely impact these routes. Table 17-11 of Chapter 17 of the ES considers the sensitivity of all three roads and determines them all as 'Sensitive'. The sensitivity of these roads has been determined even without reference to their Blue Light Route status and their determination as 'Sensitive' is agreed by CUH.
- 4.5 Table 17-12 of Chapter 17 of the ES and Figure 17.1 Proposed Construction Routes indicates that (Access Points) AP1, AP4 and AP5 will be taken from Addenbrooke's Road (AP1), and Francis Crick Avenue (AP4 and 5) respectively.
- 4.6 Table 17-13 indicates that the changes in Total Traffic Flow in the peak Construction Year would be:
- 486 Total Vehicle Movements (6.6% increase) and 210 HGV Movements (156% increase) between 07:00 and 19:00 on Addenbrooke's Road (807621)
 - 26 Total Vehicle Movements (0.9% increase) and 14 HGV Movements (11% increase) between 07:00 and 19:00 on Francis Crick Avenue.
- 4.7 As set out in Section 17.4 of Chapter 17 of the ES, mitigation in the form of a Construction Traffic Management Plan ("**CTMP**") as part of the Construction Code of Practice ("**CoCP**") is proposed for the construction period. This is welcomed by CUH. However, given the sensitive nature of these routes, additional assurances are sought by CUH to ensure that adverse impacts on the Blue Light Routes do not occur.

- 4.8 During the operational phase, by 2031, 35 vehicular movements are forecast from the south and 36 movements from the north in the AM and PM Peaks (Figures 8.4 and 8.5 Technical Appendix 17.2 Transport Assessment). Again, given the sensitive nature of these routes, additional monitoring is sought by CUH to confirm whether actual vehicular movements accord with those forecast in the TA, and if they are exceeded to identify whether the additional vehicle movements are having or have the potential to have adverse impacts on the Blue Light Routes. CUH would also wish to see a mechanism in place by which if such exceedances are identified that measures can be identified and implemented to make sure that the adverse impacts on BLR do not occur - as discussed at 4.21 below.
- 4.9 The volume of operational traffic at peak periods will be critical to the adequacy of the designs of the forecourt and access arrangements onto Francis Crick Avenue. Should the forecasts be exceeded, then there is the potential that operational conflicts, queuing, and delay could occur and could adversely impact the junction of the Guided Busway and Francis Crick Avenue. CUH is not aware of any 'sensitivity testing' having been undertaken to demonstrate the level of operational resilience in the designs.
- 4.10 Whilst CUH does not understand NR to be proposing any changes to the existing traffic arrangements, as enforced through the ANPR system, no information has been provided as to how this will be managed for users of the Scheme.
- 4.11 **Car parking** operates at or close to capacity. Whilst staff car parking is managed through the distribution of permits, visitor parking is not controlled but is an important asset to CUH and to the visitors who are often at the hospital for health-related reasons. The opening of a new station less than 500 metres from MSCP2 has the potential to adversely impact the supply of visitor car parking spaces used by CUH and its visitors. It is acknowledged that the opening of Cambridge South will result in the shift of some staff and visitor car trips to rail⁵, but this shift is required to accommodate permitted growth at the campus and must not be back filled by rail commuters.
- 4.12 Table 11.1 of Technical Appendix 17.2 TA sets out the charge for parking for up to 8 hours as £16.00 and for between 8 and 24 hours as £20.70 (MSCP1) and £20.20 (MSCP2). Paragraph 11.5.2 states that 'this relatively high price should act as a deterrent for commuters to use these car parks'. It concludes that the potential impact on the CBC visitor car parks is unlikely to be significant.

⁵ The application of the Atkins Transport Needs report methodology has previously been used to advise CUH that the opening of Cambridge South would reduce car parking accumulation by 262 spaces (-177 staff and -85 visitors).

- 4.13 I do not agree that these costs would be a 'significant' deterrent to commuter parking. More so when 5 day a week commuting is less commonplace than pre-pandemic. Cambridge Central Station charges £12.50 for a 12-hour period (0400-1600) and £22.50 for a 24-hour period. Cambridge North Station, planned and designed as a parkway type facility, charge £8.50 for 12 hours and £12.50 for 24 hours.
- 4.14 The need to avoid commuter car parking impacting on the available visitor stock is essential and again additional monitoring assurances are sought by CUH to confirm compliance with forecasts and so that suitable management can be implemented should the forecasts be exceeded.
- 4.15 As stated in Paragraph 11.4.2 of the TA, the roads within CBC have existing waiting and loading restrictions in the form of double yellow lines and mandatory cycle lanes which can be enforced by the ANPR system. Whilst parking and pick up and drop offs would be problematic, I consider this should be sufficient to deter parking from on the Campus roads.
- 4.16 Paragraph 11.4.3 of the TA states that Cambridgeshire County Council and CBC monitoring would identify any adverse effect resulting from on-street car parking (which is presumed to be a reference to parking outside the CBC). CUH consider the additional burden of monitoring any Scheme related impacts (both within the site and outside of it) should fall to NR or the Train Operating Company ("**TOC**").
- 4.17 My concerns with **pedestrian routes, cycle access, parking, and safety** relate to the design evolution of the eastern forecourt area, the access onto Francis Crick Avenue and the temporary diversion of NCN11.
- 4.18 As I stated above, the appropriate design of the forecourt area and the access will depend on the adequacy of assumptions within the Technical Appendix 17.2 of the TA which are considered in my response in Section 6. CUH is not aware as to whether further 'sensitivity testing' has been undertaken (and would be grateful for sight of the same if it has been). This would have demonstrated that sufficient tolerance exists in the designs to avoid adverse impacts from the following:
- Insufficient capacity of the access design and signal plan if operational vehicle movements are higher than forecast.
 - Insufficient capacity of pick up / drop off spaces if operational vehicle movements are higher than forecast. Pick up / drop off and taxis are to be accommodated

in only 5 bays within the eastern forecourt. No detail is provided on the length of time that vehicles can occupy these bays with no distinction between the different behaviours and likely occupancy of the different users permitted to use them. The longer occupation of bays for those picking up may conflict with the drop offs. The capacity of the bays has not been reported and, if insufficient, will more likely result in adverse behaviours on Francis Crick Avenue or elsewhere on the Campus. This is particularly of concern for taxis who currently park in unauthorised locations whilst waiting to pick up elsewhere across the campus. There is also the potential for pick-ups to circulate within the campus, and cause congestion on already busy roads, if the drop off bays are full.

- Conflicts between pedestrians using the forecourt area. No pedestrian demand modelling (dynamic or static) has been undertaken or reported to evidence the designs and capacities of accesses or routes to and from the forecourt and station building.
- Insufficient cycle parking to cater for growth resulting in parking around the campus. The detailed design and proportional split of cycle parking should be developed with key stakeholders. As part of the detailed design process, we will seek assurances on the quality of these routes, cross sections, street-lighting, CCTV coverage and active monitoring.

4.19 I am not aware that a Stage 1 Road Safety Audit has been provided for the station access. CUH would want confidence that Cambridgeshire County Council Road Safety Team have reviewed and approved, at Stage 1, the designs.

4.20 The Network Rail (Cambridge South Infrastructure Enhancements) Order Drawing No.1 58454-ARC-00-ZZ-DRG-EMF-200003 indicates that NCN 11 will be being diverted from its existing route under the Addenbrooke's Road bridge. The diversion sees the path diverted to meet the CBC network at the Addenbrooke's Road / Francis Crick / Robinson Way roundabout at the Robinson Way arm of the junction. Whilst a temporary diversion to facilitate construction activities, its design needs to be compliant with LTN 1/20 and this includes a safe a proper interface with the Addenbrooke's Road / Francis Crick roundabout.

4.21 Given the concerns raised relating to the Blue Light Routes, car parking, pedestrian routes cycle access and cycle parking, CUH seeks further commitments or assurances from Network Rail. These commitments are aimed at providing assurance to CUH that

any unforeseen issues, or impacts exceeding those assessed in the ES, are identified and managed before more significant adverse impacts effect CUH and their business and healthcare duties occur. CUH would therefore request that:

- NR and/or the TOC to be represented at in the CBC Travel and Transport Group.
- In liaison with the CBC Travel and Transport Group, CUH to be consulted on:
 - a. cycle parking design, quantity and split
 - b. Station forecourt and interchange modelling and sensitivity tests to refine detailed designs
 - c. The detailed design of the temporary diversion of NCN11 and other cycle routes.
 - d. The preparation of the CTMP
 - e. A signage and information strategy to advise passengers of the ANPR system and penalties applied if existing rules are breached
- NR agrees to not obstruct or reduce the capacity of the Blue Light Routes save by agreement with CUH in limited circumstances which cannot be avoided. CUH is also seeking a protocol to manage emergencies.
- In relation to any abnormal vehicle movements in, out or through the campus and any road closures, NR agrees to provide CUH with a minimum of 5 Working Days' notice along with any associated traffic management plans.
- Any temporary traffic management arrangements relating to all modes (to the extent applicable) that impacts routes, maintenance, signage, parking during construction and operation are provided to CUH with a minimum of 5 Working Days' notice.
- CUH requests monitoring equipment to be installed. Monitoring equipment to be consistent with Cambridgeshire County Council specifications and will allow data to be collected and provided to the CBC Travel and Transport Group with regard to forecourt performance, cycle and car parking utilisation.

- 4.22 With these commitments in place, I consider that the risks around design and associated impacts to the Blue Light Routes, car parking, pedestrian routes cycle access and cycle parking can be mitigated prior to implementation, monitored after implementation, and managed if issues and adverse impacts were to arise.

5 STATEMENT OF MATTERS 5

- 5.1 Paragraph 5.3.1 of the TA (**Core Document: NR16 - Environmental Statement: Volume 3 – Appendix 17.2**) sets out the planned transport improvement schemes that were included in the assessment. Paragraph 5.3.3 confirms that these schemes result in 3,841 fewer one-way vehicular trips to the CBC per day factored to 2031 through patient and staff growth numbers. The Cambridge South East Transport (“**CSET**”) scheme contributes to 1,293 trips of this reduction.
- 5.2 These measures alongside other CBC related ‘Potential Interventions’ as set out in Table 5.5 are then ‘netted’ off the CBC traffic flows used in the future year highway assessments. The total reduction of all measures combined is 6,269 trips which reduces traffic growth from 63% to 41% between 2017 and 2031. These reductions are sourced from, and are consistent with, the CBC Transport Needs Review.
- 5.3 The use of these reductions in the future year is not contested. However, the assumption in the technical work is therefore that these schemes are ‘committed’ and will therefore be in place by 2031.
- 5.4 The CSET scheme will be designed and delivered by the GCP. It will incorporate the Sawston Greenway and has a direct interface with the Scheme and access arrangements. The assessment is planned to be submitted to Secretary of State for Transport as part of the Transport and Works Act Order Application in early 2022.
- 5.5 The TA (**Core Document: NR16 - Environmental Statement: Volume 3 – Appendix 17.2**) acknowledges that the delivery of CSET will materially impact the designs of the access to the Scheme including vehicular movements, the signal designs, pedestrian crossing points and the interchange demands between bus and rail.
- 5.6 The acknowledgement in Paragraph 5.3.14 of the TA that the Cambridge South Station Sponsor and CSET Design team are engaged in on-going liaison in order to integrate the two schemes and maximise the potential benefits is welcomed.

- 5.7 Whilst further design work will be being undertaken and applied for by the GCP, the TA has already considered the scheme to be committed as reflected in the use of reduced traffic flows that it has modelled. I would therefore have expected that the design and assessment work would have assessed in greater detail the other impacts of the CSET scheme which are set out in Paragraph 5.3.17 of the TA.
- 5.8 There are a number of points which follow from the same:
- No modelling has been undertaken of the acknowledged required amendments to the access. The CSET proposals require a left in /left out priority junction which then requires U-turns to be made at the Addenbrooke's Road roundabout or Robinson Way roundabout to enable vehicles to leave by the same point of access. This is acknowledged but the consequence of this is not explored from a capacity perspective.
 - Additional interchange demand between the two schemes is acknowledged but no pedestrian demand modelling (dynamic or static) is undertaken.
 - A strategy for Rail Replacement Buses
 - The CSET access design will result in the station access being sited 12 metres further south than is currently shown in the Deemed Planning Drawings Proposed Plan Sheet 1 of 5 (Drawing Number 158454-ARC-ZZ-ZZ-DRG-LEP-000051). Whilst this needs to be considered when CSET comes forward, a more co-ordinated design approach would have located the access in a location consistent with the CSET proposals and without need to then reduce the attenuation pond.
- 5.9 Clearly, the CSET designs are emerging, and I therefore would expect that the CSET design process and approvals to undertake the final co-ordination between the two schemes. However, the TA considers the scheme committed in that the benefits arising from reduced traffic are accounted for, but the known implications of the left in / left out, U-turning traffic, and increased pedestrian demand are not assessed. Sensitivity highway modelling could be undertaken to assess the impacts of the change.
- 5.10 Given the concerns raised relating to the impacts and interaction of the Scheme with CSET proposals, CUH requests that Network Rail agree to the following:
- In liaison with the CBC Travel and Transport Group, CUH to be consulted on:

- a. The potential for sensitivity testing of the necessary 'left in/ left out' junction changes and the impacts on up and down stream junctions.
- b. The potential for Station forecourt and interchange modelling and sensitivity tests with CSET interchange and public transport demand included.

5.11 With these commitments in place, I consider that my concerns can, in advance of more detailed proposals coming forward from the CSET team/proposal, be addressed prior to implementation of the Scheme.

6 STATEMENT OF MATTERS 7

6.1 The TA (**Core Document: NR16 - Environmental Statement: Volume 3 – Appendix 17.2**) provides the methodology used to calculate future transport demand across all modes. The appropriateness of the assumptions made and the subsequent mitigation, will determine whether the exercise of the powers in the proposed TWAO will adversely impact on the ability of CUH during the construction or operation of the Scheme.

6.2 Chapter 3 of the TA, Trip Generation and Distribution sets out the approach to forecasting annual, daily, and peak hour transport demand arising from the Scheme. This Chapter also provides the approach to distribution of these trips and the predicted modal split.

6.3 Paragraph 6.2.1 to 6.2.9 summarises the methodology employed to calculate passengers per annum between the years of 2026 (opening) and 2043 with the forecasts being detailed in Table 6.1. In 2026 total passenger numbers are forecast to be 1,006,019 but increasing to 1,998,794 by 2030 and by 2043 passenger demand is predicted to be 2,364,236.

6.4 Whilst there is lack of detailed explanation as to how these numbers have been derived in either the main body of the report or appendices, CUH does not contest these forecasts and they are consistent with the Strategic Outline Business Case ("**SOBC**") for the Station (Core Document C-03). The SOBC forecasted that 1.8 million passengers per annum⁶ could be attracted to the Station of which 1.3 million

⁶ Paragraph 5, Page 13 Outline Business Case - Cambridge South Rail Station (Mott MacDonald)

passengers per year would otherwise have used Cambridge Station and the remaining 0.5 million passengers per year would be new⁷.

- 6.5 However, as part of the more detailed disaggregation of travel demand for peak hours I have concerns that the 'standardised' MOIRA approach⁸ conflicts with other utilised data sources such as the Atkins Transport Needs Assessment. This conflict in the assumptions used is demonstrated by the comparison of Tables 6.2 and 6.6 of the TA.
- 6.6 MOIRA forecasts a split of 47/53 between arrivals and departures at the station during the AM peak and this is used to establish arrivals and departures as shown in Table 6.6 as being 337 arrivals and 382 departures. However, given the principal role of the station is to act as a destination station for CBC, I would expect the arrivals and departures to be reflective of the forecasts in the Atkins "Transport Needs Review" which forecast 81% with destinations within CBC and 19% using Cambridge South to travel elsewhere which is shown in Table 6.2.
- 6.7 I am concerned that the application of standard methodologies for 'typical' stations may fail to account for the more specific characteristics of the Scheme in the context of CBC and that these demands are then being used to inform designs which may, if incorrect, not accommodate the required capacity for the proposals.
- 6.8 I also have some concern that pedestrian and cyclist demand resulting from direct demand for the Scheme or because of interchange between modes has not been fully assessed. The TA comprehensively assigns base demands to the pedestrian and cycle network but fails to assign forecast demand to the same networks and consider the implications of the change and the adequacy therefore of the mitigation proposed.
- 6.9 Whilst I raise some concerns over the adequacy of the TA in some areas, I am satisfied that if the commitments identified for resolution of concerns to SOM 3 and 5 can be secured, the monitoring of impacts can provide the necessary assurance needed by CUH, in the event that the assumptions and demand forecasts used in the TA do not accord with what in fact occurs when the Scheme becomes operational.

⁷ Paragraph 6.2.3 states that 'new' rail passengers include people making completely new trips that otherwise would not have been made, trips that have transferred from the private car, and trips generated as a result of development that is reliant on the new station.

⁸ MOIRA is a demand forecasting model used in the rail industry. It is most commonly used to understand changes to services and impacts on revenues

7 SUMMARY/CONCLUSIONS

7.1 The overall principle of Cambridge South Station is strongly supported by CUH. The concerns I have raised relate to matters of detail which require further information to be provided or where commitments or further measures are required to properly safeguard CUH's operations on site. In particular, measures need to be put in place to ensure that any transport related adverse impacts which were either not assessed or exceed the effects assessed in the ES are identified early through monitoring, and then appropriately managed.

7.2 As reflected above, CUH would therefore request that:

- NR and/or the TOC to be represented at in the CBC Travel and Transport Group.
- In liaison with the CBC Travel and Transport Group, CUH to be consulted on :
 - a. cycle parking design, quantity and split
 - b. Station forecourt and interchange modelling and sensitivity tests to refine detailed designs
 - c. The detailed design of the temporary diversion of NCN11 and other cycle routes.
 - d. The preparation of the CTMP
 - e. A signage and information strategy to advise passengers of the ANPR system and penalties applied if existing rules are breached
- NR agrees to not obstruct or reduce the capacity of the Blue Light Routes save by agreement with CUH in limited circumstances which cannot be avoided. CUH is also seeking a protocol to manage emergencies.
- In relation to any abnormal vehicle movements in, out or through the campus and any road closures, NR agrees to provide CUH with a minimum of 5 Working Days' notice along with any associated traffic management plans.
- Any temporary traffic management arrangements relating to all modes (to the extent applicable) that impacts routes, maintenance, signage, parking during

construction and operation are provided to CUH with a minimum of 5 Working Days' notice.

- CUH requests monitoring equipment to be installed. Monitoring equipment to be consistent with Cambridgeshire County Council specifications and will allow data to be collected and provided to the CBC Travel and Transport Group with regard to forecourt performance, cycle and car parking utilisation.
- In liaison with the CBC Travel and Transport Group, CUH to be consulted on:
 - a. The potential for sensitivity testing of the necessary 'left in/ left out' junction changes and the impacts on up and down stream junctions.
 - b. The potential for Station forecourt and interchange modelling and sensitivity tests with CSET interchange and public transport demand included.

7.3 I am satisfied that if these commitments are made, CUH will have confidence that unforeseen adverse impacts can be identified swiftly and mitigated accordingly.

8 WITNESS DECLARATION

The evidence which I have submitted in this Proof of Evidence is true and has been prepared, and is given in accordance with, the guidance of my professional institution. I confirm that the opinions expressed are my true and professional opinions.