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Turing House School

Rail
Buildings
Infrastructure
Transport & Environment

Project Title
Turing House School

Report Title
Transport Assessment

Document Reference:
4185/002/02

Prepared For
Bowmer and Kirkland

Date
October 2018

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Status	Comments	Date	Author	Checked	Approved
Draft	---	12/10/2018	SM	ML	DH
A	Updated with comments from the team	24/10/2018	SM	ML	DH
B	Updated with comments from the school	26/10/2018	SM	ML	DH
C	Updated with comments from the school	26/10/2018	SM	ML	DH

CONTENTS

1.0 INTRODUCTION

1.1 Robert West are acting as transport planning and highways consultants in relation to the development of a new five form of entry (5FE) secondary school with a sixth form, namely Turing House School (thereafter; the school).

1.2 The school is proposed to be located on land west of Hospital Bridge Road, within London Borough Richmond upon Thames (LBRuT). The site is located next to Bridge Farm Nursery (thereafter: the nursery). The site location is illustrated in Figure 1.1.

Figure 1.1: Site Location

1.3 The site is located to the west of Hospital Bridge Road and adjacent to the nursery. The wider area of the site is residential, with primary schools and a recreation ground.

1.4 The proposed school will provide 1,050 places for secondary students aged 11-16. The school is proposed as a 5FE school with 150 students' intake per year and 300 sixth form student places. The school will have 90 full-time equivalent (FTE) staff members at its full occupation.

1.5 The proposed development will consist of a single teaching block, a MUGA, playing and sports pitches, as well as other facilities. The site plan layout is presented in Appendix A of this report. The access to the site is currently utilised by the nursery. The existing access is proposed to be re-designed to facilitate a shared use of both; the school and the nursery. A secondary pedestrian and cycle access is proposed from the south via Heathfield Recreation Ground.

1.6 The Turing House School was opened in temporary accommodation in 2015 at Queens Road, Teddington, TW11 0LR. This Teddington site now operates at capacity (325 students). A second temporary site was identified by the ESFA to accommodate year 7 students from Sept 2018 at the ex Clarendon School site, located on Hanworth Road in Hampton. This second temporary site has permission to provide 250 student places and to operate for two academic years from September 2018.

Consultations

1.7 The proposed school has been the subject of a wide-reaching consultation process that included presenting the proposals online via the school website and at three public consultations (i.e. drop-in) events held on 12, 13 and 14 July 2018 to explain the proposed development to local residents and to give them an opportunity to provide their feedback. The transport concerns raised during the consultation included the following:

i. Concerns regarding the proposed access arrangement and location of the crossing on Hospital Bridge Road and shared use with the nursery.

ii. Impact on public transport generated by the proposed school and in particulate on bus route 481.

iii. General traffic congestion on local roads and impact generated by the school and impact on on-street parking during the school peak periods.

iv. Concerns about the time when traffic, parking surveys were collected i.e. close to the school holidays.

Purpose of the report

1.8 This Transport Assessment (TA) reviews the existing transport and highway conditions in the vicinity of the site and the surrounding area, identifies the transport and highway impacts, determines whether the proposal would have a material impact on the local highway network and outlines any mitigation measures necessary to address the impacts identified.

1.9 This TA has been prepared in accordance with the scope of work discussed and agreed with the Highway Officer at LBRuT during the pre-application meeting held on 3 September 2018. The aspects that were discussed and agreed included the following:

i. The TA should provide a summary of the considered access options for the school and provide justification for the preferred access option.

ii. The site access should be conducive to pedestrians and cyclists and segregation

between different road users should be provided as far as possible.

iii. Road Safety Audit Stage 1 for the proposed access design should be undertaken and included in the TA.

iv. The operation of the site access should be justified through a modelling exercise and the operation of the access should be supported by the management strategy.

v. The TA should include analysis of trip generation, trip distribution, and expected School admissions area.

vi. A distribution of car trips to be undertaken using the postcode data from the school, but junction capacity assessments of the surrounding road network using modelling techniques are not required as part of the TA, other than the access as highlighted in iv above.

vii. The provision of secondary pedestrian and cycle access to the school from the south via Heathfield Recreation Ground was discussed and it was concluded that justification for its implementation will need to be supported within the TA as well as considering its impact on MOL.

viii. A School Travel Plan (STP) will be required, with targets for mode shift.

ix. A Delivery and Servicing Plan (DSP) is expected with the planning submission.

x. A Car Park and Access Management Plan (CPAMP) is expected as part of the planning application.

xi. An Outline Construction Logistic Plan (CLP) is required as part of the planning application.

1.10 The scope of work for the TA has also been consulted with Transport for London (TfL) during a pre-application meeting held on 26 July 2018. The aspects that were discussed and agreed included the following:

i. Traffic impact assessment of the road network is not considered required.

ii. Trip generation for staff and students included within the TA Scoping Report (and outlined in Section 5.0 of this report) is considered acceptable.

iii. A detailed impact assessment on public buses is required to be included within the

TA.

iv. It was recommended that car parking provision below the maximum parking standards is considered, whilst the provision of cycle parking increased above the maximum standards.

Report structure

1.11 Following this introduction, the remainder of this report is structured as follow:

i. Relevant transport planning policy from central government to local level is reviewed in Section 2.0.

ii. A review of the existing conditions of the site and wider area, including accessibility by non-car modes is outlined in Section 3.0.

iii. A review of the local highway network and road conditions in the surrounding area are described in Section 4.0, including an analysis of personal injury accident data and summary of traffic survey results.

iv. An appraisal of the existing school in transport terms and a description of adjacent schools' operations are included in Section 5.0.

v. Approach taken in the development of the scheme in term of school access, parking, drop-off and servicing/delivery arrangements is included in Section 6.0.

vi. A trip generation and distribution exercise is provided in Section 7.0

vii. A distribution of trips generated by the proposed school is undertaken in Section 8.0.

viii. The transport impacts of the proposed development are discussed in Section 9.0.

ix. The proposed mitigation strategy is provided in Section 10.0.

x. This report is concluded in Section 11.0.

2.0 PLANNING POLICY

2.1 This report has been produced in accordance with the following planning policy documents.

i. National Planning Policy Framework (NPPF), (2018).

ii. The London Plan (2016).

iii. The London Borough of Richmond upon Thames Local Plan (2018).

NPPF

2.2 Paragraph 32 states that development that generates a significant amount of movement should be supported by a Transport Statement or Transport Assessment and should take into account whether:

i. 'the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;

ii. Safe and suitable access to the site can be achieved for all people; and

iii. Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where residual cumulative impacts of development are severe.'

The London Plan (2016)

2.3 The London Plan has been reviewed in the process of producing this document. Chapter 6 (London's Transport) has been followed in relation to cycle parking standards for the proposed development.

The London Borough of Richmond upon Thames Local Plan (2018)

2.4 The specific transport policies identified and adhered to from the Local Plan are as follows:

Policy LP 44 – Sustainable Travel Choices

Policy LP45 –Parking Standards and Servicing

Policy LP24 – Waste Management

3.0 SITE ACCESSIBLITY AND NETWORK CONDITIONS

3.1 This section describes the existing conditions in the surrounding area and reviews the accessibility of the site by non-car modes including: walking, cycling and public transport. This section was informed by site visit observations undertaken on Wednesday 19 June 2017 and 11 September 2018 during the morning peak period.

Site location

3.2 The site is located to the west of Hospital Bridge Road and to the south of the railway line, within LBRuT. The nursery is located at the south-east corner of the site and gains access from Hospital Bridge Road. The wider area is predominantly residential with a mix of green land and parks. There are three schools in close proximity of the site i.e. Bishop Perrin C of E Primary School (150m to the south), Heathfield Nursery and Infant and Junior Schools (400m to the south-west), and Twickenham Academy (650m to the south).

Site accessibility

Walking

3.3 There is a continuous footway located on the eastern side of Hospital Bridge Road. The footway is approximately 2m wide, which widens to approximately 3.5m further to the south of the site. The footway continues to the north and runs over the rail line via a footbridge. The footway beyond the bridge has a reduced width and is separated from the carriageway by guard railing, which further reduces the effective width of the footway to approximately 1m.

3.4 The western footway on Hospital Bridge Road is not continuous. The footway to the south of the site is paved and is in moderate to good condition, partially segregated with green verges. The footway is of sufficient width to accommodate the current pedestrian demand. There is no footway for approximately a 180m section along the site frontage and to the north of the site beyond the rail bridge.

3.5 Pedestrian connectivity to the north of the site, across the railway track, is possible via the provision of a footway bridge that is in poor condition. The footway is on one side of the road only and has restricted width.

3.6 A zebra crossing, in a form of a raised table, is provided across Hospital Bridge Road and is located 140m to the south of the nursery site access. The zebra crossing has tactile paving, flashing beacons and guard railing in place on both sides of the crossing.

3.7 Signal controlled crossings are available at the junction with Percy Road and Powder Mill Lane, 640m to the south of the site and at the signalised roundabout with Chertsey Road further to the south.

3.8 Hospital Bridge Road meets Montrose Avenue in the form of an uncontrolled junction, with access and egress lanes from Montrose Avenue being physically separated by a central island with landscaping. As a result of this, pedestrians need to cross access and egress lanes on Montrose Avenue separately, although being able to wait within the central island. Dropped kerbs are only provided to the northern and southern ends of the overall crossing and tactile paving is not provided at this location.

3.9 Footways along Hanworth Road (A314) are 2-3m wide and of good quality and pedestrian crossings in the form of uncontrolled crossings with refuge island, or signal controlled crossing are provided at frequent intervals along the road. These pedestrian facilities are expected to be used by future students that board and alight using the bus stops on Hanworth Road.

3.10 Footways along Power Mill Lane are wide enough to accommodate the current demand and are of good quality. It is expected that the northern footway will be more frequently used by students arriving to the school and in particular by those students that use buses along Hanworth Road. This footway connects to a well-lit public footpath that runs through Heathfield Recreation Ground. The foot way running through the Metropolitan Open Land between Powder Mill Lane and Springfield Road is approximately 2.8m wide and has regular high-level street lights along the length of the footway. Provision of pedestrian crossings along Power Mill Lane is comprehensive and crossings in the form of uncontrolled crossings, or zebra crossings are provided at frequent intervals.

Pedestrian Environment Review System (PERS)

3.11 A PERS audit has been undertaken in accordance with a scope of work agreed with Highway Officers at LBRuT and TfL. The PERS audit was undertaken on Thursday 9 August 2018 on a total of seven pedestrian links, 11 crossing points and four public transport waiting areas in the vicinity of the site. A summary of the PERS assessment for each type of pedestrian environment is as follow:

i. Links: one link achieved an ‘Average’ score (i.e. the section of Hospital Bridge Road along the footbridge), four links achieved a ‘Good’ score and two links achieved a ‘Very Good’ score. Hospital Bridge Road received a very good score, providing wide and clean footways and good quality surface material.

ii. Crossings: nine crossings achieved a ‘Good’ score, and two crossings achieved a ‘Very Good’ score.

iii. Public Transport Waiting Areas (PTWA): all PTWA achieved a ‘Good’ score.

3.12 Overall, the development site is considered to be located in an area with a good provision of pedestrian facilities. The full PERS audit report has been attached in Appendix B.

Cycling

3.13 TfL Local Cycling Guide 9 highlights sections of Hospital Bridge Road, Percy Road, Ellerman Avenue, Hanworth Road, Lyndhurst Avenue and Powder Mill Lane as routes which are signed or marked for use by cyclists and comprise a mixture of quiet and busier roads. These routes are marked in blue and are presented in Figure 3.1.

3.14 Further cycle routes in the area are described as ‘routes which have been recommended by other cyclists’ and these include Springfield Road, Nelson Road and Constance Road. These routes are marked in yellow in Figure 3.1.

3.15 There are off-road routes (marked in green), these include a route connecting Springfield Road to Powder Mill Lane, routes along Chertsey Road and a route through Crane Park, to the south of the site. The network of off-road routes connects well with marked, signed and recommended cycle routes in the area surrounding the site, providing good cycle connections to wider residential areas.

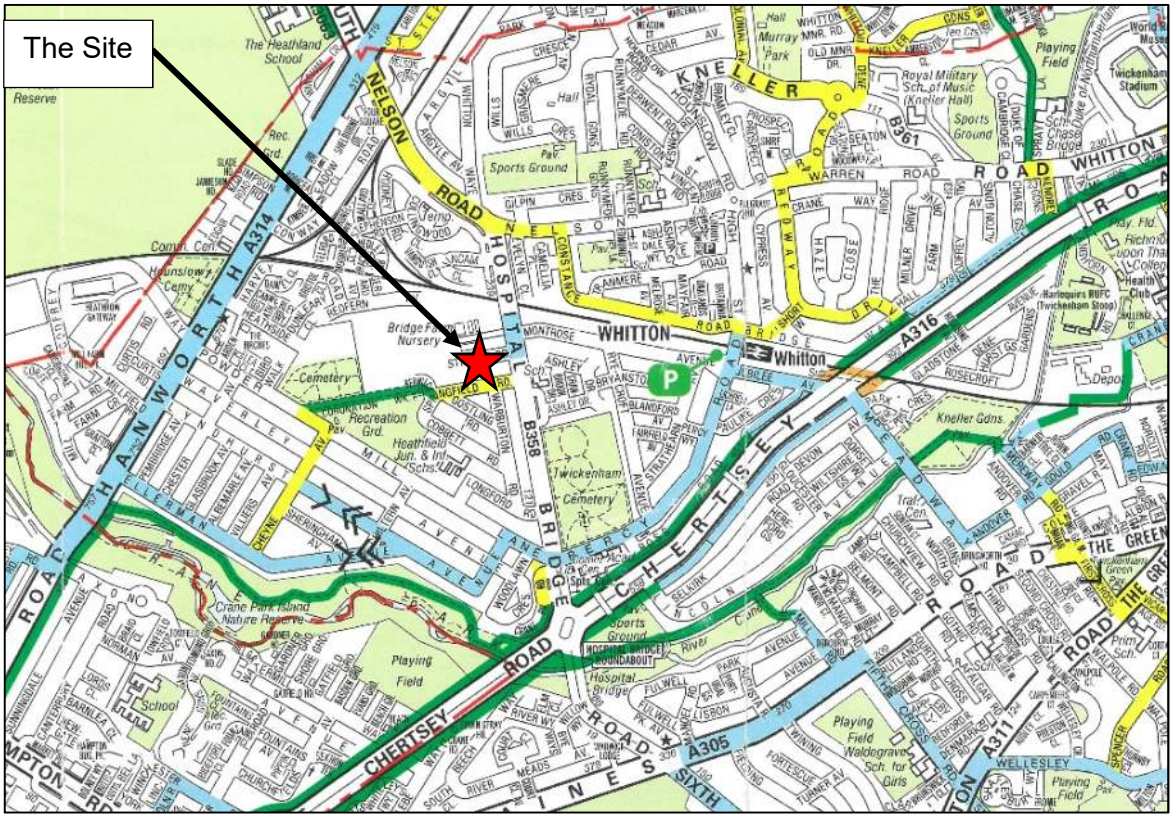

Figure 3.1: Cycle facilities in the area

3.16 The school also undertook their own research on the suitable cycle routes to the school and identified the following routes as suitable for students attending the school and these are presented in Figure 3.2.

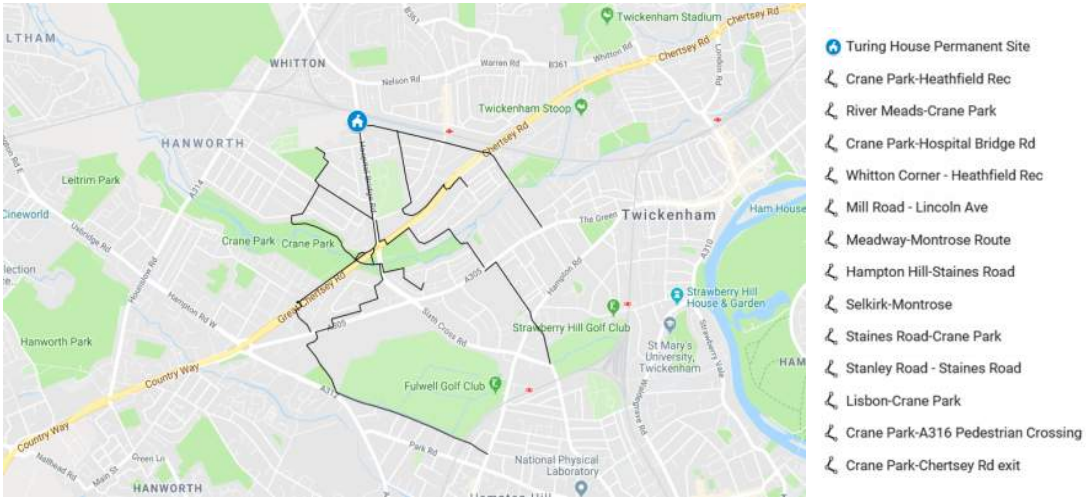

Figure 3.2: Cycle routes to and from the school identified by the school

Pedestrian and cycle facility across A316

3.17 Great Chertsey Road (A316) is part of the strategic road network in London and the Chertsey Roundabout is a four-arm signalised roundabout with Hospital Bridge Road located 900m to the south of the proposed school site.

3.18 School admissions (see Section 5.0) shows that the majority of students will arrive from the south and it is expected that a proportion of students (that will walk and cycle to the school) will travel across the A316. As such a detailed review of pedestrian and cycle facilities at this location was undertaken to ensure that sufficient facility is in place.

3.19 The review of pedestrian and cycle facilities showed that the following are in place:

i. Pedestrian and cycle bridge on Great Chertsey Road (east arm).

ii. Pedestrian and cycle underpass on Great Chertsey Road (west arm).

iii. Pedestrian and cycle underpass on Hospital Bridge Road (south arm).

iv. Footways at the roundabout are marked, or signed for shared pedestrian and cycle use.

v. A segregated pedestrian and cycle route along Great Chertsey Road.

vi. Toucan crossings on the north and south arms of Hospital Bridge Road.

vii. A pelican crossing on Great Chertsey Road (west arm).

viii. Pedestrian and cycle bridge on Great Chertsey Road (600m to the east from the roundabout).

ix. Pedestrian and cycle bridge on Great Chertsey Road (600m to the west from the roundabout).

x. A guard railing is provided at the roundabout providing a physical barrier between vehicles and pedestrians/cyclists at the roundabout.

3.20 The above listed facilities are presented in Figure 3.3 and Figure 3.4

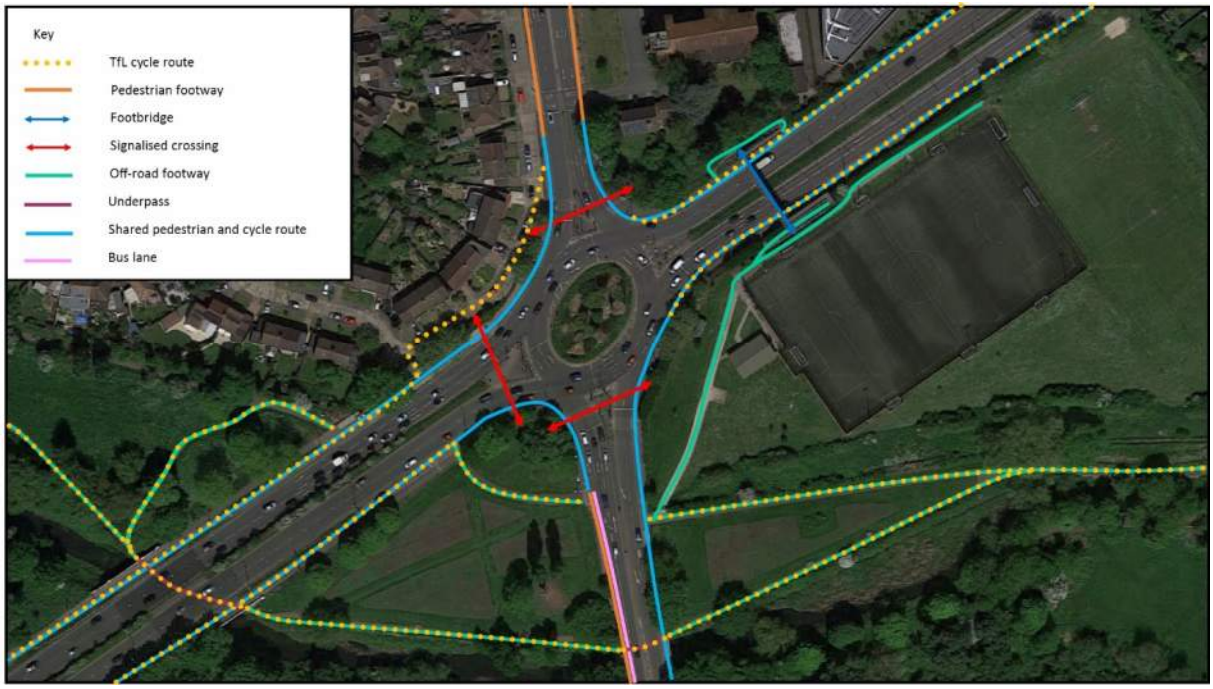

Figure 3.3: Pedestrian and cycle facilities at Chertsey Roundabout

	Pedestrian and cycle bridge on Chertsey Road (eastern arm) can be accessed directly from the shared pedestrian and cycle route and can be used by both pedestrians and cyclists.
	An off-road pedestrian and cycle route is present in Crane Park that runs parallel to the River Crane. This route provides an underpass along Hospital Bridge Road (southern arm) and Great Chertsey Road (western arm).
	Bus lane on Hospital Bridge Road (southern arm) that can be used by cyclists. Cyclists can access a shared pedestrian and cycle route immediately after the end of the bus lane.
	Pedestrian footway with a segregated cycle lane on Great Chertsey Road (western arm).

Figure 3.4: Pedestrian and cycle facilities at Chertsey Roundabout

3.21 The above summary shows that comprehensive dedicated pedestrian and cycle facilities exist at the Chertsey Roundabout and further crossing facilities are also available within 600m of the roundabout, that could be used by less confident road uses, if needed.

CERS (Cycle Environment Review System)

3.22 A CERS audit has been undertaken in accordance with scope of work agreed with a Highway Officer at LBRuT and TfL. The CERS audit was undertaken on a total of 11 links. The results of the CERS audit indicated that all roads achieved a 'Good' score, with Hospital Bridge Road, Heathfield Recreation Ground, Powder Mill Lane and Crane Park achieving a 'Very Good' score.

3.23 Although the area around the permanent site lacks in cycle facilities (i.e. cycle lanes), the roads audited within proximity of the proposed development, provide convenient, accessibly, safe and comfortable routes. The full CERS audit report has been attached in Appendix C.

Public transport facilities

Public Transport Accessibility Level (PTAL)

3.24 The PTAL assessment of the site was undertaken using the TfL database (www.tfl.gov.uk/webcat). The PTAL value is classified in bands ranging from 1a to 6b where 1a is the lowest level of accessibility (very poor) and 6b is the highest level of accessibility (excellent). A PTAL assessment indicated that the site has a rating of 1b (very poor), measured at the main site access from Hospital Bridge Road.

Bus routes

3.25 Bus stops are located on both sides of Hospital Bridge Road, with the nearest southbound bus stop located 52m to the south of the site (one-minute walk) and the nearest northbound bus stop located 250m to the south of the site (four minutes' walk). These stops provide bus cages, timetables and flags, and are served by route 481.

3.26 There are further bus routes available within the wider area which have not been considered within the PTAL assessment due to the distance to the bus stops being greater than 640m from the site (eight minutes' walk). These additional bus routes are listed below and as these are located within a reasonable walking distance from the site (560m), it is considered that they could still be used by students traveling to the school:

i. Route H22 and 110 available from Hospital Bridge Road, to the south of the junction with Percy Road (720m east of the site, up to nine minutes' walk to the main access and 560m to the secondary access from the bus stop on Power Mill Lane for route 110).

ii. Route 111 available from Hanworth Road (1190m west of the site, 15 minutes' walk to the main access and 690m to the secondary access, nine minutes' walk)

iii. Route H28 available from Hanworth Road (1050m north-west of the site, 13 minutes' walk to the main access and 690m to the secondary access, nine minutes' walk).

3.27 Table 3.1 summarises the frequencies of the aforementioned routes during the standard school peak hours.

Route	Direction	Morning peak frequency	Inter peak frequency
481	Towards West London Mental Health Trust	2	2
	Towards Cromwell Road Bus Station	2	2
H22	Towards Manor Road	4 – 6	4 - 6
	Towards Bell Road / Bell Corner	4 – 6	4 - 6
110	Towards West Middlesex Hospital	3	3
	Towards Hounslow Bus Station	3	3
111	Towards Heathrow Central Bus Station	5 – 8	5 - 8
	Towards Cromwell Road Bus Station	5 – 8	5 - 8
H28	Towards Tesco Osterley	3	3
	Towards Bulls Bridge Tesco	3	2
Total		34 - 44	33-43

Table 3.1: Summary of bus services

3.28 Table 3.1 shows that in the wider area there is a good provision of bus services, with over 30 buses per hour during the school peak periods. These services offer connections to Heathrow Central Bus Station, Cromwell Road Bus Station (Kingston), Hounslow and Richmond. Figure 8.1 provides an overview of bus routes within the area.

National Rail

3.29 The nearest national rail station to the site is Whitton Station, located 750m (10 minutes' walk) to the east of the site, which can be reached via Montrose Avenue and Percy Road.

3.30 The station provides services towards Windsor & Eton Riverside and London Waterloo. These services run at approximately half hourly intervals to Windsor & Eton Riverside and Barnes Bridge and more frequent services are available to London Waterloo.

Summary

3.31 The wider area surrounding the site has a comprehensive network of footways, however, in the immediate area of the site has some constraints such as: the footway located on one side of Hospital Bridge Road, the footbridge across the rail bridge being in poor condition and restricted width of the footway on Hospital Bridge Road to the north of the footbridge.

3.32 The cycle network in the area of the site is comprehensive; it comprises a combination of on-road, off-road and recommended routes, and provides a good cycle connectivity to the residential neighbourhoods in the wider area, including good pedestrian and cycle connectivity across the A316 and Chertsey Roundabout.

3.33 The site is located in an area with a PTAL rating of 1b, which takes account of one bus service only and rail services. However, it is noted that a further four bus services are located within 15 minutes' walk of the site, providing a good level of services during the school peak periods.

4.0 LOCAL HIGHWAY NETWORK

4.1 This section of the report provides a description of the local highway network, informed by site visit observations, and analysis of personal injury accident data (PIA) in the surrounding area of the site.

Local highway network

4.2 The streets surrounding the proposed development are described in the following paragraphs.

Hospital Bridge Road

4.3 Hospital Bridge Road lies to the east of the site and connects with Nelson Road to the north, in the form of a priority junction and with Great Chertsey Road to the south via a signalised roundabout.

4.4 The road is a single carriageway and in the vicinity of the development site, the road is subject to a 30mph speed limit. Approximately 100m to the south of the site a 20mph zone commences. The speed restriction changes at a point where the carriageway has speed mitigation measures in place (i.e. build outs and a refuge island at the zebra crossing). It is understood that the 20mph zone was implemented to reduce speed outside of the Bishop Perrin Church of England Primary School. Speed limit markings and school safety signage are present near this school.

4.5 The carriageway is mostly unrestricted in terms of parking with the exception of double yellow lines provided on the western side of the carriageway along a 35m long section to the south of the junction with Stirling Road.

Hanworth Road

4.6 Hanworth Road lies to the west of the site and connects with County Way to the south, and Grove Road to the north.

4.7 The road is a single carriageway and is subject to a 30mph speed limit and has on-road advisory cycle lanes on both sides of the road. Sections of the road are marked with single, or double yellow lines; other sections of the road have parking bays and the road is used by buses.

Montrose Avenue

4.8 Montrose Avenue connects with Hospital Bridge Road at its western end and with Percy Road at its eastern end. The junction at the western end of the road lies directly opposite the nursery site access and Montrose Avenue has separated entry and exit lanes with a large landscaped island in the middle.

4.9 The majority of properties on this road are semi-detached houses that have access to off-street parking spaces accessed via driveways. As such, on-street parking capacity was observed to be available in the morning peak period.

4.10 The street has unrestricted parking with the exception of the section of road at the junction with Strathearn Avenue where double yellow lines are provided. The street is subject to a 30mph speed limit and has speed humps provided at frequent intervals along its length.

Springfield Road

4.11 Springfield Road is located to the south of the proposed development. It is a residential road which merges with Cobbett Road at its western end and forms a priority junction with Hospital Bridge Road at the eastern end. Springfield Road, beyond the junction with Gostling Road operates as a one-way road in a clockwise direction.

4.12 The street has a 20mph speed limit. It has unrestricted on-street parking, which takes place on the southern side of the carriageway, and within marked half-on footway parking bays on the northern side of the carriageway.

Other residential streets in the area

4.13 As part of the site visit observation, other streets in the area were evaluated and it was determined that the majority of streets have unrestricted on-street parking and carriageways are of a reasonable geometry that allow for on-street parking without obstructing traffic movements.

4.14 Gostling Road has marked half-on footway parking, whilst Warburton Road, Longford Road, Ryecroft Avenue and Ashley Drive allow for on-road parking. Bryanstone Avenue is subject to single yellow line restrictions along the southern edge of the carriageway, which prevent parking from Monday to Friday between 11:00 and 12:00. It is anticipated that this parking restriction is designed to prevent commuter parking associated with Whitton Station. This restriction would not prevent pick-up, or drop-off associated with the proposed development.

4.15 Desktop research suggests that on-street parking capacity is available. However, street inventory and parking beat surveys were also undertaken to understand the current on-street parking occupancy and available residual capacity. This is addressed later in the assessment.

4.16 Through the discussions with LBRuT it was confirmed that provision of 20mph zones is a borough wide proposal and is intended to be implemented as part of the borough-wide strategy. This will bring safety benefits throughout students' journey to school, especially at School entrance points and pedestrian crossings on key desire lines.

4.17 The streets surrounding the proposed school have unrestricted on-street parking. Through the discussions with LBRuT it was confirmed that implementation of a Control Parking Zone (CPZ) is now being considered for the area which is targeted at managing long stay parking by commuters.

PIA data

4.18 Personal injury accident (PIA) data was obtained from TfL for the most recent five-year period ending September 2017. The full data set and a plot of all accidents are contained within Appendix D.

4.19 A review of the total number of accidents, by severity, is outlined in Table 4.1 below. This shows that there were 63 slight and three serious accidents in the study area during the five-year period.

Severity	Year (until end of August)					Total
	2013	2014	2015	2016	2017	
Fatal	0	0	0	0	0	**0**
Serious	1	1	0	0	1	**3**
Slight	15	12	12	11	13	**63**
Total	**16**	**13**	**12**	**11**	**14**	**66**

Table 4.1: Number of accidents by severity and year

4.20 Table 4.1 shows that since 2013 there has been a reduction in the number of accidents within the study area.

4.21 The type of road users involved in the accidents have been analysed and outputs are summarised in Table 4.2 below.

Road user	Severity of injury			Total
	Fatal	Serious	Slight	
Pedestrian	0	1	19	**20**
Pedal Cyclist	0	1	10	**11**
Car Driver	0	1	25	**26**
Car Passenger	0	0	10	**10**
HGV Driver	0	0	2	**2**
Driver/ Rider of a Motorcycle	0	0	4	**4**
Taxi Driver	0	0	2	**2**
HGV Passengers	0	0	2	**2**
Bus Passengers	0	0	2	**2**
Total	**0**	**3**	**76**	**79**

Table 4.2: Causalities recorded (by road user and severity)

4.22 Table 4.2 shows that a total 79 casualties occurred as a result of 66 accidents. Car drivers accounted for the highest number of casualties (26) which was followed by pedestrians (20) and cyclists (11). Vulnerable road users (pedestrians, cyclists and motorcyclist) accounting for 44% (i.e. 35) of all casualties.

Serious accidents

4.23 The data showed that three accidents resulted in 'serious' injuries. These accidents are described in detail below:

i. An accident occurred on Monday 4 March 2013 at 21:59 when a car collided with the rear of a parked car at the junction between Springfield Road and Warburton Road. It resulted in a car driver sustaining serious injuries. The accident contributory factors reported were illness or disability, mental or physical.

ii. An accident occurred on Saturday 23 November 2013 at 00:25 when a pedestrian stepped off the bus in front of an oncoming car. The accident occurred at Hospital Bridge Road, approximately 23m north of the junction with Vincam Road and resulted in the pedestrian sustaining serious injuries. The accident contributory factors reported were failure to judge vehicle's path or speed, pedestrian wearing dark clothing at night and careless/reckless/in a hurry.

iii. An accident occurred on Friday 7 April 2017 at 18:33 between a car and a cyclist at the junction between Hospital Bridge Road and Powder Mill Lane. The cyclist sustained serious injuries and the accident contributory factor was failure to look properly on the part of the cyclist.

4.24 All of the aforementioned accidents are considered to occur due to road users' behavioural issues rather than highway network issues.

Accidents involving students

4.25 A further review of the type of casualties involved in the study area was undertaken. The analysis focused on collisions that involved children between the ages of 11 - 18 and occurred during the morning (08:00 – 09:00) and afternoon (15:00 – 16:00) school peak periods. A total of 12 accidents were found, one of which occurred on the weekend and eight occurred outside the school peak hours. The remaining three accidents, that are considered as school-related, are outlined below:

i. An accident occurred on Friday 10 June 2016 at 08:16 at the junction between Hanworth Road and Heathside when a pedestrian ran between parked cars and in to the path of an oncoming vehicle. It resulted in a 12-year-old pedestrian sustaining slight injuries. The accident contributory factors reported were failure to look properly, vision affected – stationary or parked vehicle(s), crossed road masked by stationary or parked vehicles and careless/reckless/in a hurry.

ii. An accident occurred on Wednesday 9 November 2016 at 08:10 between a vehicle and a cyclist at the junction between Percy Road and Hospital Bridge Road. The cause of the accident is not known but resulted in a 13-year-old cyclist sustaining slight injuries. No contributory factors were reported.

iii. An accident occurred on Thursday 27 July 2017 at 15:15 when a vehicle collided with a bollard at the junction between Hanworth Road and Powder Mill Lane. The cause of the accident is not known but resulted in two passengers, one of whom was aged 11-years-old, sustaining slight injuries. The accident contributory factors reported were failed to look properly and swerved.

4.26 It is noted that no accidents occurred due to road geometry and as such road user's behaviours are predicted to be a major contributory factor.

Accidents on Hospital Bridge Road

4.27 Further analysis of the accident data was undertaken to understand if there is a trend in accidents occurring on Hospital Bridge Road, as this will be a primary pedestrian route to the school. There was a total of two accidents occurring on Hospital Bridge Road between the junctions with Springfield Road and Vincam Close that resulted in two casualties sustaining slight injuries.

4.28 One of the accidents occurred on the railway bridge, approximately 100m north of the junction with Montrose Avenue. A collision between two vehicles occurred when the southbound vehicle collided with the northbound vehicle that was travelling in the opposite carriageway. No other accidents were recorded at the bridge, or on the approach to the bridge.

4.29 A slight accident occurred opposite the proposed site access at the junction between Hospital Bridge Road and Montrose Avenue when a car collided with a pedestrian. Although, this is one accident only, rather than a trend, improvements to pedestrian facilities at this location are considered in the following sections.

Accidents at the junction between Hospital Bridge Road / Percy Road / Powder Mill Lane

4.30 The accident data shows a cluster of accidents occurring at the junction between Hospital Bridge Road / Percy Road / Powder Mill Lane and these accidents are summarised below:

i. A total of 19 accidents occurred and resulted in 26 casualties.

ii. 25 casualties sustained slight injuries and one serious injury. Four of the casualties were aged between 11 – 18 years old.

iii. 65% of the casualties were car drivers and passengers.

iv. All of the accidents that involved pedestrians occurred due to pedestrians disobeying the traffic lights and/or running across on coming vehicles.

v. 16% of the accidents occurred due to faulty traffic lights.

vi. 63% of collisions occurred due to behaviour of the road user.

4.31 The above summary suggests that the majority of accidents that occurred at the junction were due to road users' behaviours, or disobeying traffic signals, rather than with the geometry of the junction, or operation of the signals.

Accidents on Hanworth Road

4.32 The accident data shows that there is a high density of accidents occurring on Hanworth Road and these accidents are summarised below:

i. A total of 24 accidents resulting in 27 casualties.

ii. 30% of the casualties occurred to vulnerable road users and the remaining 70% occurred to car drivers and passengers.

iii. Three accidents occurred due to lack of visibility when pedestrians navigated between stationary or parked vehicles.

Accident summary

4.33 A review of accidents showed the following:

i. A total of 66 accidents occurred in the study area and resulted in 79 casualties.

ii. Three casualties sustained serious injuries while the remaining 76 sustained slight injuries.

iii. Three accidents were identified as school-related, but the further analysis identified that these occurred due to road users' behaviours.

iv. One accident occurred on the railway bridge on Hospital Bridge Road due to a vehicle traveling on the wrong side of the road.

v. No accidents were associated to speeding.

vi. An accident occurred opposite the proposed site at the junction between Hospital Bridge Road and Montrose Avenue.

vii. A cluster of the accidents occurred at the junction between Hospital Bridge Road / Percy Road / Powder Mill Lane. The primary contributory factors of these accidents were disobeying the traffic lights and/or running across on coming vehicles.

Additional accident analysis

4.34 The school admissions area is located to the south and a small proportion of students are expected to arrive to the site via Chertsey Roundabout (see Section 8.0). Through the consultation process, concerns about safety and provision of pedestrian and cycle facilities at this junction were raised by members of the public. As such an additional accident analysis was undertaken for the Chertsey Roundabout only and the following was found:

i. A total of 23 accidents occurred at the roundabout for the most recent five-year period ending January 2018. These included 22 slight accidents and one serious accident. The serious accident involved a cyclist; however, the cyclist used the carriageway to travel via Chertsey Roundabout rather than the off-road cycle facility.

ii. A total of four of these accidents involved cyclists and resulted in five casualties to cyclists. A detailed review of these accidents showed that two accidents occurred as cyclists were using the carriageway, rather than the off-road facility, and the remaining two accidents occurred as cyclists disobeyed the operation of traffic signals.

iii. One accident resulted in injury to a pedestrian. This occurred as result of a pedestrian crossing the road 50m away from the crossing.

4.35 The analysis of these accidents shows that the accidents occurred due to behavioral issues (i.e. disobeying signals, not using dedicated pedestrian and cycle facilities), rather than lack of or insufficient provision of dedicated facilities for pedestrians and cyclists. The school will incorporate measures in the School Travel Plan promoting safe road behaviours, when crossing the A316 and within the wider network to address safety.

Site visit observations

4.36 Site visit observations were made on Wednesday 19 July 2017 and 11 September 2018 and the following was observed:

i. Traffic flow along Hospital Bridge Road was observed to be moderate and no congestion was observed.

i. On-street parking occupancy was moderate, with significant residual parking capacity being observed on Montrose Avenue.

ii. Pedestrian movements along the eastern footway on Hospital Bridge Road were observed to be high for a short period of time. This short-term increase in pedestrian movements was associated with the operation of the nearby schools, with the majority of pedestrians being primary age students.

iii. The pedestrian crossing point located to the south of the site was observed to be well used by existing road users.

Baseline traffic surveys

4.37 To inform this TA and understand the existing utilisation of the road network a set of surveys was commissioned and included the following:

i. Manual classified count (MCC) survey at the junction of Hospital Bridge Road with Montrose Avenue and the site access road.

ii. Automatic Traffic Counts (ATC) on Hospital Bridge Road.

iii. Street inventory and parking beat survey.

iv. Pedestrian survey along footways on Hospital Bridge Road.

4.38 The locations of the surveys are shown in Figure 4.1. The scope of surveys was discussed and agreed with a Highway Officer at LBRuT.

Figure 4.1: Extent of traffic surveys

4.39 The traffic survey was initially conducted on the week commencing 9 July 2018. However, following discussions with residents at the public consultation events and a Highway Officer at LBRuT, it was concluded that all traffic data collected could be marginally affected by school holidays and therefore, the traffic survey was recommissioned to be undertaken on the week commencing Monday 10 September 2018.

MCC Survey

4.40 The traffic movements at the junction of Hospital Bridge Road with Montrose Avenue and the site access road were collected for two weekdays (Tuesday 11 September 2018 and Wednesday 12 September 2018). The survey showed that the total traffic recorded on Wednesday was higher (by 0.9%) than on Tuesday and therefore Wednesday survey data was chosen (as a worst-case parameter) for further analysis and assessment. The survey data for both of the days are presented in Appendix E.

4.41 The MCC survey data was interrogated to identify the morning and afternoon network peak hours and the following peak times were identified:

i. AM Peak – 07:45 to 08:45.

ii. Inter Peak – 14:30 to 15:30.

iii. PM Peak – 17:00 to 18:00.

4.42 The summary of traffic movements at the junction for the above peak periods is summarised in Figure 4.2.

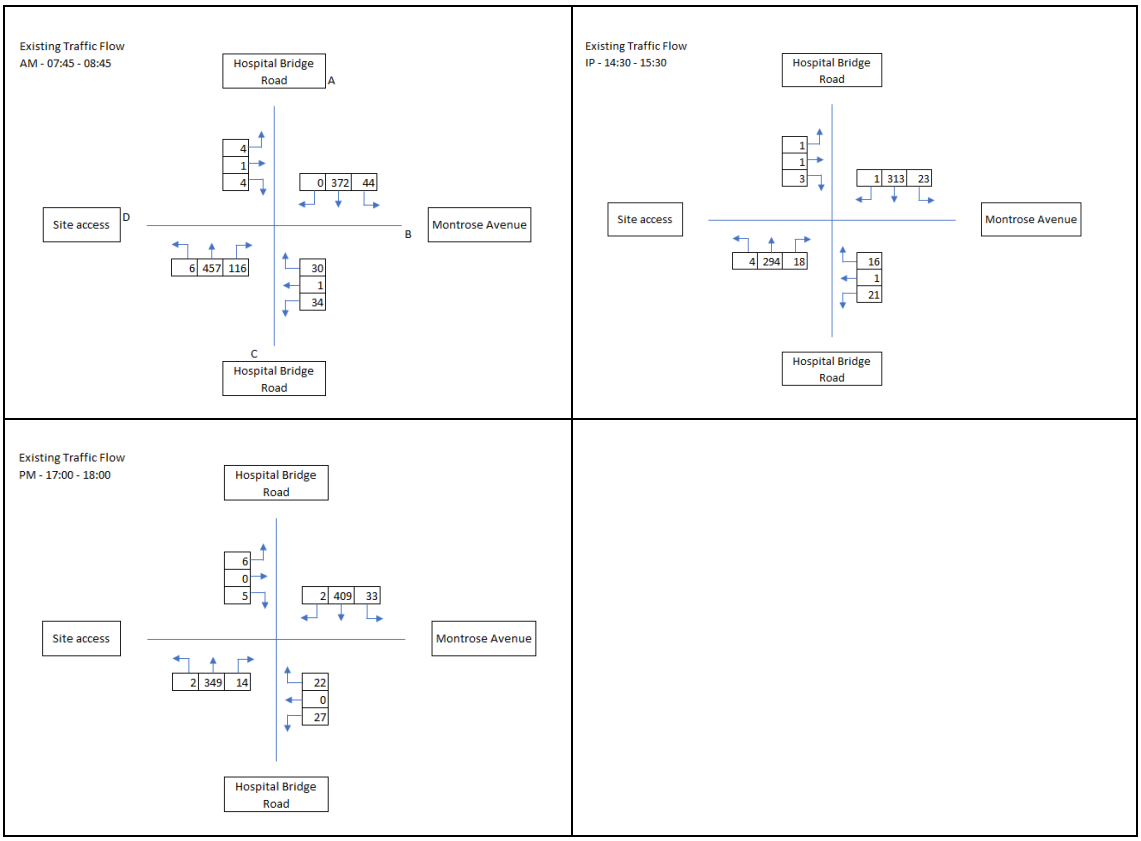

Figure 4.2: MCC at the junction of Hospital Bridge Road with Montrose Avenue and the site access road [vehicles]

ATC survey

4.43 The ATC survey was undertaken on Hospital Bridge Road for a period of 14 days commencing on Monday 10 September 2018. The location of the ATC is shown in Figure 4.1. Full details of the survey results are attached in Appendix E with a summary provided in Tables 4.3 and 4.4.

		Week 1					Weekday Average
		10/09/18	11/09/18	12/09/18	13/09/18	14/09/18	
Northbound	Total Vehicles	3978	4021	4082	4236	4179	4099
	Heavy Vehicles	316	326	322	345	304	323
Southbound	Total Vehicles	3650	3752	3857	3907	3901	3813
	Heavy Vehicles	244	285	286	325	259	280
Total	Total Vehicles	7628	7773	7939	8143	8080	7913
	Heavy Vehicles	560	611	608	670	563	602

Table 4.3: 12-hour traffic flows on Hospital Bridge Road (week 1)

		Week 2					Weekday Average
		17/09/18	18/09/18	19/09/18	20/09/18	21/09/18	
Northbound	Total Vehicles	3976	4076	4143	4157	4096	4090
	Heavy Vehicles	336	354	334	363	349	347
Southbound	Total Vehicles	3720	3880	3951	3878	3833	3852
	Heavy Vehicles	278	267	285	296	288	283
Total	Total Vehicles	7696	7956	8094	8035	7929	7942
	Heavy Vehicles	614	621	619	659	637	630

Table 4.4: 12-hour traffic flows on Hospital Bridge Road (week 2)

4.44 Tables 4.3 and 4.4 summarise daily traffic flows (from 07:00 to 19:00) during the weekdays. The ATC record shows a consistent level in the volume of traffic throughout the two-week period, with northbound traffic flows remaining higher than southbound. The proportion of heavy vehicles varied between 7% and 9% of all traffic.

4.45 In addition to the traffic volume, the ATC survey also recorded vehicle speed. The traffic speed record is presented in Tables 4.5 and 4.6 and shows the 85-percentile speed recorded at various times and per directions on Hospital Bridge Road.

Time	Direction	Week 1				
		10/09/18	11/09/18	12/09/18	13/09/18	14/09/18
07:45 - 08:45	Northbound	29.5	30.2	28.6	29.3	29.9
14:30 - 15:30	Northbound	30.3	30.8	30.9	31.0	30.7
17:00 - 18:00	Northbound	31.1	30.9	31.3	30.9	30.9
07:00 - 19:00	Northbound	31.1	30.9	30.6	30.8	30.6
07:45 - 08:45	Southbound	29.1	29.3	28.4	28.1	28.5
14:30 - 15:30	Southbound	30.2	31.1	30.5	30.2	30.7
17:00 - 18:00	Southbound	31.6	30.8	30.5	31.5	31.3
07:00 - 19:00	Southbound	31.6	31.1	30.6	31.4	31.1

Table 4.5: Traffic speed record for week 1 (85-percentile speed in mph)

Time	Direction	Week 2				
		17/09/18	18/09/18	19/09/18	20/09/18	21/09/18
07:45 - 08:45	Northbound	29.9	28.6	29.1	28.7	29.8
14:30 - 15:30	Northbound	31.8	31.6	30.9	29.8	30.3
17:00 - 18:00	Northbound	30.9	31.4	31.0	31.1	30.2
07:00 - 19:00	Northbound	31.0	30.8	30.7	30.3	31.0
07:45 - 08:45	Southbound	29.1	27.9	28.7	28.1	29.6
14:30 - 15:30	Southbound	31.2	30.3	30.0	29.7	30.8
17:00 - 18:00	Southbound	30.9	30.6	30.9	30.6	32.1
07:00 - 19:00	Southbound	31.5	30.9	30.8	30.4	31.6

Table 4.6: Traffic speed record for week 2 (85-percentile speed in mph)

4.46 The speed survey illustrates that the average vehicle speed is generally marginally above the speed limit of 30mph. During the morning peak period, speed was recorded typically below 30mph, which is expected to be associated with an increase in traffic flows. Details on proposed mitigation measures to limit excessive speed on Hospital Bridge Road are outlined in Section 9.0. The full record of vehicle speed in 15-minute intervals is included in Appendix E.

Pedestrian survey

4.47 The surveys conducted also included a record of pedestrian movements along both footways on Hospital Bridge Road and the survey results are summarised in Table 4.7. The pedestrian counts were collected for two weekdays (Tuesday 11 September and Wednesday 12 September 2018) during the peak periods.

Time	Tuesday 11 September 2018				Wednesday 12 September 2018			
	Eastern footway (north on Montrose Av)		Western footway (south of the site access)		Eastern footway (north on Montrose Av)		Western footway (south of the site access)	
	NB	SB	NB	SB	NB	SB	NB	SB
07:45 - 08:00	14	14	0	1	8	11	0	1
08:00 - 08:15	5	11	0	2	3	3	1	1
08:15 - 08:30	9	34	0	2	8	8	5	5
08:30 - 08:45	24	30	7	0	17	17	11	4
Total	**52**	**89**	**7**	**5**	**36**	**39**	**17**	**11**
14:30 - 14:45	7	8	5	9	1	2	0	1
15:45 - 15:00	4	4	7	6	3	5	1	1
15:00 - 15:15	12	14	7	0	8	16	7	0
15:15 - 15:30	20	16	6	6	25	6	1	2
Total	**43**	**42**	**25**	**21**	**37**	**29**	**9**	**4**
17:00 - 17:15	6	5	5	0	1	3	3	4
17:15 - 17:30	4	2	3	3	6	2	4	3
15:30 - 17:45	3	9	3	1	5	4	1	1
17:45 - 18:00	8	2	2	3	8	3	1	2
Total	**21**	**18**	**13**	**7**	**20**	**12**	**9**	**10**

Table 4.7: Pedestrian movements on Hospital Bridge Road

4.48 The survey data shows that the highest pedestrian flow occurs between 08:30 and 08:45 (54 pedestrians), and between 15:15 and 15:30 (36 pedestrians) on the eastern footway. In the morning peak period, the predominant pedestrian flow occurs in the southbound direction and in the afternoon peak period in the northbound direction. This is expected to be associated with the operation of Bishop Perrin Church of England Primary School.

4.49 Pedestrian flows along the western footway on Hospital Bridge Road are low and vary between 15 to no pedestrians per 15-minute interval.

On-street parking capacity survey

4.50 A street inventory and parking beat survey was undertaken on Tuesday 11 September 2018 for the area as presented in Figure 4.1. Parking occupancy was recorded in 15-minute intervals between 07:30 and 10:00, and between 14:00 and 18:00. The parking beat survey was carried out in accordance with the methodology outlined in the TA Scoping Report and agreed with LBRuT.

4.51 Tables 4.8 and 4.9 summarise the existing parking demand and the residual parking capacity during morning and afternoon periods respectively. Parking occupancy was recorded within both:

i. Designated spaces, such as unrestricted kerb space and dedicated parking bays area.

ii. Non–designated spaces such as locations restricted with TROs.

4.52 Total demand generated in the area was assessed against the theoretical parking capacity to present the most robust case.

Time period	Total number of available parking spaces	Total number of cars parked in the area	Total number of residual parking spaces	% Occupancy	% Residual parking capacity
07:30 - 07:45	875	437	438	50%	50%
07:45 - 08:00		436	439	50%	50%
08:00 - 08:15	807	440	367	50%	42%
08:15 - 08:30		449	358	51%	41%
08:30 - 08:45		514	293	64%	36%
08:45 - 09:00		545	262	68%	32%
09:00 - 09:15		473	334	59%	41%
09:15 - 09:30		447	360	55%	45%
09:30 - 09:45		434	373	54%	46%
09:45 - 10:00		430	377	53%	47%

Table 4.8: Total demand and residual parking capacity (morning peak)

Time period	Total number of available parking spaces	Total number of cars parked in the area	Total number of residual parking spaces	% Occupancy	% Residual parking capacity
14:00 - 14:15	807	448	359	56%	44%
14:15 - 14:30		443	364	55%	45%
14:30 - 14:45		444	363	55%	45%
14:45 - 15:00		487	320	60%	40%
15:00 - 15:15		542	265	67%	33%
15:15 - 15:30		632	175	78%	22%
15:30 - 15:45		548	259	68%	32%
15:45 - 16:00		493	314	61%	39%
16:00 - 16:15		473	334	59%	41%
16:15 - 16:30		472	335	58%	42%
16:30 - 16:45		475	332	59%	41%
16:45 - 17:00		472	335	58%	42%
17:00 - 17:15	875	467	340	58%	42%
17:15 - 17:30		471	336	58%	42%
17:30 - 17:45		472	335	58%	42%
17:45 - 18:00		498	309	62%	38%

Table 4.9: Total demand and residual parking capacity (afternoon peak)

4.53 Tables 4.8 and 4.9 indicate that the survey area provides a high number of on-street parking spaces and during the morning and afternoon peak periods, on-street parking occupancy was recorded to be between 50% and 78%. The highest parking demand recorded occurred between 08:45 and 09:00 and between 15:15 and 15:30 with 545 and 632 vehicles parked in the area respectively. This resulted in the area having a minimum of 262 and 175 available parking spaces during the morning and afternoon peak periods respectively.

4.54 The proposed Turing House School would start classes at 08:30 and as such the peak parking demand generated by the school is expected to occur between 08:15 and 08:30. During this period, the residual parking capacity was recorded to have 358 residual parking spaces.

4.55 The proposed Turing House School classes finish at 15:00 and as such the peak parking demand generated by the school is expected to occur between 14:45 and 15:15. During this period, the residual parking capacity was recorded as 320 residual parking spaces.

Traffic flow to and from the Nursery

4.56 Traffic flows to and from the nursery have been recorded and are summarised in Table 4.10 and 4.11 for the morning hours (07:00 – 10:00) and afternoon hours (14:00 – 18:00) on Wednesday 11 July 2018.

Time	Traffic flows to the nursery				Traffic flows from the nursery			
	Cars	LGV	HGV1	HGV2	Cars	LGV	HGV1	HGV2
07:00	2	0	0	0	0	5	0	0
07:15	1	2	0	0	0	2	2	1
07:30	0	2	0	0	0	1	0	0
07:45	2	1	0	0	1	1	0	0
08:00	1	0	0	0	1	2	1	0
08:15	1	1	2	0	0	0	1	0
08:30	1	0	0	0	0	1	1	0
08:45	1	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0
09:15	0	0	0	0	1	0	0	0
09:30	3	0	1	0	0	0	0	0
09:45	1	0	0	1	1	0	1	0
Total	**13**	**6**	**3**	**1**	**4**	**12**	**6**	**1**

Table 4.10: Traffic flow to and from the nursery (July, morning)

Time	Traffic flows to the nursery				Traffic flows from the nursery			
	Cars	LGV	HGV1	HGV2	Cars	LGV	HGV1	HGV2
14:00	2	0	0	0	1	1	0	0
14:15	0	1	0	0	0	0	0	0
14:30	1	0	1	0	1	1	0	0
14:45	2	0	0	0	1	0	0	0
15:00	0	0	0	0	0	0	0	0
15:15	0	0	2	0	0	0	0	0
15:30	0	1	0	0	2	0	1	0
15:45	0	0	0	0	1	1	1	0
16:00	1	0	1	0	1	1	0	0
16:15	0	5	0	0	0	1	0	0
16:30	1	2	0	0	2	2	0	0
16:45	0	1	0	0	3	2	0	0
17:00	0	0	0	0	6	0	0	0
17:15	0	1	0	0	0	0	0	0
17:30	0	1	0	0	2	0	0	0
17:45	0	3	0	0	1	0	0	0
Total	7	15	4	0	21	9	2	0

Table 4.11: Traffic flow to and from the nursery (July, afternoon)

4.57 Tables 4.10 and 4.11 show that the number of vehicle trips to and from the nursery during the morning and afternoon hours is low. During the morning peak period (07:45 – 08:45), the total number of trips made to and from the site was recorded to be 18, including five trips by heavy goods vehicle. In the afternoon peak (14:30 - 15:30) nine vehicle trips were recorded, including three trips by a heavy goods vehicle.

4.58 Traffic flow to and from the nursery was undertaken again in September 2018 and the results are summarised in Table 4.12 and 4.13.

Time	Traffic flows to the nursery				Traffic flows from the nursery			
	Cars	LGV	HGV1	HGV2	Cars	LGV	HGV1	HGV2
07:00	0	4	0	0	0	1	0	1
07:15	2	2	0	0	0	2	0	0
07:30	3	2	0	0	1	1	0	0
07:45	1	1	0	1	0	4	1	0
08:00	0	1	0	0	0	0	1	0
08:15	2	0	0	1	0	1	0	0
08:30	0	0	0	0	0	0	1	1
08:45	1	0	0	0	0	0	0	0
09:00	1	0	1	0	0	0	1	0
09:15	1	1	1	0	0	2	1	0
09:30	1	0	0	0	0	1	0	0
09:45	0	2	0	0	1	0	0	0
Total	**12**	**13**	**2**	**2**	**2**	**12**	**5**	**2**

Table 4.12: Traffic flow to and from the nursery (September, morning)

Time	Traffic flows to the nursery				Traffic flows from the nursery			
	Cars	LGV	HGV1	HGV2	Cars	LGV	HGV1	HGV2
14:00	0	1	1	0	0	0	0	1
14:15	1	2	0	0	3	1	0	0
14:30	1	1	0	0	0	2	0	1
14:45	0	0	1	0	0	0	0	0
15:00	1	0	0	0	0	1	0	0
15:15	1	0	1	0	1	0	0	0
15:30	1	0	1	0	0	1	0	0
15:45	1	1	0	0	1	0	0	0
16:00	1	3	0	0	4	1	0	0
16:15	0	1	0	0	3	1	0	0
16:30	1	4	0	0	2	2	1	0
16:45	0	2	0	0	3	2	0	0
17:00	0	2	0	0	3	1	0	0
17:15	0	2	0	0	1	2	0	0
17:30	0	0	0	0	0	2	0	0
17:45	0	0	0	0	1	1	0	0
Total	**8**	**19**	**4**	**0**	**22**	**17**	**1**	**2**

Table 4.13: Traffic flow to and from the nursery (September, afternoon)

4.59 During the morning peak period (07:45 – 08:45), the total number of trips made to and from the site was recorded to be 16, including six trips by heavy vehicles. In the afternoon peak (14:30 - 15:30) 11 vehicle trips were recorded including three trips by heavy vehicle.

4.60 The survey record shows that the nursery generates 179 vehicles per day (i.e. 07:00-19:00), including 21 heavy vehicles. As such the proportion of heavy vehicles (i.e. HGV 1 and HGV 2) amount to 12% of all traffic movements to and from the nursery during the day (i.e. 12-hours period). This is slightly higher than the proportion of heavy vehicles on Hospital Bridge Road that was recorded to be between 7 and 9%.

Baseline junction capacity assessment

4.61 A baseline traffic capacity assessment for the junction of Hospital Bridge Road, Montrose Avenue and the site access was undertaken for the morning peak (07:45 to 08:45), inter peak (14:30 – 15:30) and the evening peak (17:00 – 18:00) using a PICADY model.

4.62 Summaries of the PICADY results are shown in Table 4.14. The results show that the junction operates within capacity, which is in line with survey records and site visit observations. Values shown are the maximum values over all time segments: Delay is the maximum value of average delay per arriving vehicle; Junction LOS and Junction Delay are demand-weighted averages. The full data output is contained in Appendix K.

Stream		Morning peak (07:45 to 08:45)				Inter peak (14:30 to 15:30)				Evening peak (17:00 to 18:00)			
		Queue (PCUs)	Delay (s)	RFC	LOS	Queue (PCUs)	Delay (s)	RFC	LOS	Queue (PCUs)	Delay (s)	RFC	LOS
2018 Surveyed data													
B-ACD	Montrose Avenue	0.2	10.28	0.17	B	0.2	11.69	0.19	B	0.1	8.54	0.12	A
A-BCD	Hospital Bridge Road (northern arm)	0.0	0.00	0.00	A	0.0	5.69	0.01	A	0.0	4.35	0.01	A
D-ABC	Site access	0.1	15.33	0.04	C	0.1	14.01	0.05	B	0.0	8.63	0.03	A
C-ABD	Hospital Bridge Road (southern arm)	1.0	6.41	0.35	A	0.2	5.01	0.11	A	0.1	5.09	0.04	A

Table 4.14: Junction model output (2020)

4.63 Table 4.14 shows that there are minimal queues along all arms of the junction.

Summary

4.64 The surveys undertaken in the area of the proposed development show the following:

i. Traffic flows on Hospital Bridge Road are moderate, with no discrepancies in recorded data.

ii. The speed survey showed that the 85%tile vehicle speed on Hospital Bridge Road is generally marginally above the speed limit of 30mph.

iii. Traffic flows to and from the nursery are low during the morning and afternoon peak hours and the proportion of heavy goods vehicles amounts to 12% (21 heavy vehicles / 179 total vehicles over a day), which is slightly higher than the proportion recorded on Hospital Bridge Road (7 – 9%).

iv. Pedestrian flows in the area of the site are low to moderate with a short-term increase in footfall associated with the operation of the Bishop Perrin Primary School. The survey data shows that the highest pedestrian flow occurs between 08:30 and 08:45 (54 pedestrians), and between 15:15 and 15:30 (36 pedestrians) on the eastern footway and through the footbridge. The footway capacity assessment has been undertaken (Section 9.0) and shows that capacity exists.

v. Parking beat surveys showed that residual on-street parking capacity exists in the morning and afternoon peak periods.

Summary

4.65 The site is located in a residential area where a high proportion of residential properties have access to off-street parking. On-street parking is predominantly unrestricted and residual parking capacity exists during the school peak periods, with a minimum of 258 and 320 parking spaces being available in the morning and afternoon peak periods respectively.

4.66 The carriageway outside the site is subject to a 30mph speed limit, however, a 20mph zone is in place to the front of the Bishop Perrin Church of England Primary.

4.67 The review of PIA data determined the number of accidents that occurred within the last five years and showed that the majority of accidents occurred due to behavioural issues of road users rather than issues with the existing highway network. Three accidents were identified as school-related, but the further analysis identified that these occurred due to road users' behaviours. One accident occurred on the railway bridge on Hospital Bridge Road due to a vehicle traveling on the wrong side of the and no accidents resulted due to speeding. An accident occurred opposite the proposed site at the junction between Hospital Bridge Road and Montrose Avenue.

4.68 The additional analysis of accidents at Chertsey Roundabout show that the accidents occurred due to behavioral issues (i.e. disobeying signals, not using dedicated pedestrian and cycle facilities), rather than lack or insufficient provision of dedicated facilities for pedestrians and cyclists.

4.69 Traffic flows on Hospital Bridge Road were recorded to be moderate, with 85%tile vehicle speeds generally marginally above the speed limit of 30mph. Traffic flows to and from the nursery were recorded to be low (i.e. 14 and eight vehicles per hour during the morning and afternoon peak periods) and the proportion of heavy vehicles amounted to 12% of all traffic movement during the day.

4.70 The pedestrian count survey data showed that the highest pedestrian flows occur between 08:30 and 08:45, and between 15:15 and 15:30, these peak times on the footway are associated with the operation of the existing schools in the area. These times fall outside of times when students attending the Turing House School will generate additional demand on the surrounding area (i.e. 08:15 - 08:30 and 15:00 – 15:15).

5.0 EXISTING AND PROPOSED SCHOOL OPERATION

5.1 This section of the report provides a description of the existing Turing House School at its temporary sites and the proposed development at its new permanent location.

Existing school

5.2 The school is currently accommodated at two temporary sites located at Turing House (Teddington) on 2 Queens Road, Teddington, TW11 0LR and Turing House (Hampton) in Hanworth Road. The former site is at capacity and cannot accommodate a further uplift in students so the latter site opened in Sept 2018 with the Year 7 cohort

5.3 The current proposal seeks to develop permanent accommodation for Turing House School at Hospital Bridge Road, providing space for a total of 1050 students and 90 FTE members of staff by 2026.

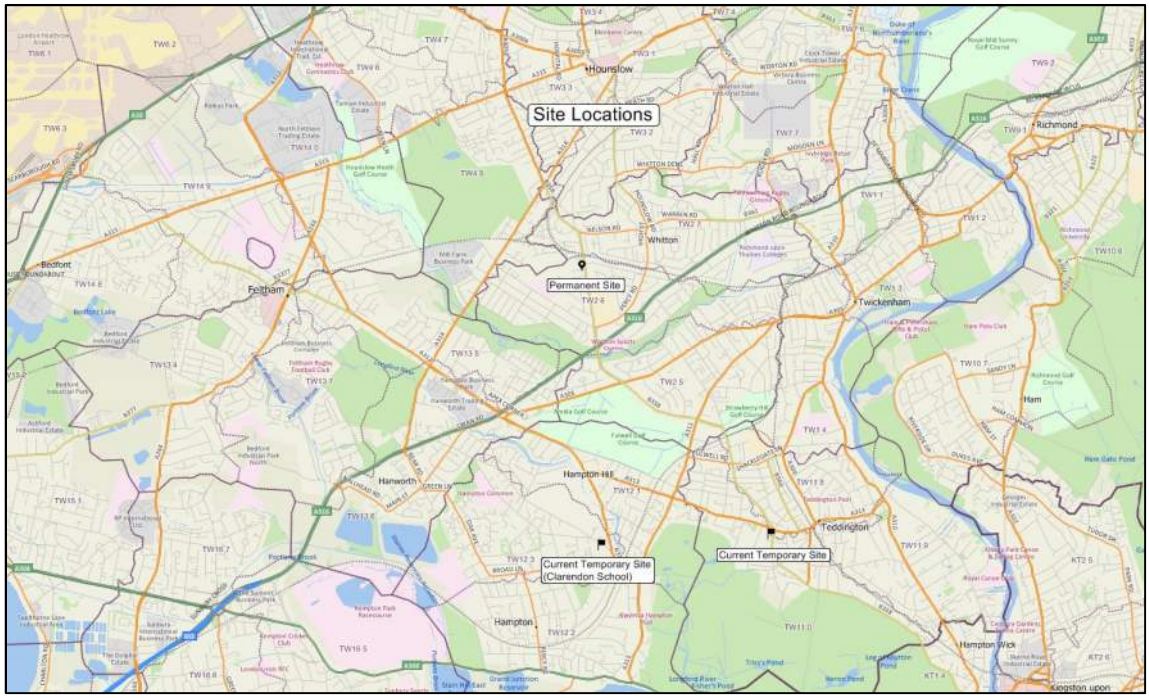

Figure 5.1: Site locations

Student and staff numbers

5.4 The school is proposed to operate from the new permanent site at Hospital Bridge Road from 2020. The school will then increase the student number intake to 150 students per academic year and will open a sixth form. This will result in a gradual increase of the school occupancy, until the school reaches the proposed capacity of 1050 students in 2026. The summary of school occupancy, on a yearly basis, is presented in Table 5.1

Year		Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Total	Staff
2015	Temporary Sites	97							**97**	
2016		128	100						**228**	
2017		100	125	103					**328**	**29**
2018		125	100	125	103				**453**	**45**
2019		125	125	100	125	103			**578**	**60**
2020	Permanent Site	150	125	125	100	125	103		**728**	**75**
2021		150	150	125	125	100	125	103	**878**	**90**
2022		150	150	150	125	125	100	125	**925**	**90**
2023		150	150	150	150	125	125	100	**950**	**90**
2024		150	150	150	150	150	125	125	**1000**	**90**
2025		150	150	150	150	150	150	125	**1025**	**90**
2026		150	150	150	150	150	150	150	**1050**	**90**

Table 5.1: Student numbers

School timetable

5.5 The school operational hours, including details of before and after school clubs/ activities, are outlined in Table 5.2 below. The school has been operating the below timetable since opening and the intention is to continue with an unchanged timetable at the new permanent site. This TA will assess impacts in accordance with this assumption, which is the most robust case scenario.

Session/Group	Number of students	Start	Finish
Site opening	-	07:00	17:00
Staff arrival and departure times		07:00	17:00
Breakfast club	(current 5%, targeted 10%)	08:00	08:25
School day	All students	08:30	15:00
After-school activities	(current 14%, targeted 20%)	15:15	16:15

Table 5.2: School operating times

5.6 The proposed Turing House School is located within a residential area where other schools also operate. These include the following: Bishop Perrin C of E Primary School (150m to the south), Heathfield Nursery and Infant and Junior Schools (400m to the south-west), and Twickenham Academy (650m to the south). The operational timetables for these schools are outlined in Table 5.3 and show that the proposed timetable for Turing House School does not directly overlap with the existing schools in the area and provides sufficient staggered time to avoid cumulative impact. The Turing House School timetable is comparable with the timetable for Twickenham Academy, however these two schools are spaced by 850m (i.e. distance equivalent to 10 minutes' walk).

Session/Group	Start	Finish
Bishop Perrin C. of E. Primary School	08:40	15:15
Heathfield Nursery and Infant School	08:45	11:45
Heathfield Junior School	09:05	15:20
Twickenham Academy	08:30	14:55
Turing House School	08:30	15:00

Table 5.3: Nearby school operating times

School Admissions Policy

5.7 The school has been operating in the temporary accommodation since September 2015 and has an admissions policy which states that all applicants will be admitted if applications are fewer than the Published Admission Number (PAN).

5.8 Where the number of applications for admission is greater than the places available and after the agreed admission of any children with an Education, Health and Care Plan, the following oversubscription criteria will be applied in the order below:

i. Looked-after children or children who were previously looked-after.

ii. Children who have an exceptional medical or social need requiring attendance at a particular school rather than any other school. Such needs must be supported, at the time of application, by reports or letters from suitable professionals such as GPs, consultants or social workers. Circumstances cannot be taken into account unless information is provided at the time of application and failure to provide such information at that stage may therefore affect whether or not the children are allocated places at the preferred schools. All information submitted will be regarded as confidential.

iii. Children whose parents have been granted Founders' Status of the school by the Secretary of State.

iv. Children who have siblings (by which is meant full, step-, half- and adopted siblings living in the same household) at the school at the point of admission.

v. Children (by which is meant full, step-, half- and adopted children living in the same household) of staff directly employed by Turing House school for two years or more before the admission application and still employed, without having given notice or been given notice that the employment will end, at the time the offer is made.

vi. After the admission of children with Special Educational Needs and the application criteria 1-5, the remaining places will be allocated as follows:

a. 20% of student places will be allocated to those applicants whose home address is closest to the planned permanent site of the school. This point is defined as OS GRID Reference TQ 13577 73596.

b. 80% will be allocated to those applicants whose home address is closest to the Admissions Point for the school, TQ 15356 71392 (Somerset Gardens, Teddington).

5.9 The admissions number at the current temporary facilities has been consciously adjusted year on year to work within the size limitations of the buildings. Once the school occupies its permanent premises this constraint is lifted and a constant annual admissions number is anticipated.

Students travel behaviours

5.10 The school undertook a 'hands up' survey in October 2017 and the survey was repeated in March 2018 for monitoring purposes at the temporary school site (i.e. Teddington) surveys recorded 100% response rates. The school has repeated the survey again in September 2018 at both temporary sites (i.e. Teddington and Hampton) and also run a pilot survey and asked students how they would travel to the proposed permanent site once the school is relocated. The results of these surveys are summarised in Table 5.4.

Mode of travel	Mode share (October 2017)	Mode share (March 2018)	Mode share (September 2018)	Pilot survey for permanent site
	Teddington site	Teddington site	Teddington and Hampton sites	Hospital Bridge Road site
Car/ Park and Stride	14.2%	3.8%	11.4%	8.2%
Car Share	0.9%	1.0%	2.6%	0.2%
Rail	4.3%	1.3%	1.9%	1.4%
Public Bus	56.3%	60.5%	55.4%	48.8%
Cycle	9.2%	9.9%	11.2%	20.6%
Scooter	1.2%	0.6%	0.7%	1.2%
Walking	13.9%	22.9%	16.8%	19.6%
Total	**100.0%***	**100.0%**	**100.0%**	**100.0%**

Table 5.4: Student travel behaviours (*Rounding has occurred)

5.11 The mode share data recorded in October 2017 showed that 15.1% of student trips were made by car, including car sharing. The school repeated the survey in March 2018 and the record showed that there is a reduction in the proportion of car trips generated by students. The school has implemented a School Travel Plan (STP) with a set of comprehensive initiatives and measures encouraging non-car travel to the school. This resulted in the school achieving a reduction of car trips from 15.1% to 4.8%. This mode share data was presented at the pre-app meetings with LBRuT and TfL in February 2018 and it was agreed this data will be used for assessment of transport impacts.

5.12 The survey carried out in September 2018 showed an increase in car travel to 14% (i.e. similar to the proportion recorded at the beginning of the previous academic year). This is not unusual, as at the beginning of an academic year, when Year 7 students join the school, the travel by car is typically higher and this is expected to reduce in the upcoming months when students settle in at the new school. The school has a proven record to effectively reduce car travel and it is expected that a similar trend will be achieved in this academic year and when the school is relocated to the permanent site.

5.13 The pilot survey on how students will travel to the permanent site shows that only 8.4% of students will travel by car while the remaining students will travel via sustainable modes of transport. It is also expected that the school will seek to reduce this proportion in the future years of operation at the permanent site as part of the School Travel Plan targets. To ensure that the assessment carried out in this TA is robust, the proportion of car travel for the opening year at the permanent site will be assessed in accordance with survey results recorded in September 2017 (i.e. 15.1% of car trips). The second scenario included in this TA will be the full occupation at the school, i.e. assuming that by this time the school will achieve a reduction of car trips to 4.8%.

Staff travel behaviour

5.14 A travel survey was undertaken of staff in October 2017 and the survey was repeated in March 2018 and then in September 2018 including the further intake of staff at the second temporary site in Hampton. The results of these surveys are presented in Table 5.5.

Mode of travel	Survey October 2017 (%)	Survey March 2018 (%)	Survey October 2018 (%)
Car/Motorcycle	71.4%	28.1%	70.5%
Car Share	0.0%	0.0%	0.0%
Park & Stride	0.0%	6.3%	0.0%
Rail	0.0%	0.0%	0.0%
Public Bus	10.7%	25.0%	9.1%
Cycle	10.7%	6.3%	9.0%
Walking	7.1%	34.4%	11.4%
Total	**99.9%***	**100.0%**	**100.0%**

Table 5.5: Staff travel behaviours (*Rounding has occurred)

5.15 Table 5.5 shows that in accordance with the survey undertaken in October 2017, the majority of staff excluding catering contractor staff travelled by private car (71.4%). The survey that was undertaken in March 2018 which included catering contractor staff showed the proportion of car trips reducing to 34.4%.

5.16 The staff survey was then repeated in September 2018, including new staff employed at the second temporary site and showed that the proportion of car travel amongst staff is 70.5%. This record did not include contractor staff.

Postcode data analysis

5.17 Postcode data for students and staff was provided by the school and included both students and staff that currently attend the temporary location at Turing House (Teddington) and applicants that applied for a school place from the next academic year (2018/2019) to attend at the temporary school site at Hampton

5.18 This postcode data was analysed and a summary of distances that staff and students currently travel are summarised in Table 5.6. The postcode data was also analysed in relation to the proposed permanent site and is summarised in Table 5.7.

		Distance from the school (temporary locations)				
		0 – 1km	**1 – 2km**	**2 – 5km**	**5km+**	**Total**
Students Turing House (Teddington)	Number	42	75	205	4	326
	%	12.9%	23.0%	62.9%	1.2%	100.0%
Students (Hampton site)	Number	24	46	51	0	121
	%	19.8%	38.0%	42.1%	0%	100.0%
Staff Turing House (Teddington)	Number	3	0	14	12	29
	%	10.3%	0.0%	48.3%	41.4%	100.0%

Table 5.6: School postcode data analysis (temporary locations)

		Distance from school (permanent location)				
		0 – 1km	**1 – 2km**	**2 – 5km**	**5km+**	**Total**
Students	Number	69	137	239	2	447
	%	15.4%	30.6%	53.5%	0.5%	100.0%*
Staff	Number	1	2	9	17	29
	%	3.4%	6.9%	31.0%	58.6%	100.0%*

Table 5.7: School postcode data analysis (proposed permanent location) (*Rounding has occurred)

5.19 When comparing the distances that students currently travel to the school (Table 5.6) and distances that students will be required to travel once relocated to the permanent site (Table 5.7), it is evident that the proportion of students living within 1km of the sites (both temporary sites and permanent site) is anticipated to remain comparable.

5.20 It is also noted that the proportion of students living within 1km distance of the existing temporary school (14.8%) is almost half of the proportion of students who currently walk to school (22.9%). This shows that students who currently live outside of 1km distance of the school still walk to school.

5.21 This trend in travel behaviours shows that the school effectively promotes and encourages walking to the school and will continue to do so once the school is re-located to the permanent site.

5.22 It is noted that the existing staff are anticipated to live further away from the proposed site when compared with the temporary sites. However, it is a typical trend for staff to live further away from school sites than students and as such this is not unexpected and is unlikely to have an impact on staff travel modes to the school.

Summary

5.23 Turing House School has been in operation since September 2015 and is currently accommodated at the temporary sites (in Teddington and Hampton). The school has four academic years in place that provide school places for 453 students and employs 45 staff.

5.24 The school has been undertaking regular 'hands up' surveys and the record showed that 15% and 70.5% of students and staff travel by car to the school respectively. The school has a proven record to effectively reduce car travel and achieved a reduction of car travel from 15.1% to 4.8% in the academic year 2017/2018. It is expected that similar trends will be achieved in this academic year and when the school is relocated to the permanent site.

6.0 DEVELOPMENT PROPOSAL

6.1 This section of the report provides a description of the proposed permanent site for the Turing House School.

Proposal overview

6.2 The existing Turing House School is expected to operate from the new permanent site at Hospital Bridge Road from 2020. The school will then increase the student number intake to 150 students per academic year and will open a sixth form. This will result in a gradual increase of the school occupancy, until the school reaches the proposed capacity of 1050 students in 2026. The summary of school occupancy, on a yearly basis, is presented in Table 5.1 in Section 5.0.

6.3 The new school is proposed to be located on land to the west of Hospital Bridge Road and to the north of the existing nursery. The school building is proposed to be located within the eastern part of the site with the car park located to the front of the building. The remaining area of land is proposed to be developed as MUGA and other sport and playing fields for the school use with a further area of land set aside to be designated as public open space.

6.4 The new school is proposed to have two access points. The main access point is proposed form Hospital Bridge Road. This access is proposed to be used by vehicles arriving to both; the school and the existing nursery, pedestrians and cyclists. The secondary access point is proposed from the south of the site via Heathfield Recreation Ground directly from the public footpath. This secondary access will be dedicated to pedestrian and cyclists only. The proposed site plan is presented in Figure 6.1 and in Appendix A.

Figure 6.1: Development proposal

Car parking

6.5 The proposed car park will be located to the front of the school building and will be accessed from Hospital Bridge Road.

6.6 The LBRuT Adopted Local Plan (2018) provides maximum parking standards for school developments and states that, a maximum provision of one space per two staff members should be provided. As the school is anticipated to have a total of 90FTE staff members, a maximum parking provision of 45 parking spaces should be provided for staff.

6.7 It is noted that the Local Plan states that arrangements should be made for disabled and visitors parking spaces as per the London Plan. Thus, 5% of all bays should be provided as disabled bays and a further 5% as enlarged spaces that can be converted to disabled spaces in the future. Additionally, the London Plan makes a recommendation for new developments that 20% of car parking spaces should have access to active charging points and a further 20% should have access to passive charging points.

6.8 During the pre-application meeting with TfL it was suggested that the development should aim to reduce car parking provision below maximum standards. This was also consulted with LBRuT and a similar recommendation was provided. However, following review of travel survey data, it was evident that demand for parking generated by staff is higher than the borough average (i.e. 70.5%) and the school will target to reduce the provision to 50%. In this circumstance, applying maximum standards is a more pragmatic approach as it prevents potential impact on on-street parking in the area, before the planned CPZ commences.

6.9 The development is therefore proposed to offer car parking provision of 45 spaces. These will include three accessible car parking spaces, two enlarged car parking spaces, and 40 general car parking spaces for staff use. In addition, nine car parking spaces will have access to active charging points and a further nine car parking spaces will have access to passive charging points.

6.10 The accessibility of the school car park was tested using Auto Track software and swept path analysis drawings are provided in Appendix F.

Cycle parking

6.11 With regard to cycle parking, there are two policy documents which are relevant to this development: LBRuT Local Plan and The London Plan. The recommendation from both LBRuT and TfL was to comply with London Plan cycle standards as a minimum requirement and seek to increase cycle parking provision above the minimum standard.

6.12 The London Plan requires that a minimum of one cycle space is provided per eight students and staff for long-term cycle parking, whilst a further one space should be provided per 100 students for short-term cycle parking. This would result in a minimum of 156 cycle parking spaces including; 132 cycle parking spaces for students (covered and secured), 12 cycle parking spaces for staff (covered and secured) and 12 cycle parking spaces for visitors (secured).

6.13 To comply with the recommendations from LBRuT and TfL further analysis was undertaken to understand predicted demand for cycling for Turing House School, the current cycle mode at different schools within the borough and the School admissions area to understand the feasible level of cycling that the school can achieve in the future.

6.14 The average proportion of cyclists at other secondary schools within the borough is 16%, while the school with the highest proportion of cyclists recorded 20% of students cycling. The pilot study carried out amongst students at the temporary sites showed that 20.6% of students declare willingness to cycle.

6.15 At the opening of the site, the school will provide 156 cycle spaces, and the utilisation of the cycle spaces will be monitored through the STP. Should demand for cycle parking increase in future years, additional cycle spaces will be provided. The area for future cycle parking provision has been identified within the site and is shown in Figure 6.1.

Delivery and servicing

6.16 The school will have an on-site delivery and servicing area sufficient to accommodate delivery and refuse collection. All vehicles will access the internal circulatory road in a clockwise direction and will be able to facilitate U-turn and leave the site in forward gear.

6.17 The School will review its regular deliveries as part of the preparation to move to the HBR site and ensure deliveries are managed. A DSP will be produced to provide the school with the management strategy and ensure that these activities take place in an effective and safe manner.

6.18 The accessibility of the site by delivery, refuse and emergency vehicles was tested using Auto Track software and swept path analysis drawings are provided in Appendix F.

Drop-off/Pick-up

6.19 On-site drop-off and pick-up for students is not proposed. The school gates will be managed in the morning and afternoon to prevent unauthorised entry to the school grounds by vehicles. The only on-site drop-off envisaged would be for students with mobility impairments. These students would be dropped within the car park. A management regime associated with such access will be developed by the school if required.

6.20 The school will have a facility to accommodate coaches on site that the school may occasionally use for the purpose of school trips. The accessibility of the site by a coach was tested using Auto Track software and swept path analysis drawings are provided in Appendix F.

The main access to the school

Access design

6.21 The main access to the school is proposed from Hospital Bridge Road. The access at this location already exists and provides access to the nursery. The proposed new access point will be provided at the same location and will serve both the school and the nursery.

6.22 The new access is proposed to have a priority junction layout (i.e. T-junction) and it is proposed to be widened to a total width of 14.5m from its current width of 7.2m. This change is required to allow for large vehicles such as refuse vehicles, or coaches to access the school site and at the same time ensure that large vehicles, that arrive at the nursery, can be accommodated. The proposed access design and swept path analysis drawings showing accessibility of the site by expected vehicles, are presented in Appendix G.

6.23 Through the discussion during the public consultation events, and further discussion with the nursery, it was suggested that the current access arrangement does not serve the requirements of the business and some large deliveries are not able to access the site in forward gear. As a result of it reversing manoeuvres from Hospital Bridge Road occasionally occur. Additionally, there is evidence that vehicles that access the site in forward gear, over-run the kerbs and footway due to the constraints of the existing geometry. As such the proposed new geometry of the junction should be seen as an improvement to the existing condition and operation.

Cycle facility at the junction

6.24 The initial concept design for an access was discussed with a Highways Officer at LBRuT. It was recommended that the design should seek to provide separate, or additional facilities for pedestrian and cyclists to facilitate access to the school for non-car users. In response to this, an internal cycle lane was proposed within the site. The cycle lane to the site is proposed to be marked with a coloured surface, whilst the cycle lane from the school is proposed to be marked with advisory white lanes. This arrangement allows for cyclists, the majority of which will be arriving from the south, to join the cycle lane directly from Hospital Bridge Road and cross the internal access road to the nursery within the site using the dedicated crossing facility. Crossing vehicle paths within the site is considered safer than at the junction as it provides better visibility for approaching drivers.

Pedestrian facility at the junction

6.25 The junction design also considered pedestrians in the development of the design and the following is proposed:

i. A new uncontrolled crossing facility in the form of a raised platform (i.e. Copenhagen crossing) across the site access.

ii. A new zebra crossing located to the north of the site access, which will also be designed in the form of a raised platform.

iii. An improvement to the existing drop kerb facilities on Montrose Avenue and converting them to a new uncontrolled crossing facility with raised platform and tactile paving (i.e. Copenhagen crossing).

iv. Provision of a section of new footway on the northern side of the site access to facilitate pedestrian access to the school site and improve connectivity between the site access and the new zebra crossing.

Other measures

6.26 The proposed access design and other facilities aim to ensure that access to the school provides a safe arrangement for all road users including cyclists and pedestrians. To further enhance this, the following additional measures are proposed:

i. 20mph zone, through discussions with LBRuT it was confirmed that this will be implemented regardless of the school proposal, as part of the borough-wide strategy.

ii. Double yellow lines on Hospital Bridge Road and Montrose Avenue in the vicinity of the school, and beyond the bridge over the rail track.

iii. Anti-skid surface on the approach to the proposed zebra crossing on Hospital Bridge Road.

iv. Traffic calming measures on Hospital Bridge Road in the form of the speed table located to the north of the bridge

v. Staff will be present at the site access to try to ensure that students approach the site using formal crossings and footways. This will form part of the CPAMP and is further discussed in Section 10.0.

vi. A Road Safety Audit Stage 1 has been carried out for the proposed design and Report with Designer's responses is included in Appendix H.

vii. Visibility splays at the site access and forward visibility were assessed and are included in the drawing in Appendix G. The assessment of the right and left visibility splays showed that the access meets visibility requirements for both 20mph and 30mph. The forward visibility for vehicles approaching from the bridge is 58m, which exceeds the 43m required for a road with a 30mph speed limit.

Feedback from public consultations

6.27 The proposed access design was presented at the public consultation events and the following concerns were recorded:

i. The proposed location of the zebra crossing is inappropriate due to its proximity to the bridge and whether sufficient visibility can be achieved.

ii. The crossing should be provided to the south of the site access.

iii. The existing site access is used by heavy vehicles that access the site in reverse gear and allocating the school at this location will make the current operation of the junction worse and unsafe.

iv. Access to the school should be considered at a different location such as from Stirling Road or Redfern Avenue or through the cemetery.

v. If access to the school is provided from Hospital Bridge Road, the nursery should be accessed from Stirling Road.

vi. Option to install signal traffic and provide one-way operation across the bridge should be considered. A signal-controlled crossing should be considered, rather than a zebra.

Location of the zebra crossing

6.28 Careful consideration was given to the location of the crossing on Hospital Bridge Road and other locations, and different forms of crossing were also considered.

6.29 The other options for pedestrian access considered were to locate the crossing to the south of the site access and Montrose Avenue. This option would have an implication on the existing bus stop that would have to be removed or relocated and this arrangement would have also resulted in loss of on-street parking spaces on Hospital Bridge Road. Although these constraints could be overcome through design, this arrangement would have an impact on students' path to the school as all students would need to cross the site access to the nursery (which will be in use during the school peak times) before gaining access to the school site.

6.30 Furthermore, students arriving from Montrose Avenue, or from the north via the footbridge would not have crossing facilities on their desire lines to the school. This imposes risks for this small proportion of students that could attempt to cross Hospital Bridge Road at the location where crossing facilities are not available. This could lead to uncontrolled pedestrian crossing of Hospital Bridge Road closer to the apex of the bridge, which was identified as a concern at consultation.

6.31 In contrast, the proposed location for the crossing, i.e. to the north of the site access, would provide a crossing facility for students arriving from different directions and will result in diverting a proportion of students from crossing the site access to the nursery (i.e. those students that depart by the 481 bus and board at the bus stop on Hospital Bridge Road). Therefore, the proposed zebra location is considered to be a safer option to facilitate students' journeys to and from the school.

6.32 A consideration to provide a signal-controlled crossing was also given. However, this option was discounted due to the existing constraints associated with the width of footway on the eastern side of Hospital Bridge Road. Provision of a signal crossing would require students to wait at the footway until they receive a green light. There is a risk that pedestrian demand may accumulate very quickly beyond the capacity of the footway and students may start to step into the carriageway, or attempt to cross on a red light. This form of crossing may also have an impact on pedestrian movement generated by the public along this footway.

6.33 A zebra crossing gives priority to pedestrians above vehicles and will allow students to cross almost instantly when they arrive at the crossing eliminating the risk of pedestrian accumulation on the footway and preventing congestion.

Other access options considered

6.34 During the public consultation events, the design team received numerous questions on whether all possible access options were explored to ensure that the best option is provided. To address these concerns, a discussion note was produced and explored the five different access options that were suggested during the public consultation. This note is included in Appendix I of this report.

Secondary site access to the school

6.35 In addition to the main site access from Hospital Bridge Road, a secondary access for pedestrians and cyclists is proposed. The secondary access is proposed from Heathfield Recreation Ground and will lead into the site via an internal path.

6.36 The initially considered scheme did not include this option. However, as a result of strong feedback received during public consultations, this access has been incorporated into the school design. During the pre-application meeting with LBRuT, concerns associated with this proposal and its impact on MOL were raised. However, on the balance of benefits that this access provides to students such as; better accessibility of the school by buses, cycling and reducing the impact at the main site access, it is considered that these benefits outweigh the minimal impacts on MOL.

6.37 The design of this access and footpath through the site will take into consideration the impact of construction within MOL and the design will seek to reflect the minimum impact through provision of a permeable surface, low level lighting provision and sustainable drainage within the design. A footway design similar to that utilised at Barnes Common (an earlier LBRuT scheme via SWELTRC funding) could be utilised.

Summary

6.38 The proposed site will provide a teaching block, various sports facilities, car parking, cycle parking, servicing area and landscaping. The school will have 45 parking spaces, which will be accessed from Hospital Bridge Road. Cycle parking will be provided in line with the standards sought in the Local Plan (i.e. 156 cycle parking spaces).

6.39 The proposed access arrangements will be shared with the nursery and will maintain its current location and priority operation. Pedestrian and cycle facilities are proposed in the vicinity of the site access to enhance safety and efficient operation for all users. Additionally, a secondary access from the south via Heathfield Recreation Ground is proposed. This will improve the accessibility of the school for students that will use buses on Hanworth Road and enable the spread of demand for pedestrian and cycle trips between two locations and reduce impact on the main site access.

7.0 TRIP GENERATION

7.1 This section presents the outcome of a trip generation exercise undertaken for the proposed school, utilising information collected from existing staff and students at the temporary sites. Travel information on other comparable secondary schools within the borough was also derived for comparable purposes. These were based on two sets of information, i.e.; information available from the Census 2011 and travel information provided by LBRuT extracted from STARS Travel Plans.

Student trip generation

7.2 The school undertook a 'hands up' survey in October 2017 and the survey was repeated in March 2018 and September 2018. The surveys recorded 100% response rates and the results are summarised in Table 5.4 in Section 5.0.

7.3 In addition to monitoring surveys, the school also carried out a pilot survey on how students will travel to the permanent site once the new school is constructed and showed that only 8.4% of students will travel by car while the remaining students will travel via sustainable modes of transport.

7.4 However, to ensure that the assessment carried out in this TA is robust, the proportion of car travel for the opening year at the permanent site will be assessed in accordance with survey results recorded in September 2017 (i.e. 15.1% of car trips) and March 2017 (4.8% of car trips) for full operation of the school. This is based on the assumption that the school will achieve a reduction of car trips in the same manner as the school have achieved at their temporary site. This approach was discussed at the pre-application meetings with LBRuT and TfL and was considered acceptable.

7.5 The predicted trip generation for the permanent site for two scenarios, i.e. opening year in 2020, when the school will operate with 728 students on-site and for full occupation of the school with 1050 students on site in 2026, is presented in Table 7.1.

Mode of travel	Opening Year (2020)		Full occupation (2026)	
	%	Students	%	Students
Car / Park and Stride	14.2%	103	3.8%	40
Car Share	0.9%	7	1.0%	10
Rail	4.3%	31	1.3%	13
Public Bus	56.3%	410	60.5%	635
Cycle	9.2%	67	9.9%	104
Scooter	1.2%	9	0.6%	7
Walking	13.8%	101	22.9%	241
Total	**99.9%***	**728**	**100.0%**	**1050**

Table 7.1: Trip generation for students

7.6 As such, it is expected that the school will have 728 students in 2020 when relocated to the permanent site. Of these 15.1% of students will travel by car, including Car (i.e. single occupancy car), Car Share (i.e. minimum two passengers/students in one car), and Park and Stride (i.e. single occupancy car and students that are dropped-off on-street further away from the site). This will result in 110 person car trips, that amount to 106 car trips generated by students.

7.7 By the time the school achieves full occupation of 1050 students in 2026, car travel is expected to be reduced to 4.8%. The number of students expected to arrive by car is predicted to be 50. This amounts to 45 car trips generated by students.

7.8 Based on the above, it is concluded that in the opening year (2020) the school will have the highest impact on the surrounding area and therefore the parking impact assessment will be undertaken for two scenarios: the opening year 2020 and full operation year 2026 in the following sections of this report.

Student trip generation - alternative methodologies

7.9 It was agreed with TfL and LBRuT that the mode share data at the temporary Teddington site will be used to predict trip generation for the school at the new permanent location. However, it was also agreed that alternative methodologies to derive trip generation will be considered to ensure that the proposed approach is reasonable and provides a robust estimate.

TRICS / TRAVEL

7.10 As agreed at the pre-app meeting with LBRuT, both the TRICS and TRAVEL database were checked for comparable sites. The majority of secondary school sites data available within TRAVEL database is more than 6 years old, whilst the TRICS database provides a limited number of secondary school sites located in London and no sites within LBRuT. As such, data available from TRICS / TRAVEL is considered limited and is not considered relevant to the proposal.

Other secondary schools within the borough

7.11 Five secondary schools located within LBRuT, that operate sixth forms, were selected as comparable to the proposed Turing House School. Mode share data was extracted from Census 2011 and is summarised in Table 7.2.

School	PTAL	Car	Bus	Train	Cycle	Walk
Orleans Park School	4	7.0%	51.1%	0.5%	2.5%	38.7%
Grey Court School	1b	6.9%	54.4%	0.5%	11.1%	26.9%
Teddington Academy	0	4.9%	33.6%	1.4%	11.3%	48.7%
School A *	3	4.5%	47.7%	0.8%	4.4%	42.4%
School B *	2	5.3%	60.5%	0.8%	0.8%	32.4%
Average		**5.7%**	**49.5%**	**0.8%**	**6.0%**	**37.8%**

Table 7.2: Student mode share data (Census 2011)

***Two of the schools wish not to be named and therefore are referenced as a School A and School B thereafter in the report**

7.12 Mode share data for these schools showed that the majority of secondary students travel to the schools by buses and the average proportion accounts to an average of 49.5%. This is followed by walking trips that accounts for 37.8%. The proportion of trips made by car is low and on average accounts for 5.7% of all students.

7.13 More recent mode share data for the existing secondary schools within the borough was provided by LBRuT. This data was extracted form STARTS STPs and is summarised in Table 7.3.

School	Survey date	PTAL	Car	Car share	Bus	Train	Cycle	Walk
Orleans Park School	28/11/2017	4	2.5%	0.4%	21.3%	0.8%	5.7%	69.4%
Grey Court School	19/10/2015	1b	8.4%	2.0%	44.2%	2.5%	10.6%	32.2%
Teddington Academy	17/01/2017	0	2.3%	1.2%	27.2%	1.7%	17.9%	49.7%
School A	08/06/2016	3	7.1%	0.7%	25.9%	2.9%	8.6%	54.8%
School B	29/11/2016	2	7.5%	1.6%	43.4%	5.4%	5.4%	36.5%
Average			5.6%	1.2%	32.4%	2.7%	9.6%	48.5%

Table 7.3: Student mode share data (STARS Travel Plans)

7.14 Mode share data for these schools shows that the proportion of trips made by car (including car sharing) by secondary school students within the borough is low and on average accounts for 6.8% of all students. The majority of secondary students travel to schools by buses or walk.

Sixth Form students travel behaviour

7.15 Following the discussion with the LBRuT, we were advised to undertake a separate estimate for a trip generation for sixth form students. However, the 'hands up' surveys undertaken by the selected secondary schools did not provided a separate record for sixth form students. The only school that has this record is Orleans Park School. A comparison of mode share data generated by secondary and sixth form students at this school is summarised in Table 7.4.

School	Car	Car share	Bus	Train	Cycle	Walk
Secondary students	2.6%	0.0%	37.9%	2.0%	7.8%	49.7%
Sixth form students	2.4%	0.0%	44.7%	3.5%	3.5%	45.9%

Table 7.4: Secondary and sixth form students' mode share data at Orleans Park School

7.16 Table 7.4 shows that secondary school students and sixth form students travel by comparable modes and for both, car travel is comparable low. Based on these findings, it was assumed that sixth form students at Turing House School will travel by the same modes as secondary students.

Overview

7.17 Table 7.5 provides a summary of the trip generation exercise carried out using different sets of information.

School	Car Travel
Turing House School (temporary location) October 2017	15.1%
Turing House School (temporary location) March 2018	4.8%
Turing House School (temporary locations) September 2018	15.0%
Turing House School (permanent location) Pilot survey	8.4%
Census 2011 (Borough Average)	5.7%
LBRuT STPs (Borough Average) *including car sharing	6.8%

Table 7.5: Summary of students' car mode share data

7.18 The results show that the borough average proportion of car trips among secondary school students is 6.8%. The survey carried out at the temporary Turing House (Teddington) school showed that 15.1% of students travel by car. This proportion is considered to be high when compared with other schools within the borough and the ongoing record of travel behaviours at the school already suggests that the school has achieved a reduction of car trips to 4.8%, which is lower than the borough average.

7.19 This is a common trend for new schools as the travel modes and school admissions areas are establishing over initial years. Typically, the catchment areas become more concentrated around the schools and in time a greater proportion of students travel by non-car modes. Walking and cycling modes tend to increase among the upper years at the schools as students gain more confidence to travel independently when compared to students in Years 7 and 8, which furthermore results in a reduction of car trips.

7.20 As such, there is no reason to suggest that Turing House School will not also follow this trend once relocated to the permanent site. For the purposes of the TA, it is assumed that travel behaviour recorded at the temporary site will be followed once the school is relocated to the permanent site and mode share data which reflects the situation recorded in October 2017 (i.e. 15.1% of car trips) is likely to occur at the opening year.

7.21 It is however expected that in the following years, the school will continue to effectively reduce car-travel through the management measures (i.e. STP), as has occurred at the temporary site. Consequently, by the time the school is fully occupied the proportion of car trips will reduce to 4.8% (i.e. in line with the survey data recorded in March 2018).

Staff trip generation

7.22 A travel survey was undertaken of staff in October 2017 and the survey was repeated in March 2018 and September 2018. The results for these surveys are presented in Table 5.5 and data recorded in September 2018 was used to predict trip generation to the permanent site. The number of staff anticipated to be required once the school is at full occupation is 90FTE.

Mode of travel	Survey September 2018 (%)	Future staff (90 FTE)
Car/Motorcycle	70.5%	64
Car Share	0.0%	0
Park & Stride	0.0%	0
Rail	0.0%	0
Public Bus	9.1%	8
Cycle	9.0%	8
Walking	11.4%	10
Total	**100.0%**	**90**

Table 7.6: Staff mode share data

7.23 Table 7.6 shows that in accordance with the survey undertaken in September 2018, the majority of staff travelled by private car (70.5%). Assuming that staff will follow this travel mode once the school is at its proposed capacity, it is anticipated that a total of 64 car trips will be generated by staff.

7.24 It is recognised that staff currently employed at the temporary site may present different travel behaviours once relocated to the permanent site and more staff members are employed. Thus, a Census of Population 2011 database was reviewed to understand travel modes of employees in the area of the proposed school. Travel mode information was extracted for staff working within the area of Whitton and arriving from LBRuT and London Borough of Hounslow (LBH). The mode share data are presented in Table 7.7.

Mode of travel	Survey October 2017 (%)	Future staff (90 FTE)
Car	48.7%	44
Car Passenger	2.7%	2
Rail/LUL	4.4%	4
Public Bus	11.0%	10
Cycle	6.7%	6
Motorcycle	0.8%	1
Walking	24.9%	22
Other	0.8%	1
Total	**100.0%**	**90**

Table 7.7: Staff mode share data (Census 2011)

7.25 The data in Table 7.7 showed that 51.4% of staff that work in the area of the proposed school travel by car, or car share. If these proportions are applied to the proposed staff number, the school will generate demand for 45 car parking spaces, which is in line with the proposed car parking provision. The second most popular travel mode is walking, or public transport. Cycling accounts for 6.7%.

STARS LBRuT

7.26 More recent mode share data for staff at the existing secondary schools within the borough was provided by LBRuT and was extracted from STARS STPs. These are summarised in Table 7.8.

School	Survey date	PTAL	Car	Car share	Bus	Train	Cycle	Walk
Orleans Park School	28/11/2017	4	46.9%	3.1%	12.3%	10.8%	14.6%	12.3%
Grey Court School	19/10/2015	1b	63.0%	6.8%	6.2%	5.5%	15.1%	3.4%
Teddington Academy	17/01/2017	0	42.2%	3.9%	6.5%	13.6%	16.2%	17.5%
School A	08/06/2016	3	49.5%	0.0%	4.9%	11.7%	19.4%	14.6%
School B	29/11/2016	2	49.3%	2.9%	7.2%	13.0%	14.5%	13.0%
Average			**50.2%**	**3.3%**	**7.4%**	**10.9%**	**16.0%**	**12.2%**

Table 7.8: Staff mode share data (STARS Travel Plans)

7.27 The data in Table 7.8 shows that 53.5% of staff that work in secondary schools within LBRuT, travel by car, or car share. The second most popular travel mode is cycling followed by walking.

Summary

7.28 Although the staff survey carried out in September 2018 showed that 70.5% of staff travel by car, the school will be expected to reduce car travel among staff. However, to ensure that the case presented in the TA is robust, the assessment is proposed to be undertaken in accordance with mode share data obtained from STARS STPs at other schools. The predicted trip generation by staff is presented in Table 7.9.

Mode of travel	Survey October 2017 (%)	Future staff (90 FTE)
Car	50.2%	45
Car Passenger	3.3%	3
Rail/LUL	10.9%	10
Public Bus	7.4%	7
Cycle	16.0%	14
Walking	12.2%	11
Total	**100.0%**	**90**

Table 7.9: Staff trip generation

7.29 The school will have 45 car parking spaces on-site and parking on-street will be discouraged, therefore the school will aim to match parking provision with the predicted car trips at the permanent site.

Daily car trip profile

7.30 The arrival and departure profile of car trips generated by the school, at its opening year and full occupation year, are set out in Tables 7.10 and 7.11. The distribution of trips was estimated based on the timetable that the school currently operates at both temporary sites.

Time	Opening Year 2020				Full Operation 2024			
	Students		Staff		Students		Staff	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
06:30 – 06:45	0	0	0	0	0	0	0	0
06:45 – 07:00	0	0	0	0	0	0	0	0
07:00 – 07:15	0	0	45	0	0	0	45	0
07:15 – 07:30	0	0	0	0	0	0	0	0
07:30 – 07:45	0	0	0	0	0	0	0	0
07:45 – 08:00	11	11	0	0	4	4	0	0
08:00 – 08:15	0	0	0	0	0	0	0	0
08:15 – 08:30	95	95	0	0	41	41	0	0
08:30 – 08:45	0	0	0	0	0	0	0	0
08:45 – 09:00	0	0	0	0	0	0	0	0
Total	**106**	**106**	**45**	**0**	**45**	**45**	**45**	**0**

Table 7.10: Car trips to and from the school in the morning peak period

Time	Opening Year 2020				Full Operation 2024			
	Students		Staff		Students		Staff	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
14:30 – 14:45	0	0	0	0	0	0	0	0
14:45 – 15:00	84	42	0	0	36	18	0	0
15:00 – 15:15	0	42	0	0	0	18	0	0
15:15 – 15:30	0	0	0	0	0	0	0	0
15:30 – 15:45	0	0	0	0	0	0	0	0
15:45 – 16:00	0	0	0	0	0	0	0	0
16:00 – 16:15	11	0	0	0	5	0	0	0
16:15 – 16:30	11	22	0	0	5	9	0	0
16:30 – 16:45	0	0	0	0	0	0	0	0
16:45 – 17:00	0	0	0	0	0	0	0	0
17:00 – 17:15	0	0	0	45	0	0	0	45
17:15 – 17:30	0	0	0	0	0	0	0	0
17:30 – 17:45	0	0	0	0	0	0	0	0
17:45 – 18:00	0	0	0	0	0	0	0	0
Total	**106**	**106**	**0**	**44**	**45**	**45**	**0**	**44**

Table 7.11: Car trips to and from the school in the afternoon peak period

7.31 The above tables demonstrate that the proposed school is expected to have the highest traffic impact on the local highway network between 07:30 and 08:30 in the morning peak and between 14:30 and 15:30 in the afternoon peak. A limited traffic and parking impact is expected during the evening peak hour.

Summary

7.32 The predicted trip generation for the proposed Turing House School is based on mode share data collected at the temporary site and two scenarios were derived for opening year and full occupation of the school.

7.33 As such, it is expected that the school will generate 15.1% of car trips by students (728 students) at the opening year (2020) and achieve a reduction of car trips to 4.8% by the time when the school achieves its proposed capacity of 1050 students in 2026. On this basis the school is expected to generate 106 car trips by students at the opening year and 45 car trips at full operation year.

7.34 Trip generation for staff shows that the current car travel modes at the temporary sites are higher than the borough average for car travel to work, or the average for car travel at other schools within the borough. Therefore, the school will be expected to manage and reduce car travel to the school. For the purpose of this assessment, it was assumed that the school staff travel will be comparable to mode share data from other secondary schools within the borough. On this basis, it was calculated that the school is expected to generate 45 car trips to and from the site by staff.

8.0 DISTRIBUTION OF TRIPS

8.1 This section assesses the distribution of trips generated by the proposed development.

Distribution of car trips

8.2 As discussed in previous sections, the school is expected to result in car trips generated by staff and students, and the majority of these are expected to occur in the morning and afternoon school peak periods.

8.3 In the opening year 2020, the school will have 728 students and would generate 106 car trips by students and 45 by staff. In the following years the school will continue to increase the number of students on a phased basis and by 2026 is expected to operate at its proposed capacity of 1050 students. It is also expected that by this time the school will achieve a reduction in car trips and generate 45 student car trips and 45 staff car trips.

8.4 Turing House School has always been and remains, committed to reviewing its admissions policy annually, and so will certainly do so well ahead of our move into a permanent home. That review will be undertaken in close liaison with Richmond Council, in response to previous years' admission patterns and forecast demand for school places locally and so that Turing House continues to serve areas of demand across the Middlesex side of the Borough. Current Staff and student postcode data is provided in Appendix J for reference.

8.5 Whilst the school keep the admission policy criteria under review, any change would be likely to reduce rather than expand the area from which students are drawn and therefore increase potential walk-in trips. This Transport Assessment was produced based on the current admission policy and therefore presents the worst-case scenario. Through discussion with LBRuT, it was agreed that a traffic impact assessment of the road network in the immediate area of the site is not required, with the exception of the proposed site access. A Junction capacity assessment of the proposed access is included in Section 9.0.

8.6 Through initial discussion with TfL it was agreed that more evidence on the level of vehicular impact on the surrounding road network is required to understand the net traffic impact on any specific junction in the area and in particular at the roundabout with Great Chertsey Road. This information was provided and TfL subsequently confirmed that a traffic impact assessment is not required for any TfL managed junctions in the area.

8.7 As such, vehicular trips generated by the school were distributed on the surrounding road network based on the staff/student postcode data received from the school and this information is provided in Appendix J.

Distribution of public transport trips

8.8 As presented in Section 3.0, the site has PTAL of 1b that reflects access to the bus 481 and train service from Whitton Station. However, in a wider area (i.e. within 10- 15 minutes' walk) and just outside the PTAL catchment area, there is access to five different bus routes, such as bus routes running along Hanworth Road, Powder Mill Lane, Percy Road. The accessibility to these bus routes is summarised below:

i. Bus route 481 stops on Hospital Bridge Road Based in close proximity of the site main access (i.e. 3 minutes' walk).

ii. Bus routes H22 and 110 stops on Hospital Bridge Road, just to the south of the junction with Percy Road. These stops are located just outside of the PTAL assessment area i.e. 720m from the site main access (9 minutes' walk) and 560m from the secondary access from the bus stop on Power Mill Lane for route 110.

iii. Bus route 111 stops on Hanworth Road (bus stops C and L), and the distance to the school main entrance is 1190m (i.e. 15 minutes' walk), or 690m from the secondary access (nine minutes' walk).

iv. Bus route H28 stops on Hanworth Road (bus stops A and N) to the north of the junction with Nelson Road and students will walk to the main entrance of the school (i.e. 15 minutes' walk), or 690m from the secondary access (nine minutes' walk).

8.9 Based on the most recent students travel data, 60.5% of students travel by public buses to and from the temporary school sites. It is noted that the temporary site has PTAL 3 and the site is served by six direct bus routes that provide 29-37 buses per hour in both directions.

8.10 The proposed permanent site is located in PTAL 1b but the site is served by five direct bus routes within a reasonable walking distance that provide 33-43 buses per hour in both directions. However, as the bus stops are located further away from the site this results in the site having a lower PTAL. On that basis, it can be concluded that students will have comparable accessibility to public transport services once relocated to the permanent site, however, they will be required to walk longer distances to and from the bus stops.

8.11 In addition to the postcode data analysis included in Section 5.0, an additional analysis was undertaken to understand the proportion of students that could potentially travel by buses once the school is relocated to the permanent site. The results of this analysis were used to assess the impact on the bus routes and estimate the number of additional students that would generate impact on any particular bus route.

8.12 The analysis was undertaken based on the currently available and direct bus services in the area. However, should new bus routes be introduced, or capacity of the existing services be increased it will result in lower impact then presented in this assessment. The case presented should therefore be considered robust.

8.13 The following assumptions were made in the analysis:

i. Postcode data of the existing students attending the temporary site and the prospective students that intend to attend the Hampton School site have been analysed to estimate the usage of individual bus routes that directly serve the proposed school site.

ii. Postcode data for students located within the circa 1km distance from the site was excluded as students from this area will be expected to walk or cycle to the site.

iii. For the purpose of this analysis a 500m radius area (as the crow flies) was used to estimate the bus stops walking catchment area. This is the distance measured in a straight line, which is assumed to be comparable to a bus stop walking distance of 680m that is typically considered in the PTAL assessment.

iv. The bus routes, bus stops and postcode data of the existing students were mapped and where a bus stop serves more than one bus route that provides the same service they were proportionally split across these bus routes according to the frequency of service for each of the routes.

8.14 The analysis allowed us to estimate the proportion of students for whom traveling by buses is a feasible option and also allowed us to estimate of the number of additional students that are expected to travel on a particular route and per direction.

8.15 Whilst the existing mode share data collected by the school indicates that 60.1% of students currently travel by bus, the analysis of postcode data in relation to the permanent site suggests that a comparable proportion of students (61%) will be located within the bus catchment area and could travel by bus to and from the permanent site. Table 8.1 presents the outcome of the analysis, with the percentage split per route applied to the 60.5% of potential bus users.

Bus Route	Direction	Postcodes assigned to bus routes	%	Students impact on bus routes
481	East of site	15	5.5%	35
	South of site	90	32.9%	209
H22	North of site	6	2.2%	14
	East of site	41	15.1%	96
110	East of site	23	8.4%	53
	West of site	0	0.0%	0
111	North of site	0	0.0%	0
	South of site	95	34.8%	221
H28	North-east of site	0	0.0%	0
	North-west of site	3	1.1%	7
Total		273	100.0%	635

Table 8.1: Predicted demand on bus routes

8.16 Table 8.1 shows that the highest number of students will approach the site using bus route 111 and will arrive from the south (34.8%). The route 481 is anticipated to receive the second highest number of students (32.9%), also arriving from the south. Demand for the bus services from the north, east and west of the site is expected to be much lower. Figure 8.1 is a graphical presentation of data summarised in Table 8.1.

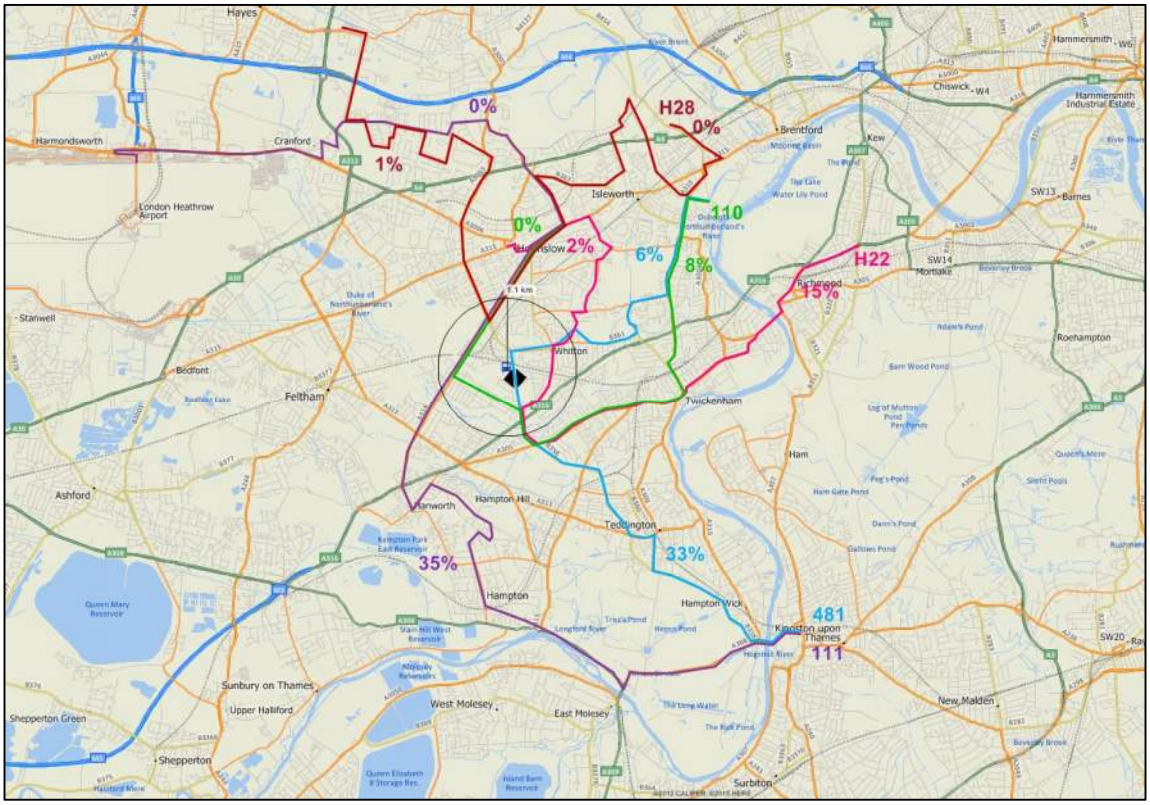

Figure 8.1: Predicted demand on bus routes

8.17 The analysis has determined that bus routes 481, H22 and 110 would be boarded and alighted to the south or east of the proposed site and would not require students to use the footbridge on Hospital Bridge Road.

8.18 The remaining two routes identified, route 111 could board and alight from the bus stops C and L on Hanworth Road and access the school via a footpath through Heathfield Recreation Ground and the secondary access.

8.19 Tables 8.2 and 8.3 present the impact on each bus route and estimate the number of student trips per bus route in each direction for the morning and afternoon peak periods respectively.

Bus route	Route Section	Direction	Morning peak		
			Buses per hour (average)	Proposed Student Trips	Additional Passengers per bus
481	East of site	Towards Cromwell Road Bus Station	2	35	17
	South of site	Towards West London Mental Health Trust	2	209	105
H22	North of site	Towards Manor Road	5	14	3
	East of site	Towards Bell Road / Bell Corner	5	96	19
110	East of site	Towards Hounslow Bus Station	3	53	18
	West of site	Towards West Middlesex Hospital	3	0	0
111	North of site	Towards Heathrow Central Bus Station	6.5	0	0
	South of site	Towards Cromwell Road Bus Station	6.5	221	34
H28	North-east of site	Towards Bulls Bridge Tesco	3	0	0
	North-west of site	Towards Tesco Osterley	3	7	2

Table 8.2: Distribution of bus trips (morning peak)

Bus route	Route Section	Direction	Afternoon peak		
			Buses per hour (average)	Proposed Student Trips	Additional Passengers per bus
481	East of site	Towards Cromwell Road Bus Station	2	209	104
	South of site	Towards West London Mental Health Trust	2	35	18
H22	North of site	Towards Manor Road	5	96	19
	East of site	Towards Bell Road / Bell Corner	5	14	3
110	East of site	Towards Hounslow Bus Station	3	0	0
	West of site	Towards West Middlesex Hospital	3	53	18
111	North of site	Towards Heathrow Central Bus Station	6.5	221	34
	South of site	Towards Cromwell Road Bus Station	6.5	0	0
H28	North-east of site	Towards Bulls Bridge Tesco	3	7	2
	North-west of site	Towards Tesco Osterley	3	0	0

Table 8.3 Distribution of bus trips (afternoon peak)

8.20 As a result of the low frequency on bus route 481, we expect many of the students predicted to use route 481, may also choose use bus route 111 instead, entering the school from the secondary access. However, we have taken these bus loading details to assess the worst-case scenario for pedestrian level impact at the main access.

8.21 These bus loading details were provided to TfL. TfL is expected to complete their assessment of likely bus occupancy impacts and strengthen the required routes as necessary in accordance with the predicted demand. Bus enhancement measures resulting from this assessment are subject to further negotiation between The Department of Education and TfL. and this is expected to be subject to a planning condition/S106 obligation.

Distribution of pedestrian trips

8.22 A pedestrian desire line analysis has been undertaken to estimate the impact on the local footways and crossing facilities in the area of the proposed school.

8.23 As presented in Section 7.0, it is predicted that by the time the school becomes fully operational with 1050 students on-site, the school will be expected to achieve modal shift away from cars to walking and other non-car modes. The proportion of walking trips will be expected to amount to 23.5% of all trips, as currently achieved at the temporary site. Pedestrian desire line analysis was undertaken on these assumptions.

8.24 As such, it is predicted that 121 walking trips will be generated by students in the opening year, and this will increase to 247 walking trips by the time the school will be fully occupied in 2026.

8.25 The analysis of the postcode data has determined that 14.8% of existing students live within 1km of the existing school site and 23.5% of all students walk or use a scooter. This indicates that secondary school students are willing to walk longer distances. Postcode data was analysed and it was estimated that 23.5% of students are located within 1.6km of the site.

8.26 The same analysis was carried out in relation to the permanent site and the analysis was based on the existing home postcode data of students. The analysis showed that 18.1% of students live within 1km of the site and 35.5% of students live within 1.6km of the site. This suggests that once the school is relocated to the permanent site, it should be feasible for the school to achieve the same proportion of walking trips (23.5%) as currently occurs at the temporary site. Figure 8.2 illustrates the area from which the 23.5% of students are expected to arrive to the site and the number of pedestrian trips generated in the vicinity of the site.

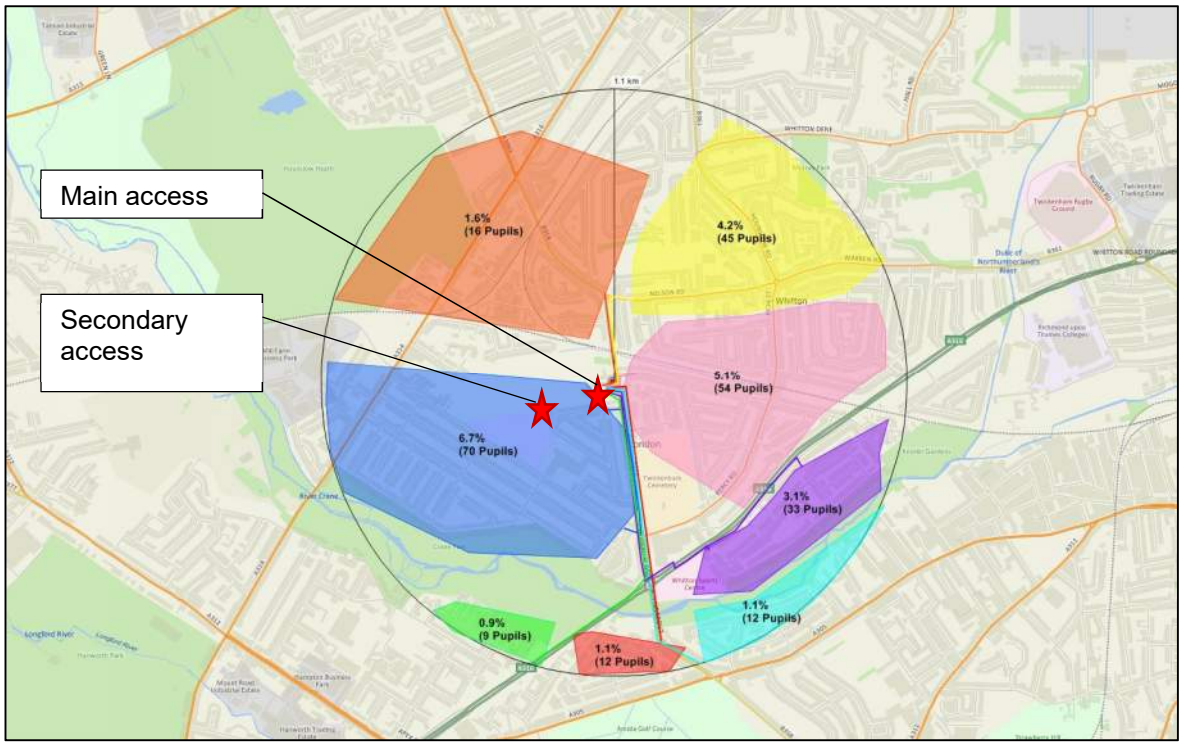

Figure 8.2: Pedestrian demand to the site

8.27 Pedestrian trips were distributed on the existing footway network based on the shortest route to the site. Figure 8.4 shows that it is estimated that a total of 5.8% (61 students) are expected to approach the site from the streets to the north of the site and will require the use of the footbridge on Hospital Bridge Road. The majority of students will be arriving from east and west and some trips from the south.

8.28 A detailed distribution of pedestrian trips on the footway network in the area surrounding the site was undertaken and included both trips generated by students that will walk only to the site and by students that will arrive by buses, train, park and stride and complete the last leg of the journey by foot. The Figure 8.3 shows the results of the analysis for the morning and afternoon peak periods.

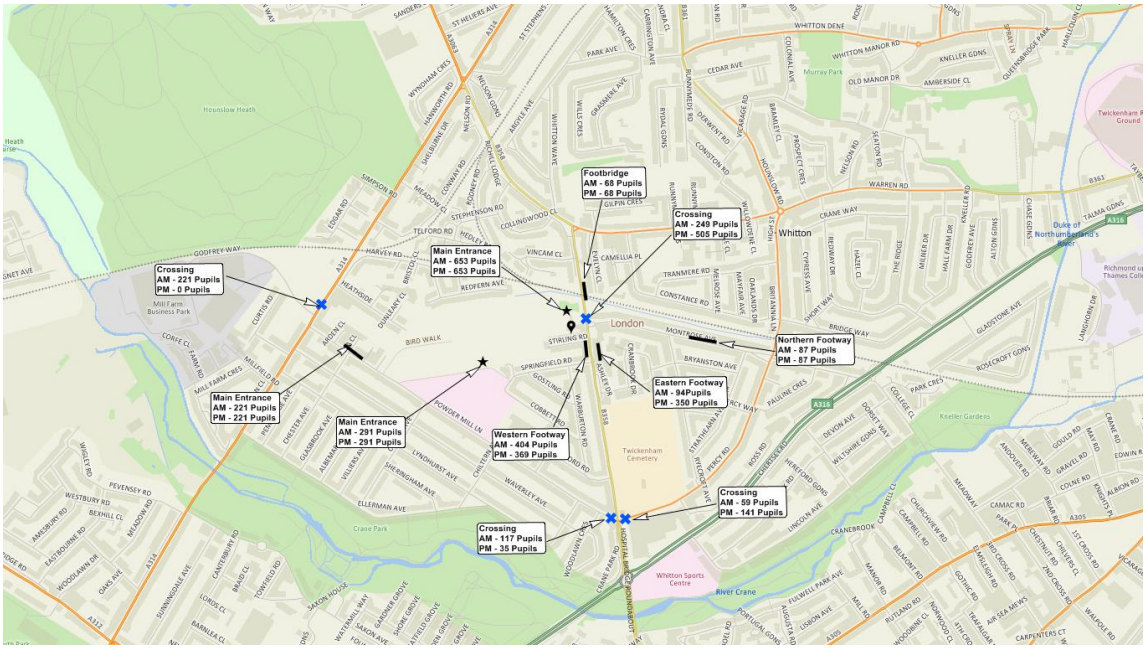

Figure 8.3: Distribution of pedestrian trips

8.29 The results showed the following:

i. 68 pedestrian trips will occur across the footbridge in the morning and afternoon peak periods.

ii. 242 and 505 pedestrian trips will cross Hospital Bridge Road in the morning and afternoon peak periods respectively.

iii. 221 pedestrian trips will occur across Hanworth Road in the morning peak period.

iv. 59 and 141 pedestrian trips will occur across Percy Road in the morning and afternoon peak periods respectively.

v. 291 pedestrians are expected to use the secondary site access in the morning and afternoon peak periods.

8.30 It should be noted that the above figure presents the number of pedestrian movements across the whole period of the morning and afternoon periods and not at any one time. The school will operate breakfast club and after-school clubs and therefore a proportion of these trips will occur outside the school peak periods. As such the above presented case should be considered robust.

Distribution of cycle trips

8.31 It is predicted that 9.9% (104 students) will arrive by bicycle in the morning and afternoon peak periods. The distribution of cycle trips is presented in Figure 8.4 below and shows that students are expected to utilise the existing cycle network in the area of the school.

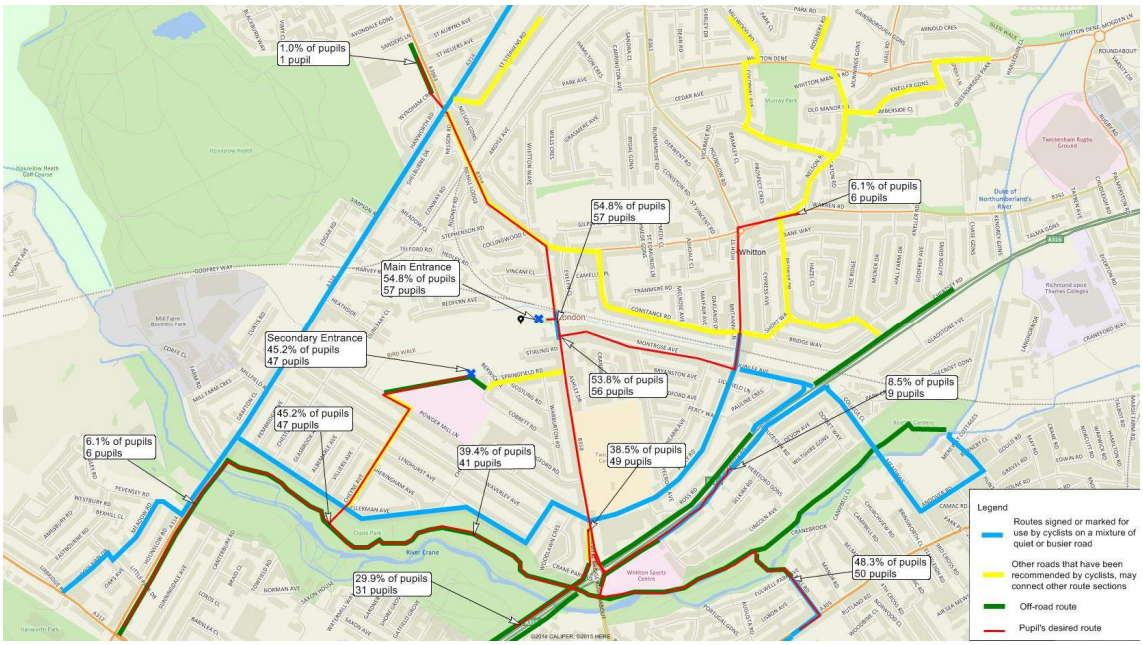

Figure 8.4: Distribution of cycle trips

Pedestrian trips via A316

8.32 It is predicted that 6.2% (66 students) will arrive to the school on foot using pedestrian crossing facilities at Chertsey Roundabout. The distribution of these trips across the existing pedestrian facilities available at the junction is presented in Figure 8.5.

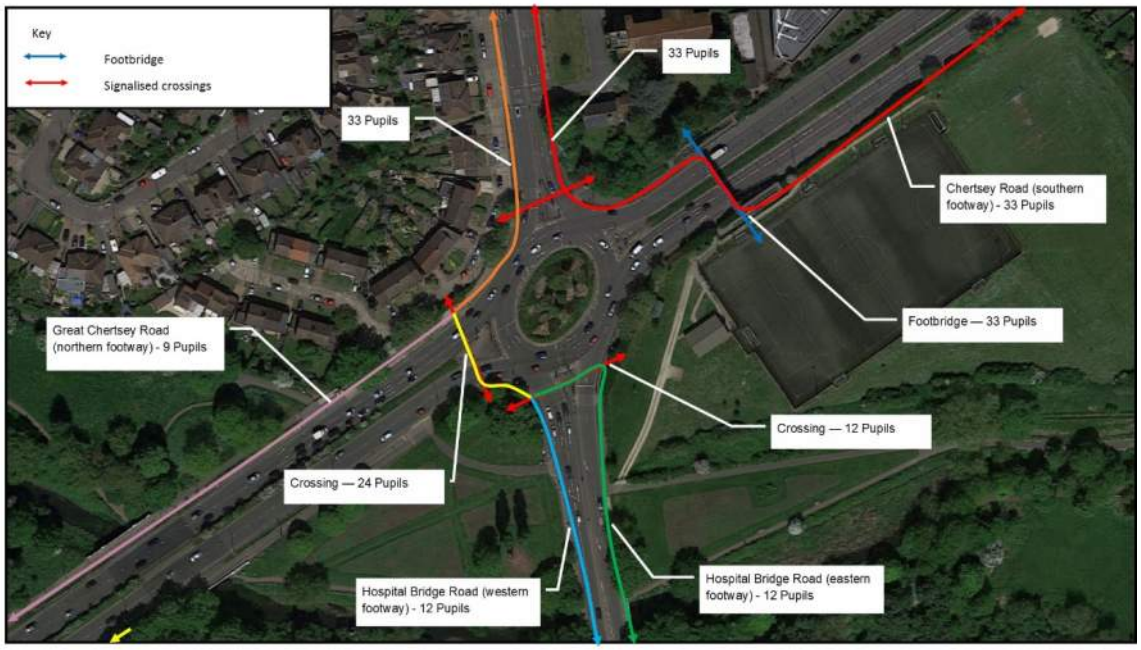

Figure 8.5: Distribution of pedestrian trips

Summary

8.33 A detailed distribution of student trips on the surrounding network was undertaken and the following was identified:

i. 60.5% of students are predicted to travel by buses, and the bus routes that are expected to be used most often are 481 and 111. The bus route 481 currently operates with low frequency and therefore predicted demand on this route is considered high. Bus enhancement measures resulting from this assessment are subject to further negotiation between The Department of Education and TfL.

ii. Up to 95% of students will complete the journey by foot (including pedestrian only trips, bus, train trips, and park and stride trips), and the majority of trips are expected to arrive and depart to and from the south of the site. The number of students that would require to cross Hospital Bridge Road is estimated to be 242 and 505 in the morning and afternoon peak periods respectively.

iii. It is predicted that 6.2% (66 students) will arrive to the school on foot using pedestrian crossing facilities at Chertsey Roundabout.

iv. The predicted level of cycle trips is moderate, however, it is recognised that at some secondary schools in the borough, up to 20% of all students are expected to cycle to the school and therefore there is potential for an increase. In the pilot survey undertaken by the Turing House School on how students will travel to the permanent site, 20.6% responded that they would like to cycle. The existing cycle network in the area of the site is comprehensive and provided on the predicted desire lines of students expected to cycle to the school.

v. The development will generate a low number of car trips that will have a non-material impact on the junctions in the area of the site.

8.34 Based on the results of the trip distribution estimate, a set of transport impact assessments have been undertaken in the following section of this report.

9.0 TRANSPORT IMPACTS ASSESSMENT

9.1 This section of the report discusses the likely impact of the proposed development in relation to impacts on traffic, on-street parking, pedestrians, cyclists, public transport and road safety.

Traffic Impact

9.2 Traffic impact generated by the school on the surrounding road network is discussed in Sections 7.0 and 8.0 of this report and presented in Appendix J.

9.3 The trip generation and distribution showed that traffic impact generated by the school on the surrounding road network is considered non-material. Discussion with LBRuT and TfL confirmed that a traffic impact assessment, using modelling techniques is not required, with the exception of the proposed site access junction.

9.4 To access the capacity of the proposed site access, a PICADY model was produced for the morning, afternoon and evening peak periods. The results of the modelling exercise undertaken for full occupation of the school (i.e. 2026) is presented in Tables 9.1 and full modelling results are included in Appendix K.

Stream		Morning peak (07:45 to 08:45)				Inter peak (14:30 to 15:30)				Evening peak (17:00 to 18:00)			
		Queue (PCUs)	Delay (s)	RFC	LOS	Queue (PCUs)	Delay (s)	RFC	LOS	Queue (PCUs)	Delay (s)	RFC	LOS
2020 Baseline + Development													
B-CD	Montrose Avenue	0.2	7.82	0.17	A	0.2	8.86	0.16	A	0.1	6.95	0.06	A
B-AD	Montrose Avenue	0.2	18.10	0.18	C	0.2	18.63	0.18	C	0.1	12.20	0.08	B
A-BC	Hospital Bridge Road (northern arm)	0.7	2.66	0.26	A	1.1	9.13	0.35	A	0.7	5.42	0.27	A
A-D	Hospital Bridge Road (northern arm)	0.0	0.00	0.00	A	0.0	12.15	0.35	B	0.0	5.40	0.27	A
D-ABC	Site access	0.1	15.24	0.04	C	0.1	14.04	0.05	B	0.2	10.93	0.16	B
C-ABD	Hospital Bridge Road (southern arm)	2.0	9.04	0.54	A	0.8	5.73	0.26	A	0.1	5.14	0.04	A
2026 Baseline													
B-CD	Montrose Avenue	0.1	7.62	0.08	A	0.1	8.93	0.08	A	0.1	7.10	0.06	A
B-AD	Montrose Avenue	0.2	15.37	0.13	C	0.2	16.82	0.16	C	0.1	12.56	0.08	B
A-BC	Hospital Bridge Road (northern arm)	0.7	2.70	0.27	A	1.2	9.41	0.37	A	0.8	5.63	0.30	A
A-D	Hospital Bridge Road (northern arm)	0.0	0.00	0.00	A	0.0	12.52	0.37	B	0.0	5.62	0.30	A
D-ABC	Site access	0.1	14.65	0.04	B	0.1	13.84	0.04	B	0.0	8.15	0.03	A
C-ABD	Hospital Bridge Road (southern arm)	1.3	6.86	0.40	A	0.3	4.99	0.13	A	0.1	5.19	0.07	A
2026 Baseline + Development													
B-CD	Montrose Avenue	0.1	7.67	0.12	A	0.1	9.02	0.12	A	0.1	7.11	0.06	A
B-AD	Montrose Avenue	0.2	17.10	0.16	C	0.2	18.32	0.18	C	0.1	12.84	0.08	B

A-BC	Hospital Bridge Road (northern arm)	0.9	3.32	0.31	A	2.0	15.41	0.50	C	0.9	5.68	0.30	A
A-D	Hospital Bridge Road (northern arm)	0.0	0.00	0.00	A	0.0	20.40	0.50	C	0.0	5.67	0.30	A
D-ABC	Site access	0.1	15.15	0.04	C	0.1	14.35	0.05	B	0.2	11.37	0.16	B
C-ABD	Hospital Bridge Road (southern arm)	1.7	7.84	0.48	A	0.6	5.20	0.20	A	0.1	5.19	0.07	A

Table 9.1: Junction model output (2026)

9.5 The modelling results showed that the proposed junction can operate within capacity with the proposed development in place in the future with minimal queues and delays.

Parking impact

9.6 The proposed school will not have an on-site drop-off facility and the majority of students will be expected to travel by non-car modes. A small proportion of car trips made by parents / students (i.e. 15.1% at the opening year and 4.8% at full operation) will be expected to be accommodated on-street.

9.7 The parking beat survey results presented in Section 4.0 indicate that the local area does provide ample parking availability along residential roads, mainly due to the absence of parking restrictions, or a controlled parking zone affecting drop-off and pick-up.

9.8 Through the discussions with LBRuT it was confirmed that implementation of a CPZ is now considered for the area as part of the borough-wide strategy. However, any planned CPZ should give consideration to the existing and proposed schools in the area and impact that this may have on students drop off, should it come into effect. We would reasonably expect any CPZ in this location to focus on restricting commuter parking and any other long-stay parking, rather than school drop-off.

9.9 The parking impact assessment was undertaken for two scenarios; opening year, which is the worst-case scenario, and the full occupation of the school, utilising the predicted arrival and departure profile derived in Section 7.0 of this report. Demand for parking generated by staff is expected to be accommodated within the school car park. A Parking impact assessment is presented in Tables 9.2 and 9.3 for the morning and afternoon peak periods respectively.

Time period	Total number of available parking spaces	Total number of cars parked in the area	Additional demand from school	Total future demand	Residual parking capacity	% Residual parking capacity
07:30 - 07:44	875	437	0	437	438	50%
07:45 - 07:59		436	0	436	439	50%
08:00 - 08:14	807	440	11	451	356	44%
08:15 - 08:29		449	45	494	313	39%
08:30 - 08:44		514	45	559	248	36%
08:45 - 08:59		545	5	550	257	32%
09:00 - 09:14		473	0	473	334	41%
09:15 - 09:29		447	0	447	360	45%
09:30 - 09:44		434	0	434	373	46%
09:45 - 10:00		430	377	430	377	47%

Table 9.2: Parking impact assessment (morning peak period)

Time period	Total number of available parking spaces	Total number of cars parked in the area	Additional demand from school	Total future demand	Total number of residual parking spaces	% Residual parking capacity
14:00 - 14:14	807	448	0	448	359	44%
14:15 - 14:29		443	0	443	364	45%
14:30 - 14:44		444	0	444	363	45%
14:45 - 14:59		487	0	487	320	40%
15:00 - 15:14		542	90	632	175	22%
15:15 - 15:29		632	5	637	170	22%
15:30 - 15:44		548	0	548	259	21%
15:45 - 15:59		493	0	493	314	39%
16:00 - 16:14		473	0	473	334	41%
16:15 - 16:29		472	21	493	311	39%
16:30 - 16:44		475	0	475	332	41%
16:45 - 16:59		472	0	472	335	42%
17:00 - 17:14	875	467	0	467	340	42%
17:15 - 17:29		471	0	471	336	42%
17:30 - 17:44		472	0	472	335	42%
17:45 - 18:00		498	0	498	309	38%

Table 9.3: Parking impact assessment (afternoon peak period)

9.10 Table 9.2 indicates that the parking demand generated by the proposed development can be accommodated within the study area. During morning and afternoon, there is predicted to be a significant level of residual parking capacity, leaving residual capacity of 248 and 175 respectively.

9.11 Table 9.2 shows that the study area could accommodate the uplift in all vehicular demand to be generated by the school with ample residual capacity available. By the time the school achieves the full occupation, the proportion of car trips is expected to reduce to 4.8% and impact on on-street parking will be lower than presented in this scenario.

9.12 As identified at Para 9.8, we would reasonably expect any future CPZ in this location to focus on restricting commuter parking and long-stay parking by employees in the area, rather than the operation of the schools' drop-off and collection activities (both the existing schools and the proposed Turing House School). It is expected that implementation of the CPZ in the area would also help reduce the attractiveness of car trips.

Public transport impact

9.13 Section 6.0 identified that 60.5% of students are anticipated to travel to/from the proposed school by bus. It is noted that this assessment has only taken into consideration bus routes which directly serve the site and has not accounted for students taking more than one bus to reach their destination, which may also occur.

9.14 The numerical impact has been presented in Section 6.0 and showed that 635 additional passengers may use public buses.

9.15 Correspondence with TfL has taken place regarding impact on buses and detailed trip generation, including year by year increases in trips, was provided to TfL. Bus enhancement measures resulting from this assessment are subject to further negotiation between The Department of Education and TfL.

9.16 Section 6.0 identified that 20% of the students are anticipated to attend after-school clubs. Therefore, out of the worst case 209 students travelling by bus route 481 located to the east of the site, a total of 167 students are anticipated to wait at the bus stop during the later afternoon hours.

9.17 It is understood that currently the waiting facility on the bus stop cannot accommodate the additional 167 passengers. However, funding has been set aside for TfL to make improvements to the 481-bus service and other routes as appropriate. By increasing the number of bus services during the school peak periods, it would consequently reduce the number of passengers waiting at the bus stop as students start to leave the school.

Pedestrian Impact

Pedestrian Comfort Level (PCL)

9.18 A PCL assessment was undertaken to assess the comfort levels of the existing footways on Hospital Bridge Road to assess whether the additional demand generated by the school can be accommodated within the existing footway capacity.

9.19 The PCL assessment was undertaken in accordance with the guidance provided in TfL's 'Pedestrian Comfort Guidance for London'. The pedestrian comfort level was assessed for the existing pedestrian demand and with the future pedestrian demand generated by the school.

9.20 Three survey locations were chosen, as shown in Figure 9.1 and as agreed upon with TfL and LBRuT, where the highest pedestrian footfall is anticipated to be generated by the school.

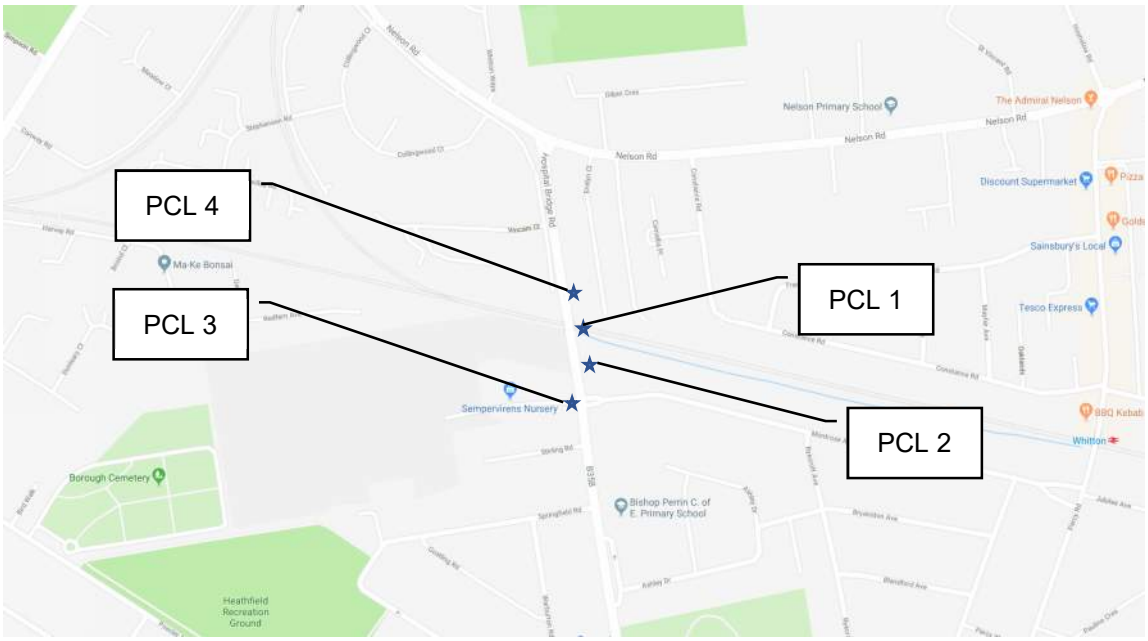

Figure 9.1: PCL survey locations

9.21 The assessment is scored on the effective width of the footway and the number of pedestrians per minute. The number of pedestrians per metre per minute is given a score between A+ (pedestrian environment is very comfortable, providing unrestricted movement) to E ((pedestrian environment is very uncomfortable, pedestrian movement is 100% restricted).

9.22 The result for the morning (07:45 – 08:45) and afternoon (14:30 – 15:30) peak periods is shown in Table 9.4 and 9.5 respectively.

Survey location	Footway width	Effective width	Existing pedestrian flow	Existing PCL (ppmm) / score	Development flow	Future flow	Future PCL (ppmm) / score
PCL 1	1.8	1.4	75	0.9 / A+	61	136	1.6 / A+
PCL 2	2.2	1.8	75	0.7 / A+	224	299	2.8 / A+
PCL 3	1	0.8	28	0.6 / A+	364	392	8.2 / A-
PCL 4	1	0.6	75	1.6 / A+	61	136	3.8 / A

Table 9.4: PCL score (morning peak)

Survey location	Footway width	Effective width	Existing pedestrian flow	Existing PCL (ppmm) / score	Development flow	Future flow	Future PCL (ppmm) / score
PCL 1	1.8	1.4	66	0.8 / A+	54	120	1.4 / A+
PCL 2	2.2	1.8	66	0.6 / A+	404	470	4.4 / A
PCL 3	1	0.8	13	0.3 / A+	295	308	6.4 / A-
PCL 4	1	0.6	66	0.8 / A+	54	120	3.3 / A

Table 9.5: PCL score (afternoon peak)

9.23 Table 9.4 and 9.5 shows that the existing conditions of all three survey locations achieved the highest score, indicating that pedestrians are able to walk comfortably with minimal restriction on the existing footways.

9.24 The future pedestrian movement associated with the school has been added on the existing pedestrian demand. PCL 1, 2 and 4 are able to accommodate the additional pedestrian demand comfortably with minimal restricted movement. The biggest drop in comfort level will occur at PCL 3, going from A+ to A-, still providing plenty of space for pedestrian to walk on comfortably. This is expected as the vast majority of students are anticipated to travel through PLC 3.

9.25 The above presented assessment considers that a proportion of students will arrive to the school via the secondary access.

Healthy Street Assessment

9.26 A 'Healthy Streets' assessment has been undertaken as part of this Transport Assessment to support the planning application. This assessment was requested by TfL during the pre-application process. The assessment is provided in Appendix L of this report.

Cycle Level of Service

9.27 A Cycle Level of Service has been undertaken as part of this Transport Assessment to support the planning application. This assessment was requested by TfL during the pre-application process. The assessment is provided in Appendix M of this report.

Summary

9.28 The transport impact assessment shows that the proposed school will generate low traffic impact and car trips generated by the school will be spread across different time periods (i.e. staff arrive earlier, breakfast clubs, after-school activities).

9.29 The parking impact assessment shows that additional demand for on-street parking can be accommodated without adverse impact on the local area.

9.30 A Pedestrian comfort level assessment was undertaken in three locations where the highest pedestrian footfall is anticipated to be generated by the school. The assessment shows that even with the additional pedestrian trips made, the footways are within the minimum comfort level with minimal restricted movements.

9.31 Additional pedestrian trips generated by students can be accommodated within the residual capacity. Regardless of that, the school is proposed with improvements to the existing facilities to enhance safety and better connectivity.

10.0 OUTLINE MITIGATION STRATEGY

10.1 This section summarises the key issues and impacts that were identified in this assessment and through the consultation process, and that informed the mitigation strategy for The Turing House School. The descriptions of the proposed measures are described in this section of the report.

Key transport issues

10.2 Based on the TA, the mitigation strategy proposed for the development should seek to address the following:

i. Seek to minimise the proportion of staff and students' trips by car.

ii. The operation and safety of all users at the site access and on the wider network.

iii. The impact associated with additional trips generated by the school on public transport

iv. The impact associated with additional trips generated by the school on the footway network.

Mitigation strategy

Staggering start and finish times

10.3 The timetable for The Turing House School ensures that sufficient staggering time with the existing Primary and Junior schools in the area to ensure that no cumulative impact occurs.

Breakfast club and after school club activities

10.4 The school will operate breakfast club, after-school clubs and activities. It is estimated that 10% of students will attend the breakfast clubs and 20% will attend after-school activities. This measure will reduce the number of trips occurring during the school peak periods and spread the demand for travel across the longer periods.

School Travel Plan

10.5 A STP has been produced for Turing House School that sets out a range of measures to help minimise the demand for car travel, impact on parking and promote safe travel behaviour. The objectives of this STP are as follows:

i. Make sure that the whole school community is aware of the STP and the objectives of the STP.

ii. To influence the travel behaviour of students and staff away from car modes and encourage walking, cycling and the use of public transport for journeys to and from the school.

iii. To raise awareness of the impact of car travel on the environment, road safety conditions and local residents' amenity.

iv. To monitor travel behaviour on an on-going basis.

v. Educate students on road safety and greener methods of travel.

vi. Educate both the students and staff on benefits and range of travel options available to them.

vii. Work with LBRuT to support borough-wide objectives on sustainable travel.

10.6 The STP has targets that aim to reduce car trips by staff and students. The school will seek to reduce car use amongst students from 15.1% to 4.8%, while increasing cycling, walking and car share before the school is at capacity in 2026. The targets for staff have been set to achieve a net decrease of car trips from 70.5% to 50% i.e. by 20.5%, whilst increasing car sharing and cycling before the school will have all staff on site (i.e. 2022).

10.7 To meet the above targets the STP will have a combination of 'hard measures' such as access design, secondary access, demand and management measures outlined above and 'soft measures' such as the following:

i. Raise awareness among staff, students and parents about the need to reduce car travel through distributing leaflets, advertise information on school boards, undertaking communication at open days, parents' evenings and staff meetings.

ii. Raise awareness among staff about the limited on-site car parking provision and importance of accommodating parking demand on-site.

iii. Provide bus/cycle/walking route maps and timetables to students/ parents/ guardians/ staff at open days and as part of a welcome pack.

iv. Discuss the need to minimise car travel with parents at parents evening meetings.

v. Provide independent travel training for students (where appropriate).

vi. To encourage car sharing amongst staff.

vii. Prepare and display information on local walking routes.

viii. Raise awareness among staff and students about cycling via provision of cycle skills training, welcome packs with local cycle route maps, promotion of national or local cycle events (such as Bike Week), bike maintenance sessions and bike security marketing events.

Access design

10.8 The design of the proposed main site access to the school is described in Section 6.0 of this report and the proposed layout is shown in Appendix G. The access is designed to provide sufficient facility for all users accounting for cyclists and pedestrians. Staff will be on duty when students are arriving and leaving the site.

New crossing facilities

10.9 The proposed development will provide enhancements to improve the existing pedestrian facilities and accessibility of the site for pedestrians. These include the following:

i. A new zebra crossing, in the form of a raised table, is to be provided across Hospital Bridge Road and is proposed to be located to the north of the site access. The zebra crossing will have tactile paving, anti-skidding surface on the approach and zig-zag markings.

ii. A new uncontrolled crossing facility in the form of a raised platform (i.e. Copenhagen crossing) across the site access.

iii. The existing drop kerb facility on Montrose Avenue is proposed to be improved and a new uncontrolled crossing facility with raised tables and tactile paving (i.e. Copenhagen crossing) is proposed.

iv. Provision of a section of new footway on the northern side of the site access to facilitate pedestrian access to the school site and improve connectivity between the site access and the new zebra crossing.

TROs

10.10 Implementation of TROs on Hospital Bridge Road and Montrose Avenue in the vicinity of the site are proposed to prevent on-street parking, that could obstruct visibility and lead to safety concerns. To address a recommendation from RSA Stage 1, it is proposed to extend the Double yellow lines on Hospital Bridge Road beyond the bridge over the rail track.

Secondary site access

10.11 In addition to the main site access from Hospital Bridge Road, a secondary access for pedestrians and cyclists is proposed from the south. The secondary access is proposed from Heathfield Recreation Ground and will lead into the site via an internal path. The design of the proposed secondary site access to the school is described in Section 6.0 of this report and its location is shown on the site plan in Appendix A.

10.12 The proposed secondary access is expected to provide better accessibility for students that walk and cycle and allow access to the school site directly from the public footpath. This secondary access also provides better accessibility for students that will travel by buses and in particular for students that use buses that stop on Hanworth Road. The analysis showed that circa 30% of students will use the secondary access and reduce demand at the main site access.

10.13 The internal path that will lead from the gate to the school building will need to take into consideration impact on MOL and the design will seek to minimise the impact through provision of permeable surface, low level lighting provision and sustainable drainage.

Access Management measures

10.14 The school access will be used by both the nursery and the school. The survey at the site access to the nursery was undertaken to understand the level of traffic and the proportion of heavy vehicles. The results showed that the nursery receive a low number of trips (179 vehicles per day) of which 12% comprise heavy vehicles.

10.15 Nevertheless, it is recognised that the heavy vehicles may occasionally arrive during the school peak periods. It is the responsibility of the nursery to ensure its drivers access / egress the site safely and effectively, however as noted above the School will have staff on duty to encourage students to use appropriate crossings etc. During the morning and afternoon school peak periods, it is envisaged staff will be on duty at the site access and will endeavour to:

i. Ensure that parents do not attempt to access the school.

ii. Ensure that students use designated cycle lanes, crossings, footways on the approach to the site

iii. Ensure that students maintain appropriate highway road behaviour.

10.16 The detail of staff supervision responsibilities is included in the CPAMP submitted as part of this planning application.

Car park for staff

10.17 The proposed school will have 45 car parking spaces, three of which will be accessible spaces and nine spaces will have access to electric charging points. Also, two mini-bus parking spaces will be provided on-site, along with a coach set down area.

10.18 The provision of parking spaces within the school site was carefully considered and discussed with LBRuT and TfL. It was agreed that provision of parking spaces should not be greater than the maximum standards, and ideally reduce below maximum parking standards. As provision of greater parking provision imposes risks of greater car travel by staff and traffic impact in the surrounding area.

10.19 The proposed parking provision is considered to address the need for parking generated by staff and will be supported by the management strategy within CPAMP.

10.20 The impact associated with staff travel by car will be mitigated though the management measures included in the STP rather than provision of parking spaces in accordance with the predicted demand. To manage that, the Senior Leadership Team will consider assigning some of the parking bays as car share priority spaces. To do so, some of the parking spaces within the site will be identified and promoted as being spaces for staff members who travel together only. Staff that arrive from the furthest locations will have priority to park on-site and all staff, that will be arriving by car, will be asked to arrive earlier (i.e. prior to the school peak period).

Cycle Parking

10.21 The school will have 156 cycle parking spaces on-site. This provision is in line with London Plan requirements and is sufficient to accommodate the predicted demand. Should the proportion of cyclists increase in future years, the provision of cycle spaces will be increased accordingly and an area to accommodate more cycle parking has been identified within the site. The utilisation of cycle spaces will be monitored in The Travel Plan.

Delivery and Servicing Plan

10.22 The school will have a Delivery and Servicing Plan (DSP), that is submitted as part of the planning application and the document will provide the school with a management and monitoring strategy in place to ensure that the school operates in a safe and efficient manner.

Car Park and Access Management Plan

10.23 A Car Park and Access Management Plan (CPAMP) will be prepared to provide the school with the strategy to manage the site access during the school peak periods, to prevent unauthorised vehicle entry to the school site, and to discourage drop-off and collection on Hospital Bridge Road. The document will also provide management measures for the school car park on-site.

Community Use

10.24 The school intends to become an integral part of the local community. As well as providing secondary education to local families, some areas of the school and the sporting facilities will be open to the community in the evenings and weekends.

10.25 It is anticipated that those facilities open to the community will be accessible from 17.00o 22.00ring terms time from Monday to Friday and 09.00 to 18.00 Saturday and 09.00 -13.00 Sunday and in the holiday periods from 09.00 to 22.00 Monday to Friday and as for term time at weekends.

10.26 The areas that will be open include the sports hall, sports pitches, school hall and other meeting rooms. These areas are accessed independently from the main entrance of the school building and from the main entrance of the sport hall building.

10.27 As the facilities are intended to be used by the local community, it will be feasible for users to walk or cycle to/ from the site.

10.28 In the event that access by vehicle, including mini-bus or coach is required, users will have access to on-site parking facilities.

10.29 When requests for lettings and bookings are received, access and parking requirements will be discussed. The school will provide information on use of sustainable modes to discourage use of the car, as set out in the school travel plan.

Summary

10.30 With the proposed mitigation strategy in place it is concluded that the impact of the proposed development on the road network and road safety conditions can be addressed.

11.0 SUMMARY AND CONCLUSIONS

11.1 The main conclusions of this report are as follows:

i. The proposed Turing House School is a 5FE secondary school and Sixth Form with a capacity for up to 1,050 places for secondary students aged 11-18. The school will have 90 full-time equivalent (FTE) staff members at its full occupation.

ii. Turing House School was opened in temporary accommodation in Teddington in 2015 and has now grown to have three-year groups, with a total of 325 student places. A second temporary site, located on Haworth Road Hampton, was opened in September 2018 to accommodate further uplift in student places. The second temporary site has permission to provide 250 student places and operate for two academic years.

iii. The permanent site for the school is proposed to be located at Hospital Bridge Road, next to Sempervirens Nursery. The proposed site will provide a teaching block, various sports facilities, car parking, cycle parking, servicing area, coach set-down area, minibus parking and landscaping. The school will have 45 parking spaces for staff and 156 cycle parking spaces for staff, students and visitors.

iv. The proposed main access arrangement for the school will take the form of a shared access with the nursery and will maintain its current location and priority operation. Pedestrian and cycle facilities are proposed in the vicinity of the site access to enhance safety and efficient operation for all users. Additionally, a secondary Pedestrian and cycle access from the south via Heathfield Recreation Ground is proposed. This will improve the accessibility of the school for students that will use buses on Hanworth Road and enable the spread of demand for pedestrian and cycle trips between two locations and reduce impact on the main site access.

v. The wider area surrounding the site has a comprehensive network of footways, however, in the immediate area of the site has some constraints such as: the footway located on one side of Hospital Bridge Road and restricted width of the footway on Hospital Bridge Road to the north of the footbridge. This is not considered to be a constraint as the school admissions area is concentrated to the south of the site and only a small number of students are expected to arrive from the north.

vi. The cycle network in the area of the site is comprehensive; it comprises a combination of on-road, off-road and recommended routes, and provides a good cycle connectivity to the residential neighbourhoods in the wider area, including good cycle connectivity through the A316 and Chertsey Roundabout.

vii. The site is located in an area with PTAL rating of 1b, which takes account of one bus service only and rail services. However, it is noted that a further four bus services are located within 15 minutes' walk of the site, providing a good level of services during the school peak periods.

viii. The review of accidents record determined that the majority of accidents occurred due to behavioural issues of road users rather than issues with the existing highway network. The additional analysis of accidents at Chertsey Roundabout has shown that the accidents here occurred due to behavioural issues (i.e. disobeying signals, not using dedicated pedestrian and cycle facilities), rather than lack or insufficient provision of dedicated facilities for pedestrians and cyclists.

ix. The site is located in a residential area where a high proportion of residential properties have access to off-street parking. On-street parking is predominantly unrestricted and residual parking capacity exists during the school peak periods. The parking impact assessment shows that additional demand for on-street parking can be accommodated without adverse impact on the local area.

x. Traffic flows on Hospital Bridge Road were recorded to be moderate, with 85%tile vehicle speed generally marginally above the speed limit of 30mph. Traffic flows to and from the nursery were recorded to be low (i.e. 14 and eight vehicles per hour during the morning and afternoon peak periods) and the proportion of heavy vehicles amounted to 12% of all traffic movement during the day.

xi. The pedestrian count survey data showed that the highest pedestrian flows occur between 08:30 and 08:45, and between 15:15 and 15:30, these peak times on the footway are associated with the operation of the existing schools in the area. These times fall outside of times when students attending the Turing House School will generate additional demand on the surrounding area (i.e. 08:15 - 08:30 and 15:00 – 15:15).

xii. The school has been undertaking regular 'hands up' surveys and the records show that 15% of students travel by car to the school. The school has a proven record to effectively reduce car travel and achieved a reduction of car travel from 15.1% to 4.8% in the academic year 2017/2018. It is expected that similar trends will be achieved in this academic year and when the school is relocated to the permanent site. It is expected that the school will generate 45 car trips by students and 45 car trips by staff at full occupation of the school. As such, traffic impact generated by the school is expected to be non-material.

xiii. A Pedestrian comfort level assessment was undertaken on three locations where the highest pedestrian footfall is anticipated to be generated by the school. The assessment shows that even with the additional pedestrian trips made, the footways are within the minimum comfort level with minimal restricted movements.

xiv. The school admissions area shows that the majority of students will arrive from the south and it is expected that a proportion of students (that will walk and cycle to the school) will travel across the A316. As such a detailed review of pedestrian and cycle facilities at this location was undertaken and showed that sufficient dedicated pedestrian and cycle facilities exist at the Chertsey Roundabout with further crossing facilities also available within 600m of the roundabout, that could be used by less confident road uses, if needed. It is predicted that 6.2% (66 students) will arrive to the school on foot using pedestrian crossing facilities at Chertsey Roundabout and circa 100 students are expected to cycle though the roundabout.

xv. It was identified that 60.5% of students are anticipated to travel to/from the proposed school by buses which results in 635 additional passengers that may use public buses. The bus route 481 is expected to the most popular route amongst students. However, as a result of the low frequency on bus route 481, we expect many of the students may instead choose to use bus route 111 instead and entering the school via the secondary access.

xvi. Information on predicted bus loading was provided to TfL. TfL is expected to complete their assessment of likely bus occupancy impacts and strengthen the required routes as necessary in accordance with the predicted demand. Bus enhancement measures resulting from this assessment are subject to further negotiation between The Department of Education and TfL and this is expected to be subject to a planning condition/S106 obligation.

xvii. The school will have DSP, CPAMP and STP in operation to ensure that the school operates in a safe and efficient manner. To further support this, the school will have other measures such as: breakfast club and after-school activity, staff supervision on-site and management.

xviii. In addition to the management strategy it is intended that as part of the proposed development off-site mitigation measures will be provided in the vicinity of the site access to enhance safety and improve accessibility for cyclists and pedestrians. These will include TROs, a new zebra crossing across Hospital Bridge Road with anti-skidding surface on the approach and zig-zag markings, a new uncontrolled crossing facility in the form of a raised platform (i.e. Copenhagen crossing) across

the site access, a new uncontrolled crossing facility with raised tables and tactile paving (i.e. Copenhagen crossing) on Montrose Avenue, speed traffic calming measures (i.e. speed hump) on Hospital Bridge Road and provision of a section of new footway on the northern side of the site access to facilitate pedestrian access to the school site.

xix. With the proposed mitigation strategy in place it is concluded that the impact of the proposed development on the road network can be addressed.