Pell Frischmann

excellence through innovation

Chancellor's School

July 2016

Transport Assessment

RQ30130T010-B

Submitted by Pell Frischmann

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Table & Figure List

1. INTRODUCTION

1.1.1 Pell Frischmann have been commissioned by Hertfordshire County Council (HCC) to prepare a Transport Assessment (TA) relating to the potential expansion of Chancellor's School, Pine Grove, Brookmans Park, Hatfield, AL9 7BN.

1.1.2 The assessment relates to one element of the work being carried out by HCC to provide additional secondary school places throughout the county. The school currently operates as a 6 Form Entry (FE) secondary school, with capacity for 1260 pupils. There are currently 1083 pupils on roll.

1.1.3 This document assesses the incremental analysis of the following permanent expansions:

- Permanent 7FE- Expanding the size of the school permanently by 1FE, thus increasing the capacity of the school to 1470 (a 7FE School). An additional 210 pupils (on top of the take up of the 177 current shortfall – a total of 387 additional pupils from the current position).

- Permanent 8FE- Expanding the size of the school permanently by 2FE, thus increasing the capacity of the school to 1680 (an 8FE School). An additional 420 pupils (on top of the take up of the 177 current shortfall – a total of 597 additional pupils from the current position).

- Permanent 9FE- Expanding the size of the school permanently by 3FE, thus increasing the capacity of the school to 1890 (a 9FE School). An additional 630 pupils (on top of the take up of the 177 current shortfall – a total of 807 additional pupils from the current position).

1.1.4 This TA will advise the maximum FE to which the school could expand taking into account transportation considerations, and any required mitigation for this maximum.

1.1.5 Site observations were carried out to assess the current highway and traffic conditions surrounding the school on a typical day during the school term. The information gathered has assisted in the production of this report, and guided the identification of mitigation measures which may be required to ensure that the surrounding network is able to safely accommodate the additional journeys during morning drop-off and afternoon pick-up times.

1.1.6 This TA examines the impact of the school expansion in detail, analysing the effect of the additional journeys that will be made to the school in the main drop off and pick-up times. It should be noted that, unless stated otherwise, where the document makes reference to Peak AM, Peak PM or peak hours, it refers to the main drop off and pick-up times of 08:00 - 09:00 and 15:00 - 16:00.

2. EXISTING CONDITIONS

2.1 INTRODUCTION

2.1.1 This section describes the school's site and its surroundings, setting out the pertinent highway and topographical features. The information provided in this section has been derived from site visits when conditions were observed during the school's main drop-off and pick-up times in order to gain information about the current highway and traffic conditions in the vicinity of the school.

2.1.2 The school day begins at 08:00, and ends at 15:00. There are a range of after-school clubs available each day, which operate from 15:00 to 16:30/17:00.

2.2 EXISTING SITE & LOCALITY

2.2.1 This section provides a description of the local road network within the vicinity of the school. Information about the local roads, specific dimensions relating to the road network are shown in Table 2.1.

Road Name / ***Characteristics***		**Brookmans Avenue/George's Wood Road**		**Golf Club Road**		**Pine Grove**		**A1000 Great North Road**	
Width		8m/6m		2.2m		3.1m		6.7m	
Speed Limit		30mph		10mph		30mph		40/50mph	
Traffic Conditions at Peak Times		Low		Low		High		Low	
Footway	**Cycle way**	Yes	No	Yes	No	Yes	No	Yes	No
Lighting		Yes		Yes		Yes		Yes	
Parking Restrictions		No		No		No		No	
On-street Parking		Low volumes of long stay residential		No		Low volumes of long stay residential/ Parental use as drop off/pick up		No	
Congestion		None		None		High frequency of conflict of intrusive opposing traffic creating queues		None	

Table 2.1: Carriageway Characteristics

2.2.2 Chancellor's School is situated in a predominantly rural part of outer Hatfield. Figure 2.1 shows the location of the school.

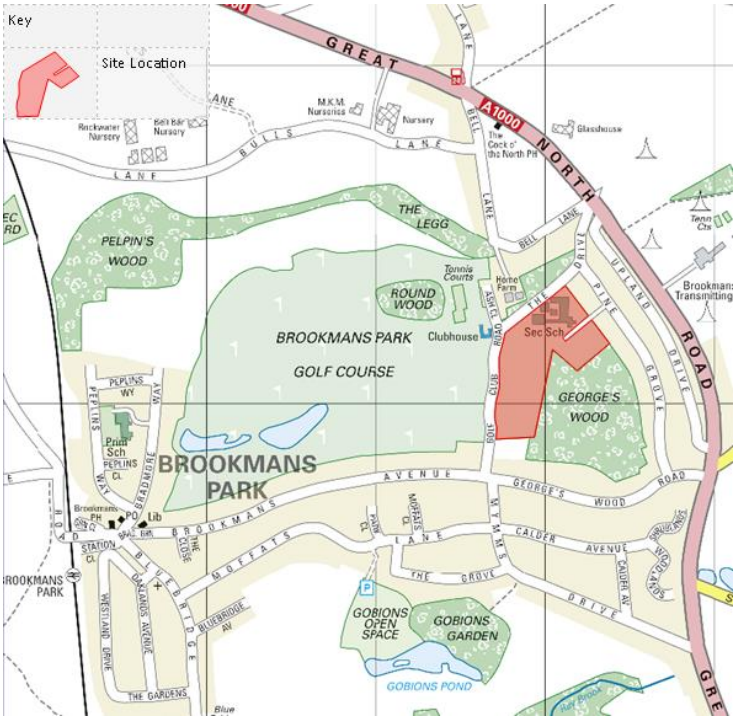

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Figure 2.1: Location of Chancellor's School

2.2.3 The school access road joins Pine Grove at a T-junction, and has double yellow lines along the eastbound carriageway when heading in a southwest direction. Double yellow lines are also present at the access into the school. At the end of the access is a 'Bus Only' turning circle which, during peak times, parents were observed to use.

2.2.4 15 vehicles were observed to be parked beside the west-bound carriageway of the access road leading to the school. This has been shown in Figure 2.2. It should be noted that it was confirmed by both the school and by observations made during the site visit that the staff at the school are parking on the access road. This parking reduces the space available on the westbound footway to pedestrians, narrowing the carriageway and reducing the forward visibility for other road users.

Figure 2.2: Parking on Access Road Footway

2.2.5 Although not permitted, parents used the 'Bus Only' turning circle to drop off their children and then leave the site. A queue of 10 vehicles was observed on the westbound carriageway at the junction between the access road leading to the school and Pine Grove. Parents accessing/egressing the site, the narrowing of the carriageway and the use of the access road by buses all contribute to causing congestion and the undermining of pedestrian safety. It is understood from data collected by the school, that 6% (5% walk, 1% cycle) of school pupils use Pine Grove/Access Road while walking or cycling to access the school.

2.2.6 Pine Grove is a single carriageway that is situated to the northeast of the school. It operates under a 30mph speed limit and has an approximate width of 7.5m. The access road into Chancellor's School forms a T-junction with Pine Grove. The southern end of Pine Grove forms a priority T–junction with George's Wood Road. Pine Grove also joins The Drive at a point North-east of the school. It was observed during the site visit that it is not possible to perform a right turn (towards the northeast) at the point where The Drive meets Pine Grove. This is due to the presence of steel bollards.

2.2.7 There was a consistent queue of 4 to 12 vehicles on Pine Grove at the link with George's Wood Road. Figure 2.3 shows an example of the conflict between north and south bound traffic as a result of on-street parking beside the south-bound carriageway. Observations were consistent along the length of Pine Grove for both streams of traffic. The on-street parking was of moderate volume, with the contributors mainly consisting of parents who were using the road to drop off their children.

Figure 2.3: Queuing as a result of conflict to opposing traffic blocked by on-street parking

2.2.8 The A1000 Great North Road is a single carriageway with a speed limit of 50mph. The southern end of the A1000 Great North Road is an access point into the M25. The northern end of the A1000 Great North Road links to A414 Hertford. The A414 runs from east to west, north of Hatfield. Along the A414, a low volume of traffic was observed during the school AM peak period. No on-street parking was observed.

2.2.9 Brookmans Avenue/ George's Wood Road is a single carriageway located south of the school which has a speed limit of 30mph. The western end of this road provides access to Bradmore Green. The eastern end of the road connects to the A1000 Great North Road via a T-junction.

2.2.10 Medium volumes of traffic were observed on this road, with a queue consisting of three vehicles occurring at the junction with Pine Grove. The major movement of school children walking or cycling to school was from Mymms Drive to Golf Club Road. No formal controlled pedestrian crossing facilities exist at the Brookmans Avenue/Golf Club Road/George's Wood Road/Mymms Drive staggered T-Junction.

2.2.11 Golf Club Road is a single lane carriageway, with a speed limit of 10mph. The southern section of this road connects to Brookmans Avenue. The northern section of the road connects to The Drive.

2.2.12 Tall vegetation is present both sides of Golf Club Road, restricting visibility on both sides. The curving alignment of the road also adds to the lack of visibility. There is a foot/cycle path access to the school from this road. The major movement of school children walking or cycling to school, make use of this gate to access the school.

3. VEHICULAR ACCESS ARRANGEMENTS & PARKING PROVISIONS

3.1.1 It has been understood that there is only one gated vehicular access into and out of the school. Furthermore, this access is two-way and has an approximate width of 6.25 metres. The access is located half-way along the access road and is situated on the northbound side of the carriageway.

3.1.2 This access can be used by both members of staff and delivery vehicles. Adjacent to the vehicular access (shown below in Figure 3.1) is a pedestrian access that is used by both Staff and Pupils walking or cycling into school. The vehicular and pedestrian accesses into the school have both been presented in Figure 3.1.

3.1.3 It was observed during the site visit that there are 4 bollards positioned on the northbound footway. The northbound footway leads to the pedestrian access into the school.

Figure 3.1: Main vehicular and pedestrian access

3.1.4 Figure 3.1 shows the pedestrian access location adjacent to the vehicular access. An additional pedestrian access is located at the south east school perimeter.

Figure 3.2: Bus-only turning circle

3.1.5 The turning circle is situated at the end of the access road and is south west of the school access. The turning circle has been designated for the use of school coaches only. Conveniently, a bus stop is situated on the actual turning circle itself. This bus stop is called "O/S Chancellor's School" and is served by the Sullivan 398 bus service.

3.1.6 However, during the site visit, parents were observed to be using the turning circle and then park adjacent to the school entrance. As is shown in Figure 3.3 below, the school has put up signs to discourage parents from parking in this area.

Figure 3.3: No Parking signs at turning circle

3.1.7 The entrance to the school leads to an internal car park, shown in Figure 3.4: which has a capacity of 48 car parking spaces. At the time of the site observation, all of these parking spaces were occupied.

Figure 3.4: Main car park

3.1.8 An additional car park area is located at the end of the turning circle which has the capacity for seven vehicles. This is shown in Figure 3.5 below. There is also an informal parking area for staff vehicles on the access road. There were 15 such vehicles observed using this.

Figure 3.5: Additional car park

4. PEDESTRIAN & CYCLING FACILITIES

4.1.1 Figure 4.1 below illustrates the local pedestrian network located within the vicinity of the school site, the off-road cycle and footpaths and the bus stops.

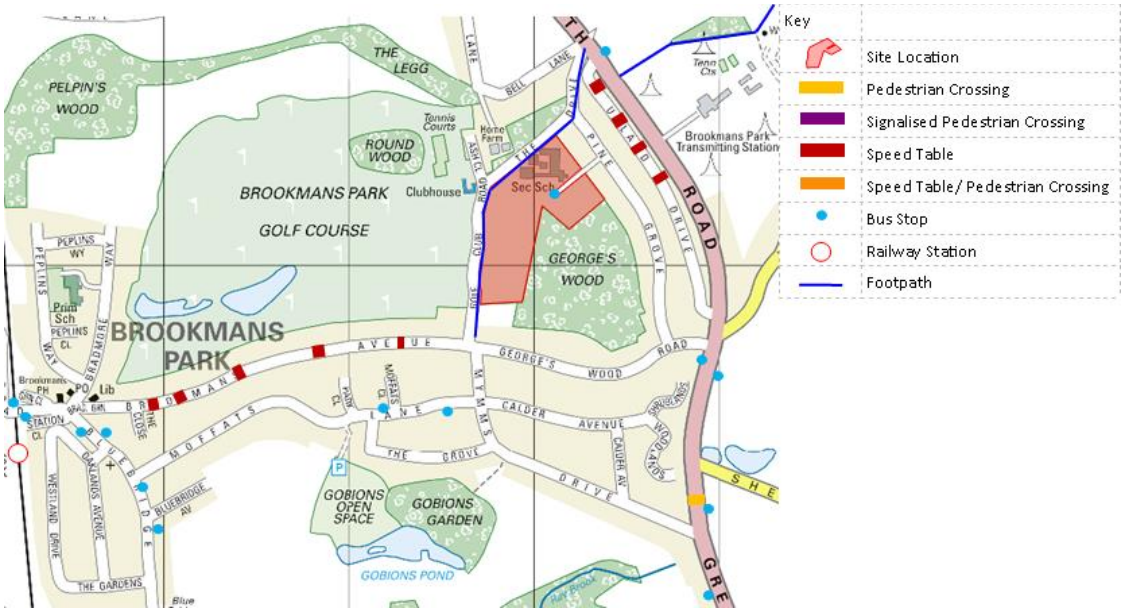

Figure 4.1: Public Transport Facilities

4.1.2 Chancellor's School is located on The Drive, which joins onto Pine Grove, in a rural setting. There is residential housing present to the east of the school. Footways exist on both sides of Pine Grove as well as beside the access road leading to the school. There is adequate width on both the footways and road for pedestrians and cyclists to use respectively.

4.1.3 Between the Bradmore Green/Brooksmans Avenue T-Junction and the Golf Club Road/Mymms Drive Staggered T-Junction there are five speed humps. There are footways on both sides of the road on this section of the road, however, east of the staggered T-junction, there are no footways.

4.1.4 Golf Club Road is a country lane with low visibility, due to tall vegetation and a curving alignment. There are no footways beside either carriageway and the width of the carriageway is suitable for a single-profile traffic.

4.1.5 The majority of the local road network provides pedestrian crossings, as well as footways of adequate width, visibility, speed calming measures and gradients to be suitable for use by both pedestrians and cyclists. Golf Club Road was not, however, considered to be satisfactory for safe use by either pedestrians or cyclists.

5. PUBLIC TRANSPORT

5.1 PUBLIC BUS SERVICES

5.1.1 The destinations and frequencies of the buses that serve these stops have been outlined in Table 5.1 below.

Stop	No.	Operator	Route	Frequency (Minutes)	Has AM & PM Services?
A1000 Great North Road (nr Bell lane)	200	Uno Bus	Essendon-London Colney via Brookmans Park-Welham Green	1 service Monday's only	N
A1000 Great North Road (nr Bell lane)	201	Uno Bus	Welham Green- Welwyn Garden City via Brookmans Park-Essendon	1 service Tuesday's and Friday's only	N
o/s Chancellors School	398	Sullivan Buses	Potters Bar- Watford via Borehamwood and Radlett	2 services in the AM 0809 and 0818 2 services in the PM Both at 1510	Y
A1000 Great North Road (nr Bell lane)	611	Uno Bus	Hatfield- Enfield/ Potters Bar	<60	Y

Table 5.1: Bus Services

5.1.2 The bus stop nearest to the school is called 'O/S Chancellors School' and is situated behind the south-eastern side of the school. A walk to this bus stop would take approximately 3 minutes. This bus stop is only served by one service: the Sullivan 398 service. There are another 2 bus stops on the A1000 Great North Road which are approximately 4-5 minutes' away from the school by foot. Both of these bus stops are served by three buses: the Uno 200, 201 and 611.

5.1.3 Two of services listed above operate during school associated peak times (0800-0900 and 1500-1600). These 2 services provide both staff and pupils (often accompanied by parents) a convenient and realistic alternative to single vehicular occupancy trips. These bus services can be used by pupils, staff and visitors that live on or within the vicinity of the bus.

5.2 RAIL SERVICES

5.2.1 Brookmans Park Railway Station is situated approximately 2200 metres south-west of the school and constitutes the nearest station to the school. On foot, a journey between the railway station and the school (or vice versa) will take approximately 30 minutes.

5.2.2 Brookmans Park Railway Station is managed by Great Northern Rail and is situated on Great Northern Rail's Welwyn route. The Welwyn route starts at Welwyn Garden City and terminates at either London King's Cross Railway Station or Moorgate Railway Station. A route map of the Great Northern line has been provided in Appendix B.

5.2.3 There are train services that offer transport to and from Brooklands Park Railway Station during the AM and the PM peak times. During the AM peak times, there are 2 north-bound services and 4 south-bound services. During the PM peak times, there are 3 north-bound and south-bound services.

5.2.4 The 2200 metre distance between the school and Brooklands Park Railway Station makes it seem unlikely that many pupils, staff or visitors will travel only by train to the station. Many students or staff may, however, choose to take local bus services to or from the station to the school.

5.3 SUMMARY

5.3.1 There are local bus services that have the potential to provide a realistic alternative means of travelling to and from school. These bus services can also reduce the length of the journey for pupils and staff between the school and the station. The nearest bus stop is directly behind the school, the next closest bus stops are situated on A1000 Great North Road.

5.3.2 Despite the relatively high frequency of trains arriving and departing from the station during the school peak times, the 2200 metre distance between the station and the school poses a problem to both pupils and staff. However, this can be remedied by the provision of local bus services.

6. PLANNING POLICY & REDEVELOPMENT

6.1 NATIONAL PLANNING POLICY FRAMEWORK

6.1.1 The National Planning Policy Framework was published in March 2012. The document sets out the Governments planning policies for England, and how they are expected to be applied by local councils.

6.1.2 The document outlines that planning policies play an important role in facilitating sustainable development, as well as contributing towards wider sustainability and health objectives. Furthermore, use of smarter technology can help reduce the need to travel and produce a transport system that is balanced in favour of sustainable transport modes, therefore giving people a bigger choice of how they travel.

6.1.3 The document goes on to say that different communities require different policies and measures to ensure opportunities to maximise sustainable transport solutions.

6.1.4 All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment, which should take account of the following:

- The opportunities for sustainable transport modes are being utilised, depending on the nature, and location of the site. This will help reduce the need for major transport infrastructure
- The access to the site is safe, and suitable for all people; and
- Improvements can be undertaken within the transport network, but they should cost effectively limit the significant impacts of the development. Refusal or prevention based on transport grounds should only be allowed where residual cumulative impacts of the development are considered to be severe.

6.1.5 Developments that generate significant movement should be located where the need to travel is minimised, and the use of sustainable transport modes can be maximised.

6.1.6 The use of sustainable transport modes for the movement of both goods and people should be promoted through development plans.

6.1.7 Therefore, developments should be located where practical to:

- Accommodate the efficient delivery of goods and supplies;
- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- Consider the needs of people with disabilities by all modes of transport.

6.1.8 A Travel Plan is a key tool to facilitate the above points. Recommendations for the school Travel Plan will be made within this Transport Assessment.

6.2 LOCAL TRANSPORT PLAN 3: 2011 – 2031

6.2.1 The Local Transport Plan 3 (LTP3) sets out the County Councils long term vision and strategy for the development of transport within the county. It provides a framework for transport's role in supporting social and economic development over the next 20 years, until 2031.

6.2.2 The vision of the LTP3 is:

> To provide a safe, efficient and resilient transport system that serves the needs of business and residents across Hertfordshire and minimises its impact on the environment.

6.2.3 This goal will be achieved by:

> Making best use of the existing network and introducing targeted schemes where improvements are required so as to deliver a reliable and readily usable transport network to benefit local business encourage further economic growth and allow access for all everyday facilities.
>
> **AND**
>
> Promoting and supporting sustainable travel to reduce growth in car traffic and contribute to improved health and quality of life for residents with a positive impact on the environment and on the wider challenge of reducing transport's contribution to climate change.

6.2.4 Furthermore, five goals support the vision. The transport strategy will (in no specific order):

- Support economic development and planned dwelling growth;
- Improve transport opportunities for all and achieve behavioural change in mode choice;
- Enhance quality of life, health and the natural, built and historic environment for all Hertfordshire residents;
- Improve the safety and security of residents and other road users; and
- Reduce transport's contribution to greenhouse gas emissions and improve its resilience.

6.2.5 With school travel making up a significant element of peak hour travel, the county council aim to increase opportunities for children and young people to travel to and from school by sustainable modes. To achieve this, the county council will:

> ...seek to deliver a network of more sustainable transport links to all schools in Hertfordshire by working closely with parents, pupils, teachers and local residents and by supporting schools' own travel plans.

6.2.6 This policy will be delivered through Hertfordshire's Sustainable Modes of Travel Strategy (SMoTS) for schools and colleges. As a requirement of Section 76 of the Education Act 2006, SMoTS aims to:

- Reduce the use of the car for journeys to, from and between educational establishments;
- Improve accessibility to, from and between educational establishments;
- Improve child road safety;
- Improve child health; and
- Improve the quality of the local environment.

6.2.7 More specifically, the below objectives have been developed to help meet these aims:

1. To improve walking routes to, from and between educational establishments;
2. To improve cycle routes to, from, and between educational establishments, and improve the cycle facilities within them;
3. To improve passenger transport services to, from, and between educational establishments;
4. To raise child and parental/guardian awareness of the health, environmental and safety benefits of sustainable travel, and to promote the use of the sustainable transport infrastructure;
5. To inform children and parents/guardians of the travel options available to them (including pupils with special educational needs and disabilities);
6. To engage all schools and colleges in the Travel Plan process;
7. To encourage partnership working and strengthen links to other plans, policies and initiatives; and
8. To continue development of Hertfordshire's Sustainable Modes of Travel Strategy and assess its effectiveness.

6.2.8 The challenges outlined within the LTP3 document, which relate to travelling to school are below:

1.1	**Keep the county moving**	An important thrust of the LTP3 is to reduce the need for travel, particularly by car and in peak periods, and to increase the use of sustainable modes of travel, particularly walking, cycling and buses. This aim runs through all the challenges, not only to help reduce the growth in traffic and therefore reduce delays for users, but also to achieve health and environmental benefits.
2.2	**Achieve behavioural change**	Increasing the number of journeys by sustainable modes has been a long running aim but the new LTP looks to increase the promotion of these modes to ensure that health as well as transport benefits are fully appreciated. If people change their behaviour to walk and cycle for more short journeys and to use buses and other modes, such as car sharing, traffic growth, particularly in peak periods, can be reduced. Emphasis will therefore be on publicity and promotional work, for schools and businesses, with support for travel planning for organisations and individuals. Provision of information and improvements to facilities for sustainable modes forms the other part of this strategy.
3.1	**Improve journey experience**	Issues such as comfort, regularity and reliability of service and perceptions of safety apply to all users of the network and particularly to users of sustainable modes. Improvements in information and publicity, especially for bus services and issues in accessing them, the management of the network and provision of small scale works will make all journeys easier, more secure and more reliable. This could include the availability of convenient parking for both vehicles and bicycles.
4.1	**Improve road safety**	Safety remains of paramount importance. Casualties from road collisions have fallen in the last 5 years (2005-2010) but any casualty is to be avoided. Casualty reduction will principally be achieved through education, engineering and enforcement. Education and training programmes in schools and communities will give people, adults and children, the skills and confidence to walk and cycle. Engineering involves an array of small scale improvements designed to tackle the underlying causes of collisions. 20mph restrictions will be considered where appropriate.

7. LOCAL PLANNING APPLICATIONS

7.1 INTRODUCTION

7.1.1 The 'Welwyn Hatfield Borough Strategic Housing Land Availability Assessment' document as well as the Welwyn Hatfield Planning Portal which provides access to a Planning Applications interactive map covering the years 2000 to 2016 has been reviewed. This revealed that there are no planning applications in process or developments under construction that would significantly impact upon the traffic conditions on the road network surrounding the school. Welwyn Hatfield Borough Council is preparing a new local plan and is considering the allocation of sites in Brookmans Park for residential development, at the time of the preparation of this report details of the allocations were unknown.

8. PERSONAL INJURY RECORDS

8.1 INTRODUCTION

8.1.1 Personal injury collision data, to cover a five year period between December 2010 and July 2015, has been obtained from Hertfordshire County Council. 23 accidents have been recorded. A map showing the area covered in the assessment, the location of the incidents and an incident summary sheet are provided in Appendix D.

8.2 ANALYSIS

8.2.1 There have been a total of 23 recorded incidents of which 22 were categorised as slight and one as serious. The 23 incidents involved 39 casualties, of which 38 were slight and one was serious. Of these casualties, one was a pedestrian, and three were cyclists.

8.2.2 Table 8.1 details the breakdown of incidents and casualties during this five year period.

Year	Incidents				Casualties			
	Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
2015	5	0	0	5	9	0	0	9
2014	9	0	0	9	13	0	0	13
2013	3	0	0	3	7	0	0	7
2012	4	1	0	5	6	1	0	7
2011	1	0	0	1	3	0	0	3
Total	**22**	**1**	**0**	**23**	**38**	**1**	**0**	**39**

Table 8.1: Incidents & Casualties Classification Breakdown

8.2.3 The overall number of incidents which have occurred over the analysis period in the local area, whilst not exceptional, are in-line with the expectations. The ratio of injuries to incidents was noted to be high; with the ratio being 39:23. The data shows that over a period of five years there was one casualty that recorded "serious" injuries. It seems there is a discernible year-on-year trend in the increase of incidents that are being recorded.

8.3 NMU INCIDENTS TABULATION

8.3.1 Table 8.2 details the data concerned with the incidents in which Non-Motorised Users (NMUs) were involved.

NMU	Age	Date	Day/Time	Class	Location
Cyclist	11	14/10/2014	Tue 16:30	Slight	Mymms Drive North J/w A1000 Great North Road
Pedestrian	15	22/07/2014	Tue 18:37	Slight	Bradmore Lane, Brookmans Park, Approx 20m Southeast J/w Station Road
Cyclist	72	21/04/2014	Mon 11:44	Slight	A1000 Great North Road, Hatfield, J/w Mymms Drive
Cyclist	53	28/10/2012	Sun 22:16	Slight	Bradmore Green, Broodmans Park, Approx 70m West J/w Brookmans Avenue

Table 8.2: NMU Casualty Details

8.4 NMU INCIDENTS

8.4.1 Detailed consideration has been given to the incidents involving school aged children or NMU causalities that took place in close proximity to the school; the results are detailed in the following paragraphs. A review of pedestrian infrastructure in the local area has been set out in Section 4.

8.4.2 An incident involving an 11 year old cyclist leaving school at 16:30 on 14th October 2014 occurred on Mymms Drive at the junction with A1000 Great North Road. The cyclist was hit on the carriageway as the car turned at the junction; the incident was recorded as a hit-and-run. The cyclist sustained slight injuries.

8.4.3 An incident involving a 15 year old pedestrian occurred on 22nd July 2014 at 18:37. The pedestrian was hit by a car whilst crossing the junction of Bradmore Lane with Station Road. The pedestrian sustained slight injuries; the incident was not observed as a school journey.

8.4.4 An incident involving a 72 year old cyclist occurred on the 21st April 2014 at 11:44. The cyclist sustained slight injuries when hit by a turning vehicle on A1000 Great North Road junction with Mymms Drive.

8.4.5 One further incident involving a 53 year old cyclist occurred on 28th October 2012 at 22:16. The incident occurred on Bradmore Green approximately 70m west of the junction with Brookmans Avenue. The cyclist sustained slight injuries.

8.5 NMU AND CLUSTER LOCATION

8.5.1 The figure below shows the location of clusters of multiple incidents and the location of school related NMUs.

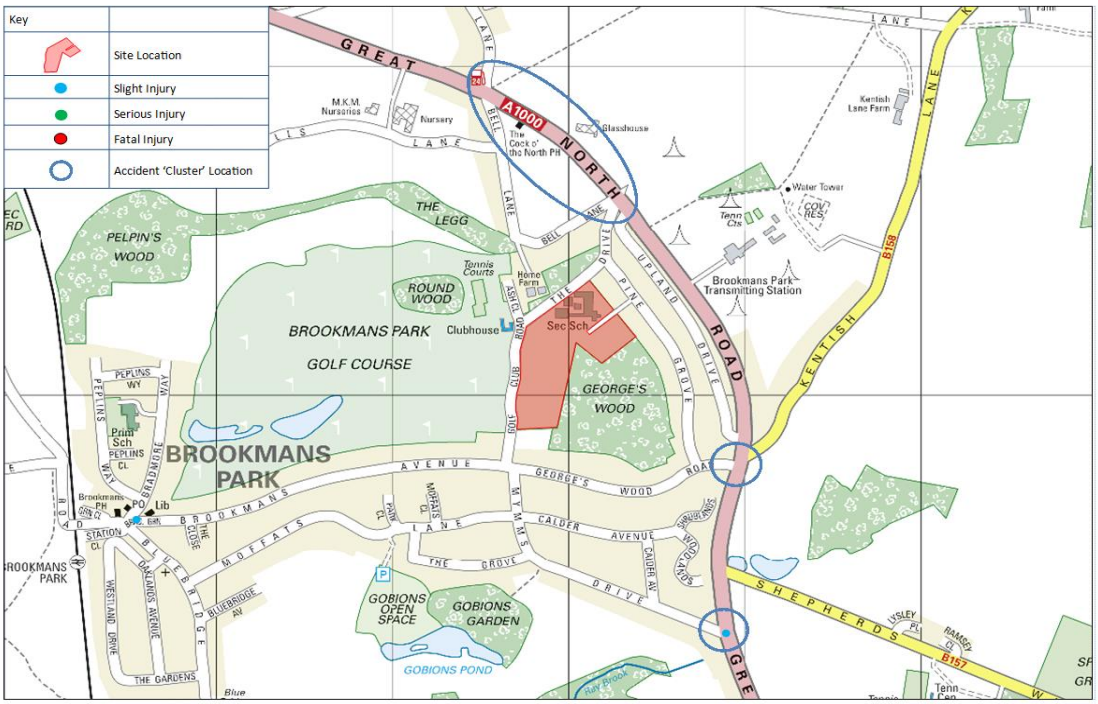

Figure 8.1: Cluster and School related NMU Locations

8.5.2 The section of road between the Lane/A1000 Great North Road junction and the Drive/A1000 Great North Road junction has been identified as accumulating a high number of incidents in close proximity to Chancellor's School.

8.5.3 There are two identifiable cluster locations:

- A1000 Great North Road/ Kentish Lane/ George's Wood Road Staggered T-Junction
- Mymm's Drive/ A1000 Great North Road T-Junction

8.5.4 There were four incidents that occurred in close proximity to A1000 Great North Road/ Kentish Lane/ George's Wood Road Staggered T-Junction. Each of the causalities involved in these incidents sustained slight injuries, none of whom were NMUs.

8.5.5 A total of six incidents occurred in the vicinity of Mymm's Drive/ A1000 Great North Road T-Junction. All of these incidents involved causalities who sustained slight injuries. One of these casualties was a school child who, whilst cycling, was hit by a vehicle.

8.6 SUMMARY

8.6.1 The overall number of incidents which have occurred over the analysis period in the local area, whilst not exceptional, are in-line with the expectations. The ratio of injuries to incidents was noted to be high. The data shows that over a period of five years there was one casualty that recorded "serious" injuries. It seems there is a discernible year-on-year trend in the increase of incidents that are being recorded.

8.6.2 From the site visit, it was determined that adequate pedestrian related infrastructure is in place on A1000. When traffic volumes were at their highest on the A1000, the supporting pedestrian infrastructure was considered to be adequate in facilitating the movement of pedestrians.

8.6.3 However, three junctions discussed in section 8.6 have a high number of incidents, with the closest occurring approximately 500m from the school. It has been noted that both George's Wood Road and Mymms Drive do not have effective footways or traffic calming measures.

8.6.4 The record has two elements that are relevant to the school operation and proposed expansion; the year-on-year increase of incidents, shown in Table 8.1, and the two record incidents involving school children.

8.6.5 It is recommended that the Local Highways Authority is contacted to determine what mitigation measures are under consideration to mitigate the existing frequency of incidents in the vicinity of the school.

8.6.6 The two school children were involved in incidents within the vicinity of the school, with the closest incident occurring one kilometre away. Both of the children sustained slight injuries when hit by a vehicle.

8.6.7 Although the overall number of incidents is low, it gives some cause for concern. Safe passage to school should be an expectation, not a privilege. This more so with the potential expansion as pupils should be taught the importance of adhering to good road awareness and safety practice.

8.6.8 In addition, to prevent school children being involved in injury related incidents whilst travelling to and from school, information leaflets to families would be part of the package of road safety measures that form part of the School Travel Plan (STP) detailed below in Section 12.

9. EXISTING TRAFFIC CONDITIONS

9.1 INTRODUCTION

9.1.1 Traffic flows on the highway network are generally highest during the weekday morning (08:00 - 09:00) and evening (17:00 – 18:00) peak hours. These are the peak hours for demand, when spare capacity on the highway network is at a minimum and when any additional traffic will have the greatest impact.

9.1.2 The morning peak hour for school-associated traffic coincides with the general highway peak hour; the school afternoon peak period, however, occurs between 15:00 and 16:00 hours. Since this is earlier than the general highway peak hour, the additional traffic would not significantly impact on the local highway network.

9.2 EXISTING TRAFFIC FLOWS

9.2.1 Count data has been collected for four junctions near the school. The junctions are shown in Figure 8.1, and are as follows:

1. Brookmans Avenue/Golf Club Road/George's Wood Road/Mymms Drive Staggered T-Junction;

2. George's Wood Road/Pine Grove T-Junction

3. Great North Road/ Bell Lane Leftside T-junction; and

4. A1000 Great North Road/Bell Lane Rightside T-Junction

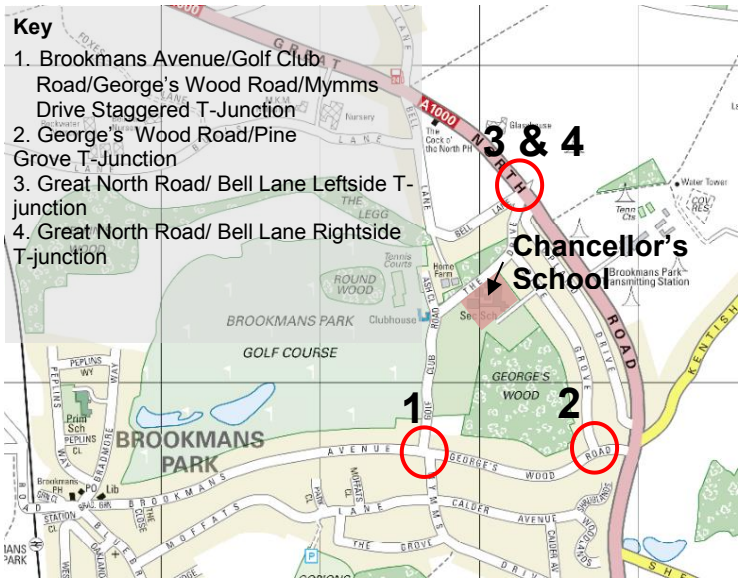

Figure 9.1: Count Site Locations

9.2.2 In April 2016, peak period turning counts were collected for the junctions (as shown in Figure 9.1 above). The results of the count data have been analysed to determine the traffic profile and distribution for four junctions during the school AM drop-off and PM pick-up times. Traffic flow diagrams showing the survey data are attached in Appendix C.

9.3 EXISTING PUPIL GENERATION

9.3.1 There is capacity for 1260 pupils at the school. A Hands Up survey was conducted in 2016. The results have been used to determine mode share for pupil trips to and from school. The results indicate that 5% of pupils of walk to school and 1% cycle/scoot. It is also understood from this survey that 45% of pupils use the bus when traveling to school, 30% of pupils travel to school by car; 7% of pupils car share and a further 10% park and walk to school. The results of the survey are shown in Figure 9.2.

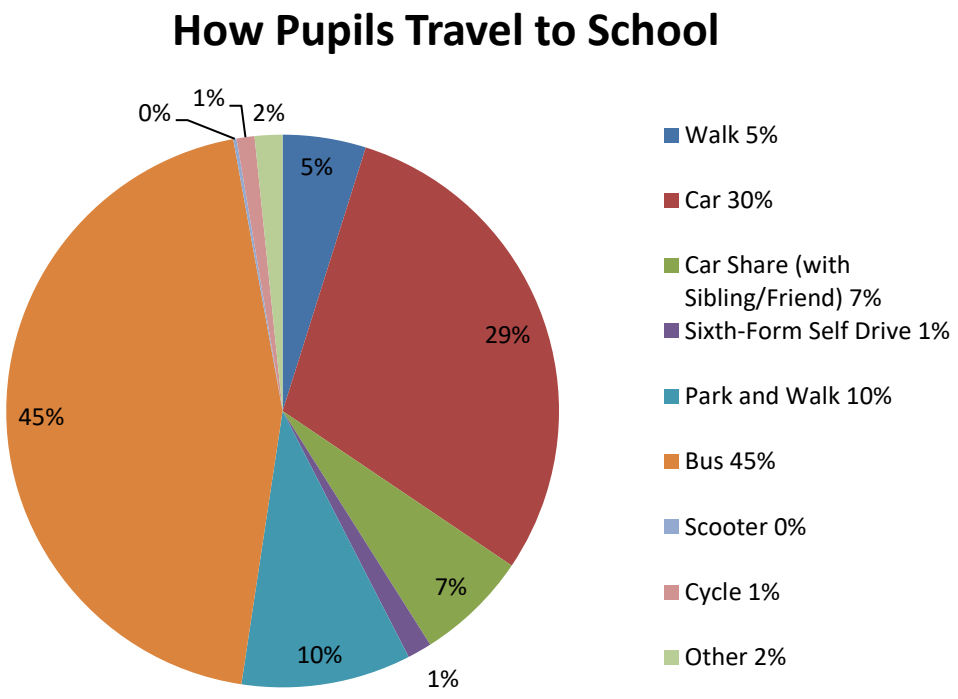

Figure 9.2: Method of Travel to School by Pupils

9.3.2 The results indicate that the school currently generates 412 pupil vehicular trips during each peak hour.

9.3.3 HCC provided Pell Frischmann with Pupil Level Annual School Census (PLASC) data to determine the location of the pupils' homes with reference to the school.

9.3.4 The PLASC data shows that 2% of pupils live within 0.5km of the school, 7% within the range of 0.5 – 1.0km from the school, 16% between 1.0 – 2.0km, and 75% over 2km from the school. The majority (91%) of pupils live more than 1km away from the school; a distance which may not be appropriate for pupils to walk to school.

9.3.5 There are 5% of pupils currently walking to school which is not unreflective of the 9% who live within a 1km walking distance.

9.4 EXISTING STAFF GENERATION

9.4.1 There are currently 137 staff employed at the school, 108 of whom are full time. For the purposes of this assessment, a staff travel survey was undertaken in January 2016 to ascertain the total number of staff travelling to school via car. The results from the survey indicated that typically there are 137 staff trips generated each day. With an average of 137 staff traveling to school via car, 55 formal spaces provided on-site and 15 informal spaces provided off-site, it is necessary to promote, if possible, sustainable modes of travel in addition to providing further parking capacity. The pressure leading to the undesirable use of the school access road for staff car parking is quite evident from these figures.

10. TRAFFIC GENERATION AND JUNCTION ANALYSIS

10.1 PUPILS

10.1.1 Using the modal share as identified by the Hands Up Survey, (shown in Paragraph 9.3.1), it is expected that 30% of the additional pupils, for each respective expansion scenarios, will travel to and from school by car. Table 10.1 below shows the total number of pupil trips generated by each expansion scenario:

Proposed Expansion	New pupil trips (30% drive)	Total trips for pupil (including existing)
Fall back	53	378
Permanent 7FE	116	441
Permanent 8FE	179	504
Permanent 9FE	242	567

Table 10.1 Pupil Associated Trips Summary

10.2 STAFF

10.2.1 Following liaison with HCC, it is understood that each additional class of 30 pupils requires two full-time staff members. Staff travel surveys were conducted simultaneously with Pupil Hands Up Survey. The survey indicates a 100% staff trip generation rate. Table 10.2 below shows the total number of staff trips generated by each expansion scenario:

Proposed Expansion	New staff trips (100% drive)	Total trips for staff (including existing)
Fall back	12	84
Permanent 7FE- 0 Full Time staff required	26	98
Permanent 8FE- 4 Full Time staff required	40	112
Permanent 9FE- 16 Full Time staff required	54	126

Table 10.2 Staff Associated Trips Summary

10.3 TRIP DISTRIBUTION

10.3.1 For the trip distribution of the future pupil and staff trips a distribution profile was developed using the recently collected traffic counts and the PLASC data.

10.3.2 In reality school pupil trips are two-way, with pupils being dropped-off and parents preceding to their next respective destination- typically a work place; this has been modelled.

10.4 SCENARIOS

10.4.1 The below scenarios have been tested:

- **Base 2016 Scenario**: Base 2016 (AM/PM) – *Results appended;* for calibration and validation of traffic models using queue count data.
- **Scenario 1:** Base 2016 + 1FE Primary School Traffic.
- **Scenario 2:** Base 2016 + 2FE Primary School Traffic.
- **Scenario 3:** Base 2016 + 3FE Primary School Traffic.

10.4.2 For priority junctions modelled in PICADY, the Ratio of Flow to Capacity (RFC) is used as an indicator of the likely performance of a junction using the threshold of 85% in order to identify capacity issues at the junction.

10.4.3 The Ratio of Flow to Capacity is the ratio of the hourly demand flows to the capacity.

10.4.4 The classification of impact upon the junction is as follows:-

- An RFC of 85% or less shows the junction is within its practical capacity, and the junction is considered to be operating satisfactorily;
- An RFC between 85% and 100% shows that the junction is above its practical reserve capacity, but within its theoretical reserve capacity: the junction is considered to be operating close to capacity, with the likelihood that delays and queues would form; and
- An RFC of 100% or higher shows that the junction is over its theoretical capacity, and is considered to be operating above its capacity, with severe delays and queues.

10.4.5 Any RFC over 85% is coloured orange for reference. Red indicates major capacity problems.

10.5 JUNCTION ASSESSMENTS

<u>Junction One Brookmans Avenue/Golf Club Road/George's Wood Road/Mymms Drive Staggered T-Junction;</u>

10.5.1 The capacity of the priority T-Junction has been assessed using PICADY; the results are shown below.

Scenario	Movements	AM			PM		
		RFC (%)	Queue	Delay	RFC (%)	Queue	Delay
Base(Fall Back) 2016	Mymms Road to Brookman's Ave or Golf Club Road	9.5	0.11	1.6	8.3	0.09	1.3
	Mymms Road to George's Wood Road	18.2	0.22	3.3	10	0.11	1.6
	Golf Club Road to all routes	3.9	0.04	0.6	6.5	0.07	1.0
	Brookman's Avenue/Golf Club Road to George's Wood Road/Mymms drive	6.4	0.06	1.0	9.2	0.09	1.4
	George's Wood Road/Mymms drive to Brookman's Avenue/Golf Club Road	3	0.03	0.4	3.8	0.04	0.6
Base 2016 + 7FE	Mymms Road to Brookman's Ave or Golf Club Road	9.8	0.11	1.6	8.3	0.09	1.3
	Mymms Road to George's Wood Road	20.9	0.26	3.9	11.9	0.13	2.0
	Golf Club Road to all routes	4.2	0.04	0.6	6.9	0.07	1.1
	Brookman's Avenue/Golf Club Road to George's Wood Road/Mymms drive	6.4	0.06	1.0	9.2	0.09	1.4
	George's Wood Road/Mymms drive to Brookman's Avenue/Golf Club Road	3.2	0.03	0.5	4.2	0.04	0.6
Base 2016 + 8FE	Mymms Road to Brookman's Ave or Golf Club Road	9.6	0.11	1.6	8.5	0.09	1.4
	Mymms Road to George's Wood Road	17.8	0.21	3.2	13.7	0.16	2.4
	Golf Club Road to all routes	4.6	0.05	0.7	7.4	0.08	1.2
	Brookman's Avenue/Golf Club Road to George's Wood Road/Mymms drive	6.5	0.06	1.0	9.3	0.09	1.4
	George's Wood Road/Mymms drive to Brookman's Avenue/Golf Club Road	3.6	0.04	0.5	4.6	0.05	0.7
Base 2016 + 9FE	Mymms Road to Brookman's Ave or Golf Club Road	10.4	0.11	1.7	8.7	0.09	1.4
	Mymms Road to George's Wood Road	25.9	0.35	5.2	15.6	0.18	2.8
	Golf Club Road to all routes	4.9	0.05	0.8	8.1	0.09	1.3
	Brookman's Avenue/Golf Club Road to George's Wood Road/Mymms drive	6.5	0.07	1.0	9.3	0.09	1.4
	George's Wood Road/Mymms drive to Brookman's Avenue/Golf Club Road	3.8	0.04	0.6	2	0.02	0.3

Table 10.3: PICADY Assessment – Brookmans Avenue/Golf Club Road/George's Wood Road/Mymms Drive Staggered T-Junction

Junction Two: George Wood Road/Pine Grove T-Junction

10.5.2 The capacity of the roundabout has been assessed using PICADY; the results are shown below.

Scenario	Movements	AM			PM		
		RFC (%)	Queue	Delay	RFC (%)	Queue	Delay
Base(Fall Back) 2016	Pine Grove to all Routes	108.7	19.45	240.3	42.2	0.72	10.8
	George's Wood East to all Routes	44.8	0.86	13.0	14.6	0.17	2.6
Base 2016 + 7FE	Pine Grove to all Routes	124.3	39.03	465.9	49.4	0.96	14.3
	George's Wood East to all Routes	48.8	1.01	15.4	17.4	0.21	3.2
Base 2016 + 8FE	Pine Grove to all Routes	140.3	62.77	749.4	44.1	0.78	11.6
	George's Wood East to all Routes	52.6	1.19	18.0	20	0.26	3.9
Base 2016 + 9FE	Pine Grove to all Routes	157.7	90.88	1094.9	81.7	4.01	58.3
	George's Wood East to all Routes	56.7	1.40	21.4	22.8	0.30	4.6

Table 10.4: PICADY Assessment – George Wood Road/Pine Grove T-Junction

Junction Three: Great North Road/ Bell Lane Leftside T-junction

10.5.3 The capacity of the roundabout has been assessed using PICADY; the results are shown below.

Scenario	Movements	AM			PM		
		RFC (%)	Queue	Delay	RFC (%)	Queue	Delay
Base(Fall Back) 2016	Bell Lane Leftside to Great North Road South	2.2	0.02	0.3	6.5	0.07	1.0
	Bell Lane Leftside to Great North Road North	0	0.00	0.0	0	0.00	0.0
	Great North Road North to all Routes	11.2	0.13	1.9	3.1	0.03	0.5
Base 2016 + 7FE	Bell Lane Leftside to Great North Road South	3	0.03	0.5	7.6	0..08	1.2
	Bell Lane Leftside to Great North Road North	0	0.00	0.0	0	0.00	0.0
	Great North Road North to all Routes	11.5	0.13	2.0	3.2	0.03	0.5
Base 2016 + 8FE	Bell Lane Leftside to Great North Road South	3.3	0.03	0.5	8.9	0.10	1.4
	Bell Lane Leftside to Great North Road North	0	0.00	0.0	0	0.00	0.0
	Great North Road North to all Routes	11.8	0.14	2.1	3.3	0.03	0.5
Base 2016 + 9FE	Bell Lane Leftside to Great North Road South	3.6	0.04	0.6	10.4	0.11	1.7
	Bell Lane Leftside to Great North Road North	0	0.00	0.0	0	0.00	0.0
	Great North Road North to all Routes	12.1	0.14	2.1	3.4	0.04	0.5

Table 10.5: PICADY Assessment – Great North Road/ Bell Lane Leftside T-junction

Junction Four: A1000 Great North Road/ Bell Lane Rightside T-junction

10.5.4 The capacity of the roundabout has been assessed using PICADY; the results are shown below.

Scenario	Arm	AM			PM		
		RFC (%)	Queue	Delay	RFC (%)	Queue	Delay
Base(Fall Back) 2016	Bell Lane Rightside to Great North Road South	8.9	0.10	1.4	5.9	0.06	0.9
	Bell Lane Rightside to Great North Road North	23.9	0.31	4.6	12.5	0.14	2.1
	Great North Road North to all Routes	0.3	0.00	0.0	0.3	0.00	0.0
Base 2016 + 7FE	Bell Lane Rightside to Great North Road South	14.5	0.17	2.5	8.7	0.09	1.4
	Bell Lane Rightside to Great North Road North	25.1	0.33	5.0	13.1	0.15	2.2
	Great North Road North to all Routes	0.3	0.00	0.0	0.3	0.00	0.0
Base 2016 + 8FE	Bell Lane Rightside to Great North Road South	20.1	0.25	3.7	12.6	0.14	2.1
	Bell Lane Rightside to Great North Road North	26.3	0.35	5.3	13.7	0.16	2.4
	Great North Road North to all Routes	0.3	0.00	0.0	0.3	0.00	0.0
Base 2016 + 9FE	Bell Lane Rightside to Great North Road South	23	0.38	5.6	17.1	0.20	3.0
	Bell Lane Rightside to Great North Road North	27.9	0.38	5.7	14.3	0.17	2.5
	Great North Road North to all Routes	0.3	0.00	0.0	0.3	0.00	0.0

Table 10.6: ARCADY Assessment – A1000 Great North Road/Church Road Signalised T-Junction

10.6 MODELLING RESULTS

10.6.1 For ease of reference, the table below shows the aggregate modelling results for each junction, under each scenario, to indicate how each junction is performing. The impact on each respective junction has been categorised as slight, moderate or major. These are defined as:

- Slight: A relatively minor increase in queuing and delays, with the junction throughput under 85% of its practical capacity during the peak hour. On the basis of nil detriment, where a junction is already over capacity in the base year, the impact is defined as slight where the junction returns to least its base year capacity shortly after the end of the peak hour.

- Moderate: the level of queuing and delays results in the capacity of junction moving beyond a reasonably acceptable level of performance. Regular queuing, albeit not necessarily severe, is to be expected. A combination of soft-measures with perhaps deliverable hard-measures are likely to be required to mitigate the impact of the development proposal.

- Major: The capacity of the junction is outside acceptable performances level, resulting in regular and material queuing and delays. In such circumstances, it

would be difficult to avoid the requirement for hard measures to mitigate the impact of the development proposal.

Junction	Peak	Fallback	7.0 FE	8.0 FE	9.0 FE
J1	AM	Slight	Slight	Slight	Slight
	PM	Slight	Slight	Slight	Slight
J2	AM	Severe	Severe	Severe	Severe
	PM	Slight	Slight	Slight	Slight
J3	AM	Slight	Slight	Slight	Slight
	PM	Slight	Slight	Slight	Slight
J4	AM	Slight	Slight	Slight	Slight
	PM	Slight	Slight	Slight	Slight

Table 10.7: Junction Impact Summary

10.7 SUMMARY

10.7.1 The junction modelling results indicate that three of the four junctions will continue to operate within capacity following the introduction of the development traffic. The based models were calibrated and validated using queue count data collected during the traffic counts.

10.7.2 For each of these junctions that operate within capacity, the modelling results indicate the incremental increase in traffic on the network for each respective level of development can be satisfactorily accommodated.

10.7.3 This report has made specific reference to the observed conditions at George's Wood Road/Pine Grove T-Junction. A rolling slow moving queue of 4 to 12 vehicles was observed on Pine Grove heading southbound. The southbound rolling queue was observed to continue after the 0900 peak, with queuing reducing and traffic becoming free-flowing at 0915.

10.7.4 The Fallback situation for this school which is operating under capacity by 177 (16 %), needs to be carefully considered in this case. As the school does have a right without any additional planning obligations to operate at its full 6FE capacity; the traffic that would be generated by this return to the inherent operation would not entail the site operator becoming liable for any consequential effects such as any junction improvement that might otherwise be required in mitigation. It is standard practice for the "Fallback" position to be taken as a bottom line basis for the evaluation of the further potential impact of traffic which will result from the proposed expansion scenarios.

10.7.5 The analysis shows that following the introduction of the traffic generated by the Fallback position, the Pine Grove junction would operate substantially above its practical capacity, considerably worsening present day congestion conditions. Following the introduction of further traffic associated with all scenarios for expansion the impact becomes even more serious.

10.7.6 Both site observations and calculations demonstrate that this junction is already operating above capacity. Disregarding any other traffic generation from other sources, a significant contributing factor for further deterioration in performance will be the increased volume of traffic from the initial take up of Fallback potential and then from any of the school expansion scenarios. It should be noted that once a junction goes beyond practical capacity, its performance will exponentially worsen with progressively detrimental effect upon network performance.

10.7.7 Generally, it is junction capacity that determines the ability of a highway network to accommodate additional traffic. In the case of Chancellor's School, our analysis has shown that the majority of junctions in practice work substantially within their capacity. However, our recommendation is that any such intention to further increase the size of the school should be considered with caution.

10.7.8 This is due to the other constraints along the local road links which are critical in this area. Most of the local roads have a high volume of through traffic during the peak school time. The relatively high traffic flows in this area lead to some degree of frustration and observation of increasing poor driver behaviour. It is not recommended that this potential for deteriorating circulation should be overlooked.

10.7.9 To put this in context, there is a case that the road north of Pine Grove could be adopted to achieve the throughput of traffic and reduce the burden from development traffic to the road south of Pine Grove. It is important to understand that ease of the adoption by enquiring into the current landownership of this road.

10.7.10 The subsequent development traffic directed north will impact on Junctions 3 and 4. Although both of these junctions have large amounts of spare capacity, it would be advised that a review of the adequacy of its current condition be assessed.

10.7.11 In addition to the case described in Paragraph 10.7.9 a wider view must be taken about the relevant local transport considerations for the particular areas of the network, which have been identified as constrained. The condition on Pine Grove and Access Road, caused by school traffic that occurs in the vicinity of the school, is a particular issue.

10.7.12 To coincide with any proposal for school expansion, there is a requirement for the pragmatic development of realistically achievable on-site mitigation, with due consideration of the associated costs and the physical land constraints that might restrict any such improvement. In the case of the expansion scenarios for this school, the provision of on-site measures that are put forward in this report may be considered the most effective form of mitigation. These are considered to be sufficient to achieve a very desirable reduction of the extent of stopping/blocking caused by the pick-/drop-off that is currently occurring on the carriageway, as well as the staff parking surplus. The practice is clearly detrimental to free flow traffic conditions on the local road network.

10.7.13 This approach would provide both a deliverable and realistic mitigation strategy for any of the currently considered expansion developments and can also be seen to address the most important aspects of the current conditions on the local highway network insofar as these particularly relate to school activity. These measures are detailed below in Section 12.

11. PARKING REQUIREMENTS

11.1.1 There are currently 48 car parking spaces allocated to staff.

11.1.2 The policy document Welwyn Hatfield District Plan Review – Car Parking Standards (produced in January 2004) outlines maximum car parking standards to encourage greater use of non-car modes to ensure that economic development is more sustainable than might otherwise be the case. Maximum standards designated for Secondary Schools are outlined below:

Maximum Car Parking Standards	Cycle Parking Standards
1 space per full time member of staff 1 space per 100 pupils 1 space per 20 pupils under 17	1 long term space per 10 full time staff members Plus 1 L/T space per 15 pupils
Parking Standards for Disabled Motorists	
Individual spaces for each disabled employee, plus 2 spaces. Or 5% of the total capacity, whichever is greater	

Table.11.1: Maximum Parking Standards

11.1.3 The school is located in an area in Hatfield designated as having no Car Parking Zone. As outlined in Welwyn Hatfield Councils Car Parking Standards, a development in this area is allowed 0%-100% of the maximum demand based standard of car parking.

11.1.4 The table below shows the maximum number of car park spaces allocated for each expansion proposal; based on the standards outlined above.

Maximum Car Parking Standards		Maximum Cycle Parking Standards	
Fall back	22	Fall back	13
7FE	48	7FE	30
8FE	74	8FE	48
9FE	100	9FE	67

Table 11.2: Total Additional Spaces

12. PROPOSALS FOR MITIGATING EXPANSION

12.1 INTRODUCTION

12.1.1 This section sets out the mitigation proposals that could be implemented to reduce the impact of school-associated traffic, and therefore reduce the impact of the parental drop off/pick up activity. This section further examines available opportunities aimed at easing the current problem of under-provision of staff car parking, and also ensuring that the safety of all users continues to be considered a priority.

12.2 EXISTING CONSTRAINTS

12.2.1 The following constraints have been identified and are considered sensitive to any impact of any additional traffic generated by a proposal for expansion:

- Parking on footways of the access road leading to the school from Pine Grove (mostly staff vehicles)
- 'Bus-only' turning circle used by parents to drop-off pupils
- High volume of traffic, conflict and congestion of vehicles on Pine Grove and its link with George's Wood Road during peak time.
- No effective footways or traffic calming measures exist on George's Wood Road or Mymms Drive.

12.3 PARKING, PICK-UP/DROP-OFF AND ACCESS

Parking

12.3.1 The analysis and discussion in Chapter 11 above give a range within which the appropriate staff parking resource may be judged. There are approximately 63 car parking spaces on-site. During the site visit, approximately 100% of these spaces were occupied by staff with no observed instances of double parking.

12.3.2 The school currently has 63 car parking spaces available for staff, but it has been noted from the "School Pack - Hands up Survey" completed by the school that 137 staff members drive to work. With the addition of the proposed expansions, it is recommended that 50% of the maximum number of spaces should be provided for each. Hence, the figures presented below are the additional number of spaces required:

- 7FE Expansion: 24 spaces
- 8FE Expansion: 37 spaces
- 9FE Expansion: 50 spaces

12.3.3 Moreover, the number of spaces required for additional staff associated with the current under provision of pupils at the school need to be accounted for. That is 12 additional staff are required if the school was to operate at full capacity of 1260 pupils on roll (based on its current requirement of 72 full-time staff members). This results in an additional 11 spaces that would satisfy the recommendation for 50% of the maximum number of spaces. This would have to be accounted for before any proposal for further expansion, see Section 11.

12.3.4 To aid understanding, the outcomes of the above arguments are presented in the table below which shows the gross number of spaces that would be in accordance with the relevant local standards.

Scenario	Spaces Required	Fall back spaces Required	Total
Current Requirement	79	11	90
7 FE	103	11	114
8 FE	116	11	127
9 FE	129	11	140

Table 12-1: Parking recommendations

12.3.5 These are substantial numbers and the desirability of full implementation requires consideration. Measures to reduce staff trips are very desirable in the context of any proposal for expansion. To ameliorate the current position, the following measures are considered:

- The promotion of a car share scheme amongst staff will help to reduce the number of staff accessing the school site by car each day.

- There are a number of public transport services that link the school site to the local surrounding area. The use of these services by staff can be encouraged.

- Undoubtedly some staff could walk or cycle to school, and again this should be encouraged.

- Prioritise the allowance of car parking spaces for use by full-time staff members, and provide alternative car parking options for non-full-time staff members, such as "park and ride".

12.3.6 The figure below indicates the location of an area on site that could be utilised to provide additional parking.

Figure 12.1- Indicative Car Parking Locations

Pick-up/Drop-off

12.3.7 At present the greatest proportion of parental pick-up/drop-off occurs on at the 'Bus-only' turning circle on the access road and Pine Grove. Queuing of 10 vehicles was observed on access road at the link with George's Wood road during the school peak time period.

12.3.8 Given the anticipated trip generation to coincide with an expansion, the provision of a pick-up/drop-off facility should be considered.

12.3.9 In line with the Pell Frischmann calculation, agreed by the highways authority, one pick-up/drop-off space is occupied for approximately three minutes of the 20 minute period during the peak times. Below are the recommended numbers of additional spaces required to coincide with the expansion proposals:

- 7FE: 116 Pupil Trips requires 28 Spaces
- 8FE: 179 Pupil Trips requires 41 Spaces
- 9FE: 242 Pupil Trips requires 54 Spaces

12.3.10 The school currently generates 325 pupil trips (30% x 1083). On the basis of the same calculation as set out above, the number of existing trips requires 55 pick-up/drop-off spaces.

12.3.11 As the percentage of pupils that travelled to school by car is approximately double what is expected, the above figures are not considered appropriate. It is recommended that sustainable modes of travel are promoted and lower recommended values of the above pick-up/drop-off spaces be provided.

12.3.12 It is, therefore, recommended that a minimum net number of 28 pick-up/drop-off spaces are provided on-site, with a maximum of 55 with regards to the expansion scenario

12.3.13 It is noted that such a designated facility requires significant construction. However, amendments to the existing Bus-Only turning circle could be made to accommodate pickup/drop-off infrastructure. This amendment must coincide with an effort to encourage both parents and staff members choose alternative modes sustainable transport.

12.4 HIGHWAY SAFETY

12.4.1 The overall number of incidents which have occurred over the analysis period in the local area, whilst not exceptional, is noted to be in-line with expectations. The ratio of injuries to incidents is high. The record includes a serious causality and there is a slight year-on-year trend in the increase of incidents that are being recorded.

12.4.2 Formalising parental pick-up/drop-off has been discussed above. On the basis of the current operations observed, the predicted additional vehicular demand and the potential for an increase in personal injury incidents, it is concluded that the implementation of a parental pick-up/drop-off arrangement would be appropriate.

12.4.3 Aside from mitigation measures detailed below and any additional analysis which the Highways Authority may want to undertake relating to the incidents involving school pupils, it is strongly recommended that as a minimum the following measures are undertaken:

- Information leaflets to families could be a good approach to advise and update parents accessing the school during the pick-up and drop-off times;
- Guided/supervised walking/cycling to school and education for students walking; and
- George Wood Road and Mymms Drive have no effective footways or traffic calming measures. It is recommended that discussions are held with the Local Highways Authority to consider the alterations of these roads to allow safe passage for pupils to walk to school.
- There have been 2 incidents involving school children sustaining slight injuries from being hit by vehicles. As part of any potential expansion it is strongly recommended that liaison with the Highways Authority is undertaken regarding the potential for Marshalling crossings by school crossing patrol warden, and potential traffic calming measures on the aforementioned roads.

12.5 SOFT MEASURES

12.5.1 A Hands Up survey was conducted in 2016. The results have been used to determine mode share for pupil trips to and from school; the results indicate that 5% of pupils walk to school and 1% cycle/scoot. 30% of pupils reported travelling to school by car/van; 10% of these pupils reported to park and walk; 7% of these pupils car share and finally 45% of pupils reporting that they use the bus.

12.5.2 The School Travel Plan is a live document, and as such should be updated and maintained on a regular basis, with realistic measures created and updated/amended in order to ensure that it enables the school to be continually working towards reducing the number of vehicular trips associated with the school.

12.5.3 It is recommended that the school introduce 'Walk to School Weeks' in order to encourage increased numbers of pupils and parents to walk to and from the school site on a more regular basis than is currently the case.

12.5.4 Targeted assemblies, classes and literature are recommended to increase pupils' awareness of the environmental and health benefits of walking and cycling to school. It would also be appropriate to deliver a "road to safety" programme to pupils in assemblies and PHSE sessions, emphasising the importance of the rules of the road, and of using care and common sense as pedestrians and cyclists.

12.5.5 It is also important to inform and educate parents and school staff members of the reasons to avoid parking illegally and inconsiderately in close proximity to the school's vehicular and pedestrian accesses. This, as well as an increased promotion of walking and cycling, could be in the form of school newsletters, as well as more focussed letters home. These aspects can also form part of the school prospectus, and be introduced to new and prospective parents, thereby creating a sustainable ethos from the outset, ensuring that parents know what is expected of them during the peak drop-off and pick-up times.

13. SUMMARY & CONCLUSIONS

13.1 SUMMARY

13.1.1 Pell Frischmann have been commissioned by Hertfordshire County Council (HCC) to prepare a Transport Assessment (TA) relating to the potential expansion of Chancellor's School, Pine Grove, Brookmans Park, Hatfield, AL9 7BN.

13.1.2 The assessment relates to one element of the work being carried out by HCC to provide additional secondary school places throughout the county. The school currently operates as a 6 Form Entry (FE) secondary school, with capacity for 1260 pupils. There are currently 1083 pupils on roll.

13.1.3 This document assesses the following incremental analysis of the following permanent expansions:

- Permanent 7FE- Expanding the size of the school permanently by 1FE, thus increasing the capacity of the school to 1470 (a 7FE School). An additional 210 pupils (on top of the take up of the 177 current shortfall – a total of 387 additional pupils from the current position).

- Permanent 8FE- Expanding the size of the school permanently by 2FE, thus increasing the capacity of the school to 1680 (an 8FE School). An additional 420 pupils (on top of the take up of the 177 current shortfall – a total of 597 additional pupils from the current position).

- Permanent 9FE- Expanding the size of the school permanently by 3FE, thus increasing the capacity of the school to 1890 (a 9FE School). An additional 630 pupils (on top of the take up of the 177 current shortfall – a total of 807 additional pupils from the current position).

13.1.4 Table 12.1 below provides a summary of the trip generation and travel patterns associated with the potential expansion scenario.

	CURRENT	FALLBACK	EXPANSION		
	Under capacity 6FE Secondary School	**6.0FE Secondary School**	**7.0FE Secondary School**	**8.0FE Secondary School**	**9.0FE Secondary School**
Capacity Yr7-Yr13	1083	1260	1470	1680	1890
Car Use (%)	30%				
Walking (%)	5%				
Staff Car Usage	100%				
Pupil Trips	412	378	441	504	567
Full-Time Staff	108	84	98	112	126
Full-Time Staff Vehicular Trips	137	84	98	112	126
Car Parking Spaces	70	90	114	127	140
Car Parking Spaces Disabled	0	5	6	6	7
Pupil Pick-up/Drop-off Arrangement	0	64	92	105	118

Table 13.1: Numerical Summary of Travel Associated Statistics

13.1.5 Chancellor's School is located on The Drive, which joins onto Pine Grove, in a rural setting. There is residential housing present to the east of the school.

13.1.6 It was observed during the site visit that parents were using the "Bus Only" turning circle to drop off their children.

13.1.7 During the observation, high congestion volumes and frequent conflicts were observed by vehicles on both the school access road and Pine Grove. These have been linked to four contributory factors: firstly, the queue of vehicles on the access road (road that forms a T-junction with Pine Grove), the narrowing of the carriageway due to on-street parking, parent utilisation of the 'Bus Only' turning circle and the use of buses.

13.1.8 Having consulted the Hertsmere Planning Portal, it is understood that there are currently no planning applications that are awaiting decisions or have been accepted in the area surrounding the site that would significantly affect the traffic conditions.

13.1.9 Peak period traffic counts were collected for the following three junctions:

- Brookmans Avenue/Golf Club Road/George's Wood Road/Mymms Drive Staggered T-Junction;

- George's Wood Road/Pine Grove T-Junction
- Great North Road/ Bell Lane Leftside T-junction; and
- A1000 Great North Road/Church Road Signalised T-Junction

13.1.10 The assessments have shown that only one of the junctions is operating over capacity. It has been understood from analysing the traffic counts, that the T-junction between George's Wood Road and Pine Grove (Junction 2) is running over-capacity during the AM peak times.

13.1.11 The PLASC data indicates that 2% of pupils live within 0.5km of the school, with a further 7% living within 0.5-1km of the school. It is understood that 5% of pupils walk to and from school and with 9% living within a reasonable walking distance (<1km), there is scope to increase the number of pupils walking to and from school.

13.1.12 Hand's up data shows that 30% of Chancellor's School pupils travel to school by car, with a further 7% car sharing and 1% self-driving themselves (sixth-form) and above.

13.1.13 It is understood that the school currently generates 325 pupil vehicular trips and 137 staff trips during the school peak hours, a total of 549 vehicular trips.

13.1.14 Personal injury collision data, to cover a five year period between December 2010 and July 2015, has been obtained from Hertfordshire County Council. The data covers the highway network in the vicinity of Chancellor's School.

13.1.15 There have been a total of 23 recorded incidents of which 22 were categorised as slight and 1 as serious. The 23 incidents involved 39 casualties, of which 38 were slight and 1 was serious. Of these casualties, 1 was a pedestrian and 3 were cyclists. There were 2 incidents, both classed as "slight", which involved Non-Motorised Road Users under the age of 15; 1 incident involving a cyclist and another involving a cyclist.

13.1.16 It is estimated that once at full 9FE capacity, the school is likely to generate an additional 242 pupil trips in each peak hour. It is estimated that the new members of staff will generate an additional 54 vehicular trips.

13.1.17 The modelling results indicate that, following the school expansion, three junctions will continue to operate within capacity; with all arms experiencing an RFC that is less than 85%. The exception is the George Wood Road/Pine Grove T-Junction, which, after the expansion, will operate significantly over capacity in the AM peak, experiencing an RFC of over 100%.

13.1.18 This report has made specific reference to the observed conditions at George's Wood Road/Pine Grove T-Junction. A rolling slow moving queue of 4 to 12 vehicles was observed on Pine Grove heading southbound. The southbound rolling queue was observed to continue after the 0900 peak, with queuing reducing and traffic becoming free-flowing at 0915.

13.1.19 It is recommended that the road north of Pine Grove should be adopted to achieve the throughput of traffic and reduce the burden from development traffic to the road south of Pine Grove. The subsequent development traffic directed north will impact on Junctions 3 and 4. Although both of these junctions have large amounts of spare capacity, it would be advised that a review of the adequacy of its current condition be assessed.

13.1.20 The following recommendations are soft message which would aid in alleviating this congestion. These are as follows:

- Increased cycle and scooter parking provision;
- Encourage pupils to travel sustainability, informing them of the environmental and health benefits of doing so – there is certainly the potential for the number of pupils to walk, cycle and scoot to school to increase considerably;
- Encourage staff to travel to and from school more sustainably through car sharing, for example, and, by those staff who live close enough to do so, by walking and cycling.
- The public transport network in the vicinity of the school provides pupils, parents and staff with a realistic and sustainable mode of transport.

13.2 CONCLUSION

13.2.1 Following the observations and resulting desktop study, it is concluded that the additional traffic anticipated to be generated as a result of the expansion of Chancellor's School can be accommodated by the surrounding road network if appropriate hard and soft measures are implemented.

13.2.2 Discussions with the highway authority should be held to discuss the option of if the road north of Pine Grove could be adopted to achieve the throughput of traffic and reduce the burden from development traffic to the road south of Pine Grove.

13.2.3 George Wood Road and Mymms Drive have no effective footways or traffic calming measures. It is recommended that discussions are held with the Local Highways Authority to consider the alterations of these roads to allow safe passage for pupils to walk to school.

13.2.4 There have been 2 incidents involving school children sustaining slight injuries from being hit by vehicles. As part of any potential expansion it is strongly recommended that liaison with the Highways Authority is undertaken regarding the potential for Marshalling crossings by school crossing patrol warden, and potential traffic calming measures on the aforementioned roads.

13.2.5 There is a large demand for both staff car parking spaces and pickup/drop-off spaces for the school. It is recommended that the existing additional car park to the south east of the site would be an appropriate location to generate more car parking spaces. The alteration to the existing "Bus Only" turning circle pick-up/drop-off infrastructure has also been recommended. It is important that the number of staff and parent vehicular trips are reduced, with walking, cycling, car sharing and the use of public transport being promoted as realistic alternatives to single occupancy car journeys.

13.2.6 It is of particular importance that the school encourages pupils to travel to and from school by using sustainable modes of transport. The management of the school access at peak times by a member of staff is noted to be a considerable factor in reducing instances of illegal and disruptive parking; it is highly recommended that this management is continued in light of the potential expansion.

13.2.7 Soft measures, including education programmes for both pupils and parents are essential in order to reduce the number of parental and staff trips during the peak times. Encouraging pupils and parents to walk, scoot or cycle or use the bus to and from school are strongly recommended to accompany the expansion proposals, as well as the maintenance and activation of an up-to-date travel plan promoting safe and sustainable travel.

13.2.8 Additional car parking spaces should be provided on-site for staff use, although it is noted that this would (potentially) require major site works. In addition to this a new pick-up or drop off point should be introduced to reduce the congestion and prevent the use by parents of the bus turning circle.