

Cottenham Village College,
Cambridgeshire



Transport Assessment

7th January 2010

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1 Introduction

1.1 Preamble

Mouchel Ltd has been commissioned by Cottenham Village College (CVC) in Cambridgeshire to prepare a Transport Assessment (TA) in support of a planning application for the expansion of CVC. Details of the proposed development can be found in **Chapter 4** below.

This TA has been informed by CVC's existing School Travel Plan (STP). The latest version of this STP, updated by the School Census Data acquired in September 2009, is a stand-alone document which accompanies this TA.

Following discussions with CCC's school travel plan coordinator and the Transportation team on the 6th January further revisions and clarifications have been inserted into this document, highlighted in red.

1.2 Background

CVC is a comprehensive community school serving the villages of Cottenham, Landbeach, Rampton, Waterbeach and Willingham for children aged between 11 and 16 years. This area is known as the Fen Edge Patch and has a total population of around 16,000 residents. The school is located in Cottenham which is the geographical centre of the catchment and the largest of the five villages with a population of over 7,000.

CVC currently has 980 students enrolled with 166 members of staff employed comprising:

- 66 full/part-time teachers
- 48 teaching assistants and instructors
- 28 ancillary and technical staff
- 24 site staff and cleaners

The total Gross Internal Area (GIA) of CVC is 6,921sqm.

The school was opened in 1963 by Her Majesty the Queen Mother as one of a number of Cambridgeshire village colleges which were the original community schools. Each village college had a remit to provide education, leisure and recreation to people of all ages within their catchment.

CVC is considered to be a High 'Performing Specialist School' with the mainstream element of the school specialising in mathematics, computing and applied learning.

There are also special units within the main CVC site which cater for students with hearing and learning/language impairment.

1.2.1 Special Needs Centre

The Special Needs Centre (SNC) serves students with extreme emotional & behavioural difficulties, most of whom have been excluded from local secondary schools or schools outside of the county. The SNC was formally established on 1st November 2008 from the former behavioural unit and, along with CVC, is part of a new Cottenham Federation as of January 2009.

The SNC (which comes under the banner of CVC but is a separate entity with its own governing body), currently has 55 students and 5 full/part time teaching staff.

Other facilities provided by the school include:

- The operation of youth clubs in nine villages, including Cottenham
- A programme of daytime, evening and school holiday adult classes with 1,500 registered attendees
- A sport & leisure centre for community use

1.2.2 Daily Operation

CVC is open 7 days a week from 0700 to 2200 and reception is manned from 0700 to 2200 during term times and 0830 to 1600 at all other times. The premises close on Bank Holidays and over Christmas and New Year.

1.3 Pre-application Discussions

A scoping letter was sent to the relevant highways officer at Cambridgeshire County Council (CCC) on 02/10/09 for the purpose of having the proposed structure and content of the TA pre-approved in principle. In addition, detailed discussions between Mouchel and the Travel Plan Co-ordinator at CCC in relation to the update of the existing STP have also taken place.

1.4 Structure of the Report

The TA consists of the following chapters:

- Chapter 2 summarises the national and regional transport and planning policy which this TA supports and concurs with
- Chapter 3 describes the baseline conditions of the site and surrounding area including a description of the local highway network, existing sustainable transport provision, on-site car & cycle parking, committed developments and accident data

- Chapter 4 details all elements of the proposed development
- Chapter 5 calculates the existing multi-modal trip generation and that associated with the proposed development
- Chapter 6 develops a trip distribution and assignment assumption model for all existing and proposed multi-modal trips to the application site
- Chapter 7 summarises and concludes the TA

Junction capacity assessments have not been included in this TA as the proposed vehicle trip generation was considered to be marginal and not sufficient enough to warrant the implementation of full capacity assessments.

2 Transport Policy Context

2.1 Introduction

There is now a growing recognition that satisfying the future demand for travel by major road building is unacceptable on both cost and environmental grounds. The Royal Commission on Environmental Pollution published its eighteenth report on 'Transport and the Environment' in October 1994 in which it made recommendations designed to provide the essential foundation for sustainable transport policy. Objectives were put forward to minimise atmospheric pollution from vehicle emissions and to minimise fuel consumption.

In order to achieve the maximum practical sustainable access to this development, proposals should aim to:

1. Maximise opportunities for short distance trips by walk / cycle
2. Reduce trip lengths for motorised journeys
3. Encourage modal shift from car to public transport

Sustainable Transport issues are growing in importance, as is stated in Planning Policy Guidance 13 (Transport), 2001 and emphasized by the Stern Review of the economics of climate change carried out by Sir Nicholas Stern, Head of the Government Economic Service.

2.2 National Policy

2.2.1 DfT Guidance on Transport Assessment (2007)

When preparing Travel Plan, the Guidance on Transport Assessment (GTA) requires that the following be reviewed and executed:

Encouraging Environmental Sustainability –

- Reducing the need to travel, especially by car
- Tackling the environmental impact of travel
- The accessibility of the location
- Other measures which may assist in influencing travel behaviour

Managing the existing network –

- Making the best possible use of existing transport infrastructure
- Managing access to the highway network

Mitigating residual impacts –

- Through Demand Management
- Through improvements to the local public transport network, and walking and cycling facilities
- Through minor physical improvements to existing roads
- Through provision of new or expanded roads

2.2.2 Planning Policy Guidance 13: Transport (2001)

The publication of the Government's White Paper 'A New Deal for Transport: Better for Everyone' 1998, saw the launch of a new vision for integrated transport policy to be implemented at local level through LTPs, and seeking to promote sustainable development:

'Land use planning plays a central role in delivering sustainable development.'

PPG13 was first published in 1994 and subsequently revised in 2001. Its aim is to *'integrate planning and transport at the national, regional, strategic and local level'* and to promote more sustainable transport choices, both for carrying people and for moving freight. It also aims to promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling and to reduce the reliance on the private car for the majority of journeys.

PPG13 recognises the importance of a Travel Plan in the delivery of sustainable transport objectives, including:

- Reductions in car usage (particularly single occupancy journeys) and increased use of public transport, walking and cycling
- Reduced traffic speeds and improved road safety and personal security particularly for pedestrians and cyclists
- More environmentally friendly delivery and freight movements, including home delivery services

PPG13 considers that Travel Plans should be included, where appropriate, for planning applications that are likely to have significant transport implications.

2.3 Regional Policy

2.3.1 Cambridgeshire County Council Local Transport Plan 2006–2011

The principal scheme within the Cambridgeshire area affecting Cottenham is the proposed Cambridgeshire Guided Busway (CGB).

The CGB is an open access guided busway where any operator with suitable vehicles which meet a defined quality threshold will be able to use it. Buses will be able to join the guideway from the local road network which will promote use of the scheme by rural services and minimise the need for interchange.

Between St. Ives and Cambridge, the CGB will be able to accommodate single and double-deck vehicles. The busway will involve low floor/easy access buses, prepaid/electronic ticketing and real-time information.

CGB stops along the route will offer level boarding and alighting, weather-proof waiting facilities, secure cycle facilities, real-time information and off-board ticketing (prepaid/electronic/self serve) and lighting designed to high standards with CCTV at all stops.

The route, which passes through Cottenham's neighbouring villages of Longstanton and Oakingham where a significant number of staff members and student reside, is shown in **Figure 2.1** below.

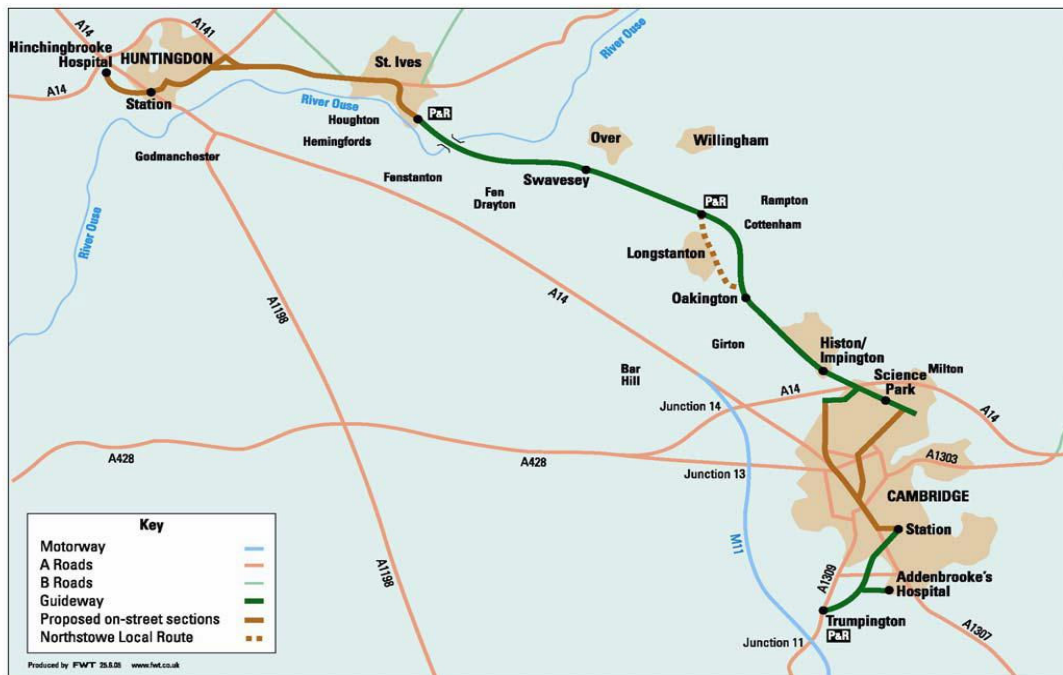


Figure 2-1: Cambridgeshire Guided Busway Route

The main aims of the scheme are to:

- extend choice of transport modes for all, including car drivers, to encourage a shift to public transport
- promote sustainable development by providing high quality public transport links to new development
- improve access to public transport in areas that currently have poor provision
- improve integration of the public transport network
- promote social inclusion by improving access to employment, leisure and educational opportunities
- improve safety along the corridor by providing a high quality public transport alternative to the private car

The CGB will also carry out the following objectives:

- provide a real alternative to the private car for local travel in the Cambridge to Huntingdon corridor; this will support the development of the A14 improvements scheme which seeks greater separation of local and longer distance journeys
- greatly improve transport access and choice for communities in the corridor, including provision of frequent and direct public transport links to employment, education, social and recreational facilities

3 Baseline Conditions

3.1 Site Location

The application site is located in the village of Cottenham in Cambridgeshire off the eastern side of the B1049 High Street. Cottenham is located approximately 7 miles north of Cambridge, 11 miles south of Ely, 19 miles east of Huntingdon and 20 miles west of Newmarket.

The CVC site is predominantly surrounded by residential housing to the north, east and south with the B1049 High Street running north to south to the west of the site (please see **Figure 3-1** below). **Appendix A** contains a more specific blue-line site boundary plan of the existing layout.

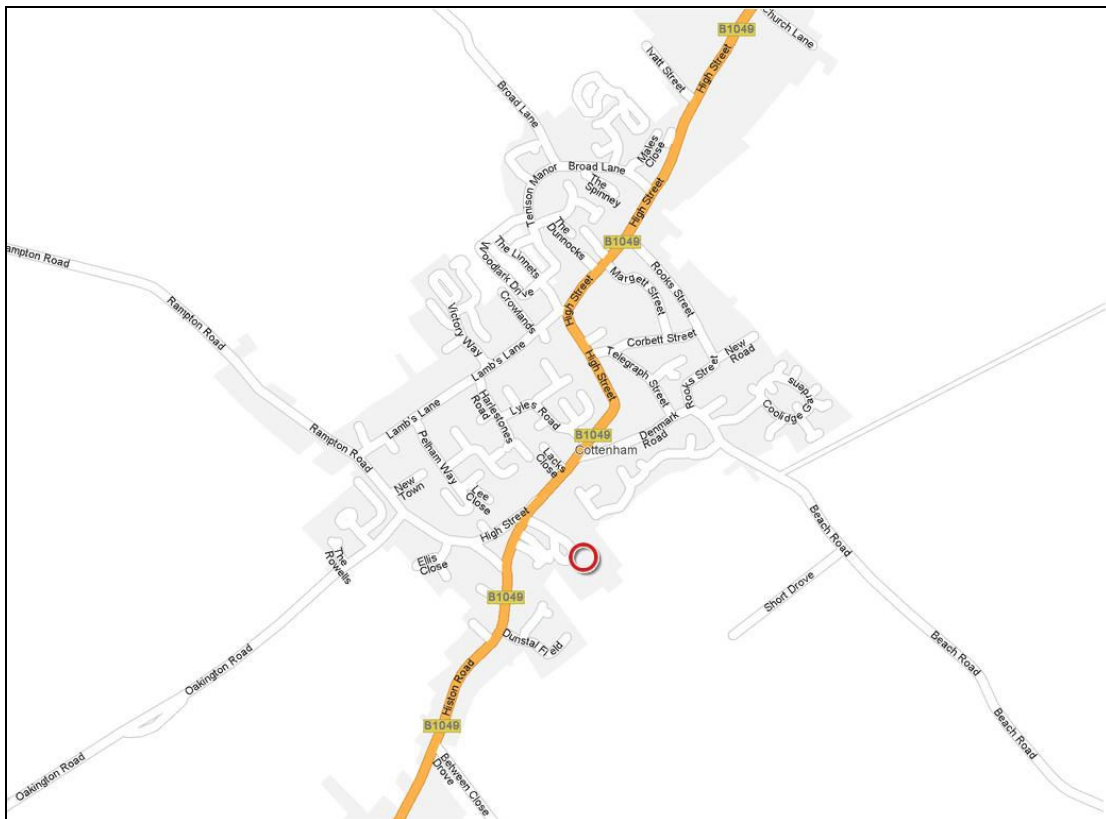


Figure 3-1: Site Location Map

3.2 Site Access

Access to the site is from the B1049 High Street only. The site entrance junction takes the form of a two-way priority junction (please see **Figure 3-2** below).



Figure 3-2: Site Access Junction

Upon entering the site, there is a looped one-way system for vehicles to drive round. This loop provides an excellent system for all vehicle types to set down and collect individuals adjacent to the school's main entrance (please see **Figure 3-3** below).



Figure 3-3: On-Site Loop Entrance & Set-Down/Collection Area

3.3 Sustainable Transport

3.3.1 Dedicated Bus Services

At present, the school offers 8 dedicated bus services to students. These services are contracted and funded by the Local Education Authority (LEA) to 6 different bus and coach companies. Rather than setting down and collecting on the B1049 High Street, the buses set-down and collect students in the morning and afternoon respectively from immediately outside the school building's main entrance. The routes are from the east and west of Cottenham only (Willingham & Longstanton to the west and Waterbeach & Landbeach to the east).

All buses arrive between 0830 and 0845 in the morning. In the afternoon, all buses arrive between 1500 and 1510 and leave the site at 1520.

The effect of the school buses parking at the end of the day is to prevent any movement of other traffic in the first 10 minutes after college finishes. This allows for the safe departure of pedestrians as no cars are able to leave the site as they are effectively blocked in by the buses. Such a scheme is designed to segregate pedestrians and vehicles as so many students use the site on a daily basis.

A considerable amount of staff time is used to monitor the departure of students at the end of the school day. There is a code of conduct for students travelling on the buses and persistent poor behaviour can lead to students losing their bus passes for a defined period, or permanently.

Table 3-1 below provides further details of each dedicated bus service to CVC.

Service	Operator	Bus Type	Origin	No of Students	Route
531	Grey's of Ely	Single Deck Coach	Waterbeach NAAFI Barracks	56	Denny End Rd/A10 Ely Rd/Waterbeach Rd/Green End Rd/Cottenham Rd/Beach Rd/Denmark Rd
532	PJ Brown	Double-Decker Bus	Waterbeach (The Brewery Tap PH)	78	Denny End Rd/A10 Ely Rd/Waterbeach Rd/Green End Rd/Cottenham Rd/Beach Rd/Denmark Rd
533	PJ Brown	Double-Decker Bus	Chittering via Waterbeach	58	School Ln/ A10 Ely Rd/Denny End Rd/Waterbeach Rd/Green End Rd /Cottenham Rd/Beach Rd/Denmark Rd
535	Sunfun Buses	Double-Decker Bus	Longstanton via Willingham & Rampton	58	
536	Kiddles Coaches	Single Deck Coach	Willingham (Balland Field)	35	Rampton Road
537	Dews Coaches	Single Deck Coach	Willingham (Berrycroft)	57	Rampton Road
538	Collins Coaches	Single Deck Coach	Waterbeach via Landbeach	54	Denny End Rd/A10 Ely Rd/Waterbeach Rd/Green End

					Rd/Cottenham Rd/Beach Rd/Denmark Rd
539	Dews Coaches	Single Deck Coach	Willingham (Millfield)	49	Rampton Road
-	CVC	Minibus	Milton via Landbeach	10	Landbeach Rd/High St/Cottenham Rd/Beach Rd

Table 3-1: Dedicated Bus Services

3.3.2 Public Bus Services

Table 3-2 below provides details of all public services which serve Cottenham.

Service	Operator	Bus Type	Route	Frequency
7	Cambridge Citi	Single Decker	Cottenham–Cambridge–Sawston– Duxford– Pampisford–Saffron–Walden	Every 10 mins daily
106	Freedom Travel Coaches	Single Decker	Cottenham – Haddenham – Ely	Every 2 hours daily
110	Freedom Travel Coaches	Single Decker	Impington – Cottenham – Ely	1 per day on Thursdays only
X7	Stagecoach	Single Decker	March–Chatteris–Cottenham–Cambridge	1 per day from Mon to Sat

Table 3-2: Public Bus Services

3.3.3 Train Services

The nearest station is located in Waterbeach approximately 5 miles to the east. There are currently no staff members or students who use the train.

3.3.4 Cycling

CVC currently provides 35 on-site secure and sheltered cycle stands for staff members and students (please see **Figure 3-4** below).



Figure 3-4: Examples of Existing On-Site Cycle Parking Stands

Currently there are no dedicated cycle lanes connected to Cottenham except between the villages of Cottenham and Rampton. This route runs along Rampton Road from the beginning of Church End to the east of Rampton village to just before Lamb's Lane to the west (please see **Figure 3-5** below).



Figure 3-5: Rampton Rd Dedicated Cycle Lane

However, the main issues with this dedicated cycle lane, as highlighted by students and parents, include the fact that there is no lighting on the road and there is no barrier between the path and the road (which has a vehicle speed limit of 50mph). Parents have stated that they would not be comfortable with their children cycling in the darker autumn and winter months on a busy road with no lighting and with the absence of a safety barrier.

The site's sustainability could be further improved through the creation of safer cycling routes. Even though more on-site cycle parking is being proposed as part of the application (please see **Chapter 4** below) safer cycling routes to and from the school would provide an added incentive for a greater number of cycle trips in the future.

3.3.5 Walking

The surrounding area of the application site is almost wholly residential which means that all roads have pedestrian pathways on either side with appropriate street lighting. For those staff members and students who currently walk to and from CVC (please see **Chapter 5** for figures), the pedestrian access to the site in general is very good with two dedicated footpaths connecting the public footpath on the B1049 High Street to the school's main entrance (please see **Figure 3-6** below).



Figure 3-6: Dedicated Footpaths to School Building from High St

Two dedicated pedestrian crossings from the western side of the B1049 to the eastern side are located near to the entrance junction of the CVC site. The southern crossing is a traffic calming raised zebra crossing with belisha beacons on both sides. The northern crossing is a courtesy crossing with a refuge island surrounded by rail guards and two illuminated bollards.



Southern Crossing

Northern Crossing

Figure 3-7: High Street Crossings outside CVC

Although pedestrian pathways are prevalent within the built up areas of Cottenham, it would be difficult and unsafe for pedestrians to walk to neighbouring villages with perhaps the exception of Rampton. Other roads to neighbouring villages, namely Oakington Road and Beach Road and the stretch of Rampton Road to Willingham, all pass through rural areas and are therefore narrow with no discernable footpath

and with traffic travelling at high speeds. **Chapter 5** outlines the number of students who currently walk to and from CVC and their respective walking distances.

3.4 Car Parking

The site currently has 111 allocated car parking spaces plus 9 disabled spaces by the main entrance with approximately 20 cars on average parking on unallocated grassed verges. **These existing unallocated parking areas are expected to be converted into official 20 allocated parking spaces for staff members (please see Section 4.4 below).**

3.5 Committed Developments

There are no major committed developments in the village of Cottenham which need to be taken into account for the purposes of this report.

3.6 Accident Data

3.6.1 Introduction

Personal injury accident data from 2004 to 2009 was acquired from CCC. **Table 3-3** below provides an update of accidents which have occurred between June 2004 and June 2009. Full details of all accident data, including the locations of accidents which occurred in the vicinity of the site, are located in **Appendix B**.

Year	Slight	Serious	Fatal	Total
2004	10	0	0	10
2005	5	0	0	5
2006	3	2	0	5
2007	5	2	0	7
2008	1	2	0	3
2009	3	0	0	3
Total	27	6	0	33
%	82%	18%	0%	100%

Table 3-3: Accident Summary (2004-2009)

From the details of the accident data, the serious incidents occurred due to driver error and not due to the layout or infrastructure of the highway network. No incidents took place at the entrance junction of CVC.

3.6.2 Summary

The accident record for the area has remained stable and relatively low from 2004 to date.

4 Proposed Development

4.1 Background

The proposed development involves the construction of two buildings as an 'applied learning' Sixth Form Centre for the purposes of catering for students between the ages of 16 and 18 years within the entire county of Cambridgeshire who wish to embark on further education. The larger unit will be an extension of an existing building with the smaller building as a separate, free-standing structure. The larger building will be used as a general facility for classes whereas the smaller building will be for more vocational/apprenticeship courses. The Gross Floor Area (GFA) for both buildings is detailed in **Table 4-1** below:

Building	Level	GFA
Main Unit	Ground floor	1,309sqm
	First floor	791sqm
	Sub-Total	2,100sqm
Technology/Vocational Unit	Ground floor	160sqm
	First floor	132sqm
	Sub-Total	292sqm
Total		2,392sqm

Table 4-1: GFA of Proposed Developments

Appendix C contains the existing and proposed site layout plans and the proposed building floor plans and elevations.

The proposed facility will not be a standard sixth form college for students who have been successful in their GCSE examinations and wish to pursue further education. Instead, the proposed development will be a High Performing Specialist Facility for 16 to 18 year olds who have learning difficulties, mental and physical disabilities, emotional and behavioural issues and those who have simply underachieved in their previous academic examinations.

4.2 Operating Hours

The opening hours of the proposed facility will mirror the hours of the existing CVC operation. However, as the proposed development will be a sixth form facility, class times will be distributed sporadically over the course of the day. Therefore, there will be no fixed time within which the majority of trips will occur and students will be arriving and departing the site at differing times during the day according to their individual timetables.

4.3 Site Access

Vehicle and sustainable access arrangements will remain the same.

4.4 Car Parking

The proposed parking provision is based upon South Cambridgeshire District Council's (SCDC) 'Policy TR/2 Car and Cycle Parking Standards' which, for educational land use, stipulates:

- 1 space / 2 staff and 1.5 spaces / classroom
- Secure cycle parking at a rate of 60% for pupils over 12 years of age

Based upon the above parking standards, the proposed car parking provision has been calculated as follows:

- 19 additional staff = 9.5 car parking spaces
- 15 new classrooms [H&C, ICT (x2), Hair, Beauty, Media, Hearing Impairment, Language, Classroom (x4), Seminar room, Workshop, IT] = 22.5 car parking spaces
- Total = 9.5 + 22.5 = 32 spaces

It is proposed that 32 officially allocated parking spaces be constructed as part of this planning application. 5 of these spaces will be as a result of existing spaces lost through the construction of the new development and displaced elsewhere on the site. The remaining 27 spaces will be constructed in response to cars currently being parked on areas of the school which have not officially been allocated for parking (e.g. grass and unmarked concrete areas). It is proposed that these existing areas will be officially allocated for cars which are currently parking in these areas unofficially. Therefore, the proposed parking is a provision for existing car parking arrangements and not necessarily cars which maybe associated with the proposed development.

Due to the fact that the operation of the proposed facility, staff movements will be similar to that of a sixth-form college. Staff arrivals and departures are expected to be sporadic throughout the day due to class scheduling therefore not all staff members will be arriving and departing during the peak periods, taking account of peripatetic and part-time teaching and support staff. Therefore, the proposed parking arrangement and provision is considered to be sufficient.

4.5 Cycle Parking

The cycle parking provision for the proposed development would be calculated as follows:

- 60% of 240 students = 144 cycle parking spaces

However, following discussions with CVC and given the number of existing cycle trips, it was agreed that 50 new cycle spaces would be less excessive and a more reasonable provision to positively encourage more cycle trips in the future. However, the use of these cycle spaces will be monitored annually as part of the STP to ascertain whether a greater provision is required, or otherwise, and to facilitate additional cycle stands if necessary. The reason behind the low number of existing cycle trips is explained in **Section 3.3.4** above.

A site layout plan for the proposed parking provision is contained in **Appendix D**.

5 Trip Generation

5.1 Observed Multi-Modal Trip Generation (Staff & Students)

On-site travel surveys were undertaken on Friday 15th September 2009 for the morning period of 0730 to 0930 and in the afternoon from 1400 to 1600 to ascertain the school's trip profiles on a typical day. **Tables 5-1** and **5-2** below provide the observed modal split for students and staff members respectively.

It must be highlighted that the whole of the Year 11 group was absent from the school on the day of the travel surveys due to a two-week period of pre-scheduled work experience. Other factors, such as illnesses, holidays and off-site activities should also be taken into consideration when reviewing the observed data below.

Time	Mode	Number of Students	Percentage
0730 – 0930	Dedicated School Bus	492	58.5%
	Car (incl. Car Share)	86	10%
	Walk	212	25%
	Taxi	47	6%
	Cycle	4	0.5%
	Total	841	100%
1400 – 1600	Dedicated School Bus	472	55%
	Car (incl. Car Share)	55	6%
	Walk	300	35%
	Taxi	30	3.5%
	Cycle	4	0.5%
	Total	861	100%

Table 5-1: Existing Student Modal Split (Including SNC) – Observed

Time	Mode	Number of Staff	Percentage
0730 – 0930	Car	107	84%
	Car Share	4	3%
	Walk	9	7%
	Cycle	5	4%
	Motorcycle	2	2%
	Total	127	100%
1400 – 1600	Car	55	89%
	Car Share	0	0%
	Walk	3	5%
	Cycle	3	5%
	Motorcycle	1	1%
	Total	62	100%

Table 5-2: Existing Staff Modal Split – Observed

5.2 CVC Student Multi-Modal Trip Generation (2005- 2009)

Table 5-3 below details the student modal shift from 2005 to 2009 extracted from the latest school census data. This data is as a result of the implementation of the existing STP over the last four years with the percentage change between each year.

Year	Walk	Cycle	SO Car	Car Share	Public Bus Service	Dedicated Bus Service	Taxi	Total
2005	308	17	103	0	0	492	82	1002
2007	300	16	38	89	10	438	84	975
2008	295	16	45	62	7	417	82	924
2009	303	11	46	47	13	437	44	901
2005	31%	2%	10%	0%	0%	49%	8%	100%
Change	+0%	+0%	-6%	+9%	+1%	-4%	+1%	
2007	31%	2%	4%	9%	1%	45%	9%	100%
Change	+1%	+0%	+1%	-2%	+0%	+0%	+0%	
2008	32%	2%	5%	7%	1%	45%	9%	100%
Change	+2%	-1%	+0%	-2%	+1%	+3%	-4%	
2009	34%	1%	5%	5%	2%	48%	5%	100%

Table 5-3: Student Modal Shift (2005-2009)

The table above indicates that there is a random fluctuation in percentage change between each year for each mode. The fact that there is no consistent discernable pattern of change over the four period for any mode means that it would be difficult to further predict the pattern between 2009 and 2011.

To overcome this issue, the average of the modal split from 2005 to 2009 has been calculated as well the average of the percentage change for each mode within this period.

Table 5-4 below provides an average of the modal split for each year between 2005 and 2009 as a worst-case test. It has been assumed that this modal split will remain constant until the 2011 opening year therefore no improvement to the modal split has been calculated based upon the existing STP.

Year	Walk	Cycle	SO Car	Car Share	Public Bus Service	Dedicated Bus Service	Taxi
2005	31%	2%	10%	0%	0%	49%	8%
2007	31%	2%	4%	9%	1%	45%	9%
2008	32%	2%	5%	7%	1%	45%	9%
2009	34%	1%	5%	5%	2%	48%	5%
Average	32%	2%	6%	5%	1%	47%	7%

Table 5-4: Average Modal Split (2005-2009)

Table 5-5 below provides an average of the modal shift between each year from 2005 to 2009.

Year	Walk	Cycle	SO Car	Car Share	Public Bus Service	Dedicated Bus Service	Taxi
2005-2007	0%	0%	-6%	+9%	+1%	-4%	+1%
2007-2008	+1%	0%	+1%	-2%	0%	0%	0%
2008-2009	+2%	-1%	0%	-2%	+1%	+3%	-4%
Average	+1%	+0%	-1%	+1.5%	+0.5%	+0%	-1%

Table 5-5: Average Modal Shift (2005-2009)

Table 5-6 below shows the number of vehicles accessing the site, based on a 'worst-case' baseline. This has been calculated using the average student person trip census data between 2005 and 2009 as detailed in **Table 5-3** above. It was agreed with CCC that using the average of census data taken between 2005 and 2009 rather than observed data would provide a more robust 'worse-case' scenario in terms of vehicle generation rather than just the most recent survey results from 2009.

We have also carried out a cross-validation exercise examining the school census data for 2009 and the observed pupil-drop off car peak hour arrivals in the same year, to ensure that the relationship between observed and school census assumptions is consistent. Based on the census data, the number of cars arriving in the AM peak was 66, compared to 71 derived through the school census person trip data. Both are based on the 1.85 car share occupancy rate for those vehicles carrying more than one pupil. This means that the conversion of person trips to the school to vehicle trips follows a robust method supported by the observed counts in September 2009.

Year	Single Occupancy	Car Sharing	Total
2005	103	0	103
2007	38	89	127
2008	45	62	107
2009	46	47	93
Average Persons	58	50	108
Vehicles	58	27	85

Table 5-6: 2009 Vehicle Generation Derived from Census Data

To calculate the number of vehicles with pupil car sharers, an average car occupancy of 1.85 was derived from the observed data and applied to the average car sharing person trips (50 person trips / 1.85 car occupancy = 27 vehicles). This gives a total baseline of 85 vehicles accessing the site as a 'worst-case' scenario.

The same average principle from 2005 to 2009 has also been applied to taxis but at a higher pupil car occupancy of 2.2 based upon observed data (please see **Table 5-7** below).

Year	Taxi Person Trips
2005	82
2007	84
2008	82
2009	44
Average Person Trips	73
Vehicles	33

Table 5-7: 2009 Taxi Generation Derived from Census Data (2.2 Vehicle Occupancy)

On this basis already there are some 118 car peak hour arrivals at the school associated with student travel (i.e. 85 cars + 33 taxis) with a further 109 staff (SOC and limited car sharers). The base situation is therefore 227 vehicles but it should be noted that the staff arrivals are staggered over a 2 hour period and not all staff will be on site simultaneously.

5.3 Projected Number of Students at Proposed Facility

It is proposed that the new facility will enrol its first students in September 2011 with student enrolment to increase over the following four years to maximum total of 240 students in 2014/15 as shown in **Table 5-8** below.

Course	2011	2012	2013	2014	2015
Construction	16	32	32	32	32
Hospitality & Catering	16	32	32	32	32
Hair & Beauty	8	16	24	32	32
ICT	16	32	40	44	44
Sport & Leisure	16	32	40	48	48
Foundation Learning	12	24	40	52	52
Total	84	168	208	240	240

Table 5-8: Expected Number of Proposed Students (2011-2015)

5.4 Projected Number of Staff Members at Proposed Facility

It is proposed that the new facility will have 7 staff members in the opening year with 19 by 2014 as shown in **Table 5-9** below. The low ratio of staff to students is due to

the daily operation of the facility (apprenticeship schemes and three-day per week part-time courses).

Staff	2011	2012	2013	2014	2015
Teaching	4	8	10	12	12
Support	3	6	7	7	7
Total	7	14	17	19	19

Table 5-9: Expected Number of Proposed Staff Members (2011-2015)

5.5 Proposed Development Student Multi-Modal Trip Generation (2011- 2015)

To calculate the trip generation associated with the proposed development, trip rates were not derived from the latest TRICS survey database. It was viewed that this method would considerably overestimate the number of proposed multi-modal trips and would not accurately reflect the complex and unique nature of the proposed specialist facility. Instead, the total number of students expected to enrol with the proposed facility between 2011 and 2015 has been taken and applied to a robust 'best-guess' modal split based upon detailed discussions with the vice-principal of the college. Using the vice-principal's prior-knowledge and experience, the nature of the students expected to attend the proposed facility, the specific (wider) catchment area in which they likely to reside in and the likely mode of transport they will use was ascertained. It was viewed that this would provide a more honest, accurate and site-specific multi-modal trip profile for the proposed facility than applying a formulaic approach to calculating the modal split for the new facility.

Given the nature of the students for which the proposed facility is catered towards, it is not anticipated that any student aged 17 years and above will be driving to the new facility using their own vehicle. This is due to three reasons:

1. It is highly unlikely, given their social and economic background, that the students expected to attend this type of facility would have ownership or access to a vehicle – especially at the age of 17 or 18.
2. There are no parking facilities for students on-site as all parking is allocated to staff members only and this is being reinforced by the school.
3. There is very little scope for students to park off-site due to parking restrictions and residential zones within a ¼ mile radius, acting as further disincentive.

Whilst it would be possible to estimate the number of students that potentially could drive and have access to car (i.e. those 17+ with driving licence and with access to vehicle), this is not likely to be any higher than 5% of those old enough to pass their test at 17 yrs 6 months. Since the modal split estimates have been applied to all 240 pupils, any students that eventually could drive would simply substitute for a car trip carried out by their parents or guardians which is already counted in the table below.

The only change in circumstances would be that the pupils would stay on site whilst a return or link trip would be carried out by the parents. If we assume a maximum of

5% of those legally eligible to drive do so, then this extends to a maximum of 6 cars per day which would not make a significant impact on the network or in terms of off-site parking.

Table 5-10 below outlines the ‘best-guess’ modal split and then applies it to the expected number of students to register between 2011 and 2015.

Year	Walk	Cycle	SO Car	Car Share	Public Bus Service	School Bus Service	Taxi	Moped	Total Trips
2011-2015	3%	3%	14%	5%	12%	10%	50%	3%	100%
2011	3	3	12	4	10	8	42	3	84
2012	5	5	24	8	20	17	84	5	168
2013	6	6	29	10	25	21	104	6	208
2014	7	7	34	12	29	24	120	7	240
2015	7	7	34	12	29	24	120	7	240

Table 5-10: Proposed Student Modal Split & Trip Generation (2011-2015)

To calculate the number of vehicles with pupil car sharers between 2011 and 2015, the average car occupancy of **1.85** was consistently used again and applied to the total car sharing person trip figure for each year (please see **Table 5-11** below).

Year	Pupil Single Occupancy Vehicles	Pupil Car Sharing Person Trips	Pupil Car Sharing Vehicles	Total Vehicles
2011	12	4	2	14
2012	24	8	4	28
2013	29	10	5	34
2014	34	12	6	40
2015	34	12	6	40

Table 5-11: Proposed Facility Vehicle Generation Calculated from Person Trips (2011-2015)

The same average principle from 2011 to 2015 has also been applied to taxis but at a higher pupil car occupancy of 2.2 based upon observed data (please see **Table 5-12** below).

Year	Pupil Taxi Person Trips	Pupil Taxi Vehicle Trips
2011	42	19
2012	84	38
2013	104	47
2014	120	55
2015	120	55

Table 5-12: Proposed Facility Taxi Generation Calculated from Person Trips (2011-2015)

Table 5-13 below provides a grand total of all vehicular generation (private car and taxi) accessing the site which are associated with the proposed facility.

Year	Pupil Single Occupancy Vehicles	Pupil Car Sharing Vehicles	Pupil Taxis	Single Occupancy Staff	Total
2011	12	2	19	7	40
2012	24	4	38	14	80
2013	29	5	47	17	98
2014	34	6	55	19	114
2015	34	6	55	19	114

Table 5-13: Total Vehicular Traffic Associated with Proposed Facility (2011-2015)

The modal split for the proposed trip generation (**Table 5-9**) has been kept constant between 2011 and 2015 as there is no technical methodology for calculating the likely affect the continued STP will have on student trips in the following years due to the nature of the proposed facility.

The trip profiling of the proposed facility is more likely to reflect the profile of the existing SNC rather than the main CVC facility. To apply the modal split of the mainstream CVC facility to the proposed facility would result in an inaccurate and very unlikely modal split projection. This is simply because students travelling to and from the proposed facility will have more in common with the existing SNC students (please see **Section 4.1** above for a detailed description of the types of students the proposed facility expects to receive). The special needs of these students will have a direct impact on the way they will travel to and from the proposed facility. However, as CVC has no prior-knowledge of the number of students with specific special needs, it would be difficult to predict their likely travel mode. This will only be

ascertained once the students enrol and begin attending college. It is viewed that **Table 5-9** above presents a robust and more accurate outlook of the proposed multi-modal trip generation.

To further positively influence modal shift for the proposed students, **there is an option for** CVC to exploit spare bus capacity on bus services currently operated by Cambridge Regional College (CRC). **If deemed necessary**, CVC is committed to purchasing any spare seats on these services in order to provide more opportunity for the proposed students to travel via more sustainable transport modes. CRC is a key partner with CVC in 'applied learning' for post 16 year olds which means there is positive scope for CVC to collaborate with CRC in this respect.

5.6 Proposed Development Staff Trip Generation (2011- 2015)

It is projected that there will be 19 staff members associated with the proposed facility by 2015. Given that existing staff members predominantly travel by car or car share, it is expected that the 19 new staff will also travel to and from the site in the same manner. This predominant modal choice is mainly due to the fact that the majority of existing staff live at a distance which would not be feasible to travel by walking or cycling and in locations where there is no appropriate public transport access. However, it is not proposed to create any new parking spaces to accommodate these 19 new staff members. This decision will create greater competition for parking spaces and ultimately deter some staff members from bringing their car thus contributing to an overall positive modal shift.

6 Trip Distribution

6.1 Traffic Flows

Full residential postcode data for both staff members and students with the current choice of travel mode allocated to each postcode was provided by CVC. The postcode data was used to calculate the trip distribution to illustrate the existing and proposed directional flow of all travel modes. **Figures E1 to E7** in **Appendix E** illustrate the trip distribution and local assignment of trips by each mode for all students except those who attend the SNC. **Figure E8** illustrates the taxi trip distribution of the SNC students and **Figures E9 to E10** illustrate the car distribution of trips made by CVC and SNC teachers respectively. This distribution is based upon the census data acquired in September 2009.

Student car trips illustrated in **Figure E1** indicate that the majority of trips come from the north along the B1049 High Street mainly from the areas of Haddenham and Wilburton.

Student car-sharing trips illustrated in **Figure E2** indicate that the majority of trips come from the west and south from either Rampton Road or from the A14 respectively, mainly from the areas of Earith and Dry Drayton.

Dedicated bus trips illustrated in **Figure E3** indicate that the majority of trips come from the east from Denmark Road, mainly from the areas of Landbeach and Waterbeach. A significant proportion of dedicated bus trips also come from Willingham.

Student taxi trips illustrated in **Figure E4** indicate that the majority of trips come from the south along the B1049 High Street, mainly from the city of Cambridge.

Student cycle trips illustrated in **Figure E5** indicate that the majority of trips come from the west along Rampton Road, mainly from the village of Rampton.

The vast majority of student pedestrian trips illustrated in **Figure E6** originate from within Cottenham with the larger proportion coming from the north along the B1049 High Street.

SNC student taxi trips illustrated in **Figure E8** indicate that there are an equal percentage of trips coming from the north and south of the CVC site entrance.

Staff car trips illustrated in **Figure E9** indicate that the majority of trips come from the west along Rampton Road from a number of areas.

Existing SNC and proposed sixth form college staff car trips illustrated in **Figure E10** indicate that the majority of trips do and will come from the south along the B1049 High Street, mainly from the city of Cambridge.

Figures E11 to E13 illustrate the trip distribution relating to proposed student trips for single occupancy cars, car share and taxi trips using the same percentages calculated for existing trips via these particular modes.

Figure 6.1 below illustrates the existing catchment (in red) for existing students and the expected catchment (in yellow) for the proposed facility.

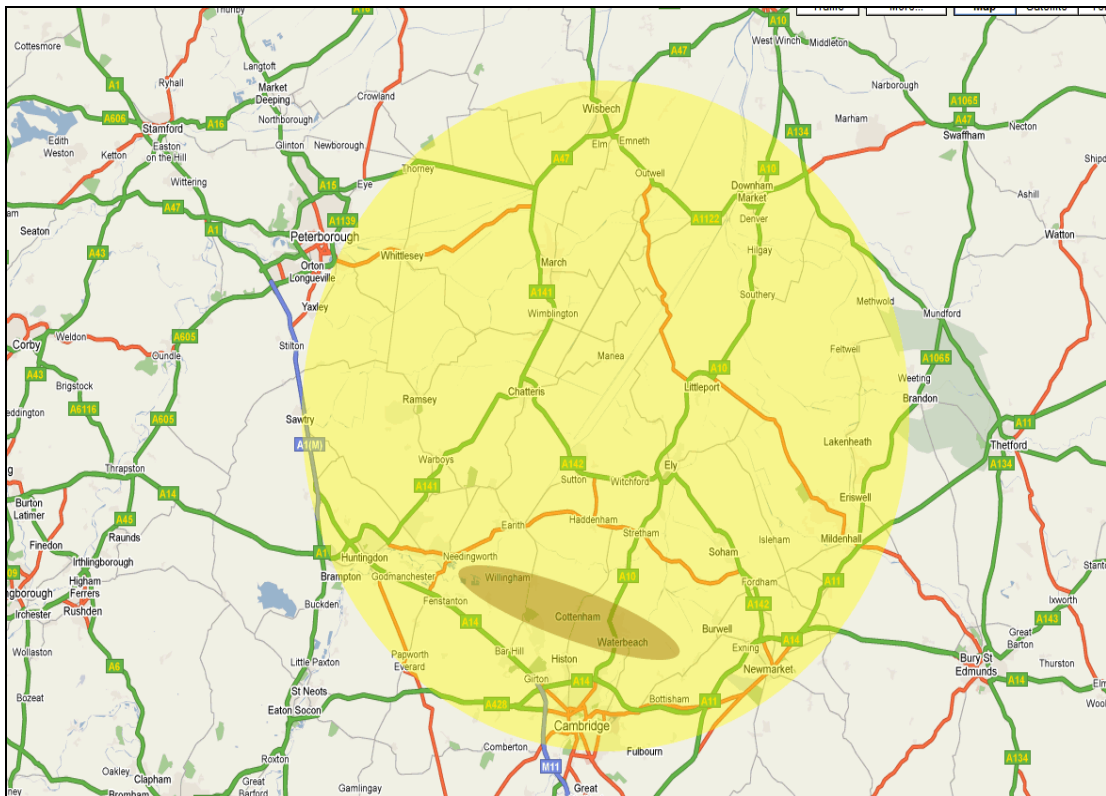


Figure 6-1: Existing & Expected Student Catchment Areas

7 Summary & Conclusion

7.1 Summary

Mouchel Ltd has been commissioned by Cottenham Village College in Cambridgeshire to prepare a Transport Assessment in support of a planning application for the expansion of CVC. This TA is accompanied by an existing School Travel Plan, which was updated by Census Data acquired in September 2009.

The application site is located in the village of Cottenham in Cambridgeshire off the eastern side of the B1049 High Street. CVC currently has 980 pupils and 166 staff members employed, mainly comprising 66 full/part-time teaching staff. The total Gross Internal Area (GIA) of CVC is 6,921sqm. Opening hours are from 0700 to 2200 seven days a week and reception is manned from 0830 to 1600.

In addition there is a separate on-site facility known as the Special Needs Centre (SNC) for students with extreme emotional & behavioural difficulties, most of whom have been excluded from local secondary schools or schools outside of the county. The SNC currently has 55 students and 5 full/part time teaching staff.

Junction capacity assessments have not been included in this TA as the proposed vehicle trip generation was considered to be marginal and not sufficient enough to warrant the implementation of full capacity assessments.

CVC offers 8 dedicated bus services to students which are contracted and funded by the Local Education Authority to 6 different bus and coach companies. The routes are from the east and west of Cottenham only. All buses arrive between 0830 and 0845 in the morning. In the afternoon, all buses arrive between 1500 and 1510 and leave the site at 1520.

The nearest train station is Waterbeach which is approximately 5 miles to the east. There are currently no staff members or students who use the train.

CVC currently provides 35 on-site secure and sheltered cycle stands for staff members and students. There are currently no dedicated cycle lanes connected to Cottenham except between the villages of Cottenham and Rampton along Rampton Road.

Pedestrian access to the site is very good with two dedicated footpaths connecting the public footpath on the B1049 High Street to the school's main entrance.

Although pedestrian pathways are prevalent within the built up areas of Cottenham, it would be difficult and unsafe for pedestrians to walk to neighbouring villages with perhaps the exception of Rampton. Other roads to neighbouring villages, namely Oakington Road and Beach Road and the stretch of Rampton Road to Willingham, all pass through rural areas and are therefore narrow with no discernable footpath and with traffic travelling at high speeds.

The site currently has 111 allocated car parking spaces plus 9 disabled spaces by the main entrance with approximately 20 cars on average parking on unallocated grass verges.

The accident record for the area has remained stable and relatively low from 2004 to date with only 27 slight incidents between 2004 and 2009 and 6 serious. No incidents took near to or at the CVC entrance junction.

The proposed development involves the construction of two buildings for the purposes of catering for students between the ages of 16 and 18 years within the entire county of Cambridgeshire. The proposed development will be a High Performing Specialist Facility for 16 to 18 year olds who have learning difficulties, mental and physical disabilities, emotional and behavioural issues and those who have simply underachieved in their previous academic examinations.

The proposed car and cycle parking numbers are based on the LDF 'Policy TR/2 Car and Cycle Parking Standards' which for educational land use. Based upon these standards, the proposed car parking provision is 32 car spaces and 144 cycle spaces. However, 50 cycle spaces have been agreed to be more realistic.

To calculate the trip generation, the total number of students expected to enrol with the proposed facility was taken and applied to a 'best-guess' future modal split based upon the nature of students and wider catchment within which they reside. It was viewed that this would provide a more accurate and site-specific multi-modal trip profile for the proposed facility.

A year-by-year improvement in sustainable modes for the opening/design year based upon the last 5 years' performance of the STP was also built into the traffic projections. This was to ensure that any 'trip credits' that can be achieved over the next 2 school years (i.e. pre-opening) were factored into the calculations.

Residential postcode data for both staff members and students, with the current choice of travel mode allocated to each postcode was used to calculate the trip distribution to illustrate the existing and proposed directional flow of all travel modes.

7.2 Conclusion

The proposed development is an exceptionally beneficial facility for the county of Cambridgeshire and, with the past success and future positive influence of the existing School Travel Plan, this TA has demonstrated that there is much greater scope and opportunity for travel to and from CVC via sustainable transport modes with an emphasis on reducing single occupancy car trips. Therefore, it is recommended that the planning application should be viewed favourably by CCC in traffic and transport terms.

Appendix A – Site Boundary Plan

Appendix B – Accident Data

Appendix C – Existing & Proposed Site Layout Plans

Appendix D – Proposed Site Parking Layout

Appendix E – Traffic Flow Diagrams