

3279

Dated 3rd July 2019

- (1) The Council of the City of Coventry
- (2) Warwickshire County Council
- (3) The University of Warwick

Planning Obligation
under Section 106 of
The Town and Country Planning Act 1990
relating to development within
the University of Warwick Campus,
Gibbet Hill Road/Kirkby Corner Road Coventry



2 Colton Square
Leicester
LE1 1QH
T: 0116 254 5454
F: 0116 255 4559
DX: 744174 Leicester 41
File Ref: 357647.2868

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- (1) **THE COUNCIL OF THE CITY OF COVENTRY** of the Council House Earl Street Coventry CV1 5RR (the "City Council")
- (2) **WARWICKSHIRE COUNTY COUNCIL** of Shire Hall, Warwick, CV34 4SA (the "County Council")
- (3) **THE UNIVERSITY OF WARWICK** of Coventry CV4 8UW (the "University")

BACKGROUND

- (A) The City Council is the local planning authority for the purposes of the TCPA 1990 and the highway authority for the purposes of the HA 1980 for that part of the Obligation Land which lies within its administrative area
- (B) The County Council is a local planning authority for the purposes of the TCPA 1990 and the highway authority for the purposes of the HA 1980 for that part of the Obligation Land which lies within its administrative area
- (C) The University is the applicant for the Planning Permission and the freehold owner of the Obligation Land which forms part of the University Campus as described in Schedule 1
- (D) The parties have previously entered into the Masterplan Agreement to mitigate and regulate development permitted by the City Council under application reference R/2007/1442 and permitted by Warwick District Council under application reference number W/07/1120 and the parties are satisfied that the obligations which have been triggered within that Masterplan Agreement have been performed in full and that the Masterplan Agreement should be discharged and replaced by the obligations in this Agreement
- (E) The parties acknowledge that it is the University's intention to promote further development beyond the year 2024 through a new 'Masterplan' which will be the subject of a further planning application(s) and if approved is likely to supersede this Agreement
- (F) The University has via its agent submitted the Planning Application to the City Council and the parties have agreed to enter into this Agreement in order to mitigate the impact of the proposed development
- (G) The City Council is minded to grant Planning Permission and the County Council supports the City Council's decision subject to the prior completion of this Agreement
- (H) The City Council the County Council shall each be responsible for enforcing the planning obligations contained within this Agreement so far as they relate to their own administrative area.

AGREED TERMS

1. INTERPRETATION

- 1.1 The definitions and rules of interpretation in this clause apply in this deed:

Base Rate: the base rate from time to time of the Bank of England

Car: means a four wheeled motor vehicle

Commencement of Development: the date on which any material operation as defined by section 56(4) of the TCPA 1990 forming part of the Development begins to be carried out but disregarding for the purposes of this deed and for no other purpose the following operations: demolition works; site clearance; earthworks, ground investigations; remedial

work in respect of any contamination or other adverse ground conditions, site survey works; temporary access construction works; the temporary display of notices or advertisements, diversion and laying of services, archaeological investigation; works to discharge pre-commencement conditions and erection of any fences and hoardings or other means of enclosure around the Obligation Land and **Commence Commences** and **Commenced** shall be construed accordingly

Constructing shall have the same meaning as Commencement of Development save that it shall be construed to apply only to the student bed spaces permitted by the Planning Permission as part of the Development

Councils: means the City Council and the County Council referred to collectively where the context of this Agreement permits

Cycleway Contributions: means a reference to both the Kirby Corner Cycleway Contribution and the Lynchgate Road Cycleway Contribution where the context of this Agreement permits

Cycleway Improvements to Lynchgate Road: means the provision of a cycle route along Lynchgate Road from the roundabout junction with Sir William Lyons Road to the Kirby Corner Road and Sir Henry Parkes Road junction

Cycleway Improvements to Kirby Corner: means the provision of a pedestrian and cycle route through the University Campus from Westwood Way to Kirby Corner Road to include the upgrade of the existing pelican crossing to a Toucan crossing

Default Interest Rate: means interest at the Base Rate

Development: the development of the Obligation Land authorised by the Planning Permission

HA 1980: means the Highways Act 1980 (as amended)

Highway Authority: means a reference to the City Council or the County Council where the context of this Agreement permits

Highways Contribution: means the maximum sum of £650,000.00 (six hundred and fifty thousand pounds) to be paid by the University in accordance with the provisions of the Second Schedule

Highways Works: means the provision and construction of the A46 Link Road Phase 2 or such other long term highways improvement works as may be identified by the Highway Authority to and approved by the University in writing

Kirby Corner Cycleway Contribution: means the maximum sum of £50,000.00 (fifty thousand pounds) towards the Cycleway Improvements to Kirby Corner to be paid by the University in accordance with the provisions of the Second Schedule

Lynchgate Road Cycleway Contribution: means the maximum sum of: £100,000.00 (one hundred thousand pounds) towards the Cycleway Improvements to Lynchgate Road to be paid by the University in accordance with the provisions of the Second Schedule

Masterplan Agreement: the agreement pursuant to section 106 of the TCPA 1990 dated 9 October 2009 between (1) the City Council, (2) the County Council, (3) Warwick District Council and (4) the University

Modal Shift: means an increase in the proportion of staff and students working or studying under the control of the University travelling to and from the University Campus using more sustainable modes of transport

Monitoring Officer: the planning officer or other officer of the City Council from time to time allocated to deal with all planning obligations pursuant to Section 106 of the TCPA 1990 to whom all notices correspondence reports and similar matters must be sent

NHS Contribution: means the sum of £95 (ninety five pounds) for each bed space to be provided as part of the Development as determined upon the grant of a Reserved Matters Approval up to a maximum sum of £95,000.00 (ninety five thousand pounds) to be paid by the University in accordance with the provisions of the Second Schedule

Obligation Land: means the land shown edged red on the Plan and registered at HM Land Registry within title number WM27414 as detailed in Schedule 1

Occupation: means occupation for the purposes permitted by the Planning Permission but not including occupation by personnel engaged in site preparation, construction, fitting out or decoration and **Occupy & Occupied** shall be interpreted accordingly

Parking Cap: means the limit on the number of car parking spaces to be provided within the University Campus which is identified in the Travel Plan

Plan: the plan attached as Appendix 1

Planning Application: the hybrid application for part outline and part full planning permission registered by the City Council on 24 July 2018 under reference number OUT/2018/2115

Planning Permission: the planning permission to be granted by the City Council in respect of the Planning Application

Remedial Payment: means a payment made by the University to the relevant Highway Authority to secure additional traffic mitigation measures in the event that the University exceeds the percentage increases in traffic identified in the table at Part 2 of Second Schedule

Reserved Matters Approval: means a grant of reserved matters approval following an application submitted pursuant an outline planning consent comprising part of the Planning Permission

Section 73 Consent: a planning permission granted pursuant to Section 73 of the TCPA 1990 which varies and/or removes any condition subject to which the Planning Permission was granted

Shuttle Bus Service: means a bus shuttle service linking Tile Hill Station to the University Campus.

Specified Date: the date upon which an obligation under this deed is due to be performed

Stoneleigh Road Junction Improvements: means the highways improvements programmed by the County Council to upgrade the junction between Stoneleigh Road and the A46 or such other improvements to that junction that facilitate the Highways Works

TCPA 1990: Town and Country Planning Act 1990

Traffic Calming Contribution: means the maximum sum of £100,000.00 (one hundred thousand pounds) to be paid by the University in accordance with the provisions of the Second Schedule

Traffic Calming Works: means the provision and construction of traffic management measures on Cannon Hill Road

Traffic Regulation Order Contribution: means the maximum sum of £50,000.00 (fifty thousand pounds) to be paid by the University in accordance with the provisions of the Second Schedule

Traffic Survey: means a survey recording the number of trips by Car travelling to and from the University Campus

Travel Plan: means the combination of measures designed to limit traffic growth and achieve Modal Shift together with arrangements for implementation monitoring review and revision as set out in schedule 2 of this Deed or any variation of that Travel Plan which may subsequently be agreed in writing by the Highway Authority

Travel Plan Co-ordinator: means an individual employed (whether by way of a service contract or a contract for services) by the University whose responsibilities include the preparation implementation promotion monitoring and review of the Travel Plan

Transport Sub Group: means the body that has been established by the parties to this Deed to develop and co-ordinate the Travel Plan and other key stakeholders may be included by invitation when considered necessary by the group

Travel Survey: means a survey of staff and students working or studying under the control of the University taken during a term time using a questionnaire with the object of ascertaining the modes of transport used by staff and students when travelling to and from the University Campus or any alternative method of achieving the objective approved in writing by the City Council from time to time.

University Campus: means the land known as the campus of the University shown indicatively edged blue on the Plan

VAT: value added tax chargeable under the Value Added Tax Act 1994 (and any similar replacement and any additional replacement tax)

Working Day: a day (other than a Saturday Sunday or public holiday in England) when banks in London are open for business

- 1.2 Clause headings shall not affect the interpretation of this deed
- 1.3 A **person** includes a natural person corporate or unincorporated body (whether or not having separate legal personality)
- 1.4 A reference to a **company** shall include any company corporation or other body corporate wherever and however incorporated or established
- 1.5 Unless the context otherwise requires words in the singular shall include the plural and in the plural shall include the singular
- 1.6 Unless the context otherwise requires a reference to one gender shall include a reference to the other genders
- 1.7 A reference to any party shall include that party's personal representatives successors or permitted assigns and in the case of the Councils the successors to their respective statutory functions
- 1.8 A reference to a statute or statutory provision shall include any modification extension or re-enactment thereof for the time being in force and shall include all instruments orders plans regulations permissions and directions for the time being made issued or given under it or deriving validity from it
- 1.9 A reference to a statute or statutory provision shall include any subordinate legislation made from time to time under that statute or statutory provision
- 1.10 A reference to **writing** or **written** does not include faxes or e-mail
- 1.11 A reference to "this deed" or to "this agreement" or to a document referred to in this deed is a reference to this deed or such other document or deed as varied or novated (in each

case other than in breach of the provisions of this deed) from time to time

- 1.12 References to clauses plans schedules and appendices are to the clauses plans schedules and appendices of this deed
- 1.13 An obligation in this deed on a person not to do something includes an obligation not to agree or allow that thing to be done
- 1.14 Any phrase introduced by the terms **including, include, in particular** or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms
- 1.15 Where an obligation falls to be performed by more than one person the obligation can be enforced against every person so bound jointly and against each of them individually

2. STATUTORY PROVISIONS

- 2.1 This deed constitutes a planning obligation for the purposes of section 106 of the TCPA 1990 section 111 of the Local Government Act 1972 section 2 of the Local Government Act 2000 section 1 of the Localism Act 2011 and any other enabling powers
- 2.2 The covenants restrictions and obligations contained in this deed are planning obligations for the purposes of section 106 of the TCPA 1990 and are entered into by the University with the intention that they bind the interests held by the University in the Obligation Land and it's respective successors and assigns other than as mentioned in clause 6
- 2.3 The covenants restrictions and obligations contained in this deed are enforceable by the Councils in accordance with section 106 of the TCPA 1990

3. CONDITIONALITY

With the exception of clauses 2, 3, 4(b), 10, 12, 14, 15, 19, 20, 21, 22, 24, and 26 (which take effect immediately) this deed is conditional on the issue of the Planning Permission and the Commencement of Development

4. COVENANTS TO THE COUNCILS

The University covenants with the Councils to:

- (a) observe and perform the covenants restrictions and obligations contained in Schedule 2
- (b) give at least five Working Days written notice to the Councils of the intended Commencement of Development

5. COVENANTS BY THE COUNCILS

The Councils covenant with the University to observe and perform the covenants restrictions and obligations contained in Schedule 3

6. SUCCESSORS IN TITLE

This deed shall not be enforceable against owner-occupiers or tenants of dwellings constructed pursuant to the Planning Permission nor against those deriving title from them with regard to the payment of any of the financial contributions payable to the Councils under this deed

7. RELEASE

No person shall be liable for any breach of a covenant restriction or obligation contained in this deed after parting with all of its interest in the Property except in respect of any breach subsisting prior to parting with such interest

8. **DETERMINATION OF DEED**

8.1 The obligations in this deed (with the exception of clause 10) shall cease to have effect in so far only as the Planning Permission:

- (a) expires before the Commencement of Development;
- (b) is varied or revoked other than at the request of the University; or
- (c) is quashed following a successful legal challenge

but will remain in full force and effect so far as any subsisting Section 73 Consent is concerned

8.2 The obligations in this deed (with the exception of clause 10) shall cease to have effect in so far only as the relevant Section 73 Consent:

- (a) expires before the Commencement of Development;
- (b) is varied or revoked other than at the request of the University; or
- (c) is quashed following a successful legal challenge

but will remain in full force and effect so far as the Planning Permission and any other subsisting Section 73 Consent is concerned

9. **LOCAL LAND CHARGE**

This deed is a local land charge and shall be registered as such by the Councils on their respective land charges registers

10. **COUNCILS' COSTS**

The University shall pay to the Councils on or before the date of this deed each Councils' reasonable and proper legal costs together with all disbursements incurred in connection with the preparation negotiation completion and registration of this deed

11. **INTEREST ON LATE PAYMENT**

Where any sum or amount has not been paid to the relevant Council(s) by the date on which it is due the University shall pay the relevant Council interest at the Default Interest Rate on that amount for the period from the due date to and including the date of payment

12. **OWNERSHIP**

12.1 Until the covenants restrictions and obligations in Schedule 2 have been complied with the University will give to the Monitoring Officer within five Working Days the following details of any conveyance transfer lease assignment mortgage or other disposition lasting longer than 7 years entered into in respect of all or any part of the Obligation Land SAVE FOR any such disposition to a body corporate being a subsidiary of the University:

- (a) the name and address of the person to whom the disposition was made; and
- (b) the nature and extent of the interest disposed of

13. **CANCELLATION OF ENTRIES**

13.1 On the written request of the University at any time after each or all of the obligations have been performed or otherwise discharged the Council will issue a written confirmation of such performance or discharge

13.2 Following the performance and satisfaction of each or all the terms of this deed or if this deed is determined pursuant to clause 8 the Councils will on the written request of the University cancel all entries made in the local land charges register in respect of this deed

14. DISPUTES

14.1 If any dispute arises out of this deed the dispute shall be referred to:

14.1.1 In the first instance a meeting between the Chief Executive of the City Council (the "Chief Executive") and the Vice Chancellor of the University (the "Vice Chancellor") who shall meet at a mutually agreed time and date. In addition to the Chief Executive and the Vice Chancellor such meeting may be attended by those representatives of the City Council and University as the Chief Executive and the University deem appropriate and notify to each other in advance of the meeting. The Chief Executive and the Vice Chancellor may at the first meeting agree to hold such further meetings as they deem necessary to resolve the dispute;

14.1.1 In the event that the Chief Executive and the Vice Chancellor are unable to resolve the dispute an arbitrator shall be appointed jointly by the City Council and the University. In the event that the arbitrator's identity cannot be agreed within 20 Working Days the City Council or the University may submit a written request to the President for the time being of the Royal Institution of Chartered Surveyors who shall appoint an arbitrator. The arbitrator shall act in accordance with the Arbitration Act 1996. The arbitrator's costs shall be shared equally between the City Council and the university unless the arbitrator expressly makes a contrary award. For the avoidance of doubt the City Council and the University shall each be responsible for meeting their own costs.

15. NO FETTER OF DISCRETION

Nothing (contained or implied) in this deed shall fetter or restrict the Councils' statutory rights powers discretions and responsibilities

16. NO COMPENSATION PAYABLE

No compensation shall be payable by the Councils as a result of the obligations contained in this deed

17. WAIVER

No waiver (whether express or implied) by the parties of any breach or default by another party in performing or observing any of the covenants restrictions or obligations of this deed shall constitute a continuing waiver and no such waiver shall prevent a party from enforcing any of the relevant terms or conditions contained in this deed or acting on any subsequent breach or default of this deed

18. FUTURE PERMISSIONS

Nothing in this deed shall prohibit or limit the right to develop any part of the Obligation Land in accordance with any planning permission (other than the Planning Permission or any modification variation or amendment thereof) granted after the date of the Planning Permission

19. AGREEMENTS AND DECLARATIONS

The parties agree that:

- (a) nothing in this deed constitutes a planning permission or an obligation to grant planning permission; and
- (b) nothing in this deed grants planning permission or any other approval consent or permission required from the Councils in the exercise of any other statutory function

20. NOTICES

20.1 Any notice required to be given under this deed shall be in writing and shall be delivered personally or sent by pre-paid first class post or recorded delivery or by commercial courier to any person required to receive the notice at its address as set out below

- (a) City Council: The Monitoring Officer, address as above;
- (b) County Council: Strategic Director for Communities, address as above;
- (c) University: Registrar, University of Warwick, University House, Coventry CV4 8UW

or as otherwise specified by the relevant person by notice in writing to each other person

20.2 Any notice shall be deemed to have been duly received:

- (a) if delivered personally when left at the address and for the contact referred to in this clause;
- (b) if sent by pre-paid first class post or recorded delivery at 9.00 am on the second Working Day after posting; or
- (c) if delivered by commercial courier on the date and at the time that the courier's delivery receipt is signed

21. THIRD PARTY RIGHTS

None of the parties confers or purports to confer any benefit on any person not party to this deed pursuant to the Contracts (Rights of Third Parties) Act 1999

22. SEVERANCE

22.1 If any court or competent authority finds that any provision of this deed (or part of any provision) is invalid illegal or unenforceable that provision or part-provision shall to the extent required be deemed to be deleted and the validity and enforceability of the other provisions of this deed shall not be affected

22.2 If any invalid unenforceable or illegal provision of this deed would be valid enforceable and legal if some part of it were deleted the parties shall amend such provision so that as amended it is legal valid and enforceable and to the greatest extent possible achieves the parties' original commercial intention

23. VALUE ADDED TAX

23.1 All consideration given in accordance with the terms of this deed shall be exclusive of any VAT properly paid

24. GOVERNING LAW

This deed and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims) shall be governed by and construed in accordance with the laws of England

25. FURTHER SECTION 73 CONSENTS

25.1 Subject to the proviso to this clause if any Section 73 Consent is granted after the date of this deed:

25.1.1 the obligations in this deed shall relate to and bind such Section 73 Consent; and

25.1.2 the definitions of Planning Application, Development and Planning Permission (other than for the purposes of clause 1) shall be construed to include reference to (respectively) the planning application for the Section 73 Consent the development permitted by the Section 73 Consent and the Section 73 Consent itself

PROVIDED THAT:

- 25.2 nothing in this clause shall fetter the discretion of the Councils in determining any planning application for a Section 73 Consent and the appropriate planning obligations required in connection with the determination of the same;
- 25.3 to the extent that any of the obligations in this deed have already been discharged at the date that a Section 73 Consent is granted they shall remain discharged for the purposes of the Section 73 Consent; and
- 25.4 the Councils reserve the right to insist upon the completion of a separate planning obligation by deed of agreement in connection with any Section 73 Consent if the Councils (acting reasonably) consider it desirable to do so and the parties acknowledge that such an agreement shall be prepared on the basis that each party shall be responsible for its own costs

26. **DISCHARGE**

In recognition of the satisfaction by all parties of their respective obligations contained in the Masterplan Agreement and in consideration of the obligations contained in this Agreement the Councils agree to discharge the Masterplan Agreement and shall as soon as practicable after the date of this Agreement remove the relevant entries from the respective land charges registers that they maintain

This document has been executed as a **DEED** and is delivered and takes effect on the date stated at the beginning of it

SCHEDULE 1

Title to the Obligation Land and University Campus

Obligation Land

The Obligation Land that is bound by and the subject of this Deed is shown edged red on the plan and is within the title listed below:

Owner/interested party	Tenure	Title No.	Description	Plan reference
University of Warwick	Freehold	WM27414	Land to the North of Gibbett Hill Road	Shown edged red

University Campus

The University Campus is shown edged blue on the Plan and relevant titles are identified for information purposes only below:

Owner/interested party	Tenure	Title No.	Description	Plan reference
University of Warwick	Freehold	WM27414 WM731713 WM431575 WM89746 WK176491 WM653404 WM677706 WM684623 WK216756 WM467154 WM947743	Land to the North of Gibbett Hill Road	Shown edged blue
Trustees of the University of Warwick Foundation*	Freehold	WM778889	Land at the University of Warwick	Shown edged blue
Lady Jean Young, Rhys John Williams, John Denis Miles Hearth, Professor Sir Brian Keith Follett, Professor Robert George Burgess, Professor Julian Richard Gardner, Professor Stuart Beaumont Palmer*	Freehold	WM642225	Land at the University of Warwick	Shown edged blue
Coventry City	Freehold	WM389179	Land to the North	Shown edged blue

Council			of Gibbett Hill Road	
University of Warwick	Long Leasehold	WM479103	Land to the North of Gibbet Hill Road	Shown edged blue
University of Warwick	Freehold	WK33876 WK377703 WK411819 WK323864 WK251883	Land to the South of Gibbet Hill Road	Shown edged blue

*Denotes title which is in the process of being re-registered to the University of Warwick

SCHEDULE 2

University's covenants to the Councils

The University covenants:

PART 1 – TRAVEL PLAN

1. In support of the Planning Application the University has submitted a Travel Plan which is appended to this Agreement at Appendix 2
2. No part of the development shall be Occupied unless any measures scheduled by the Travel Plan to be implemented before such Occupation have been implemented
3. The University shall use reasonable endeavours to achieve the modal share targets for staff and students for 2024 set out in the table below:

Mode	2005 Mode Share [%]		2016 Mode Share [%]		Proposed 2024 Mode Share Targets [%]	
	Staff	Student	Staff	Student	Staff	Student
Car driver	72	21	66	14	64	13
Car passenger	4	5	4	2	5	2
Public Transport	11	46	14	38	16	38
Cycle	9	5	10	13	11	14
Walk	4	22	4	33	4	33
Other	<1	<1	<1	<1	<1	<1
					100	100

4. The University shall carry out a Travel Survey of its staff and students once every two years until the expiry of 5 years from the date of this Agreement with the first survey being conducted in March 2019 unless otherwise agreed with the City Council
5. The University shall submit the results of the Travel Survey to the Transport Sub-Group and provide the raw data from the Travel Survey if requested by the Transport Sub-Group
6. The University shall notify the name, address and telephone number of the Travel Plan Co-ordinator (and any replacement) to the Highway Authority within five (5) Working Days of designation
7. The University shall continue to employ a person to act as the Travel Plan Co-ordinator until the expiry of 5 years from the date of this Agreement
8. The University shall extend (and ensure that its employees officers agents and contractors extend) all reasonable co-operation required by the Transport Sub Group and/or Travel Plan Co-ordinator for the purpose of carrying out their duties
9. The University will use reasonable endeavours to limit the percentage increase in car trips to and from the University Campus during the AM and PM peak hours to no more than 16% above the current levels as set out in the Travel Plan
10. The University shall perform regular Traffic Surveys in accordance with the requirements set out in the Travel Plan

11. Upon reaching the Parking Cap not to construct or allow or permit to be constructed further car parking spaces within the University Campus

PART 2 – REMEDIAL MEASURES

12. In the event that the traffic levels permitted within the Travel Plan are exceeded the University shall (subject to any dispute first being resolved) make the Remedial Payment identified in the table below available to the Highway Authority until the expiry of 5 years from the date of this Agreement or such other date as may be agreed:

The percentage (%) increase in car traffic above November 2018 traffic survey levels during the peak periods	Remedial Payment £
Up to a maximum of 16%	Nil – target achieved
>16%	300,000.00

13. Upon receipt of a written request from the City Council confirming the additional mitigation measures a Remedial Payment is to be expended on the University shall pay to the requesting City Council the Remedial Payment within 14 days PROVIDED THAT the University's aggregate liability shall not exceed £300,000.00 (three hundred thousand pounds) prior to the expiry of the obligation in paragraph 12 of part 2 this schedule 2 being 5 years from the date of this Agreement or such other date as may have been agreed
14. A Remedial Payment may be used towards funding in whole or in part the following additional mitigation measures which shall not be exhaustive:
- 14.1.funding improvements to the frequency of bus services serving the University Campus;
 - 14.2.funding park and ride facilities which stop at the University Campus;
 - 14.3.funding improvements to the local and strategic highway network such as junction improvements and access management measures;
 - 14.4.increasing car sharing options; and
 - 14.5.funding improvements to and promoting the greater use of public transport, walking and cycling; and
 - 14.6.such other mitigation measures as may be agreed by the City Council and the University in writing
15. The obligations in the preceding clauses of parts 1 and 2 of this schedule shall cease to have effect upon the expiry of 5 years from the date of this Agreement or such longer period that may have been agreed save in respect of any antecedent breach or subsequent liability for a Remedial Payment arising before the expiry of that date

PART 3 – OTHER TRANSPORT IMPROVEMENTS

Traffic Regulation Order Contribution

16. The University shall make the Traffic Regulation Order Contribution available to the City Council until the expiry of 5 years from the date of this Agreement or such other period as may be agreed between the parties.
17. Upon receipt of a written request from the City Council providing written approval from the

Transport Sub Group for traffic regulation orders to control car parking in the vicinity of the University Campus arising as a result of the operation of the University the University shall pay to the City Council such sum as is requested within 14 days PROVIDED THAT the University's aggregate liability shall not exceed the Traffic Regulation Order Contribution

Cycleway Contributions

18. The University shall make the Cycleway Contributions available to the City Council until the expiry of 5 years from the date of this Agreement or such other period as may be agreed between the parties.
19. Upon receipt of a written request from the City Council providing evidence of a commitment to construct the Cycleway Improvements to Lynchgate Road and or the Cycleway Improvements to Kirby Corner, the University shall pay Lynchgate Road Cycleway Contribution and or the Kirby Corner Cycleway Contribution as appropriate to the City Council within 14 days PROVIDED THAT the University's aggregate liability shall not exceed the Cycleway Contribution

Traffic Calming Contribution

20. The University shall make the Traffic Calming Contribution available to the City Council until the expiry of 5 years from the date of this Agreement or such other period as may be agreed between the parties.
21. Upon receipt of a written request from the City Council providing evidence of a commitment to construct the Traffic Calming Works, the University shall pay to the City Council such sum as is requested within 14 days PROVIDED THAT the University's aggregate liability shall not exceed the Traffic Calming Contribution

Highways Contribution

22. The University shall make the Highways Contribution available to the County Council as follows:
 - 22.1. until the expiry of 18 (eighteen) months from the date of this Agreement or such longer period as may be agreed between the parties for the purposes of delivering the Stoneleigh Road Junction Improvements; and
 - 22.2. until the expiry of 6 (six) years and 6 (six) months from the date of this Agreement for the purposes of delivering the Highways Works.
23. The University shall pay the Highways Contribution to the County Council within 14 days of the following:
 - 23.1. receipt of a written request from the County Council within the relevant period specified in paragraph 22.1 above stating the sum requested and providing evidence that a contract has been let to deliver the Stoneleigh Road Junction Improvements; and / or
 - 23.2. receipt of a written request from the County Council within the relevant period specified in paragraph 22.2 above stating the sum requested and providing evidence that the Stoneleigh Road Junction Improvements have Commenced and evidence of a resolution of the County Council which enables the delivery of the Highways Works and which for the avoidance of doubt shall include any resolution which authorises pre-contract works including feasibility studies, site investigation works and design works relating to the Highway Works

Shuttle Bus

24. The University shall:
 - 24.1. submit details of the timetable for the Shuttle Bus Service to the Transport Sub Group

- 24.2. provide the Shuttle Bus Service within 6 months of the Transport Sub Group approving the timetable or such longer date as may be agreed in writing by the City Council;
- 24.3. continue to provide the Shuttle Bus Service for a trial period of 2 years from the date the Shuttle Bus Service first becomes operational unless otherwise extended with the approval of the Transport Sub Group. The Shuttle Bus Service shall operate in accordance with the timetable approved by the Transport Sub Group.

PART 4 – MEDICAL CONTRIBUTION

NHS Contribution

- 24.4. The University shall pay the NHS Contribution to the City Council prior to Constructing the student bed spaces permitted by the Planning Permission as part of the Development

SCHEDULE 3

Covenants by the Councils

1. Interest Bearing Account

The Councils joint and severally covenant to pay all financial contributions received from the University under the terms of this deed into a separately identified interest-bearing section of the relevant Councils' combined accounts as soon as reasonably practicable

2. Repayment of contributions

2.1. The Councils joint and severally covenant with the University to:

- (a) use all financial contributions received from the University under the terms of this deed for the purposes specified in this deed for which they are to be paid or for such other purposes for the benefit of the Development as the University and the Councils shall agree
- (b) pay to the University such amount of any payment made by the University to the relevant Councils under this deed which has not been contractually committed in accordance with the provisions of this deed within five years of the date of receipt by the relevant Council of such payment together with accrued interest for the period from the date of payment to the date of refund SAVE FOR the Cycleway Contributions and the Traffic Calming Contribution which shall both be repayable upon the expiry of three years from the date of receipt of the payment
- (c) provide to the University with such evidence as the University shall reasonably require in order to confirm the expenditure of the financial contributions paid by the University under this deed

2.2. In relation to the NHS Contribution the City Council covenants with the University:

2.2.1. to procure and provide the University with written confirmation from the University Hospitals Coventry and Warwickshire NHS Trust (the "Trust") confirming that the Trust:

- (a) shall only apply the NHS Contribution towards funding improvements in acute care facilities at the accident and emergency department of the University Hospital Coventry to mitigate the increased demand generated by students occupying the Development and shall be used for no other purpose whatsoever; and
- (b) will within 28 days following the expiry of 12 months from the date of payment of the NHS Contribution by the City Council to the Trust account for the Trust's expenditure of the NHS Contribution by providing a breakdown to be shared with the University; and
- (c) will within 28 days following the expiry of 12 months from the date of payment of the NHS Contribution by the City Council to the Trust as evidenced by the City Council's accounting ledger repay to the City Council any and all parts of the NHS Contribution that have not been spent.

2.2.2. Upon receipt of written confirmation from the Trust in paragraph 2.2.1 to pay the NHS Contribution to the Trust

2.2.3. In the event that money is repaid to the City Council in accordance with paragraph 2.2.1(c) to pay such sum to the University

The Common Seal of **THE COUNCIL OF
THE CITY OF COVENTRY** was affixed to this
deed in the presence of:



Authorised signatory



The Common Seal of **WARWICKSHIRE
COUNTY COUNCIL** was affixed to this deed
in the presence of:



Authorised signatory



1024/19

The Common Seal of **THE UNIVERSITY OF
WARWICK** was affixed to this deed in the
presence of:



Council Member



Council Member

Appendix 1: Plan(s)

1024/19



P. Endall

Project 1:
Residential

Project 2:
Demolition and
Public Realm

Project 3:
Academic Building
Phase 2

Project 4:
Academic Building

Project 5:
Academic Building

Project 6:
Academic Building

Project 7:
Academic

Project 9:
Car-parking

Project 8:
Public Realm

KEY

- Obligation Land
- Land in University's ownership/ control
- Land outside University's ownership

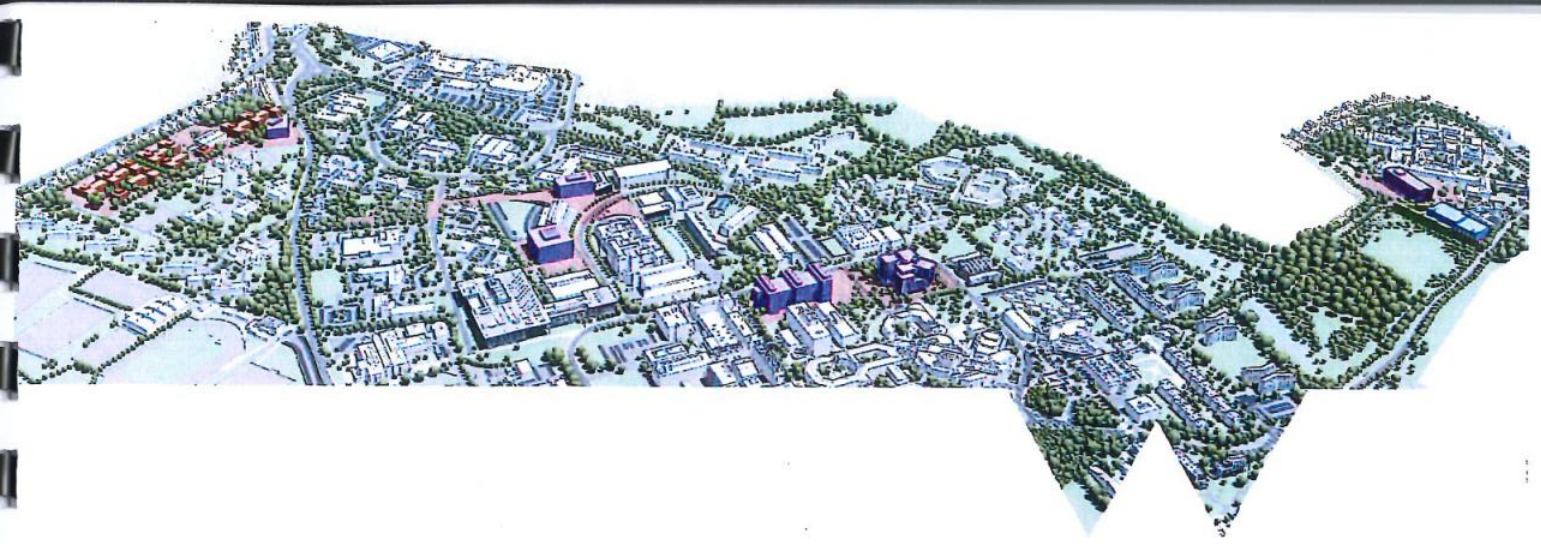
UNIVERSITY OF WARWICK
Main Campus Sites
S106 Plan for
Capital Plan Hybrid Application
9 HENEGADE STREET, SPITALFIELDS, LONDON, E1 5JY
020 7377 9262

02084-01-183
SCALE 1:500000
DATE 23 02/2017
020 7377 9262



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Appendix 2: Travel Plan



WARWICK
THE UNIVERSITY OF WARWICK

University of Warwick

Capital Plan Hybrid Application Transport Assessment and Travel Plan



July 2018

University of Warwick

Capital Plan Hybrid Application

Transport Assessment and Travel
Plan

Issue | 17 July 2018

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 115438-00

Ove Arup & Partners Ltd
The Arup Campus
Blythe Gate
Blythe Valley Park
Solihull B90 8AE
United Kingdom
www.arup.com

ARUP

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1 Introduction

1.1 Background

Ove Arup and Partners Ltd (Arup) has been commissioned by the University of Warwick (the University) to prepare this Transport Assessment (TA) and Travel Plan (TP) in support of the Capital Plan Hybrid Application (CPHA) to be submitted to Coventry City Council (CCC) as the Local Planning Authority. Warwickshire County Council (WCC) and Highways England (HE) have also been involved in the scoping of this TA because of the impacts on their highway networks.

The nine elements of the CPHA lie within CCC administrative area and together includes the following aspects:

- Net increase in non-residential development of 39,389m² GIA (taking into account demolitions but excluding the multi-storey car park);
- Residential units 1000 no 27,000m² GIA;
- Improvements to the public realm and improvements to pedestrian and cycle accessibility and permeability;
- A multi-storey car park with 650 spaces; and
- Uplift in the allowable car parking of 1030 spaces.

1.2 Development Proposals

The description of the proposed development is as follows:

Hybrid planning application comprising:

- 1) Application for full planning permission for the demolition of Car Park 7 and redevelopment for a new Faculty of Arts Building with associated access works, plant, parking, landscaping and other ancillary works*
- 2) Application for full planning permission for the development of a new Interdisciplinary Biomedical Research Building with associated access works, plant, parking, landscaping and other ancillary works*
- 3) Outline planning application for the demolition of existing buildings and redevelopment of the site to provide up to 1,000 student dwellings and up to 2,500 Sqm (GEA) floorspace for teaching purposes with associated access works, plant, parking, landscaping and other ancillary works.*
- 4) Outline planning application for the demolition of two existing dwellings and the creation of a new pedestrian/cycle route with associated drainage, landscaping and other ancillary works*

- 5) *Outline planning application for the erection of a new academic building comprising up to 5,000 sq.m (GEA) floorspace for teaching purposes with associated access works, plant, parking, landscaping and other ancillary works.*
- 6) *Outline planning application for the erection of a new academic building comprising up to 10,555 sq.m (GEA) floorspace for teaching purposes with associated access works, plant, parking, landscaping and other ancillary works.*
- 7) *Outline planning application for the demolition of existing buildings and erection of new academic buildings comprising up to 18,330 sq.m (GEA) floorspace for teaching purposes with associated access works, plant, parking, landscaping and other ancillary works.*
- 8) *Outline planning application for the creation of a new area of public realm with associated drainage, landscaping and other ancillary works*
- 9) *Outline planning application for the demolition of the existing decked car park and the redevelopment of the site for a 650 space multi-storey car park with associated access works, plant, parking, landscaping and other ancillary works.*

A description of each development proposal included within the planning application is given below. Full details related to transport matters are provided in Chapter 7.

Project 1: New Student Residences and Academic Buildings

Project 1 relates to 3.6 ha of land at the Westwood Campus. The site is currently occupied by buildings in use for academic and support purposes, as well as by a temporary staff car park and other existing parking. Outline planning consent is being sought for the demolition of existing buildings and redevelopment of the site to provide up to 1,000 student residences and up to 2,500 sqm (GEA) floor space of new teaching facilities. New residential buildings will be no more than five storeys in height (plus rooftop plant) and new teaching facilities will be no more than 3 storeys (plus rooftop plant).

It is anticipated that the proposals could incorporate new cycle and accessible parking, associated hard and soft landscaping and a new pedestrian/cycle link to Charter Avenue, at the northern boundary.

Project 2: Public Realm and Access Works

Project 2 relates to 1.38 ha of land between Kirby Corner Road and Academic Square, which crosses through the University Science Park. It is partially occupied by two University owned dwellings, by an area of woodland and by an existing access road.

Outline planning consent is being sought for the demolition of two existing residential properties on Kirby Corner Road and the creation of a new pedestrian/cycle route to link Westwood Campus with Academic Square, and this would include new provisions for hard and soft landscaping and a new area of public realm at its southern extremity.

Project 3: Degree Apprenticeship Centre (Phase II)

Project 3 relates to 0.25 ha of land, which was previously a temporary surface car park and is currently in use as a contractor compound, off the Academic Loop Road in Central Campus.

Outline planning consent is being sought for a new academic building comprising floor space of up to 5,000 sqm (GEA) and buildings no more than four storeys in height (plus rooftop plant) with associated hard and soft landscaping. The new building is expected to accommodate a Degree Apprenticeship Centre and form Phase 2 to the planned Degree Apprenticeship Centre on the adjacent plot which is expected to commence development later this year.

Project 4: New Academic Buildings

Project 4 relates to 0.74 ha of land which is currently in use as a temporary contractors compound, in association with the ongoing building work for the NAIC project. It lies between an existing multi-storey car park (Car Park 15) and Riley Court, which forms part of the University Science Park.

Outline planning consent is being sought for a new academic building comprising floor space of up to 10,555 sqm (GEA) and no more than five storeys in height (plus rooftop plant) with associated hard and soft landscaping. This project is also intended to incorporate a new pedestrian/cycle route to provide enhanced links between Academic Square and Kirby Corner Road.

Project 5: New Academic Buildings

Project 5 relates to 1.22 ha of land which is currently occupied by the Humanities Building on University Road, within the Central Campus. Existing buildings amount to six storeys and floor space of c.13,290sqm GEA.

Outline planning consent is being sought for the demolition of the existing buildings (following the completion of Project 6 below) and the redevelopment of the site to provide new academic buildings comprising floor space of up to 18,330 sqm (GEA) and no more than six storeys in height (plus rooftop plant) with associated hard and soft landscaping.

Project 6: Faculty of Arts Building

Project 6 relates to 0.99 ha of land which is currently occupied by a multi-storey car park (Car Park 7) within the Central Campus and provides c 680 sqm floor space (GEA) over four levels.

Full planning consent is being sought for the demolition of the existing car park and the redevelopment of the site to provide a new eight storey Faculty of Arts building which will accommodate 17,030 sqm (GEA) academic floor-space with associated hard and soft landscaping and new cycle and accessible parking bays.

Project 7: Interdisciplinary Bio-Medical Research Building (IBRB)

Project 7 relates to 0.88 ha of land at Gibbet Hill Campus which is currently in used partially as surface parking and partially as open ground.

Full planning consent is being sought for a new academic building comprising 7,515 sqm floor space (GEA) and five storeys in height (plus rooftop plant) with associated hard and soft landscaping. This project is also intended to incorporate enhanced pedestrian/cycle links between Gibbet Hill and Central Campus.

Project 8: Public Realm, Science Square

Project 8 relates to 0.40 ha of land at Gibbet Hill Campus which is currently in use as a surface car park and access road. .

Outline planning consent is being sought for the removal of the existing surface car park and the creation of a new public square to provide enhanced amenity space and accessibility between existing buildings, including hard and soft landscaping and provision of new cycle and accessible parking bays.

Project 9: Multi-Storey Car Park

Project 9 relates to 0.55 ha of land at Gibbet Hill Campus which is currently in use as decked car park.

Outline planning consent is being sought for the demolition of the existing decked car park and the redevelopment of the site to provide up to 650 spaces over no more than 16,500 sqm (GEA) floor space. The development would be up to six storeys in height by Gibbet Hill Road and up to seven storeys in height beyond. The proposals will also include associated hard and soft landscaping.

Car Parking

An extant S106 Agreement attached to the 2009 outline masterplan consent for the Campus, established a car parking threshold of 5,422 spaces across the Campus. As part of the current proposals it is intended to seek to lift the cap by 1,030 spaces. This number will be achieved through the delivery of a new multi-storey car park at Gibbet Hill (Project 9 above) alongside further rationalisation of existing and new parking locations across the Central Campus.

See Figure 1 and 2 for location and Appendix A for drawings associated with the nine projects.

1.3 Application Context

This CPHA has been developed in discussion with the Local Planning Authority; CCC and Warwick District Council (WDC) together with the Highway Authorities; CCC and WCC but also HE.

In transport terms the key aspects of this application are:

- The improvements to the public realm and the new pedestrian/cycle links provided for in Projects 1, 2, 4 and 8, and
- The uplift in the total allowable level of car parking at the University from 5422 to 6452, an increase of 1030 spaces. Part of this increase is included in the proposed new multi-storey car park (MSCP) at Gibbet Hill Campus, Project 9.

Since 2007, the transport environment at the University has been governed by the current Masterplan 2009 – 2019 and the associated s106 Agreement incorporating the University Travel Plan. These documents formed part of the outline planning permission which was approved in 2009 (CC ref : 54044) and set out the principles that underpin the transport strategy for the University, which is to:

- Create a pedestrian and cycle friendly environment on Campus and the adjacent roads;
- Support and encourage sustainable transport modes and improve sustainable transport links, and
- Reduce single occupancy car trips by limiting the availability of car parking and encouraging more sustainable modes.

The s106 Agreement made between the University, CCC, WDC and WCC sets out targets for sustainable travel modes, a cap on car parking and targets to restrict car traffic generated by the University during the peak periods together with a series of interventions and mitigation measures.

The University has been successful over the last 10 years in managing transport, restricting traffic growth and creating an improved pedestrian environment but there are further improvements to be made. The allowable level of car parking at the University has not changed since 2009 and this is, together with the continued growth of the University, now causing difficulties for the University, its partners and the local community.

The most critical aspect of the application in transport terms is the increase in the car parking cap. This inevitably increase car trips to the University but will make finding a space easier. This has been a source of concern to the local communities. As such this TA is primarily focussed on assessing the impact of this increase in car parking and setting out mitigation measures to address any impacts.

In discussion with the highway authorities it was agreed that the traffic impacts would be assessed using the Coventry Area Strategic Model (CASM) to identify an area of influence of the development and the Kenilworth and Stoneleigh Wide Area (KSWA) S-Paramics micro-simulation model to investigate the detailed impact on traffic flows and the operation of the local highway network.

1.4 Vision Masterplan

The University has also started work on a future Vision Masterplan which will guide the development of the University through to the 2030s and will address the major infrastructure proposals that are being developed including the A46 Link Road and possible public transport upgrades. This work is being led by BDP Architects supported by SDG for transport and they have started discussions with the local authorities.

1.5 Chapter Headings

This TA contains the following chapters

- Chapter 2 setting out the consultation and engagement
- Chapter 3 provides a policy review
- Chapter 4 give information on the operation of the existing highway network
- Chapter 5 give an analysis of personal injury accidents on local roads.
- Chapter 6 set out the sustainable travel environment
- Chapter 7 provides information on the transport aspects of the proposed development
- Chapter 8 considers the transport strategy and car parking
- Chapter 9 assess the impact of the development on traffic flows and network statistics
- Chapter 10 looks at the operation of local road junctions
- Chapter 11 and 12 deal with the Travel Plan and the Parking Management Strategy
- Chapter 13 set out the approach to mitigation
- Chapter 14 covers construction issues, HS2 and the A46 junction upgrade, and
- Chapter 15 provides a summary and conclusion.

2 Stakeholders Engagement

2.1 Regular Meetings

The University holds regular meeting with the Local Authorities including:

- CCC Planning Authority;
- CCC Highway Authority;
- Warwick District Planning Authority;
- WCC Highway Authority, and
- Represented on the Coventry and Warwickshire Local Enterprise Partnership.

These meetings cover planning and highway issues and the future development of the University.

Since the approval of the current masterplan the University has chaired regular meetings of the University Masterplan Steering Group and the Transport Sub Group.

In addition to this the University has worked with and regularly met with Highway Authorities and supported the development of A46 Link Road scheme. More details on the A46 Link Road are provided in Chapter 14.

2.2 Local Plan Discussions

In respect of transport the University engaged with WDC/WCC and CCC during their respective Local Plan processes including in preparation for the Examination in Public (EIP) of those Local Plans. The University and the Authorities agreed a Statement of Common Ground (SoCG) which was put before the Inspectors at the EIP for the Warwick Local Plan and for the Coventry Local Plan. This set out the areas of agreement in relation to the current and future transport environment. This is provided in Appendix B.

The Local Plan proposals contained in the Warwick Local Plan were assessed in highway and traffic terms by WCC using the KSWA model.

The anticipated future growth of the University was included in the 2021 Reference Case model and the 2029 Local Plan model. The increased traffic growth was based on the historic trend of non-residential development at the University over the last 10 years, recognising that the University has been growing consistently since its inception in 1962.

Both Local Plans were adopted at the end of 2017 on the basis of the above transport evidence base.

2.3 CPHA Meetings

The development of the CPHA has been ongoing with meetings of the Transport Sub Group held in May 2017 and January 2018. These meetings resulted in the development of the CPHA TA Scoping Report see Appendix C. This group comprises representatives of the following organisations:

- CCC;
- WCC;
- HE (and their consultant Systra); and
- the University (and their consultant Arup and modelling sub-consultants Vectos Microsim and WSP)

There have been a number of other pre-application meetings with representatives of both CCC and WCC covering planning, ecology, flood risk / drainage and transport.

In addition, there have been a series of senior officer briefings as set out in the Statement of Community Engagement (SoCE) which supports this application.

The University and its consultants have engaged with the relevant parts of the Local Authorities to provide support for the CPHA. In addition, consultation events have been held in May 2018 for:

- Local Councillors;
- Local Stakeholder Groups including invitations to a local school and resident groups;
- The general public; and
- Internal University stakeholders.

Full details of the extent of the engagement is provided in the SoCE.

Transport issues raised during these consultations have where possible been incorporated into the considerations for the CPHA as part of this TA.

3 Policy Review

3.1 Introduction

This section of the report reviews national and local policy documents relevant to transport and development in context to the proposals for the University.

National and local policy is a material consideration in determining development proposals that are progressing through the planning process. A summary of relevant policy documents is provided in this section, and Appendix B to demonstrates how the proposed development complies with, and would contribute towards these policy aspirations.

3.2 National Planning Policy

3.2.1 National Planning Policy Framework

The National Planning Policy Framework¹ issued in March 2012 outlines the Government's planning policy for England and details how this should be applied. The NPPF will be a material consideration in the determination of the planning application.

At the heart of the NPPF is a presumption in favour of sustainable development. Paragraph 29 of the Framework explains that transport policies "have an important role to play in facilitating sustainable development but also contributing to wider sustainability and health objectives." The NPPF states that the transport system should be balanced in favour of sustainable transport modes. To facilitate the use of sustainable transport modes, development should be located and designed where practical to:

- accommodate efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements;
- give access to high quality public transport facilities;
- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians;
- incorporate facilities for ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport.

Paragraph 32 of the Framework instructs that decision makers take account of whether:

¹ CLG. (2012) The National Planning Policy Framework [online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf [accessed 24 April 2018]

- *“the opportunities for sustainable transport modes have taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;*
- *safe and suitable access to the site can be achieved for all people; and*
- *improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.”*

The NPPF also states that developments which generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment, and a Travel Plan.

3.2.2 National Planning Practice Guidance

The National Planning Practice Guidance (NPPG) was published in 2013 to supplement the NPPF and provide further clarity on planning policy.

The NPPG reiterates the NPPF requirement for a Transport Assessment or Transport Statement and Travel Plan to support developments which generate significant movements. The NPPG notes that these documents are important mechanisms to assess and mitigate negative transport impacts and promote sustainable development.

The NPPG outlines the key principles to be taken into account when preparing a Transport Assessment/ Statement or Travel Plan. The documents should fulfil the following requirements:

- be proportionate to the size and scope of the development to which they relate and build on existing information wherever possible;
- be established at the earliest practicable stage of a development proposal;
- be tailored to the specific local circumstances;
- be brought forward through collaborative working with the local planning authority and other relevant bodies and stakeholders; and
- be set out in a clear and publically accessible form.

With regard to Travel Plans, the NPPG also notes that they should be integrated into the design and occupation of the development rather than retrofitted after occupation. Furthermore, in order to achieve sustainable outcomes and mitigate the impact of development, consideration may need to be given to travel planning over a wider area, rather than a single development.

3.3 Local Planning Policy

The application sites are situated within CCC's administrative area, however part of the University and some of the public highway network falls within WDC's administrative area. The local transport policies of both local authorities have

therefore been considered given the nature of the potential impacts on both local authorities.

Overall, the proposed development complies with the key policies in both adopted plans.

3.3.1 CCC Local Plan

CCC's Local Plan sets out strategic planning policies and detailed development management policies that are a material consideration in the determination of planning applications. The Local Plan covers the period 2011- 2031 and was adopted in December 2017.

As with the NPPF, sustainable growth is a key theme of the Local Plan, especially regarding transport. One of the Local Plan objectives is maintaining and enhancing an accessible transport network, supported by a series of sub-objectives as follows:

- Providing a transport network that enhances the city's accessibility, efficiency, safety and sustainability;
- Continuing to improve links with the city centre and to provide better connection to green spaces within Coventry; and
- Increasing the range of opportunities for people to access arts and culture, sports and leisure, music and events and other activities.

The Local Plan recognises that the local transport system will play a critically important role in supporting major housing and jobs growth in Coventry and the Council's ambition to become a 'top ten city'. (Further detailed and descriptive guidance to govern planning decisions and agreements is contained in the Coventry Connected SPD.)

The transport related policies in CCC's Local Plan, with clear explanations of how policies have been met, are set out in Appendix B1.

3.3.2 Coventry Connected SPD

The City Council is currently preparing a Supplementary Planning Document (SPD) to provide guidance to support the use of the Local Plan. The Draft Coventry Connected SPD has recently been subject to a six week consultation period, and provides more detailed and prescriptive guidance on the accessibility policies outlined in the Local Plan. This document does not create policies, but advises on the implementation of CCC's Local Plan and will therefore be used to assess future planning applications.

The policies and guidance relating to the project, with clear explanations of how these have been met, are set out in Appendix B1.

3.3.3 WDC Local Plan

WDC's Local Plan was adopted in September 2017. It is the overarching local policy document for the district and will guide the areas development for the period 2011- 2029.

The Local Plan recognises the University as a major site in the District, which has a unique and important role in the local economy.

The transport related policies in WDC's Local Plan, with clear explanations of how policies have been met, are set out in Appendix B2.

3.3.4 Warwickshire Local Transport Plan

The Warwickshire Local Transport Plan outlines the transport policies and strategies for the WCC administrative area for the period 2011-2026.

Details of relevant policies and how these relate to the application are provided in Appendix B3.

3.4 West Midlands Strategic Transport Plan

The West Midlands Strategic Transport Plan 'Movement for Growth' (2015) sets out the West Midlands Integrated Transport Authority's vision and approach to transport across the West Midlands Metropolitan Area for the period 2015 to 2035. The Metropolitan Area comprises the following local authorities; Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall and Wolverhampton. The plan replaces the existing West Midlands Local Transport Plan (2011-2026).

Details of relevant policies and how these relate to the application are provided in Appendix B4.

The accompanying '2026 Delivery Plan for Transport'² (September 2017) sets out schemes which will contribute to the Movement for Growth Strategy. This includes the following proposals with relevance to the University:

- Very light rail service between Coventry, the University of Warwick and Jaguar Land Rover / Whitley, and
- A46 Link Road including the Stoneleigh Road junction.

² WMCA. (2017) 2026 Delivery Plan for Transport [online] available at: <https://www.tfwm.org.uk/strategy/movement-for-growth/>

4 The University and Existing Highway Network

4.1 The University Site

The University Main Campus is located on the south-west outskirts of Coventry, as shown in Figure 1.

The Campus comprises three elements; the Westwood site, Central Campus and Gibbet Hill site. The Westwood site is the northern-most part of the University and is located off Kirby Corner Road. The Central Campus and Gibbet Hill site to the south are located off Gibbet Hill Road. Central Campus is described as Central Campus East and Central Campus West with the division being along Gibbet Hill Road; this also forms the administration boundary between CCC to the east and WDC along with WCC to the west. Gibbet Hill Road itself is located in Coventry.

4.1.1 Car Parking Issues

Car parking at the University is becoming increasingly difficult during the autumn and winter terms. This is in part due to the success of the University and because a number of projects have come forward which, whilst outside of the masterplan, did not include for an uplift in the car parking cap. Two projects in particular, NAIC opening in 2018 and the Sports Hub in 2019 will increase the pressure on car parking. The NAIC project will involve an additional 700 staff mainly from JLR/TATA arriving in a phased manner over the next two years (note that there are already approximately 350 JLR staff at Campus).

Some roads in the vicinity of the University have been experiencing parking problems, including parts of Canley and around the Kenilworth Road / Gibbet Hill Road junction. The Cannon Park Community Association (CPCA) have highlighted parking problems on local roads.

The University meets with the CCC and stakeholders regularly to review and address transport issues as they arise and will continue to work with and support the Highway Authorities to resolve parking problems. The most recent example of co-operation was addressing the congestion issues on Lynchgate Road

Local people have also found parking difficult when visiting the Campus for walks or daytime visits to the Arts Centre and Mead Gallery. There is pressure from within the University from staff and students to provide more parking and reduce car parking charges which run counter to a sustainable transport strategy.

Providing more parking on Campus will help to deal with some of these issues.

The detailed basis for the proposed increase in car parking is set out in Chapter 8.

4.2 Highway Network

The nine projects have the following accesses to the local road network:

- Project 1 in Westwood Campus, will utilise existing vehicular accesses onto Kirby Corner Road and will provide for an existing access onto Charter Avenue to be made available for pedestrians and cyclists.
- Project 2 in Central Campus East, will create a pedestrian and cycle link from Academic Square through the Science Park to Kirby Corner Road and arrive close to the existing pelican crossing on Kirby Corner Road.
- Projects 3 and 4 in Central Campus East, are located on Academic Loop Road, a private road in the heart of the University which is accessed off University Road.
- Projects 5 and 6 in Central Campus East are located on University Road, a private road accessed off Gibbet Hill Road.
- Projects 7, 8 and 9 in Gibbet Hill Campus will utilise the existing access onto Gibbet Hill Road.

Figure 2 and Figure 9 shows the location of the nine projects and their access to the local road network.

Gibbet Hill Road is a two lane single carriageway road, which runs in a north-west / south-east direction. At the western end of Gibbet Hill Road there is the 4-arm Kirby Corner Roundabout with Westwood Way, Westwood Heath Road and Kirby Corner Road. Westwood Way leads to Westwood Business Park and Tile Hill and Westwood Heath Road also leads to Tile Hill and the rural area to the west of Coventry. Kirby Corner Road is a two lane single carriageway, which runs in a north-east / south-west direction. At the north end of Kirby Corner Road there is a 3-arm roundabout formed with Lynchgate Road and Sir Henry Parkes Road.

Sir Henry Parkes Road leads to the 4 arm roundabout with Charter Avenue and both Charter Avenue and Sir Henry Parkes Road connect to the A45 Fletchamstead Highway.

At the east end of Gibbet Hill Road there is new roundabout junction with the A429 Kenilworth Road and Stoneleigh Road. To the east, Stoneleigh Road leads to the 3-arm roundabout junction with Dalehouse Lane. Shortly beyond this junction there is the grade separated junction with the A46 Kenilworth Bypass, part of the strategic road network (SRN).

The A429, Kenilworth Road connects Kenilworth (at its northern end) to Coventry city centre. In the vicinity of the University the A429 is a single carriageway arrangement with street lighting and subject to a 50mph speed limit with a 'no overtaking' restriction along sections of route.

The speed limit along Gibbet Hill Road and Kirby Corner Road in the vicinity of the University is 30mph. Gibbet Hill Road has a 40mph speed limit between Kenilworth Road and Bluebell Roundabout. The central section of Gibbet Hill Road through the Main Campus is a 20mph zone as a result of improvements undertaken by the University.

4.3 Network Improvements

CCC, in partnership with the University, developed a Pinch Point Fund application to Central Government for infrastructure improvements with the aim of reducing traffic congestion around the local roads. The scheme, known as the University of Warwick and Westwood Business Park Congestion Relief Scheme, was completed in 2015. This project included significant funding from the University associated with the current masterplan s106 Agreement. The junctions improved under this scheme included:

- A45 Fletchamstead Highway/A429 Kenilworth Road;
- A45 Fletchamstead Highway/Sir Henry Parks Road including bus lane removal;
- Charter Avenue/Mitchell Avenue;
- Mitchell Avenue/Westwood Way;
- Charter Avenue/Sir Henry Parkes Road/Lynchgate Road/Kirby Corner Road;
- Gibbet Hill Road/A429 Kenilworth Road/Stoneleigh Road;
- Gibbet Hill Road right turn facility into Gibbet Hill Campus;
- Gibbet Hill Road new access roundabout to Campus outside the Arts Centre; and
- Gibbet Hill Road Scarman Roundabout.

The following junction and sections of road along the A45 have also been upgraded in recent years:

- A46 / A45 Toll Bar junction
- A46 / A45 Stivichall Interchange
- B4113 St. Martins Road / A45 Stonebridge Highway

These improvements to the local highway network have been carried out in recognition of the congestion on the A45 and continuing development of the University, JLR at Whitley and the South Whitley Gateway Development together with the employment and housing growth in this area.

In addition, the University has funded the provision of an exit only left turn only link from the Science Park onto Kirby Corner Road and this has reduced congestion on the Lynchgate Road in the PM peak to the benefit of all road users.

4.3.1 Through Traffic

In May 2016 an Automatic Number Plate Recognition survey was carried out on the four roads that traffic can use to enter the wider University area; Gibbet Hill Road, Westwood Heath Road, Westwood Way and Kirby Corner Road. The data was collected over a 24hr period during a weekday and analysed on the basis of

the time taken for vehicles to enter and leave the University area. Vehicles exiting the area in less than 15 minutes after entering were assumed to be passing through rather than going to or from a destination in the University.

The results showed that, over the 24 hours, 49% of all vehicles were passing through rather than going to or from a destination in the University. The key results are shown in **Table 1**.

Table 1: Traffic Movements on the Local Roads (Gibbet Hill Road and Kirby Corner Road) through the University

Time Period	Total Traffic	Passing Traffic		University Traffic	
	Vehicles	Vehicles	Percentage	Vehicles	Percentage
AM 08:00 to 09:00	3,285	1,628	50%	1,657	50%
IP 13:00 to 14:00	1,468	799	54%	669	46%
PM 17:00 to 18:00	2,877	1,366	47%	1511	53%
24 hour	28,134	13,667	49%	14,467	51%

4.4 Traffic Flows and Traffic Conditions

In general, the highway network suffers from urban congestion at busy times, typical for a medium sized city. The congestion is generally restricted to the AM and PM peak periods and dissipates reasonably quickly.

Gibbet Hill Road and Kirby Corner Road are busy at peak times. The Lynchgate Road / Kirby Corner Road roundabout generally operates within capacity during the peak periods.

The Kirby Corner Road / Gibbet Hill Road roundabout generally operates within capacity as does the Scarman Road / Gibbet Hill Road, University Road/Gibbet Hill Road and Leighfield Road/Gibbet Hill Road roundabouts.

The A429 Kenilworth Road / Gibbet Hill Road / Stoneleigh Road signal controlled junction previously suffered severe congestion but the junction has been improved by conversion to a roundabout.

4.5 Traffic Flow Data

Existing traffic flow data for roads local to the University was collected from surveys undertaken during autumn 2016 and obtained from the local highway authorities. Traffic flows on the wider network were taken from the KSWA model. The survey data was used to calculate AADT factors.

The following ATC surveys were used for the calculations:

- Gibbet Hill Road between University Road (S) and Library Road (November 2016);

- A429 Kenilworth Road between Cannon Hill Road and Gibbet Hill Road (November 2016);
- Stoneleigh Road between Kings Hill Lane and A429 Kenilworth Road (November 2016);
- A45 Fletchamstead Highway between A429 Kenilworth Road and Charter Avenue (August 2016)

4.5.1 Strategic Road Network (SRN)

The weekday average AM, PM and the 24hr AADT flows for the SRN links are shown in Table 2. The flows are derived from the KSWA 2017 validated Base model.

Table 2: Traffic flows 2017 Base for selected SRN links (link reference in brackets)

Link Name	Direction	AM [veh/H]	PM [veh/H]	24 AADT
Coventry Eastern Bypass (38)	NB	2292	2172	25612
	SB	2306	2142	25513
A45 west of Stivichall Interchange (1)	EB	2843	2843	32619
	WB	2555	2767	30530
A46 north of Stoneleigh Road (14)	NB	3779	3595	42309
	SB	3281	3732	40233
A46 south of Stoneleigh Road (19)	NB	3799	3843	43842
	SB	3430	3992	42577

The SRN and its recently upgraded junctions generally operates with capacity with the exception of the A46 / Stoneleigh Road junction which is over capacity and due to be upgraded.

4.5.2 Local Authority Road Network

The weekday average AM, PM and the 24hr AADT flows for the Local road network links are shown in Table 3. The flows are derived from the KSWA 2017 validated Base model.

Table 3: Traffic flows 2017 Base for selected links

Link Name	Direction	AM [veh/H]	PM [veh/H]	24hr AADT
A429 Kenilworth Road north of Gibbet Hill Road (11)	NB	381	675	6344
	SB	659	529	7142
A429 Coventry Road south of Gibbet Hill Road (23)	NB	426	342	4617
	SB	282	386	4015

Link Name	Direction	AM [veh/H]	PM [veh/H]	24hr AADT
A429 Coventry Road north of A45 (44)	NB	851	893	10484
	SB	599	683	7705
A45 between Charter Avenue and A429 (4)	WB	1598	1671	19656
	EB	1519	1615	18841
A45 west of Sir Henry Parkes Road (45)	NB	1024	1765	16770
	SB	2113	1269	20330
A45 east of Kenilworth Road (3)	WB	1210	1382	15577
	EB	1542	1375	17539
Kirby Corner Road (9)	NB	478	607	6525
	SB	892	662	9340
Westwood Heath Road (8)	EB	1020	242	7583
	WB	185	814	6002
Gibbet Hill Road west of A429 (10)	EB	337	829	7007
	WB	1057	431	8939
Stoneleigh Road south-east of A429 (22)	NB	858	762	9740
	SB	646	831	8874
Stoneleigh Road south-east of A46 (17)	WB	457	395	5119
	EB	411	423	5015
Crackley Lane (52)	EB	35	149	1108
	WB	128	19	881
Red Lane (48)	EB	177	107	1707
	WB	148	165	1880
Cannon Hill Road (110)	EB	224	258	3298
	WB	125	262	2652

Model link reference in brackets.

4.6 Junction Modelling

Junction assessments for the following junctions have been carried out using the KSWA 2017 Base year flows unless otherwise indicated:

4.6.1 Strategic Road Network

A46 / A45 Stivichall Interchange

The junction performance is set out in Table 4 below for the 2016 Existing year using MCC survey data. The junction was modelled using LinSig modelling software.

Table 4: A46 / A45 / Stivichall Junction Performance – 2016 Existing Year

Arm	Description	2016 Existing			
		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
1/1 + 1/2	A46 NB Left / Ahead	56.8	8	46.3	6
1/3	A46 NB Ahead	66.5	12	47.9	7
3/1	A45 EB Ahead	76.2	6	49.5	2
3/2	A45 EB Ahead	57.1	3	13.1	0
5/1 + 5/2	Leaf Lane	33.2	1	14.8	0
7/1	A444 SB Left / Ahead	51.9	5	50.4	6
7/2	A444 SB Ahead	55.6	5	52.4	6
9/1	A45 WB Ahead	62.4	1	53.9	1
9/2 + 9/3	A45 WB Ahead	60.5	2	30	0
11/1	Circulatory (SW) Ahead	41.9	5	29.2	4
11/2 + 11/3	Circulatory (SW) Ahead Right	55.6	6	46.2	5
12/1	Circ (NE) Ahead	46.5	2	34.9	2
12/2	Circ (NE) Ahead Right	60	2	45.7	3
12/3	Circ (NE) Right	27.6	3	16.2	2
PRC (%) Over All Lanes:		18		65.2	

The above results show that the existing junction is operating within capacity in the 2016 Existing scenario. In the 2016 Existing case AM peak, a maximum queue of 12 passenger car units (pcu) is reported on the A46 northbound entry with all other arms indicating minor queue lengths and an overall Practical Reserve Capacity (PRC³) value of 18.0% indicating spare capacity within the junction. In the PM peak queues remain low, with a PRC value of 65.2%.

A46 / Stoneleigh Road

Table 5 and Table 6 below set out the performance of the existing eastern and western sub-junctions of the A46 / Stoneleigh Road junction for 2016 Existing year, using MCC survey data. The junction was modelled using Junction 9 modelling tool.

Table 5: A46 / Stoneleigh Road – Eastern Junction Performance – 2016 Existing Year

Arm	Description	Scenario	AM Peak Hour	PM Peak Hour
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³ In traffic engineering, the degree of saturation of a junction or road is a measure of how much demand it is experiencing compared to its total capacity. The degree of saturation (%) is a ratio of demand to capacity on each approach to the junction, with a value of 100% meaning that demand and capacity are equal and no further traffic is able to progress through the junction. Values over 85% are typically regarded as suffering from traffic congestion, with queues of vehicles beginning to form. The term practical reserve capacity (PRC) is often used to refer to the available spare capacity at a junction. A negative PRC indicates that the junction is over capacity.

			Max RFC ⁴	Max Queue [PCU]	Max RFC	Max Queue [PCU]
B	A46 SB On-Slip	2016 Existing	0	0	0	0
A	Stoneleigh Road WB		0	0	0	0
D	A46 SB Off-Slip Ahead-Left		0.43	1	0.34	1
	A46 SB Off-Slip Right		0.7	2	0.77	3
C	Stoneleigh Road EB		0.78	5	0.97	18

Table 6: A46 / Stoneleigh Road – Western Junction Performance – 2016 Existing Year

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
B	A46 NB Off-Slip Left-Ahead	2016 Existing	1.12	37	1.13	40
	A46 NB Off-Slip Right		0.36	1	0.38	1
A	Stoneleigh Road WB		0.13	0	0.05	0
D	A46 NB On-Slip		0	0	0	0
C	Stoneleigh Road EB		0	0	0	0

The above results show that the eastern junction operates over capacity, with long queues on Stoneleigh Road EB in the PM peak. In the AM peak the junction operates within capacity.

The model indicates that the western junction operates over capacity with long queues forming on the A46 NB Off-Slip arm in both peak periods.

4.6.2 Local Road Network

A429 Kenilworth Road / A45 Kenpas Highway

The junction performance is set out in Table 7 below for the 2016 Existing year using MCC survey data. The LinSig model was completed using information received from CCC, with regard to stages, phases, inter-greens etc.

⁴ The ratio of flow to capacity (RFC) provides a measure of the utilised capacity of a junction approach arm. Arms exceeding a ratio of 0.85 (i.e. 85% capacity utilised) are considered to be approaching capacity and characteristically have light-to-moderate levels of queued traffic flow. Arms exceeding a ratio of 1.00 (i.e. 100% capacity utilised) are considered to be over capacity and are characterised as having heavy volumes of queued traffic.

Table 7: A429 Kenilworth Road / A45 Kenpas Highway Performance – 2016 Existing Year

Arm	Description	2016 Existing			
		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
1/1	A45 EB Left / Ahead	93.7	25	98.2	30
1/2 + 1/3	A45 EB Ahead / Right	103.3	31	99.4	37
2/1	Kenilworth Road (N) Left / Ahead	71.1	12	60.8	9
2/2 + 2/3	Kenilworth Road (N) Right	96.9	11	90.1	7
3/1	A45 WB Ahead / Left	92.8	26	77.9	16
3/2 + 3/3	A45 WB Ahead / Right	94.6	29	83.7	19
4/1 + 4/2	Kenilworth Road (S) Left / Ahead	86	10	73.3	10
4/3	Kenilworth Road (S) Right	105	8	96.4	6
PRC (%) Over All Lanes:		-16.7		-10.4	

The above table indicates that the junction is over capacity in both peak periods in 2016 with long queues on A45 eastbound and westbound and queues on Kenilworth Road.

Stoneleigh Road / Gibbet Hill Road / A429 Kenilworth Road

The junction performance is set out in Table 8 below for the 2016 Existing year using MCC survey data. The junction was modelled using Junction 9 software.

Table 8: Stoneleigh Road / Gibbet Hill Road / A429 Kenilworth Road - Performance – 2016 Existing Year

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Kenilworth Road (N)	2016 Existing	0.48	1	0.43	1
B	Stoneleigh Road		0.80	4	0.68	2
C	Kenilworth Road (S)		0.76	3	0.44	1
D	Gibbet Hill Road		0.41	1	0.77	3

The results above indicate that the junction operates within capacity. However, Stoneleigh Road and Kenilworth Road NB during the AM peak and Gibbet Hill Road in the PM peak are close to capacity.

Kirby Corner Road / Gibbet Hill Road / Westwood Way/ Westwood Heath Road

The junction performance is set out in Table 9 below for the 2017 Base year using MCC survey data. The junction was modelled using Junction 9 modelling software.

Table 9: Kirby Corner Road / Gibbet Hill Road – Performance – 2017 Base Year

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Westwood Way	2017 Base	0.46	1	0.53	1
B	Kirby Corner Road		0.55	1	0.57	1
C	Gibbet Hill Road		0.35	1	0.63	2
D	Westwood Heath Road		0.86	6	0.13	0

The above results indicate that the junction during AM peak operates at capacity with Westwood Heath Road suffering delays in the AM peak. The model shows that the junction operates within capacity in the PM peak period.

Gibbet Hill Road / Scarman Road/ University Road

The junction performance is set out in Table 10 below for the 2016 Existing year using MCC survey data. The junction was modelled using Junction 9 modelling software.

Table 10: Gibbet Hill Road / Scarman Road / University Road – Performance – 2016 Existing Year

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Gibbet Hill Road (N)	2016 Existing	0.65	2	0.35	1
B	University Road		0.08	0	0.3	0
C	Gibbet Hill Road (S)		0.48	1	0.36	1
D	Scarman Road		0.13	0	0.12	0

The above results demonstrate that the junction operates within capacity in both peak periods, with RFC values well below the 0.85 threshold.

Gibbet Hill Road / University Road

The junction performance is set out in Table 11 below for the 2016 Existing year using MCC survey data. The junction was modelled using Junction 9 modelling tool.

Table 11: Gibbet Hill Road / University Road - 2016 Existing Year

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Gibbet Hill Road (N)	2016 Existing	0.32	1	0.27	0
B	University Road		0.15	0	0.29	0
C	Gibbet Hill Road (S)		0.71	3	0.39	1

The above results indicate that the junction operates within capacity in both peak periods, with RFC values well below the 0.85 threshold.

Charter Avenue / Sir Henry Parkes Road / Lynchgate Road

The junction performance is set out in Table 12 below for the 2017 Base year using KSWA modelling outputs. The junction was modelled using Junction 9 modelling tool.

Table 12: Charter Avenue / Sir Henry Parkes Road / Lynchgate Road – 2017 Base Year

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Sir Henry Parkes Road	2017 Base	0.84	5	0.42	1
B	Charter Avenue (E)		0.72	3	0.26	0
C	Kirby Corner Road		0.24	0	0.4	1
D	Charter Avenue (W)		0.34	1	0.48	1

The above results show that the junction operates within capacity in both peak periods. In the AM peak Sir Henry Parkes Road and Charter Avenue (E) are close to capacity, but the other arms' RFC are below the 0.85 RFC threshold. Queues are seen to develop on Charter Avenue (E) during the AM peak and these are considered to arise as a result of the operation of the Toucan crossing on Sir Henry Parkes Road between the Charter Avenue roundabout and the Lynchgate Road roundabout. In the PM all arm are well below the 0.85 RFC threshold.

A45/ Sir Henry Parkes Road

The junction performance is set out in Table 13 below for the 2017 Base year using KSWA modelling outputs. The LinSig model was provided by CCC.

Table 13: A45/ Sir Henry Parkes Road – Performance – 2012 Base Year

Arm	Description	2017 Base Year			
		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]

1/1	A45 EB Left/Ahead	58.6	7	58.6	6
1/2	A45 EB Ahead	58.5	7	58.6	6
1/3 + 1/4	A45 EB Ahead	60.7	6	33.4	3
2/1	Circ. NB Ahead	56.9	6	54.2	7
2/2	Circ. NB Right	48.8	4	59.5	9
4/1	Circ. EB Ahead	38.2	0	38.7	0
4/2	Circ. EB Ahead	43.8	0	46.9	0
4/3	Circ. EB Right	28.5	1	12.8	0
4/4	Circ. EB Right	27.2	0	12	0
5/1 + 5/2	Sir Henry Parkes Road SB Ahead/Left	34.7	1	18.4	0
6/1	Circ. SB Ahead	61	4	32.6	1
6/2	Circ. SB Ahead/Right	60.8	5	37	2
7/1	A45 EB Ahead (E)	56.1	5	57.9	12
7/2	A45 EB Ahead (E)	60.3	9	64.6	15
9/1	A45 WB Ahead (E)	36.3	4	51.4	7
9/2	A45 WB Ahead (E)	36.5	4	51.5	7
9/3	A45 WB Ahead (E)	4.7	0	11	1
10/1	A45 WB Left/Ahead	60.6	7	70.3	8
10/2	A45 WB Ahead	60.6	7	70.3	8
10/3	A45 NB Ahead	7.2	1	14	1
12/1	Circ WB Ahead	22	0	32.3	0
12/2	Circ WB Right/Ahead	25.4	0	35.6	0
12/3	Circ WB Right	3.2	0	7.5	0
13/1	A45 NB Ahead (W)	22	0	32.3	0
13/2	A45 NB Ahead (W)	22.6	0	33.4	0
14/1 + 14/2	Sir Henry Parkes Road NB Ahead/Left	40.1	2	71.6	6
14/3	Sir Henry Parkes Road NB Ahead	35.3	2	69.5	6
PRC (%) Over All Lanes:		47.5		25.8	

The above results show that the junction operates within capacity in both peak periods. In the AM peak the PRC is 47.5% and in the PM peak it is 25.8%. This means that the queues are longer and delay is higher in the PM peak. The model indicates that the A45 EB exit lanes suffers from possible queuing from the pedestrian crossing in AM and PM peak.

A45 / Leamington Road

The junction performance is set out in Table 14 below for the 2016 Existing year using MCC survey data. The junction has recently been upgraded by CCC and has

been signalised. This upgraded layout has been tested using LinSig modelling software.

Table 14: A45 / Leamington Road – Performance – Base Year

Arm	Description	2016 existing Year			
		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
1/1	A45 Westbound Right / Left	82.6	10	68.7	9
1/2 + 1/3	A45 Westbound Right	85.1	11	74.3	8
2/1	Circulatory (E) Ahead / Right	85.6	15	74.9	9
2/2	Circulatory (E) Right	12.5	1	10.8	1
3/1	A45 Eastbound Ahead / Left	66.3	13	61	11
3/2 + 3/3	A45 Eastbound Ahead	76.5	14	66.3	11
4/1	Circ (W) Ahead	61.3	11	59.3	11
4/2	Circ (W) Right / Ahead	62	11	59.3	11
5/1	Leamington Road Ahead	12.2	2	9.2	1
5/2	Leamington Road Ahead	83	19	71.7	14
6/1	St. Martins Road Ahead	54	5	43.5	3
6/2 + 6/3	St Martins Road Ahead	58	6	55.8	6
7/1	Circ (N) Right	67.6	5	55.6	4
7/2	Circ (N) Right	65	5	58.6	4
7/3	Circ (N) Right	42.2	2	22.1	1
PRC (%) Over All Lanes:		5.2		20.1	

The above results demonstrate that the junction operates within capacity in both peak periods. There is more capacity left in the PM peak (20.1%) than in the AM peak (5.2%). In the AM peak, the A45 Eastbound arm and Leamington Road arm show queuing. The model indicates that the circulatory carriageway operates at capacity. According to the model, the remaining capacity in the AM peak is low.

5 Personal Injury Accident Analysis

5.1 Data

Personal injury accident (PIA) data was obtained from both WCC and CCC. The WCC data covered the period 16th April 2013 to 25th January 2018, whilst the CCC data covered the dates of 29th January 2013 to 22nd December 2017.

The extent of the data covers an area from Westwood Heath Road and Crackley Lane in the west, to Charter Avenue and the A45 in the north, to the A429 Kenilworth Road, Stoneleigh Road and the B4115 in the south and east.

The location of the collisions are shown in Figure 11, with the assessment area and raw data is provided in Appendix D.

The data shows that there have been a total of 190 recorded PIAs on the local road network during the reported period.

5.2 Analysis

Analysis of the data shows:

- Of the 190 recorded accidents, 156 were slight in severity, 32 were serious, and 2 were fatal;
- 93 of the accidents involved cars;
- 18 of the accidents involved motorcyclists;
- 54 of the accidents involved cyclists; and
- 25 of the accidents involved pedestrians.

A summary of the personal injury accidents by location and severity is shown in the Table 15 below.

Table 15: Personal Injury Collisions

Location		Severity		
		Slight	Serious	Fatal
A45	West of Sir Henry Parkes Road	1	1	-
	Sir Henry Parkes Road junction	12	1	-
	Between Sir Henry Parkes Road and Kenilworth Road	8	-	1
	Kenilworth Road junction	8	1	-
	Between Kenilworth Road and Wainbody Avenue	3	-	-
	Wainbody Av junction	7	-	-
	East of Wainbody Avenue	2	-	-
Sir Henry Parkes Road	North of A45	1	-	-
	South of A45	2	-	-
	Charter Avenue junction	6	2	-
Charter Avenue	Between Sir Henry Parkes Road and A45	1	1	-
	Between Sir Henry Parkes Road and Mitchell Avenue	12	2	-
Kirby Corner Road	Gibbet Hill Road junction	7	-	-
	Lynchgate Road junction	-	1	-
	Between Gibbet Hill Road and Lynchgate Road	7	1	-
Lynchgate Road	Shultern Lane junction	4	-	-
	South of Shultern Lane	3	1	1
Gibbet Hill Road	Between Kirby Corner Road and University Road	3	1	-
	Between University Road and Bluebell roundabout	1	2	-
A429 Kenilworth Road	North of A45	8	4	-
	Between A45 and Cannon Hill Road	3	-	-
	Junction with Cannon Hill Road	5	-	-
	Between Cannon Hill Road and Gibbet Hill Road	2	1	-
	Junction with Gibbet Hill Road	3	-	-
	South of Gibbet Hill Road	5	3	-

Location		Severity		
		Slight	Serious	Fatal
Stoneleigh Road	Between Kenilworth Road and Dalehouse Lane	4	1	-
	A46 junction	16	1	-
	Between A46 and B4115	2	-	-
	B4115 junction	9	4	-
Mitchell Avenue		1	-	-
Westwood Heath Road		2	2	-
De Montfort Way		3	-	-
Cromwell Lane		2	-	-
Crackley Lane		1	1	-
Cannon Hill Road		2	-	-
Fairlands Park		-	1	-
Total:		156	32	2

The analysis shows that there are certain junctions where a relatively large number of accidents have been reported during the surveyed period:

- A45 Fletchamstead Highway / Sir Henry Parkes Road;
- A45 Kenpas Highway / A429 Kenilworth Road;
- A45 Kenpas Highway / Wainbody Avenue;
- Sir Henry Parkes Road / Charter Avenue;
- Kirby Corner Road / Gibbet Hill Road;
- A46 / Stoneleigh Road; and
- B4115 /Stoneleigh Road.

A45 Fletchamstead Highway / Sir Henry Parkes Road Roundabout

A total of 13 incidents were reported at the A45 Fletchamstead Highway / Sir Henry Parkes Road roundabout, where 12 were slight in severity and one was serious. The serious incident involved a cyclist being struck by a vehicle while on a south-eastern approach to the roundabout. Of the 12 slight incidents, six involved cars where there were rear end shunts and failures to give way. A further three slight incidents involved cyclists where they were struck by vehicles failing to give way or failing to see the cyclists. Two of the slight incidents involved pedestrians, and one involved a motorcyclist. Analysis of the data suggests that the causation factors appear to be generally unrelated.

A45 Kenpas Highway / A429 Kenilworth Road Signalised Junction

Analysis of the incidents at A45 Kenpas Highway / A429 Kenilworth Road signalised junction showed that there have been a total of eight slight and one

serious incident reported. The serious incident involved a cyclist, and was attributed to a cyclist crossing the carriageway on a red light. Of the slight severity incidents, one involved a cyclist and was again attributed to crossing the road on a red light. Of the remaining seven slight incidents, six involved cars where three were rear end shunts, one involved suspected alcohol consumption and the remaining two involved poor manoeuvres / loss of control. The seventh slight severity incident involved a motorcycle being rear ended. Analysis of the data suggests that the causation factors appear to be generally unrelated. In addition, the recently completed (2016) upgrades to the signalised junction to include toucan crossing facilities are also expected to create benefits with regard to cycle crossing provision.

A45 Kenpas Highway / Wainbody Avenue (North & South) Signalised junction

A total of seven incidents were reported at the junction between A45 Kenpas Highway and Wainbody Avenue (North & South), where all were slight in severity. Of the seven incidents, three involved pedestrians, two involved cyclists and the remainder involved cars. Of the three incidents involving pedestrians, two were attributed to pedestrians walking into the carriageway into oncoming traffic, with the third attributed to a pedestrian walking between parked cars. The two slight incidents involving cyclists were attributed to the cyclist entering the carriageway without looking. Of the two car related incidents, there were no common causation factors. There are therefore no obvious common causation factors which would suggest an overriding issue with regard to safety at this location.

Sir Henry Parkes Road / Charter Avenue Roundabout Junction

A total of eight incidents were reported at the roundabout junction between Sir Henry Parkes Road and Charter Avenue, where six were slight in severity and two were serious. Both of the serious incidents involved cyclists, where one was attributed to a cyclist being struck by a vehicle on exit from the roundabout, and the other was attributed to the cyclist being struck by a vehicle entering the circulatory carriageway of the roundabout. Four of the slight severity incidents also involved cyclists, where two involved cyclists entering the road without looking and two involved cyclists being struck on the circulatory carriageway. One slight incident involved a pedestrian and was attributed to crossing without looking. The remaining slight incident involved a car in a rear end shunt type incident. There appears to be an issue of safety for cyclists at this location with a higher than expected number of cyclists involved in accidents.

Gibbet Hill Road / Kirby Corner Road Roundabout

Seven incidents were reported at the roundabout junction between Gibbet Hill Road and Kirby Corner Road, where all were slight in severity and five involved cyclists. The five cycle incidents were attributed to a combination of cars entering the roundabout and striking cyclists on the carriageway, or cyclists riding into the path of oncoming vehicles. The slight car incident was a rear end shunt, with the pedestrian incident attributed to a driver failing to pay attention when a pedestrian was crossing Gibbet Hill Road at a location away from the pedestrian refuge. The

majority of incidents took place over a widely spaced period of time, however this location has a higher than expected number of cyclist involved in accidents.

A46 / Stoneleigh Road Junction

Seventeen incidents were reported at the junction between the A46 and Stoneleigh Road, where 16 were slight and 1 was serious in severity. The serious incident involved a stationary car on the A46 mainline carriageway being struck by other vehicles. Of the 16 slight incidents, eight involved vehicles failing to give way at the junctions, six involved rear end shunts and one involved a loss of control. These causation factors suggest that there are potentially issues with the junction in relation to approach speeds and visibility. However, the committed future upgrading of this junction to a grade-separated roundabout as part of the A46 Link Road project is expected to provide improvements due to a reduced number of vehicle conflict points and the potential introduction of measures such as anti-skid surfacing.

Stoneleigh Road / B4115 Junction

Thirteen incidents were reported at the crossroads junction between Stoneleigh Road and the B4115, where nine were slight and four were serious in severity. Six of the incidents involved cyclists, where all were attributed to cars exiting side roads into the path of cyclists travelling along the B4115; five of the cycle incidents were slight in severity and one was serious. The remaining seven incidents all involved cars, where three were serious and four were slight in severity. All except one of the car related incidents were related to vehicles failing to give way and pulling into oncoming traffic. This location has a higher than expected number of accidents involving cyclists.

Fatal Collisions

Two pedestrian fatalities were reported on the roads within the study area; on the A45 Fletchamstead Highway near to the Charter Avenue junction, and on Lynchgate Road to the south of Shultern Lane. The A45 incident was attributed to a pedestrian crossing the A45 in darkness, at a location without formal crossing facilities.

The Lynchgate Road fatality was attributed to a pedestrian from the University walking into the carriageway without looking. This location has a significant level of pedestrian crossing activity to and from Cannon Park Shopping Centre and as such the crossing facility was upgraded with a central reserve island as part of the works for the new roundabout junction at the Lynchgate Road/ Sir William Lyons Road junction where pedestrian crossing facilities were also upgraded.

Response to Cycle Collisions

The higher than expected number of accidents involving cyclists at the Sir Henry Parkes Road/ Charter Avenue junction, the Gibbet Hill Road / Kirby Corner Road junction and the Stoneleigh Road /A4115 junction points to a possible safety issue.

The following elements of this TA and TP will assist in improving the situation for cyclists:

- Improving the cycle route along Lynchgate Road that links the University to Coventry via Route 12 on Charter Avenue may encourage more cyclists to use off road cycle facilities.
- The provision of a cycle route across University land between Westwood Way and Kirby Corner Road will enable some cyclists to avoid the Gibbet Hill Road / Kirby Corner Road junction. This facility links up cycle routes along Mitchell Avenue and from Westwood Business Park.

The University provides road safety information for pedestrians and cyclists and provides information on the cycle training Bikeability programmes. Consideration will be given to upgrading the advice given.

6 Existing Sustainable Transport

The operation of the Travel Plan is set out in Chapter 11. The following sections show that the University is accessible for pedestrians and cyclists and is well connected to the wider communities by public transport.

6.1 Pedestrian Accessibility

Existing pedestrian facilities are shown in Figure 3 and Figure 5. These show formal crossing locations and pedestrian routes.

The University is well served by pedestrian routes in the form of footways as part of the highways that serve the University and with footpaths into the countryside to the south and west. This is as you would expect for an establishment that has been developing for over 50 years at this location.

The current masterplan has focussed on the creation of a more pedestrian friendly environment on Campus. These are some of the recent developments that have improved the environment for pedestrians:

- 20mph shared space environment on Gibbet Hill Road and around the University Arts Centre;
- Closing Library Road to through traffic;
- Widening the footway along University Road next to WMG;
- Creation of the National Cycle Network Route 52 pedestrian cycle route through the Campus linking to Coventry in the north and Kenilworth in the south;
- Improved crossing facility at the Gibbet Hill Road / Scarman Road roundabout;
- Improved pedestrian and cycle crossing facilities at the Gibbet Hill Road/ Kenilworth Road roundabout junction;
- Improved pedestrian route from the University to Cannon Park District Shopping Centre;
- Location of MSCPs on the periphery thus removing car trips from the heart of the Campus; and
- The proposed Spine Route pedestrian cycle route to the new Sports Hub on the south-west edge of the Campus.

Pedestrian crossing facilities are generally appropriate throughout the Campus with a mix of signalised toucan and pelican crossings, together with zebra crossings and priority crossings linking the various part of the Campus.

The University has an extensive range of community facilities located within and adjacent to it. Within the University Campus there are the following community facilities:

- Supermarket;
- Post Office;
- Cash machine;
- Arts Centre with theatres, cinemas, galleries, performance venues, restaurants, bars etc;
- Student Union with bars and food outlets;
- Cafes and eateries, and
- Sports facilities including both indoor and outdoor swimming facilities and running track etc.

Adjacent to the University there is the Cannon Park District Centre and the Varsity Public House. The Cannon Park District Centre is successful retail centre with a number of community facilities. See Figure 6.

Whilst facilities are generally good the University is focussed on continuous improvement of the pedestrian realm and there are a number of elements of the CPHA which will further enhance the environment for pedestrians.

6.2 Cycle Accessibility

The Campus is well connected to a series of signed cycle routes and advisory routes. A cycle map showing routes and cycling facilities can be found on the University website.

Figure 4 and Figure 5 show existing cycle routes and facilities together with future facilities which are due to be constructed, plus proposed facilities which form part of this CPHA and finally, possible facilities that may come forward in the future.

The NCN 52 links Coventry and Kenilworth via the University. This route runs along Charter Avenue (east) and Lynchgate Road before entering the north of the Main Campus via Lynchgate Link and the Claycroft area. NCN 52 runs through the University past the Arts Centre and down through the playing fields before heading to Kenilworth via the Greenway/ 'Connect 2 Kenilworth' route. The University have played an important role in developing this route. This route links through to Leamington.

To the east, CCC and WCC have created CCC Route 10 as a cycle track along the A429 Kenilworth Road, forming a further cycle route between Coventry and Kenilworth.

The Cycle Coventry Project is improving cycle facilities in the area and has constructed CCC Route 12 along Charter Avenue. The University worked with the Council on this project and sits on the board. The University will continue to work closely with the Council to improve cycle provision in the area.

The University estate roads are all 20mph or below; a low speed environment suitable for cyclists. In addition, there are a number of routes where there is sufficient space for pedestrians and cyclists to share space.

The distance from one end of Campus to the other is approximately 2km which means cycling is a popular option for travel. The Uni has over 3,500 cycle parking spaces located throughout Campus and has developed a cycle hire scheme, Unicycle see Chapter 11.

6.3 Bus and Coach Provision

Frequent bus services call at the University and provide direct links to Leamington (in approximately 35 minutes), Kenilworth (in approximately 10 minutes) and Coventry City Centre (in approximately 30 minutes) where connections can be made to additional destinations. A network of bus services use the local roads that serve the University.

The University itself operates dedicated buses, which run one to three journeys per day to and from the University from a number of destinations across Coventry. The University also operates a dedicated morning and evening bus service running to and from Canley Railway Station; three services in the morning and three in the evening. A Campus shuttle bus is also provided which stops at various points across the Campus, the services operate one to three times per hour throughout the day.

See Figure 6 for details of routes and bus stop locations in and around the University.

The University website provides further information on the use of buses. Table 16 below gives detail of the services and their frequency.

Table 16: Bus Services to and from the University.

Service	Route	Total Service Per Weekday			
		Monday to Friday Daytime	Saturday Daytime	Sunday Daytime	Total service per weekday
U1	Stratford - University /Coventry	5 services per hour	5 services per hour	No Service	50 services per day
U2	Sydenham - the University/Coventry	6 services per hour	No Service	No Service	17 services per day
11	Royal Leamington Spa - Coventry	4 services per hour	5 services per hour	2 services per hour	87 services per day
11U	Coventry - University	8 /hour after 18:27	3 services per hour	1 services per hour	30 services per day
12X	Warwick University - City, Pool Meadow EXPRESS	6 services per hour	5 services per hour	3 services per hour	53 services per day
43A	Eastern Green - University	2services/day	No Service	No Service	2 services/day
43	the University - Eastern Green	2 services per hour	2 services per hour	No Service	14 services per day

43W	Radford to University	2 per day	No Service	No Service	2 per day
60	University - Arena Retail Park	2 services per hour	3 services per hour	No Service	34 services per day
60A	the University - Arena Retail Park	No Service	3/hour after 19:00	1 services per hour	No Service
W3	Allard Way - University	2services/day	No Service	No Service	2 services/day
W4	Wood End - University	2services/day	No Service	No Service	2 services/day
W5	Wood End - the University	4 services per day	No Service	No Service	4 services per day
W6	Edgewick - the University	4 services per day	No Service	No Service	4 services per day
W7	Keresley - the University	4 services per day	No Service	No Service	4 services per day
W2	University - Life Sciences, Wellesbourne	5 services per day	No Service	No Service	5 services per day
U12	Kirby Corner Interchange – Kirby Corner	8 services per day	No Service	No Service	8 services per day
U17	Coventry - Leamington	No Service	4 services/hr	4services/hr	No Service
87	Coventry - Solihull	2 services per hour	2 services per hour	No Service	12 services per day
18A	Coventry - Tile Hill South	3 services per hour	3 services per hour	3 services per hour	36 services per day
47C	Coventry – Canley- Cannon Park Centre	1 services per hour	No Service	No Service	3 services per day

This represents 738 bus movements into and out of the University every weekday during term time.

6.4 Rail Services

Coventry Railway Station is located approximately 5.5km from the University. It provides services to London, Birmingham and a wide range of local, regional and national destinations and is linked to the University by regular bus services including an express service which is supported by the University. Services are shown in Table 17.

The nearest railway station, although less well connected than Coventry, is Canley Station. This is on the main line between Coventry and Birmingham with services usually at 20-minute intervals on weekdays. The station is located approximately 2.5km from the Central Campus and can be reached on foot in about 25 minutes. The University supports a dedicated shuttle bus service to and from the station.

Tile Hill Station is 3.6km away on the line between Coventry and Birmingham and has more trains stopping than Canley. Walk time to the University is about 40 minutes. The Council has built a cycle route along Charter Avenue which links the station to the University and to other parts of Coventry.

The University is well connected by bus but continues to seek to improve the services and experience for bus passengers.

Table 17: Coventry Rail Station – Destinations and Service Frequency

Destination	Approximate Daytime Frequency of Service	Approximate Journey Time
Wolverhampton	5 per hour	47 mins / 60 mins
Glasgow Central	1 per hour	4 hours 30 mins
Stoke-on-Trent	3 per hour	1 hour 30 mins
Manchester Piccadilly	3 per hour	2 hours 10 mins
Birmingham New Street	8 per hour	30 mins
London Euston	6 per hour	1 hour / 1 hour 45 mins
Bournemouth	1 per hour	2 hours 50 mins
Crewe	4 per hour	1 hour 30 mins
Nuneaton	3 per hour	30 mins / 40 mins

The following facilities are provided at Coventry rail station:

- ticket office and accessible ticket machines;
- information desk and customer help points;
- pay phones;
- public Wi-Fi;
- toilets and baby changing facilities;
- waiting rooms;
- ramp for train access and wheelchairs;
- 120 sheltered cycle storage spaces with CCTV surveillance; and
- 358 space multi-storey car park with 2 Accessible car parking spaces.

Further information on rail services can be found at www.nationalrail.co.uk and on the University website.

7 Proposed Development

7.1 Proposed Development Transport and Access

See Figure 2 for the location of the projects and Appendix A for the parameter plans and indicative design for Projects 1, 2, 3, 4, 5, 8, and 9. The general layout plans for Projects 6 and 7 are also in Appendix A.

The development has the following projects which contribute to improving pedestrian/cycle links and the pedestrian environment:

- Project 1;
- Project 2;
- Project 4; and
- Project 8

In addition, there will be improvements to the public realm around Projects 5, 6 and 7. See Figure 8.

7.1.1 Project 1: New Student Residences and Academic Buildings

Project 1 is located in the Westwood Campus. Outline planning consent is being sought for up to 1,000 student residences and up to 2,500 sqm (GEA) floor space of new teaching facilities.

The key transport aspects of this project are:

- Convenient access for pedestrians and cyclists will be created to form a direct route from Charter Avenue through to site. This route will eventually form an upgrade route through the Westwood Campus leading to the current crossing on Kirby Corner Road and the proposed Project 2 pedestrian cycle route;
- Pedestrian/cycle access into the Westwood site will be provided from close to the existing zebra crossing on Kirby Corner Road at the north-eastern corner of the site;
- Vehicle access to and servicing of the residential properties and the teaching facility will utilise the existing University accesses on Kirby Corner Road and the internal private roads network;
- The increase in residential accommodation will maintain the ratio of Campus accommodation to student numbers at c. 30%. Students with Campus accommodation are not allowed to bring a car to the university;
- Blue badge parking with c. 12 spaces will be provided close to entrances, and

- Cycle parking will be provided close to entrances and will be covered and secure for overnight storage.

7.1.2 Project 2: Public Realm and Access Works

Project 2 relates to 1.38 ha of land between Kirby Corner Road and Academic Square, which crosses through the University Science Park including across Milburn Hill Road and along the access to Dassault Systems UK.

The Outline planning proposal will include a shared pedestrian cycle route originating at a new public realm square south of the Academic Loop Road. To the north, there is then a section utilising the existing Dassault car park access. This section will be a shared space with vehicles using the Dassault car park and service vehicles to Project 4. Travelling further north, the route arrives at Millburn Hill Road where there is a pelican crossing to the immediate left of the access road. It is proposed to upgrade the crossing to a Toucan and incorporate it into a raised table area including the Dassault car park access. From the Millburn Hill crossing the route travels north to meet Kirby Corner Road adjacent to the existing pelican crossing.

The key transport aspects of this project are:

- The project provides a clear direct high quality route for pedestrians and cyclists linking Westwood Campus to Academic Square and Central Campus East;
- The project will upgrade the existing crossing on Millburn Hill Road;
- The route will be a 5 – 6m wide facility giving easy and comfortable use as a shared unsegregated route, and
- The route provides improved access from the Central Campus East and the Science Park to important bus stops on Kirby Corner Road.

7.1.3 Project 3: Degree Apprenticeship Centre (Phase II)

Project 3 relates to 0.25 ha of land off the Academic Loop Road in Central Campus adjacent to the Degree Apprenticeship Centre (DAC) Phase I

Outline planning consent is being sought for a new academic building comprising floor space of up to 5,000 sqm (GEA).

The key transport aspects of this project are:

- Pedestrian access to the new building will be via a plaza on the new pedestrian route linking Academic Square to Westwood;
- Blue badge parking for two vehicles will be provided close to entrances;
- Vehicle access will be off Academic Loop Road with servicing via the DAC Phase 1 provision, and
- Cycle parking will be provided close to the main entrance

7.1.4 Project 4: New Academic Buildings

Project 4 lies between an existing multi-storey car park (Car Park 15) and The Dassault Systems Ltd building at Riley Court, within the University Science Park.

Outline planning consent is being sought for a new academic building comprising floor space of up to 10,555 sqm (GEA).

The key transport aspects of this project are:

- As part of this development there will be a pedestrian/cycle route creating a link from Academic Loop Road to Millburn Hill Road in the Science Park;
- A new public realm plaza will be created between the proposed academic building and Car Park 15. The main entrance to the building can be located here;
- It is proposed to provide 3 no blue badge parking bays close to the main entrance together with cycle parking, and
- Servicing the building is intended to be via the Dassault car park off Millburn Hill Road or via Academic Loop Road.

7.1.5 Project 5: New Academic Buildings

Project 5 relates to land which is currently occupied by the Humanities Building on University Road, within the Central Campus.

Outline planning consent is being sought for the redevelopment of the site to provide new academic buildings comprising floor space of up to 18,330 sqm (GEA).

The key transport aspects of this project are:

- Pedestrian routes continue to be provided on all sides of this building and will be enhanced by the provision of up to 3 no plazas at entrance points;
- It is proposed to provide 6 no blue badge parking bays close to entrances together with cycle parking; and
- Servicing of the building is intended to be via the existing service route off University Road and/or a new route off University Road.

7.1.6 Project 6: Faculty of Arts Building

Project 6 relates to land which is currently occupied by a multi-storey Car Park 7 within the Central Campus.

Full planning consent is being sought for the demolition of the existing car park and the redevelopment of the site to provide a new eight storey Faculty of Arts (FoA) building which will accommodate 17,030 sqm (GEA) academic floor-space.

The key transport aspects of this project are:

- Pedestrian access is provided around the building giving access to various entrances including to two main entrance points off University Road and from the Senate Lawn and the Arts Centre;
- The FoA will have 7 no. blue badge parking spaces located in the north-west corner of the site and accessed via the existing road to the Senate Building from University Road. This road also provides access to the cycle parking provision which comprises two racks of parking for a total of 70 cycles;
- Servicing and deliveries will be via the Senate Building access road off University Road with temporary delivery/unloading close to the building, and
- A waste management store area will be located within the landscaped area on the north-western side of the building. Waste collection will be via a layby on the Senate Building access road.

7.1.7 Project 7: IBRB

Project 7 relates to land at Gibbet Hill Campus which is currently in use partially as surface parking and partially as open ground.

Full planning consent is being sought for a new academic building comprising 7,515 sqm floor space (GEA).

The key transport aspects of this project are:

- Pedestrian access is provided on three sides of the building with access from the pedestrian cycle link to Central Campus on the north-west and south-west sides. Access to the Gibbet Hill Campus is provided on the south-east elevation. Pedestrian plaza areas are provided on these three elevations. The pedestrian plaza on the south-east elevation will blend with proposed Project 8, the Science Square tying IBRB into the Gibbet Hill Campus.
- The IBRB will have 3 no. blue badge parking spaces located in the Science Square and accessed off the vehicle route through the square. Covered cycle parking for 60 cycles will be located close to the pedestrian cycle link to Central Campus in a well-lit location.
- Servicing and waste collection will be via the vehicular route through Science Square via a 1 : 12 gradient ramp along the north-east side of the building with a service area located at the northern corner of the building.

7.1.8 Project 8: Public Realm, Science Square

Project 8 relates to land at Gibbet Hill Campus which is currently in use as a surface car park and access road.

Outline planning consent is being sought for the removal of the existing surface car park and the creation of a new public square to provide enhanced amenity space and accessibility between existing buildings. This project will also improve route finding and the arrival experience for people coming along the pedestrian /cycle link from Central Campus, people coming from the future MSCP (Project 9) and via the University Shuttle Bus and public transport on Gibbet Hill Road.

The key transport aspects of this project are:

- The new Science Square will be a shared space with pedestrians, cycles and limited number of vehicles in a, 20 mph low speed environment;
- It is proposed to provide up to 8 no blue badge parking spaces close to the existing main pedestrian entrance. Cycle parking will be provided within the Science Square;
- Small deliveries can be made to the main pedestrian entrance close to the blue badge parking with large deliveries made via the service bays to the north of the existing building. The route to this service bay passes through the Science Square, and
- The existing access road from the future Science Square to Gibbet Hill Road will be enhanced with improved landscaping and materials.

7.1.9 Project 9: Multi-Storey Car Park

Project 9 relates to land at Gibbet Hill Campus which is currently in use as decked car park.

Outline planning consent is being sought for the demolition of the existing decked car park and the redevelopment of the site to provide up to 650 car parking spaces.

The key transport aspects of this project are:

- The future MSCP with up to 650 spaces will use the existing access to car park 1A and the existing access onto Gibbet Hill Road.
- The MSCP will replace existing car parking at Car Park 1 and 1A. The number of shared spaces, EV charge points and blue badge spaces will be provided with the Reserve Matters Application together with other layout details.
- The maximum number of car parking spaces at the Gibbet Hill Campus will be 650.

8 Transport Strategy and Car Parking

The overarching transport strategy that has been employed at the University since 2009 has been to restrict the provision of car parking and support and encourage sustainable modes of transport as set out in the 2009 Masterplan and s106 Agreement (incorporating the University Travel Plan).

With the current Masterplan coming to the end of its life in 2019 it is necessary as part of this CPHA to re-evaluate and update the strategy. This involves an upgrade to the Travel Plan as set out in Chapter 11 together with improvements in the pedestrian and cycling infrastructure as set out in Chapter 13.

It is acknowledged that traffic generation is primarily related to the availability of car parking and that car parking provision is driven by non-residential development in the context of a University located on the outskirts of a city.

Table 18 shows how the ratio of car parking to non-residential development has changed from 2007 to the present. The table sets out the target for the car parking ratio going forward and provides the basis for the proposed increase in the car parking cap.

Table 18: Ratio of Car parking to Non-residential Development at the University

	Year and Description Non-Residential Development	GIA non-residential (sqm)	Car parking (no.)	Ratio car parking to Non-residential GIA
1	2007 (excl MSCPs)	257,149	4,974	52
2	Increase in non-residential development under current 2009 masterplan	102,600		
3	Total non-residential Development provided for under current 2009 masterplan (excl MSCPs)	359,749	5,422	66
4	2017 completed non-residential development (excl NAIC, Sports Hub, Maths and MSCPs)	356,791	5,310	67
5	2017 Non-residential with permissions granted not built (including NAIC, Sports Hub, Maths. But excl MSCPs)	410,835	5,422	76
6	Net Increase for CPHA (excl MSCP)	39,389		
7	2023 with CPHA excl MSCP	450,224	6,700	67
8	Proposed uplift in Car parking applying a 3.7% modal shift to sustainable modes in line with CCC Local Plan			
9	3.7% reduction in car parking is	3.70%	248	
10	Total Allowable Car Parking Reduced to		6,452	70
11	Total increase in Car Parking		1,030	

The table shows that in 2007 the ratio of car parking to non-residential development was 1 space per 52m² GIA, (see item 1). Under the current Masterplan the availability of car parking was planned to reduce to 1 space per 66m² GIA (item 3).

It is considered that the University has been operating at about 1 space to 67m² GIA (item 4) (Autumn 2017).

Line 5 shows that with the completion and opening of NAIC, Maths and the Sports Hub the ratio will increase to 1 space to 76m² which will cause greater difficulty for the operation of the University.

Item 7 shows the level of car parking that would be required to cater for the CPHA based on the current ratio of 1/67, this indicates an increase to 1,278 spaces.

However, the University wishes to continue to bear down on the availability of car parking in a controlled manner and therefore it is proposed that the University adopt the mode shift targets that CCC have set out in their Local Plan. The University as a single cohesive organisation committed to sustainable development goals is prepared to agree to a hard target enforced by a car parking cap that requires a mode shift of 3.7% from its present position by 2023. The Travel Plan chapter together with the mitigation chapter sets out measures to assist this approach.

It is recognised that the University may need to support the local highway authorities in dealing with car parking issues if and when they arise on roads surrounding the University as a result of the operation of the University. The current s106 Agreement provided contributions to assist in dealing with car parking issues on local residential roads and this is the approach that the University favour in respect of this issue with the CPHA.

8.1 Car Parking Provision and Location

The 2009 Masterplan and s106 Agreement provides for a maximum cap on car parking across the University of 5,422 spaces. The current (May 2018) number of parking spaces in use is 5,056.

The University has recently obtained approval for temporary car parking at Westwood North (157 spaces) and Sherbourne (154 spaces) and will be making applications for temporary car parking at Cryfield and Gibbet Hill Campus.

Table 19 below sets out the programme of changes to car parking and the overall level of car parking provided at the University both under the current masterplan and s106 Agreement and that proposed for the CPHA. It shows that the level of car parking will remain within the existing and future proposed car parking caps for the period up to 2023.

This CPHA includes an increase in the overall car parking at the university to a new cap of 6452 (an increase of 1030 spaces). This is the first increase in the allowable cap since 2009.

Table 19: Future Changes to Car Parking Provision

Item	Date	Changes to Temp and Permanent Car Parks	Car Parks Opened	Car Parks Closed	Total Car parking Spaces	Number of spaces below car parking cap
1	Masterplan 1 and s106 Agreement Car Parking cap 5422 spaces					
2	May-18	Current level of car parking			5056	366
3	May-18	Open Temp CP Sherbourne (approved 2018)	154		5210	212
4	May-18	Close part of CP16 for MSCP construction		400	4810	612
5	Jun-18	Open Temp CP Westwood North (approved 2018)	157		4967	455
6	Jan-19	Close CP 7		439	4528	66
7		Close Temp CP Sherbourne		154	4374	
8		Close Temp CP Westwood North		157	4217	
9		Open Kirby Corner MSCP (approved 2017)	1139		5356	
10	Proposed Capital Plan Hybrid Application Car Parking cap 6452 spaces					
11	Mar-19	Close CP1 for new IBRB/ Science Sq dev construction		111	5357	1095
12		Open Temp CP Gibbet Hill at GH	112			
13	Apr-19	Open Temp CP Cryfield	428		5985	467
14		Sports Hub CP (approved)	200			
15	Feb-20	Close CP1a for new Gibbet Hill MSCP construction		243	5742	710
16	Feb-21	Open Gibbet Hill MSCP	650		6392	60
17		Close Temp CP Gibbet Hill		112	6280	172
18	2022/23	Open New MSCP location TBC part of Vision Masterplan. (Indicative)	600		6448	4
19		Close Temp CP Cryfield		432		

All elements after item 10 are dependent upon the approval of the CPHA.

Items 12, 13, 17 and 19 are dependent upon successful applications being made for those temporary car parks.

Item 18 is dependent upon a separate application as the proposed Vision Masterplan currently being developed by the University will identify the location for the additional MSCP.

The University has a car parking strategy of locating larger MSCPs on the periphery of the Campus, replacing existing MSCPs at the end of their life and surface car parking which can be redeveloped for more appropriate uses.

The location of the new MSCPs and proposed MSCP is shown in Figure 10.

The first new MSCP in line with this strategy was located off Lynchgate Road and opened in November 2016. The second new MSCP (Kirby Corner MSCP) is under construction at the CP16 site on the eastern corner of Kirby Corner Road and Gibbet Hill Road. The additional spaces here will be offset by the closure of the existing MSCP CP7 which is nearing the end of its useful life and is no longer meeting the parking expectations of staff and visitors coming to use the Arts Centre. As additional car parking provision is made this enables the University to close at grade car parking enabling reuse for other developments and to gradually remove car parking from the central area.

During the life of the original Masterplan, the University has always offset applications for new car parking spaces by removing spaces from other locations to ensure that the total parking stock in use is always below the level permitted by the cap. The University wish to continue this approach into the foreseeable future with the CPHA.

Due to the size and complexity of the University and its operations, it is likely that further changes to the parking stock, in terms of locations, will be needed in future. In order to allow these changes to be implemented in a simple and cost-effective manner (for both the University and the local authorities) the University gives an undertaking to keep the total number of car parking spaces below the agreed cap rather than approach the local authorities for each individual change. This is particularly relevant for the temporary car parks. Once permission is granted for a particular temporary car park for a set period of time, the use or not - within the allowable car parking cap - of that car park will be the responsibility of the University.

This will enable the University to effectively manage its car parking stock, allowing the University to utilise existing car parks or parts of car parks for other activities as the need arises e.g. temporary storage/services work and upgrades/building refurbishments/ other events etc.

The University will keep the local authorities informed of changes to car parking use.

8.1.1 Phasing of Car Parking Uplift

The nine development will all use the existing vehicle accesses that have been developed as part of the current masterplan. It is anticipated that construction of

the nine development will be started in the period 2019-2023 with the Faculty of Arts and the IBRB projects being the first. The uplift in the car parking cap can be phased as follows:

- Car parking cap raised by 600 spaces to 6022 spaces by January 2019, and
- Subsequently raise by 430 to 6452 spaces by January 2021.

8.2 Traffic Generation

A 19% increase in car parking as proposed could lead to a 19% increase in car traffic during the critical peak periods. The traffic modelling has been carried out on the basis of a 16% increase in traffic to and from the University for the critical peak periods which is in line with the anticipated growth as provided for in the Local Plan traffic modelling.

The University is confident that the increase in car traffic to and from the University during the peak period can be limited to a 16% increase for the following reasons:

- The University has a track record of keeping its traffic growth below expectations. In the period 2007 – 2016 the results of traffic monitoring show that the trend line for traffic growth in the AM peak has been flat and the trend line for traffic growth in the PM peak has been slightly downwards. See section 11.3.1;
- The University is bringing in more flexibility to the working arrangements for certain staff groups (it should be remembered that a significant number of staff are not involved in taking lectures). This and more homeworking as a result of improved digital connectivity are trends in society as a whole and this flexibility provides people with the opportunity to alter their start and finish times or not make certain commutes and thus reduce traffic in peak periods.
- A significant proportion of the new staff working at the University will be JLR/TATA staff and they tend to start earlier than University staff. This is expected to have an effect on the critical AM peak because they are more likely to arrive before 8.00 am.

8.2.1 Monitoring and Management

Regular monitoring of the car traffic will be undertaken and this will be linked to the continuous monitoring of main car parks to provide the authorities with regular update on the rate of increase in traffic at the University during the peak periods. It is proposed that this target is included within the s106 Agreement as a maximum target for additional traffic generation as a result of the CPHA.

If it appears that the University are going to exceed this target then the University will undertake further measures, to be agreed in discussion with the Highway Authorities, to address this situation.

9 Traffic Impact Assessment

9.1 Modelling KSWA and CASA

The approach to modelling is set out in the CPHA Transport Assessment Scoping Report. It was agreed with the Highway Authorities that the CPHA would be assessed using the CASM and KSWA traffic models. The KSWA model provides good coverage around the University and provides detailed traffic information that can be used to model individual junctions. However, there were concerns that its coverage north of the A45 was limited and therefore it was agreed to carry out a modelling exercise using CASM to identify the Area of Influence of the development and in particular consider impacts north of the A45.

9.1.1 CASM Results

The results of the CASM Area of Influence modelling are set out in Appendix E. The key results of this modelling are:

- The difference plots between the 2026 Do Minimum model and the 2026 Do Something scenario for the AM and PM peaks does not show significant impacts north of the A45 or at the A46/A45 Stivichall Interchange;
- The difference plots indicate the major impacts are on the roads that surround the University. These can be addressed using the KSWA model; and
- The level of calibration /validation of the model in the vicinity of the University has been assessed based on GEH values (how accurate the modelled flows compare to observed flows). It is concluded that, with some limited exceptions, the model is calibrated reasonably well.

In view of these results it was decided no further CASM modelling would be undertaken and that the Transport Assessment would utilise the KSWA model outputs.

9.1.2 KSWA Results

The KSWA University CPHA Model Forecasting Technical Note is provided in Appendix F. This note sets out the existing models used in the study together with a methodology overview including committed development locations and forecast network changes.

The following modelling scenarios have been considered:

- Base model 2017;
- 2021 Reference Case;
- 2021 Development - Reference + full development with increase in traffic of 16%;

- 2029 Reference Case;
- 2029 Development - Reference + full development with 16% increase in traffic;
- Sensitivity Test 1: 2029, Local Plan period development (including University growth);
- Sensitivity Test 2: 2029, Local Plan period development (including University growth) + A46 Link Road Phase II.

All scenarios except the 2017 Base include the committed upgrade to the A46 /Stoneleigh Road junction (A46 Link Road Phase I).

The following sections report the outputs from the modelling see Appendix H.

With respect to the Sensitivity Test 2: 2029 Local Plan + A46 Link Road Phase II we have reported on the network wide statistic only because the A46 Link Road Phase II is at an early stage in development without sufficient detail to be confident of all flows on all links. Reporting the network wide statistics does however give a strategic overview of the potential benefits of A46 Link Road Phase II given this early stage in the process.

9.2 Network-Wide Statistics

Network-wide statistics have been extracted from the KSWA model for each model scenario. The network-wide statistics report information from each model trip over the entire model network. The information is then aggregated to provide network performance indicators which can be used to compare the impacts of different model scenarios.

Network-wide statistics extracted from the KSWA model for each scenario comprise:

- Network mean delay (seconds) – the average travel time of a completed trip during the model simulation periods;
- Total completed trips (vehicles) – the number of completed trips recorded during the model simulation period; and
- Network mean speed (kmh) – the average speed travelled by all vehicles that completed a journey during the model simulation period.

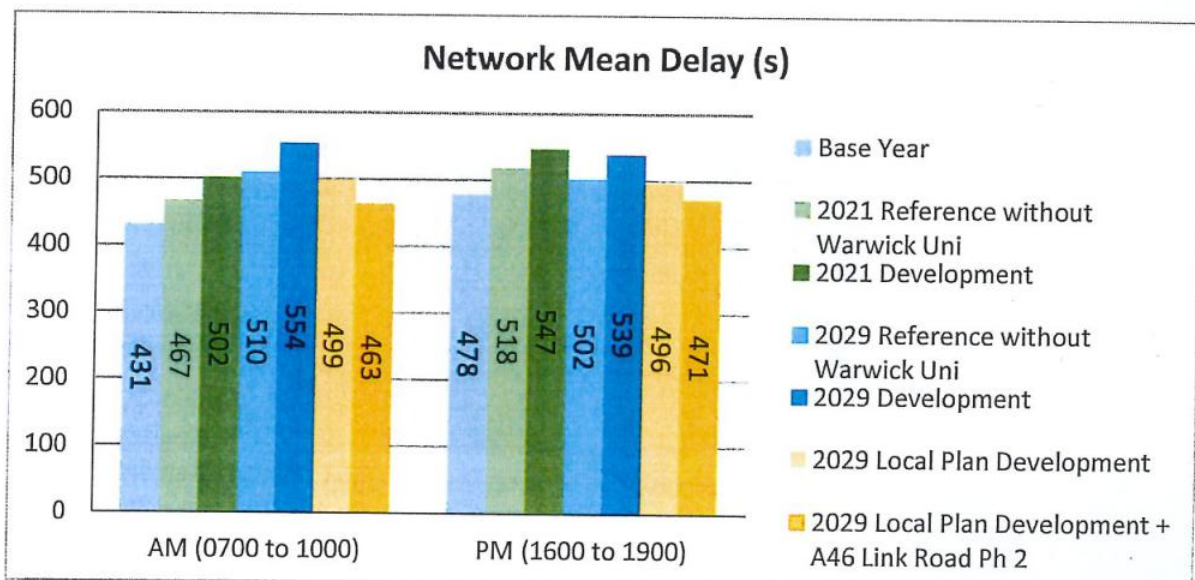
9.2.1 Network Mean Delay

The graph below shows the network mean delay for all scenarios. The data indicates that in 2021 and 2029 in both peak periods the network mean delays increase with the development traffic. In 2021 the network mean delay is higher in the PM peak, while in 2029 AM peak shows slightly higher congestion when compared to the PM period. Development traffic increases the network mean delay more significantly in the AM period than in the PM period. In the AM peak the network mean delay is 431seconds(s) in the Base scenario, and increases to

554s in the 2029 Development scenario, while it is 478s in the Base PM scenario and 539s in the 2029 Development Case.

Sensitivity test no.1 is the 2029 Local Plan scenario. The model predicts that in this scenario the network mean delay is reduced by 55 seconds in the AM peak, and by 43 seconds in the PM peak relative to the 2029 Development Case, this despite the increased level of development.

Sensitivity test no.2 is the 2029 Local Plan scenario with the A46 Link Road Phase II scheme. The model indicates that in this scenario the network mean delay is lower in both AM and PM peak than it is in the 2029 Local Plan case. In both peaks, the network mean delay is lower by approximately 30 seconds when compared to the 2029 Local Plan scenario. The effect of the Local Plan network changes and the A46 Link Road Phase II is to bring the network mean delay back to the 2017 Base levels despite the additional developments included in the Local Plan model.



Graph 1: Network Mean Delays for all Modelled Scenario

9.2.2 Total Completed Trips

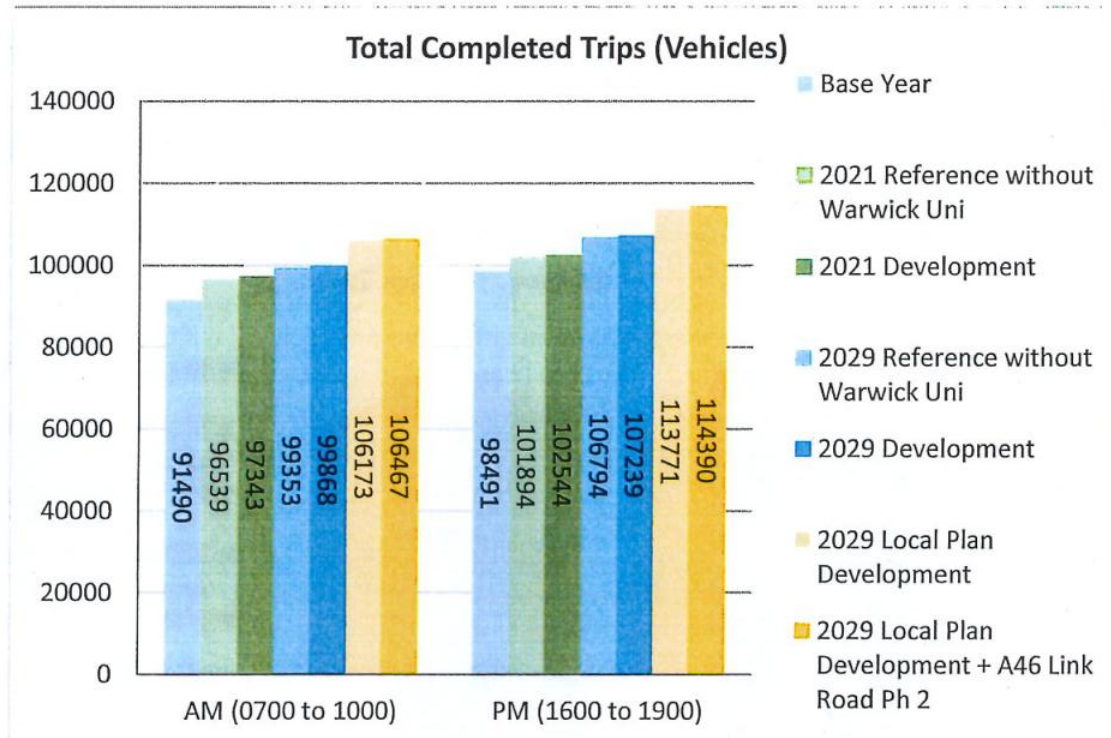
The graph below shows the total completed trips for all scenarios. The data indicates that in 2021 and 2029 in both peak periods the total completed trips increase with increasing level of development traffic.

The model indicates that there are more trips on the network in the PM peak than the AM peak in both 2021 and 2029 Reference Cases. The data shows approximately an additional 5,500 completed trips in 2021 and 7,500 completed trips in 2029 in the PM peak.

In 2029, both in AM and PM periods, the increase in the Development scenarios are lower than in the 2021 Development scenarios when compared to the Reference Case, which indicates that in 2029 not all trips are able to complete their journeys.

The model indicates that in the 2029 Local Plan scenario the number of completed trips increased significantly comparing to the 2029 Development Case, approximately by 6,500 trips in both AM and PM peak. This means that in this scenario the congestion reduced significantly when compared to the 2029 Development Case and more vehicles can reach their destinations.

The model predicts that the number of completed trips in the 2029 Local Plan with A46 Phase II scenario increases slightly in both peaks, relative to the 2029 Local Plan scenario.



Graph 2: Total Completed Trips for all Modelled Scenario

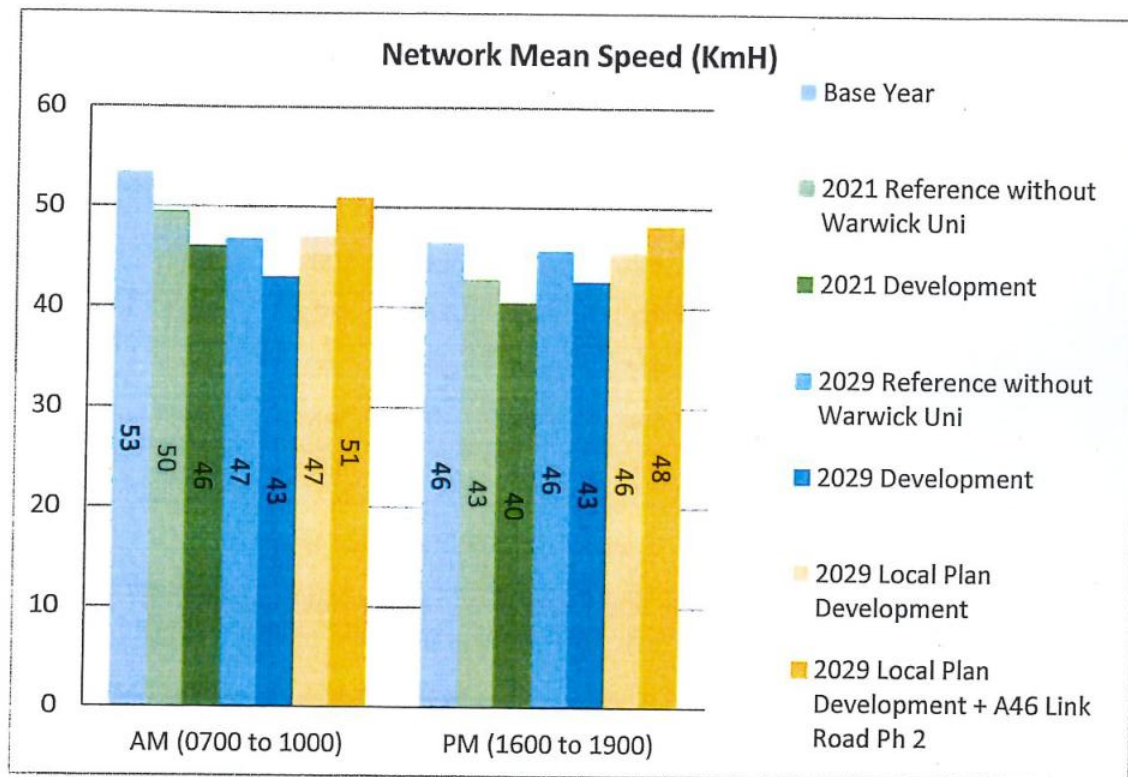
9.2.3 Network Mean Speed

The graph below shows the network mean speed for all scenarios. The results indicate that in 2021 and 2029 in both peak periods the network mean speed reduces as development traffic increases.

The model predicts that network mean speed will fall between 2021 and 2029 Reference Case by 3 Km/h in the AM peak and will increase by 3 Km/h in the PM peak period. In 2021 the model predicts a reduction in speed as a result of the development of 4 Km/h in the AM peak and 3 Km/h in the PM period, when compared to the Reference Case. The model indicates that the speed will decrease in 2029 in the AM peak by 4 Km/h and by 3 Km/h in the PM period as a result of the development, relative to the Reference Case.

The results show that the network mean speed in the 2029 Local Plan scenario is 4 Km/h higher in the AM peak and it is 3 Km/h higher in the PM peak when compared to the 2029 Development Case.

The model indicates that network mean speed is higher by 4Kmh in the AM peak and by 2 Kmh in the PM peak in the 2029 Local Plan with the A46 Phase II scheme relative to the 2029 Local Plan Scenario.



Graph 3: Network Mean Speed for all Modelled Scenario

9.3 Strategic Road Network Link Flows

This section shows traffic flows for the various model scenarios on selected links on the highway network. In addition, any links on the network in each scenario in which the model indicates that traffic volumes will increase or decrease by 100 vehicles or more in the peak periods are reported. All outputs are extracted from the KSWA model.

9.3.1 Development Scenarios

Table 20 below reports traffic link flows along selected links on the SRN with and without development for the year 2021 both in the peaks and for the 24H AADT.

Table 20: Traffic flows 2021 at selected links – Reference and Development Scenarios

Link Name	Dir.	2021 Reference Case			2021 Development		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
Coventry Eastern Bypass A46 (38)	NB	2405	2297	26975	2393	2295	26894
	SB	2445	2163	26437	2456	2175	26566
A45 west of Stivichall Interchange (1)	EB	2723	2697	31094	2701	2677	30855
	WB	2506	2659	29636	2538	2676	29917
A46 north of Stoneleigh Road (14)	NB	3934	3862	44728	3928	3852	44633
	SB	3331	3897	41469	3313	3917	41476
A46 south of Stoneleigh Road (19)	NB	3954	3984	45537	4007	3958	45698
	SB	3330	4016	42142	3354	4050	42474

No links showed an increase or decrease of 100 vehicles or more.

Table 21 below reports traffic link flows along selected links on the SRN with and without development for the year 2029 both in the peaks and 24H AADT.

Table 21: Traffic flows 2029 at Selected Links – Reference and Development Scenarios

Link Name	Dir.	2029 Reference Case			2029 Development		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
Coventry Eastern Bypass (38)	NB	2422	2577	28678	2444	2592	28890
	SB	2566	2531	29240	2591	2520	29324
A45 west of Stivichall Interchange (1)	EB	2723	2801	31689	2748	2828	31989
	WB	2589	2984	31974	2622	2988	32182
A46 north of Stoneleigh Road (14)	NB	3739	4002	44413	3876	4010	45241
	SB	3433	4290	44305	3434	4302	44380
A46 south of Stoneleigh Road (19)	NB	4080	4062	46709	4093	4071	46836
	SB	3473	4391	45116	3498	4393	45274

The model indicates that the Development scenario will result in increases in traffic volumes during the peak hours of 100 vehicles or more on the following link relative to the 2029 Reference Case:

- A46 north of Stoneleigh Road northbound in the AM peak, increase in vehicle flows of 136 veh/H.

9.3.2 Sensitivity Scenarios

Table 22 below reports traffic link flows along selected links on the SRN for the scenarios of 2029 Reference and Local Plan both in the peaks and 24H AADT.

Table 22: Traffic Flows 2029 at Selected Links – Development and Local Plan Scenarios

Link Name	Dir.	2029 Development Case			2029 Local Plan		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
Coventry Eastern Bypass (38)	NB	2444	2592	28890	2669	2585	30142
	SB	2591	2520	29324	2594	2622	29927
A45 west of Stivichall Interchange (1)	EB	2748	2828	31989	3114	2805	33957
	WB	2622	2988	32182	2740	3167	33887
A46 north of Stoneleigh Road (14)	NB	3876	4010	45241	4502	4206	49958
	SB	3434	4302	44380	3568	4381	45603
A46 south of Stoneleigh Road (19)	NB	4093	4071	46836	4417	4398	50575
	SB	3498	4393	45274	3622	4526	46746

The model indicates that the 2029 Local Plan scenario will result in increases in traffic volumes during the peak hours of 100 vehicles or more on the following links when compared to the 2029 Development Case:

- Coventry Eastern Bypass northbound in the AM peak, increase in vehicle flows of 255 veh/H;
- A45 west of Stivichall Interchange eastbound the vehicle flows increase by 366 veh/H in the AM. Westbound, the vehicle flows increase by 118 veh/h in the AM and by 179 veh/H in the PM;
- A46 north of Stoneleigh Road northbound the vehicle flows increase by 626 veh/H in the AM peak and the 196 veh/H in the PM. Southbound, the vehicle flows increase by 133 veh/H in the AM peak; and

- A46 south of Stoneleigh Road northbound the vehicle flows increase by 324 veh/H in the AM and by 328 veh/H in the PM peak. Southbound, the vehicle flows increase by 123 veh/H in the AM peak and by 133 veh/H in the PM peak.

9.4 Local Road Network Link Flow

9.4.1 Development Scenarios

Table 23 reports traffic link flows along selected links on the local road network with and without the development for the year 2021 both in the peaks and 24H AADT.

Table 23: Traffic Flows 2021 at Selected Links – Reference and Development Scenarios

Link Name	Dir.	2021 Reference			2021 Development		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
A429 Kenilworth Road north of Gibbet Hill Road (11)	NB	389	683	6448	364	665	6190
	SB	670	531	7219	727	555	7704
A429 Coventry Road south of Gibbet Hill Road (23)	NB	416	343	4565	416	334	4505
	SB	286	380	4007	284	357	3850
A429 Coventry Road north of A45 (44)	NB	824	954	10684	809	958	10619
	SB	576	683	7563	622	695	7920
A45 between Charter Avenue and A429 (4)	WB	1616	1757	20277	1632	1759	20384
	EB	1600	1717	19942	1652	1778	20620
A45 west of Sir Henry Parkes Road (45)	NB	1064	1872	17647	1042	1935	17893
	SB	2083	1297	20319	2169	1328	21020
A45 east of Kenilworth Road (3)	WB	1222	1461	16128	1216	1494	16292
	EB	1637	1437	18480	1644	1459	18652
Kirby Corner Road (9)	NB	489	599	6538	495	775	7637

Link Name	Dir.	2021 Reference			2021 Development		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
	SB	850	688	9245	994	705	10216
Westwood Heath Road (8)	EB	1047	258	7844	1110	277	8336
	WB	196	850	6283	178	861	6244
Gibbet Hill Road west of A429 (10)	EB	371	805	7069	448	761	7268
	WB	1039	436	8865	1033	467	9013
Stoneleigh Road south-east of A429 (22)	NB	851	777	9783	735	804	9254
	SB	739	828	9419	781	863	9884
Stoneleigh Road south-east of A46 (17)	WB	397	505	5423	397	518	5499
	EB	686	430	6709	631	425	6345
Crackley Lane (52)	EB	33	161	1165	37	190	1362
	WB	117	23	841	171	29	1205
Red Lane (48)	EB	172	117	1737	172	113	1713
	WB	139	162	1808	139	165	1827
Cannon Hill Road	EB	241	282	3580	246	303	3756
	WB	125	265	2663	114	268	2614

The model indicates that the Development scenario will result in increases in traffic volumes during the peak hours of 100 vehicles or more on the following link relative to the 2021 Reference Case:

- Kirby Corner Road northbound in the PM peak, increase in vehicle flows of 177 veh/H. Southbound in the AM peak, increase in vehicles flows of 144 veh/H.

Table 24 below reports traffic link flows along selected links on the local road network with and without the development for the year 2029 both in the peaks and 24H AADT.

Table 24: Traffic Flows 2029 at Selected Links – Reference and Development Scenarios

Link Name	Dir.	2029 Reference			2029 Development		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
A429 Kenilworth Road north of Gibbet Hill Road (11)	NB	419	693	6686	387	691	6482
	SB	661	535	7190	688	544	7405
A429 Coventry Road south of Gibbet Hill Road (23)	NB	410	355	4601	405	356	4578
	SB	277	366	3865	268	343	3672
A429 Coventry Road north of A45 (44)	NB	829	964	10776	819	978	10798
	SB	578	729	7857	627	742	8228
A45 between Charter Avenue and A429 (4)	WB	1603	1823	20594	1654	1799	20759
	EB	1710	1738	20729	1659	1766	20591
A45 west of Sir Henry Parkes Road (45)	NB	1077	1950	18192	1020	1944	17817
	SB	2142	1382	21180	2263	1386	21939
A45 east of Kenilworth Road (3)	WB	1168	1487	15958	1175	1438	15702
	EB	1713	1455	19041	1671	1447	18744
Kirby Corner Road (9)	NB	503	637	6852	498	807	7842
	SB	830	677	9058	954	671	9766
Westwood Heath Road (8)	EB	1091	282	8252	1138	300	8644
	WB	199	889	6541	186	854	6252
Gibbet Hill Road west of A429 (10)	EB	391	754	6883	485	678	6991
	WB	1043	431	8863	1033	498	9206

Link Name	Dir.	2029 Reference			2029 Development		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
Stoneleigh Road south-east of A429 (22)	NB	873	812	10123	768	872	9859
	SB	750	857	9657	825	858	10116
Stoneleigh Road south-east of A46 (17)	WB	446	584	6195	429	597	6170
	EB	672	459	6799	617	456	6447
Crackley Lane (52)	EB	33	190	1339	41	195	1417
	WB	138	27	987	189	31	1323
Red Lane (48)	EB	173	116	1740	169	109	1669
	WB	140	174	1887	139	171	1861
Cannon Hill Road	EB	250	276	3593	269	267	3669
	WB	130	279	2799	123	274	2716

The model indicates that the Development scenario will result in increases in traffic volumes during the peak hours of 100 vehicles or more on the following links relative to the 2029 Reference Case:

- A45 west of Sir Henry Parkes Road southbound in the AM peak, increase in vehicle flows of 121 veh/H; and
- Kirby Corner Road northbound in the PM peak, increase in vehicle flows of 169 veh/H. Southbound in the AM, increase in vehicle flows of 123 veh/H.

9.4.2 Sensitivity Scenarios

Table 25 below reports traffic link flows along selected links on the local road network for the 2029 Development and 2029 Local Plan scenarios both in the peaks and 24H AADT.

Table 25: Traffic Flows 2029 at Selected Links – Development and Local Plan Scenarios

Link Name	Dir.	2029 Development Case			2029 Local Plan		
		AM [veh/H]	PM [veh/H]	24 AADT	AM [veh/H]	PM [veh/H]	24 AADT
A429 Kenilworth Road north of Gibbet Hill Road (11)	NB	387	691	6482	500	771	8693
	SB	688	544	7405	860	604	10015
A429 Coventry Road south of Gibbet Hill Road (23)	NB	405	356	4578	456	420	5994
	SB	268	343	3672	304	451	5166
A429 Coventry Road north of A45 (44)	NB	819	978	10798	763	1005	12100
	SB	627	742	8228	725	663	9503
A45 between Charter Avenue and A429 (4)	WB	1654	1799	20759	1883	1806	25242
	EB	1659	1766	20591	1760	2024	25896
A45 west of Sir Henry Parkes Road (45)	NB	1020	1944	17817	1180	1980	21627
	SB	2263	1386	21939	2294	1585	26540
A45 east of Kenilworth Road (3)	WB	1175	1438	15702	1406	1381	19068
	EB	1671	1447	18744	1654	1622	22422
Kirby Corner Road (9)	NB	498	807	7842	460	722	8084
	SB	954	671	9766	1055	615	11424
Westwood Heath Road (8)	EB	1138	300	8644	820	353	8027
	WB	186	854	6252	230	926	7912
Gibbet Hill Road west of A429 (10)	EB	485	678	6991	449	991	9850
	WB	1033	498	9206	1519	598	14487

Stoneleigh Road south-east of A429 (22)	NB	768	872	9859	1430	1022	16775
	SB	825	858	10116	895	1147	13973
Stoneleigh Road south-east of A46 (17)	WB	429	597	6170	450	543	6795
	EB	617	456	6447	618	485	7548
Crackley Lane (52)	EB	41	195	1417	56	171	1548
	WB	189	31	1323	68	48	794
Red Lane (48)	EB	169	109	1669	185	129	2148
	WB	139	171	1861	144	171	2160
Cannon Hill Road	EB	269	267	3669	230	218	3065
	WB	123	274	2716	165	305	3216

The model indicates that the 2029 Local Plan scenario will result in increases in traffic volumes during the peak hours of 100 vehicles or more on the following links when compared to the 2029 Development Case:

- A429 Kenilworth Road north of Gibbet Hill Road in the AM peak the vehicle flows increase by 113 veh/H northbound and by 172 veh/H in the southbound.
- A429 Coventry Road south of Gibbet Hill Road southbound the vehicle flows increase by 108 veh/H in the PM peak;
- A45 between Charter Avenue and A429 westbound the vehicle flows increase by 229 veh/H in the AM peak. Eastbound, the vehicle flows increase by 101 veh/H in the AM peak, 258 veh/H in the PM peak;
- A45 west of Sir Henry Parkes Road northbound the vehicle flows increase by 161 veh/H in the AM peak. Southbound, the vehicle flows increase by 198 veh/H in the PM peak;
- A45 east of Kenilworth Road westbound the vehicle flows increase by 231 veh/H in the AM peak. Eastbound, the vehicle flows increase by 175 veh/H in the PM peak;
- Kirby Corner Road southbound the vehicle flows increase by 101 veh/H in the AM peak;
- **Error! Reference source not found.** Gibbet Hill Road west of A429 eastbound the vehicle flows increase by 313 veh/H in the PM peak. Westbound, the vehicle flows increase by 486 veh/H in the AM peak and by 100 veh/H in the PM peak;

- Stoneleigh Road south-east of A429 northbound the vehicle flows increase by 661 veh/H in the AM and by 150 veh/H in the PM peak. Southbound, the vehicle flows increase by 290 veh/H in the PM peak;

9.5 Junction Impacts

In this section the assessment uses the KSWA model to report junction impacts. This section describes the results for those junctions that have the potential to be impacted by the Development Case scenarios.

It should be noted that the model output report provides average hourly maximum queue lengths. This is the maximum queue length for each hour from each individual model runs with an average of all maximum queue lengths from each model run derived to report average maximum queue lengths.

For the SRN and local road network junctions the KSWA model junction outputs for both 2021 and 2029 have been considered in terms of those junction which see an increase of more than 15 vehicles on any one arm when the Development Case is compared to the Reference Case.

The more detailed junction assessments in Chapter 10 have been carried out using modelling software for the 2021 Reference Case and Development Case because we have assumed full development at this stage.

An increase of less than 15 vehicles on any approach is not reported. An increase of more than 15 vehicles is reported. No other junctions in the KSWA model have increases in queuing greater than 15 vehicles as a result of the Development Case for either the 2021 or 2029 scenarios.

The table below shows the percentage change in total traffic at the key junctions. The maximum percentage change is 10.8% at the Kenilworth Rd /Gibbet Hill Road junction and the majority of the peak hour changes show less than 6% change.

Table 26: Percentage Change in Traffic 2021 Reference Case to 2021 Development Case

Junction	AM	PM
A46 - A45 Stivichall Interchange (J3)	-2.3%	-0.4%
A45 - Kenilworth Rd (J6)	2.8%	2.6%
Stoneleigh Rd - Gibbet Hill Rd Kenilworth Road (J31)	10.8%	10.5%
Stoneleigh Rd - A46 (J1)	6.0%	1.6%
Gibbet Hill Rd - Kirby Corner Rd (J9)	6.6%	5.9%
Gibbet Hill Rd - Scarman Rd (J10)	7.3%	6.3%
Gibbet Hill - University Rd (J11)	10.2%	9.0%
Charter Avenue - Sir Henry Parkes Rd (J8)	5.4%	7.0%
A45 - Sir Henry Parkes Rd (J7)	2.9%	3.1%
A45 - Leamington - St Martins Rd (J4)	0.6%	0.3%

Appendix H contains the full model outputs for the junctions and table 27 below

identifies those junction arms where the difference between the Development Case and the Reference Case for 2021 shows an average of the maximum queue lengths across the seeded runs for each scenario is greater than 15 vehicles. This is a worst case assessment.

Table 27: Junctions Considered

Junction	Junctions arms where the Difference between the Development Case and Reference Case mean-max queue length is >15 vehicles	
	2021	2029
B4113/A45 Stonebridge Highway (J4)	-	A45 Stonebridge Highway WB AM has 34 extra vehicles. B4113 St Martins Road NB AM has 50 extra vehicles.
A429/A45 Kenpas Highway (J6)	A429 NB PM has 16 extra vehicles. A45 Kenpas Highway EB PM 29 extra vehicles.	A45 Kenpas Highway EB AM has 21 extra vehicles and the PM has 17 extra vehicles.
Wainbody Avenue/Kenpas Hwy (J75)	Kenpas Hwy WB AM 45 extra vehicles.	Kenpas Hwy WB AM 23 extra vehicles.
Sir Henry Parkes Road/Charter Avenue (J8)	-	Charter Avenue EB PM has 17 extra vehicles.
Gibbet Hill Road/University Road/Scarman Road (J10)	Gibbet Hill Road NEB PM 20 extra vehicles.	-
Gibbet Hill Road/University Road (J11)	University Road WB PM 28 extra vehicles.	Gibbet Hill Road SB PM 18 extra vehicles.
A429/Stoneleigh Road/Gibbet Hill Road (J31)	Kenilworth Road SWB PM 34 extra vehicles. Stoneleigh Road NWB AM 49 extra vehicles. Kenilworth Road NEB AM 19 extra vehicles. Gibbet Hill Road SEB PM 19 extra vehicles.	Stoneleigh Road NWB AM 37 extra vehicles. Kenilworth Road NEB AM 17 extra veh. Gibbet Hill Road SEB PM 37 extra vehicles.
Stoneleigh Road/Kings Hill Ln (J32)	Stoneleigh Road NB AM 51 extra vehicles.	Stoneleigh Road NB AM 43 extra vehicles.
Bericote Road/A452 (J39)	A452 Kenilworth Road NB AM 15 extra vehicles.	-
Stoneleigh Road/Dalehouse Lane (J61)	Dalehouse Ln NEB AM 103 extra vehicles.	Dalehouse Ln NEB AM 167 extra vehicles.
Crewe Lane / B4115 (J69)	-	B4115 NWB AM 17 extra vehicles.

It should be noted that Wainbody Avenue/ A45 Kenpas Highway (J75) is governed by the operation of the A429/A45 Kenpas Highway (J6) and therefore WB queues ascribed to this junction are actually generated by the operation of J75.

It should be noted that the queues associated with J32 Stoneleigh Road/ Kings Hill Road and at J61 Stoneleigh Road /Dalehouse Lane are as a result of queuing extending back from J31 A429/Stoneleigh Road/Gibbet Hill Road junction along Stoneleigh Road NWB in the AM peak. In the 2029 Local Plan model scenario the queues on Stoneleigh Road NWB at J31 are significantly reduced in the AM peak with similar consequences for the Stoneleigh Road NWB queues at the Kings Hill Lane junction and for the Dalehouse Lane NEB queues at the J61 junction.

Queue length confidence interval analysis has been carried out for the 2021 scenarios. This calculates the range of queues at a 95% confidence interval for the with and without development scenarios. This can identify whether or not there appears to be a significant impact – i.e. if the ranges are clearly separated then there is an impact. This shows that at the following junctions it is anticipated that there is no significant impact:

- J4 – B4113/A45 Stonebridge Highway
- J39 – Bericote Road/A452
- J69 – Crewe Lane / B4115

On the basis of the above the following junctions have been modelled in Chapter 10:

- A46 / A45 / Stivichall Interchange (J3);
- A429 Kenilworth Road / A45 Fletchamstead Highway / A45 Kenpas Highway (J6);
- Stoneleigh Road / Gibbet Hill Road / A429 Kenilworth Road (J31) .
- Stoneleigh Road / A46 (J1)
- Kirby Corner Road / Gibbet Hill Road (J9)
- Gibbet Hill Road / Scarman Road (J10)
- Gibbet Hill Road / University Road (J11)
- Charter Avenue / Sir Henry Parkes Road / Lynchgate Road (J8)
- A45/ Sir Henry Parkes Road (J7)
- A45 / Leamington Road (J4)

9.6 Journey Times

Journey time results have been extracted from the model in all scenarios in both the AM and PM periods. The location of all the routes and model outputs are provided in Appendix H. The results summarised in this sub-section are for key routes associated with the University for the AM and PM peak hours, 08:00 - 09:00 and 17:00 – 18:00. This represents the worst case periods during the 24 hour period.

Results are reported below for 2021 and 2029 for the following key routes associated with the University:

- Route 1 – A45/A46
- Route 2 – A46
- Route 3 – A452
- Route 6 - Stoneleigh Road Gibbet Hill Road
- Route 7 – Kirby Corner Road Westwood Heath Road
- Route 8 – A429
- Route 9 – Crackley Lane
- Route 12 - Cromwell Lane Red Lane
- Route 16 – Charter Avenue

See Figure 12, which shows the routes reported below. Changes of approximately 1 minute or more are reported below.

Route 1 - A45/A46

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the eastbound direction the Development results in an approximately 1 minute increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 1.5 minutes when compared to the Reference Case.
- In the westbound direction the Development results in an approximately 2 minutes increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 3 minutes when compared to the Reference Case. 2029 Local Plan decreases travel time by approximately 3 minutes relative to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the eastbound direction the Development results in an approximately 2 minutes increase in journey time in 2021 relative to the Reference Case, and in 2029 it does not result in a significant increase in journey time when compared to the Reference Case. 2029 Local Plan decreases travel time by approximately 4 minutes relative to the 2029 Development Case.
- In the westbound direction the Development does not result in an increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 1 minute when compared to the Reference Case. 2029 Local Plan increases travel time by approximately 1 minute relative to the 2029 Development Case.

9.6.1 Route 2 – A46

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the northbound direction the Development does not have any significant impact on journey time in 2021 relative to the Reference Case, and in 2029 it results in a decrease of 1 minute when compared to the Reference Case. 2029 Local Plan improves journey times by approximately 1 minute when compared to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case or in the 2029 Local Plan compared to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the northbound direction the Development does not have significant impact on the journey time in 2021 or in 2029 relative to the Reference Cases. 2029 Local Plan improves journey times by less than 1 minute when compared to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case or in the 2029 Local Plan compared to the 2029 Development Case

9.6.2 Route 3 - A452

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the northbound direction the Development results in an approximately 1 minute increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 1 minutes when compared to the Reference Case. 2029 Local Plan improves journey times significantly by approximately 9 minutes when compared to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan improves journey times significantly by approximately 8 minutes when compared to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the northbound direction the Development does not have significant impact on the journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 1 minutes when compared to the Reference Case. 2029 Local Plan improves journey times by approximately 7 minutes when compared to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan improves journey times by approximately 5 minutes when compared to the 2029 Development Case.

9.6.3 Route 6 - Stoneleigh Road Gibbet Hill Road

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the eastbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan increased journey times by approximately 6 minutes when compared to the 2029 Development Case.
- In the westbound direction the Development results in an approximately 7 minutes increase in journey time in 2021 relative to the Reference Case. Similar results are reported in the 2029 Development scenario. 2029 Local Plan decreases travel time by approximately 9 minutes relative to the 2029 Development Case. 2029 Local Plan decreased journey times by approximately 9 minutes when compared to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the eastbound direction the Development results in an approximately 5 minutes increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 6 minutes when compared to the Reference Case. 2029 Local Plan decreases travel time by approximately 11 minutes relative to the 2029 Development Case.
- In the westbound direction the Development results in an approximately 3 minute increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 1 minute when compared to the Reference Case. 2029 Local Plan decreases travel time by less than 1 minute relative to the 2029 Development Case.

9.6.4 Route 7 - Kirby Corner Road Westwood Heath Road

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the eastbound direction the Development results in an approximately 1 minute increase in journey time in 2021 relative to the Reference Case. Similar results are reported in the 2029 Development scenario. 2029 Local Plan increases travel time by 7 minutes relative to the 2029 Development Case.
- In the westbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan increases travel time by nearly 7 minutes relative to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the eastbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan increases travel time by 5 minutes relative to the 2029 Development Case.
- In the westbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case.

2029 Local Plan increases travel time by nearly 5 minutes relative to the 2029 Development Case.

9.6.5 Route 8 - A429

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the northbound direction the Development results in an approximately 3 minutes increase in journey time in 2021 relative to the Reference Case. Similar results are reported in the 2029 Development scenario. 2029 Local Plan increases travel time by 6 minutes relative to the 2029 Development Case.
- In the southbound direction the Development does not result in an increase in journey time in 2021 relative to the Reference Case, and in 2029 it results in an increase of 1 minute when compared to the Reference Case. 2029 Local Plan does not increase journey time relative to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the northbound direction the Development results in an approximately 1 minute increase in journey time in 2021 relative to the Reference Case. Similar results are reported in the 2029 Development scenario. 2029 Local Plan results in an approximately 1 minute increase in journey time relative to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan results in an approximately 1 minute increase in journey time relative to the 2029 Development Case.

9.6.6 Route 9 - Crackley Lane

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the northbound direction the Development does not have a significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the northbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.

- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.

9.6.7 Route 12 - Cromwell Lane Red Lane

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the northbound direction the Development does not have a significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan increases journey time by about 1 minute relative to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the northbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.
- In the southbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan does not have a significant impact on the journey time relative to the 2029 Development Case.

9.6.8 Route 16 Charter Avenue

The key findings in the AM peak 08:00 – 09:00 are as follows:

- In the eastbound direction the Development increases journey times by 1 minute compared to the 2021 Reference Case and does not have a significant impact on the journey time in 2029 relative to the Reference Case. 2029 Local Plan decreases journey times by 2 minutes relative to the 2029 Development Case.
- In the westbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan increases journey times by nearly 4 minutes relative to the 2029 Development Case.

The key findings in the PM peak 17:00 – 18:00 are as follows:

- In the eastbound direction the Development increases journey times by 1 minute compared to the 2021 Reference Case and in 2029 increases journey times by 1 minute compared to the Reference Case. 2029 Local Plan increases journey times by 1 minute relative to the 2029 Development Case.

- In the westbound direction the Development does not have significant impact on the journey time either in 2021 or 2029 relative to the Reference Case. 2029 Local Plan increases journey times by 2 minutes relative to the 2029 Development Case.

10 Junction Testing

This chapter reports impacts of future year modelling for the following junctions comparing the 2021 Development Case to the 2021 Reference Case for the following junctions using turning counts from the KSWA model:

- A46 / A45 / Stivichall Interchange (3);
- A429 Kenilworth Road / A45 Fletchamstead Highway / A45 Kenpas Highway (6);
- Stoneleigh Road / Gibbet Hill Road / A429 Kenilworth Road (31)
- Stoneleigh Road / A46 (1)
- Kirby Corner Road / Gibbet Hill Road (9)
- Gibbet Hill Road / Scarman Road (10)
- Gibbet Hill Road / University Road (11)
- Charter Avenue / Sir Henry Parkes Road / Lynchgate Road (8)
- A45/ Sir Henry Parkes Road (7)
- A45 / Leamington Road (4)

10.1 Strategic Road Network

10.1.1 A46 / A45 / Stivichall Interchange

The future junction performance is set out Table 28 below for the 2021 Reference Case and the 2021 Development Case using LinSig modelling software

Table 28

Table 28: A46/A45/Stivichall Interchange – 2021 Scenarios

Arm	Description	2021 Reference				2021 Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
1/1 + 1/2	A46 NB Left / Ahead	116.1	133	81.8	15	108.1	85	82.3	15
1/3	A46 NB Ahead	116.3	112	79	17	108	71	79	17
3/1	A45 EB Ahead	112.4	45	80.9	7	109.7	40	81.5	7
3/2	A45 EB Ahead	113.5	46.5	82.2	7	110.2	41	78.3	6

Arm	Description	2021 Reference				2021 Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
5/1 + 5/2	Leaf Lane	81.5	4	27	1	95	8	23	1
7/1	A444 SB Left / Ahead	70.5	6	78.6	9	105	16	80.2	10
7/2	A444 SB Ahead	68.6	5	59.3	6	105	16	61.8	6
9/1	A45 WB Ahead	74.6	2	81.3	2	74.5	2	81.1	2
9/2 + 9/3	A45 WB Ahead	53.5	1	68.6	3	52.9	1	68.4	3
11/1	Circulatory (SW) Ahead	22.6	3	34.9	3	19	2	36.1	3
11/2 + 11/3	Circulatory (SW) Ahead Right	41.5	4	64.5	6	44.3	5	57.4	5
12/1	Circ (NE) Ahead	79.3	5	74	7	73.1	20	72.9	6
12/2	Circ (NE) Ahead Right	74.8	4	82.6	11	72.6	21	81.9	12
12/3	Circ (NE) Right	25.7	6	24.3	5	23	0	21.3	4
PRC (%) Over All Lanes:		-29.2		9		-22.5		9.4	

The model indicates that the 2021 Reference Case operates over capacity in the AM peak, while there is still 9% practical capacity left in the PM peak. The inclusion of the development would cause re-routing of the traffic in the wider network, but the junction still operates over capacity in the AM peak. In the PM peak, the junction performance shows similar results as in the AM peak in the 2021 Reference Case. There is 9.4% capacity left in the PM peak with the development flows included.

The above results show, that the Stivichall Interchange is over capacity in the AM peak in the 2021 Reference Case and continues to be over capacity for the Development Case. The development does not have a significant adverse impact on the operation of this junction.

This junction has recently been upgraded by HE and it is not proposed to carry out any mitigation at this junction.

10.1.2 A46 / Stoneleigh Road

Table 29 below set out the performance of the A46 / Stoneleigh Road junction for the 2021 Reference and 2021 Development scenarios. The model tests the A46

Phase I junction layout instead of the existing layout using Junction 9 modelling software. The Phase 1 junction improvement is a committed scheme.

The model indicates that the 2021 Reference Case has no queuing on any of the arms.

Table 29 - A46/Stoneleigh Road 2021 Scenarios

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	A46 SB	2021 Reference	0.16	0	0.18	0
B	Birmingham Road		0.12	0	0.16	0
C	A46 NB		0.26	0	0.26	0
D	Stoneleigh Road		0.2	0	0.23	0
A	A46 SB	2021 Development	0.17	0	0.18	0
B	Birmingham Road		0.13	0	0.15	0
C	A46 NB		0.29	0	0.26	0
D	Stoneleigh Road		0.23	0	0.26	0

The above results show that the junction operates well within capacity in the 2021 Development scenario. All arms show RFC figures well below the 0.85 threshold. The junction can accommodate the development flows and there is no adverse impacts.

10.2 Local Road Network

10.2.1 A429 Kenilworth Road/A45 Kenpas Highway

Table 30 below sets out the results for the 2021 Reference and 2021 Development scenarios. The future scenarios were tested using the LinSig modelling tool.

The model indicates that in the 2021 Reference Case the queues on the A45 Kenpas Highway are up to 185 PCU long in the AM peak and 120 PCU long in the PM peak. A45 Stonebridge Highway has queues up to 92 PCUs in the AM and 75 PCUs in the PM peak. Kenilworth Road on both approaches has relatively short queues in both peak periods (up to 10 PCUs). The junction is over capacity with long queues in both the AM and PM peaks in the 2021 Reference Case.

Table 30: A429 Kenilworth Road/ A45 Kenpas Highway – 2021 scenarios

Arm	Description	2021 Reference		2021 Development	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour

		Deg. Sat	Queue [PCU]	Deg. Sat	Queue [PCU]	Deg. Sat	Queue [PCU]	Deg. Sat	Queue [PCU]
1/1	A45 EB Left / Ahead	133.4	126	130.6	120	87.8	21	140.9	138
1/2 + 1/3	A45 EB Ahead / Right	165.4	185	139.4	112	261.4	106	211	240
2/1	Kenilworth Road (N) Left / Ahead	36.1	5	41.4	6	54.7	7	44.2	7
2/2 + 2/3	Kenilworth Road (N) Right	34	3	47.4	4	91.6	6	44.8	4
3/1	A45 WB Ahead / Left	119.1	88	109	56	86.5	21	117.2	77
3/2 + 3/3	A45 WB Ahead / Right	114.4	92	110.4	75	100	24	116.2	94
4/1 + 4/2	Kenilworth Road (S) Left / Ahead	56	7	71.4	10	67.6	8	65.4	9
4/3	Kenilworth Road (S) Right	38.5	2	31.7	1	82.3	4	38.1	2
PRC (%) Over All Lanes:		-83.7		-54.9		-190.4		-134.5	

The model indicates that the junction operates in the 2021 Development Case over capacity with longer queues forming on the A45 Kenpas Highway and on the A45 Stonebridge Highway in both peak periods. Kenilworth Road on both approaches has relatively short queues in both peak periods (up to 9 PCUs).

The PRC is well below 0% in all scenarios and the junction is not able to accommodate all the future flows.

Stoneleigh Road / Gibbet Hill Road / A429 Kenilworth Road

Table 31 below sets out the results for the 2021 Reference and 2021 Development scenarios. The Junction 9 model demonstrates that in the 2021 Reference Case the junction operates is approaching capacity. Stoneleigh Road reaches the 0.85 RFC threshold in the AM peak with A429 Kenilworth Road also close to capacity. In the PM peak, Gibbet Hill Road is approaching capacity.

Table 31 - Stoneleigh Road / Gibbet Hill Road / Kenilworth Road - 2021 Scenarios

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Kenilworth Road (N)	2021 Reference	0.48	1	0.41	1
B	Stoneleigh Road		0.85	5	0.73	3

C	Kenilworth Road (S)	2021 Development	0.78	3	0.51	1
D	Gibbet Hill Road		0.45	1	0.84	5
A	Kenilworth Road (N)		0.55	1	0.53	1
B	Stoneleigh Road		1.03	33	0.76	3
C	Kenilworth Road (S)		0.88	6	0.53	1
D	Gibbet Hill Road		0.52	1	1.00	23

The model indicates that the junction in the 2021 Development Case operates at capacity. Stoneleigh Road and A429 Kenilworth Road NB are over the 0.85 RFC threshold and queues form in the AM peak. Gibbet Hill Road is over the 0.85 threshold for RFC and queue of 23 PCUs form in the PM peak.

The junction cannot accommodate all the additional development traffic, because it is already approaching capacity in the Reference Case.

This junction has recently been upgraded from a signalised junction to a roundabout junction which improved the operation of the junction significantly.

10.2.2 Kirby Corner Road / Gibbet Hill Road

Table 32 below sets out the results for the 2021 Reference and 2021 Development scenarios. The Junction 9 model shows that the junction in the 2021 Reference Case is approaching capacity. The RFC on Westwood Heath Road is 0.85 and the queue is 6 PCU long. In the PM peak, Gibbet Hill Road is at 0.82 RFC close to the threshold.

Table 32: Kirby Corner Road / Gibbet Hill Road – 2021 Scenarios

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Westwood Way	2021 Reference	0.5	1	0.69	2
B	Kirby Corner Road		0.5	1	0.63	2
C	Gibbet Hill Road		0.47	1	0.82	4
D	Westwood Heath Road		0.85	6	0.26	0
A	Westwood Way	2021 Development	0.51	1	0.72	3
B	Kirby Corner Road		0.55	1	0.72	3
C	Gibbet Hill Road		0.52	1	0.87	6
D	Westwood Heath Road		0.91	8	0.29	0

The added development flows increase RFC on Westwood Heath Road in the AM peak to 0.91 and increase the queue to 8 PCUs. In the PM peak, the RFC on Gibbet Hill Road increases to 0.87 because of the development. The junction is

approaching capacity on the Westwood Heath arm in the AM peak and on the Gibbet Hill arm in the PM peak.

The model indicates that the junction will operate with slightly longer queues as a result of the development flows. The impact is not significant when compared to the Reference Case.

10.2.3 Gibbet Hill Road / Scarman Road

Table 33 below sets out the results for the 2021 Reference and 2021 Development scenarios. The future scenarios were tested using Junction 9 modelling tool. The results show that the junction operates well below capacity in both peak periods in the 2021 Reference Case.

Table 33: Gibbet Hill Road / Scarman Road

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Gibbet Hill Road N	2021 Reference	0.68	2	0.51	1
B	University Road		0.13	0	0.5	1
C	Gibbet Hill Road S		0.63	2	0.45	1
D	Scarman Road		0.12	0	0.18	0
A	Gibbet Hill Road N	2021 Development	0.72	3	0.6	2
B	University Road		0.15	0	0.54	1
C	Gibbet Hill Road S		0.69	2	0.45	1
D	Scarman Road		0.11	0	0.19	0

The model indicates that the roundabout operates within capacity for the Development Case, well below the 0.85 RFC threshold in both peak periods.

The junction can accommodate the additional development flows. There is no significant queuing on any of the arms.

10.2.4 Gibbet Hill Road / University Road

Table 34 below sets out the results for the 2021 Reference and 2021 Development scenarios. The future scenarios were tested using Junction 9 modelling tool. The results show that the junction operates well below capacity in both peak periods in the 2021 Reference Case.

Table 34: Gibbet Hill Road / University Road - 2021 Scenarios

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Gibbet Hill Road N	2021 Reference	0.25	0	0.48	1
B	University Road		0.06	0	0.17	0
C	Gibbet Hill Road S		0.66	2	0.4	1
A	Gibbet Hill Road N	2021 Development	0.28	0	0.54	1
B	University Road		0.05	0	0.2	0
C	Gibbet Hill Road S		0.73	3	0.41	1

The model indicates that the roundabout operates within capacity for the Development Case, well below the 0.85 RFC threshold in both peak periods.

The junction can accommodate the additional development flows. There is no significant queuing on any of the arms.

10.2.5 Charter Avenue / Sir Henry Parkes Road / Lynchgate Road

Table 35 below sets out the results for the 2021 Reference and 2021 Development scenarios. The future scenarios were tested using Junction 9 modelling tool. The results show that the junction operates below capacity in both peak periods in the 2021 Reference Case. However, in the AM peak, Sir Henry Parkes Road arm has an RFC of 0.81, which is close to the threshold.

Table 35: Charter Avenue / Sir Henry Parkes Road / Lynchgate Road - 2021 Scenarios

Arm	Description	Scenario	AM Peak Hour		PM Peak Hour	
			Max RFC	Max Queue [PCU]	Max RFC	Max Queue [PCU]
A	Sir Henry Parkes Road	2021 Reference	0.81	4	0.43	1
B	Charter Avenue E		0.7	2	0.28	0
C	Kirby Corner Road		0.22	0	0.4	1
D	Charter Avenue W		0.35	1	0.47	1
A	Sir Henry Parkes Road	2021 Development	0.84	5	0.41	1
B	Charter Avenue E		0.82	4	0.28	0
C	Kirby Corner Road		0.23	0	0.45	1
D	Charter Avenue W		0.34	1	0.55	1

The model indicates that the roundabout is approaching capacity with the additional development flows. Sir Henry Parkes Road and Charter Avenue WB is

just below the 0.85 RFC threshold in the AM peak. In the PM peak, the junction performance is well below the threshold, it operates within capacity.

The junction can accommodate the additional development flows. There is no significant additional queuing on any of the arms as a result of the development.

10.2.6 A45/ Sir Henry Parkes Road

Table 36 below sets out the results for the 2021 Reference and 2021 Development scenarios. The future scenarios were tested using LinSig modelling software. The results show that the junction operates below capacity in both peak periods in the 2021 Reference Case. In the AM peak, there is more capacity left. The SB circulatory operates close to capacity and the queue on A45 EB (E) is 7 PCU long because of the pedestrian crossing. In the PM peak the queue increases at the A45 EB (E) at the pedestrian crossing to 15 PCUs and on the SB circulatory to 8 PCUs. The PRC is 45.3% in the AM peak and it is 12.3% in the PM peak.

Table 36: A45 / Sir Henry Parkes Road – 2021 Scenarios

Arm	Description	2021 Reference				2021 Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
1/1	A45 EB Left/Ahead	58.5	7	60.8	7	61.4	8	63.9	7
1/2	A45 EB Ahead	59.4	8	60.8	7	62.2	8	64	7
1/3 + 1/4	A45 EB Ahead	59.1	6	34.4	3	62.5	6	34.4	3
2/1	Circ. NB Ahead	57.1	6	57.8	9	58.8	6	59.3	9
2/2	Circ. NB Right	43.9	4	55.4	8	43.5	4	58.7	9
4/1	Circ. EB Ahead	39.9	0	41.1	0	40.9	0	44	0
4/2	Circ. EB Ahead	42.7	0	45.9	0	44	0	48.3	1
4/3	Circ. EB Right	27.8	1	13.2	0	29.3	1	12.9	0
4/4	Circ. EB Right	26.4	0	12.5	0	28	0	12.2	0
5/1 + 5/2	Sir Henry Parkes Road SB Ahead/Left	33.8	1	18.6	0	35	1	19.7	1
6/1	Circ. SB Ahead	62	8	33	1	62.3	4	27.9	1
6/2	Circ. SB Ahead/Right	61.6	8	36.6	2	62.2	4	31.7	1
7/1	A45 EB Ahead (E)	58.2	7	60.8	13	59.9	6	65.5	15

Arm	Description	2021 Reference				2021 Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
7/2	A45 EB Ahead (E)	58.9	6	63.2	15	60.7	6	66.6	16
9/1	A45 WB Ahead (E)	37	4	56.2	8	37.7	4	54.7	7
9/2	A45 WB Ahead (E)	37.3	4	56.4	8	37.9	4	54.9	7
9/3	A45 WB Ahead (E)	3.7	0	12.9	1	3.2	0	10.2	1
10/1	A45 WB Left/Ahead	59.3	7	79.7	10	62.8	7	87.3	11
10/2	A45 WB Ahead	59.4	7	79.7	10	62.9	7	87.3	11
10/3	A45 NB Ahead	5.5	1	17	1	4.9	0	15.1	1
12/1	Circ WB Ahead	21.9	0	35.4	0	23.5	0	34.5	0
12/2	Circ WB Right/Ahead	26.4	0	38.5	0	26.5	0	37.4	0
12/3	Circ WB Right	2.5	0	8.7	0	2.2	0	6.9	0
13/1	A45 NB Ahead (W)	21.9	0	35.4	0	23.5	0	34.5	0
13/2	A45 NB Ahead (W)	25	0	36	0	24	0	36.2	0
14/1 + 14/2	Sir Henry Parkes Road NB Ahead/Left	44.1	2	80.1	8	43	2	88	11
14/3	Sir Henry Parkes Road NB Ahead	32.9	1	62.8	5	33.5	2	75.3	7
PRC (%) Over All Lanes:		45.3		12.3		43		2.3	

The model indicates that as a result of the development the PRC decreased to 43% in the AM peak and to 2.3% in the PM peak as a result of the development flows. The impact is not significant in the AM peak. The queues slightly increased in the PM peak, but the impact is not significant. However, the junction operates at approaching capacity in the PM peak.

The analysis shows that the junction can accommodate the additional development flows without significant increase in queues.

A45 / Leamington Road

The table below demonstrates that in the AM peak the additional development reduces the PRC to 0.9% from 4.4% and increases the queue from 19 PCUs to 21 PCUs on Leamington Road. In the PM peak due to re-routing the remaining capacity increases slightly to 21.3% with similar queue lengths.

Table 37 below sets out the results for the 2021 Reference and 2021 Development scenarios. The future scenarios were tested using LinSig modelling tool. The results show that the junction operates at approaching capacity with a PRC of 4.4% in the 2021 Reference Case in the AM peak. Leamington Road has queues up to 19 PCUs, A45 Stonebridge Highway WB has queues up to 13 PCUs, and A45 Kenpas Highway suffers from queues up to 15 PCUs in the AM peak. There is more capacity left in the PM peak (19.7%). The queues are slightly reduced on the A45 EB and WB and also on Leamington Road.

The table below demonstrates that in the AM peak the additional development reduces the PRC to 0.9% from 4.4% and increases the queue from 19 PCUs to 21 PCUs on Leamington Road. In the PM peak due to re-routing the remaining capacity increases slightly to 21.3% with similar queue lengths.

Table 37: A45 / Leamington Road – 2021 Scenarios

Arm	Description	2021 Reference				2021 Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
1/1	A45 Westbound Right / Left	82.6	12	72.9	11	86.3	13	71.3	10
1/2 + 1/3	A45 Westbound Right	86.2	13	75.2	11	89.2	14	74.2	10
2/1	Circulatory (E) Ahead / Right	85.7	11	73.3	13	87.5	13	73.3	14
2/2	Circulatory (E) Right	16.2	1	24.5	0	16.6	0	24.6	0
3/1	A45 Eastbound Ahead / Left	64.8	15	64.8	12	65	13	68.2	13
3/2 + 3/3	A45 Eastbound Ahead	68.8	15	67.3	12	70.3	14	69.2	13
4/1	Circ (W) Ahead	79	13	64.8	11	70.8	12	63.1	10
4/2	Circ (W) Right / Ahead	78.8	13	64.5	11	71.5	12	63	10
5/1	Leamington Road Ahead	25.9	4	30.6	5	25.7	4	29.6	4

Arm	Description	2021 Reference				2021 Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]	Deg. Sat [%]	Queue [PCU]
5/2	Leamington Road Ahead	84.2	19	73.3	14	88.4	21	74	14
6/1	St. Martins Road Ahead	24.3	2	64.4	6	27.8	2	63.3	6
6/2 + 6/3	St Martins Road Ahead	54.2	6	65.2	5	58.8	6	65.9	8
7/1	Circ (N) Right	86	11	63.1	6	81	10	64	5
7/2	Circ (N) Right	85.3	11	63.5	4	80.4	10	65.7	4
7/3	Circ (N) Right	25.9	2	12.3	1	25.7	2	14	1
PRC (%) Over All Lanes:		4.4		19.7		0.9		21.3	

It is demonstrated that the junction can accommodate the development flows, without significantly increasing queues, however, the junction works close to capacity with queues over 10 PCUs in both scenarios.

11 Travel Plan

11.1 Background

The University's existing Travel Plan (incorporating the Car Park Management Strategy) was originally implemented in 2009 as a consequence of the Main Campus Masterplan 2009 – 2019 and the s106 Agreement which formed part of the planning permission. In 2007 the University had applied for outline planning permission for the continuing development of the University as set out in the Masterplan. Applications were made to both CCC and WDC planning authorities. Arup was appointed by the University to provide advice on transport matters and prepare the Transport Assessment and Travel Plan in support of the application. The documents were developed in discussion with the University, the two planning authorities, the highway authorities including Highways England, their agents and other interested parties.

The associated s106 Agreement set out the requirements for transport mitigation measures to meet the travel demands for the continuing development of the University. The key tool for providing transport mitigation was the Travel Plan which set out a range of measures and contained a number of targets for sustainable modes and limits to traffic generation. The University car traffic generation has been well below the target set in s106 Agreement. The latest (2016) traffic data shows AM peak car traffic movements 2.3% below the level in 2007 and a PM peak of 18% below the 2007 level.

As the Masterplan 2009 – 2019 reaches the end of its life, a new Travel Plan and a Car Park Management Strategy are being developed to build on the strengths and achievements since 2009. Full details of the Travel Plan are set out below, the Car Parking Management Strategy is in the following chapter. This chapter includes the following:

- Key measures of the current Travel Plan;
- Targets and achievements of the current Travel Plan;
- Proposed new initiatives and measures for the Travel Plan going forward; and
- Proposed new targets and monitoring arrangements.

11.2 Travel Plan Measures

The existing Travel Plan and s106 Agreement, which applies Campus-wide, sets out in detail, initiatives to encourage more sustainable travel choices, the level of car parking and the car parking management strategy to achieve the targets for car traffic generation under the current Masterplan proposals.

11.2.1 Infrastructure Improvements

The Travel Plan was supported by a series of infrastructure measures set out in the s106 Agreement that were implemented to improve the transport environment:

- New and improved access to the University,
- Improvements to the pedestrian and cycle network internally and externally;
- A new roundabout upgrade at the Gibbet Hill Road/ Kenilworth Road junction to improve capacity and reduce delays;
- Improvements to the layout of Gibbet Hill Road in the central Campus area and the introduction of a 20mph zone;
- Contribution towards Traffic Regulation Orders in adjoining streets that successfully reduced on-street parking; and

In addition, to the infrastructure requirements the University has also implemented and supported the following works:

- A new bus interchange and associated shared space type public realm improvements on Gibbet Hill Road and University Road around the Arts Centre and Warwick Business School;
- Supported with financial contributions, CCC's Congestion Relief Scheme for the University and Westwood Business Park which includes the upgrade of nine highway junctions in the area, and
- A new coach park to encourage group travel to the Arts Centre and other events.

11.2.2 Sustainable Travel Initiatives

Other initiatives included flexible working times, home working, discounted public transport tickets, promotional initiatives and a restrictive car park management strategy.

11.2.3 Public Transport

A new bus interchange was opened in University Road, close to the Arts Centre and Student Union in 2015. Approximately 738 buses arrive/depart the University every weekday during term time and stop at the new interchange, this is a +130% increase on the level of bus movements from the 2007 level. The University has worked with local commercial bus operators to introduce a range of new services, including a Coventry Express service to the Coventry Mainline station and city centre taking 15 minutes.

The University operates free shuttle bus services around the Campus and to/from Canley Station.

11.2.4 Car Share

The University has developed a successful car share scheme. This has approximately 2,555 staff and students signed up under the branding of 'WarwickShare' for staff and 'Take a Mate' for students removing some 400 commuting cars a day from the road network. The number of users has grown from an initial take up of about 400 people in 2009. Car sharers get preferential car parking reserved for them and save on petrol and car parking charges.

11.2.5 Cycling

The University has been active in developing facilities for cyclists. It now has over 3,400 cycle parking spaces and is working with the Council's Coventry Cycle project and Sustrans to create and improve cycle routes to and through the University.

11.2.6 UniCycles

A 'UniCycles' rental bikes scheme was introduced in 2015 across the Campus. One hundred bikes are available for rental on a 24 hours a day basis from 17 locations including; Westwood Residences, Bluebell Residences, University House, Lakeside Residences, Library Road, Warwick Sports Centre, Rootes Grocery Store, Gibbet Hill Campus and Claycroft Residences. This innovative new cycle hire scheme achieved 60% of its annual target within the first two months and is now reputed to be the most successful cycle hire scheme in UK and Europe and in November 2017 set a new record for the number of monthly hires with 7,569.

11.2.7 Park & Ride

The University regularly utilises Stoneleigh Park, 6 miles distant, as a Park & Ride facility for large events such as Degree Congregations and Open Days, where up to 4000 cars are regularly parked off-site, transporting approximately 12,000 visitors to and from the Campus. The Park & Ride service for all events is provided free for visitors at considerable cost to the University.

11.2.8 Coach and Minibus drop off/collection and parking

The University remodelled one of its existing car parks (off Bluebell Roundabout) into a dedicated coach park. This enables drop off, collection and coach/minibus parking on site. On average 8-8 coaches/mini-buses use the facility on a daily basis, with peak days seeing over 100 coach arrivals / departures. This has significantly reduced demand for parking on campus.

11.2.9 Car Parking

All parking at the University is charged for and the University has worked with the Council to prevent parking occurring on local residential roads. The

University is committed to increasing its car parking charges above the rate of inflation as a measure to bear down on parking demand.

11.2.10 Taxis

A new taxi rank, that can accommodate some 11 taxis, is located in the bus interchange, approximately 100m from the Arts Centre main entrance.

11.3 Targets and Achievements of the Travel Plan

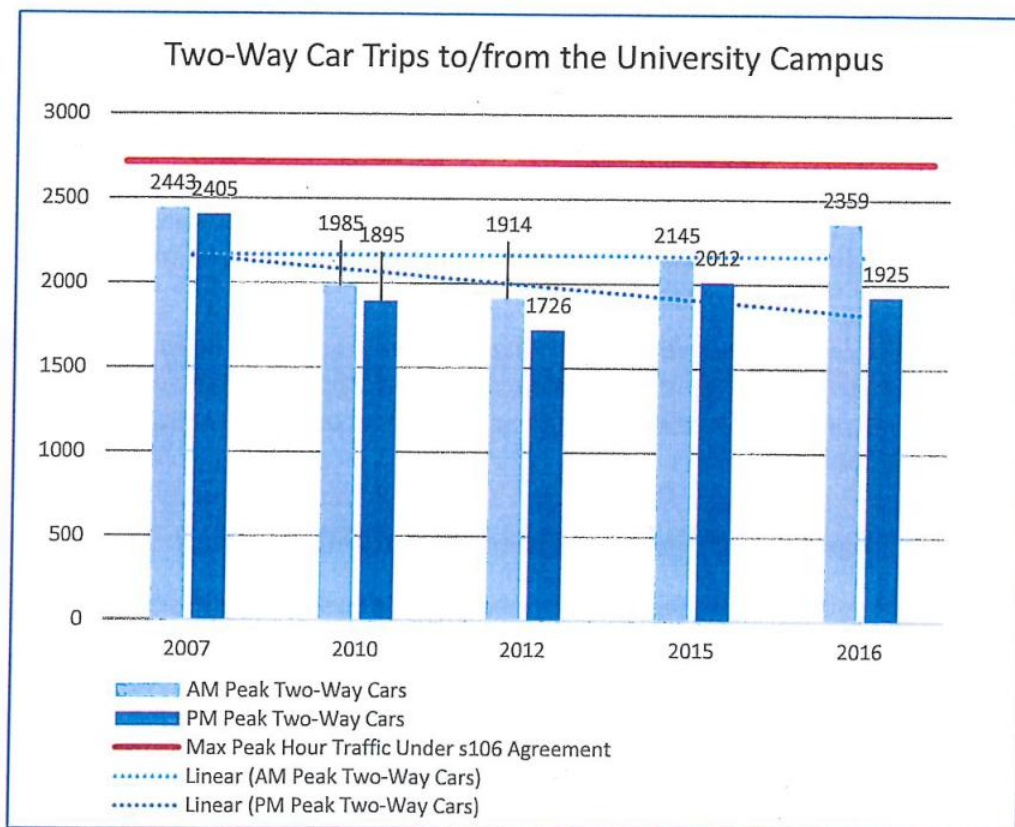
Since implementation of the Travel Plan, monitoring of developments, car parking provision, traffic flows and mode share has been carried out at regular intervals.

11.3.1 Classified Counts

Following an initial survey in 2007, which was used to set the baseline for traffic movements, regular monitoring surveys have been conducted in 2010, 2012, 2015 and the most recent, in November 2016. These record the number of vehicles including cars, pedal cycles, motorcycles, buses, coaches and goods vehicles entering and leaving the University in the weekday peak and inter-peak hours.

Graph 4 shows the survey results for two-way peak hour car trips to and from the University from 2007 to 2016.

Graph 4: Two-way Peak Hour Car Trips



Between 2007 and 2016 two-way car trips to and from the University showed an overall reduction in both the morning (-2.3%) and evening (-18.0%) peaks.

With the current Masterplan expiring in 2019 it is clear that the University is likely to meet its s106 Agreement target. Rather than an increase being kept below 12%, car traffic levels will probably have reduced over the plan period for movements during the critical peak periods.

11.3.2 Mode Shares

Staff and students travel surveys have been carried out regularly in 2005, 2010, 2012, 2015 and 2016. The Travel Plan sets out modal share targets for 2013 and 2018 based on modal shares identified in the 2005 survey.

A summary of the results is shown in the table below

Table 38: Staff and students' modal share 2005 to 2016

Mode	2005 Modal Share		Target for 2013 (+/- 2%)		Target for 2018 (+/- 2%)		2015 Modal Share		2016 Modal Share	
	Staff	Stu't	Staff	Stu't	Staff	Stu't	Staff	Stu't	Staff	Stu't
Car driver	72	21	63	18	57	16	63	13	67	17
Car passenger	4	5	7	7	10	7	5	2	4	2
Public Transport	11	46	14	48	16	48	16	52	14	36
Cycle	9	5	11	6	12	6	9	10	10	15
Walk	4	22	5	23	5	23	5	22	4	30

Many of the 2013 targets were achieved by the time of the 2015 travel survey and while progress towards some targets has slowed, over the entire period since 2005, the percentages for most sustainable transport modes show positive changes.

Since 2005, journeys as car driver only have reduced from 72% (staff) and 21% (students) to 67% (staff) and 17% (students). This is a significant achievement by the University given that reducing single occupancy car use is a key element of the Travel Plan.

11.4 Proposed New Initiatives and Measures

The new Travel Plan will build upon the successes already achieved as well as introduce a number of potential new measures. It will also recognise the changed nature of the University make-up and operation. Staff numbers have increased by 26% over the course of the last 10 years and student numbers have increased by 15% with a similar proportion (c.30%) living on Campus, but a shift in other off-Campus locations, with a relatively stable Leamington base but increases in the number of students located in Canley and surrounding areas. Some of the pressure

that the University is managing are set out below. These pressures will need to be managed through the upgraded Travel Plan.

A significant change over recent years has been the growth of those employed by external agencies, primarily JLR and TATA, being based on Campus. They have a higher proportion of single occupier car trips which impacts on car parking. This will grow further as the NAIC opens and becomes fully operational over the next period.

Student expectations of being able to bring a car to Campus or to their off-Campus address have increased significantly and this has put pressure on the University to change their policy on no-student parking for those with accommodation on Campus. The University has no intention of changing this policy.

Recent years have also seen substantial growth in visitor numbers with the Training and Conference Centres (Scarman, Radcliffe, Arden and The Slate) increasing numbers and also the out of term on Campus Conference Park and Events business increasing in size and complexity, ensuring that Campus remains occupied during the Easter and Summer vacation periods.

The Arts Centre has been hindered by the lack of Campus parking and in recent years had to cancel their matinee performance programme because guests have been unable to park. The only daytime offering remaining is the Mead Gallery. With the Arts Centre 2020 re-development project under construction, attracting daytime audiences is a key part of the future development, so encouraging alternative travel modes will be essential. Reserving parking spaces for those visiting the Arts Centre will put further pressure on parking for staff.

The new Sports Hub which is due to open in 2019 will be available to the public on a membership basis and this is expected to prove a popular facility.

The Travel Plan will be developed and revamped as set out below.

11.4.1 Refreshed Marketing and Publicity

The new Travel Plan will provide refreshed marketing and publicity of sustainable travel options harnessing social media and other online platforms, and making the best use of travel survey findings.

The Travel Plan marketing and publicity refresh will focus on promoting behavioural change through the promotion of alternatives to travel by private car. It is intended to raise awareness of the travel choices available and to underpin a shift to sustainable modes of transport. In particular, making new and potential students aware of commuting options available is important such that sustainable travel habits are developed when students first come to the University.

Awareness raising can be supported by annual challenges and events, such as:

- 10,000 steps per day walking challenge;
- Pedometer Challenge;

- Student Cycle Challenge;
- Bike Week;
- University Bike Day;
- European Cycling Challenge; and,
- Travel information day at the start of each term.

11.4.2 Intelligent Transport Opportunities

There has been significant improvements in recent years in application of intelligent transport systems which utilise current and developing technologies in order to deliver transport services in a more efficient manner and allow users to make more informed decisions about their travel.

The University, in collaboration with the local authorities and transport providers, will monitor how best to benefit from the application of new technologies on an ongoing basis. Within the remit of the Travel Plan, the University will explore the following potential intelligent transport opportunities.

- **Bus Service Data**

Arup have been harvesting bus service running data for nearly 3 months on the services that run to the University, at present we have 2.8Gb of data. It is proposed to analyse this data with a view to identifying where delays are occurring that affect bus services and then engaging with the authorities to address these problem locations.

- **Smart Payment**

Paying on board some buses is only possible with exact change and therefore the University are working with the Bus Operators for them to introduce a cashless 'Oyster' style electronic ticketing system. This smart payment card system would allow a universal payment method across all travel modes but could also be further developed to pay for other goods and services.

11.4.3 Bus Service Improvements

The University will continue to invest in bus services and facilities, and consider more frequent services, new routes and new fare options, underwriting experimental routes with operators to prove commercial viability where appropriate.

The University will work with the operators to address issues of overcrowding and long waiting periods, which was the most frequent bus issue reported in the latest Staff and Student Travel Survey. Respondents described a clear desire for additional bus services but many were deterred as they had experienced significant issues of overcrowding. This will be a high priority within the Travel Plan.

Initiatives to improve the bus ticketing system will include investigation of a multi-operator bus pass that would allow use of any of the buses to and from the

University rather than just being restricted to one operator's services, or having to pay extra for an alternative ticket.

The University will facilitate sharing of clear information on bus services including fares at bus stops in and around Campus.

New routing options under consideration include: further improved links to local rail stations, particularly Canley, Tile Hill, Warwick Parkway the new Kenilworth station.

11.4.4 Campus Shuttle Bus

The University shuttle bus on Campus has been well-received and new enhancements are under consideration including additional services, more and clearer stops and more information. New routes may include the Cannon Park District Council and the car parks located away from the Central Campus area. The Campus Bus Shuttle will be kept under review.

11.4.5 Real-time Information

A focus on technology to provide real-time travel information via signage and apps. SMS Texts can be set up to provide information about local bus services and timing stop via mobile phones. Most bus stops in the West Midlands have been given a unique code that can be entered into phone. The system looks at the timetable for that stop and sends the information on the next buses.

A number of services across the West Midlands use satellite technology to track buses and give an accurate prediction of the next bus's arrival time. For other routes the SMS service will provide the timetabled time.

There is an alternative service for WAP-enabled mobiles and internet access that can be used to find out the time of the next bus, with a map available to show where the bus stop is located.

The University will work with the authorities and the bus operators to provide real time information on bus services via their intranet and via mobile phones.

The new Travel Plan will provide full details of these tools and how they can be utilised to make travel by public transport easier and effective.

Real time bus information is already displayed on the electronic totems in the bus interchange and at the Humanities bus stop on University Road, this information is fed directly from Transport for West Midlands.

A comprehensive real-time VMS system for parking information is in design and will be installed across Campus in the coming year. This will provide information on car park availability on the approaches to the University. The University will enable information on car parking availability to be provided via smartphones.

11.4.6 Parking and Car Sharing

An important element of the new Travel Plan will be a refresh of the car sharing scheme to encourage increased uptake among staff. This is likely to involve the eventual utilisation of ANPR technology to identify sharers vehicles and apply a reduced parking charge. This approach also enables the imposition of charges to be confined to days when a car is brought to the Campus, thus encouraging drivers to try alternatives without having paid 'up-front' for a parking permit.

The University have successfully trialled a Multi-Mode permit for staff, where the monthly deduction from salary is zero, but staff are able to pay a permit-day-rate on days when they need to park, reducing the financial dis-incentive of being signed up to a monthly plan and increasing the use of other modes. Over 350 staff are signed up to the Multi-Mode trial and use their cars to commute 1 day per week on average. An evaluation of the trial and re-launch with enhanced features will be a key element of the Travel Plan.

A key to ensuring the success of the Car Sharing strategy is the certainty of finding a preferential location car share space if you arrive before 10.00am. The University will put in place measures to prevent the scheme being abused and will increase the number of car share spaces to meet demand.

The University Parking Strategy is considered in Chapter 13.

11.4.7 Cycling Improvements

The new Travel Plan will promote further improvement to cycling infrastructure and facilities on Campus including consideration of the provision of smart cycle parking. Working in a similar fashion to smart car parking, this can help cyclists identify parking facilities from an app.

The University is continuing to work with Coventry City and Warwickshire County councils to further improve the cycle network. See Chapter 13. In addition the University will investigate with stakeholders the possible provision of a route from Cannon Hill Road via Tocil Wood to the cycle track linking Gibbet Hill Campus to Main Campus. Any such improvements will be drawn to the attention of potential users via the Travel Plan.

11.4.8 Coach and Mini-bus use

Remodelling Car Park 2 into a dedicated Coach Park facility has been a huge success in facilitating and promoting the use of group travel to/from Campus. While many groups visiting Arts and Sports events are using coach and mini-bus travel, there is more which could be achieved by encouraging conference groups and others to travel by Coach and mini-bus. This will be an important element of the promotion of sustainable transport.

11.4.9 Working Practices

The University is committed to a major review of flexible working to include working times and working locations. Supporting alternative working patterns and

making working from home or other locations both possible and acceptable practice will reduce the need to travel at peak times. In addition, home-working can have a significant benefit in terms of travel impact and can be beneficial to both employers and staff.

11.5 Proposed New Targets and Monitoring Arrangements

11.5.1 Travel Plan Mode Share Targets

The new Travel Plan will include new modal share targets. These will be designed to increase the numbers of staff, students and other visitors travelling to and from the University by sustainable modes, particularly at peak hours.

The table below shows new draft targets for modal shift across the University.

Table 39: Draft Targets for Sustainable Travel

Mode	2005 Mode Share [%]		2016 Mode Share [%]		Proposed 2023 Mode Share Targets [%]	
	Staff	Student	Staff	Student	Staff	Student
Car driver	72	21	66	14	64	13
Car passenger	4	5	4	2	5	2
Public Transport	11	46	14	38	16	38
Cycle	9	5	10	13	11	14
Walk	4	22	4	33	4	33
Other	<1	<1	<1	<1	<1	<1
					100	100

These targets will enable the University to effect a 3.7% modal shift to sustainable modes which is in line with Coventry Local Plan. This modal shift is required across the University over a 5-year period as the University car parking ratio to non-residential floor area (GIA) moves from the current ratio of 1 space for 67 sqm GIA to a ratio of 1 to 70.

11.5.2 Monitoring

Future monitoring of the Travel Plan targets is expected to follow the same arrangements that have been employed since 2005, thus allowing direct comparisons with previous years. But, to reduce the variability of a snapshot survey, other indicators will be used such as demand for permits and car parks monitoring data.

An initial staff travel survey was undertaken by the University in 2003, which was followed by a formal staff and student travel survey in 2005. The results of the 2005 survey were used to inform and develop the 2009 Travel Plan.

The Travel Plan, was commissioned a new staff and student travel survey in 2010, which was repeated in 2012, 2015 and 2016. The next survey is programmed for November 2018.

The University has been monitoring the traffic it generates since 2007. This traffic survey has been carried out every 2 years and it is proposed to continue these surveys every 2 years. The next traffic survey is due to be carried out in November 2018. The results of these surveys will be used to assess the operation of the University against the target to limit traffic growth below 16% of current levels.

12 Parking Management Strategy

12.1 Travel Plan and Parking

There are a number of issues, such as car sharing and electric vehicle use, that overlap between the Travel Plan and the Parking Management Strategy. The latter was originally incorporated in the Travel Plan but as both strategies have been developed and grown in importance, it has become more manageable for them to be separated whilst recognising that the Parking Management Strategy must support the objectives of the Travel Plan and is bound to it. This chapter provides an overview of the Parking Management Strategy. See Appendix G for further details.

12.2 Parking Strategy Background

In recent years, the University has developed a strategy of locating new multi-storey car parks on the approach roads to the University. The intention is to improve the pedestrian environment within the Campus and to dissipate the current over-concentration of parking in the Central Campus area. The development of these MSCPs is being accompanied by the closure of existing MSCPs which are coming to the end of their structural life, and the closure of at-grade car parks to give the space over for more valuable land uses including enhanced public realm and academic and ancillary buildings.

Focussing car parking at fewer locations with easier access will enable the University, in conjunction with CCC (and the other highway authorities as appropriate), to develop a system of variable message signs (VMS) showing the location of available car parking. This is similar to the system that Coventry have introduced for the city centre, and means that drivers will in future be able to find available spaces more easily, avoiding congestion issues arising as a result of the search for spaces. This will improve the management of car parking and reduce overall vehicle mileage. The University is currently in discussion with the Council about these proposals.

12.3 Principles

The parking strategy has a number of core principles:

- All parking within the University is controlled;
- All spaces are charged for, there is no free parking;
- Some car parks are allocated to Pay and Display parking. These are available to all staff, students and visitors to Campus;
- The new larger MSCPs are being located on the periphery of the Campus, and
- The University undertakes to keep total car parking numbers within any cap agreed with the local authorities.

The University is currently increasing car parking charges above the rate of inflation as a way to bear down on car parking demand and encourage the use of sustainable transport alternatives.

12.4 Locations

There are a total of 54 car parks located across the Campus; allocated for staff permit holders, Pay and Display, or some specific uses. There are special arrangements for visitors and conference delegates.

12.5 Electric Vehicles

The University wants to support the growing number of people who use energy-efficient electric vehicles and has provided free charging points for electric vehicles. As the infrastructure develops and demand for charging points increases, the University intends to introduce more charging points, including at the new Sports Hub car park, and the new Kirby Corner MSCP next to University House and at the proposed MSCP at the Gibbet Hill Campus (Project 9).

12.6 Motorcycles

Dedicated motorcycle parking facilities are available at various locations.

12.7 Disabled Parking

Registered Disabled Blue Badge holders have the same rights on the University Campus as they have on the public highway.

Parking on Campus is free for blue badge holders and there are disabled spaces near all buildings on Campus. Some disabled bays are behind a barrier. Users that require regular access to one of these, request special arrangements.

The University are committed to the provision of sufficient disabled spaces to meet demand and this has been the approach adopted throughout the period of the existing masterplan. The University Human Resources department has procedures to support staff and students who have disabilities as required under the Disability Discrimination Act. These procedures identify and arrange for the conversion of general car parking spaces to disabled spaces at suitable locations to support the disabled person when necessary.

12.8 Permits

The University operates a permit system for certain categories of users including, salaried staff and those employed by others but based predominantly on campus who make up 96% of all permit holders; Staff are offered a permit priced relative to their grade and for salaried staff, pro-rata'd to their full time equivalent. The Car Parks staff can use varies based on their primary working location and business need. All staff are offered a permit allowing regular use, charged monthly via salary deduction or pre-paid on credit card.

Residential Life Team and Resident Staff; Societies and Sports Clubs and to students in special cases. Pre-reserved visitor parking operates throughout the year, with 79 spaces closed off to others daily until 3pm. All staff can pre-book their external visitors to ensure parking on Central Campus for them. The reserved area expands on a demand basis, sometimes with up to 500 spaces being reserved for visitors.

Visitors to the Training and Conference Centres utilise the dedicated parking around Scarman, Radcliffe and Arden (505 spaces) During the Easter and Summer vacations on-campus Conference Park and Events operates utilising P&D car parks, taking up to 1000 spaces each day. Conference delegates register in advance for parking permits via an online system.

Evening and weekend visitors to the Arts Centre utilise the Central Campus P&D facilities (although no charge is made for evenings and weekends). To enable daytime visitors in the future, the University intends to convert a Central Campus car park to short stay P&D. While supporting use of the Arts Centre, this will further limit parking available to staff permit holders. The University strongly advises that students should not drive to campus and instead, are encouraged to walk, cycle or use public transport. Local bus services serve the main off-campus student accommodation areas in Coventry and Leamington Spa, with direct, frequent services.

12.9 Enforcement

There are procedures in place for ensuring effective parking and traffic management across the University. Enforcement is carried out by the University's directly employed Enforcement Officers or Security Officers, both working to the same standards and guidelines.

Warning signs about car parking regulations are prominently displayed at all vehicular entrances to the University, and at regular points throughout the Campus. There is a clear and detailed process for paying penalty charges and the appeals procedure.

Lynchgate car park operates with ANPR, where all vehicle registration entering and leaving the car park are checked against the permit holder list. Penalty Charge Notices are automatically issued to the registered keeper for any unauthorised access. This technology and process will be expanding further to new strategic car parks and other existing and temporary car parks as appropriate.

13 Mitigation

13.1 Mitigation Strategy

The mitigation strategy set out in this chapter has been developed based upon a comprehensive understanding of the following factors:

- The local highway network including the SRN around the University in terms of congestion locations, popular routes, rat-runs, recent and historic improvements and planned or potential future infrastructure changes;
- The aspirations for the development of the University and the creation of an environment that supports sustainable travel modes;
- The results of the future year traffic modelling that forecast the Reference Case and Development Case traffic volumes and route choices on the network;
- Discussion with CCC, WCC and HE highway authorities and their intentions for the future development of their networks and traffic management.

The University is located within a busy highway network that experiences traffic congestion at a number of key junctions, during the AM and PM peak hours. The additional traffic on the network resulting from the CPHA is shown to make the performance of some junctions that are already at capacity worse, and bring others close to capacity. Mitigation to reduce traffic impacts is therefore required and the three elements of this are set out below:

- **Embedded Mitigation** – elements embedded in the CPHA projects that improve the infrastructure for sustainable modes and encourage use of sustainable modes;
- **Travel Plan Mitigation**- infrastructure and support for sustainable modes through the upgraded Travel Plan that can assist in mitigating the impact of the CPHA, and
- **Mitigation by Contributions** - financial contributions to the highway authorities to help them to bring forward planned network improvements that will help mitigate the impacts of additional traffic arising from this development. This applies to locations where there is an adverse impact from the CPHA but where the highway authority has already exhausted options for improvement or where options for improved capacity are restricted and/or where the highway authorities are minded to seek contributions towards the wider network improvement strategy. The value of such contributions will be agreed with the planning and highway authorities based on traffic generation, impacts and mitigation. In addition mitigation contributions to support infrastructure upgrades to support traffic management and walking and cycling will be considered.

The key element of both CCC and WCC's approach to highway network improvements in this area is the promotion of the A46 Link Road. Phase I of this

scheme, the upgrade of the A46/ Stoneleigh Road interchange is a committed scheme and due to start construction in early 2019. This enhancement represents the first part of a three-phase proposal to provide a new strategic link from the A46 towards Solihull, UK Central and the new HS2 Interchange. Phase II of the scheme will deliver a new road from the A46 junction to Kirby Corner and the Westwood area of Coventry (as identified in the WDC Local Plan) whilst also facilitating a new access to the University. This phase is under development although not yet committed. The aspiration for Phase III is to see the A46 Link Road continue in a north-west alignment to either join the A452 in the Balsall Common area or link to the A45 to the west of Coventry by the mid-2020s.

The A46 Link Road will provide a local (Phases I and II) and strategic (Phase III) alternative to the A45 running through residential areas in Coventry. This road is heavily congested and has already had as much capacity added to it as is feasible through the residential areas of south Coventry. CCC has transferred potential funding streams allocated to the A45 to the A46 Link Road scheme in recognition of the benefits to Coventry of the A46 Link Road scheme and their desire not to encourage long term growth of the traffic along the A45.

The implementation of the A46 Link Road as intended by the local authorities, will provide substantial extra highway capacity for the local road network. This network upgrade will assist in mitigating adverse impacts arising as a result of the CPHA, and will have wider benefits for the Local Plan housing allocations in the area, the commercial developments at Whitley and South Whitley and the access to Westwood Business Park and the Science Park.

Details of the proposed mitigation elements are set out below.

13.2 Embedded Mitigation

The CPHA projects are located in sites within Coventry and close to the urban fringe of Coventry, a key aspect of creating sustainable development.

The CPHA has a number of projects which will improve the pedestrian and cycle environment on Campus and will have the effect of encouraging walking and cycling for trips to and from the Campus and within it.

- Project 1 provides for a new pedestrian and cycle link from Charter Avenue into the Westwood site and through the Project 1 site enabling a future link up to the pedestrian and cycle link in Project 2;
- Project 2 will create a high quality pedestrian and cycle link from the Westwood Campus into Academic Square and the heart of the Central Campus. The project will require an upgrade to the crossing facility on Millburn Hill Road;
- Project 4 will provide a new pedestrian / cycle link from Academic Loop Road through to Millburn Hill Road and the Science Park; and
- Many of the project include opportunities to create new public realm areas in the form of squares and plaza.

All new buildings will have provision for cycles and cyclists changing facilities and the proposed MSCP will include EV charge points.

All these measures help to encourage sustainable and active travel and reduce congestion and CO2 emissions from transport.

The mitigation of transport impacts primarily addresses the environmental and congestion impacts arising from single-occupancy vehicle use.

13.3 Mitigation via the Travel Plan Upgrade

The CPHA includes an upgrade to the existing Travel Plan which sets out new targets for modal shift to sustainable modes of travel and limits the level of car parking at the University and limits the increase in car traffic generated by the University during the peak periods. The Travel Plan upgrade will include various measures to promote and encourage sustainable travel options as set out in Chapter 11 including:

- Refreshed marketing and publicity;
- Support for flexible working patterns in situations that are appropriate for the operation of the University;
- Set targets for mode share and set limits on the increase in car traffic during peak periods and monitor traffic and travel;
- Use of ITS to improve the delivery of travel information;
- Various measures to encourage cycle use including parking facilities, on Campus routes, UniCycle hire scheme, cycle purchase scheme (CycleScheme);
- Review effectiveness of the Campus Shuttle Bus scheme;
- Provision of a trial bus service to Tile Hill Station and investigation of the possibilities of a bus service to Kenilworth Station;
- Support to other measures to encourage bus use including improved bus information;
- Encourage use of dedicated coach park by all parties coming to Campus (including Atracentre Visitors);
- Car parking charges increased above the rate of inflation;
- Review effectiveness of car sharing scheme, and
- Provision of EV charge points at new car parks.

The Travel Plan Upgrade sets out the initiatives to support and encourage sustainable travel and reduced single car occupancy trips. The objectives, targets and monitoring regime will be developed and included with a s106 Agreement.

13.4 Mitigation by Contributions

13.4.1 Junctions

The previous analysis has shown that the following existing junctions are above capacity in the 2021 Reference Case and that the development flows have an impact on these junctions with increasing queue lengths:

- A45 Kenpas Highway/ A429 Kenilworth Road;
- A429 Kenilworth Road / Stoneleigh Road / Gibbet Hill Road, and

The following junctions are approaching capacity for certain arms in certain time periods in the 2021 Reference Case with some queuing and there is a small increase in queuing due to the Development Case:

- A45 Stonebridge Highway/ B4113 Leamington Road /St. Martins Road;
- A45 Fletchamstead Highway / Sir Henry Parkes Road
- Kirby Corner Road / Gibbet Hill Road
- Charter Avenue / Sir Henry Parkes Road / Lynchgate Road

The three junctions on the A45 and the A429 Kenilworth Road / Stoneleigh Road junction have all been upgraded recently and it is likely that the optimum capacity has been achieved within the existing highway boundaries. Any further improvements at these junctions is likely to be limited to optimising signal timings to meet changing patterns of movement and or minor adjustments to layout.

It is therefore proposed that financial contributions are primarily directed towards longer term highway improvements in the area which have the potential to reduce current and future congestion on the network.

The highways authorities requested a sensitivity test of the A46 Link Road scheme within the modelling. The 2029 Local Plan + A46 Link Road Phase II modelling indicates that the A46 Link Road Phase II scheme has the potential to mitigate traffic impacts resulting from the CPHA together with other developments in the area.

13.4.2 Other Highway Elements

Pedestrian and Cycle Facilities

The local authorities wish to improve cycling facilities in the locality and two schemes have been identified:

- Provision of a route that connects from the new Westwood Heath Road housing proposals via Westwood Business Park to Route 12 and the University/ Cannon Park District Centre. In respect of the University discussions have centred on the possible route through the University close to

the running track to link from Westwood Way to Kirby Corner Road and the University network, and

- Linking the University network including the NCN 52 on Lynchgate Link to Route 12 via a facility along Lychgate Road.

The University will make a contribution to support the development of appropriate pedestrian and cycle facilities which would benefit the University and the wider community.

Traffic Calming

The University are supportive of Coventry's general approach to traffic calming and have with the support of the local authorities introduced schemes to reduce traffic speeds and improve the environment for pedestrians both within Campus and on the roads that surround the University.

During the consultation concerns were raised about the speed and flow of traffic on Cannon Hill Road. This road is used by some vehicles during the peak period as a rat run to avoid the A45/A429 junction. The traffic modelling shows that the CPHA has a small adverse impact on the traffic flows on Cannon Hill Road during the PM peak. Cannon Park Primary School is located close to Cannon Hill Road with an access point for pedestrians on to the road. The University will investigate the options with CCC for improving the pedestrian environment in the vicinity of the school.

Traffic Management

As discussed in this report the University has a history of working with the local authorities to support them to address car parking issues when they arise on local residential roads as a result of the operation of the University. The University is committed to helping the highway authority address parking issues if and when they arise with an appropriate level of contribution.

As discussed in this report the University wish to provide information to people driving to the University on the location and availability of car parking spaces within Campus. This information can reduce the number of people searching for a car parking space which can reduce the number of vehicles driving around Campus and the local road network.

14 Construction Issues

14.1 Background

It is anticipated that construction associated with the CPHA will continue through the period 2018 -2023.

Construction activities as part of the CPHA will involve the transportation of construction plant and materials. It is likely that these operations will involve the use of heavy goods vehicles (HGVs) and in addition, traffic will be generated by the movement of the workforce to and from the University, which could involve private vehicles and / or the use of minibuses.

The scale of the CPHA developments in line with the rate of construction that the University has been undertaking over the last +10 years (c. 15,000 sqm GFA per year). There is no evidence that construction traffic with the University's development programme has had a significant adverse impact on the local highway network. This is because:

- Construction site work starts between 07:00 and 08:00 and therefore travel to the University for operatives is normally in advance of the critical AM peak hour.
- The nature of the University Campus and the construction undertaken means that there has not been any large scale earthmoving activity which can generate large numbers of HGV movements. This will also be the case with the proposals in the CPHA.
- The HGV movements that are required are dissipated throughout the day.
- The construction traffic management plans associated with developments restrict the routes that HGV movements can use. This avoids using inappropriate or residential roads where possible.

Consideration is also given to two other major infrastructure projects that will be ongoing during the period of the CPHA, High Speed 2 (HS2) and the A46 Link Road Phase I (A46 /Stoneleigh Road junction upgrade).

14.2 Construction Traffic Routes

As with past construction projects at the University HGV movements will be restricted to the following routes to access the primary road network(A46 and A45):

- Kirby Corner Road and Sir Henry Parkes Road to the A45
- Gibbet Hill Road and the A429 Kenilworth Road to the A45
- Gibbet Hill Road and Stoneleigh Road to the A46

For Project 1 construction access will also be via Charter Avenue and Sir Henry Parkes Road.

For Project 2 construction traffic will also use Millburn Hill Road/ Sir William Lyons Road/ Lynchgate Road to Kirby Corner Road/ Sir Henry Parkes Road.

14.3 Construction Traffic Management Plan

It is proposed that Construction Traffic Management Plans (CTMP) will be implemented by the contractors to address the potential adverse effects of the construction on the surrounding highway network in advance of works commencing. This will encompass all of the necessary measures required to ensure that works potentially affecting the highway are adequately addressed. It will provide a framework to help ensure that all necessary mitigation and remedial measures are in place. In addition to the adoption of standard best practice approaches, a number of specific mitigation measures, considered necessary to address the potential adverse impacts, are set out in more detail below.

The CTMP will include the following measures:

- Highways to be kept clear of mud and debris;
- Construction phase delivery strategy to control the timing and routing of delivery vehicles; and
- Group transport to the University for construction workers, where feasible, to reduce the number of private car trips.

It is considered that the number of construction vehicles accessing the University as part of the CPHA, relative to the volume and character of vehicular traffic on the surrounding highway network, and the routes which those vehicles will take, will not have a significant impact on existing highway conditions.

Within the University estate construction activity is managed and controlled to ensure that construction and contractors do not adversely impact the safety and health of staff, students and the operations of the University. Typical details of the requirements imposed by the Estates Department on construction activity is available on request.

As previously mentioned the University has regular co-ordination meetings with the relevant authorities where issue to be raised.

14.4 Waste Management Strategy

The construction projects under the CPHA will be subject to a Waste Management Strategy. This will seek make use of opportunities to reduce waste including:

- excavated material will be re-used where possible. This can minimise the number of off-site vehicle movements and minimise the volume of material requiring off-site disposal at a licensed landfill. By maximising re-use of material on-site, the volume of material to be brought to site can be reduced;

- opportunities will be investigated to maximise the recycling potential of materials e.g. suitable materials can be crushed for reuse;
- reducing raw material waste through good design and utilising modern methods of construction;
- ensuring where possible that vehicle do not leave the site empty, i.e. return vehicles will take 'associated waste' off-site; and
- raw materials shall be stored in such a way as to reduce waste.

Only Environment Agency licensed waste hauliers, waste management contractors and landfill sites will be used to ensure compliance with legislative requirements.

14.5 High Speed 2

The University have been engaged with HS2 because HS2 runs through the southern part of the University's estate and the University has wanted to ensure the construction of HS2 will not adversely affect the operation of the University. The University has worked with the local highway authorities to ensure that HS2 mitigates any adverse construction impacts. The impact of the HS2 proposals in the vicinity of the University has been considered in a review based on the following HS2 documents:

- Environmental Statement (ES) – Community Forum Area (CFA) Report – Stoneleigh, Kenilworth and Burton Green (Chapter 12)
- Supplementary Environmental Statement (SES) and Additional Provisions 2 (AP₂) – CFA18 Stoneleigh, Kenilworth and Burton Green
- SES₃ and AP₄ ES – CFA18 Stoneleigh, Kenilworth and Burton Green

CFA 18 covers the roads affected by the HS2 proposals including A46 Kenilworth Bypass, Dalehouse Lane, Stoneleigh Road and A429 Kenilworth Road,

The primary HGV access and egress route for the HS2 scheme is to and from the M40 motorway via the A46 (as stated in SES₃ and AP₄). The following measures are proposed to mitigate and reduce the impact of HS2 in the Stoneleigh, Kenilworth and Burton Green area:

- construction materials and equipment to be transported along haul roads adjacent to the proposed HS2 alignment, where reasonably practicable, to reduce lorry movements on the public highway;
- the proposed A46 Kenilworth Bypass overbridge to be used for haul traffic to avoid local roads.
- the majority of roads crossing the HS2 scheme area will be kept open during construction resulting in limited diversions of traffic onto alternative routes;
- road closures will be limited to overnight and / or weekends where practically reasonable;

- Cromwell Lane (south of Westwood Heath) remains single lane working (traffic light controlled) to accommodate Kenilworth Greenway;
- HGV routing along the strategic road network and use designated routes for access;
- where reasonably practicable, the number of private car trips to and from the HS2 sites will be reduced by encouraging alternative modes of transport or vehicle sharing – this will be supported by implementation of a construction workforce Travel Plan; and
- a junction improvement scheme at the A46 / Stoneleigh Road junction – to be provided by 2020; and
- a direct connection between the A46 Kenilworth Bypass southbound roadhead and the A46 trunk road between the Stoneleigh Road junction and the A452 junction (referenced in SES3 and AP4 ES para. 3.12.23).

Table 7-223 in 'SES3 and AP4 ES' shows typical construction vehicle trip generation from roadheads in the area.

Table 40: HS2 Typical Construction Vehicle Trip Generation from Roadheads in the Area

Compound Type		Roadhead	Roadhead
Location		A429 Kenilworth Road roadhead	A46 Kenilworth Bypass southbound roadhead with A46 Direct Link
Access to/from compound		A429 Kenilworth Road, Stoneleigh Road, A46 to the M40	Inbound vehicles via A46 / A452 junction and Ashow Road. Outbound vehicles via Haul route to A46 southbound to M40
Indicative start/set up date		2019	2020
Estimated duration of use (Years)		3	1.5
Estimated duration with busy vehicle movement (months)		25	8
Average daily combined two-way vehicle trips during busy period and within peak month of activity	Cars / LGV	-	-
	HGV	323 – 356	729 - 822

14.6 A46 Link Road

The junction of the A46 with Stoneleigh Road has been identified for major upgrade (Phase I) with a future aspiration to provide a link road between the A46 at Stoneleigh Road and either the A45 east of Coventry or the A452 beyond Balsall Common (Phases II and III). The works at the A46 / Stoneleigh Road junction will see the upgrading of the existing single overbridge arrangement to

provide a large grade-separated roundabout with dedicated left-slip to the A46. The existing Stoneleigh Road / Dalehouse Lane roundabout will also be upgraded.

See Figure 13.

The main purposes of the scheme are (i) to improve the junction for operational reasons as part of the Highways England programme to upgrade the A46 to an Expressway (Note recent announcements by Midlands Connect) (ii) to facilitate WDC Local Plan growth (iii) the major junction improvement is a first step to delivering the link road (Phases II and III) and (iv) upgrade the junction to deal with construction traffic associated with HS2.

WCC has stated that the construction of HS2 in the Kenilworth and Stoneleigh area is not reliant on the A46 junction improvement scheme being in place. The HS2 Hybrid Bill includes a more modest signalisation scheme for the existing junction to be delivered in the first instance, with a southbound slip from the HS2 compound (noted above) to the A46 to be constructed prior to the peak of HS2 construction activity around 2019 / 2020. If the A46 major junction improvement scheme is delivered by this time, the southbound slip road onto the A46 won't be required.

The scheme is at design stage, with funding allocated in principle subject to approval of a Full Business Case. Work is scheduled to commence in early 2019 with a planned opening date in 2020.

Phases II of the A46 Link Road is proposed to be developed once Phase I is completed. The highway authorities are currently working on the alignment in advance of a forthcoming business case and consultation. Precise details on programme have not been released although there is an aspiration to complete at least Phase II before HS2 is opened in the mid 2020's with Phase III following on. Whilst the building of this road will create additional construction traffic, the nature of the new link road across open countryside will largely avoid the need for road closures except for short periods tie-ins to the existing road network.

14.7 Combined Impacts

The graph below sets out the current timescales for HS2 and the A46 scheme compared to the CPHA period.

Traffic generated by the construction of the CPHA projects will be relatively low level and the upgrade of the A46/ Stoneleigh Road junction will occur in the early stages of the CPHA providing a major improvement to congestion affecting University traffic.

Overall, it is considered likely that the relatively low levels of construction traffic generated by the build out of CPHA can be accommodated on the road network at the same time as HS2 given the upgrade to the A46 /Stoneleigh Road junction

Graph 5: Timescales – HS2, A46 Link Road and CPHA

Scheme	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
HS2 works in this area													
A46 Link Road (Phase I and II)													
University CPHA													

15 Summary and Conclusions

15.1 Summary

Arup has been commissioned by the University to prepare this Transport Assessment and Travel Plan in support of the Capital Plan Hybrid Application.

The development includes full applications for the new Faculty of Art Building and the Interdisciplinary Biological Research Building together with seven outline application projects. The development has a net increase in non-residential development of 39,389m² GIA and 1000 residential units, together with improvements to public realm and pedestrian and cycle accessibility. It also includes an outline application for a 650 space MSCP and an uplift to the existing car parking cap of 1030 spaces.

All the developments are located within the area administered by CCC but the TA has been prepared on the basis of discussions with CCC, WCC and HE because of the cross border traffic impacts on their road networks.

The existing Travel Plan will be upgraded and a new s106 Agreement will be part of this application.

The continued development at the University is compliant with the local policy environment. The development is in a sustainable location with many community facilities on or close to Campus, supported by a network of sustainable transport links including bus routes, links to the rail network, cycle and pedestrian routes. The University has a proven track record of successful implementation of measures to support sustainable transport options including car sharing, cycle hire and cycle routes, new bus routes and the new Bus Interchange.

The SRN and the local roads that surround the University generally operates well with some queuing during the peak periods, typical of an urban area.

Existing traffic data and KSWA validated 2017 Base modelled flows have been used to assess the operation of a total of 10 no. junctions close to the University.

A number of junctions are currently at or over capacity during the peak periods including the following junctions:

- A45 Kenpas Highway / A429 Kenilworth Road;
- A429 Kenilworth Road / Stoneleigh Road / Gibbet Hill Road;
- A45 / A4113 Leamington Road, and
- A46 / Stoneleigh Road.

The A46 / Stoneleigh Road junction is subject to a committed improvement scheme.

The nine developments will all use existing vehicle accesses that have been developed as part of the current masterplan. It is anticipated that construction of the separate nine developments will be started in the period 2019 -2023 with the

Faculty of Arts and the IBRB projects being the first. The uplift in the car parking cap will be required in a phased manner with a 600 space uplift from January 2019 and 1030 spaces uplift from January 2021.

CASM Area of Influence strategic traffic modelling together with more detailed and comprehensive micro-simulation KSWA modelling has been carried out covering the local highway network and seven modelled scenarios. Following on from this detailed assessments of the ten key junctions has been carried out. The junctions have been tested with the 2021 Reference Case flows and the 2021 Reference Case + Development flows. Analysis of the existing junction layouts highlighted adverse impacts in the form of increased queuing during peak periods arising as a result of the development at the following junctions:

- A429 Kenilworth Road / A45 Kenpas Highway;
- A429 Kenilworth Road / Stoneleigh Road / Gibbet Hill Road;

Minor increases in queuing were identified at the following junctions as a result of the development:

- A45 Stonebridge Highway/ B4113 Leamington Road /St. Martins Road ;
- A45 Fletchamstead Highway / Sir Henry Parkes Road
- Kirby Corner Road / Gibbet Hill Road
- Charter Avenue / Sir Henry Parkes Road / Lynchgate Road

Whilst analysis of the above junctions indicated some adverse impacts, the three junctions on the A45 and the A429 Kenilworth Road / Stoneleigh Road junction have all been upgraded recently and it is likely that optimum capacity has been achieved within the existing highway boundaries. Mitigation at these junctions is limited to optimising signal timings to meet changing patterns of movement and / or minor layout changes. It is therefore proposed that financial contributions are primarily directed towards longer term highway improvements in the area which have the potential to reduce current and future congestion at these locations. In this respect the A46 Link Road scheme has the potential to achieve this aim as indicated by the sensitivity testing carried out in the 2029 Local Plan and 2029 Local Plan + A46 Link Road Phase II modelling.

The University through the CPHA development will support the development of pedestrian and cycle facilities, traffic calming and traffic management measures as set out in Chapter 13. The University will upgrade its Travel Plan modal shift targets and set an upper limit to the increase in car traffic during the peak periods as a result of this CPHA.

The upgraded Travel Plan will promote and encourage sustainable travel options in a number of ways including support for flexible working in appropriate situations; use of ITS to deliver transport information improvements; provision of a trial bus service to link Tile Hill Station to the Campus; improved car sharing scheme and additional facilities for cycling. The transport environment at the University will continue to be monitored with travel surveys and traffic counts which will be regularly reported to the authorities.

The University proposes that the above measures are included within a new s106 Agreement as part of the planning permission in a similar manner to that which was agreed for the 2009 Masterplan.

The University will work with the authorities and support the development of an enhanced public transport system / Very Light Rail scheme linking the University to the city centre once it is clear what the authorities are committed to taking forward.

The University will continue to support the development and promotion of the A46 Link Road scheme including Phases I, II and III.

Consideration has been given to construction issues. The rate of development at the University is not expected to change significantly from that which has been ongoing over recent years. There is no evidence that construction traffic has had a significant adverse impact on the operation of the local road network. The CPHA will coincide with two significant infrastructure projects; the A46 / Stoneleigh Road junction upgrade and HS2. Whilst there will inevitably be some disruption as a result of the A46 junction upgrade this project will once completed in early 2020 provide a significant improvement in access to the University and will mitigate adverse impacts arising from the construction of HS2.

15.2 Conclusions

In conclusion, this TA has demonstrated how the development will affect local transport networks and how the University, building on the positive aspects of the transport environment it has helped to create, will work with the authorities to manage and enhance transport networks for the benefit of the University community, local residents and the wider community.

It shows how the transport impacts arising from the development will be appropriately mitigated and that there are no transport and traffic related reasons why the CPHA should not be granted planning permission.