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.
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Executive Summary

This Transport Assessment and Travel Plan have been prepared by Arup on behalf of the University in support of the Edgbaston Central Campus Development Hybrid Planning Application.

The application contains 21 elements some as full applications and others as outline. These are set out in the planning Project Summary Table. The focus and vision of the application is the replacement of Sports Centre and the Library and the improvement of the pedestrian environment with the creation of a world class landscaped area at the centre of the Campus called the Green Heart. This application includes the following changes to the public highway network:

- The section of Pritchatts Road which runs through the campus will be subject to traffic management, public realm/environmental improvements,
- Two access points on Pritchatts Road are to be closed with a new access to the Edgbaston Campus created.
- A new access across Bourn Brook for service vehicles will be created to access the south west corner of the University by utilising an existing access point on Selly Oak New Road.
- Two accesses on Edgbaston Park Road will be replaced as part of the new Sports Centre development,
- Improved crossing facilities at the Edgbaston Park Road/Somerset Road junction are proposed as part of the creation of a new pedestrian/cycle route from the Vale and Tennis Court student residences to the main campus.
- The exit from Pritchatts Road car park will be modified to provide a right and a left turn exit lanes.

There are three key transport aspects to achieving the vision:

- Create high quality nodes of social activity linked by a high quality intelligent network of routes;
- Create vehicle routes into and through the Campus, which complement the creation of the pedestrian environment and provide accessibility to car parking and for servicing.
- Rationalise car parking to compliment the pedestrian environment and maintain sufficient capacity to meet demand in conjunction with the delivery of a Sustainable Travel Plan.

A number of changes to the parking facilities within the Campus are proposed. These changes are required to facilitate the proposed development and support the car parking strategy but it is to be noted that the total number of parking spaces available for the University will not change as a result of the proposals in the Hybrid Application. The application does not create any significant increase in trip generation.

The University’s Edgbaston Campus is one of the longest established and largest educational institutions in the Midlands. As such it has mature transport networks catering for the large number of staff, students and visitors accessing the facilities. This report shows that the campus has very good access to sustainable modes of transport in the form of bus, train and cycling/walking networks.
The recent completion of parts of the Selly Oak New Road together with the future elements to be completed will ensure that the road network around the University will operate with less delay than the old road layout which was subject to considerable congestion. This road scheme promoted by the Highway Authority is coming to fruition after many years in planning. It complements both the recent completion of the New Queen Elizabeth Hospital and the future development of the University.

A review of the policy framework shows that this application is supported in policy terms at national and local level.

This report identifies the personal injury accident record on the highways in the vicinity of the University. The Selly Oak New Road developments and the proposals contained in this application are expected to improve the safety environment for pedestrians and cyclists on parts of the A38 Bristol Road /Aston Boulevard, Edgbaston Park Road, Pritchatts Road and Vincent Drive.

While the changes to car parking do not overall increase the quantity of car parking available at the University it does relocate some car parking, primarily to enable the creation of the Green Heart with increases in car parking at the at grade Pritchatts Road car park and the creation of multi storey car parks at Gisbert Kapp and at the New Sports Centre.

A previous planning application for large a multi storey car park at Pritchatts Road has been dropped.

This report shows that the relocation of car parking spaces, the additional trips generated by the replacement Sports Centre and the revised access arrangements do not have a significant adverse impact on the operation of the highway network.

The University is currently implementing their Sustainable Travel Plan 2010-2015 which has been accepted by Birmingham Council and which encourages the use of more sustainable travel modes and includes the development of a Car Park Management Strategy which the University has already implemented. Both the Travel Plan and the Car Park Management Strategy will be updated as part of this development. Associated with the provision of the Grange Road student residences the University will provide a s106 contribution to support the Grange Road area residents parking scheme.

We have set out in this report an indicative car parking phasing programme and the University is committed to ensuring that there are no extended periods when there will be a significant shortfall in car parking provision at the University as a result of the implementation of this development. This is the key principle underlying the phasing of the changes to car parking set out in this application.

We recommend this application and do not consider that there are any reasons on transport ground why this application should not be approved by Birmingham City Council.
1 Introduction

1.1 Background and Development Description

Ove Arup & Partners Ltd (Arup) has been commissioned by the University of Birmingham (the University) to advise on transportation matters and prepare a Transport Assessment in support of a Hybrid Planning Application in support of the University’s Masterplan for its main Campus at Edgbaston. The Hybrid Application and the Masterplan have been developed from the Estates Strategy and the University Strategic Vision.

Development Description

Redevelopment of elements of the University Campus buildings and infrastructure including:

1) Outline application for;
   a) New multi-storey car park adjacent to Gisbert Kapp building; creation of a permanent car park at Grange Road (all matters reserved except access)
   b) Erection of student residences and sports pavilion (landscaping, appearance and layout reserved),
   c) Creation of new green open space, erection of new library, library enabling works (comprising, removal of running track, new library store and ground works), creation of new running track, erection of sports pavilion, Pritchatts Road traffic management/public realm improvements; new bridge crossing (all matters reserved) and new vehicular route (all matters reserved except access),
   d) New access road (all matters reserved except layout and access),

2) Full details for;
   e) The erection of a new sports centre,
   f) Improvements to pedestrian route from the sports centre to Aston Webb C block,
   g) External alterations to Aston Webb C block,
   h) Extension to Pritchatts Road surface car park,
   i) Construction of new pedestrian/cycle route to the Vale;

3) Demolition of the Gun Barrels public house and bungalow adjacent to the South Car Park, Terrace Huts buildings, chemistry west building and research unit, the Old Gym, main campus library, substation, Munrow sports centre, and ex sports pavilion;

4) Associated landscaping, temporary and permanent car parking.
The proposals also include the rationalisation and relocation of a number of car parks although overall it is important to note there will be no change to the total number of parking spaces provided by the University.

The proposed development has been the subject of discussions with Birmingham City Council (BCC) Planning and Highways Development Control Officers from which an understanding of their requirements has been obtained. This Transport Assessment reflects that understanding and addresses all of the transport issues associated with the development.

1.2 Structure of this Report

Following this introduction,

Chapter 2 describes the existing situation with respect to the highway network, public transport, walking and cycling.

Chapter 3 describes the policy framework within which the Hybrid Application has been developed.

Chapter 4 reports on personal injury accidents in the vicinity of the University.

Chapter 5 sets out the Hybrid Application proposals.

Chapter 6 describes car parking and traffic impacts.

Chapter 7 provides details of the New Sports Centre and its traffic impacts.

Chapter 8 describes other elements of the application and their traffic impacts.

Chapter 9 described those elements of the development which affect the Public Highways

Chapter 10 sets out the Travel Plan.

Chapter 11 sets out the indicative phasing of the application elements and the impact on car parking provision.

Chapter 12 provides details of Construction Design and Management Regulations.

Chapter 13 summarises the Transport Assessment and provides conclusions.

Figures and Appendices are provided at the end of the report.
2 Existing Situation

2.1 Site Location

The University of Birmingham’s Edgbaston Campus is located approximately 4.5km south of the city centre off the A38 Bristol Road, between the local district areas of Harborne, Selly Oak and Edgbaston.

The main Campus central area is located in an area bounded by the following roads with vehicle barrier controlled access to the Campus at five locations:

- Pritchatts Road – North Gate giving access to north car park only
- Pritchatts Road - Spur Road
- Edgbaston Park Road – East Gate
- Bristol Road – South Gate
- Vincent Drive – West Gate

A site location plan is provided in Figure 1.

2.2 Existing University Activity and Development

The University of Birmingham was founded in 1900 but has origins dating back to the Birmingham Medical School in 1825. It is the largest educational institution in the West Midlands region. The University’s main activities and buildings are located at Edgbaston Campus, with additional facilities at Selly Oak Campus, 4km from Edgbaston. There are also University facilities housed in Stratford upon Avon and Birmingham city centre.

Edgbaston Campus is set in 250 acres and has a range of facilities on site in the main Campus area, catering for staff and student needs. There are number of ancillary facilities located in the local area including The Vale student village and areas of private student accommodation. The Campus currently has a number of improvements taking place which will enhance the facilities and the Campus environment.

There are currently approximately 6,000 staff and 28,000 students based at the Edgbaston Campus.

2.3 Highway Network

Edgbaston Campus is largely located between two roads and the canal/ railway line corridor. To the south of the site is the A38 Bristol Road/ Selly Oak New Road (SONR). This is a major primary route that has recently been modified with a bypass created between the junctions of Bournbrook Road and Alton Road. SONR has been provided to improve access to the new Queen Elizabeth Hospital and reduce traffic congestion through the Selly Oak district centre. To the east of the site is Edgbaston Park Road which connects the A38 Bristol Road with the Harborne and Edgbaston areas of Birmingham. The Worcester and Birmingham canal and the Birmingham Worcester rail line form the western boundary of the University. There is an area of the University estate to the west of the canal/ rail line which is accessed off Pritchatts Road and Vincent Drive.
Pritchatts Road runs in an east west direction through the main part of the University with the central Campus area located to the south and a number of academic departments and the majority of student residencies located to the north. To the east it connects with Edgbaston Park Road and provides another route into the Harborne area. Pritchatts Road has a narrow section, subject to uncontrolled one-way operation, where it crosses over the railway and canal.

Somerset Road is located to the north and connects onto Edgbaston Park Road and Harborne Road, both of which lead northwards to Birmingham city centre.

Vincent Drive runs southwest to northwest between the Queen Elizabeth Hospital and the main University before it connects to Farquhar Road and New Fosse Way. New Fosse Way is a newly built link road that joins onto SONR and then to the A4040 Harborne Lane, south west of the University.

Harborne Lane provides access to the M5 junction 3 to the west via Court Oak Road, Wolverhampton Road and the Hagley Road. The A38 Bristol Road links to the M5 at junction 4. The roads around the University all have a 30mph speed limit, although it is expected that the average speeds along Edgbaston Park Road will be above this.

The SONR which has been named Aston Webb Boulevard has been recently opened. Phase 1a and 2 of the project have been completed together with the phases of the Hospital Link Road. The final element of this work will be the reconfiguration of the Harborne Lane/Bristol Road junction known as the triangle (Phase 1b). Once this has been completed the section of Bristol Road through Selly Oak centre will be subject to environmental/public realm improvements and downgraded for traffic.

The A4040 Harborne Lane/ A38 Bristol Road junction is a congested part of the network during peak periods as is the section of Bristol Road through Selly Oak district centre. The remainder of the roads around the University are subject to normal urban traffic conditions with some congestion occurring during the AM and PM peak hours. It should be noted that King Edwards School and King Edwards School for Girls are located on the east side of Edgbaston Park Road between Bristol Road and Pritchatts Road and these generate a significant number of vehicle trips at the start and end of the school day. A significant number of students attending these schools walk through the University to the University rail station.

Internally the University has a Ring Road which runs round the central area with access to it from the four gates. The speed limit on the internal roads is 20mph. The University is currently considering ways to improve compliance and has introduced some traffic calming features at South Steps and Staff House Square.

Accessibility for servicing is generally good but the following issues have been identified:

- The south west corner of the University estate houses the power plant, workshops and servicing areas of the University and therefore access is required for HGVs. This area is difficult to access via the Ring Road and involves HGVs negotiating a tortuous route through the heart of the University.
• Servicing of the departments to the north of Pritchatts Road would be improved if the service road behind Metallurgy & Materials linked up with the service road behind Gisbert Kapp to create a continuous route.

2.4 Sustainable Transport

2.4.1 Walking/Cycling

The University of Birmingham is located within a good network of cycle and walking routes which have been further improved through the SONR development. Walk distances of up to 2 km taking approximately 25 minutes and cycle distances of 5 km taking approximately 20 minutes are considered reasonable in the context of promoting sustainable modes for the able bodied. Journey times to the main campus are as follows:

• For pedestrians the Vale halls of residence are less than 20 minutes away
• For pedestrians the Selly Oak area is less than 15 minutes away
• For cyclists the city centre is less than 20 minutes away
• For cyclists Harborne is less than 15 minutes away
• For cyclists Kings Heath and Northfield are less than 20 minutes away

SONR has footways and cycle tracks on each side of the carriageway and has provided a number of signal controlled crossing facilities on Bristol Road as follows:

• Bristol Road at Edgbaston Park Road junction
• Bristol Road at South Gate
• Bristol Road/ SONR (Aston Webb Boulevard) junction
• SONR at Grange Road access to University

A new signal controlled crossing will be provided across Vincent Drive linking the University to the Medical School and the new Queen Elizabeth Hospital.

Plans of SONR are available if requested.

Figure 3 provides details of the local walking and cycling facilities.

There are a number of walking and cycling links that provide key routes for staff, students and visitors. These include the Worcester and Birmingham Canal towpath where access is provided via steps at the University West Gate entrance and at Somerset Road. The Mosley/University signed cycle route is located to the south of the University and runs along Bournbrook Road and Oakfield Road and joins onto National Cycle Network Route 5 which runs north south from the city centre along the River Rea.

Locally, there are advisory cycle routes located along a number of the internal University roads and residential roads.

All roads surrounding the University Campus have footways usually on both sides of the carriageway. The one exception is Edgbaston Park Road which from a point just south of Pritchatts Road only has a footway on the west side as the road runs north to Church Road. This section of Edgbaston Park Road has high
pedestrian flows as it links the University halls of residence at the Vale and at the Tennis Courts to the main Campus. The footway width is in places insufficient to provide good amenity for the pedestrian flow and the speed of traffic.

Other roads with high pedestrian flows particularly in the morning peak are Vincent Drive, Pritchatts Road and Grange Road and the associated SNOR crossing.

There is a significant pedestrian flow from the University rail station through West Gate to the University and King Edward Schools on Edgbaston Park Road.

Internally there is not a clearly legible north-south pedestrian route running from the Vale halls of residence through the central campus area to South Gate. At present it is a disjointed series of paths and footways of variable width and with poor quality crossing facilities at roads. For the major pedestrian desire line it is difficult to follow and does not provide clarity for people to understand their environment and the layout of the Campus. The issues with the east-west routes from East Gate to West Gate through central campus and also along Pritchatts Road are not so pronounced but there are opportunities to improve these routes.

### 2.4.2 Rail Network

The University is well served by public transport with rail and bus provision being located within reasonable walking distances. University rail station is located 50m west of the University and Selly Oak rail station is 725m to the south west, approximately 10 minutes walk time.

From these stations there are rail services to Longbridge – Birmingham New Street – Sutton Coldfield and stations between every 10 minutes in each direction throughout the day (Monday to Friday and Saturday). A service every 30 minutes in each direction extends to Lichfield and Redditch and every 60 minutes to Bromsgrove. There is a reduced service level on Sundays. This is one of the most frequent rail services in the UK.

In addition there is a service between Birmingham New Street - University - Bromsgrove –Worcester every 60 minutes in each direction.

In addition there are services to Hereford, Cardiff and Nottingham stopping at the University and New Street station every 60 minutes in each direction.

### 2.4.3 Bus Network

There is a high level of bus service provision close to the Campus. Bus stops are located in Bristol Road, which is a major bus corridor with a number of high frequency services. In addition, bus stops are provided at the Queen Elizabeth Hospital close to West Gate and services also run along a number of local roads surrounding the University.

On Bristol Road bus stops are provided in close proximity to the South Gate access to the University. The bus stops are located within 25m for Birmingham bound buses and approximately 80m for buses travelling in the Selly Oak direction.

Bus stops are provided at the Medical School Roundabout which is located off Vincent Drive / New Fosse Way approximately 100m from the University’s West
Gate. This roundabout and the bus/pedestrian facilities associated with it are being upgraded by BCC.

A bus interchange is provided at the Queen Elizabeth Hospital which serves as a terminus point for a number of local bus services. This facility is located approximately 500m from the University. The Outer Circle bus stops (routes 11A & 11C) are less than 900m from the University. The bus service information is set out in the Table below.

Table 2.1: Buses Serving Bristol Road, Selly oak / Queen Elizabeth Hospital

<table>
<thead>
<tr>
<th>Bus Service</th>
<th>Location of stops</th>
<th>Destination</th>
<th>Peak Hour Frequency in Each Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>11A/C</td>
<td>Harborne Rd</td>
<td>Birmingham Outer Circle</td>
<td>8</td>
</tr>
<tr>
<td>38</td>
<td>Heeley Road</td>
<td>Northfield to Selly Oak via Cotteridge</td>
<td>7</td>
</tr>
<tr>
<td>61</td>
<td>Bristol Road</td>
<td>Birmingham to Rubery via Frankley</td>
<td>6</td>
</tr>
<tr>
<td>63</td>
<td>Bristol Road</td>
<td>Birmingham to Frankley</td>
<td>6</td>
</tr>
<tr>
<td>64</td>
<td>QE Hospital</td>
<td>Rubery to QE Hospital via Northfield</td>
<td>3 Mon –Fri Only</td>
</tr>
<tr>
<td>76</td>
<td>Medical School</td>
<td>Solihull to QE Hospital via Kings Heath</td>
<td>3</td>
</tr>
<tr>
<td>84</td>
<td>Medical School</td>
<td>Hawkesley – QE Hospital via Cotteridge</td>
<td>1</td>
</tr>
<tr>
<td>143</td>
<td>Bristol Road</td>
<td>Birmingham to Worcester via Bromsgrove</td>
<td>1</td>
</tr>
<tr>
<td>144</td>
<td>Bristol Road</td>
<td>Birmingham to Worcester via Bromsgrove</td>
<td>2</td>
</tr>
<tr>
<td>448</td>
<td>Medical School</td>
<td>Bartley Green to West Bromwich via University Station</td>
<td>2</td>
</tr>
<tr>
<td>636</td>
<td>Medical School</td>
<td>Birmingham to Halesowen via QE Hospital</td>
<td>3</td>
</tr>
<tr>
<td>X62</td>
<td>Bristol Road</td>
<td>Birmingham to Rednal via Northfield</td>
<td>3</td>
</tr>
<tr>
<td>X64</td>
<td>Bristol Road</td>
<td>Birmingham to Rubery via Selly Oak</td>
<td>3</td>
</tr>
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3 Planning Policy

3.1 National Policy Framework

3.1.1 The Future of Transport: a Network for 2030


The White Paper recognises that increased personal mobility is an important element in a growing economy, but at the same time it makes the case that there is a need to explore opportunities to reduce the need to travel and to choose modes of travel that have the least impact on the environment. There is a particular emphasis on replacing short local car journeys with walking, cycling and public transport trips in order to tackle local congestion, pollution and road safety issues. The White Paper recognises that Travel Plans can reduce commuter car driving by between 10% and 30%.

3.1.2 Planning Policy Guidance13 Transport (2011)

PPG13 gives advice on the integration of planning and transport in order to:

- Promote more sustainable transport choices;
- Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling, and
- Reduce the need to travel, especially by car.

The document includes maximum levels of car parking provision in terms of ratios of car parking related to either floor space or number of employees for different types of development. It also recommends the use of travel plans to reduce driver-only car trips and the introduction of physical infrastructure or enhanced services to encourage walking, cycling and public transport.

Paragraph 38 states:

“HE (Higher Education) and FE (Further Education) establishments are major generators of travel and should be located so as to maximise their accessibility by public transport, walking and cycling. Similarly, proposals to develop, expand or redevelop existing sites should improve access by public transport, walking and cycling.”

3.1.3 Planning Policy Guidance 17: Sport and Recreation (2002)

Open space, sport and recreation all underpin people’s quality of life. PPG 17 focuses on the planning policies for these uses and is therefore fundamental to delivering broader Government objectives. Paragraph 1 of this document outlines the key planning objectives which include:
• Supporting an urban renaissance - local networks of high quality and well managed and open spaces, sports and recreational facilities help create urban environments that are attractive, clean and safe.
• Promotion of social inclusion and community cohesion - well planned, quality sport and recreational facilities can play a major part in improving people's sense of well-being in the place they live.
• Health and well-being - open spaces, sports and recreational facilities have a vital role to play in promoting healthy living and preventing illness.
• Promoting more sustainable development - by ensuring that open space, sports and recreational facilities (particularly in urban areas) are easily accessible by walking and cycling and that more heavily used facilities are planned for locations well served by public transport.

3.2 Regional Policy

3.2.1 WM Area Multi-modal study
The West Midlands Area Multi-Modal Study (WMAMMS) identified the need to improve facilities for public transport, walking and cycling throughout the region and to make further use of behavioural change strategies such as Travelwise to promote alternatives to the car.

3.3 Local Policy Framework

3.3.1 Birmingham Unitary Development Plan 2005
The Unitary Development Plan (UDP) is part of the Statutory development plan for Birmingham. It contains policies and proposals that guide the development and the use of land in Birmingham up to 2011. The 2005 UDP covers subjects such as Economy, Housing, Health and Transport, setting out broad objectives and policies to guide development and land use. It includes area statements setting out policies for different parts of the city.

Chapter 16 of the UDP provides policy details for the Edgbaston Constituency and Ward, and specifically:

• paragraph 16.12 states - “The University of Birmingham is a major academic and research institution. Proposals to expand its teaching and research facilities will increase its attractiveness nationally and will be encouraged provided that they are consistent with other policies within the plan.”
• paragraph 16.12B states –“There are a number of major opportunities for development / redevelopment in this area, with the potential to help meet the longer term needs of both the University and hospital, as well as the City’s need for employment”

3.3.2 Birmingham City Centre ‘Vision for Movement’

In November 2010 Birmingham City Council produce the document Birmingham City Centre Vision for Movement. The aim of this document is to set the principles that will underpin the strategy for the movement of people around the
city centre. This will support the economic growth and development aspirations set out in the Big City Plan.

Key principles set out in the Vision document are to create a well connected city, an efficient city and a walkable city.

### 3.3.3 Supplementary Planning Document on Parking

Birmingham City Council is currently in the process of revising their parking standards. The Council has a Birmingham Parking Policy and has a Car Parking Guidelines Draft Supplementary Planning Document (SPD) 2010 which is currently being amended following consultation. This provides guidance on the level of parking appropriate for new developments under different land uses based on their location within the conurbation of Birmingham, it is anticipated that this will be published in the near future and adopted by the Council.

### 3.3.4 West Midlands Local Transport Plan

The West Midlands Local Transport plan (LTP3) 2011-2026 recognises the national objectives of safety and security, improving accessibility and connectivity, modal transfer and creation of sustainable travel patterns, improve to the environment and reduction of carbon emissions.

Aims of the LTP include:

- limiting annual road traffic growth to between 3% and 6% between 2009/10 and 2015/16;
- increasing bus patronage by 5% from 2010/11 baseline levels by 2015/16;
- increasing the West Midlands active travel index by 5% from the 21010/11 baseline of 100 by 2015/16; and
- increasing the proportion of trips by public transport into the nine strategic LTP centres as a whole during the AM Peak to 50% by 2015/16.

### 3.3.5 Draft Core Strategy

The purpose of the Draft Core Strategy is to set out a clear spatial framework for the growth of Birmingham to 2026. As such the strategy sets out how much new housing should be provided along with potential locations, it also sets out key locations for employment, shopping, waste management, leisure and sport, education and health. The strategy will also consider how transport and other infrastructure can be provided to enable this new development to take place in a sustainable way.

Policy S5 relates to Selly Oak and South Edgbaston: “The University of Birmingham will remain a major centre of higher education, research and development, and supporting activities. Proposals that maintain and enhance the University’s facilities will be encouraged”.

4 Personal Injury Accident Data

4.1 Data

Accident data has been obtained for the five year period from July 2006 to July 2011. A summary of the accidents at junctions is described in Sections 4.2 below and summarised in the Table below.

Figure 2 illustrates the locations of accidents within the study area for the period.

This assessment indicates that there have been a total of 124 personal injury accidents over the past five years within the study area. No fatal accidents have been recorded during the period analysed, but there have been seven serious injuries and 117 slight injuries.

The data shows that there are no significant clusters on the links between the junctions within the study area. The data has been assessed in zones where clusters of accidents have occurred, mainly at junctions.

Table 4.1: Summary of Latest Five Years Personal Injury Accident Data

<table>
<thead>
<tr>
<th>Location</th>
<th>Severity</th>
<th>Casualties Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slight</td>
<td>Serious</td>
</tr>
<tr>
<td>Zone 1 - Edgbaston Park Road / Somerset Road Junction</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Zone 2 - Somerset Road / Farquhar Road Junction</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Zone 3 - Somerset Road / Richmond Hill Road / Pritchatts Road</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Zone 4 - Pritchatts Road / Vincent Drive / Farquhar Road Junction</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Zone 5 – Edgbaston Park Road / Pritchatts Road</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Zone 6 – Vincent Dr Link between Pritchatts Rd and University Rd West</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Zone 7 Edgbaston Park Rd / A38 Bristol Road</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Zone 8 Bournbrook Road / A38 Bristol Road Signals</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Zone 9 Eastern Road/A38 Bristol Road Junction</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Zone 10 Arley Road / A38 Bristol Road Junction</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>
Zone 11 Alton Road / A38 Bristol Road Junction

| Zone 12 between the junctions of Alton Road / Harrow Road |

| Zone 13 A38 Bristol Road / Grange Road |

Accident records are available if requested.

### 4.2 Personal Injury Accident Zones

#### 4.2.1 Zone 1: Edgbaston Park Road / Somerset Road Junction

There have been eight personal injury accidents recorded at this junction in the five year period surveyed and all were classified as slight.

Five of the accidents involved vulnerable users, four of which were cyclists. Three were caused by drivers failing to look properly and one cyclist failing to look properly when joining the carriageway from the pavement. Three of the cyclist accidents involved vehicles turning right into Somerset Road. The remaining vulnerable road user accident involved a collision with a pedestrian as they attempted to cross Somerset Road; a driver stalled their vehicle, panicked and moved off without looking.

The vehicular accidents were caused by failure to look properly.

This junction has a high number of student pedestrian/cycle movements between the Main Campus and the Vale halls of residence. The application includes proposals to improve the crossing facilities at this junction.

#### 4.2.2 Zone 2: Somerset Road / Farquhar Road Junction

There have been six personal injury accidents recorded at this junction in the five year period surveyed and all were classified as slight.

Five accidents involved vehicular collisions and one involved a pedal cyclist. Three of the vehicular accidents were as a result of drivers failing to look properly although one of the vehicular accidents involved a stolen vehicle travelling at high speed through the junction and colliding with a vehicle crossing the junction. The final vehicle accident involved a vehicle driving at an excessive speed and skidding in wet conditions.

The cyclist accident was caused by the cyclist carrying out a poor manoeuvre at the junction.

#### 4.2.3 Zone 3: Somerset Road / Richmond Hill Road / Pritchatts Road Junction

This zone has had a total of eight personal injury accidents in the five year period and all were classified as slight.
The majority of accidents involved vehicular collisions caused by either failure to look properly or by disobeying the give way markings.

There was one cyclist accident at the junction.

### 4.2.4 Zone 4: Pritchatts Road / Vincent Drive/ Farquhar Road Junction

There have been a total of eleven personal injury accidents recorded at this junction in the five year period surveyed, one was classified as serious and ten as slight.

The majority of accidents involved vehicular collisions with only two slight accidents involving a vulnerable road users; both of these accidents involved cyclists who were knocked off as vehicles failed to give way at the junction.

The serious injury involved a collision between two vehicles caused by a driver disobeying the give way markings.

### 4.2.5 Zone 5: Edgbaston Park Road / Pritchatts Road Junction

There have been six personal injury accidents recorded within the last five years, five were classified as slight and one was classified as serious.

The serious accident involved a pedestrian who failed to judge the speed of the vehicle travelling along Pritchatts Road. The remaining two pedestrian accidents were caused by a driver giving a misleading signal and the second accident was due to the pedestrian stepping into the road without looking.

The two cyclist accidents were caused by drivers either failing to look properly or failure to provide enough room for cyclists.

The remaining vehicular accident was caused by failure to look properly.

This application includes proposals to improve the crossing facility at this junction.

### 4.2.6 Zone 6: Vincent Drive Link between Pritchatts Road and University Road West

There have been six personal injury accidents recorded at this location in the five year period surveyed. The accidents occur at different locations along the Vincent Drive link.

Five accidents were classified as slight in severity and one was classified as serious. The serious accident involved a collision between two vehicles as a result of using the road network incorrectly. The remaining two vehicular accidents were caused by failure to look properly. The three vulnerable user accidents were also caused by failure to look properly.
4.2.7 Zone 7: Edgbaston Park Road / A38 Bristol Road Signalised Junction

There have been a total of twenty four personal injury accidents recorded at this junction in the five year period surveyed, all were classified as slight.

Three accidents involved pedestrians and three involved cyclists with the remaining accidents all involving vehicles.

In March 2011 this junction was signalised as part of SONR and there has only been one recorded accident since the modification. It was classified as slight and involved a rear shunt on a red signal between two vehicles. As the historical accident records do not give an accurate representation of the current situation no further analysis has been undertaken on the previous accidents at this junction.

4.2.8 Zone 8: Bournbrook Road / A38 Bristol Road Signalised Junction

There have been five personal injury accidents recorded at this location in the five year period surveyed. All accidents were classified as slight.

One accident involved a cyclist where a vehicle failed to provide adequate space and clipped the cyclist. The remaining four vehicular accidents were caused by failure to look properly and rear end shunts.

This junction has been recently modified as part of the SONR scheme.

4.2.9 Zone 9: Eastern Road / A38 Bristol Road Junction

There have been ten personal injury accidents recorded within the last five years, one was classified as serious and nine were classified as slight.

The serious accident involved an intoxicated pedestrian who stepped into the path of an oncoming vehicle. The remaining accidents all involved vehicles, with the main cause of the accidents being failure to look, misjudgement of speed and following too close.

4.2.10 Zone 10: Arley Road / A38 Bristol Road Junction

There have been four personal injury accidents recorded at this junction in the five year period surveyed and all were classified as slight.

All four accidents involved vehicular collisions. All four involved failures to look along with one of these accidents involving an alcohol impaired driver.

The current junction arrangements have recently been altered with the introduction of a new road alignment and signals as part of the SONR scheme.

4.2.11 Zone 11: Alton Road / A38 Bristol Road Junction

There have been seven personal injury accidents recorded within the last five years, six were classified as slight and one was classified as serious.
The serious accident involved a pedestrian who failed to look when crossing the road behind a parked vehicle. There was a second pedestrian accident again involving a failure to look when crossing the road; this person was also alcohol impaired.

Two accidents involved cyclists who both failed to look correctly and one of these also involved a manoeuvre from the pavement onto the carriageway.

The two remaining accidents involved vehicular collisions were both accidents involved failures to look and poor turning manoeuvres.

4.2.12 Zone 12: A38 Bristol Road link between the junctions of Alton Road / Harrow Road

There have been four personal injury accidents recorded within the last five years. All were classified as slight.

One accident involved a pedestrian who was struck by car turning into an access; this accident was attributed to a poor manoeuvre and aggressive driving. The second accident involved a cyclist who was clipped by a vehicle passing too closely.

The remaining two accidents involved vehicles. One of these was caused by the vehicle pulling out from being parked along the nearside edge of carriageway and hitting a passing vehicle because the driver failed to look properly. The final accident involved a vehicle running into the back of stationary vehicle which was stopped in congested traffic which resulted in a shunt to another vehicle. This accident was caused by a driver failing to look.

4.2.13 Zone 13: A38 Bristol Road / Grange Road Junction

There have been seven personal injury accidents recorded within the last five years, all seven were classified as slight. Three involved vulnerable road users and four involved vehicles.

Two of the vulnerable road user accidents involved pedestrians who were struck by cars. One took place in Bristol Road where a pedestrian attempted to cross the road during a busy period. This accident was attributed to failure to look when crossing the road. The second pedestrian accident took place in Dawlish Road where a pedestrian stepped out from behind a parked vehicle. The final vulnerable road user accident involved a cyclist who mounted the carriageway from the pavement and was struck by a vehicle turning right out of Dawlish Road. The driver of the vehicle failed to see the cyclist.
5 Proposed Hybrid Application Development

5.1 Development and Linkage between Elements

The proposed development is in the form of a Hybrid Planning Application with a number of elements as outline applications and some as full applications. A Project Summary Table setting out the extent of the development proposed and the level of detail to be provided (full/outline details) is provided in Appendix A together with the following associated drawings:

- Information for EIA Screening/Scoping (Red Line Plan)
- Hybrid Application Projects – Labelled
- Full and Outline Application

The EIA screening letter prepared by Turley Associates demonstrates that while each aspect of the development will have site specific impacts, there is no synergy between the impacts and consequently the localised impacts of each aspect of the development are not considered to cumulate into any significant effects with the possible exception of transport impacts related to the rationalisation of car parking. This is the subject of further analysis in this Transport Assessment.

Birmingham City Council have confirmed (23 January 2012) that the proposed development does not need an Environmental Impact Assessment under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011.

In summary, the development includes:

demolition of the Gun Barrels pub, bowling green and bungalow to allow development of a New Sports Centre and multi storey car park with 270-290 spaces on the site, including the creation of a new pedestrian link from the new Sports Centre to the Student Services Hub;

data demolition of the Sports pavilion

extended Grange Road car park on the site of the existing temporary car park

refurbishment of part of the grade II listed Aston Webb building to create a new Student Services Hub;

Grange Road bridge crossing the Bourn Brook giving a new service vehicle route into the south west corner of the University off SONR. This will allow direct access for HGVs to the University service/plant area rather than have HGVs running through central campus.

development of a new student accommodation block, sports pavilion cafe/bar at Grange Road.

demolition of the Terrace Huts and provision of replacement car park;

demolition of the Chemistry West building and replacement by landscaping;

demolition of the ‘Old Gym’ building and replacement by landscaping;

creation of a Green Heart landscaped area at the heart of the University accompanied by a temporary car park north of the Muirhead building;
demolition of the existing library and old brick store;
demolition of sub-station 24;
creation of New Main Campus Library;
demolition of the Munrow sports centre and tennis courts and loss of car park
enabling works for the New Library including a new road linking Pritchatts Road to the internal ring road, removal of existing running track and car park. The creation of a New Library Store and replacement car parks;
replacement of running track and the creation of a new sports pavilion and car park;
Pritchatts Road traffic management, public realm/ environmental improvements;
completion of a vehicle access route at the back of the Metallurgy & Materials Building and Gisbert Kapp to create a loop road at the back of these buildings, some loss of parking;
development of a multi-storey car park on the site of the disused tennis courts adjacent to Gisbert Kapp building (currently a temporary car park);
extension of the existing surface car park on Pritchatts Road,
pedestrian and cycle route to the Vale

A number of changes to the parking facilities within the Campus are proposed. These changes are required to facilitate the proposed development and support the car parking strategy but it is to be noted that the total number of parking spaces available for the University will not change as a result of the proposals in the Hybrid Application. The application does not include any significant increase in trip generation.

The planning application is supported by the Masterplan showing the University’s long term aspirations for the site including future development of new buildings fronting a newly landscaped ‘Green Heart’ open space and development of a number of small pavilion buildings within the Green Heart open space.

5.2 Overall Transport Strategy

The overall transport strategy is inextricably woven into the Hybrid Application and the Masterplan and has been developed by MJP Architects and Arup in discussion with the University and more recently with Birmingham City Council Planning and Highway Development Control Officers. The vision is to replace significant elements of the University’s facilities and create a Campus with a world class pedestrian environment.

There are three key transport factors to achieving the vision:

• Create high quality nodes of social activity linked by a high quality intelligent network of routes;
• Create vehicle routes into and through the Campus, which complement the creation of the pedestrian environment and provide accessibility to car parking and for servicing.
• Rationalise car parking to compliment the pedestrian environment and maintain sufficient capacity to meet demand in conjunction with the delivery of a Sustainable Travel Plan.

The vision for pedestrian routes and social activity nodes is set out in the Masterplan and in a plan titled Routes, Places and Hubs of Activity located in Appendix A. The major routes are:

• North-South from the Vale to South Gate
• North-South from Staff House Square to Grange Road
• East-West from East Gate to West Gate
• East-West along Pritchatts Road from Edgbaston Park Road to Vincent Drive

The existing and proposed pedestrian and vehicle networks are shown in a series of plans in Appendix A.

The University has already completed or is working with BCC on the following elements which develop these routes:

• Staff House Square has been re-engineered to create a pedestrian friendly environment where vehicle dominance has been removed (UoB scheme).
• South Steps, again where the pedestrian facilities have been enhanced and vehicle dominance reduced (UoB scheme).
• New Hospital Plaza which removes the Vincent Drive roundabout outside the University rail station and Medical School and creates an interchange and high quality pedestrian environment and approach to West Gate (BCC and University Hospitals Birmingham scheme supported by the University).

The two key projects which enable to creation of the enhanced public realm are the New Sports Centre and the replacement of the Library. The New Sports Centre enables the existing Munrow Sports Centre to be demolished and the running track to be repositioned enabling the Library to be relocated. By removing the Library from the central area a new Green Heart can be created which can be extended northwards to link the academic departments north of Pritchatts Road with the Central Campus area. Improving the connectivity between the Campus areas north and south of Pritchatts Road will be further enhanced by careful traffic management and public realm/environmental treatment of Pritchatts Road.

Aligned to the overall vision there are three new vehicle route elements:

• A new link from the University’s internal Ring Road near the Munrow Sports Centre north to Pritchatts Road. This new route enables a new Library site to be created fronting onto the Green Heart together with longer term new build. It allows the Ring Road crossing the future Green Heart to be downgraded and provided in the form of a low speed pedestrian friendly vehicle route. The additional gate into the University on Pritchatts Road will allow existing vehicle movements to be dispersed and reduce movement along a central section of Pritchatts Road as it meets the Green Heart.
• A new vehicle route off SONR into the south western corner of the Campus will be created by a new bridge over the Bourn Brook. This route will be available for service/delivery vehicles including HGVs.
• This area of the University houses power plants, workshops and other service operations. HGVs will not have to follow torturous routes through the University from East and West Gate, but instead will have direct access from the primary road network.

• The completion of a vehicle route linking from the current route behind Metallurgy & Materials to the current route behind Gisbert Kapp will simplify servicing and again reduce movements on Pritchatts Road.

In general, increasing connectivity and permeability for vehicle routes will help to dissipate any congestion issues and enable the creation of the high quality Green Heart, which is one of the central aspects of the Masterplan and Hybrid Application.

In order to create this vision a number of car parks will be rationalised/ relocated. In general terms this means removing car parking from the central Green Heart area and locating away from heavily used pedestrian areas. As part of the University’s Estates Development Framework a Sustainable Travel 2010-2015 Plan has been published and a Travel Plan Co-ordinator has been appointed.

The University is committed amongst other things to promoting more sustainable travel modes and reducing the reliance on single occupancy car travel. A number of initiatives have already been undertaken to control car parking and ensure that it only occurs in designated locations. Within this Hybrid Application the University will not increase car parking at the University, but will seek to achieve a 5% reduction in single occupancy car trips through its Sustainable Travel Plan measures.

The different elements of the Hybrid Application and their transport aspects and impacts are dealt with in the following chapters.

5.3 Previous Proposals and Options Considered for Car Parking

Early in 2010 the University’s approach to rationalising its car parking provision was to create a large multi-storey car park (MSCP) on the existing at grade Pritchatts Road car park site. This would have increased the car parking at this site from 354 spaces to 836 spaces with a three level multi-storey car park. A planning application for a MSCP was submitted to BCC but was not formally registered.

During consultation with the local community, significant concerns regarding the proposals were raised by members of the public.

The local community felt that the University were relocating too much parking from central areas to areas on the periphery of the campus and that the proposed appearance of the MSCP was unacceptable in this location. These concerns were acknowledged by the University and the approach to car parking was re-evaluated. A series of five options were considered including the possibility of the creation of an underground car park beneath the proposed new Green Heart. The five options were:

• Option 1 – Original proposal with a large MSCP on Pritchatts Road car park site with 836 spaces.

• Option 2 – Extension to the at grade car park on Pritchatts Road with 456 spaces and more car parking in central campus.
• Option 3 – Underground car park under the proposed Green Heart.
• Option 4 – 2 storey MSCP on Pritchatts Road car park site with 610 spaces.
• Option 5 – 3 storey MSCP on Pritchatts Road with building frontage disguising the car park. This had 719 spaces.

Options 4 and 5 were rejected because they did not ultimately offer a significantly large enough change from the original proposals and did not truly address the concerns raised in the public consultation.

Whilst option 3 was seen as a good option by BCC and was considered in some detail, it was ultimately rejected for the following reasons:

• It effectively made the ground floor of the new Library and of Muirhead into a basement, affecting light, ventilation and access.
• The requirements for ventilation of the car park were onerous with an inevitable impact on the quality of the proposed Green Heart as a result of noise and fumes associated with ventilation shafts.
• It also created problems for pedestrian access to the Green Heart from adjacent areas and made Disability Discrimination Act access more difficult.

As a result of the re-evaluation, the proposal for a large MSCP at the Pritchatts Road car park site was dropped and option 2 became the preferred option. This has been developed for the Hybrid Application, see section 6.1.

5.4 Access

The existing and proposed vehicular networks and access points are shown on two plans in Appendix A. The major changes are:

• A replacement access at the German Institute on Pritchatts Road which was previously used for access to limited car parking at the German Institute and access to a storage area will become an access to the University’s internal road network for car parking and servicing.
• A service delivery vehicle access will be created across the Bourn Brook into the south west corner of the estate from an existing access off SONR.
• Service/delivery vehicle access at East Gate will be limited under the East Gate refurbishment programme.
• The access to North Gate car Park will be closed.
6 Traffic Impacts and Car Parking

6.1 Car Parking Proposals

As part of the Hybrid Application, a number of changes to the parking facilities within the Campus are proposed. These changes are required to facilitate the redevelopment proposals and the new parking strategy which was introduced in September 2011. The total number of parking spaces within the Campus will not change as a result of the proposals in the Hybrid Application.

The current stock of car parking is sufficient to meet day to day demand however there are occasions with Open days/ Applicant days when demand exceeds supply. The University is aware of this issue and is working through its Travel Plan to address this with a number of initiatives to encourage more sustainable travel options for visitors, staff and students. This application will also provide visitors with additional car parking from the overall stock that will be available for them thus improving flexibility.

The changes proposed will remove some areas of parking, provide additional spaces at some existing car parks and create some new parking areas within the Campus.

Figure 4 shows the car parks to be removed along with car parks that are being altered.

Details of the proposed car parks are shown in Figure 5. Layouts for the proposed new car parks are shown in Figures 18 – 22.

- Figure 18 Pritchatts Road Car Park T
- Figure 19 Terrace Huts Car Park AA
- Figure 20 New Running Track Car Park V
- Figure 21 Grange Road Car Park Z
- Figure 22 Future Buildings Car Park R

The proposed multi-storey car park at Gisbert Kapp Car Park U has been designed by Associated Architects, see their Design and Access statement issued with this application. See plan in Appendix F.

The proposed multi-storey car park associated with the New Sports Centre (Car Park P) has been designed by Lifshutz Davidson Sandilands, see their Design and Access statement issued with this application. See the transport assessment developed for the New Sports Centre in Appendix B.

The proposed temporary car park north of the Muirhead building is shown in Figure 23.

The majority of the parking facilities proposed are at-grade, with two new multi-storey car parks; one to be located on the site of the existing South Car Park as part of the proposed new Sports Centre and one off Pritchatts Road adjacent to the Gisbert Kapp building.

Both Gisbert Kapp and Sports Centre car parks will be barrier controlled but Pritchatts Road car park will be open in order to avoid issues of traffic queuing.
back on to the highways. The operation of these car parks is dealt with in section 6.4.

6.2 Traffic Impacts

The elements in the Hybrid application do not in general generate additional traffic movements with the possible exception of the New Sports Centre and the New Grange Road Student Residencies. The table below identifies possible permanent traffic impacts on the highway network arising from the elements in the Hybrid Application. The application does not contain significant increases in development that will generate new trips.

Table 6.1: Possible Permanent Traffic Impacts on the Public Highways

<table>
<thead>
<tr>
<th>Element</th>
<th>Permanent Traffic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a – New Sports Centre and car park</td>
<td>Possible increased activity from additional visitors and re-assignment of car parking</td>
</tr>
<tr>
<td>1b – Demolition of Gun Barrel Public House</td>
<td>Reduced traffic.</td>
</tr>
<tr>
<td>1c – Demolition of bungalow</td>
<td>Reduced traffic.</td>
</tr>
<tr>
<td>1d – New accessible pedestrian route from Sports Centre to Student Services Hub</td>
<td>No impact</td>
</tr>
<tr>
<td>2 – Partial demolition of Old Sports Pavilion</td>
<td>No impact</td>
</tr>
<tr>
<td>3 – Grange Road Car Park</td>
<td>No impact (change from temporary car park to permanent car park)</td>
</tr>
<tr>
<td>4 – Aston Webb: New Student Services Hub</td>
<td>No impact (services previously provided elsewhere on Campus)</td>
</tr>
<tr>
<td>5 – Grange Road Bridge Crossing (note that provision has been made on SONR for this access)</td>
<td>Limited impact (including new servicing for residencies and Pavilion)</td>
</tr>
<tr>
<td>6 – New Grange Road Student Residencies and Sports Pavilion</td>
<td>Limited impact (residencies and Pavilion will generate servicing but do not have significant car parking associated with them)</td>
</tr>
<tr>
<td>7 - Demolition of Terrace Huts and replacement car park</td>
<td>Limited impact (re-assignment of car parking movements)</td>
</tr>
<tr>
<td>Element</td>
<td>Permanent Traffic Impact</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>8 – Demolition of Chemistry West</td>
<td>No impact (facilities replaced on Campus)</td>
</tr>
<tr>
<td>9 – Demolition of Old Gym</td>
<td>No impact (facilities replaced on Campus)</td>
</tr>
<tr>
<td>10a/10b – Green Heart Landscaping Phase 1 and phase 2.</td>
<td>Limited impact. The Green Heart will involve the closure of a number of car parks including North car park and its access off Pritchatts Road (re-assignment of car parking).</td>
</tr>
<tr>
<td>10c – Green Heart Landscaping. Temporary car park to the north of Muirhead Tower</td>
<td>Limited impact during phasing of construction. No long term impact.</td>
</tr>
<tr>
<td>11a – Demolition of Old Brick Store</td>
<td>No impact</td>
</tr>
<tr>
<td>11b – Demolition of existing Library Building</td>
<td>No impact (to be replaced)</td>
</tr>
<tr>
<td>12 – Demolition of Substation 24</td>
<td>No impact</td>
</tr>
<tr>
<td>13 – New Main Campus Library</td>
<td>No impact (replacement of existing Library)</td>
</tr>
<tr>
<td>14 – Demolition of Munrow Sports Centre</td>
<td>No impact (being replaced)</td>
</tr>
<tr>
<td>15a – Library enabling works including new vehicular route linking from Ring Road to Pritchatts Road. Removal of existing sports track.</td>
<td>New access point onto Pritchatts Road to be assessed</td>
</tr>
<tr>
<td>15b – Library enabling works. New Library Store</td>
<td>Limited impact (the New Library Store is located closer to the New Library)</td>
</tr>
<tr>
<td>15c – Library enabling works. New surface car park</td>
<td>Limited impact (re-assignment of car parking movements)</td>
</tr>
<tr>
<td>16a – Replacement Running Track</td>
<td>No impact (replacement of existing facility)</td>
</tr>
<tr>
<td>16b – New Sports Pavilion</td>
<td>No impact (replacement of existing facility)</td>
</tr>
<tr>
<td>Element</td>
<td>Permanent Traffic Impact</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>16c – New car parking by running track</td>
<td>Limited impact (re-assignment of car parking movements)</td>
</tr>
<tr>
<td>17 – Pritchatts Road traffic management, public realm/environmental improvements</td>
<td>Reduced speed of traffic, some reduction of on-street car parking. No impact on capacity.</td>
</tr>
<tr>
<td>18 – Access Road to rear of Gisbert Kapp. Extend existing road to create a loop road.</td>
<td>Reduced movements on Pritchatts Road (simplifying servicing movements and re-assignment of some car parking).</td>
</tr>
<tr>
<td>19 - New Gisbert Kapp multi storey car park.</td>
<td>Limited impact (re-assignment of car parking movements)</td>
</tr>
<tr>
<td>20 – Pritchatts Road extension to surface level car park</td>
<td>Limited impact (re-assignment of car parking movements)</td>
</tr>
<tr>
<td>21 – Pedestrian and Cycle Route to the Vale</td>
<td>Removes majority of pedestrian / cycle movements from Edgbaston Park Road and provides improved crossing facilities across Edgbaston Park Road and Somerset Road. Beneficial impact on highway safety.</td>
</tr>
</tbody>
</table>

The possible traffic impacts of the following are considered further in this report:

- 1a, 3, 7,10a/b, 15c, 16c, 18, 19, and 20 rationalisation/ relocation of car parking leading to a re-assignment of car parking movements
- 1a – New Sports Centre
- 5 – New Access Road off SONR and 6 – Grange Road Student Residencies and Pavilion
- 15a – New access road onto Pritchatts Road
- 17 – Pritchatts Road traffic management

### 6.2.1 Data Collection

Data was collected by undertaking the following small-scale surveys:

- Turning counts of arrivals in the AM peak at the University internal road network entrances;
- Turning counts of arrivals in the AM peak at the car parks to be removed; and
- A count of vehicles parked at 08.00 and 09.00 and at 16.00 and 17.00 to provide arrival and departure data during the peak hours.
Traffic data previously collected at the Pritchatts Road / Vincent Drive junction along with the Pritchatts Road Car Park was also used to determine turning proportions and percentage distributions.

Traffic count data was also provided by WSP for the South Car Park and the Gun Barrels car park and the junctions of A38 Bristol Road / Edgbaston Park Road and Edgbaston Park Road / Pritchatts Road.

### 6.2.2 Methodology

The parking relocation proposals will reduce the number of car parking spaces within the central Campus area and relocate them to other car parks within the Campus. Some reassignment of traffic will therefore occur. The task was to make an assessment of what the effect of this reassignment would be in the peak hour traffic periods. To determine the quantum, the arrivals in the AM peak and departures in the PM peak were first calculated. This was done by counting the number of spaces in each car park that were occupied prior to 08.00 and again after 09.00 thus providing the number of arrivals in the AM peak. The same principals were applied to the PM peak thus providing the number of departures from the car parks.

In addition to the arrival and departure calculations, parking accumulations were also undertaken of the car parks affected by the proposal.

From the traffic counts at the entrances to the site and at each of the main car parks, distributions for the site were produced.

The first task compared the number of vehicles within the existing parking areas to the proposed, prior to 08.00. This calculated how many vehicles needed to be reassigned. Overall the total numbers of parking spaces are not altering but the locations and size of the proposed car parks will be different. It was decided that grouping the existing and proposed car park into areas was the best method for showing the likely reassignment from one car park to another. Table 6.1 shows the number of parked vehicles in the existing parking areas prior to 08.00 and compares this data with the proposed parking areas to show how the location and number of new spaces that will be vacant to take reassigned vehicles in the AM peak hour.

#### Table 6.1: Number of Vehicles Parked Prior to 08.00

<table>
<thead>
<tr>
<th>Existing Car parks (Figure 4)</th>
<th>No Spaces Occupied prior to 08.00</th>
<th>Number of spaces available</th>
<th>Proposed Car parks (Figure 5)</th>
<th>Number of spaces vacant at 08.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 1 (Car Parks B, C, D, E, G) Total number spaces provided = 311</td>
<td>128</td>
<td>183</td>
<td>Area 1 (Car parks R, V, W) Total number spaces provided = 124</td>
<td>0</td>
</tr>
<tr>
<td>Area 2 (Car Park L) Total number of spaces provided =</td>
<td>22</td>
<td>47</td>
<td>Area 2 (Car park L removed)</td>
<td>0</td>
</tr>
</tbody>
</table>
## Existing Car parks

<table>
<thead>
<tr>
<th></th>
<th>No Spaces Occupied prior to 08.00</th>
<th>Number of spaces available</th>
<th>Proposed Car parks</th>
<th>Number of spaces vacant at 08.00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>69</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Area 3 (Car Park H, J, K, Gun Barrels)**
Total number of spaces provided = 538 | 88 | 450 | Area 3 (Car Park P, Y, Z, AA) Total number of spaces provided = 433 | 345 |
| **Area 4 Car Parks A and M**
Total number of spaces provided = 65 | 0 | 65 | Area 4 Car parks A removed and M replaced with U, Total number of spaces provided = 400 | 400 |
| **Area 5 Car Park N,**
Total number of spaces provided = 354 | 22 | 332 | Area 5 Car park N, replaced with T, Total number of spaces provided = 456 | 434 |

From the information above it is evident that in the proposed parking scheme Area 1 will be at capacity by 08.00 and therefore all traffic that currently arrives between the hours of 08.00 - 09.00 will need to be re-assigned to other car parks. Car Park L in area 2 will be removed therefore all traffic arriving to this car park will also require reassigning.

In Areas 3, 4 and 5 because there is significant car parking availability in the proposed situation there is no reassignment of the existing car parking in these areas.

For the reassignment of traffic two methods were applied. For Car Park L in area 2 it was assumed that staff using this car park would reassign to Car Park T in area 5 as this is the nearest car park for them to use. For all arrivals to Area 1 we have assigned the traffic by using percentage distributions and then assigned the traffic to the first available proposed car park.

For details of traffic re-assignment in the AM peak on the local highway network refer to Figure 6.

To assess the re-assignment of traffic in the PM peak a similar exercise was undertaken. As in the AM peak this included an assessment of the number of vehicles parked in the existing car parks and comparing this data with the number of spaces available in the proposed parking areas.
Table 6.2 shows the number of parked vehicles in the existing parking areas prior to 16.00 and compares this data with the proposed parking areas.

**Table 6.2: Number of Vehicles Parked Prior to 16.00hrs**

<table>
<thead>
<tr>
<th>Existing Car Parks (Figure 4)</th>
<th>No Spaces Occupied prior to 16.00hrs</th>
<th>Number of spaces available</th>
<th>Proposed Car Parks (Figure 5)</th>
<th>Number of spaces available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 1 (Car Parks B, C, D, E, G) Total number spaces provided = 311</td>
<td>236</td>
<td>75</td>
<td>Area 1 (Car Parks R, V, W) Total number spaces provided = 124</td>
<td>0</td>
</tr>
<tr>
<td>Area 2 (Car Park L) Total number of spaces provided = 69</td>
<td>39</td>
<td>30</td>
<td>Area 2 (Car Park L removed)</td>
<td>0</td>
</tr>
<tr>
<td>Area 3 (Car Park H, J, K, Gun Barrels) Total number of spaces provided = 538</td>
<td>433</td>
<td>105</td>
<td>Area 3 (Car Park P,Y, Z, AA) Total number of spaces provided = 433</td>
<td>0</td>
</tr>
<tr>
<td>Area 4 Car Parks A and M Total number of spaces provided = 65</td>
<td>7</td>
<td>58</td>
<td>Area 4 Car Parks A removed and M replaced with U Total number spaces provided = 400</td>
<td>393</td>
</tr>
<tr>
<td>Area 5 Car Park N, Total number of spaces provided = 354</td>
<td>137</td>
<td>217</td>
<td>Area 5 Car Park N, replaced with T Total number of spaces provided = 456</td>
<td>319</td>
</tr>
</tbody>
</table>

From the information above it is evident that in the proposed parking scheme in Area 1 will be at capacity by 16.00hrs therefore all traffic that currently arrives between the hours of 16.00-17.00 will need to be re-assigned to other car parks. Car Park L in area 2 will be removed therefore all traffic arriving to this car park will also require re-assigning.

With regards to the PM peak distribution we have made the assumption that drivers leaving will reverse their route from the AM Peak.

For details of traffic re-assignment in the PM peak on the local highway network refer to Figures 7.
WSP carried out a Transport Assessment for the New Sports Centre and information provided by them has been used to assess the impact of the reassignment of traffic as a result of changes to car parking.

Additional traffic re-assignment was considered for the sole users of the existing sports centre as these visitors will re-route to the proposed site in the future. Sole users are people using the Sports Centre as the sole purpose of their trip to Campus. Information was provided by the University and surveys were conducted by WSP which provides details of the number of sole users that access the existing sports centre. Parking for these visitors is provided in the north car park. The majority of visitors access the site via the Bristol Road with a small proportion routing via the west along Pritchatts Road and south along Edgbaston Park Road. These routes will result in some re-routing to the proposed site however the numbers are extremely low. For details of the re-routing refer to Figures 8 for the AM peak and Figure 9 for the PM peak.

The proposed sports centre will have a number of additional facilities therefore new generated trips will occur in the local vicinity of the New Sports Centre. To assess the amount of trips generated WSP produced a future visitor profile with information provided by the University and using questionnaire survey data a modal split was applied thus creating future generated traffic. For details of the generated traffic refer to Figure 10 for the AM Peak and Figure 11 for the PM Peak.

6.2.3 Traffic Impact

Once the re-assignment of traffic was concluded and the newly generated traffic was added to the network, we were able to assess the net impact of traffic on the local network. The overall number of reassigned trips is low. A number of links show some minor increases in traffic while others show a reduction. The following section outlines the changes to traffic flows in the vicinity of the site for the AM and PM peak periods.

6.2.3.1 AM Peak

Details of the net impact on the local highway network in the AM peak are shown in Figure 12.

The key changes are:

- **Vincent Drive** - from the medical school roundabout to the access to Car Park L (Area 2) there will be a net increase of 15 vehicle trips in a northbound direction. Between the access to Car Park L (Area 2) and the Pritchatts Road/ Farquhar Road junction the net two-way trips will increase by 7 vehicles.

- **Pritchatts Road** - The net two way trips between the access of Pritchatts Road Car Park and the junction of Vincent Drive / Farquhar Road will increase by 31 vehicles. The net two way trips on Pritchatts Road between Vincent Drive / Farquhar Road and the Spur Road University access will decrease by 21 vehicles. The net two way trips on the link between Spur Road and Edgbaston Park Road will increase by 1 vehicle.

- **Edgbaston Park Road** – The net two way trips between the junction of Pritchatts Road / Edgbaston Park Road and the access to the proposed Sports
Centre will decrease by 6 vehicles. The net two way trips between the access to the proposed Sports Centre and the A38 Bristol Road will increase by 10 vehicles.

- **A38 Bristol Road** – To the east of Edgbaston Park Road the A38 Bristol Road will have a net two way increase of 4 vehicles. To the west there will be a net two way increase of 6 vehicles.

### 6.2.3.2 PM Peak

A similar exercise was undertaken for the PM peak period. Details of the net impact on the local highway network in the PM peak are shown in Figure 13.

- **Vincent Drive** - The net two way trips between the access to Car Park L (Area 2) and the Vincent Drive / Farquhar Road junction decreases by 2 vehicles.

- **Pritchatts Road** - The net impact between the access to Pritchatts Road Car Park and the junction of Vincent Drive / Farquhar Road increases by 18 vehicles. The net two-way impact between Vincent Drive / Farquhar Road and the North Gate access / car park is an increase of 8 vehicle trips. The net two way trips on the link between Spur Road and Edgbaston Park Road will increase by 13 vehicles.

- **Edgbaston Park Road** – The net two way trips between the junction of Pritchatts Road / Edgbaston Park Road and the access to the proposed Sports Centre will increase by 11 vehicles. The net two way trips between the access to the proposed Sports Centre and the A38 Bristol Road will increase by 28 vehicles.

- **A38 Bristol Road** – To the east of Edgbaston Park Road the A38 Bristol Road will have a net two way increase of 13 vehicles. To the west there will be a net two way increase of 15 vehicles.

### 6.2.4 Summary

Whilst the reassignment of trips associated with the reorganisation of the car parks is not an exact science we are confident that the assumptions that have been made are reasonable. Given that the Hybrid application does not include development that will generate a significant number of new trips and the fact that overall there is no increase in car parking provision it is clear that there will not be any significant impact on the wider highway network. In respect of the roads immediately surrounding the University and their associated junctions it is also clear from the proceeding assessment that there will not be any significant impact on the operation of the road network during the peak periods.

### 6.3 Car Parking Management

#### 6.3.1 Background

There are approximately 3,500 car parking spaces on the Edgbaston Campus. The majority are located within the main Campus area inside a barrier controlled perimeter. Three car parks; Pritchatts Road Car Park, North Car Park and South Car Park are also barrier controlled but are accessed directly off the public
highway. Pritchatts Road and South Car Parks are available for staff, students and visitors while North Car Park is available for visitors and staff.

The total car parking stock is adequate for all the members of University staff who drive to work plus visitors. However, the University’s close location to the rail station and other trip generators has in the past led to a number of people parking at the Campus who do not have business at the University. Some members of the public have been using the Campus as a cheap car park to access outside facilities and taking up parking spaces that are needed for University users. There has been an additional problem of fly-parking within the barrier controlled perimeter with vehicles parking on internal access roads, verges and other green areas surrounding various buildings.

In order to tackle these problems the University recently introduced a new car parking management strategy.

6.3.2 Car Parking Management Strategy

The key principle of the Car Parking Management Strategy is that all vehicles parking in University car parking spaces must be authorised either by displaying a valid University parking permit, a visitor’s permit, or a pay and display ticket. Car parking is managed by an internal dedicated team of Traffic Control Officers and action will be taken against offenders. Penalties are levied in the form of financial parking charges rather than clamping illegally parked vehicles.

As part of the implementation of strategy the car parking infrastructure was improved to make sure lining for disabled spaces, double yellow lines, loading bays and hatched areas are clearly marked. Signage was upgraded to display the terms and conditions for all those parking on Campus.

The following are classed as prohibited parking under the University’s Traffic Regulations:

- Parking without displaying a University permit;
- Parking in disabled bays without displaying a blue badge;
- Parking on double yellow lines**;
- Parking on double red line;
- Parking on the pavement;
- Parking on grass verges;
- Parking in loading areas**;
- Double parking;
- Parking in keep clear/yellow hatched areas; and
- Parking in any area which causes obstruction or limited access to other users.

**Loading/unloading is permitted for 10-15 mins.

Note that the University reserves the right to alter the Car Parking Management Strategy.
6.3.2.1 Staff Parking

Access to car parking areas with the main Campus is via internal University roads. These are all barrier controlled at the point where they leave the public highway. Access for staff is enabled by use of a swipe card obtained from the University. Staff are automatically charged £1 deducted from their salary for each day (or part day) that they pass through the perimeter barriers. Once inside the controlled area, staff may park in designated car parks or other designated spaces but must display a valid staff vehicle permit which is issued with the swipe card. As part of the new regime, new permits will be issued that will have the terms and conditions of car parking at the University printed on the reverse.

Staff can also park in Pritchatts Road Car Park and South Car Park; the two car parks available to students and the public/visitors. When accessing these car parks the control barrier is raised by the approach of a vehicle but no automatic charge is collected. Instead, staff obtain a £1 Pay & Display ticket from the machines in the car park. They must also display their staff vehicle permit to justify the £1 all-day ticket otherwise they are subject to a time-based tariff.

6.3.2.2 Public Parking

There is no public parking permitted within the main Campus and the public cannot enter through perimeter barriers. Public parking is permitted in Pritchatts Road, North and South Car Parks only. Member of the public must obtain a Pay & Display ticket from the machines in the car park. Parking charges follow a graded tariff dependent on the length of stay and are comparable to those at the hospital. The car parking tariff is currently as follows:

- Up to 1 hour £2.00
- 1 - 3 hours £3.00
- 3 - 5 hours £4.00
- 5 - 8 hours £6.00

6.3.2.3 Visitor Parking

Invited visitors are issued with a visitor permit from the department they are visiting. These are obtained by email from the parking office and cost £1 per permit. This procedure is to enable invited visitors to avoid the public parking charges. All Colleges, Schools and Departments are encouraged to ensure their visitors understand the parking regulations and are directed to the peripheral car parks where there is likely to be more available spaces.

All visitors, including contractors, who visit the Edgbaston Campus will enter into a contract with the University agreeing to abide by its parking regulations via signage at each access point and in each of the main car parking areas.

Visitors can park in the Pritchatts Road, North and South Car Parks and pay the graded tariff.
6.3.2.4 Student Parking

From Monday to Friday prior to 4.30pm students are permitted to park in South Car Park and Pritchatts Road Car Park subject to a parking fee for students of £1.00 per day Pay and Display. Students must also display their student vehicle permit to justify the £1 all-day ticket otherwise they are subject to a time-based tariff. After 4.30pm and at weekends parking is free provided students still display their permit.

There is no student parking permitted within the main Campus during the daytime on weekdays; students cannot enter through perimeter barriers until after 4.30pm Monday to Friday. They can enter anytime at weekends. During the permitted times students who have registered their details with Car Parking Records will automatically be able to access the main Campus using their swipe card but will still need to park in a designated space and display their student vehicle permit. There is no charge made for parking at these times. The only exception to is the Medical School car park and West Extension car park, where no access is permitted to students at any time.

6.3.2.5 Sports Centre Members

Sports Centre Members are directed to park and pay and display in the North Car Park, however they are also permitted to park in the other pay and display car parks, South Car Park and Pritchatts Road Car Park. Members are permitted to park on Campus before 9.30am and after 4.30pm. Members are issued with a parking permit when they become members that allows them to pay and display for £1 and avoid the graded tariff. Members’ ID cards enable them to gain access into the North Car Park.

6.3.2.6 Enforcement

The parking arrangements are fairly but rigorously enforced. All prohibited car parking is targeted. University Security Traffic Control Officers issue parking charges. The Officers carry a hand held device with printer and camera to enable clear evidence of the case to be gathered. The penalty notice is £60 reducing to £30 if paid within 14 days. Once a notice is issued responsibility falls to a third party management company, UKPC, who provide a back office service undertaking all of the administration associated with the charge (this includes debt recovery where necessary). All appeals received through this process are heard by an internal panel within the University to decide the outcome.

6.4 Proposed Car Park Management Changes

As part of the Hybrid Application, a number of changes to the parking facilities within the Campus are proposed. These changes are required to facilitate the redevelopment proposals and enforce the new parking strategy which was introduced in September 2011. The total number of parking spaces within the Campus will not change as a result of these proposals.

The changes proposed will remove some areas of parking, provide additional spaces at some existing car parks and create some new car parks within the Campus.
The majority of the parking facilities proposed are at-grade, along with two new multi-storey car parks; one to be located on the site of the existing South Car Park at the proposed new Sports Centre and one off Pritchatts Road adjacent to the Gisbert Kapp building.

As the Hybrid application proposals are implemented, it is proposed that the parking operation and management is as follows:

1. The expanded **Pritchatts Road Car Park** (Car Park T on Figure 5) should operate as now ie; pay and display car park but without vehicle actuated barrier control.

2. The new multi-storey **Gisbert Kapp Car Park** (Car Park U) should also operate as per Pritchatts Road i.e. pay and display car park. The current barrier on the access road off Pritchatts Road will be moved / replaced by a barrier on the service road beyond the entrance to the multi-storey car park. See plan in Appendix F.

3. The new **Sports Centre Car Park** (Car Park P) to be pay and display with vehicle actuated barrier control. It will have some 50 designated for use of Sports Centre Members and the public using the Sports Centre i.e. not available to staff or students. When parked in a designated space, Sports Centre Members will need to display a valid sports centre member permit and be subject to a flat-rate £1 Pay and Display charge. Any other vehicle not displaying a sports centre permit when parked in these designated spaces whether sports centre members, staff, students or public visitors, will be subject to normal Pay and Display charges based on duration of stay.

   All other (non designated) spaces will be available to staff, students and sports centre members at the flat rate £1 Pay and Display charge providing a valid staff, student or sports centre member permit is displayed. These spaces will also be available to public visitors at the normal Pay and Display charges based on duration of stay.

Car parks R, V, W, Z and AA which are located within the main Campus barrier controlled area, will be operated in accordance with the current car parking arrangements.

If the University finds that people other than those with business at the University are using its car parks to the detriment of the University then the University may take action to control this unauthorised use.
7 New Sports Centre

The Transport Assessment for the New Sports Centre has been carried out on behalf of the University by WSP for Lifschutz Davidson Sandilands the Architect. This TA has been developed in line with the approach set out in this overarching TA and in discussion with BCC Highways development control officers. The full TA is attached in Appendix B but the salient points are set out below.

7.1 Summary

The site is located in the south east corner of the main University campus in Edgbaston between the South Gate campus road to the west and Edgbaston Park Road to the east, with the Bristol Road bounding the site to the south.

The site is currently formed of two areas occupied by the University South car park and Gun Barrels public house, which both have individual vehicular access points directly from Edgbaston Park Road. Both sites presently provide car parking outside of the barrier on the main campus. The Gun barrels car park is used by people accessing the University during the day.

The site is considered to provide access to a number of high quality and frequent public transport services, which represent an attractive alternative to travel by private car. In addition to this, there are established cycle routes and an extensive network of footways linking the site with the wide area which helps to maximise the potential for trips to the site to be undertaken by walk and cycle.

The New Sports Centre car park will be managed through the UoB Car Park Management Strategy to ensure that the parking is used as intended.

A first principles approach has been undertaken for forecasting the trip attraction of the New Sports Centre. This is primarily based on the identification of travel behaviour of users of the existing University sport facilities and usage forecasts based on the specific sports facilities.

Based on the proposed figures obtained from UoB, the overall New Sports Centre usage will experience an increase in daily trips of 85%, which responds to the larger facilities compared to that of the Munrow Sports Centre. It is recognised however that although trips to and from the New Sports Centre will increase, the majority of the trips attracted will be internal to the Campus area and arise from students and staff that are already on campus.

In order to establish the trip type of the New Sports Centre, users have been split between combined trips (with either work or study) and users solely travelling to and from the Campus to visit the New Sports Centre. Travel interviews at the existing Munrow sports centre were undertaken to capture travel behaviour and user patterns in order to provide a basis for modal split, distribution and user type.

The full multi-modal impact assessment has been undertaken based on the trip attraction forecasts of the New Sports Centre and includes a full assessment and cumulative assessment for completeness. The full assessment considers all trips to the proposed site and the cumulative assessment considers the net increase in users created by the improved sports facilities i.e. those who may have an actual impact on the transport network.
The results show a slight increase in traffic, with traffic increases at junctions forecast to be around 1% or less for the local study area. The wider impact analysis for the re-assignment of trips between car parks including those associated with the Munrow sports centre and those affected by the New Sports Centre has been undertaken by Arup as part of the UoB Edgbaston Central Campus Hybrid Planning Application Transport Assessment.

As part of the Hybrid application a new pedestrian route will be provided to link the New Sports Centre via the Students Services Hub in the Aston Webb building to the heart of the University.

7.2 Conclusions

The proposed New Sports Centre is suitably located to create strong pedestrian and cycle links with the Campus area and external transport network. Access to the bus and rail services are within walking distance, providing realistic alternative modes of travel to the private car.

The majority of the trips to and from the site will be walk, cycle and public transport trips, a significant proportion of which are already travelling to and from the campus. There will be some net additional vehicular trips generated by the proposed facility; however these are minimal and are not expected to significantly impact on the highway network.

The vehicular impact will be minimised by incorporating servicing activity on site, with pedestrian crossings of the servicing yard access prioritised.
8 Other Elements with Transport Impacts

8.1 Pritchatts Road Traffic Management

8.1.1 Proposals

Pritchatts Road between Vincent Drive and Edgbaston Park Road currently has significant pedestrian flows along it and across it with a signalised pedestrian crossing linking the campus areas to the north and south. Car parking for 23 cars is provided on Pritchatts Road which is a two way carriageway with a speed limit of 30mph.

The proposals for this section of Pritchatts Road would be focussed to reduce traffic speeds and improve the public realm with improved pedestrian facilities. The current semi-circular vehicle area which provides the access to North Car Park will be incorporated into the pedestrian realm. It is currently used as an informal coach/ minibus parking area for visiting teams particularly on a Wednesday afternoon. In future coaches and mini-buses will access the main Campus via East gate and park in designated areas on the Ring Road between East Gate and the Spur Road access onto Pritchatts Road. See Figure 17.

The following features could be incorporated into Pritchatts Road as part of S278 Agreement with BCC:

- Reduce carriageway width with formal parking bays for a total of 12 cars.
- Enhancement of footways, verges and planting to create a more elegant, urban character.
- Signalised pedestrian crossing relocated and additional crossing point introduced on the main north-south pedestrian routes.
- A central section formed as a raised table with shallow on/off gradients that are bus and blue light friendly.
- Central section to have a change of material and/or colour to encourage low speeds.
- 20 mph speed roundels painted on the carriageway.
- Gateway features at each end to encourage reduced speeds.
- A smaller bellmouth at the junction with Edgbaston Park Road to reduce the speed of traffic entering and existing Pritchatts Road together with a pedestrian refuge.
- Reduce kerb radii at the accesses to the University from Pritchatts Road for the benefit of pedestrians.

It should be noted that the section of Pritchatts Road over the canal and rail bridge only allows single way vehicle operation and also only has one footway which is substandard being less than 1m wide at its narrowest point. Any reduction in traffic speed through this section would also benefit pedestrians.

The University will work closely with BCC to ensure that the proposals for this section of Pritchatts Road are satisfactory in both traffic management and
maintenance terms and will enter a S278 Agreement following technical approval of the detailed design.

8.1.2 Traffic Impacts

The proposed changes to Pritchatts Road will have the effect of reducing traffic speed in an area of high pedestrian activity, but will not reduce the capacity of this section of highway which is governed by the capacity of the junctions at either end and the capacity throttle created by the short one way working section over the canal and rail bridge.

BCC are consulting on proposed improvements at the Pritchatts Road/Edgbaston Park Road junction and Arup have input into this consultation on behalf of the University with a view to ensuring that any changes carried out here in the near future are compatible with the proposals shown in Figure 17.

It must be noted that these proposals are provided to improve the pedestrian environment and are not being provided to mitigate any adverse impacts associated with the Hybrid Application. The provision of these works should therefore not be a requirement of any planning permission but will be subject to the development programme and the availability of University funding.

8.2 Pedestrian / Cycle Link to the Vale

8.2.1 Proposals

Currently there is a high pedestrian flow along Edgbaston Park Road from the Vale halls of residence and the Tennis Court halls of residence. Edgbaston Park Road is a busy distributor road with vehicles often travelling above the speed limit of 30 mph, and a footway on one side which is only 2m wide with a wall and overhanging vegetation reducing the effective width. It is not a particularly comfortable walking environment.

The proposals are to create an separate pedestrian/cycle route through the University estate which will be generally 5m wide made up of footpath and cycle track. The route will run from Pritchatts Road signal controlled crossing which links to the future Green Heart past Metallurgy and Materials to Somerset Road and on to the Vale. In a limited central section from Elms Cottage to the Nursery at Elms House the width is reduced to 4m to avoid excessive impacts on existing trees and other features.

The route plan is shown in Appendix A – Route to the Vale – Route Overview.

At the point where the route emerges at the Somerset Road/Edgbaston Park Road junction it is proposed to provide the following pedestrian facilities:

- The crossing of Somerset Road will be upgraded to provide a widened central reserve and blister paving. This will aid crossing by groups or students and those who are visually impaired.
- A signal controlled crossing off Edgbaston Park Road is to be provided to the south of Somerset Road allowing pedestrians a safer crossing to the halls of residence at the Tennis Courts. This crossing will link into the footpath
running north south to the east of Edgbaston Park Road within the University estate.

See Figure 15 for details of the pedestrian facilities at the Somerset Road/Edgbaston Park Road junction.

8.2.2 Traffic Impacts

These proposals will not have any impact on the capacity of the road network but will improve facilities for pedestrians and cyclists and the introduction of the signal controlled crossing will have the effect of reducing average speeds along this section of Edgbaston Park Road and will provide a safer crossing for pedestrians.

It must be noted that these proposals are provided to improve the pedestrian environment and are not being provided to mitigate any adverse impacts associated with the Hybrid Application. The provision of these works should therefore not be a requirement of any planning permission but will be subject to the development programme and the availability of University funding.

8.3 Access from SONR in the South West Corner

8.3.1 Proposals

The recently opened Selly Oak New Road has a full vehicle access provided to the development areas between SONR and the Bourn Brook this access will be used to provide service access to the proposed Victoria Halls Student Residential Scheme being promoted by others and the Grange Road Student Residential Scheme, Sports Pavilion and Cafe/bar which is part of this Hybrid Application. In addition access will be provided to a new bridge over the Bourn Brook and into the south west corner of the University estate. The access into the estate will be for service/delivery vehicles accessing the south west corner of the University Estate. This area of the estate includes, power plant, power sub-station, workshops, landscape servicing building servicing etc.

Indicative design is provided in Figure 16.

8.3.2 Traffic Impact

We have carried out an assessment of the servicing traffic likely to be generated by the proposed Grange Road Student residences/sports pavilion/cafe/bar using TRICS. This shows 9 vehicles per day. We estimate that up to 30 vehicles per day may utilise the access to cross the bridge into the Southwest quadrant of the University.

The servicing trips generated by the new Grange Road Residence and cafe bar will be new trips but the numbers are small and will not have any significant impact on the local road network. The locating of student residences close to the Grange Road residential area may create added parking pressure in this area. Other student residential developments in this area have provided BCC with s106 contributions to be used in support of a Residents Parking Scheme. The University of Birmingham will provide a s106 contribution to support this residents parking scheme.
With regard to the servicing/delivery vehicles that will use the access these are not new trips but the re-routing of existing trips, providing direct access to the University from SONR. Providing direct access to the University from SONR for these types of vehicle movements is considered a positive development because it avoids HGVs using Edgbaston Park Road and a tortuous route through Campus.

Total traffic flows of approximately 40 vehicles per day will not have any significant impact on the operation of SONR. Given that the access across the bridge will be managed and has low vehicle flows a width of carriageway sufficient to provide for the swept path of 16.5m long articulated HGVs operated in one direction at a time will be provided. See Figure 16

### 8.4 New Access to Main Campus on Pritchatts Road

#### 8.4.1 Proposals

In order to facilitate the creation of the Green Heart, the New Library and the future buildings that will front on to the Green Heart it is necessary to create a new link into the University off Pritchatts Road. The new access is being created close to an existing access into the University which gives access to the Institute of German Studies, the running track and an area for Estates Department storage. This existing access will be closed and access to the Institute of German Studies will be off the new access.

In addition it should be noted that North car park and its access off Pritchatts Road will also be closed leading to an overall reduction of accesses off Pritchatts Road into the University.

Coaches and mini buses delivering visiting sports teams to the University, particularly on a Wednesday afternoon, current park up on the semi-circular tarmac area on Pritchatts Road at the North Car Park entrance. This facility will not be available under the proposals set out in the Hybrid Application. It is proposed that a replacement coach / mini bus parking facility be provided within the Central Campus along the Ring Road and Spur Road. Coaches/ mini buses will access this facility from East Gate after dropping off teams at the New Sports Centre. They will exit via Spur Road onto Pritchatts Road. This facility provides parking for up to 8 full size coaches or up to 16 mini buses. The use of these spaces will be controlled as part of Car Park Management Strategy with the current enforcement regime.

See Figure 14 for the new access on to Pritchatts Road. See Figure 24 for the new coach parking facility.

#### 8.4.2 Traffic Impact

A traffic capacity assessment of this new junction has been carried out which shows that the junction operates within capacity even if it is assumed that all the traffic that currently uses the Spur Road access opposite Gisbert Kapp was to transfer to this new access. This is a worst case sensitivity test as it is anticipated that perhaps up to 50% of the traffic that currently uses Spur Road access will transfer to this new access.

See Appendix E.
9 Proposals that Affect the Public Highways

The following are the elements of the application which affect the public highways and which will need to be subject to detailed agreement with the Highway Authority through a s278 Agreement or other procedure. These are described earlier and are summarised here for clarity.

- The section of Pritchatts Road between Vincent Drive and Edgbaston Park Road which runs through the campus will be subject to traffic management, public realm/ environmental improvements as set out above.
- A new access from Pritchatts Road to the internal campus road network will be created close to the existing access to the German Institute/ estates storage area with this access being closed. In addition the access from Pritchatts Road to North Car Park through the semi-circular tarmac area on Pritchatts Road will be closed.
- The access to the Gun Barrels car park will be closed and the access to South Car Park on Edgbaston Park Road will be modified as part of the New Sports Centre development, with an access to the service area and drop off area and an exit from this area which will also be the entry and exit to and from the multi-storey car park associated with the New Sports Centre.
- Improved crossing facilities at the Edgbaston Park Road/ Somerset Road junction across the Somerset Road arm and a new signal controlled crossing of Edgbaston Park Road just to the south of Somerset Road giving access to Tennis Courts halls of residence via the footpath within the University estate.
- The exit from Pritchatts Road car park will be modified to provide right and left turn exit lanes.

The above changes will require modifications to or new Traffic Regulation Orders. The above changes are provided to improve the pedestrian environment and vehicle movement and provide access to the new Sports Centre. They are not being provided to mitigate any adverse impacts from the Hybrid Application and as such the University require that the provision of these changes to highways be subject to the implementation of the development programme and the availability of University funding.

Note that the new access across Bourn Brook via a new road bridge for service vehicles will be created to access the south west corner of the University by utilising an existing access point on Selly Oak New Road.

A s106 contribution will be made by the University to support the Grange Road area residents parking scheme in order to mitigate any adverse parking impacts arising from the development of the Grange Road halls of residence.

Note that a number of the elements of the development provide improvements to the walking and cycling networks within the University estate and which the University allows to be used by the general public.
10 Travel Plan

10.1 Background

The University’s Sustainable Travel Plan covers a five-year period from 2010 to 2015 and complements the Estates Development Framework. It forms a key component to support the University’s Environmental Policy and has been developed in order to identify and implement initiatives that will deliver more sustainable ways of conducting the University’s transport activities.

The Plan is intended to achieve a change in culture at the University resulting in an increase in use of sustainable travel modes and a reduction in private car use. Implementation of the plan will assist the University in achieving its sustainability objectives but also demonstrate the institution’s commitment to sustainable travel in support of future development proposals.

The objectives of the Sustainable Travel Plan are:

- to reduce unnecessary vehicle usage by staff, students and visitors;
- to promote the use of more sustainable methods of transport by staff, students and visitors;
- to reduce the proportion of staff, students and visitors parking at the University;
- to contribute to the promotion of personal health and wellbeing;
- to encourage the use of more sustainable modes of transport for work-related journeys; and
- to reduce the environmental impact of traffic associated with the University.

The strategy up to 2015 recognise[s that the cost and availability of parking plays an important role in people’s travel decisions. The strategy set out plans to improve the management of car parking which have now been implemented as part of the new Car Parking Management arrangements described in Chapter 6 above.

The Sustainable Travel Plan is provided in Appendix C and the key elements are set out below.

The University and the Hospital Trust are working closely together in respect of the development of their Sustainable Travel Plans.

10.2 Travel Survey

A survey of staff and student travel was conducted in 2008 in order to understand travel behaviour and assist in the identification of Travel Plan measures.

The modal split of staff and students for travel to the University is shown in the Table below.
### Table 9.1: Modal split of Staff and Students for Travel to the University

<table>
<thead>
<tr>
<th>Mode</th>
<th>Staff</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td>10%</td>
<td>55%</td>
</tr>
<tr>
<td>Cycle</td>
<td>9%</td>
<td>4%</td>
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<td>Train</td>
<td>24%</td>
<td>17%</td>
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<tr>
<td>Bus</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Car share</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Car driver</td>
<td>40%</td>
<td>9%</td>
</tr>
</tbody>
</table>

The modal share figures reflect the relatively sustainable location of the University with good public transport provision. The percentage of staff drivers is considerably lower than the national average of 69% for journey to work (National Travel Survey, DfT, 2008). The University’s controlled parking arrangements and charges are likely to encourage use of non-car modes; the previous staff and student travel survey undertaken in 1995, prior to the introduction of parking charges, showed 65% of staff and 13% of students driving.

The travel survey asked a number of questions to investigate measures or policies that might encourage less travel or more use of sustainable modes. For staff, measures to encourage and support working from home was the most favoured response. Students were interested in financial support from the University to assist with sustainable travel.

### 10.3 Targets and Monitoring

An overall target has been set to achieve a 5% reduction in the percentage of staff and student single occupancy journeys to, between and from all University sites by 2011/12 against a 2009/10 baseline.

The Travel Plan aims to achieve this by:

- Increasing the proportion of staff and students walking and/or cycling to the University;
- Increasing the proportion of staff and students using public transport to access the University;
- Increase the proportion of staff car sharing to the University; and
- Managing the demand for car parking at the University.

It is intended to set up a number of monitoring procedures. These incorporate the collection of ‘hard’ analytical data and ‘soft’ data in the form of general feedback and correspondence:

- Undertake annual travel surveys to monitor changes in travel patterns compared to previous surveys;
- Monitor, jointly with the Security Team, the cars parked on Campus;
- Monitor the registration to the car sharing scheme;
- Monitor the uptake of the discounted public transport season tickets;
• Monitoring the uptake of the Cycle Scheme;
• Monitor the level of usage of the cycle parking facilities to establish demand;
• Monitor feedback from the bus operators to establish the level of demand for the subsidised bus services; and
• Record comments received from staff, students and visitors relating to the operation and implications of the Travel Plan.

10.4 Travel Plan Measures

The Travel Plan identifies the sustainable travel initiatives that already exist at the University and explores the potential measures which could be implemented, or considered, by the University of Birmingham to deliver the aims and objectives of the Plan.

The key elements are:

• Marketing and promotional initiatives to publicise and promote measures to encourage sustainable travel. These include:
  o Advertising,
  o Branding,
  o Travel Web pages within the University’s website,
  o A Travel Guide, and
  o Events.

• The establishment of focus and special interest groups;

• Measures to reduce the need to travel;
  o Video-conferencing, and
  o Flexible home working.

• Walking measures;
  o Improved routes and linkages,
  o Maps and guides, and
  o Walk to Work events.

• Cycling measures;
  o Cycle parking facilities,
  o Shower and changing facilities,
  o Bicycle User Group,
  o Maps and guides, and
  o Cycle purchase scheme.

• Public transport measures;
• Improvements to University station,
• Inter-site shuttle bus,
• Season ticket loans, and
• Real time information.

• Car sharing scheme; and
• Car parking management.

10.5 Travel Plan Update

The University is currently planning a refresh of the Sustainable Travel Plan that will include a review of progress towards targets and a new staff and student travel survey to be carried out in 2012.

The updated plan will reflect changes at the University as a result of the Hybrid Application and, in particular, will contain details of:

• The new parking management arrangements introduced to resolve parking enforcement issues and address the problem of unauthorised vehicles parking on the University Estate. The new parking strategy includes the employment of three University Security Traffic Control Officers and the putting in place of legal and administrative systems to allow penalty charges to be levied on offenders. In this way the University is moving to a position where parking is effectively controlled; and

• Upgraded walking and cycling routes making the most of the proposed new internal roads and links including the new ‘Green Heart’ across the Campus, the new route to The Vale and the route from the New Sports Centre to the future Student Hub.
11 Indicative Car Parking Phasing

The phasing of the car parking provisions of the Edgbaston Campus Development has been developed to show that over the indicative construction programme lasting from late 2012 to late 2017 it is feasible to ensure that there are no extended periods when there will be a significant shortfall in car parking provision at the University. This is the key principle underlying the phasing of the changes to car parking set out in this application.

This is an issue for the Planning and Highway Authorities because any significant reduction would be likely to lead to parking pressure on surrounding residential roads. It is also important to the University to avoid the disruption to staff, students and visitors that any significant reduction in car parking would cause.

The car park phasing is detailed in Appendix G. This shows that on average over the 5 year development period there is a small increase in car parking amounting to around 20 spaces on average. The maximum level of additional car parking is around 60 spaces. The maximum reduction in car parking is around 50 spaces.

In order to achieve this balance it is necessary to provide a Temporary Car Park to the north of the Muirhead Tower Building, a site that is currently being used as a contractor’s compound. This Temporary Car Park will be required for a period of 5 years allowing for variation in the programme. The car park is shown on Figure 23 and will provide a capacity of 65 spaces. Access will be directly off Pritchatts Road.

The indicative phasing shown in Appendix G is based upon the University’s best judgement of when the developments set out in this application can be implemented. This programme is subject to the future uncertainties that are a consequence of the economic conditions and external influences and as such is likely to change, however the approach set out here will be adopted to suit any change in programme. That approach is to ensure as far as possible that there are not extended periods when there is overall a significant reduction in car parking at the University as a result of the development programme.
12 Construction (Design and Management) Regulations 2007

The purpose of the Construction (Design and Management) Regulations 2007 (CDM Regulations) is to ensure that health and safety is managed and co-ordinated throughout all stages of a construction project. The CDM Regulations impose duties on those who can contribute to the health and safety of a construction project, including the designer. To comply with our legal duties as a designer involved at the planning stage we have prepared a CDM hazard register which is contained in Appendix D. The Hazard Register should be passed to the CDM Coordinator for inclusion in the Health and Safety Plan.
13 Conclusions

The University of Birmingham Edgbaston Campus is one of the longest established and largest educational institutions in the Midlands. As such it has mature transport networks catering for the large number of staff, students and visitors accessing the facilities. This report shows that the campus has very good access to sustainable modes of transport in the form of bus, train and cycling/walking networks.

The recent completion of parts of the Selly Oak New Road together with the future elements to be completed will ensure that the road network around the University will operate with less delay than the old road layout which was subject to considerable congestion. This road scheme promoted by the Highway Authority is coming to fruition after many years in planning. It complements both the recent completion of the New Queen Elizabeth Hospital and the future development of the University.

This Hybrid Application is supported by the University’s Central Campus Masterplan and comprises a number of elements some as outline applications and others as full applications. Central to the application is the replacement of significant elements of the University’s facilities enabling the creation of a campus with a world class pedestrian environment. The key building elements are the replacement New Sport Centre on the site of South Car Park providing amongst other facilities a swimming pool which will be available at times to the public and the replacement of the Library on a new site. The relocation of these major buildings enables the fulfilment of the environmental/public realm strategy developed as part of the Masterplan.

The transport aspects of the Hybrid Application are linked together by a focus to create:

- High quality nodes of social activity linked by a high quality pedestrian / cycle network;
- Vehicle routes into and through the Campus, which complement the creation of the pedestrian environment and improve accessibility to car parking and for servicing.
- Car parking that compliments the pedestrian environment and maintains sufficient capacity to meet demand in conjunction with the delivery of a Sustainable Travel Plan.

This Transport Assessment has reviewed all the elements of the Hybrid Application as set out in the Project Summary Table in Appendix A and identified those elements which may have a traffic impact. The assessment of these possible traffic impacts has shown that in terms of the operation of the local road network the application will not have a significant adverse impact. The proposals in the application will:

- Improve pedestrian and cycle movements in and around the University, building on the improvements being achieved through the implementation of the Selly Oak New Road strategy.
- Improve accessibility for service vehicles to the University
- Improve accessibility of car parking.
• Improve the pedestrian environment and safety aspects of Pritchatts Road and to a lesser extent Edgbaston Park Road by reducing traffic speeds and improving pedestrian facilities at points where significant pedestrian flows are found.

This application contains the following transport related improvements:

• A pedestrian /cycle route from Pritchatts Road north to the Vale and Tennis Court halls of residence across University land and avoiding Edgbaston Park Road. Associated with this will be improved crossing facilities at the Edgbaston Road/ Somerset Road junction and a new signal controlled crossing of Edgbaston Park Road linking the new route to the Vale to the Tennis Court halls of residence.

• Creating the space for a world class landscaped area in the Green Heart at the centre to the University which will improve connectivity between the northern and southern elements of the Campus.

• A new pedestrian route linking the New Sports Centre to the centre of the University.

• Traffic management/ environmental/ public realm improvements to Pritchatts Road as it crosses the Campus with improved pedestrian environment and facilities.

• A new internal road link and access onto Pritchatts Road from the University’s internal Ring Road providing for the relocation of the Library and for the creation of future buildings facing onto the Green Heart. Associated with this is the closure of two accesses off Pritchatts Road, one at the German Institute and the other being the access to the North Car Park.

• The use of the current access off SONR in the Grange Road area to allow service vehicles easy access into the power plant / site servicing/ workshop area in the south west corner of the University Campus and to the proposed Grange Road halls of residence/ Sports Pavilion/ Cafe/Bar. Associated with the provision of the student residences the University will provide a s106 contribution to support the Grange Road area residents parking scheme.

• The completion of a service road access loop behind Metallurgy & Materials and Gisbert Kapp to ease servicing and reduce vehicle movements on Pritchatts Road.

• The relocation/ rationalisation of car parking but with no overall change in car parking provision and including the following major car park improvements accessible directly off the public highway:
  o Enlargement and improvement of the surface car park and its accesses on Pritchatts Road to the west of Vincent Drive.
  o Provision of a multi-story car park on the site of the current car park at Gisbert Kapp off Pritchatts Road.
  o Provision of a multi-storey car park at the new Sports Centre.

• The exit to the Pritchatts Road Car Park will be modified to provide both a right and left turn exit lane.
The above changes are provided to improve the pedestrian environment and vehicle movement and provide access to the New Sports Centre. With the exception of the s106 contribution they are not being provided to mitigate any adverse impacts from the Hybrid Application and as such the University require that the provision of these changes to highways be subject to the implementation of the development programme and the availability of University funding.

These transport improvements are supported by the development of an active Sustainable Travel Plan 2010-2015 which was published by the University in 2010 and which the University are currently implementing. This Travel Plan is an organic document which will be further developed as a result of the changes set out in this application.

The approach set out in this application and supported by this Transport Assessment is consistent with the transport policy framework at both national and local level.

We recommend this application and do not consider that there are any reasons on transport grounds why this application should not be approved by Birmingham City Council.
Figure 1  Site Location
Figure 2  Accident Locations
Figure 3 Cycling and Working Routes
Figure 4 Existing Car Parks to be Removed/Altered
Figure 5 Proposed Car Parks
Figure 6 AM Peak Traffic Reassignment
Figure 7 PM Peak Traffic Reassignment
Figure 8 - Re-Assignment of Traffic from the Existing Sports Centre AM Peak
Figure 9 - Re-Assignment of Traffic from the Existing Sports Centre PM Peak
Figure 10 - Generated Traffic from the Proposed Sports Centre AM Peak
Figure 11 - Generated Traffic from the Proposed Sports Centre PM Peak
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Figure 14 Pritchatts Road - Proposed Northern Access
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Figure 18 Pritchatts Road Car Park Layout
Figure 19 Terrace Huts Car Park AA
Figure 20 New Running Track Car Park V
Figure 21 Grange Road Car Park Z
Figure 22 Future Buildings Car Park R
Figure 23 Temporary Car Park north of Muirhead Tower
Figure 24 Coach Parking Location
Figure 1

Transport Planning

Job No: 216558-00

Drawing Status: Information

Issue: 02

Scale at A4: 1:50000

Discipline: Transport Planning

Client: University of Birmingham

Job Title: Edgbaston Central Campus Development - Hybrid Planning Application

Site Location

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Web: www.arup.com

The Arup Campus, Blythe Gate, Blythe Valley Park
Solihull, West Midlands B90 8AE

Site Location

Figure 1
Accident Locations

Note: Selly Oak New Road is not currently shown on OS mapping, due to its recent opening.
Key
On Road Cycling
- Advisory cycle route
- Signed cycle route
- Toucan Crossing
- Pelican Crossing

Off Road (traffic free) cycling and walking routes
- Surfaced cycle and pedestrian route
- Surfaced pedestrian route
- Canal Towpath

Notes
1. All local highways have footways.

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University of Birmingham
Edgbaston Central Campus Development
Hybrid Planning Application

Cycling and Walking Routes

Sheet at 1:5000
Director

Transport Planning

216558-00
Information

Figure 3
Table:

<table>
<thead>
<tr>
<th>Site</th>
<th>Spaces Lost</th>
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<tbody>
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<td>Informal Parking</td>
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</tr>
<tr>
<td>Gun Barrels CP</td>
<td>65</td>
</tr>
<tr>
<td>A</td>
<td>14</td>
</tr>
<tr>
<td>B</td>
<td>140</td>
</tr>
<tr>
<td>C</td>
<td>18</td>
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<td>M</td>
<td>51</td>
</tr>
<tr>
<td>N</td>
<td>354</td>
</tr>
<tr>
<td>Total</td>
<td>1417</td>
</tr>
</tbody>
</table>

Legend:
- Yellow: Car parks to be removed
- Green: Car parks to be altered

Figure 4

ARUP

University of Birmingham

Edgbaston Central Campus Development
- Hybrid Planning Application

Existing University Car Parks to be Removed / Altered

Sheet A3

© Arup
**Key**

- **Blue**: Multi storey car parking
- **Teal**: At grade parking
- **Blue with red outline**: Temporary Car Park north of Muirhead Tower

**Proposed Car Park Locations**

<table>
<thead>
<tr>
<th>Site</th>
<th>Spaces Added</th>
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<tr>
<td>P</td>
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</tr>
<tr>
<td>Q</td>
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<tr>
<td>R</td>
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<tr>
<td>S</td>
<td>-</td>
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<tr>
<td>T</td>
<td>456</td>
</tr>
<tr>
<td>U</td>
<td>400</td>
</tr>
<tr>
<td>V</td>
<td>58</td>
</tr>
<tr>
<td>W</td>
<td>4</td>
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<tr>
<td>X</td>
<td>-</td>
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<td>Y</td>
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<tr>
<td>Z</td>
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<tr>
<td>AA</td>
<td>69</td>
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<td><strong>Total</strong></td>
<td><strong>1417</strong></td>
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</tbody>
</table>

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**University of Birmingham**

**Edgbaston Central Campus Development**

- Hybrid Planning Application

**Figure 5**

- Site: University of Birmingham
- Drawing Status: Draft
- Site: Edgbaston Central Campus
- Development: Hybrid Planning Application
- Site No: 216558-00
- Discipline: Transport Planning
- By: N.T.S.
- Drawn by: T. Schuurman
- Date: 03/12/11
- Page: 03
Proposed Car Park Locations

- P 271
- Q
- R 62
- S
- T 456
- U 400
- V 58
- W 4
- X
- Y 4
- Z 89
- AA 69
- Total 1413

West Gate CP Totals
Occupied spaces before 08.00 in existing C.P = 128
Arrivals = -4
Occupied spaces at 09.00 in existing C.P= 165

East Gate

No of arrivals relocating from existing parking
Area 1 41
Area 2 (C.P. L) 21
Area 3 0

Note: Total parking accumulation does not exceed capacity therefore no relocation of vehicles onto the network

Relocated vehicles from Area 1 and 2 are assigned to car parks as per car distributions for the am (all area 2 vehicles assigned to the new car park T along with 67.2% of area 1 with remaining 32.8% assigning to new Car Park U)

Edgbaston Central Campus Development
- Hybrid Planning Application
AM Peak Traffic Re-Assignment

Figure 6
No of re-assigned vehicles from area 1 = 37
Only 23% depart in the peak hour

No of re-assigned vehicles from area 3 = 40
Only 41% depart in the peak hour

Proposed Grade Car Parks
Proposed Multi Storey Car Parks

Area 4

Area 5

No of Reassigned vehicles from area 1 and 2 = 114
Only 23% depart in the peak hour

26 vehicles

Area 2

Area 1

C.P Totals = 124
Occupied spaces before 16.00 in existing C.P = 236

Relocated vehicles from Area 1 and 2 are assigned to car parks as per car distributions for the am
(all area 2 vehicles assigned to the new car park T along with 67.2% of area 1 with remaining 32.8%
assigning to new Car Park U)
Note:
Existing sole use of the Sports Centre distributed based on WSP
assignments vehicle numbers also supplied by WSP, all members use Car Park B

Edgbaston Central Campus Development
- Hybrid Planning Application
Re-Assignment of Traffic from the Existing Sports Centre
AM Peak

Figure 8
Proposed Grade Car Parks

Area 4

Proposed Multi Storey Car Parks

Proposed Car Park Locations

U 271
Q 62
R 456
S 400
T 58
U 4
V 271
W 4
X 4
Y 89
Z 69
AA 69
Total 1413

Note:
Existing sole use of the Sports Centre distributed based on WSP assignments vehicle numbers also supplied by WSP, all members use Car Park B

Edgbaston Central Campus Development
- Hybrid Planning Application
Re-Assignment of Traffic from the Existing Sports Centre
PM Peak

Figure 9
Proposed Grade Car Parks

Proposed Car Park Locations

<table>
<thead>
<tr>
<th>Area 1</th>
<th>AA</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 2</td>
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<td>69</td>
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<tr>
<td>Total</td>
<td></td>
<td>1413</td>
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</tbody>
</table>

Note: Traffic generations provided by WSP
Numbers provided refer to predicted increase of use

Edgbaston Central Campus
Development
- Hybrid Planning Application
Generated Traffic from Proposed Sports Centre
AM Peak

Figure 10
Proposed Grade Car Parks

Total 1413

Note: Traffic generations provided by WSP
Numbers provided refer to predicted increase of use

Edgbaston Central Campus Development
- Hybrid Planning Application
Generated Traffic from Proposed Sports Centre
PM Peak

Figure 11
Proposed Grade Car Parks

Proposed Multi Storey Car Parks

Proposed Car Park Locations

Area 1

Area 2

Area 3

Area 4

Area 5

West Gate

Vincent Drive

Pritchatts Road

East Gate

Aston Webb Boulevard

Edgbaston Central Campus Development

- Hybrid Planning Application

Net Impact on Local Highway Network AM Peak

Figure 12

No of arrivals relocating from existing parking

Area 1 41
Area 2 (C.P. L) 21
Area 3 0

Note: Total parking accumulation does not exceed capacity therefore no relocation of vehicles onto the network

Relocated vehicles from Area 1 and 2 are assigned to car parks as per car distributions for the am (all area 2 vehicles assigned to the new car park T along with 67.2% of area 1 with remaining 32.8% assigning to new Car Park U)

New Trips from proposed Sports centre Site along with existing sole users have been added and reassigned where appropriate

Occupied spaces before 08.00 in existing C.P = 128

Arrivals = -4

Occupied spaces at 09.00 in existing C.P = 165

Red = Additional trips

Green = Reduction in trips

CP Totals 124

Occupied spaces before 08.00 in existing C.P = 128

Arrivals = -4

Occupied spaces at 09.00 in existing C.P = 165

P 271
Q 62
R 456
S 400
T 58
U 4
V 89
W 69
X 69
Z 4
AA 69
Total 1413

Figure 12
No of re-assigned vehicles from area 1 = 37
Only 23% depart in the peak hour

No of re-assigned vehicles from area 3 = 40
Only 41% depart in the peak hour

Area 2

C.P Totals = 124
Occupied spaces before 16.00 in existing C.P = 236

Relocated vehicles from Area 1 and 2 are assigned to car parks as per car distributions for the am
(all area 2 vehicles assigned to the new car park T along with 67.2% of area 1 with remaining 32.8% assigning to new Car Park U)

New Trips from proposed Sports centre Site along with existing sole users have been added and reassigned where appropriate

Figure 13
Access to be provided to Institute for German Studies and Estates yard area.

Existing access to be closed off with footway reinstated.

New access road
Amendments to Somerset Rd junction to provide 3.0m wide pedestrian refuge

Signalised pedestrian crossing to be provided across Edgbaston Park Road, with link to existing footpath

Up to 20 spaces provided within amended car park

4m wide shared pedestrian / cycle route

Bollards and markings to be provided across site access

Gates removed to allow 2-way manoeuvres

Existing car park access to be maintained

Indicative route alignment leading to University

The Elms Day Nursery

The Vale Pedestrian Route

Edgbaston Central Campus Development - Hybrid Planning Application

The Elms Nursery Route

University of Birmingham

Job Title

Transport Planning

Drawing Status

Minor Amendments

Job No

216558-00

Scale at A3

Figure 15

ARUP

The Arup Campus, Blythe Gate, Blythe Valley Park
Solihull, West Midlands B90 8AE
www.arup.com

T +44(0)121 213 3000  F +44(0)121 213 3001
Grange Road
- Proposed Link Road
(16.5m HGV Paths)

Information
1:500
216558-00

University of Birmingham

Transport Planning

216558-00

Erection No

Figure 16

© Arup

Job Title

Client

Scale at A3

Drawing No

Issue

Date

By

Chkd

Appd

Drawing Status

First Issue

Minor Amendments
01
02

- Proposed Link Road

- Hybrid Planning Application
1. Retain existing trees along Pritchatts Road.
2. Widen isochore along Pritchatts Road, maintain level over accesses and reduce kerbline radii at accesses.

Notes:

1. Shallow gradient bus / blue light friendly ramp at regular intervals along carriageway.
2. Speed limit roundels to be provided at regular intervals along carriageway.
3. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
4. Car parking bays to be retained outside of Green Heart area.
5. Car parking bays removed through Green Heart area.
6. Car parking bays removed.
7. Road narrows to 6.0m through 'Green Heart' area.
8. Narrowing of junctions at existing access roads to improve pedestrian facility.
9. New street lighting to Pritchatts Road between canal and Edgbaston Park Rd.
10. Wide signalised pedestrian / cycle crossing arrives to main north - south pedestrian route.
11. Introduce of new trees to enhance existing avenue of trees.
12. High quality paving to semi-circle at lodges. Bollards to prevent parking.
13. Conservation works to grass verges. Existing timber barriers to be removed.
14. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
15. Introduction of new trees to enhance existing avenue of trees.
16. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
17. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
18. Widening to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
19. Pedestrian refuge provided at junction.
20. Existing timber barriers to be removed.
22. Pedestrian route crossing aligns to main north - south pedestrian route.
23. Enhanced lighting to improve pedestrian facility.
24. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
25. Introduction of new trees to enhance existing avenue of trees.
26. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
27. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
28. Narrowing to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
29. Pedestrian refuge provided at junction.
30. Existing timber barriers to be removed.
31. Conservation kerbs to grass verges.
32. Pedestrian route crossing aligns to main north - south pedestrian route.
33. Enhanced lighting to improve pedestrian facility.
34. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
35. Introduction of new trees to enhance existing avenue of trees.
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39. Pedestrian refuge provided at junction.
40. Existing timber barriers to be removed.
41. Conservation kerbs to grass verges.
42. Pedestrian route crossing aligns to main north - south pedestrian route.
43. Enhanced lighting to improve pedestrian facility.
44. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
45. Introduction of new trees to enhance existing avenue of trees.
46. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
47. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
48. Narrowing to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
49. Pedestrian refuge provided at junction.
50. Existing timber barriers to be removed.
51. Conservation kerbs to grass verges.
52. Pedestrian route crossing aligns to main north - south pedestrian route.
53. Enhanced lighting to improve pedestrian facility.
54. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
55. Introduction of new trees to enhance existing avenue of trees.
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59. Pedestrian refuge provided at junction.
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61. Conservation kerbs to grass verges.
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68. Narrowing to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
69. Pedestrian refuge provided at junction.
70. Existing timber barriers to be removed.
71. Conservation kerbs to grass verges.
72. Pedestrian route crossing aligns to main north - south pedestrian route.
73. Enhanced lighting to improve pedestrian facility.
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78. Narrowing to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
79. Pedestrian refuge provided at junction.
80. Existing timber barriers to be removed.
81. Conservation kerbs to grass verges.
82. Pedestrian route crossing aligns to main north - south pedestrian route.
83. Enhanced lighting to improve pedestrian facility.
84. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
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107. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
108. Narrowing to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
109. Pedestrian refuge provided at junction.
110. Existing timber barriers to be removed.
111. Conservation kerbs to grass verges.
112. Pedestrian route crossing aligns to main north - south pedestrian route.
113. Enhanced lighting to improve pedestrian facility.
114. Long term aspiration for new footbridge, adjacent to existing narrow bridge.
115. Introduction of new trees to enhance existing avenue of trees.
116. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
117. Gateway feature, change in road surfacing colour and road markings to denote extent of 20mph zone.
118. Narrowing to Pritchatts Road / Edgbaston Park Road junction with pedestrian refuge.
119. Pedestrian refuge provided at junction.
120. Existing timber barriers to be removed.
Figure 18

Existing car park has 354 spaces.

456 spaces with allowance made for landscaping.

University of Birmingham

Edgbaston Central Campus Development
- Hybrid Planning Application

Pritchatts Rd
Car Park Layout
Transport Planning

University of Birmingham

New Running Track

58 spaces indicated

Proposed Sports Pavilion

Figure 20
89 spaces indicated
University of Birmingham

Figure 22

New Running Track
Car Park R Adjacent to

Edgbaston Central Campus Development
- Hybrid Planning Application

Do not scale

ARUP

Job No: 216558-00

Discipline: Transport Planning

Scale at A3: 1:500

Drawing No: 216558-00

Issue: 01

Drawing Status: First Issue

© Arup
Note:
1. Coaches assumed to be 12m in length.
2. Minibuses assumed to be 6.5m in length.

Widening of carriageway into existing landscaping bund, with new footpath.
Space for 4 coaches / 8 minibuses

Minor carriageway widening to provide new layby.
Space for 2 coaches / 4 minibuses

Minor carriageway widening to provide new layby. Retaining structure will be required.
Space for 2 coaches / 4 minibuses

Note:
1. Coaches assumed to be 12m in length.
2. Minibuses assumed to be 6.5m in length.

Figure 24
Appendix A

Project Summary Table, Masterplan Plans including Movement Plans and the Hybrid Application Vale Route
<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Sports Centre and route from Bristol Road to Chancellors Court</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of Sports Pavilion</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
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<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
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<tbody>
<tr>
<td><strong>Grange Road Car Park</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
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<tr>
<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Services Hub</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
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<td><strong>Grange Road bridge crossing</strong></td>
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<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
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</table>

<table>
<thead>
<tr>
<th>Project</th>
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</thead>
<tbody>
<tr>
<td><strong>Grange Road student residences and sports pavilion</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of Terrace Huts</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of Chemistry West and research unit</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
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<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of Old Gym</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Green Heart landscaping</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of existing library</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of substation 24</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New main campus library</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demolition of Munrow Sports Centre</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Library enabling works</strong></td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Application type</td>
</tr>
<tr>
<td>Site ref.</td>
</tr>
<tr>
<td>Proposed floorspace sq m (gross internal)</td>
</tr>
</tbody>
</table>

---

1 Further works to this building are proposed in a separate application for Listed Building Consent submitted by Associated Architects
<table>
<thead>
<tr>
<th>Project Description</th>
<th>Application type</th>
<th>Site ref.</th>
<th>Proposed floorspace sq m (gross internal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of site of Munrow Sports Centre</td>
<td>Outline with all matters reserved</td>
<td>16</td>
<td>Gain: 300</td>
</tr>
<tr>
<td>Creation of new running track (16a) and erection of new sports pavilion (16b) and new surface car parking (16c).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pritchatts road improvements</td>
<td>Outline with all matters reserved</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Changes to highway to improve pedestrian safety and environment, including traffic management/public realm improvements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access road to rear of Gisbert Kapp</td>
<td>Outline with all matters reserved except access</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>Extend the existing access road into the Met &amp; Met building off Pritchatts Road to create a loop road relieving traffic for Project 17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gisbert Kapp Car Park</td>
<td>Outline with all matters reserved except access</td>
<td>19</td>
<td>Gain: 10,938</td>
</tr>
<tr>
<td>Erection of new multi-storey car park</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pritchatts Road Car Park</td>
<td>Full</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Extension to surface car park</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian and cycle route to The Vale</td>
<td>Full</td>
<td>21</td>
<td>-</td>
</tr>
<tr>
<td>Construction of new pedestrian and cycle route from the rear of Met &amp; Mat avoiding Edgbaston Park Road to the Vale Student Village. New crossings on Edgbaston Park Road and Somerset Roads</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A separate application for Conservation Area consent will also be submitted
1a. New Sports Centre and Car Park
1b. Demolition of Gun Barrels Public House
1c. Demolition of Bungalow
1d. New Accessible Route from Chancellors Court to New Sports Centre
2. Demolition of The Old Sports Pavilion
3. Grange Road Car Park
4. Aston Webb: New Student Services Hub
5. New Access Road off Selly Oak New Road
6. New Grange Road Student Residences and Sports Pavilion
7. Demolition of Terrace Huts and Replacement with Surface Car Park
8. Demolition of Chemistry West Buildings
9. Demolition of Old Gym
10a. 'Green Heart' Landscaping - South

10b. 'Green Heart' Landscaping - North
10c. Temporary Car Park
11a. Demolition of Old Brick Store
11b. Demolition of Existing Library
11c. Demolition of Substation 24
12. New Library
13. New Munrow Centre
14. Library Enabling Works
15a. Athletics Track Demolished
15b. New Library Store
15c. New Surface Parking on Link Road
16a. New Running Track on Munrow Site
16b. New Sports Pavilion
16c. New Surface Parking by Running Track
17. Pritchatts Road Improvements
18. Access Road to the Rear of Gisbert Kapp
20. Pritchatts Road Surface Car Park
21. Route to the Vale
1a. New Sports Centre and Car Park
1b. Demolition of Gun Barrels Public House
1c. Demolition of Bungalow
1d. New Accessible Route from Chancellors Court to New Sports Centre
2. Demolition of The Old Sports Pavilion
3. Grange Road Car Park
4. Aston Webb: New Student Services Hub
5. New Access Road off Selly Oak New Road
6. New Grange Road Student Residences and Sports Pavilion
7. Demolition of Terrace Huts and Replacement with Surface Car Park
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9. Demolition of Old Gym
10a. ‘Green Heart’ Landscaping - South

10b. ‘Green Heart’ Landscaping - North
10c. Temporary Car Park
11a. Demolition of Old Brick Store
11b. Demolition of Existing Library
12. Demolition of Substation 24
13. New Library
14. Demolition of Munrow Centre
15a. Library Enabling Works
   - Athletics Track Demolished
   - New Internal Road Link to Pritchatts Road
   - Ground Works
15b. New Library Store
15c. New Surface Parking on Link Road
16a. New Running Track on Munrow Site
16b. New Sports Pavilion
16c. New Surface Parking by Running Track
17. Pritchatts Road Improvements
18. Access Road to the Rear of Gisbert Kapp
20. Pritchatts Road Surface Car Park
21. Route to the Vale
NOTE: DO NOT SCALE DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ERRORS TO BE REPORTED IMMEDIATELY TO THE ARCHITECT.
NOTE DO NOT SCALE DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ERRORS TO BE REPORTED IMMEDIATELY TO THE ARCHITECT.
Scale File Name Date
P:\0504-UniversityOfBirmingham\Z-AssemblyData\0504-A-HA-50-045_UofB_ECampus_Proposed_Vehicular_Network.dgn

9 HE N E AG E S T R E E T , S P IT A L F I E L D S , L O N D O N , E 1 5 L J

D r a w in g  N o . R e v D a te D e sc r i p t io n B y C h k A p p R e v D a te D e sc r i p t io n B y C h k A p p


0 5 /0 3 /1 2 A D D E D  S E R V IC E  A CC E S S  T O  P R O P O S E D  SP O R T S  C E N T R E

KEY
- Main vehicular routes
- Roads with traffic management and public realm improvements
- Staff/students' vehicles entrance
- Visitors' vehicles entrance
- Service and deliveries vehicles entrance
- Multi storey car park
- Areas in University Ownership
- Proposed University Acquisition

PROPOSED VEHICLE NETWORK

EDGBaston CENTRAL CAMPUS DEVELOPMENT
INDICATIVE MASTER PLAN
TRANSPORT STRATEGY

Main vehicular routes
Roads with traffic management and public realm improvements
Staff/students' vehicles entrance
Visitors' vehicles entrance
Service and deliveries vehicles entrance
Multi storey car park
Areas in University Ownership
Proposed University Acquisition
Route to the Vale

The path has been designed to minimise the impact on trees, ecology and listed buildings. A width of 5 meters has been created generally along the route apart from in discrete areas (as shown here) where the width has been reduced to 3.5 meters. Where route passes close to trees, construction of path to reduce damage to tree roots.

Low lighting (approx 4 meters high) is provided along the path with minimal UV emissions, with luminaires to reduce light spill and at intervals of approximately 30 meters to reduce the impact on bats. CCTV, panic alarm buttons to be provided along length of path, positions to be agreed.

Total number of trees lost to be replaced (in red) = 22.
Appendix B

New Sports Centre Transport Assessment
<table>
<thead>
<tr>
<th>Issue/revision</th>
<th>Issue 1</th>
<th>Revision 1</th>
<th>Revision 2</th>
<th>Revision 3</th>
<th>Revision 4</th>
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</thead>
<tbody>
<tr>
<td>Remarks</td>
<td>Draft</td>
<td>Draft</td>
<td>Draft</td>
<td>Final</td>
<td>Final</td>
</tr>
<tr>
<td>Prepared by</td>
<td>R Wightman / V Lasseaux</td>
<td>V Lasseaux</td>
<td>V Lasseaux</td>
<td>V Lasseaux</td>
<td>V Lasseaux</td>
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Appendix B Pedestrian Connectivity Diagram
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1 Introduction

1.1 APPOINTMENT

1.1.1 WSP have been appointed by Lifschutz Davidson Sandilands Architects to provide transport consultancy advice and produce supporting planning documentation to support a planning submission for a new sports facility to serve the University of Birmingham (UoB).

1.1.2 This Transport Assessment is associated with the detailed application for a new University sports facility. The indoor sports facility forms part of a wider masterplan hybrid application which is supported by a Transport Assessment (TA) prepared by Arup. This report is focussed on the detailed indoor sports facility application site.

1.2 DEVELOPMENT SITE

1.2.1 The proposed development site is located in the south east corner of the main University campus in Edgbaston and is shown on Figure 1. The A38 Bristol Road runs along the southern site boundary and provides access to central Birmingham and the M5 motorway.

1.2.2 The site is currently occupied by the University South car park and Gun Barrels Public House which are both accessed via Edgbaston Park Road.

1.3 DEVELOPMENT SCHEME PROPOSAL

1.3.1 The development proposal is to provide a new multi-use sports facility for the UoB which will replace the existing Munrow sports centre indoor facilities, with the following vision summarised below:

“Delivery of a new indoor sports facility which enhances the ability of the University to attract the best students, achieve sporting excellence and enhance user experience in line with its vision of becoming a premier global University”

1.3.2 In addition to delivering new indoor sports facility, this detailed application includes integrated parking for 271 car spaces, 26 motorbike bays and 70 secure cycle bays.

1.3.3 The accommodation schedule provided is summarised below (sqm expressed as NIA):

- Entrance areas and reception - 358 sqm;
- Café / Bar – 295 sqm;
- Climbing wall;
- Hall 1 - Sports hall 37m x 36m, sprung floor, 1000 bleacher seating – 2,273 sqm;
- Hall 2 - Hybrid hall 25m x 18m, sprung floor – 472 sqm;
- Dry changing rooms – 592 sqm;
- Squash Courts - 6 squash courts with moveable walls, 40-50 spectator seating per court, plus room for 100 spectators around one court – 569 sqm;
- Gym incorporating 3 areas – 1,333 sqm
  - 110 Cardio vascular station – 550 sqm,
  - Fixed weights – 300 sqm;
• Free weights – 250 sqm;
  ■ Wellbeing and Sports Performance Centre – 364 sqm;
  ■ Activity space and Dojo – 899 sqm;
  ■ Spinning and ergo room – 157 sqm;
  ■ 51.5 x 17m Swimming Pool, 8 lanes, including lateral boom and moving floor (25m x 17m) and 180-200 spectator seating;
  ■ Pool changing rooms – 460 sqm;
  ■ Spa area which includes a sauna, steam room and a relaxation area; and
  ■ Meeting rooms, offices and staff room – 188 sqm.

1.3.4 The indoors sports facility is to be a multi storey development. An extract of the lower floor plan may be seen in Figure 2. The layout drawings for the development are contained within Appendix A.

Figure 2 Lower Ground Floor Extract
1.4 REPORT STRUCTURE

1.4.1 The structure of the Transport Assessment is set out below and will provide current information on travel demand associated with the existing development and for the proposed facility:

- Chapter 2 reviews relevant planning policy and guidance;
- Chapter 3 reviews the baseline conditions for the site, including current pedestrian and cyclist provision around the site; availability of public transport to the site; details about the existing road network;
- Chapter 4 presents the development proposals;
- Chapter 5 provides the methodology and commentary on the trip generation;
- Chapter 6 assesses the impact of the development on walking and cycling; on public transport; and on the road network;
- Chapter 7 provides details on the Travel Plan; and
- Chapter 8 summarises and presents the conclusions of this Transport Assessment.
2 Planning Policy

2.1 INTRODUCTION

2.1.1 A review of national, regional and local transport policy has been carried out to determine the application site’s suitability for development.

2.2 NATIONAL POLICIES

PLANNING POLICY GUIDANCE 13 (PPG13): TRANSPORT (JANUARY 2011)

2.2.1 PPG13 Transport was first published in March 2001 and updated in January 2011. It stresses the importance of “accessibility” by non-car modes i.e. public transport, walking and cycling. It also emphasises the importance of promoting more sustainable transport choices for people and reducing the need to travel, especially by car.

2.2.2 In paragraph 75, PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2km. In Paragraph 78 it notes that cycling has the potential to replace short car trips, particularly those under 5km.

2.2.3 PPG13 in paragraph 4 sets out its objectives for the integration of planning and transport and these are namely to:

- “Promote more sustainable transport choices for both people and for moving freight;”
- “Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and”
- “Reduce the need to travel, especially by car.”

2.2.4 It then proceeds in its paragraph 6 to give guidance to authorities on how to deliver the above objectives. The key transport related guidance is given as follows:

- “Ensure that development comprising jobs, shopping, leisure and services offers a realistic choice of access by public transport, walking, and cycling, recognising that this may be less achievable in some rural areas;”
- “Use parking policies, alongside other planning and transport measures, to promote sustainable transport choices and reduce reliance on the car for work and other journeys; and”

PLANNING POLICY GUIDANCE 17 (PPG17): PLANNING FOR OPEN SPACE, SPORT AND RECREATION (JULY 2002)

2.2.5 Open space, sport and recreation all underpin people’s quality of life. PPG 17 focuses on the planning policies for these uses and is therefore fundamental to delivering broader Government objectives. Paragraph 1 of this document outlines the key planning objectives which include:

- “Supporting an urban renaissance - local networks of high quality and well managed and open spaces, sports and recreational facilities help create urban environments that are attractive, clean and safe.”
- “Promotion of social inclusion and community cohesion - well planned, quality sport and recreational facilities can play a major part in improving people’s sense of well-being in the place they live.”
- “Health and well-being - open spaces, sports and recreational facilities have a vital role to play in promoting healthy living and preventing illness.”
Promoting more sustainable development - by ensuring that open space, sports and recreational facilities (particularly in urban areas) are easily accessible by walking and cycling and that more heavily used facilities are planned for locations well served by public transport.

LOCAL POLICIES

2.3 BIRMINGHAM UNITARY DEVELOPMENT PLAN (OCTOBER 2005)

2.3.1 Birmingham Unitary Development Plan (UDP) is the main land-use planning document containing strategic city-wide and constituency planning policies. The UDP is part of the statutory development plan for Birmingham and contains policies that guide development and the use of land in the area.

2.3.2 Chapter 2 of the UDP covers a variety of topics and includes the sub section ‘Planning & Health’ Point 2.14B of the document states;

- “Access to open space, sport and recreational facilities are important in being able to offer opportunities for physical exercise thereby promoting healthier living. The planning process therefore has a clear and important role to play in helping to tackle health inequalities and promote healthy neighbourhoods”

2.3.3 Chapter 16 of the UDP relates to the Edgbaston constituency which covers the site location. The chapter highlights several statements with regards to development in the area including;

- “16.8 - major opportunities for future employment generation in the Constituency stem from building upon existing assets particularly around the University and Hospital”.
- “16.2 - The University of Birmingham is a major academic and research institution. Proposals to expand its teaching and research facilities will increase its attractiveness nationally”.
- “16.2B - There are a number of major opportunities for development / redevelopment in this area, with the potential to help meet the longer term needs of both the University and hospital, as well as the City’s need for employment”

2.3.4 Chapter 3 of the document identifies environmental issues within the city. Point 3.63 reads;

- “The increasing demand for a variety of indoor sports [and leisure] facilities, including multi-purpose buildings is recognised and a spread of facilities throughout the city will be encouraged.”

2.3.5 Chapter 6 of the UDP covers transport and highlights policies which aim to provide a more effective transport network and promote sustainable modes of transport within the city. The key polices include;

- “6.8E - The plan seeks to encourage a greater proportion of public transport, cycling and walking trips, while maintaining the provision for essential car journeys.”
- “6.14E - Quality cycle parking facilities (including changing and shower facilities) will be [provided] required at appropriate locations.”
- “6.14F - All developers (including housing developers) will be required to provide cycle parking facilities and cycle friendly infrastructure.”
6.14G - The maximum integration of cycling and public transport will be sought
3 Baseline Conditions

3.1 INTRODUCTION

3.1.1 This section provides a review of the existing context of the application site in order to identify accessibility to the site, particularly for pedestrians, cyclists, public transport users.

3.1.2 The site is located between the South Gate campus road to the west and Edgbaston Park Road to the east, with the Bristol Road bounding the site to the south. The site therefore forms the south-western boundary of the campus and is located immediately to the south of the Guild of Students building, immediately to the east of the Campus sports pitches, and within close proximity of the central campus area of Chancellor’s Court.

3.2 EXISTING LAND USE

3.2.1 The proposed site is formed of two individual areas currently occupied by the University South car park and Gun Barrels public house, which both have individual vehicular access points directly from Edgbaston Park Road. The Gun Barrels public house provides car parking facilities for public use and provides an additional parking facility for the University.

3.2.2 The formal parking provision accommodated within each of the sites is summarised by Table 3.1.

Table 3.1 Parking Provision

<table>
<thead>
<tr>
<th>Site</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>UoB South Car Park</td>
<td>361</td>
</tr>
<tr>
<td>Gun Barrels Pub Car Park</td>
<td>65</td>
</tr>
<tr>
<td>Combined</td>
<td>426</td>
</tr>
</tbody>
</table>

3.2.3 The car park was surveyed to identify the inbound and outbound car trips throughout the course of the day. The survey was undertaken between the hours of 07:00 and 19:00 on Tuesday 8th November 2011.

3.2.4 The parking accumulation based on the inbound and outbound for the South car park and the Gun Barrel Public House car park has been calculated and is illustrated in Graph 3.1 and 3.2.
3.2.5 It has been identified that both car parks are highly utilised with capacity reached between 09:00 and 10:00. The accumulation has been adjusted to reflect on site parking behaviour (vehicles circulating looking for a space when the car park is at capacity). There is a small amount of double parking (5 vehicles maximum) above the 361 spaces capacity.
3.3 PEDESTRIAN ENVIRONMENT

3.3.1 Current planning policy guidance contained in PPG13, (March 2011) highlights the objective for walking to replace car trips for journeys under 2km and cycling to replace trips for car journeys under 5km. Walking to and around the site is suitably provided for with strong pedestrian routes to both the University campus and external transport network such as the local bus stops and nearby University railway station.

3.3.2 A pedestrian accessibility map shown in Figure 3 illustrates a walk catchment area from the proposed development site assuming an average walk speed of 4.8km/hr. This diagram shows a 2km walking isochrone that represents the area around the site in which there is the greatest potential to encourage a mode shift from car driver to walking, as set out in PPG 13

3.3.3 This illustration demonstrates that the University railway station is located at a walk time of around ten minutes. The main hub of student accommodation i.e. the Selly Oak area is located within a 5 to 15 minute walk of the proposed site; with the Vale which is another large university accommodation area located at a 15 to 20 minute walk from the indoor sports facility. The proposed site is therefore within reasonable walk distance from the major hubs of student accommodation.

3.3.4 In relation to surrounding pedestrian infrastructure, the site will benefit from the facility provided on Bristol Road and the footway network on Campus and Edgbaston Park Road.

3.3.5 All surrounding roads have wide footways on either side, with dropped kerbs and street lighting with the exception of Edgbaston Park Road which has only one footway to the north of King Edward VI High School.

3.3.6 In terms of pedestrian connectivity to the central Campus area, pedestrian access can be gained via the footpath network which connects to the north-west of the site with the Ring Road North / Terrace Road. Terrace Road then forms a junction with Ring Road South towards the Central Campus area and provides for convenient access towards the University railway station.

3.3.7 Pedestrian connection to the south can be gained from the footway network either from South Gate road and Edgbaston Park Road, both of which form junctions with the Bristol Road. These junctions have signalised pedestrian controlled crossings to assist north-south movement across Bristol Road and east-west movement along Bristol Road. These facilities provide for a main desire line between the Selly Oak student accommodation area to the south and also to the bus stops located adjacent to the site on the Bristol Road.

3.4 CYCLING ENVIRONMENT

3.4.1 A cycle accessibility map assuming a cycle speed of 16km/hr. is shown in Figure 4. This demonstrates that student accommodation areas surrounding the site can reach the site within a 5 minute cycle ride. The site is also within a 15 to 20 minute cycle journey of Birmingham City Centre.

3.4.2 Both the University and Selly Oak railway stations may be reached within a 5 minute cycle ride, providing for interchange opportunities.

3.4.3 Further residential areas destinations such as Harborne can be reached within a 15 minute cycle and the areas of Aston and Smethwick may be accessed in less than 30 minutes.
3.4.4 As outlined in Figure 5, there are a number of cycle routes within the vicinity of the site. These consist of a traffic free cycle path along the A38 Bristol Road situated to the south and also the Worcester & Birmingham Canal towpath to the west, which is shared between pedestrians and cyclists. The A38 provides a good traffic free link towards the centre of Birmingham. These routes also connect to other traffic free routes helping to provide cycle connectivity with the site.

3.4.5 In addition to the dedicated cycle routes, much of the surrounding road network is defined as the ‘Advisory Cycle Network’ by Birmingham City Council. This helps to enhance the accessibility of the site by providing further links which are suitable for cyclists.

3.4.6 Extensive cycle parking stands are provided within close proximity of the site within the Campus area located on the South Ring Road.

3.5 PUBLIC TRANSPORT

3.5.1 Public transport services near the site are shown on Figure 6. This section provides details of public transport accessibility within close proximity of the development site.

Bus Services

3.5.2 The closest bus stops to the site are located on the A38 Bristol Road and Edgbaston Park Road. There are further stops on Pritchatts Road to the North and on Vincent Drive in close proximity of the railway station. The locations of the bus stops in the site vicinity are shown on Figure 6 while Table 3.2 provides a summary of the bus routes together with the frequencies during the peak hours and closest point of connection.
Table 3.2: Summary of Existing Local Bus Services

<table>
<thead>
<tr>
<th>Service Number</th>
<th>Route Summary</th>
<th>Frequency per Hour (Peak)</th>
<th>Bus Stop Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>Birmingham – Selly Oak – Great Park</td>
<td>6</td>
<td>Bristol Road</td>
</tr>
<tr>
<td>63</td>
<td>Birmingham – Selly Oak – Frankly</td>
<td>6</td>
<td>Bristol Road</td>
</tr>
<tr>
<td>76</td>
<td>Solihull – Shirley – University</td>
<td>3</td>
<td>Bristol Road</td>
</tr>
<tr>
<td>84</td>
<td>Q.E Hospital/University – Hawkesley</td>
<td>1</td>
<td>University Station</td>
</tr>
<tr>
<td>448</td>
<td>West Bromwich – Q.E Hospital – Bartley Green</td>
<td>2</td>
<td>University Station</td>
</tr>
<tr>
<td>636</td>
<td>Birmingham – University - Halesowen</td>
<td>3</td>
<td>Pritchatts Road</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service Number</th>
<th>Route Summary</th>
<th>Frequency per Hour (Peak)</th>
<th>Bus Stop Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>885</td>
<td>Solihull – King Edward VI High School, Edgbaston (School Service open to general public)</td>
<td>AM – 3 services inward PM – 3 services outward</td>
<td>Edgbaston Park Rd</td>
</tr>
<tr>
<td>886</td>
<td>Walsall – King Edward VI High School, Edgbaston (School Service open to general public)</td>
<td>AM – 1 service inward PM – 2 services outward</td>
<td>Edgbaston Park Rd</td>
</tr>
</tbody>
</table>

| Total Frequency (Services per Hour) | 23 (Exc. school service) |

3.5.3 Table 3.2 indicates that there are currently 23 buses an hour serving the site in each direction during the AM and PM peak hours. This number excludes the school services that run to the King Edward VI High School on Edgbaston Park Road although they are available to the general public and provide an AM peak hour additional bus service to the site.

3.5.4 The following list summarises some typical bus journey times to key destinations:

- Vale Student Village -> 5 minutes
- Northfield -> 15 minutes;
- City Centre -> 20 minutes;
- Frankley -> 30 minutes; and
- Great Park -> 30 minutes;
3.5.5 The University railway station is the closest mainline station and is located to the North West of the site at an approximate 10 minute walk. Its location is shown in Figure 6.

3.5.6 University rail station is operated by London Midland trains and has no car parking available. The station has a ticket office and is easily accessible via University Road West. Details of the service frequencies from this station are provided in Table 3.3.

**Table 3.3: Summary of services from University rail station**

<table>
<thead>
<tr>
<th>Route</th>
<th>Frequency (Trains per Hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lichfield – University – Longbridge</td>
<td>2</td>
</tr>
<tr>
<td>Lichfield – University – Redditch</td>
<td>2</td>
</tr>
<tr>
<td>Longbridge – University - Lichfield Trent Valley</td>
<td>2</td>
</tr>
<tr>
<td>Redditch – University - Lichfield City</td>
<td>2</td>
</tr>
<tr>
<td>Birmingham New Street – University – Hereford</td>
<td>1</td>
</tr>
<tr>
<td>Hereford – University – Birmingham New Street</td>
<td>1</td>
</tr>
<tr>
<td>Cardiff Central – University - Nottingham</td>
<td>1</td>
</tr>
<tr>
<td>Nottingham – University – Cardiff Central</td>
<td>1</td>
</tr>
</tbody>
</table>

3.5.7 Table 3.3 indicates that the University station has a good level of service frequency. Of these services, there are six which travel northbound in the direction of Birmingham New Street providing access to the city centre.

3.5.8 The site is considered to provide access to a number of high quality and frequent public transport services, which represent an attractive alternative to travel by private car. In addition to this, there is a good level of cycle routes and pedestrian links surrounding the site which helps to boost the accessibility, particularly for shorter trips.

### 3.6 EXISTING ROAD NETWORK

3.6.1 The local road network is illustrated within the site location plan in Figure 1. As displayed, the site is bounded by the A38 Bristol Road to the south and Edgbaston Park Road to the east. The University campus road South Gate access road surrounds the remainder of the site boundary. Beyond the campus runs Pritchatts road to the north and Vincent Drive to the West.
3.6.2 The University's internal road network is controlled by perimeter barriers such that only permit holders are able to gain access to the site. The South Gate access road is barrier controlled and operates as a one way route, the direction depends on the time of day i.e. northbound in the morning and southbound in the afternoon. Edgbaston Park Road forms part of the public highway outside of the campus area and is not barrier controlled, allowing non-permit holders to access the proposed site.

3.6.3 The South Gate junction with Bristol Road is signal controlled and forms an arm of the A38 / Bournbrook Road junction.

3.6.4 Edgbaston Park Road also forms a signalised junction with the A38 and provides vehicular access to the east of the Campus Area, including the vehicular access to the site.

3.6.5 The A38 which has recently been improved provides a principle route between the M5 and Birmingham City Centre. To the south of the site the A38 operates with two lanes in each direction. The existing traffic flows of the roads surrounding the site are illustrated by Figures 7 and 8 for the AM and PM peak hours, respectively.

3.7 PARKING RESTRICTIONS

3.7.1 The University operates a managed parking enforcement strategy with penalty parking charges imposed on vehicles which contravene the University of Birmingham's Traffic Regulations.

Staff Parking

3.7.2 Car parking for staff is a flat rate pay-as-you-go system costing £1.00 per day in all locations between 9.30am and 4.30pm Monday to Fridays. This includes vehicles which have entered before 09.30 and leave after 16.30, if they are present during the charging period. Charges do not apply between 4.30pm on one day and 9.30am the next day.

3.7.3 Members of staff access parking areas and barrier controlled areas by swiping their University ID cards. Parking is based mainly on a first come, first served basis, although all staff parking on campus should be in possession of a valid parking permit - without a permit the visitor charges will apply.

3.7.4 Some dedicated parking provision is made for disabled users. Disabled staff and students are entitled to free access to the campus.

Student Parking

3.7.5 Students are only permitted to park in the South car park (access via Edgbaston Park Road) and in the Pritchatts Road car park (corner of Pritchatts Road and Vincent Drive). Both of these car parks are pay and display.

3.7.6 Any student wishing to park on one of the University's pay and display car parks is advised to apply for a parking permit to enable them to park for £1 per day and avoid the visitor parking charges. A £1 pay and display ticket can only be displayed if the vehicle is displaying a University parking permit.

3.7.7 After 4.30pm Monday to Friday and at weekends, students who have registered their details with Car Parking Records and hold a parking permit are able to access the main campus car parks using their swipe card. There is no charge made for parking at these times. The only exception to is the Medical School car park and West Extension car park, where no access is permitted to students at any time.
Visitor Parking

3.7.8 Visitors to campus are requested to park in any of the 3 pay & display car parks, those are:

- South car park (access via Edgbaston Park Road);
- North car park (access via Pritchatts Road); and
- Pritchatts Road car park (at the junction with Vincent Drive).

3.7.9 The first three car parks above are on the periphery of the main campus and can be accessed without entering the main campus. The visitor charges are to the following tariffs:

- University Permit Holders £1.00
- Non University Permit Holders:
  - Up to 1 hour £2.00
  - 1 - 3 hours £3.00
  - 3 - 5 hours £4.00
  - 5 - 8 hours £6.00

3.7.10 Visitors who require access to the main campus should contact the department they are visiting to request a parking permit.

3.8 PERSONAL ACCIDENT DATA

3.8.1 Figure 9 illustrates the locations of Personal Injury Accidents (PIA) within the study area for the five year period July 2006 to July 2011. A summary of the PIA information is provided in Table 3.4 below.

3.8.2 This review indicates that there have been a total of one hundred one PIAs over the past five years within the study area. However, of this overall number there have been no fatal PIAs have been recorded during the period analysed and six serious injuries.

3.8.3 The data shows that there are no significant clusters or common causal factors on the links are junctions within the study area, suggesting that there is not a particular safety concern on the surrounding highway network. The PIA information is summarised below.
Table 3.4 Summary of Latest Five Years Personal Injury Accident Data

<table>
<thead>
<tr>
<th>Location</th>
<th>Severity</th>
<th>Casualties Involved</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slight</td>
<td>Serious</td>
<td>Fatal</td>
</tr>
<tr>
<td>Zone 5 - Edgbaston Park Road / Pritchatts Road</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Zone 8 Edgbaston Park Road adjacent to UoB East Gate Entrance</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Zone 9 - Edgbaston Park Road / A38 Bristol Road Signals</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Zone 10 - Bourmbrook Road / A38 Bristol Road Signals</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Zone 5 - Edgbaston Park Road / Pritchatts Road Junction

3.8.4 There have been six personal injury PIAs recorded within the last five years, five were classified as slight and one was classified as serious, summarised below

- The serious PIA involved a pedestrian who failed to judge the speed of the vehicle travelling along Pritchatts Road. The remaining two pedestrian accidents were caused by a driver giving a misleading signal and the second accident was due to the pedestrian stepping into the road without looking.
- The two cyclist PIAs were caused by drivers failure to provide enough room for cyclists.
- The remaining vehicular PIA was caused by failure to look properly.

Zone 8 Edgbaston Park Road adjacent to UoB East Gate Entrance

3.8.5 There have been two PIAs recorded at this location in the five year period surveyed. One of these was classified as serious with the other being slight.

3.8.6 The serious PIA involved a pedestrian failing to use the pedestrian crossing facility correctly. The remaining PIA involved a motorcycle colliding into the rear of a car at the exit of university.

Zone 9 Edgbaston Park Road / A38 Bristol Road Signals

3.8.7 There have been a total of twenty four PIAs recorded at this junction in the five year period surveyed, all were classified as slight.

3.8.8 Three PIAs involved pedestrians and three involved cyclists with the remaining PIAs all involving vehicles.

3.8.9 This junction was signalised in March 2011 as part of the Selly Oak New Road (SONR) and there has only been one recorded accident since the modification. It was classified as slight and involved a rear shunt on a red signal between two vehicles. As the historical accident records do not give an accurate representation of the current situation no further analysis has been undertaken on the previous accidents at this junction.
Zone 10 – Bournbrook Road / A38 Bristol Road Signals

3.8.10 There have been five PIAs recorded at this location in the five year period surveyed. All accidents were classified as light.

3.8.11 One accident involved a cyclist where a vehicle failed to provide adequate space and clipped the cyclist. The remaining four vehicular accidents were caused by failure to look properly and rear end shunts.

3.8.12 This junction has been recently modified as part of the SONR scheme.
4 Development Proposals

4.1 DEVELOPMENT DESCRIPTION

4.1.1 The development proposal is to provide a new multi-use sports facility for the UoB which will deliver a new indoor sports facility, including integrated parking for 271 car spaces, 26 motorcycle bays and 70 secure cycle bays.

4.1.2 The accommodation schedule provided is summarised below (sqm expressed as NIA):

- Entrance areas and reception - 358 sqm;
- Café / Bar – 295 sqm;
- Climbing wall;
- Hall 1 - Sports hall 37m x 36m, sprung floor, 1000 bleacher seating – 2,273 sqm;
- Hall 2 - Hybrid hall 25m x 18m, sprung floor – 472 sqm;
- Dry changing rooms – 592 sqm;
- Squash Courts - 6 squash courts with moveable walls, 40-50 spectator seating per court, plus room for 100 spectators around one court – 569 sqm;
- Gym incorporating 3 areas – 1,333 sqm
  - 110 Cardio vascular station – 550 sqm,
  - Fixed weights – 300 sqm;
  - Free weights – 250 sqm;
- Wellbeing and Sports Performance Centre – 364 sqm;
- Activity space and Dojo – 899 sqm;
- Spinning and ergo room – 157 sqm;
- 51.5 x 17m Swimming Pool, 8 lanes,) including lateral boom and moving floor (25m x 17m) and 180-200 spectator seating;
- Pool changing rooms – 460 sqm;
- Spa area which includes a sauna, steam room and a relaxation area; and
- Meeting rooms, offices and staff room – 188 sqm.

4.1.3 The indoors sports facility is to be a multi storey development. An extract of the lower floor plan may be seen in Figure 2. The layout drawings for the development are contained within Appendix A.

4.2 PEDESTRIAN ACCESS

4.2.1 In order to ensure that the indoors sports facility is conveniently reached on foot from both the Campus and local area; the building has been designed to maximise connectivity with the existing University and external footway network. A new pedestrian route is proposed as part of the application to link the indoor sports facility to the Student Services Hub. Connectivity with the local footway network is illustrated by the diagram contained within Appendix B. The indoor sports facility's main entrance is located to front onto one of the key pedestrian and cycle routes which serves the Campus from the South Gate.
4.2.2 Pedestrian steps are proposed along the western boundary of the car park to strengthen pedestrian access from the central Campus area to the north of the indoor sports facility, providing a direct pedestrian connection between the Inner Ring Road of the campus towards the main entrance.

4.2.3 As illustrated by the connectivity diagram, a pedestrian route will be created along the southern boundary of the site to provide pedestrians a traffic free route to the indoor sports facility to and from the Bristol Road / Edgbaston Park Road junction. In addition, connectivity to the south of the indoor sports facility will be further enhanced by a new stepped access proposed on Bristol Road to the east of the South Gate, which will lead directly to the terrace / café area and main entrance.

4.3 CYCLING ACCESS AND PARKING

4.3.1 Cyclists arriving at the site will be able to park their bicycles within the covered and secure cycle store (70 spaces) that is proposed to be located within the south-western corner of the car park building. Access to the cycle store will be secured with a key pass such as a security pass or code. All cycle stands provided on site will be Sheffield cycle stands.

4.4 VEHICULAR ACCESS

Car Park Access

4.4.1 The indoor sports facility is bounded to the west by the South Gate access road and to the east by Edgbaston Park Road. The South Gate access road is a barrier controlled route which limits vehicle movement along its length, whereas Edgbaston Park Road is a principal vehicular access route to the Campus from Bristol Road (A38).

4.4.2 The indoor sports facility is proposed to accommodate a three level car park to the north of the site, which will serve the indoor sports facility and University campus. As illustrated by the drawings contained within Appendix B, the proposed car park will be accessed via the existing entrance to the surface level car park on Edgbaston Park Road. The vehicular access will lead to the middle floor of the car park which can accommodate an entry and exit barrier. Drawing 1327/SK/10 contained within Appendix C illustrates the swept path movements to and from the car park and general circulation.

4.4.3 Vehicular drop offs will occur from within the car park which would allow pedestrians to reach the main entrance via the car park access lift located to the south-west of the car park.

4.4.4 The sports facility car park will be included in the University managed parking enforcement strategy with penalty parking charges imposed on vehicles which contravene the University of Birmingham’s Traffic Regulations.

Disabled Parking / Drop off

4.4.5 Fourteen accessible car parking spaces are located within the middle level of the multi-storey car park. Spaces are clustered together for ease of identification and located for immediate access to the car park lift, which will lead to the indoor sports facility main entrance via a pedestrian connection which runs to the west of the site.

Minibus / Coaches Access

4.4.6 The indoor sports facility is likely to create some demand for minibuses and coaches for the arrival and departures of sports teams. For home matches, up to 16 coaches of different sizes (16, 24 & 53 seats) could be accessing the UoB site.
4.4.7 Passengers arriving / departing by coach / mini-bus will alight and board from a designated space to the rear of the site. At least one space for a minibus / coach will be available to the north of the drop off zone, and vehicles which cannot be accommodated within the site will be directed to the coach parking facility within campus for longer stay parking.

4.4.8 As discussed further below, the rear area will also be used for servicing of the facility, with this activity being undertaken from the north of the drop-off zone.

4.4.9 A bollard controlled vehicular one-way ramp route is proposed to gain access from Edgbaston Park Road into the drop-off area. The one-way route is designed to minimise the requirement for vehicular reversing movements, with the egress from this area from ramp up which will connect into the car park’s exit onto Edgbaston Park Road. At least one space for minibuses and coaches are likely to be available to the north of the drop off zone, and vehicles will be directed to the coach parking facility within campus for longer stay parking.

4.4.10 The vehicular swept paths of minibuses and coaches entering the site is illustrated by Drawings 1327/SK/08 and 1327/SK/09 contained within Appendix C.

4.5 SERVICING AND REFUSE COLLECTION

4.5.1 Servicing and refuse collection will be undertaken on site in order to ensure that the operation of the site does not impact onto the routes surrounding the site. A servicing area is proposed to the rear of the indoor sports facility which will be accessed via a controlled one-way route accessed and egressed from Edgbaston Park Road. The swept paths of a 10m rigid and 7.5T Box Van vehicle are illustrated by Drawings 1327/SK/08 and 1327/SK/09 contained within Appendix C, demonstrating that the route can accommodate the largest and more typically sized delivery vehicles. Servicing vehicles are likely to unload towards the south of the service area in order to be able to exit the yard in a forward gear.

4.5.2 Refuse will be collected in a similar manner with refuse collection lorries being able to temporarily wait immediately adjacent to the refuse storage area for loading.

4.6 EMERGENCY ACCESS

4.6.1 The emergency access to the site will be undertaken from the service yard at the rear of the site which will be accessed via the Edgbaston Road vehicular access ramps which are 4m in width. The swept path of a fire tender vehicle is illustrated by Drawings 1327/SK/11 contained within Appendix C, demonstrating that the route can accommodate a fire tender vehicle.
5 Trip Attraction

5.1 INTRODUCTION

5.1.1 A first principles approach has been undertaken for forecasting the trip attraction of the indoor sports facility. This is primarily based on the identification of travel behaviour of users of the existing University sport facilities and usage forecasts based on the specific sports facilities proposed.

5.1.2 This first principles approach is considered to provide a robust methodology for trip generation, accurately representing usage rates and site specific travel behaviour compared to using sites from travel databases, such as TRICS.

5.1.3 The UoB facilities are student focussed and the TRICS database can only provide trip rates for either:

- Leisure Centre - Local leisure centre with gym, classes, etc. Usually owned by the local authority; or
- Fitness Club - Private membership-only fitness club.

5.1.4 Leisure centre or fitness club data would not be representative of the proposed university facilities travel patterns.

5.1.5 In terms of trip generation, the proposed development effectively represents an expansion of the existing sports facilities provided on the University Campus. Therefore, the existing University sports centre, the Munrow sports centre, has been identified as providing an analogue for future travel behaviour. The travel behaviour has then been related to the usage patterns developed by the UoB sports department for the proposed site.

5.1.6 This chapter therefore provides details of the first principles approach to the proposed site’s trip attraction. The trip generation aims in particular to identify the net increase in sole purpose trips to and from the centre i.e. those users who otherwise would not have visited the campus without the redevelopment proposals i.e. not already visiting the campus area and / or using the existing sports centre.

5.2 TRIP GENERATION SUMMARY

5.2.1 In summary, the UoB has prepared a business plan for the indoor sports facility centre which contains targets which and is the basis for establishing the trip attraction. This methodology consists of calculating the net difference in usage between the existing Munrow sports centre and the indoor sports facility.

5.2.2 Once the net difference in trip generation has been established the main focus of the methodology is to identify net increase in sole purpose trips, i.e. identifying those trips not already being attracted by the existing Munrow Centre or making a combined journey to the campus for study or work.

5.2.3 The modal share obtained from travel interviews (discussed further below) has then be applied to the sole purpose users to provide the net difference in usage by mode.

5.2.4 In terms of sports facilities usage, there are three different types of weeks: busy weeks, normal weeks and quiet weeks, split as follows:

- 22 ‘busy’ weeks where peak flow figures apply;
- 22 ‘normal’ weeks where lower flows are observed:
6 weeks where exams are taking place therefore no sports hall space, gym & swim at peak levels

16 weeks which corresponds to summer vacation therefore – no University clubs, gym & swim reduces by 10%, fitness classes programmes also run at 60% of average.

8 ‘quiet’ weeks where the lowest flows are observed:

- 7 weeks (vacation) –, swim & gym use down by 60%, no University Sports Clubs, fitness classes programmes runs at 60% of average
- 1 week completely shut between Christmas and New Year.

5.2.5 Over the course of a year, ‘busy’ weeks and ‘normal’ weeks each represent 35% of the time while ‘quiet’ weeks account for 15%.

5.2.6 For the purpose of this study, we have considered the usage figures for an average day during a busy.

5.2.7 In terms of peak times, the network peaks agreed by ARUP with Birmingham City Council for the wider site masterplan will be used for the analysis. They are as follows:

- AM Peak 08:00-09:00; and
- PM Peak 16:00-17:00.

5.3 MODAL SPLIT

5.3.1 As mentioned above, the Munrow sports centre has been identified as providing a good opportunity to understand the likely travel behaviour of the indoor sports facility and therefore a questionnaire survey was commissioned.

5.3.2 In order to conduct a travel survey of the Munrow sports centre on an appropriate day, consultation with the UoB Facilities Operation’s Manager was undertaken. The following criteria were identified for an appropriate survey:

- Early November is one of the busiest times of the year and is one of the 22 ‘busy’ weeks;
- Mondays and Tuesdays are usually the busiest days of the week; and
- User peak times are 7:00-10:00, 12:30-13:30; and 16:00-19:00.

5.3.3 Based on this information, a pedestrian access survey and travel interviews were undertaken at the Munrow sports centre on Tuesday 8th November 2011.

5.3.4 The pedestrian access survey was undertaken between 07:00 and 19:00 to obtain a daily profile for the sports centre for the inbound and outbound pedestrian flows.

5.3.5 The travel interviews were carried out at peak times and those arriving were asked to respond to travel behaviour questionnaire. A total of 536 questionnaires were completed over the course of the survey, which represents over a quarter of the total incoming users which was an excellent response rate.

5.3.6 The questionnaire was designed to identify the following:

- Trip type (sole purpose / combined with work / combined with study);
- User type (university staff / student / community user);
Place of trip origin;
Modal share; and
Duration of stay.

5.3.7 A copy of the survey questionnaire and survey results can be found in Appendix D.

5.3.8 The results of the survey has been analysed to identify trip type and modal share, respectively summarised in Table 5.1 and 5.2.

Table 5.1 Trip type

<table>
<thead>
<tr>
<th>Trip Type</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sole Purpose Trip</td>
<td>26%</td>
</tr>
<tr>
<td>Combined with Work</td>
<td>12%</td>
</tr>
<tr>
<td>Combined with Study</td>
<td>61%</td>
</tr>
<tr>
<td>Combined with Other</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 5.2 Modal Share

<table>
<thead>
<tr>
<th>Main Mode</th>
<th>All Journey Purpose Mode Share %</th>
<th>Sole Journey Purpose Mode Share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver</td>
<td>22.4%</td>
<td>49.6%</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>2.4%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>0.4%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Bus</td>
<td>2.1%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Train</td>
<td>6.5%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>9.9%</td>
<td>7.1%</td>
</tr>
<tr>
<td>On foot</td>
<td>56.3%</td>
<td>24.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
5.4 EXISTING MUNROW SPORTS CENTRE TRIPS

5.4.1 UoB holds usage records and data obtained for the Munrow sports centre represents a ‘busy week’, showing the expected number of users at any given time during the opening hours.

5.4.2 The usage information is split into user groups detailed below:

- Gym + Swim members (membership);
- University Sports Clubs (AU Club);
- Fitness Classes (AL);
- Badminton + squash (Courts); and
- Community Clubs (Com).

5.4.3 Table 5.3 below provides a summary of the existing usage for an average day during a busy week.

Table 5.3 Existing Munrow Average Daily Usage (Busy Week)

<table>
<thead>
<tr>
<th>User Type</th>
<th>Number of Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courts</td>
<td>136</td>
</tr>
<tr>
<td>Swim</td>
<td>279</td>
</tr>
<tr>
<td>Gym</td>
<td>706</td>
</tr>
<tr>
<td>Clubs</td>
<td>428</td>
</tr>
<tr>
<td>ALP</td>
<td>275</td>
</tr>
<tr>
<td>Com</td>
<td>181</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2006</strong></td>
</tr>
</tbody>
</table>

5.4.4 The all journey purpose modal share in Table 5.2 has been applied to the existing Munrow sports centre users’ number at peak times to obtain the Munrow sports centre existing trip generation. The results are detailed in Table 5.4 below.
Table 5.4 Existing trip generation by mode for AM and PM peak

<table>
<thead>
<tr>
<th>Mode</th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
</tr>
<tr>
<td>Car Driver</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bus</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Train</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Bicycle</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>On foot</td>
<td>32</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58</strong></td>
<td><strong>78</strong></td>
</tr>
</tbody>
</table>

5.5 FUTURE TRIPS

5.5.1 UoB has produced a detailed business plan which includes detailed membership numbers as well as daily user profiles for the new sports facilities.

5.5.2 The information provided detailed the current and proposed membership profiles as well as daily usage levels. Table 5.5 illustrates the membership numbers while Table 5.6 summarises the existing and proposed usage levels.

Table 5.5 Membership Numbers

<table>
<thead>
<tr>
<th>Category</th>
<th>Current Membership Numbers</th>
<th>Projected Membership Numbers</th>
<th>Increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community</td>
<td>1022</td>
<td>2044</td>
<td>100%</td>
</tr>
<tr>
<td>Staff</td>
<td>1227</td>
<td>1656</td>
<td>35%</td>
</tr>
<tr>
<td>Student</td>
<td>2966</td>
<td>5932</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>5215</td>
<td>9632</td>
<td>85%</td>
</tr>
</tbody>
</table>

Table 5.6 Sport Centre Usage Levels

<table>
<thead>
<tr>
<th>Category</th>
<th>Weekly</th>
<th>Average Daily</th>
<th>Average Day 07:00 - 19:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Munrow</td>
<td>12327</td>
<td>2006</td>
<td>1528</td>
</tr>
<tr>
<td>Proposed Centre</td>
<td>22450</td>
<td>3671</td>
<td>2879</td>
</tr>
<tr>
<td>Increase</td>
<td>10123</td>
<td>1665</td>
<td>1351</td>
</tr>
<tr>
<td>Increase in %</td>
<td>82%</td>
<td>83%</td>
<td>88%</td>
</tr>
</tbody>
</table>
5.5.3  This information showed 22,450 users through a busy week, a total of 3,671 users on an average weekday from 06:00 to 22:00 and 2,879 users between 07:00 and 19:00.

5.5.4  Based on the expected figures obtained from UoB, it can be seen that the overall sports centre usage will experience an increase in daily trips of 85%.

5.5.5  In order to create an inbound and outbound trip numbers from the UoB arrival profile, the arrival / departure profile from the Munrow pedestrian survey has been applied. This analysis is contained within Appendix D.

5.5.6  Table 5.7 compares the existing Munrow sports centre flows to the indoor sports facility for an average day within a busy week

**Table 5.7 User Number Comparison**

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing User Flows</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrivals</td>
<td>56</td>
<td>167</td>
</tr>
<tr>
<td>Departures</td>
<td>68</td>
<td>102</td>
</tr>
<tr>
<td><strong>Total Trips</strong></td>
<td>125</td>
<td>269</td>
</tr>
<tr>
<td><strong>Proposed User Flows</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrivals</td>
<td>111</td>
<td>369</td>
</tr>
<tr>
<td>Departures</td>
<td>129</td>
<td>192</td>
</tr>
<tr>
<td><strong>Total Trips</strong></td>
<td>240</td>
<td>561</td>
</tr>
<tr>
<td><strong>Net Change</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrivals</td>
<td>55</td>
<td>202</td>
</tr>
<tr>
<td>Departures</td>
<td>61</td>
<td>90</td>
</tr>
<tr>
<td><strong>Total Trip Increase</strong></td>
<td>116</td>
<td>292</td>
</tr>
</tbody>
</table>

5.5.7  The all journey purpose modal share in Table 5.2 has been applied to the indoor sports facility users’ number at peak times to obtain the overall proposed trip generation to the site. The peak time results are detailed in Table 5.8.
Table 5.8 Proposed trip generation by mode for AM and PM peak

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th></th>
<th>PM Peak 16:00-17:00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total Trips</td>
<td>Arrivals</td>
</tr>
<tr>
<td>Car Driver</td>
<td>25</td>
<td>29</td>
<td>54</td>
<td>83</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bus</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Train</td>
<td>7</td>
<td>8</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>Bicycle</td>
<td>11</td>
<td>13</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>On foot</td>
<td>63</td>
<td>73</td>
<td>135</td>
<td>208</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>111</td>
<td>129</td>
<td>240</td>
<td>369</td>
</tr>
</tbody>
</table>

5.6 TRIP FORECAST

5.6.1 Table 5.9 represents the difference between the user trips for the existing Munrow sports centre and the proposed scheme. The increase in trips represents the increase in size and number of users of the proposed centre.

Table 5.9 Additional trip generation by mode (all users)

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th></th>
<th>PM Peak 16:00-17:00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total Trips</td>
<td>Arrivals</td>
</tr>
<tr>
<td>Car Driver</td>
<td>12</td>
<td>14</td>
<td>26</td>
<td>45</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bus</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Train</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Bicycle</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>On foot</td>
<td>31</td>
<td>34</td>
<td>65</td>
<td>114</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>55</td>
<td>61</td>
<td>116</td>
<td>202</td>
</tr>
</tbody>
</table>
5.6.2 The increase in users has been split between users combining their journeys with either work or studies on site and users solely coming to the sports centre. The increase in combined journeys that are already on the network is in effect trips that are not a result of the indoor sports facility itself; therefore the sole purpose trips only will be taken into account for the impact assessment.

5.6.3 The sole purpose trips, as shown in Table 5.1, represent 26% of the overall trips to the sports centre.

5.6.4 The increase in sole purpose trips includes all users (Staff / Students / Community Users). The sole purpose modal share has been applied to the sole purpose trip difference between the existing and the indoor sports facility to obtain the additional trips by mode, as shown in Table 5.9.

<table>
<thead>
<tr>
<th>Table 5.9 Additional sole purpose trip generation by mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Peak 08:00-09:00</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Arrivals</td>
</tr>
<tr>
<td>Car Driver</td>
</tr>
<tr>
<td>Car Passenger</td>
</tr>
<tr>
<td>Motorcycle</td>
</tr>
<tr>
<td>Bus</td>
</tr>
<tr>
<td>Train</td>
</tr>
<tr>
<td>Bicycle</td>
</tr>
<tr>
<td>On foot</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

5.6.5 Table 5.9 indicates that a total of 30 additional trips in the AM peak and 77 additional trips in the PM peak will be created by the proposed development. Out of these additional trips, 15 car trips in the AM Peak and 38 car trips are expected and will be distributed on the local road network.

5.7 TRIP DISTRIBUTION

5.7.1 The travel interviews captured term time / home postcode in order to determine the place of trip origin of the trips attracted by the indoor sports facility. This information has been used as the basis for assigning trips to the transport network highway assignment. Figure 10 illustrates the zones used for the highway assignment.

VEHICLE TRIPS

5.7.2 The assignment of the net additional sole purpose vehicle trips attracted to the site is illustrated by Figures 11 and 12 for the AM and PM peak, respectively.
5.8 CAR PARK USAGE

5.8.1 This sub-section describes the analysis for establishing the daytime parking accumulation which will result from the demands created by both sole purpose indoor sports facility users and combined journey users.

5.8.2 The car park accumulation has been calculated using the car trips from the trip generation forecasts for the indoor sports facility. Table 5.10 provides the daily profile of the inbound and outbound vehicles accessing the new car park.

Table 5.10 Car Parking – Daily Vehicular Profile for all users

<table>
<thead>
<tr>
<th>Car Trips</th>
<th>07:00-08:00</th>
<th>08:00-09:00</th>
<th>09:00-10:00</th>
<th>10:00-11:00</th>
<th>11:00-12:00</th>
<th>12:00-13:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals</td>
<td>41</td>
<td>25</td>
<td>26</td>
<td>44</td>
<td>32</td>
<td>55</td>
</tr>
<tr>
<td>Departures</td>
<td>10</td>
<td>29</td>
<td>33</td>
<td>22</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>Total Trips</td>
<td>51</td>
<td>54</td>
<td>59</td>
<td>67</td>
<td>67</td>
<td>101</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13:00-14:00</th>
<th>14:00-15:00</th>
<th>15:00-16:00</th>
<th>16:00-17:00</th>
<th>17:00-18:00</th>
<th>18:00-19:00</th>
<th>Daily Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>56</td>
<td>40</td>
<td>83</td>
<td>89</td>
<td>94</td>
<td>645</td>
</tr>
<tr>
<td>58</td>
<td>46</td>
<td>42</td>
<td>43</td>
<td>61</td>
<td>89</td>
<td>512</td>
</tr>
<tr>
<td>116</td>
<td>102</td>
<td>82</td>
<td>126</td>
<td>150</td>
<td>182</td>
<td>1157</td>
</tr>
</tbody>
</table>

5.8.3 Based on this daily profile, a parking accumulation has been created and is presented in Table 5.11 as well as illustrated in Graph 5.1. The proposed car park will include 271 spaces and for the purposes of the accumulation, an initial 10 vehicles have been added to cover the staff member accessing the centre prior to opening.
Table 5.11 Proposed Car Park Accumulation

<table>
<thead>
<tr>
<th>Time</th>
<th>All indoor sports facility trips in</th>
<th>All indoor sports facility trips Out</th>
<th>Accumulation</th>
<th>Capacity</th>
<th>Spaces Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-08:00</td>
<td>41</td>
<td>10</td>
<td>41</td>
<td>271</td>
<td>230</td>
</tr>
<tr>
<td>08:00-09:00</td>
<td>25</td>
<td>29</td>
<td>37</td>
<td>271</td>
<td>234</td>
</tr>
<tr>
<td>09:00-10:00</td>
<td>26</td>
<td>33</td>
<td>31</td>
<td>271</td>
<td>240</td>
</tr>
<tr>
<td>10:00-11:00</td>
<td>44</td>
<td>22</td>
<td>53</td>
<td>271</td>
<td>218</td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>32</td>
<td>34</td>
<td>51</td>
<td>271</td>
<td>220</td>
</tr>
<tr>
<td>12:00-13:00</td>
<td>55</td>
<td>45</td>
<td>61</td>
<td>271</td>
<td>210</td>
</tr>
<tr>
<td>13:00-14:00</td>
<td>58</td>
<td>58</td>
<td>60</td>
<td>271</td>
<td>211</td>
</tr>
<tr>
<td>14:00-15:00</td>
<td>56</td>
<td>46</td>
<td>71</td>
<td>271</td>
<td>200</td>
</tr>
<tr>
<td>15:00-16:00</td>
<td>40</td>
<td>42</td>
<td>69</td>
<td>271</td>
<td>202</td>
</tr>
<tr>
<td>16:00-17:00</td>
<td>83</td>
<td>43</td>
<td>108</td>
<td>271</td>
<td>163</td>
</tr>
<tr>
<td>17:00-18:00</td>
<td>89</td>
<td>61</td>
<td>137</td>
<td>271</td>
<td>134</td>
</tr>
<tr>
<td>18:00-19:00</td>
<td>94</td>
<td>89</td>
<td>143</td>
<td>271</td>
<td>128</td>
</tr>
</tbody>
</table>

Graph 5.1 Indoor sports facility Car Park Daily Profile

5.8.4 The indoor sports facility car park will be primarily used by sports facilities users (which include student / staff / community members and operating staff). Once these users have been accommodated, remaining spaces will be available to staff, students and visitors. Table 5.11 indicates that at least 128 spaces will be available for non-sports facility related usage throughout the day.
6 Impact Assessment

6.1 INTRODUCTION

6.1.1 The trip attraction forecasts in Chapter 5 provide detailed trip numbers by mode for the existing (Table 5.4) and indoor sports facility (Table 5.8).

6.1.2 The number of trips attracted to the site is greater in the PM peak than in the AM peak, therefore the impact assessment section of this report will focus on the PM peak.

6.1.3 The impact assessment undertaken includes a full assessment and cumulative assessment for completeness. The full assessment considers all trips to the proposed site and cumulative assessment considers the net increase in users created by the improved sports facilities, i.e. those which will have an actual impact on the transport network.

6.1.4 The journey types discussed below refer to the main mode which is the longest part of the trip to the sports centre. However, as every single user will have to walk through the sports centre main entrance after interchanging from another mode, the pedestrian analysis refers to total trips. Table 6.1 summarises the overall trips to the sports centre (by all modes) during the peak hours.

Table 6.1 Overall trips to the site

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
</tr>
<tr>
<td>Existing</td>
<td>58</td>
<td>78</td>
</tr>
<tr>
<td>Proposed</td>
<td>111</td>
<td>129</td>
</tr>
<tr>
<td>Net Difference</td>
<td>55</td>
<td>61</td>
</tr>
</tbody>
</table>

6.1.5 In terms of two-way trips, the indoor sports facility is expected to create 240 in the AM and 561 trips in the PM peak, which corresponds to a net increase of 116 trips in the AM and 292 trips in the PM.

6.1.6 As discussed in Chapter 5, the overall trips to the site have been disaggregated using the modal share obtained in the surveys and is detailed by journey type in the following sections.

6.2 JOURNEYS ON FOOT/CYCLE

6.2.1 Table 6.2 shows the walking journeys to the sports centre while Table 6.2a includes walking journeys as well as bus and rail trips.
**Table 6.2 Journeys on foot**

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th></th>
<th>PM Peak 16:00-17:00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total Trips</td>
<td>Arrivals</td>
</tr>
<tr>
<td>Existing Foot</td>
<td>32</td>
<td>44</td>
<td>76</td>
<td>94</td>
</tr>
<tr>
<td>Proposed Foot</td>
<td>63</td>
<td>73</td>
<td>135</td>
<td>208</td>
</tr>
<tr>
<td>Net Difference</td>
<td>31</td>
<td>34</td>
<td>65</td>
<td>114</td>
</tr>
</tbody>
</table>

**Table 6.2a Journeys on foot (includes public transport trips)**

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th></th>
<th>PM Peak 16:00-17:00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total Trips</td>
<td>Arrivals</td>
</tr>
<tr>
<td>Existing Foot</td>
<td>37</td>
<td>50</td>
<td>88</td>
<td>109</td>
</tr>
<tr>
<td>Proposed Foot</td>
<td>72</td>
<td>84</td>
<td>156</td>
<td>239</td>
</tr>
<tr>
<td>Net Difference</td>
<td>36</td>
<td>39</td>
<td>75</td>
<td>131</td>
</tr>
</tbody>
</table>

**Gross Impact Assessment**

6.2.2 The indoor sports facility will attract 156 two way trips in the AM peak and 364 trips in the PM peak.

6.2.3 A Fruin analysis has been carried out to determine the level of service for pedestrians accessing the site. The results showed a level of service A for all site accesses, which is excellent.

**Net Impact Assessment**

6.2.4 The actual net impact corresponds to an increase of 75 two way pedestrian journeys in the AM peak and 189 two way trips in the PM peak.

6.2.5 Table 6.3 shows the cycling journeys to the sports centre.
Table 6.3 Journeys by cycle

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th></th>
<th>PM Peak 16:00-17:00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total Trips</td>
<td>Arrivals</td>
</tr>
<tr>
<td>Existing Cycle</td>
<td>6</td>
<td>8</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Proposed Cycle</td>
<td>11</td>
<td>13</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Net Difference</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>20</td>
</tr>
</tbody>
</table>

6.2.1 The indoor sports facility will attract 24 two way trips in the AM peak and 55 trips in the PM peak, which corresponds to a net increase of 11 two way cycling journeys in the AM peak and 29 two way trips in the PM peak.

6.2.2 The net increase of cyclists will not have a significant impact on the newly implemented cycle route along Bristol Road and the existing cycle links across the site.

6.2.3 The indoor sports facility will include bicycle parking which can accommodate up to 70 bicycles, therefore the peak time demand (and also the daily bicycle parking accumulation) can be accommodated by the new facilities.

6.3 JOURNEYS BY BUS/TRAIN

6.3.1 Table 6.4 shows the forecast bus journeys which will be undertaken to access the indoor sports facility.

Table 6.4 Journeys by bus

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th></th>
<th>PM Peak 16:00-17:00</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
<td>Total Trips</td>
<td>Arrivals</td>
</tr>
<tr>
<td>Existing Bus</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Proposed Bus</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Net Difference</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Gross Impact Assessment**

6.3.2 In terms of two-way trips, the indoor sports facility is expected to attract 5 in the AM and 12 trips in the PM peak. (Table 6.4)

6.3.3 Table 3.3 shows that 23 one-way services deserved the UoB site at peak hour, therefore the additional bus users created by the indoor sports facility corresponds to less than 1 additional bus user per service in the AM and PM peaks.

**Net Impact Assessment**

6.3.4 Table 6.4 indicates a net increase of 2 bus trips in the AM and 6 bus trips in the PM.
6.3.5 Table 3.3 shows that 23 one-way services deserved the UoB site at peak hour, therefore the additional bus users created by the indoor sports facility is very minimal, corresponding to less than 1 additional bus user per service in the AM and PM peaks. This negligible increase in train users created by the indoor sports facility will be of no significant consequence to the spare capacity of the existing services.

6.4 JOURNEYS BY TRAIN

6.4.1 Table 6.5 summarises the train journeys which are forecast to be undertaken to access the proposed the sports centre.

*Table 6.5 Journeys by train*

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
</tr>
<tr>
<td>Existing Train</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Proposed Train</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Net Difference</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

*Gross Impact Assessment*

6.4.2 The indoor sports facility will attract 16 two way trips in the AM peak and 37 trips in the PM peak (Table 6.5).

6.4.3 Table 3.4 shows that 12 train services per hour deserve the University railway station at peak hour which means that the indoor sports facility demand will correspond to 1 user per service in the AM and 3 users per service in the PM peak.

*Net Impact Assessment*

6.4.4 Table 6.5 indicates a net increase of 8 two way train journeys in the AM peak and 19 two way trips in the PM peak.

6.4.5 The net difference corresponds to less than 1 additional train user in the AM peak and just over 1 additional train user in the PM peak. This negligible increase in train users created by the indoor sports facility will be of no significant consequence to the spare capacity of the existing services.

6.5 JOURNEYS BY CAR

6.5.1 Table 6.6 summarises the all car journeys and Table 6.6a summarises the sole purpose car journeys which are forecast to be undertaken to access the sports centre.
### Table 6.6 Journeys by car

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
</tr>
<tr>
<td>Existing Car</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Proposed Car</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>Net Difference</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

### Table 6.6a Sole purpose journeys by car

<table>
<thead>
<tr>
<th></th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrivals</td>
<td>Departures</td>
</tr>
<tr>
<td>Existing Car</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Proposed Car</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Net Difference</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

6.5.2 The net additional sole purpose car trips generated have been applied to the local road network using the highway assignment.

6.5.3 The junction impact assessment has been calculated by distributing the net additional sole purpose car trips to the network and calculating the percentage increase and the junction present in the study network. The results are shown in Figures 13 and 14 for the AM and PM peaks and summarised in Table 6.7.

### Table 6.7 Impact of the indoor sports facility on network

<table>
<thead>
<tr>
<th>Junction</th>
<th>AM Peak 08:00-09:00</th>
<th>PM Peak 16:00-17:00</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Gate Road/ Bristol Road</td>
<td>0.2%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Bristol Road / Edgbaston Road</td>
<td>0.4%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Pritchatts Road / Edgbaston Road</td>
<td>0.3%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

6.5.4 The results show a slight increase in traffic (below 1%) for the local study area. The wider impact analysis for the redistribution of trips between the Munrow sports centre and the indoor sports facility has been undertaken by ARUP as part of the UoB masterplan planning application.
6.6 PARKING DEMAND

6.6.1 The parking accumulation previously presented in Table 5.11 shows that the car park can accommodate the overall indoor sports facility demand throughout the day, with a maximum vehicle total of 143 (out of 271 available spaces) between 18:00–19:00, which means that at least 128 spaces will be available for non-sports facility related usage throughout the day.

6.6.2 However, the indoor sports facility will be built on the land that currently accommodates the UoB South car park which formally accommodates 361 vehicles and the Gun Barrels car park which formally accommodates 65 vehicles, which represents a combined capacity of 426 vehicles.

6.6.3 In order to identify car parking displacement created by the replacement of the South car park and Gun Barrels Public House car park by the indoor sports facility, a combined parking accumulation has been created based on surveyed vehicular movements.

6.6.4 Table 6.8 shows the existing combined parking accumulation (also illustrated in Graph 6.1), which includes an initial 25 vehicles parked prior 07:00.

**Table 6.8 Combined South Car Park & Gun Barrels Accumulation**

<table>
<thead>
<tr>
<th>Time</th>
<th>Vehicles In</th>
<th>Vehicles Out</th>
<th>Adjusted Accumulation</th>
<th>Capacity</th>
<th>Spaces Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-08:00</td>
<td>60</td>
<td>7</td>
<td>78</td>
<td>426</td>
<td>348</td>
</tr>
<tr>
<td>08:00-09:00</td>
<td>142</td>
<td>5</td>
<td>215</td>
<td>426</td>
<td>211</td>
</tr>
<tr>
<td>09:00-10:00</td>
<td>227</td>
<td>14</td>
<td>428</td>
<td>426</td>
<td>-2</td>
</tr>
<tr>
<td>10:00-11:00</td>
<td>121</td>
<td>84</td>
<td>431</td>
<td>426</td>
<td>-5</td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>77</td>
<td>78</td>
<td>431</td>
<td>426</td>
<td>-5</td>
</tr>
<tr>
<td>12:00-13:00</td>
<td>71</td>
<td>71</td>
<td>431</td>
<td>426</td>
<td>-5</td>
</tr>
<tr>
<td>13:00-14:00</td>
<td>63</td>
<td>52</td>
<td>431</td>
<td>426</td>
<td>-5</td>
</tr>
<tr>
<td>14:00-15:00</td>
<td>34</td>
<td>64</td>
<td>431</td>
<td>426</td>
<td>-5</td>
</tr>
<tr>
<td>15:00-16:00</td>
<td>47</td>
<td>111</td>
<td>381</td>
<td>426</td>
<td>45</td>
</tr>
<tr>
<td>16:00-17:00</td>
<td>38</td>
<td>203</td>
<td>216</td>
<td>426</td>
<td>210</td>
</tr>
<tr>
<td>17:00-18:00</td>
<td>24</td>
<td>105</td>
<td>135</td>
<td>426</td>
<td>291</td>
</tr>
<tr>
<td>18:00-19:00</td>
<td>15</td>
<td>79</td>
<td>42</td>
<td>426</td>
<td>384</td>
</tr>
</tbody>
</table>
6.6.5 The combined accumulation shows that both South car park and Gun Barrels car park reach capacity between 09:00-10:00 and 14:00-15:00. From observation, it has been established that vehicles above the 361 spaces capacity corresponds to a small amount of double parking (5 vehicles maximum).

6.6.6 The combined parking demand has been compared with the indoor sports facility parking availability to obtain a parking space availability profile throughout the day. Results are included in Table 6.9 and illustrated in Graph 6.2.
Table 6.9 Proposed Parking Availability

<table>
<thead>
<tr>
<th>Time</th>
<th>Proposed Car Park Capacity</th>
<th>Indoor sports facility Accumulation</th>
<th>South Car Park Accumulation</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00-08:00</td>
<td>271</td>
<td>41</td>
<td>78</td>
<td>152</td>
</tr>
<tr>
<td>08:00-09:00</td>
<td>271</td>
<td>37</td>
<td>215</td>
<td>19</td>
</tr>
<tr>
<td>09:00-10:00</td>
<td>271</td>
<td>31</td>
<td>428</td>
<td>-188</td>
</tr>
<tr>
<td>10:00-11:00</td>
<td>271</td>
<td>53</td>
<td>431</td>
<td>-213</td>
</tr>
<tr>
<td>11:00-12:00</td>
<td>271</td>
<td>51</td>
<td>431</td>
<td>-211</td>
</tr>
<tr>
<td>12:00-13:00</td>
<td>271</td>
<td>61</td>
<td>431</td>
<td>-221</td>
</tr>
<tr>
<td>13:00-14:00</td>
<td>271</td>
<td>60</td>
<td>431</td>
<td>-220</td>
</tr>
<tr>
<td>14:00-15:00</td>
<td>271</td>
<td>71</td>
<td>431</td>
<td>-231</td>
</tr>
<tr>
<td>15:00-16:00</td>
<td>271</td>
<td>69</td>
<td>381</td>
<td>-179</td>
</tr>
<tr>
<td>16:00-17:00</td>
<td>271</td>
<td>108</td>
<td>216</td>
<td>-53</td>
</tr>
<tr>
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<td>-1</td>
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<td>271</td>
<td>143</td>
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Graph 6.2 Proposed Parking Availability

6.6.7 Table 6.9 shows that the proposed parking is expected to be full between 09:00-10:00 and 16:00-17:00, therefore current South car park users will divert to the other available car parks associated with the University campus. The availability column of Table 6.9 indicates the quantity of vehicles which will need to be diverted, which peaks at 231 vehicles between 14:00-15:00.
6.6.8 Based on the parking accumulation analysis undertaken it is proposed to designate around 50 parking spaces for indoor sports facility users, with an additional management regime to help safe-guard these particular spaces. Parking accumulation analysis has been undertaken which included demand by all users of the indoor sports facility, whether they are parking to solely use the facility or combining their visit with another campus trip. As Graph 5.1 shows the demand for parking is forecast to be for around 50 to 60 spaces until 1600 hours, following which demand increases significantly. This additional demand will then be accommodated by the spaces that become free after 1600 hours as non-indoor sports facility users leave the car park, see Graph 6.1.

6.6.9 ARUP will review those diverted trips as part of the UoB masterplan application.
7 Travel Plan

7.1 TRAVEL PLAN

7.1.1 The proposed indoor sports facility will benefit from the campus wide Travel Plan which has been reviewed by ARUP in relation to the master plan proposals.
8 Summary / Conclusion

8.1 SUMMARY

8.1.1 WSP have been appointed by Lifschutz Davidson Sandilands Architects to provide transport consultancy advice and supporting planning documentation to support a detailed planning submission for a new sports facility to serve the University of Birmingham (UoB).

8.1.2 The site is located in the south east corner of the main University campus in Edgbaston, between the South Gate campus road to the west and Edgbaston Park Road to the east, with the Bristol Road bounding the site to the south. The site forms the south-western boundary of the campus and is located immediately to the south of the Guild of Students building, to the east of the Campus sports pitches, and within close proximity of the central campus area of Chancellor’s Court.

8.1.3 The site is currently formed of two individual areas currently occupied by the University South car park and Gun Barrels public house, which both have individual vehicular access points directly from Edgbaston Park Road. Both sites presently provide car parking outside of the barrier controlled campus roads.

8.1.4 The development proposal is to provide a new multi-use sports facility for the UoB which will include an associated 271 space car park, 26 motorcycle bays and 70 secure cycle parking spaces. The facility will replace the existing Munrow sports centre indoor facilities which is located towards the northern margin of the Campus.

8.1.5 The site is considered to provide access to a number of high quality and frequent public transport services, which represent an attractive alternative to travel by private car. In addition to this, there are established cycle routes and extensive footway network linking the site with the wider area which helps to maximise the potential for trips to the site to be undertaken by walk and cycle.

8.1.6 The indoor sports facility car park will be managed through the UoB parking enforcement strategy to ensure that the parking is used as intended.

8.1.7 A first principles approach has been undertaken for forecasting the trip attraction of the indoor sports facility. This is primarily based on the identification of travel behaviour of users of the existing University sport facilities and usage forecasts based on the specific sports facilities proposed.

8.1.8 Based on the proposed figures obtained from UoB, the overall indoor sports facility usage will experience an increase in daily trips of 85%, which responds to the larger facilities compared to that of the Munrow Sports Centre. It is recognised however that although trips to and from the indoor sports facility will increase, the majority the trips attracted will be internal to the Campus area and arise from students and staff that will be already on campus.

8.1.9 In order to establish the trip type of the indoor sports facility, users have been split between in combining trips (with either work or study) and users solely travelling to and from the Campus to visit the indoor sports facility. Travel interviews at the existing Munrow sports centre were undertaken to capture travel behaviour and user patterns in order to provide a basis for modal split, distribution and user type.
8.1.10 The full multi-modal impact assessment has been undertaken based on the trip attraction forecasts of the indoor sports facility and includes a full assessment and cumulative assessment for completeness. The full assessment considers all trips to the proposed site and the cumulative assessment considers the net increase in users created by the improved sports facilities, i.e. those who may have an actual impact on the transport network.

8.1.11 The net additional bus users created by the indoor sports facility are minimal and correspond to less than one additional bus user per service in the AM and PM peaks. This negligible increase in bus users created will be of no significant consequence to the spare capacity of the existing services.

8.1.12 In relation to rail users, the net difference corresponds to less than one net additional train user in the AM peak and just over one additional train user in the PM peak. This negligible increase in train users created by indoor sports facility will be of no significant consequence to the spare capacity of the existing services.

8.1.13 The results show a slight increase in traffic (junction increases are forecast to be around1% or below) for the local study area. The wider impact analysis for the redistribution of trips between the Munrow sports centre and the indoor sports facility has been undertaken by ARUP as part of the UoB masterplan planning application.

8.1.14 A car parking accumulation study shows that the car park can accommodate the overall sports centre demand throughout the day, with a maximum vehicle total of 143 (out of 271 available spaces) between 18:00–19:00.

8.1.15 The existing parking demand for both South car park and Gun Barrels Public House car park has been compared with the indoor sports facility parking availability to obtain a parking space availability profile throughout the day. It has been calculated that at least 128 spaces will be available for non-sports related usage throughout the day. Around 50 spaces will be managed such that they are available for sports centre usage.

8.2 CONCLUSION

8.2.1 The proposed indoor sports facility is suitably located to create strong pedestrian and cycle links with the Campus area and external transport network. Access to the bus and rail services are within walking distance, providing realistic alternative modes of travel to the private car.

8.2.2 The majority of the trips to and from the site will be walk, cycle and public transport trips, a significant proportion of which are already travelling to and from the campus. There will be some net additional vehicular trips generated by the proposed facility, however these are minimal and are not expected to significantly impact on the highway network.

8.2.3 The vehicular impact will be minimised by incorporating servicing activity on site, with pedestrian crossings of the servicing yard access prioritised.
Appendices, Figures & Tables
The Spinney River Rea

The Bourn Brook

Chad Brook

Edgbaston Pool

Stonehouse Brook

Worcester and Birmingham Canal

Wood Brook

Selly Oak Park

Valley Parkway

Selly Oak

Harborne

Hockmore

Bournbrook

California

Woodside

Balsall Heath

Warley Woods

Shenley Fields

Bourn Brook

Grendon Valley Parkway

Selly Park

Selly Oak

Cannon Hill

Calthorpe Park

Ten Acres

Lodge Hill

Bournbrook

Griffin Hill

Highbury Park

Cannon Hill Park

Griffin Hill

Harts Green

A38

A435

A441

A4540

A4540

A4040

A38

A4123

A4029

B4217

B4146

B4121

B4124

B4129

B4222

B4284

B4532

B4284
FIGURE 5

UNIVERSITY OF BIRMINGHAM
SPORTS FACILITY
CYCLIST ACCESSIBILITY

KEY

Site
(Cycle Speed: 16km/hr)

- 0-5 Minutes
- 6-10 Minutes
- 11-15 Minutes
- 16-20 Minutes*
- 21-25 Minutes
- 26-30 Minutes

*16 mins (5km) = PPG13 Standard

Isochrones generated using Network Analyst 9.2 ©1999-2011 ESRI Inc. All Rights Reserved

FIGURE No:

TITLE:

UNIVERSITY OF BIRMINGHAM
SPORTS FACILITY
CYCLIST ACCESSIBILITY

FILE:

Drawn By:

Date Modified:

Contains Ordnance Survey data © Crown copyright and database right 2011.
KEY:

- Total Vehicles
- HOVs / Buses

NOTES:
All traffic movements based on surveys undertaken in November 2011 unless.

UNIVERSITY OF BIRMINGHAM
2011 OBSERVED TRAFFIC FLOWS
AM PEAK (07:45-08:45)

FIGURE 7
NOTES:
All traffic movements based on surveys undertaken in November 2011.
FIGURE 1

UNIVERSITY OF BIRMINGHAM
HIGHWAY ASSIGNMENT
ZONES

Key
★ Site

Sports Centre Sole Trip
Car Driver by zone

1
2
3
4
5
The % impact is calculated by comparing the additional trips generated by the proposed sports centre to the 2011 surveyed traffic on the relevant arm.
The % impact is calculated by comparing the additional trips generated by the proposed sports centre to the 2011 surveyed traffic on the relevant arm.
Appendix A  Sports Centre Facility Layout
Appendix B  Pedestrian Connectivity Diagram
1. main entrance
2. external landscaping / amenity
3. café / public terrace
4. view into pool
5. pedestrian link / route
6. arcade access
7. plant enclosure
8. car park
9. service yard
10. visible activity
11. car park entrance
Links and views

There are opportunities to reinforce links and views from the Edgbaston Campus and the surrounding area.

Key views

←→ Opportunity to reinforce links
Appendix D  Survey Questionnaire and Analysis
This interview about daily travel will help us ensuring that we are providing responsible travel options for the proposed new Sports Centre. Thanks for your help!

### Today’s journey...

1. **Time of arrival?**
   
   ________________

2. **What is your term time postcode? (optional)**
   
   ________________

3. **What best describes you?**
   
   - ☐ University Staff  ☐ Student  ☐ Community User  ☐ Other

4. **What membership group are you part of?**
   
   - ☐ Membership (Gym / Swim)  ☐ University Sports Club
   - ☐ Fitness Classes  ☐ Courts (Badminton or Squash)
   - ☐ Community Club  ☐ Not Applicable

5. **Are you solely visiting the Sports Centre today?**
   
   - ☐ Yes  ☐ No

6. **If not, what else are you doing on campus?**
   
   - ☐ Work  ☐ Study  ☐ Sports Centre Use  ☐ Other

7. **What facilities are you going to use at the Sports Centre today?**
   
   - ☐ Gym  ☐ Swimming Pool  ☐ Squash Court
   - ☐ Badminton Court  ☐ Sports Hall  ☐ Dance Studio
   - ☐ Other Indoors  ☐ Athletics Track  ☐ Tennis
   - ☐ Other Outdoors  ☐ Not Applicable (working/visiting)  ☐ Café/Bar

8. **What was your main travel mode? (longest distance)**
   
   - ☐ Car Driver, on your own  ☐ Car passenger  ☐ Car Driver, with another
   - ☐ Motorcycle  ☐ Bus  ☐ Train  ☐ Bicycle  ☐ Foot

9. **What was your final travel mode to reach the Sports Centre?**
   
   - ☐ Car Driver, on your own  ☐ Car passenger  ☐ Car Driver, with another
   - ☐ Motorcycle  ☐ Bus  ☐ Train  ☐ Bicycle  ☐ Foot

10. **If you drove, where did you park your car? (indicate car park name or general area)**

   ________________

11. **What is the expected duration of your visit to the Sports Centre?**

   ________________
University of Birmingham - Munrow Sports Centre - Survey Analysis

Travel Interview questionnaire carried out at peak times
7:00-10:00, 12:30-13:30; 16:00-19:00

Total Questionnaires filled in at peak times 536

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User Type

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<td>7 - Bicycle</td>
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Sole Purpose User Type

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Travel Plan
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1. Introduction

1.1 This is the Sustainable Travel Plan for the University of Birmingham, a key component to support the University's Environmental Policy. The Travel Plan has been developed by the University's Travel Plan Steering Group in order to identify and implement initiatives that will deliver more sustainable ways of conducting the University's transport activities. A well thought out travel plan with a range of measures that encourage sustainable travel options will benefit individuals, the institution and the environment.

1.2 This Travel Plan covers a five-year period from 2010 to 2015 and complements the Estates Development Framework. It is hoped that the Plan will achieve a change in culture at the University to more sustainable travel during this period. The Travel Plan is a living document and as such will continuously develop as necessary to address the changing needs of the University and the environment in which it operates.

1.3 At this stage the Travel Plan focuses on the Edgbaston campus with a view to rolling out some of the measures to other locations where appropriate. Implementation of a Travel Plan will assist the University not only in achieving its sustainability objectives but importantly in gaining planning permission for future development proposals. Without a Travel Plan Birmingham City Council will not permit any major development at the University.

1.4 The Travel Plan will:

- Help to **reduce** congestion, demand for car parking spaces, environmental pollution and visual intrusion caused by parked vehicles. This creates a better local environment for people working and studying at the University or living close by.
- **Increase** travel choice for staff, students and visitors. A wider range of travel options enhances the recruitment and retention of staff and students and contributes to the University's aim of widening access.
- Assist the University in gaining **planning permission** for future development proposals. Without a travel Plan Birmingham City Council will not permit any major development at the University.
- Bring **health benefits** as part of the University's commitment to workplace wellbeing. Car traffic is linked to heart disease, obesity, asthma and other respiratory illnesses.
- **Reduce** corporate transport overheads by minimising business mileage.
- Bring net **savings** on car parking costs allowing the land to be used more productively.
- **Improve** the University's environmental performance and reputation.
2.1 A travel plan is a package of measures developed by an organisation to promote the use of sustainable modes of travel and to reduce the reliance on the private car. It is important to highlight that travel plans are about encouraging people to make informed decisions about the way they travel, to use a mix of different modes of transport to undertake their everyday journeys. A Travel Plan is not about the total abandonment of cars or the sudden shift of large numbers of people from using their cars five days a week to using the bus. For each individual there may be a slightly different modal shift. Some will take the bus, some will car-share, some will cycle and some will walk (as appropriate to personal and business needs and home address). The important objective is to make all of these options available and attractive.

2.2 A travel plan is based on the idea of ‘win-win’ scenarios and the ability of well informed individuals to realise the advantages of changing the way they travel. These advantages could include:

- A wider choice of travel options;
- A healthier lifestyle for those who walk and/or cycle;
- Less time spent in traffic jams and in queues;
- Time savings from not needing to search for a car parking space;
- Financial savings;
- A less problematic journey;
- Environmental gains;
- Improved recruitment and retention; and
- A reduced carbon footprint.

2.3 Any travel plan will contain a number of measures, both to positively influence (‘soft’) and to discriminate against defined travel behaviour (‘hard’). Soft measures may consist of a range of incentives to encourage cycling (bicycle loans, showers and convenient and secure parking), and car sharing incentives (database matching, priority car parking spaces and financial rewards). On the other hand, hard measures may consist of parking restrictions and increased car parking charges. Every site is unique and requires its own mixture of site specific ‘soft’ and ‘hard’ measures.

2.4 The travel issues that are likely to be faced within higher education are very different to those faced by other types of organisation. The travel plan needs to ensure that the current and future needs of both the staff and students are taken into account, despite their differing travel requirements. The development and implementation of a travel plan is now common practice within many Universities. Additionally there is increasing pressure for HE institutions to report and show progress on their carbon footprints including travel impacts.
2.5 In addition to this there are a number of further issues which need to be taken into account within the development of the University Travel Plan, these include:

- The importance of safety and personal security on the journey to the University;
- The need for the University to continue to attract students and staff in an increasingly competitive higher education market place;
- The relationship between the University and its neighbours, in particular local residents; and
- The importance of educating future graduates about the environmental, health and safety and local community implications of their travel choices and influencing the way they travel at an early age.
3. Policy Context

3.1 The current UK Government agenda for providing transport access is moving away from one of providing significant new highway capacity. Instead, policies seek to encourage more sustainable modes of travel than the private car.

National Planning Guidance

Transport White Paper

3.2 In 2004, the Government issued a white paper entitled ‘The Future of Transport: a network for 2030.’ The Paper set out a 30 year vision for transport identifying the need to reduce the need to travel and choose modes of travel that have the least impact on the environment. The Paper put particular emphasis on replacing short local car journeys with walking, cycling and public transport trips in order to tackle local congestion, pollution and road safety issues. The White Paper recognised that workplace travel plans can reduce car driving by between 10% and 30%.

Planning Policy Guidance Note 13: Transport

3.3 In March 2001, a revised version of Planning Policy Guidance Note 13: Transport (PPG13) was published. PPG13 sets out Government policy on transport planning issues and, in particular, sets out guidance on providing realistic alternatives to the private car through the introduction of physical infrastructure or enhanced services to encourage walking, cycling and public transport.

Smarter Choices

3.4 Smarter Choices – Changing the Way we Travel (DIT, 2004) illustrates the effectiveness of ‘soft measures’ through case studies. The case studies highlight interventions such as car sharing, flexible working, marketing and the use of personalised travel planning. The Report identifies that high intensity interventions could result in a nationwide reduction in peak time urban traffic of up to 21% compared to 2003 levels while lower intensity activities could help to achieve a reduction of around 5%.

Regional Planning Guidance

West Midlands Regional Spatial Strategy

3.5 The West Midlands Regional Spatial Strategy (RSS formally RPG 11) was published in 2004. The RSS is a land-use planning document that covers the whole West Midlands region. In terms of sustainable travel the RSS sets out transport policies to provide greater opportunities for walking and cycling, enable access to high quality and affordable public transport and promote travel awareness.
3.6 The RSS states that:

“Changing people’s travel patterns requires a holistic approach. No single measure is capable of effecting major change by itself; a successful behavioural change strategy requires a coherent package of measures. These include:

- Measures to reduce the need to travel;
- Well located facilities;
- Provision of good quality, well designed walking and cycling facilities;
- Promotion of travel awareness initiatives;
- Better public transport;
- Introduction of well-designed park and ride schemes;
- Improved provisions for powered two-wheelers and taxis;
- Better management of public and private car parking; and
- Consideration of appropriate demand management measures.

3.7 In addition the RSS highlights that the availability of car parking has a major influence on the means of transport people choose for their journey.

**West Midlands Local Transport Plan**

3.8 The West Midlands Local Transport Plan (LTP2) 2006-2011 works towards the national objectives to improve road safety, tackle congestion, improve accessibility and improve air quality. The LTP aims to increase walking, cycling and the use of public transport. In addition to this the LTP aims to increase the number of organisations and workplaces committed to travel plans during this period.

**Local Planning Guidance**

3.9 The local planning authority, Birmingham City Council, requires the University to develop a Travel Plan and Car Parking Strategy (CPS) as part of the Estates Development Framework. Adhering to the City Council’s requirement will assist in the achievement of planning permission for all future significant development at the University.
4. The University of Birmingham

University Profile

4.1 The University of Birmingham is the largest of the West Midlands higher education institutions (by number of students) with approximately 33,000 students studying for both undergraduate and postgraduate degrees, and currently has over 4,000 international students from nearly 150 different countries, making it one of the largest international student communities in the UK. When assessed as full-time equivalents, the University has approximately 26,000 students. The University has approximately 6,700 members of staff.

4.2 The University is over 100 years old and owns over 620 acres hectares of land – including properties in Stratford-upon-Avon and the Lake District. The majority of the University is accommodated on two main sites in Birmingham; the Edgbaston Campus is 250 acres in size and within 1 mile of the 80-acre Selly Oak campus. The buildings have a diverse range of ages from Victorian to modern. In total the University owns or controls some 600,000m$^2$ of built space valued in excess of £1 billion. The University has its own railway station, art gallery, geological museum, botanic garden, concert hall, sports centre and one of the largest Students’ Unions in the UK.

Visitors

4.3 The University attracts a large number of visitors to its attractions. In addition to this a vast amount of people visit the University on open days, campus tours and conferences. Amongst these visitors are a number of distinguished individuals such as the Lord Chief Justice who attended the University to present a seminar. The University will encourage as many of these visitors as possible to travel by alternative modes of transport through the Travel Plan measures but there will also be a need to be realistic and understand that not all visitors will use more sustainable modes of travel.

4.4 Transport is a key strength of the University’s research, teaching and knowledge transfer activities. The University wishes to reflect this leadership and expertise in its day to day practices. Some highlights include the following:

- Transport technology has been identified as one of the major research themes in the University’s research strategy.
- The Collaborative Research Network for Transportation brings together work in a number of departments within the Engineering School, and within the Schools of Computer Science; Geography, Earth and Environmental Sciences, the Institute of Local Government Studies and Centre for Urban and Regional Studies.
• Within the Institute for Energy Research and Policy there are numerous projects aimed at achieving sustainable travel systems, including world leading research on hydrogen.
• Two hydrogen microcabs have been converted to act as a postal van and recycling van on campus linking research activities and corporate services.
• Other initiatives include electric vehicles and a hydrogen powered narrow boat.

University Governance and the Travel Plan

University Executive Board
4.5 The University Executive Board will be the governing body that approves all aspects of the Travel Plan. The aim of the Board is to provide strategic management and leadership of the University, under the Council's direction and within the Council's scheme of delegation. The Sustainable Travel Plan Steering Group reports to the University Executive Board.

Sustainability Task Group
4.6 The University of Birmingham has been pro-active in developing its sustainability agenda over the past few years. The Sustainability Task Group is responsible for developing Sustainability Strategy, and it comprises of senior members of the University with key responsibilities. The University produced its first Sustainability Report in December 2009. The Task Group reports to the University Executive Board.

Environmental Advisory Group
4.7 This group is responsible for developing and implementing environmental policy and reports to EHSEC (Environment, Health & Safety Executive Committee). EHSEC reports to Council, the University's supreme governing body.

Environmental Policy
4.8 The University recognises it has a responsibility towards, and should aim to protect and nurture the environment. The University's Environmental Policy Statement sets out aims and objectives for safeguarding the environment.

4.9 The Policy recognises that in pursuing its strategic objectives, not least in relation to research and teaching, it has a responsibility towards, and should aim to protect and nurture the environment. By exercising proper control over all its activities the University will aim to ensure sustainable use of resources and prevent wasteful or damaging practices. The University of Birmingham will aim to manage its operations in ways that are environmentally sustainable, economically feasible and socially responsible.
4.10 The policy sets the following objective for travel and transport:

- To implement sustainable transport practices across all activities with the aim of achieving the University’s carbon reduction targets.

4.11 The University has appointed a Sustainability and Environmental Advisor, whose role is to support the University’s commitment to good environmental practice and sustainability and in particular the implementation of University Environmental Policy. Advice is available to enable staff, students and visitors to play their part in protecting the environment.

Carbon Management Plan

4.12 The University published its first carbon management plan in May 2006, and included calculations for emissions from commuting and business travel. An update was published in 2008, however emissions due to travel were not updated due to lack of robust data.

4.13 The HEFCE consultation on a carbon reduction target and strategy (July 2009/27) proposes that the higher education sector:

‘Commits to reducing scope 1 and 2 emissions) by 80 per cent by 2050 and by at least 34 per cent by 2020, against a 1990 baseline.’

‘Aspires to reduce scope 1 and 2 emissions by 50 per cent by 2020 and by 100 per against 1990 levels.’

‘Commits to reducing scope 3 emissions and to improving measurement of scope 3 emissions with the intention of setting targets for these emissions in the future.’

4.14 Scope 1 emissions are direct emissions that occur from sources owned or controlled by the organisation and include emissions from fleet vehicles.

4.15 Scope 2 accounts for emissions from the generation of purchased electricity consumed by the organisation.

4.16 Scope 3 covers all other indirect emissions which are a consequence of the activities of the organisation, but occur from sources not owned or controlled by the organisation – and includes Land-based business travel, Commuting (both staff and students), Air travel (international students; international student exchange; business)
5. Travel Plan Management

5.1 The Travel Plan needs support to be successful and this means support all the way from senior members of staff to students, to achieve this it is important to have a strong level of governance.

Sustainable Travel Plan Steering Group

5.2 As part of the process to develop the University Sustainable Travel Plan a Steering Group was established. This Group is chaired by the Pro-Vice Chancellor for Research and Knowledge Transfer. The key challenge of the Group is to steer the development and implementation of the Travel Plan and gain full commitment and sign up from users and the local authority. The Sustainable Travel Plan Steering Group reports to the University Executive Board.

5.3 The Sustainable Travel Plan Steering Group members are Director of Estates, Sustainability and Environmental Advisor, Assistant Director of Finance, Director of Wellbeing and the Sustainable Travel Coordinator.

Sustainable Travel Coordinator

5.4 The first task in developing the Travel Plan has been to appoint the University’s Sustainable Travel Coordinator. It will be their responsibility to develop, implement, monitor and maintain the Travel Plan. The Coordinator is the first point of contact for students, staff and visitors to the University.

5.5 The Coordinator’s responsibilities include:

- Implementing the Travel Plan measures;
- Marketing and publicity of measures, maintaining the momentum of the Travel Plan;
- Keeping all public transport records up to date;
- Liaison with public transport operators, local authorities, employees, students and other partners such of University Hospital Trust;
- Facilitating car sharing;
- Conducting, analysing and providing feedback on staff and student travel surveys;
- Monitoring modal shift patterns and therefore the success of the Travel Plan measures; and
- Reviewing effectiveness and researching further measures.
Partnership Working

5.6 Partnerships are an important aspect to the success of a Travel Plan. By establishing partnerships the University can gain support for its work, share information and keep abreast of best practice. As such the Sustainable Travel Coordinator as developed partnerships with the following:

- Birmingham City Council TravelWise Team;
- London Midland;
- National Express;
- Centro;
- The University Hospital NHS Foundation Trust; and
- The Environmental Association of Universities and Colleges (EAUC) to benchmark and determine best practice.

5.7 The University Hospital site adjoins the University’s main campus in Edgbaston. Therefore it has been important to establish partnership working in terms of developing and implementing travel plan measures for the entire site area.

5.8 Birmingham City Council and Centro have Travel Plan Officers who offer free help and advice to organisations developing Travel Plans. The Officers attend University events such as Wellbeing Day and Bike Week to assist in encouraging staff and students to travel by sustainable modes of travel.

5.9 Partnership has been developed with the local Universities: Aston University and Birmingham City University to enable the Universities to share information and best practice.

5.10 The University is also a member of the EAUC. The EAUC has a Transport Group of which the University’s Travel Coordinator has just become responsible for chairing. Best practices, partnerships and exchange of experiences are shared through this Group.

5.11 In terms of internal partnerships at the University the Sustainable Travel Coordinator the following groups to develop and implement the Travel Plan:

- Guild of Students
- Environmental Advisory Group
- Environmental Coordinators
- Campus Security Group
- Telecommunications
- Internal Communications
6. The Current Situation

Overview

6.1 To understand how the staff and students currently travel to the University conducted a survey of staff and student travel patterns in 2008. It is this process that has assisted in the identification of the proposed Travel Plan measures to enable staff and students to make choices about how they travel to and from the University.

6.2 Table 1 below sets out what mode of travel staff and students currently use to travel to the University. It is this data that will inform the Travel Plan’s targets.

Table 1

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>Staff</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>10%</td>
<td>55%</td>
</tr>
<tr>
<td>Cycling</td>
<td>9%</td>
<td>4%</td>
</tr>
<tr>
<td>Train</td>
<td>24%</td>
<td>17%</td>
</tr>
<tr>
<td>Bus</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Car Sharing</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Car Driver</td>
<td>40%</td>
<td>9%</td>
</tr>
</tbody>
</table>

6.3 When this data is compared to that presented in the Department for Transport’s 2008 National Travel Survey it is positive to note that the percentage of car drivers is 29% lower than the national average for commuting by car at 69%.

6.4 At 4% the level of students cycling to the University is higher that the regional levels of cycling to work as set out in the West Midlands Local Transport Plan. Cycling amongst staff is currently four times that of the regional levels at 8%.

6.5 A previous travel survey was undertaken by the University in 1995 prior to the introduction of car parking charges. This survey achieved the following results in terms of staff and student travel patterns:

Table 2

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>Staff</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>10%</td>
<td>53%</td>
</tr>
<tr>
<td>Cycling</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>Train</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>Bus</td>
<td>11%</td>
<td>13%</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Car Sharing</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Car Driver</td>
<td>65%</td>
<td>13%</td>
</tr>
</tbody>
</table>
6.6 It is positive to note that over the 8 year period the number of staff driving to the University has reduced by 25% and students by 4%. It is also positive to see that the number of staff and students travelling by train has tripled since the original survey.

Staff Travel

6.7 The staff travel survey was run online between 5th June and 27th June 2008. The survey received 1546 responses which equates to 25% of all staff.

6.8 Of the 40% of staff travel by single occupancy vehicle 83% specified they have an alternative mode of travel. 30% of the respondents said that they would consider car sharing.

6.9 The survey asked staff what they thought the priorities should be for the University’s transport policy. The most popular responses to this question are set out below in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Priority</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showers and storage facilities for cyclists/walkers</td>
<td>7%</td>
</tr>
<tr>
<td>Easier/cheaper car parking on campus</td>
<td>7%</td>
</tr>
<tr>
<td>Encouraging less people to drive to the university</td>
<td>8%</td>
</tr>
<tr>
<td>More frequent public transport on existing routes</td>
<td>8%</td>
</tr>
<tr>
<td>New public transport routes</td>
<td>11%</td>
</tr>
<tr>
<td>University support for travel costs</td>
<td>11%</td>
</tr>
<tr>
<td>More reliable public transport</td>
<td>17%</td>
</tr>
<tr>
<td>Encourage and support more people working from home</td>
<td>18%</td>
</tr>
</tbody>
</table>

6.19 A number of comments were made in the feedback section of the staff travel survey, these included:

- Would cycle more with improved facilities and infrastructure;
- The access to the canal towpath should be improved, especially by the Station;
- Better public transport discounts;
- Free access to showers at the Munrow Sports Centre for cyclists;
- University hire bikes;
- No student parking;
- Better opportunities to work from home; and
- A better system for charging car parking fees.

6.20 Only 11% of the respondents were aware that the University is developing a Sustainable Travel Plan. This highlights the need for marketing and promotion of the initiatives that currently exist at the University such as the cycle salary sacrifice scheme, the season ticket scheme and the car share scheme.
Student Travel

6.21 The student travel survey was run between 3rd November and 1st December 2008. The survey received 2910 responses which equates to 12% of Full Time Equivalents students.

6.22 The following provides a summary of the key results:

- 9% of students travel by single occupancy;
- 64% of these specified public transport as alternative mode;
- 28% already car share, a further 27% would consider sharing;
- 46% park in the University’s pay and display car parks and a further 19% park within the other University car parks; and
- 35% do not park in University based car parks.

6.23 A number of comments were made by students in the feedback section of the survey, these included:

- Would cycle more with improved facilities and infrastructure;
- Would like a formal car share scheme;
- Bikes would be great. Especially if we can hire them from the University as a lot of students can’t afford to buy good quality bikes;
- More secure areas to lock bikes perhaps code locked doors to a bike shed
- Security should be made a priority;
- Bristol Road should be made safer for cyclists;
- The request for an internal bus service to get around the campus;
- Improved lighting and pathways; and
- Improvements to the University shuttle bus services.

6.24 The survey asked what the priorities should be for the University’s transport policy. The most popular responses to this question are set out below.

<table>
<thead>
<tr>
<th>Table 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement of University bus service</td>
<td>7%</td>
</tr>
<tr>
<td>More reliable public transport</td>
<td>10%</td>
</tr>
<tr>
<td>University support for travel costs</td>
<td>19%</td>
</tr>
<tr>
<td>Easier/cheaper car parking on campus</td>
<td>9%</td>
</tr>
<tr>
<td>Improved cycle routes</td>
<td>7%</td>
</tr>
<tr>
<td>Support for studying at home</td>
<td>7%</td>
</tr>
</tbody>
</table>

6.25 It is promising to note that walking is the predominant mode of travel for students with 55% already walking to University and only 9% travelling by single occupancy vehicle. It is also promising to note that in total 29% travel to the University by public transport.
6.26 At this stage it is useful to compare the results of this question in terms of overall respondents and the group classed as ‘Non Accommodation Students’ i.e. those students who stay living at home while studying and those students residing in University accommodation as naturally mode of travel is heavily influenced by where the students live. Figure 1 sets out the travel patterns of this group.

**Figure 1**

![Non University Accommodation Students, Mode of Travel](image)

6.27 As would be expected there is a higher level of single occupancy car use within the Non University Accommodation group. This group of students will be targeted through the establishment of a focus group to understand the need of those students travelling from further afield by car. However a higher level of public transport use is also demonstrated with a total of 52% using this mode. Train is the predominant mode of transport for Non University Accommodation Students with 32% stating that this is their main mode of travel to the University. This is probably due to the University having its own Station. Walking and travelling by bus to the University is also high and therefore with the right mix of travel plan measures the use of these modes of travel could increase.

6.28 It is important to bear in mind the students who live in Selly Oak although this group of students would be classed as 'Non University Accommodation Students' they live in very close proximity to the University and therefore where this group of student travel by car this needs to be targeted through the Travel Plan measures.

6.29 In terms of the students residing in University accommodation **Figure 2** sets out their travel patterns. Walking is the dominant mode of travel for those students residing in University accommodation. This reflects the use of accommodation which is primarily
very close to the University. This is also reflected by the fact that only 1% have said that they drive to the University, this is pleasing to note.

**Figure 2**

**University Accommodation, Mode of Travel**

![Pie chart showing mode of travel](image)

6.30 It is interesting to note that for each group of students only 4% have responded to say that they cycle to the University. However a number of the comments made in the feedback section of the survey related to cycling, these included:

- Would cycle more with improved facilities and infrastructure
- Lack of covered secure bike racks
- Easy access to showers and lockers
- Bikes would be great. Especially if we can hire them from the University as a lot of students cant afford to buy good quality bikes
- More secure areas to lock bikes perhaps code locked doors to a bike shed
- Security should be made a priority
- Bristol Road should be made safer for cyclists

6.31 The level of cycling to the University by students is higher that the regional levels of as set out in the West Midlands Local Transport Plan 2006-2011 as 1-2%.

6.32 There is a high level of bicycles around campus which potentially indicates that the bicycles are brought onto campus to provide a mode of transport to get across the campus but are not used to travel away from the site for commuting purposes.

6.33 The full survey results are included as Appendix One of the Travel Plan.
7. Objectives, Targets & Monitoring

7.1 A Travel Plan should be viewed as a living document and a dynamic process with a continuous cycle of action-monitoring-review. To help give the Travel Plan a direction objectives and targets need to be established. Objectives set out the overall aims of the Travel Plan at a broad level, whilst targets set measurable goals, which help to assess whether or not the objectives have been achieved.

Objectives

7.2 The main objectives of the University’s Travel Plan are:

- to reduce unnecessary vehicle usage by staff, students and visitors;
- to promote the use of more sustainable methods of transport by staff, students and visitors;
- to reduce the proportion of staff, students and visitors parking at the University;
- to contribute to the promotion of personal health and wellbeing;
- to encourage the use of more sustainable modes of transport for work-related journeys; and
- to reduce the environmental impact of traffic associated with the University.

Targets

7.3 In terms of setting targets for a travel plan best practice would normally be to establish a baseline starting point through travel survey results. However the staff and student travel surveys that were undertaken in 2008 generated a low response rate with only 24% staff and 12% of students responding. It is crucial to have a robust baseline and therefore the survey data have been supplemented by data on the average number of cars parking at the Edgbaston campus in 2008. These figures take into account pay and display car parking and swipe access. It is these figures that the Travel Plan will be monitored against and further travel surveys will also be undertaken and will assist in monitoring behavioural patterns.

7.4 From a 2009_2010 baseline by 2011_12 the Travel Plan aims to achieve a 5% reduction in the proportion of staff and student single occupancy journeys to, between and from all University sites by:

- Increasing the proportion of staff and students walking and/or cycling to the University;
- Increasing the proportion of staff and students using public transport to access the University;
- Increase the proportion of staff car sharing to the University; and
- Managing the demand for car parking at the University.
7.5 In addition to this the Travel Plan’s longer term targets will include:

- Assessing all business travel by mileage;
- Reducing the proportion of work-related travel claims that are associated with car and air journeys; and
- Setting targets based on the University’s carbon footprint to establish a target which is based on reduction in CO$_2$ emissions rather than car trips.

**Monitoring and Review Mechanisms**

7.6 There is a need to establish mechanisms for regular monitoring and review of the Travel Plan to measure its success against the targets set. The monitoring measures outlined below will incorporate both the collection of ‘hard’ analytical data and ‘soft’ data in the form of general feedback and correspondence:

- Undertake annual travel surveys to monitor changes in travel patterns compared to previous surveys;
- Monitor, jointly with the Security Team, the cars parked on campus;
- Monitor the registration to the car sharing scheme;
- Monitor the uptake of the discounted public transport season tickets;
- Monitoring the uptake of the CycleScheme;
- Monitor the level of usage of the cycle parking facilities to establish demand;
- Monitor feedback from the bus operators to establish the level of demand for the subsidised bus services; and
- Record comments received from staff, students and visitors relating to the operation and implications of the Travel Plan.

7.7 The progress towards these targets will be reviewed year on year and at the end of 2011/12 revised targets will be set where necessary. The next staff and student surveys will synchronize with the main Staff Survey in March 2011, and the annual student satisfaction surveys.

7.8 The Birmingham City Council TravelWise Team can support the monitoring of the Plan as they provide a free support service for undertaking and analysing travel survey.
8. Travel Plan Measures

8.1 This Chapter of the Travel Plan identifies the sustainable travel initiatives that already exist at the University and explores the potential measures which could be implemented, or at least considered, by the University of Birmingham to deliver the aims and objectives of the Plan.

Marketing and Communication

Target: “To promote the Travel Plan measures.”

8.2 A vital component of the Travel Plan is to make those it affects aware of its existence and their role in helping to achieve its objectives. It is therefore extremely important for the Travel Plan to be effectively marketed and promoted to staff, students, visitors and local community to foster their support in it.

8.3 The University already provides a number of ‘sustainable travel’ benefits to its members of staff such as loans for season tickets and salary sacrifice for the purchase of bicycles. The promotion of the Travel Plan will be one of the key actions as there are numerous facilities and initiatives such as these, already in place at the University that a number of staff and students are not aware of. The implementation of travel plan measures involves change and it is important that staff and students understand the ethos of the Plan. A marketing campaign will therefore be undertaken to and explain its purpose and increase awareness of the Travel Plan amongst staff and students and try and achieve their buy-in.

8.4 In terms of the actual Travel Plan document this detailed version will be utilised by the University internally. A glossy document summarising the Plan will be published for wider circulation and made available on the University’s website.

Internal Communication

8.5 It is essential that staff and students are aware of the Travel Plan and that they support its objectives. Raising awareness of the plan will be particularly challenging amongst students who are a transient population and will therefore need to be continually reminded about the plan. The following measures will assist in the internal communication of the Plan.

Advertising

• Travel website
• Facebook, Twitter to appeal to student body
• Intranet – my.bham
• Buzz Staff Magazine – including ‘good news’ stories
- Staff Newsletter
- RedBrick student paper
- Messages on electronic signposts around campus
- Messages on staff payslips
- Sustainable Travel Coordinator’s email footer
- First Hand (community publication)

**Banner stands**
- Aston Webb building
- The Guild
- University Centre
- Central library
- Muirhead Tower
- Munrow Sports Centre
- The Vale
- Mason Hall

**Leaflets**
- Avanti
- Cafe Go
- Starbucks
- The Hub
- Munrow Bar
- Bratby Bar
- Starbucks

**Editorial**
- Mybham feature
- Email to all staff

**Car Parks**
- Highlight car share scheme though poster campaigns or putting leaflets on cars

**Awards and accreditation**
- Green Gown awards
- ACT Travelwise awards

**Branding**

8.6 Effective communication of the travel plan has been identified as a key issue. The Steering Group has developed a brand identity for the Travel Plan on which to base its marketing strategy. The ‘smartmover’ brand has been developed in collaboration
with the University communication and legal teams and with reference to brands being used by other authorities. The branding will include consistent logos, colour schemes etc to enable staff and students to recognise and relate to Travel Plan related information and events. This will enable all travel and transport related activities that come under the Travel Plan’s umbrella to be immediately identified. It also puts across a clear message that the Plan is becoming part of the University’s ethos and is not a passing phase.

Travel Website

8.7 A ‘Sustainable Travel’ website has been set up on the University’s main website at www.bham.ac.uk/travel. This website provides information on the Travel Plan, current facilities and the initiatives being put in place to encourage University users to change their travel behaviour.

8.8 This website is designed to make users aware of the travel options that are available to them, and to help them plan their own personal journey to the University. The website will be intended to act as an information point targeted at all users: staff, students and visitors to the University.

8.9 The website includes the following features:
  
  o Travel News and Events
  o Travel Surveys
  o Walking information
  o Cycling information
  o Public transport information
  o Sustainable car travel
    ▪ Car Sharing
    ▪ Alternative Fuels
Intranet

8.10 My.bham is the University’s staff intranet site and includes information on getting to the University by train, bus and cycling. This includes a link to the live departures at University Station which enables staff to check on the status of their train before leaving their desk.

Travel Guide

8.11 A ‘Sustainable Travel Guide’ has been developed with the support of Centro to promote the Travel Plan. The Guide takes the form of a leaflet/booklet guide which sets out everything to do with travel and the University. The Guide provides information about the travel options available and to encourage the use of alternative modes. The Guide promotes the availability of public transport and highlights the pedestrian and cyclist facilities to staff, students and visitors. This will be developed alongside a cycling and walking map and a public transport map. It was intended that the Guide will be made available to all new members of staff through the induction process, available at numerous points around campus to staff and students and also available electronically on the travel website.

Induction Process

8.12 Sustainable Travel will be incorporated into the University’s induction process. The University runs a central induction programme. This is essentially a general induction session to the University as a whole. The programme includes getting representatives from departments such as Human Resources along to talk to the new members of staff, and also give them a pack of information on their department. The Sustainable Travel Coordinator and the University’s Sustainability and Environmental Advisor will attend these sessions and discuss the Travel Plan and all of the University’s environmental projects.

Wellbeing Day

8.13 The University’s Wellbeing Day is an annual event and is usually attracts approximately 15,000 members of staff. There is a marquee of stands on the day, one of which will be to publicise sustainable travel and the University’s development of a travel plan, focusing on the benefits that it can deliver in health and welfare terms. This event gives the chance to let staff members know about the measures that currently exist and those that will be available to them through the implementation of the Travel Plan. This will also act as a good opportunity to consult with them.

8.14 The Sustainable Travel Coordinator and the University’s Sustainability and Environmental Advisor attended the 2009 Wellbeing Day and they were accompanied by representatives from Birmingham City Council, Centro and National Express.
Welcome Week
8.15 The Sustainable Travel Coordinator will attend Welcome Week for new students on an annual basis specifically the ‘Staying Local’ event to advise students who are staying at home while studying on what public transport links are available.

8.16 As part of the ‘Staying Local’ event in 2008 the University asked students to plot where they live on a map to enable the team to put new students in touch with other students living locally so they can potentially share their journey.

Student Information
8.17 The information that is sent out to new students will be updated to include details of the sustainable options that are available to them to access the University. This information will include details of the facilities on campus such as cycle parking and free bus travel. The 2010/2011 University Prospectus for new students will also be revised to include details of the Travel Plan and available travel options.

8.18 The Sustainable Travel Coordinator will work with Student Life to make amendments for future years.

Corporate TravelWise Membership
8.19 The University of Birmingham is a Member of ACT TravelWise, the UK’s premier network for all organisations working to promote sustainable travel.

8.20 The main benefit of membership is to network with travel planners and people involved in sustainable transport around the country, to share each others experience, documents, and ideas.

Focus Groups
8.21 A number of focus groups will be established to enable particular needs to be addressed. The following groups have been initially identified:

Staff Groups
Academic staff representation
Long distance commuters
Support Staff
Bicycle Users Group
Disability Action Group
Unions

Student groups
Guild of Students
Student Village representation
Selly Oak and ‘staying local’ students
Reducing the Need to Travel

8.22 The University uses video conferencing technologies to reduce the need to travel in particular for business travel. Video conferencing allows individuals and groups of people to meet and work together without having to be in the same room. A video link with simultaneous audio link allows people to see as well as hear one another, wherever in the world they are. The software also gives users the ability to exchange, transfer and work collaboratively on the same documents and other applications. People can work on files and give presentations using powerpoint without regard to the distance between them. Video conferencing meetings tend to be structured more carefully with faster decision making, as people focus their minds more sharply on the matter in hand.

8.23 The hardware required for video conferencing is relatively simple, one camera and one microphone at each geographical location making video conferencing from the desktop a usual and easily available day-to-day business tool. The University has trialled the Office Communicator software and this will be in production in the near future. The software will be available, in time, to all members of staff with access to a pc or laptop. Amongst other applications this software allows live meetings to be held, this could be a meeting between two people in different locations or even with five or six people at each end of the meeting. The software enables as many locations as necessary to attend the meeting. Some additional hardware will be necessary to have the richest experience.

8.24 The University’s Centre for Learning Innovation Collaboration (CLIC) has an advanced video conference studio with the flexibility to meet the majority of the University’s needs. The studio has the facilities to enable to following activities:

- Lecture to one or many sites with live Q&A interaction;
- Webcast to many users with PC or MAC compatible technology;
- Hold a student PHD viva with internal and external examiners; and
- Hold audio conferencing with multiple callers.

8.25 The University’s Flexible Working policy permits home working where appropriate. Working from home is enabled by the University providing remote access to its systems via Citrix. Citrix is used for accessing software remotely. It can be used both on and off campus. Citrix is used to access software that would otherwise be unavailable either on or off campus.
Walking Measures

Target: “To increase the proportion of staff and students walking to the University.”

8.26 The University encourages walking to the University and benefits from good pedestrian linkages with the surrounding area.

Improved Routes & Linkages

8.27 Clear routes for pedestrians and cyclists are important to allow people to find their way around the large campus easily and safely. They are also crucial to create a sense of connection between disparate areas of the campus. The main existing east to west route from the East Gate to West Gate is strong and needs only enhancement, but the important north-south routes, which link the main student village to the centre of the campus, are poorly defined and are interrupted by various barriers: the significant changes in level; the impermeability of the Aston Webb Building; Pritchatts Road and, in the future, the Selly Oak New Road. It is especially difficult to form good routes for disabled people and cyclists across these barriers. Significant improvements are planned by bringing clarity to the main structures of the routes and public square across campus.

8.28 The canal towpath is a very under-utilised asset and the development of the campus will consider plans to make better use of it in particular as a route for pedestrians and cyclists. One of the most popular areas of concern raised by staff and students is the access to the University from the canal network and in particular by University Station. The steps are not user friendly and prevent a number of cycle enthusiasts from using the canal network to cycle to the University. University Hospital Birmingham is obliged as part of their Section 106 Agreement to consider improvements to the access from the canal towpath.

8.29 As part of the new hospital development a dedicated east to west cycle and pedestrian link will be developed by downgrading Vincent Drive from a vehicular route from University Station to Roman Way. The entry points at each end will be adapted to restrict their use to foot/cycle traffic only. In addition to this a new dedicated north to south cycle and pedestrian link will be developed linking the Hospital Link Road to Metchley Park Road adjacent to the Post Graduate Medical Centre. The majority of this route will be off road. Metchley Park Road, which is currently open to all traffic, will be limited to enhance the environment for pedestrians and cyclists.
Walking Map
8.30 A walking map will be produced to highlight specific walking routes around campus to the train station and the local bus stops. The maps would highlight distances to certain points around the campus and also links to the Selly Oak campus.

Walkshare Scheme
8.31 An online Walkshare Scheme will be established by the University to encourage staff to leave the car at home and share walking, all or at least some of the way with co-workers. The key reasoning behind this measure would be to combat concerns about safety and promote the use of the canal network, with particular emphasis on female staff.

Walk to Work Events
8.32 The University will participate in Walk to Work Week, April 2010 by holding a Walking Roadshow. The Roadshow will launch the University’s online Walkshare scheme where staff can search for a walking buddy to share their journey to and from the University. A ‘Walking Doctor’ and West Midlands Police will also be at the Roadshow providing advice on safety, routes etc.

Walking Mileage
8.33 The implications of introducing a walking business mileage or ‘shoe allowance’ scheme will be explored. Offering an allowance for pedestrian mileage would compensate staff for additional wear and tear on their shoes and would also present a very strong endorsement to active travel from the University. Unfortunately the current stance on this from HM Revenue and Customs is that a walking allowance would not be subject to the same tax-free benefits as bicycle, car or motorbike allowances.

8.34 The University will also explore the potential for setting up initiatives such as the promotion of walking meetings.

Cycling Measures
Target: “To increase the proportion of staff and students cycling to the University.”
8.35 The University encourages cycling to the University and benefits from good cycle links with the surrounding area including routes to the City Centre and Selly Oak on the canal network.

Cycle Parking Facilities
8.36 Cycle parking facilities are distributed at locations across the campus and current provision is approximately 1,030 spaces including those at the student villages. There is a project for the provision of new facilities now underway and Phase One is complete. A cycle parking review was undertaken which identified areas which are a
priority for new cycle parking either because there is a demand and none currently exist or because existing facilities are no longer fit for purpose.

8.37 In July 2009 Phase One of the project provided new facilities in the following locations:

- Munrow Sports Centre (40 cycle space compound, see photo)
- Muirhead Tower
- Elms Road Computer Centre
- Shackleton student accommodation

Phase Two of the project is currently underway and will provide new parking facilities for the Medical School complex, Watson Building, Park House and Muirhead Tower.

8.38 The Sustainable Travel Coordinator is working with the Estates Department to ensure that cycle parking is installed as part of any new development across campus.

Shower and Changing Facilities

8.39 A number of buildings on campus have shower and changing facilities for staff and students who have walked or cycled to work. The Travel Plan measures include improving the shower and changing facilities provision and projects are currently under-going to increase provision in buildings such as the Aston Webb Building.

8.40 The Munrow Sports Centre has recently removed its monthly charge to use its shower and changing facilities. The Centre opened up its facilities to all staff in July and this was coupled with the installation of a 40 cycle space capacity compound at the front of the Centre.

8.41 The Sustainable Travel Coordinator is working with the Estates Department to ensure that shower facilities are installed as part of any new building development across campus. New showers facilities will be incorporated into toilet refurbishments where possible.

Birmingham University Bicycle Users Group

BUBUG is Birmingham University Bicycle User Group.

8.42 BUBUG was formed in 1992 when a group of University cyclists started asking the University about cycle provision on campus. Since that date the group has worked constructively with a number of staff in the Estates Office and Hospitality and Accommodation Services to promote cycling at the University.
Since its formation the group has been involved in activities including:

- Surveying cycle parking on campus and suggesting locations for additional parking.
- Promoting road safety by making cycle lights and high visibility garments available for sale on campus.
- Promoting cycle security by working with University Security staff and the West Midlands Police.
- Supporting the cycle road shows held in the Autumn term to provide advice especially to new staff and students on cycle use on campus.
- Celebrating Bike to Work week with a range of activities.
- Leafleting cycles round campus to alert cyclists to forthcoming events or to warn of the vulnerability of their cycle security equipment.
- Contributing to discussions about possible improvements at the University Station canal access point.

BUBUG and West Midlands Police sell subsidised safety and security equipment, such as D-locks and high visibility waistcoats or long-sleeved jackets, every Wednesday lunchtime from the Police Room in University Centre. Staff and students are also encouraged to take their bike in to the Police Room to be security coded.

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Cycling Map

A cycling map will be produced to highlight the location of all cycle parking around the University. The map will specify whether or not the parking is covered. The map will also highlight which University buildings have shower facilities. In addition to this the cycle routes around campus will be indicated.

Bike to Work Events

The University holds an annual event during Bike Week to promote cycling to staff and students. This event includes activities such as a Dr Bike undertaking free maintenance, cycle training, West Midlands Police tagging bikes and support and advice from Birmingham City Council’s Sustainable Travel Team. The cycle maintenance and training is free to staff and students as funded by the University.

In addition to this the University holds five cycle roadshows during the Autumn and Winter term to provide advice especially to new students on cycle use at the campus. During October, November and February the Company of Cyclists, Red Kite Cycles West Midlands Police, WorkBikePlay, Cycle Solutions, BUBUG and the Sustainable Travel Coordinator combine forces to provide cycle maintenance and cycling training,
the sale of second hand bikes and advice on road safety, cycle security and the joy and variety of cycling.

**CycleScheme**

8.49 The University operates the cycle salary sacrifice scheme, Cyclescheme which is the UK's number one provider of tax-free bikes for the Government's Cycle to Work initiative. University employees can save up to 36% on the cost of a bike and safety equipment through the partnership between the University and CycleScheme. So far nearly 200 staff have bought bikes through the scheme in the two years it has been running.

**Cycle Hire Scheme Proposal**

8.50 The University is currently working with Birmingham City Council and Centro to explore the potential to set up a cycle hire scheme at the University. Centro are funding a feasibility study looking at the potential to have a cycle hire scheme at the University.

**Working with Munrow Sports Centre**

8.51 The University will explore the potential to work with the Munrow Sports Centre to get cycle training and basic cycle maintenance classes on the active lifestyle programme.

**Public Transport Measures**

*Target: “To increase the proportion of staff and students travelling to the University by bus and train.”*

8.52 The University benefits from excellent public transport links with its own railway station and the existing bus service provision to the University is good with approximately 10 frequent services directly serving the campus.

**University Station**

8.53 The University of Birmingham is the only UK University to have its own railway station on campus, known as ‘University Station’. This is the second busiest station on the Cross-City line after Birmingham New Street, with over 2 million passengers using the station every year. Having its own train station on campus, makes travel to the University by train a convenient option particularly for those who live in areas served by the Cross City Line which runs from Lichfield to Redditch and for others who use services to Bromsgrove and Worcester. Regular services run from University Station to Birmingham New Street where staff students and visitors can catch trains to locations all across the country. The journey between the University and Birmingham New Street takes approximately 8 minutes.
8.54 The Station is a real asset for the University and its role in the Travel Plan to increase staff, students and visitors to travel by train to the University is vital. There are a number of external activities on the horizon which will enhance the Station:

1) The new hospital development presents the opportunity for improvements to this area at the interface of the hospital and university estates. As part of the hospital development a high quality public transport interchange will be provided adjacent to the University Station. The interchange will have showcase bus stops with real time traffic information. In addition to this bus only gates will be provided at Metchley Park Road north of Hospital Drive, and off Metchley Lane to assist easy bus access to the site. This will improve the environment of this area for those travelling by bus and will hopefully attract more University staff and students to travel by bus.

2) University Station is the arrival point for large numbers of people coming to the University and would benefit from refurbishment. London Midland have planned improvements such as the lightening up the footbridge and concourse area, widening the platforms and extending the platform canopies.

3) In addition to this Centro and London Midland are working towards the introduction of public transport smart cards and tickets on demand where users could pre book tickets online or over the telephone and use their credit cards at the ticket vending machine at the Station to collect.

4) London Midland are due to start publishing information highlighting which trains are busiest to help commuters make informed choices for which train to catch.

8.55 It is hoped that all of these external activities will make travelling by train more attractive to staff, students and visitors.

8.56 The University is also exploring the potential to improve cycling parking facilities at the Station. Cyclists currently lock their bikes to the railings outside the Station entrance even though parking facilities are located only metres away. The Sustainable Travel Coordinator is working with the University Estates Team and London Midland to understand the best long term location for such facilities when taking into account longer term plans for the area of campus.

8.57 The University will explore the potential to have a ticket vending machine on campus so staff and students do not have to buy tickets at the Station which can often be extremely busy. This would hopefully attract more members of staff and students to travel by train as they can avoid the queues.
Free Bus Travel

8.58 Staff and students benefit from free bus travel between the Edgbaston campus and the Selly Oak campus. The new Selly Shuttle bus service provides a link between the Barber Institute to the Selly Oak Campus, with one stop at the Munrow Sports Centre and is a free service on production of student or staff ID cards.

8.59 In addition to this service the University provides students with free travel on internal shuttle buses which route between the Edgbaston campus and the student villages. These bus services are provided by Central Connect and funded by the University.

Season Ticket Loans

8.60 The University offers interest free season ticket loans through its Corporate TravelWise membership to benefit those members of staff who use public transport to travel to work. The University purchases a West Midlands Travel or Centro annual season ticket on the member of staff’s behalf, and then recovers the cost through salary deductions in over ten months.

8.61 If a member of staff pays for car parking on campus and then wants to start using public transport as an alternative to get to work, the University will give a 50% discount on the cost of your their first annual season ticket.

Real Time Information

8.62 The University has a plasma screen in its main Centre to provide real time bus information to staff and students. In addition to this the Travel Plan will promote tools such as the National Rail Enquiries live departure board which is currently being developed and will give a far more detailed overview of train services than the current website provides. The University will consider providing an additional plasma screen to advertise this real time train information.

Motorcycling Measures

Target: “To increase the proportion of staff motorcycling to the University.”

8.63 The University will consider increasing the provision of motorcycle parking spaces. There are a few areas around campus where motorcyclists tend to park however more formal areas of parking may be provided.

Car Sharing

Target: “To increase the proportion of staff and students sharing their journey to the University.”

8.64 The University of Birmingham is affiliated with Birmingham City Council and its Car Share Birmingham scheme, the website is at www.carsharebirmingham.org.uk The Car Share Scheme enables members of staff to search for journey matches within a
database. Once an individual has identified another member of staff who makes approximately the same journey, the database allows the two to contact each other to arrange to share their journeys.

8.65 However the University currently has a very low number of staff registered with the Scheme, approximately 15. Therefore Travel Plan measures need to increase the level of registered members. The annual travel survey has highlighted that a number of people already share their journeys to the University and therefore these journeys need to be finalised. In addition to this a number of staff replied to the survey to say that they would be interested in car sharing. This group of staff members will be contacted regarding joining the Scheme.

8.66 In addition to this the following measures to increase the number of car sharers will be considered:

- Setting up a new car share scheme unique to the University;
- Developing a branded car share page as part of the carshare Birmingham scheme;
- Investigate the feasibility of providing discounted car parking to car sharers; and
- Hold a ‘matchmaker’ event where people can meet potential car share partners in a safe and organised environment before making the decision to car share.

8.67 The feasibility of providing priority parking spaces closest to building entrances for car sharers has been investigated but discounted. This measure would not be feasible due to the nature of the University campus, it would be impossible to provide priority spaces that would give all users a convenient car parking space due to the layout of the campus buildings in relation to car parks.

**Business Travel**

**Fleet Vehicles**

8.68 The University has 116 University lease vehicles in its fleet which are used to undertake University business. The range of vehicles is extremely diverse and includes 7.5 tonne lorries; a JCB; 4x4 vehicles, Ford Focus’ and Toyota Prius’.

8.69 The Sustainable Travel Coordinator is working with the Transport, Post and Portering Manager to explore the potential of transferring the fleet of vehicles to fuel efficient cars through a Vehicle Selection Strategy.

8.70 The University has applied to the Energy Saving Trust for a review of its fleet vehicles. The University will be the first University to benefit from this initiative. The Energy Saving Trust will measure the University’s carbon footprint in transport terms (Scope 1 emissions) and make recommendations for areas where savings can be made. The University in partnership with the Trust will undertake annual monitoring
and be eligible for a gold, silver or bronze award depending on its annual savings. This will link into the Vehicle Selection Strategy.

**Hire Cars**

8.71 The University currently hires 3,500 cars every year for staff members to utilise for business travel. The cars are hired from Enterprise Rent-a-Car. Enterprise offer a scheme to aid the reduction in emissions generated by the delivery and collection of the hire cars and in addition to this have schemes to offset its carbon emissions. When a member of staff applies to the Transport Team to hire a car they will be encouraged to use alternative modes of travel where possible.

**Grey Fleet**

8.72 Where it is not appropriate to hire a car staff members use their own vehicles for business purposes and claim their mileage on expenses. The University is currently exploring the potential to set up a permit scheme whereby staff members will be asked to present their vehicle documents such as tax, MOT and insurance certificates and on approval will receive a permit. Only permit holders will be permitted to use their own vehicles for business purposes. It is hoped that this scheme will reduce the number of staff using their own vehicles.

**Alternative Fuels**

**Electric Vehicles**

8.73 The University has four electric vehicles; one used for maintenance, one used by Winterbourne Botanic Gardens and the other two fondly nicknamed ‘the Green Machine’, ‘the Clean Machine.’

8.74 The Green Machine (pictured) is used to collect up the recycling around the campus by the Waste Management Coordinator. The clean machine is used to collect and deliver laundry around the University.

8.75 Electric vehicles are a more efficient way of converting fossil fuels into mechanical energy. The Green Machine is charged overnight by plugging into a standard 13 amp power socket and takes advantage of the University’s own combined heat and power station, which produces both electricity and heat from natural gas. The vehicle has a range of over 40 miles and does not need to be charged every evening. And of course there are no emissions during the use of the vehicle.
Hydrogen Vehicles

8.76 The University has a fleet of five hydrogen powered cars as part of a research project, making it the only University in the UK to run a fleet of vehicles powered in this way. The cars are powered by a hydrogen fuel cell, they are pollution free, virtually silent in operation, can travel up to 100 miles on a full tank of hydrogen and at speeds up to 50 miles per hour.

8.77 The vehicles, designed and built by Microcab Ltd, are being used in a study by the University’s School of Chemical Engineering to find out more about the viability of hydrogen in transport applications. They will be compared with the campus fleet of petrol, diesel and pure electric vehicles so that researchers can learn about their efficiency, performance and how they can be adapted in order to make hydrogen an attractive and cost effective option as a future fuel.

8.78 In addition to this in April 2008 the University unveiled its own hydrogen gas fuelling station. The Air Products Series 100 fuelling station is situated at the University’s Department of Chemical Engineering where research projects are being carried out to ascertain the viability of hydrogen in transport applications as part of Birmingham’s Science City hydrogen energy project.

8.79 In partnership with Royal Mail one of the fuel cell powered Microcabs is being used on campus as the mail delivery vehicle. One of the vehicles has been seconded to the waste and recycling team.
The University also has a zero-emission hydrogen hybrid canal boat that uses a combination of magnet and fuel cell technologies. The boat, named the Ross Barlow, is fully operational and demonstrates how ‘hydrogen hybrid’ propulsion could be used to power other inland waterway craft.

**Fuel Efficient Driving**

8.81 Starting in late 2010 Transport Services will be sending their drivers on a ‘Fuel Efficient Driving’ course.

**Cabled Project**

8.82 The University is a member of the consortium for the ‘CABLED’ research project, Coventry and Birmingham Low Emission Demonstrators which involves the trial of a range of electric and hydrogen vehicles across the two cities. Coventry University will be choosing the people who will be given the task of testing the 110 vehicles to be trialled in the region.

8.83 This project will give University employees the opportunity to apply to trial an electric vehicle. If a member of staff who currently drives to work trials an electric vehicle it will reduce the number of carbon emissions in the University’s carbon footprint.

**Alternative Fuels Infrastructure Grant Programme**

8.84 The University is currently in the process of making an application for funding under the Department for Transport’s Alternative Fuels Infrastructure Grant Programme which is managed by Cenex the UK’s first Centre of Excellence for low carbon and fuel cell technologies. The University is proposing to use the funding to install four electric vehicle charging points, for free public use, at strategic locations on and off the University’s main campus. The project is not only a complementary incentive to the University’s own research into alternative fuels and novel vehicle technology but also acts to stimulate public interest in the up take of electric vehicles as a whole.

8.85 It is anticipated that the conveniently located charging points will meet the initial needs of electric vehicles coming on to the University campus as will also adding to the continually expanding UK network of electric vehicle charging points.

8.86 The University of Birmingham is committed to reducing carbon emissions and this project is a first step integration into the University’s infrastructure. It will immediately benefit all forms of electric vehicle transport thus encouraging the growth of electric vehicles on and off campus. Free access and convenience are seen as key factors in persuading drivers to switch from traditional combustion engine vehicles to lower carbon emission forms of transport such as electric vehicles.
**Car Park Management**

8.87 Hospitality and Accommodation Services are responsible for the management of car parking including administration of permits, barriers, maintenance and security.

**Staff**

8.88 Car parking for staff is a flat rate pay-as-you-go system costing £1.00 per day in all locations between 9.30am and 4.30pm Monday to Fridays. This includes vehicles which have entered before 09.30 and leave after 16.30, if they are present during the charging period. Charges do not apply between 4.30pm on one day and 9.30am the next day.

8.89 Members of staff pay through salary deduction by swiping their University ID cards on entry to the car parks. Parking is based mainly on a first come, first served basis, although all staff parking on campus should be in possession of a valid parking permit. Some dedicated parking provision is made for disabled users. Disabled staff and students are entitled to free access to the campus.

8.90 By having a pay-as-you-go system it is hoped that staff will decide on a daily basis, according to the weather or their plans for the day, whether to drive or travel by other means. It may be possible for some car drivers to use an alternative mode once or twice a week and this is encouraged.

8.91 The funds raised are currently used to pay for improvements to walking and cycling infrastructure, subsidising bus services as well as the operation and maintenance of the car park and charging system.

**Students**

8.92 Students are only permitted to park in the South Car Park (access via Edgbaston Park Road) and in the Pritchatts Road Car Park (corner of Pritchatts Road and Vincent Drive). After 4.30pm Monday to Friday and at weekends, Students who have registered their details with Car Parking Records will automatically be able to access the main campus car parks using their swipe card. There is no charge made for parking at these times. Car parking costs £1.00 per day pay and display Monday to Friday until 4.30pm.

8.93 The University plans to maintain this current operation but take a stricter control over car park management to compliment the introduction of travel plan measures, this will include;

- Reduction in those permitted to park;
- Stricter enforcement;
- No illegal parking;
• Keep daily charge – incentive for the car user to think about alternative modes of transport on a day-to-day basis; and
• Constrain EDF development to current level of parking.

University Development Projects
Winterbourne Botanic Garden

8.94 A beautiful seven acre Arts and Craft garden on the University’s Edgbaston campus, Winterbourne, a Grade II listed house and garden, is home to striking colour-themed borders, a Walled Garden, an unusual hazelnut tunnel and 1930’s Japanese Bridge and Tea House. Bequeathed to the University in 1944, Winterbourne was previously a private residence built in the Arts & Crafts style in 1903. Designed as a small country estate, the grounds follow the design ideas of the house and the extensive plant collections are set within the historic layout of the garden.

8.95 In April 2010 Winterbourne House will also be open to the public, revealing what life was like for the families who lived at the property during the height of the Arts & Crafts movement. The restoration of the house will provide much improved visitor facilities, small conference centre and opportunities for corporate hospitality and venue hire. As a new development at the University, Birmingham City Council has requested that this area of the Campus be subject to its own specific Travel Plan measures. The site will be subject to the measures already outlined in this section of the Plan and in addition to this the following initiatives will be considered:

• Each delegate will be offered a free Travelcard for the day of their conference if they travel to the University by public transport. A ‘Network One Day Ticket’ allows unlimited use of the bus, Metro and rail system for one day, including during the peak hours. These tickets cost £6.50 and can be purchased up to 1 month in advance.

• Concessions will be available to visitors who hold valid public transport tickets and use them to travel to the University as an alternative to the private car. Examples of the concessions likely to be offered are a reduction of 10% on conference fees or a free cup of coffee to leisure visitors.

• Concessions will be available to those delegates who car share to the University. If this concession is in the form of a reduced conference fee than the reduction will be divided between the occupants of the car.

• All conference/delegate literature will promote the use of sustainable travel to the University. This will ensure each visitor is informed about the travel options available to them. This information will include a map of the University showing the bus stops, train station and car parking.
• The University website will provide details on each of the available modes of travel to the site promoting the use of sustainable travel as an alternative to the private car. This information will include a map of the University showing the bus stops, train station and car parking.

• All conference/delegate literature and website information will ask visitors to avoid driving to the University due to the limited car parking that will be available to them. An allowance will be made for disabled delegates needing to drive.

• The potential to offer discounts in partnerships with local hotels will be explored for those delegates attending conferences that last longer than one day.

• The potential to provide shuttle bus pick ups from Birmingham New Street Train Station will be explored to encourage delegates to travel by train.

• The potential to charge delegates to park at the University will be explored with the aim of discouraging the use of private cars.

**Action Plan**

8.96 The following Action Plan sets out the proposed Travel Plan targets accompanied by the University's existing sustainable travel initiatives and proposed measures that could be considered to aid their achievement and the approximate cost of the measures.

8.97 The Action Plan sets out the resources that have been identified to date to enable implementation of the Plan.

**Key to Action Plan**

SG - Sustainable Travel Plan Steering Group  
STC - University's Sustainable Travel Coordinator – Caroline Radnor  
SEA - University's Sustainability and Environmental Advisor – Trevor Shields  
HAS – Hospitality and Accommodation Services  
HR – Human Resources  
BUBUG – Birmingham University Bicycle Users Group  
BCC – Birmingham City Council  
EDF – Estates Development Framework

**Short term** - by June 2010  
**Medium term** - by December 2010  
**Long term** - 12 months onwards
<table>
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<th>Proposed Initiative</th>
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<td>News items for staff magazine &amp; online newsletter</td>
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<td>Attendance at the staff induction course</td>
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<td>STC &amp; SEA</td>
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<td>Attendance at Welcome Week for students</td>
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<td>Attendance at staff wellbeing day</td>
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<td>Messages on electronic signposts</td>
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<td>A network of signed, well lit pedestrian pathways</td>
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<td>Pocket sized walking maps highlighting routes around campus and the local area</td>
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<td>Step by Step Walking Programme</td>
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<td>BUBUG website &amp; forum</td>
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<td>Cycling Roadshows including free cycle maintenance and lessons and the sale of second hand bikes</td>
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<th>Participation in Walk to Work Week 2010</th>
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<td>Establish an online Walkshare Scheme</td>
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<tr>
<td>Work with the Security team and West Midlands Police to improve perceptions of campus safety</td>
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<tr>
<td>Proposals to improve pedestrian movements around campus in line with the Estates Development Framework. Where possible new pedestrian routes will be formed to strengthen links between the University and surrounding areas.</td>
<td>Estates</td>
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- Walking for health
- Cycling to work
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<th><strong>Ongoing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Interest free loans for public transport season tickets</strong></td>
<td><strong>HR/Finance</strong></td>
<td><strong>Ongoing</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Reduced season ticket costs on surrender of car parking permit</strong></td>
<td><strong>HR/Finance</strong></td>
<td><strong>Ongoing</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Internal shuttle buses to student residences</strong></td>
<td><strong>HAS</strong></td>
<td><strong>Ongoing</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Free Selly Shuttles between Edgbaston &amp; Selly Oak campus</strong></td>
<td><strong>HAS &amp; STC</strong></td>
<td><strong>Ongoing</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Real time information for bus travel in University Centre</strong></td>
<td><strong>Centro</strong></td>
<td><strong>Ongoing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Car Sharing</strong></td>
<td><strong>To increase the number of people car sharing to the University</strong></td>
<td><strong>Member of the carshare Birmingham</strong></td>
<td>STC</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider the establishment of a University branded car share scheme</td>
<td>STC &amp; IT</td>
<td>Medium term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider reduced car parking costs for car sharers</td>
<td>STC, HAS &amp; SG</td>
<td>Long term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prize draw for people registering in the first 3 months</td>
<td>STC</td>
<td>Short term</td>
</tr>
<tr>
<td><strong>Business Travel</strong></td>
<td><strong>To reduce business car mileage</strong></td>
<td><strong>Fleet transfer to fuel efficient vehicles – Vehicle Selection Strategy</strong></td>
<td>STC &amp; Transport</td>
<td>Long term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuel efficient vehicles in fleet – hydrogen &amp; electric</td>
<td>Transport</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuel efficient driving training course for University employed drivers</td>
<td>Transport</td>
<td>Medium term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Car share between departments</td>
<td>STC &amp; Transport</td>
<td>Long term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promotion of alternative modes of travel for business use</td>
<td>STC &amp; Transport</td>
<td>Medium term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative Fuels Infrastructure Grant</td>
<td>STC &amp; Transport</td>
<td>Short term</td>
</tr>
<tr>
<td><strong>Partnership Working</strong></td>
<td><strong>To establish good links with the University’s partners</strong></td>
<td><strong>ACT Travelwise membership</strong></td>
<td>STC</td>
<td>Annual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Local universities working group</td>
<td>STC &amp; SEA</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Links with the University Hospital NHS Foundation Trust</td>
<td>STC</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Close working with Guild of Students</td>
<td>STC &amp; Guild</td>
<td>Short term</td>
</tr>
<tr>
<td>General Measures</td>
<td>To maximise the success of the Travel Plan</td>
<td>Close working with the University Events office</td>
<td>STC</td>
<td>Short term</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>CCTV coverage around campus</td>
<td></td>
<td>STC &amp; Security</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Campus lighting audit</td>
<td></td>
<td>STC &amp; Security</td>
<td>Ongoing</td>
</tr>
<tr>
<td></td>
<td>Explore the potential to enhance the use of the canal towpath for walking &amp; cycling</td>
<td></td>
<td>STC, Estates, Sustrans &amp; British Waterways</td>
<td>Long term</td>
</tr>
<tr>
<td></td>
<td>Personalised journey planning</td>
<td></td>
<td>STC &amp; Travelwise</td>
<td>Short term</td>
</tr>
<tr>
<td></td>
<td>Consolidation of suppliers deliveries</td>
<td></td>
<td>STC &amp; Barry Higgins</td>
<td>Long term</td>
</tr>
<tr>
<td>Car Parking</td>
<td>To reduce the number of people driving to the University</td>
<td>Daily pay-as-you-go charge £1 per day</td>
<td>STC, SG &amp; HAS</td>
<td>Medium term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduction in those permitted to park</td>
<td>STC, SG &amp; HAS</td>
<td>Medium term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stricter enforcement of car parks</td>
<td>STC, SG &amp; HAS</td>
<td>Medium term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Constrain Estates Development Framework to current level of car parking spaces</td>
<td>Estates</td>
<td>Long term</td>
</tr>
</tbody>
</table>
Appendix D

CDM Hazard Register
Remember: Avoid – Reduce – Control and communicate relevant information to others (CDM Regulation 11)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Mitigation of Risk (Potential or Achieved)</th>
<th>Follow Up (eg: Record Assess Refer Report)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buried Services</td>
<td>Service plans to be procured and appropriate protection or diversion measures designed. Hand dug pits and location devices to be used to identify adjacent services.</td>
<td>Highways/ Infrastructure Designer (detailed design stage) and Contractor</td>
</tr>
<tr>
<td>Overhead Services</td>
<td>Service plans to be procured and appropriate protection or diversion measures designed.</td>
<td>Highways/ Infrastructure Designer (detailed design stage) and Contractor</td>
</tr>
<tr>
<td>Pedestrian Access/Crossing/Public Safety during the works</td>
<td>Contractor to provide appropriate pedestrian management measures</td>
<td>Contractor</td>
</tr>
<tr>
<td>Working with Live Traffic</td>
<td>Contractor to provide appropriate traffic management measures.</td>
<td>Contractor</td>
</tr>
<tr>
<td>Traffic safety during the works</td>
<td>Contractor to provide appropriate traffic management measures</td>
<td>Contractor</td>
</tr>
</tbody>
</table>
Other site specific hazards e.g. drainage, proximity to schools, risk of flooding, demolition, contaminated land, retaining walls, tree felling, etc

Please list:
1. Tree felling as part of the proposals. See the Tree Constraint Report
2. School age students pass through the Edgbaston Campus and along roads adjacent to the Campus to the King Edward schools on Edgbaston Park Road
3. Flood risk associated with works in the vicinity of the Bourn Brook see FRA report.
4. Demolition associated with the application. See the Planning Schedule.
5. Contaminated land. See the Ground Conditions Desk Study and Preliminary Risk Assessment.

<table>
<thead>
<tr>
<th>To be considered by highways/ infrastructure design team at detailed design stage</th>
<th>Highways/ Infrastructure Designer (Detailed design stage)</th>
</tr>
</thead>
</table>

* to be completed by the identified party at the appropriate time.
Appendix E

Junction Capacity Assessment
New Internal Road Access onto Pritchatts Road
Turning Movements for the AM and PM Peak hours taken from the Count data for the Spur Road Access onto Pritchatts Road

Sensitivity Tests

Assuming Traffic Flows are the Same as for the Spur Road

AM 100%

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>591</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>497</td>
<td>405</td>
<td></td>
</tr>
</tbody>
</table>

PM 100%

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>26</td>
<td>405</td>
</tr>
<tr>
<td>28</td>
<td>-</td>
<td>41</td>
</tr>
<tr>
<td>327</td>
<td>53</td>
<td>-</td>
</tr>
</tbody>
</table>

Assuming Traffic Flows are 75% of the flows for the Spur Road

AM 75%

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>327</td>
<td>40</td>
<td>29</td>
</tr>
<tr>
<td>497</td>
<td>405</td>
<td></td>
</tr>
</tbody>
</table>

PM 75%

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

6.85

Assuming Traffic Flows are 50% of the flows for the Spur Road (most likely scenario)

AM 50%

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>327</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>497</td>
<td>405</td>
<td></td>
</tr>
</tbody>
</table>

PM 50%

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>
THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS/HER RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file: -
"C:\Users\ryan.hopkins\Desktop\PICADY\Pritchatts Road Edgebaston Park Road 100% AM.vpi"
(drive-on-the-left) at 11:14:21 on Friday, 23 December 2011

RUN INFORMATION
***************
RUN TITLE : Pritchatts Road Edgebaston Park Road 100% AM
LOCATION : 
DATE : 23/12/11
CLIENT : 
ENUMERATOR : 
JOB NUMBER : 
STATUS : 
DESCRIPTION : 

MAJOR/MINOR JUNCTION CAPACITY AND DELAY
*******************************

INPUT DATA
----------

MAJOR ROAD (ARM C) --------------------- MAJOR ROAD (ARM A)
I
I
I
I
I
I

MINOR ROAD (ARM B)

ARM A IS Edgebaston Park Road (E)
ARM B IS Pritchatts Road
ARM C IS Edgebaston Park Road (W)

STREAM LABELLING CONVENTION
-----------------------------
STREAM A-B CONTAINS TRAFFIC GOING FROM ARM A TO ARM B
STREAM B-AC CONTAINS TRAFFIC GOING FROM ARM B TO ARM A AND TO ARM C
ETC.
GEOMETRIC DATA
----------------------------------------
<table>
<thead>
<tr>
<th>DATA ITEM</th>
<th>MINOR ROAD B</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL MAJOR ROAD CARRIAGEWAY WIDTH</td>
<td>6.85 M.</td>
</tr>
<tr>
<td>CENTRAL RESERVE WIDTH</td>
<td>0.00 M.</td>
</tr>
<tr>
<td>MAJOR ROAD RIGHT TURN - WIDTH</td>
<td>2.20 M.</td>
</tr>
<tr>
<td>- VISIBILITY</td>
<td>80.00 M.</td>
</tr>
<tr>
<td>BLOCKS TRAFFIC</td>
<td>YES</td>
</tr>
<tr>
<td>MINOR ROAD - VISIBILITY TO LEFT</td>
<td>50.0 M.</td>
</tr>
<tr>
<td>- VISIBILITY TO RIGHT</td>
<td>150.0 M.</td>
</tr>
<tr>
<td>LANE 1 WIDTH</td>
<td>-</td>
</tr>
<tr>
<td>LANE 2 WIDTH</td>
<td>-</td>
</tr>
<tr>
<td>WIDTH AT 0 M FROM JUNCTION</td>
<td>10.00 M.</td>
</tr>
<tr>
<td>WIDTH AT 5 M FROM JUNCTION</td>
<td>5.50 M.</td>
</tr>
<tr>
<td>WIDTH AT 10 M FROM JUNCTION</td>
<td>4.00 M.</td>
</tr>
<tr>
<td>WIDTH AT 15 M FROM JUNCTION</td>
<td>3.25 M.</td>
</tr>
<tr>
<td>WIDTH AT 20 M FROM JUNCTION</td>
<td>2.75 M.</td>
</tr>
<tr>
<td>LENGTH OF FLARED SECTION</td>
<td>DERIVED: 1 PCU</td>
</tr>
</tbody>
</table>

SLOPES AND INTERCEPT
---------------------
(NB: Streams may be combined, in which case capacity will be adjusted)

<table>
<thead>
<tr>
<th>STREAM B-C</th>
<th>STREAM A-C</th>
<th>STREAM A-B</th>
<th>STREAM A-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

* Due to the presence of a flare, data is not available

<table>
<thead>
<tr>
<th>STREAM B-A</th>
<th>STREAM A-C</th>
<th>STREAM A-B</th>
<th>STREAM C-A</th>
<th>STREAM C-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

* Due to the presence of a flare, data is not available

<table>
<thead>
<tr>
<th>STREAM C-B</th>
<th>STREAM A-C</th>
<th>STREAM A-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>620.29</td>
<td>0.23</td>
<td>0.23</td>
</tr>
</tbody>
</table>

(NB: These values do not allow for any site specific corrections)

TRAFFIC DEMAND DATA
---------------------
<table>
<thead>
<tr>
<th>ARM</th>
<th>FLOW SCALE(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>100</td>
</tr>
<tr>
<td>C</td>
<td>100</td>
</tr>
</tbody>
</table>

Demand set: Pritchatts Road Edgebaston Park Road 100% AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15
LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
### Demand Flow Profiles

The demand flow profiles are synthesised from turning count data.

#### Turning Proportions

<table>
<thead>
<tr>
<th>Time Slots</th>
<th>Arm A</th>
<th>Arm B</th>
<th>Arm C</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.45 - 08.00</td>
<td>0.48</td>
<td>0.48</td>
<td>0.48</td>
</tr>
</tbody>
</table>

#### Queue and Delay Information

Queue and delay information for each 15 min time segment.

<table>
<thead>
<tr>
<th>Time Slots</th>
<th>Demand</th>
<th>Capacity</th>
<th>Demand/</th>
<th>Pedestrian</th>
<th>Start</th>
<th>End</th>
<th>Delay</th>
<th>Geometric Delay</th>
<th>Average Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.45 - 08.00</td>
<td>0.18</td>
<td>9.92</td>
<td>0.018</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>08.00 - 08.15</td>
<td>0.21</td>
<td>9.53</td>
<td>0.022</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>08.15 - 08.30</td>
<td>0.26</td>
<td>8.98</td>
<td>0.029</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>

### Summary

Turns are calculated from turning count data.

Queue and delay information are calculated from turning count data.

Default proportions of heavy vehicles are used.
<table>
<thead>
<tr>
<th>TIME</th>
<th>DEMAND (VEH/MIN)</th>
<th>CAPACITY (VEH/MIN)</th>
<th>DEMAND/ CAPACITY (RFC)</th>
<th>PEDESTRIAN FLOW (PEDS/MIN)</th>
<th>START QUEUE (VEHS)</th>
<th>END QUEUE (VEHS)</th>
<th>DELAY (VEH.MIN./TIME SEGMENT)</th>
<th>GEOMETRIC DELAY (VEH.MIN./TIME SEGMENT)</th>
<th>AVERAGE DELAY PER ARRIVING VEHICLE (MIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.30-08.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-C</td>
<td>0.26</td>
<td>8.98</td>
<td>0.029</td>
<td></td>
<td>0.03</td>
<td>0.03</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-A</td>
<td>0.24</td>
<td>4.59</td>
<td>0.052</td>
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<td>0.05</td>
<td>0.05</td>
<td>0.8</td>
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<tr>
<td>C-AB</td>
<td>0.70</td>
<td>7.05</td>
<td>0.099</td>
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<td>0.12</td>
<td>0.13</td>
<td>1.9</td>
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<tr>
<td>A-B</td>
<td>1.01</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>08.45-09.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-C</td>
<td>0.21</td>
<td>9.53</td>
<td>0.022</td>
<td></td>
<td>0.03</td>
<td>0.02</td>
<td>0.3</td>
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<td></td>
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<tr>
<td>B-A</td>
<td>0.19</td>
<td>5.46</td>
<td>0.036</td>
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<tr>
<td>C-AB</td>
<td>0.57</td>
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<td>0.13</td>
<td>0.09</td>
<td>1.4</td>
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<td>A-B</td>
<td>0.82</td>
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</tr>
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<td>A-C</td>
<td>7.45</td>
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</tbody>
</table>

**WARNING**: NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

QUEUE FOR STREAM B-C

<table>
<thead>
<tr>
<th>TIME</th>
<th>NO. OF VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEGMENT</td>
<td>ENDING IN QUEUE</td>
</tr>
<tr>
<td>08.00</td>
<td>0.0</td>
</tr>
<tr>
<td>08.15</td>
<td>0.0</td>
</tr>
<tr>
<td>08.30</td>
<td>0.0</td>
</tr>
<tr>
<td>08.45</td>
<td>0.0</td>
</tr>
<tr>
<td>09.00</td>
<td>0.0</td>
</tr>
<tr>
<td>09.15</td>
<td>0.0</td>
</tr>
</tbody>
</table>

QUEUE FOR STREAM B-A

<table>
<thead>
<tr>
<th>TIME</th>
<th>NO. OF VEHICLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEGMENT</td>
<td>ENDING IN QUEUE</td>
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<tr>
<td>08.00</td>
<td>0.0</td>
</tr>
<tr>
<td>08.15</td>
<td>0.0</td>
</tr>
<tr>
<td>08.30</td>
<td>0.1</td>
</tr>
<tr>
<td>08.45</td>
<td>0.1</td>
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QUEUE FOR STREAM C-AB

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<th>TIME</th>
<th>NO. OF VEHICLES</th>
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### QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

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<th>TOTAL DEMAND (VEH)</th>
<th>TOTAL DEMAND (VEH/H)</th>
<th>DELAY (MIN)</th>
<th>DELAY (MIN/VEH)</th>
<th>INCLUSIVE DELAY (MIN)</th>
<th>INCLUSIVE DELAY (MIN/VEH)</th>
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</thead>
<tbody>
<tr>
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<td>2.1</td>
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<td>456.1</td>
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<td>I</td>
<td>I</td>
<td>I</td>
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</table>

* Delay is that occurring only within the time period
* Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period
* These will only be significantly different if there is a large queue remaining at the end of the time period.

*******END OF RUN*******

### SLOPES AND INTERCEPT

(NB: Streams may be combined, in which case capacity will be adjusted)

<table>
<thead>
<tr>
<th>STREAM</th>
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<th>INTERCEPT</th>
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<tr>
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<td>0.00</td>
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<td>A-C</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>A-B</td>
<td>0.00</td>
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<tr>
<td>C-B</td>
<td>0.00</td>
<td>0.00</td>
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</table>

* Due to the presence of a flare, data is not available

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<tr>
<td>A-C</td>
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<td>0.00</td>
</tr>
<tr>
<td>A-B</td>
<td>0.00</td>
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<tr>
<td>C-A</td>
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</tr>
<tr>
<td>C-B</td>
<td>0.00</td>
<td>0.00</td>
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</table>

* Due to the presence of a flare, data is not available

<table>
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<tr>
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<th>INTERCEPT</th>
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</thead>
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<tr>
<td>A-C</td>
<td>0.23</td>
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(NB: These values do not allow for any site specific corrections)

### TRAFFIC DEMAND DATA

<table>
<thead>
<tr>
<th>ARM</th>
<th>FLOW SCALE(%)</th>
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<tr>
<td>A</td>
<td>100</td>
</tr>
<tr>
<td>B</td>
<td>100</td>
</tr>
<tr>
<td>C</td>
<td>100</td>
</tr>
</tbody>
</table>

Demand set: Pritchatts Road Edgebaston Park Road 100% PM

TIME PERIOD BEGINS 16.45 AND ENDS 18.15
LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
Demand Flow Profiles are synthesised from turning count data

Traffic Congestion and Delay Information for Each 15 Min Time Segment

Default Proportions of Heavy Vehicles Are Used

Queue and Delay Information for Each 15 Min Time Segment

For Demand Set: Pritchatts Road Edgebaston Park Road 100% PM

And for Time Period: 2
<table>
<thead>
<tr>
<th>TIME</th>
<th>DEMAND</th>
<th>CAPACITY</th>
<th>DEMAND/ CAPACITY</th>
<th>PEDESTRIAN FLOW</th>
<th>START QUEUE</th>
<th>END QUEUE</th>
<th>DELAY (VEH.MIN/ TIME SEGMENT)</th>
<th>GEOMETRIC DELAY</th>
<th>AVERAGE DELAY</th>
<th>ARRIVING VEHICLE (MIN)</th>
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<tbody>
<tr>
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<td></td>
<td>B-A</td>
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<th>CAPACITY</th>
<th>DEMAND/ CAPACITY</th>
<th>PEDESTRIAN FLOW</th>
<th>START QUEUE</th>
<th>END QUEUE</th>
<th>DELAY (VEH.MIN/ TIME SEGMENT)</th>
<th>GEOMETRIC DELAY</th>
<th>AVERAGE DELAY</th>
<th>ARRIVING VEHICLE (MIN)</th>
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<th>DEMAND/ CAPACITY</th>
<th>PEDESTRIAN FLOW</th>
<th>START QUEUE</th>
<th>END QUEUE</th>
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<th>AVERAGE DELAY</th>
<th>ARRIVING VEHICLE (MIN)</th>
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*WARNING* NO MARGINAL ANALYSIS OF CAPACITIES AS MAJOR ROAD BLOCKING MAY OCCUR

**QUEUE FOR STREAM B-C**

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<tr>
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<td>0.1</td>
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**QUEUE FOR STREAM B-A**

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**QUEUE FOR STREAM C-AB**

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<th>VEHICLES</th>
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<tbody>
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<tr>
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**QUEUEING DELAY INFORMATION OVER WHOLE PERIOD**

<table>
<thead>
<tr>
<th>STREAM</th>
<th>TOTAL DEMAND (VEH)</th>
<th>TOTAL DEMAND (VEH/H)</th>
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<th>INCLUSIVE DELAY (MIN/VEH)</th>
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* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

*******END OF RUN******

**.SLOPES AND INTERCEPT**

(NB: Streams may be combined, in which case capacity will be adjusted)

<table>
<thead>
<tr>
<th>STREAM</th>
<th>INTERCEPT</th>
<th>SLOPE</th>
<th>SLOPE</th>
</tr>
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<tr>
<td>B-C</td>
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* Due to the presence of a flare, data is not available

<table>
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<tr>
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<th>SLOPE</th>
<th>SLOPE</th>
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<table>
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<tr>
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<th>SLOPE</th>
<th>SLOPE</th>
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(NB These values do not allow for any site specific corrections)

**TRAFFIC DEMAND DATA**

<table>
<thead>
<tr>
<th>ARM</th>
<th>FLOW SCALE(%)</th>
</tr>
</thead>
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<tr>
<td>A</td>
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</tr>
<tr>
<td>B</td>
<td>100</td>
</tr>
<tr>
<td>C</td>
<td>100</td>
</tr>
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Demand set: Pritchatts Road Edgebaston Park Road 75% AM

TIME PERIOD BEGINS 07.45 AND ENDS 09.15
LENGTH OF TIME PERIOD - 90 MIN.
LENGTH OF TIME SEGMENT - 15 MIN.
Appendix F

Gisbert Kapp Multi-storey Car Park Layout
Appendix G

Indicative Car Park Phasing
## Projects

### Car Park Phasing Based on Indicative Sub-Programme

### Construction Programme

<table>
<thead>
<tr>
<th>DATE</th>
<th>Projects</th>
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<tbody>
<tr>
<td>Nov-16</td>
<td>Planning Permission Granted</td>
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<tr>
<td>Dec-16</td>
<td>New Sports + MSCP incl commissioning</td>
</tr>
<tr>
<td>Jan-17</td>
<td>Demolition of Munrow Library</td>
</tr>
<tr>
<td>Feb-17</td>
<td>Sports Track Car Park</td>
</tr>
<tr>
<td>Mar-17</td>
<td>New Sports Track</td>
</tr>
<tr>
<td>Apr-17</td>
<td>Library Enabling works</td>
</tr>
<tr>
<td>May-17</td>
<td>Demolition Old Library</td>
</tr>
<tr>
<td>Jun-17</td>
<td>Rugby Park - Grange Road Car Park</td>
</tr>
<tr>
<td>Jul-17</td>
<td>Malt &amp; Mat Robert Kapp Loop Road</td>
</tr>
<tr>
<td>Aug-17</td>
<td>Grange Road Residences</td>
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<tr>
<td>Sep-17</td>
<td>Terrace Huts CP</td>
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### Cumulative period in Years From Planning Permission

|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|