



The Orchard Centre Extension

Transport Assessment
Volume 1: Text, Figures
and Drawings

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Hammerson UK Properties PLC

Orchard Centre Extension,
Didcot

Transport Assessment

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1 INTRODUCTION

- 1.1 Vectos is appointed by Hammerson UK Properties plc to provide traffic and transportation advice in relation to the proposed extension of the Orchard Centre, Didcot. The site location is shown on **Figure 1**.
- 1.2 The site for the extension is located between Broadway and Hitchcock Way, immediately to the east of the existing Orchard Centre and town centre. It is accessed via two signalised junctions with Broadway to the south and Hitchcock Way to the north.
- 1.3 The development of the Orchard Centre Extension is identified in the Core Strategy as Policy CSDID2 – The Orchard Centre. This planning application relates to the delivery of the first stage which is comprised of approximately 15,029 sqm gross external area of new commercial floorspace.
- 1.4 Specifically, the proposals involve the demolition of existing buildings and construction of 1 and 2 storey buildings comprising retail units (Use Class A1), flexible retail units (Use classes A1/A3), restaurants (Use Class A3), a gym (Use Class D2); replacement public toilets; new public realm; improvements to existing public realm; landscaping and alterations to access comprising amendments to the existing parking layout; additional car, motorcycle and cycle parking; new servicing area; new and amended access from the highway; and altered / new pedestrian access.
- 1.5 In preparing this planning application, regular meetings have taken place with key stakeholders including the local planning authority, South Oxfordshire District Council (SODC), and the highway authority, Oxfordshire County Council (OCC), to discuss the transport issues associated with the evolving design for the scheme. OCC provided their pre-application response in letters dated 25th September 2014 and 1st December 2014. A Transport Scoping Report was submitted to OCC on the 13th January 2015.
- 1.6 The proposals have also been subject to a public consultation event held on Friday 5th December and Saturday 6th December 2014. Further meetings have taken place with the Didcot Forum on 9th December 2014 and with Didcot Town Council on 28th January 2015. The main comments in respect of transport related to the closure of High Street for buses, the impact of the scheme on Station Road, car parking and the increase in traffic. Comments received have been considered in the preparation of the proposals.

1.7 The report has been prepared with the benefit of our knowledge and experience gained through working on similar developments throughout Oxfordshire and the South East.

1.8 The remainder of the report is set out as follows:

Section 2 – sets out a description of the existing conditions;

Section 3 - describes the proposals in detail;

Section 4 - describes the relevant transport policy;

Section 5 – sets out the multi-modal trip attraction;

Section 6 – discusses the car parking proposals;

Section 7 - describes the development traffic flows;

Section 8 – considers the impact on sustainable modes;

Section 9 – considers the assessment of the highway network; and

Section 10 – provides a summary.

2 EXISTING CONDITIONS

2.1 This section describes the existing conditions and transport characteristics.

Site Location

2.2 The site is located between Broadway and Hitchcock Way, immediately to the east of the existing Orchard Centre, within the defined town centre. It is bounded by Broadway to the south, Hitchcock Way to the north, industrial units along Rich's Sidings to the east and the existing Orchard Centre to the south and west. High Street is routed through the site with a north-south orientation.

2.3 The existing land uses to be replaced by the proposed development comprise industrial units and car parking. Vehicle access is currently provided from signalised junctions with Hitchcock Way to the north and Broadway to the south. These junctions in turn connect with High Street, which provides a through route for buses and taxis only.

2.4 **Figure 1** shows the strategic location of the site in relation to the surrounding area and transport system.

Surrounding Area

2.5 The existing land uses in the vicinity of the site are varied and of mixed use. The town centre and Phase 1 of the Orchard Centre is located to the west of the site, with a number retail units concentrated along Broadway and Orchard Street as the main pedestrianised shopping street within the existing Orchard Centre.

2.6 The Orchard Centre is located in the centre of Didcot, it forms part of the key primary retail area of the town centre and comprises a Sainsbury's superstore, a number of retail, café and restaurant units in addition to a cinema and theatre. The Orchard Centre is an open air pedestrianised Shopping Centre, with the key pedestrian route running east – west through the centre, parallel to the Broadway. The commercial offer is largely oriented in the southern and central area of the site with parking and the petrol filling station associated with the superstore located in the northern part of the site.

2.7 Surrounding the town centre, there are several areas of low to medium density residential developments, with the Station Road Conservation Area to the immediate west and a further

Conservation Area, Northbourne, to the immediate south. To the north is the Great Western railway line, beyond which lies the Ladygrove housing estate.

- 2.8 There are also a number of industrial units between Broadway, Hitchcock Way and the railway line.
- 2.9 The site benefits from its location approximately 650 metres south east of Didcot Parkway rail station.
- 2.10 The site context in relation to the surrounding area is shown on **Figure 2**.

Car Parking

- 2.11 The existing site comprises a total of 688 retail car parking spaces, split between four car parks as follows:
 - Orchard Centre – 550 spaces
 - High Street – 38 spaces
 - Broadway East – 67 spaces
 - Broadway West – 33 spaces
- 2.12 The High Street, Broadway East and Broadway West car parks operate on a Pay & Display basis and are managed by SODC, whilst the Orchard Centre car park operates by Automatic Number Plate Recognition and is managed privately. The existing car parks on the site are illustrated on **Figure 2**.
- 2.13 The current parking charges are set out in **Table 2.1**.

Table 2.1: Car Park Charges

	Broadway East	Broadway West	High Street	Orchard Centre
Up to 1 hour	Free	Free	Free	N/A
Up to 2 hours	80p	80p	80p	Free
Up to 3 hours	£1.50	£1.50	£1.50	£1.70
Up to 4 hours	N/A	N/A	N/A	£2.00
Up to 5 hours	£1.80	£1.80	£1.80	N/A
Up to 8 hours	£3.30	£3.30	£3.30	N/A

- 2.14 Table 2.1 shows that the Broadway East, Broadway West and High Street car parks have consistent parking charges whilst the Orchard Centre operates on a maximum stay of 4 hours.
- 2.15 Additional town centre car parking is located at the Edinburgh Drive Car Park and in designated on-street parking bays along Broadway.

Cycle Parking

- 2.16 Cycle parking is accommodated on sheffield stands and hoops which are located at several points around the existing Orchard Centre. This includes adjacent to Sainsbury's, to the north of the amphitheatre, adjacent to retail units along Broadway and in the service yard for staff. There are 74 existing cycle parking spaces in total and these have been observed on a site visit as under-occupied across the day.

Highway Network

- 2.17 Didcot is located to the east of the A34 strategic road corridor. The A34 Milton Interchange is the junction of the A34 and A4130 and is a major point of access onto the strategic road network for the majority of Didcot.
- 2.18 The local road network in the vicinity of the site is described in the paragraphs below and shown on **Figure 2**.

Broadway

- 2.19 Broadway is orientated east-west along the southern edge of the site. It is the main activity street within Didcot with local amenities and retail facilities located along the northern side and residential properties along the southern side. It has one lane in each direction with on-street parking provided in sections as well as bus lay-bys.

Hitchcock Way

- 2.20 Hitchcock Way is orientated east-west along the northern boundary of the site, between Station Road in the west and the Jubilee Way roundabout in the east, where it also connects with Broadway.

- 2.21 It is subject to a speed limit of 30 mph and does not have any on-street parking on either side of the carriageway since it has a no stopping restriction. There is a segregated footway / cycleway adjacent to the northern and southern sides of the carriageway.

High Street

- 2.22 The section of High Street orientated through the site connects with a signalised junction with Hitchcock Way in the north and a signalised junction with Broadway to the south. High Street provides access to the existing industrial units and to the town centre car parking on-site. However, it is subject to a bus and taxi only restriction as a through route. There are bus stops located on High Street, serving both directions.
- 2.23 High Street continues further south from Broadway to a junction with Kynaston Drive, where it is mainly fronted by residential properties along this section.

Accident Analysis

- 2.24 Collision data has been sourced directly from Oxfordshire County Council. The data was obtained for the most recently available 5 year period from the beginning of January 2009 until the end of November 2014. The raw accident collision data is contained at **Appendix A**.
- 2.25 The area of coverage includes Station Road (along the western and northern perimeter of the site), Edinburgh Drive, Hitchcock Way, High Street, Central Drive and Broadway (between the junctions with Jubilee Way and Vicarage Road).
- 2.26 A total of 22 accidents occurred within the identified area of analysis, including 19 slight accidents and three serious accidents. There were no fatal accidents recorded. The accidents resulted in a total of 29 casualties (26 slight of which four involved pedestrians and four involved cyclists, along with three serious of which one involved a pedestrian and one involved a cyclist). No accidents occurred on Edinburgh Drive.
- 2.27 Accidents occurred at three main sections within the area of analysis. Of the 22 accidents, eight occurred at the Broadway / Jubilee Way roundabout (seven slight and one serious). Nine accidents took place along Broadway between its junction with Hagbourne Road and Vicarage Road (eight slight and one serious) and a further two accidents occurred along Station Road (two slight). Of the other five accidents, one occurred on Station Road, one occurred at the Cow Lane / Station Road / Hitchcock Way signalised crossroads, one

occurred within the site adjacent to the Sainsbury's petrol filling station, one occurred at the Site Access / Hitchcock Way and one occurred on High Street.

- 2.28 Of the three serious accidents, two occurred close to the existing access at the southern end of High Street. One of these accidents occurred on High Street as an HGV was turning into the delivery area and collided with a pedestrian. In this instance, both the HGV driver and pedestrian failed to look properly. The second accident took place on Broadway, 30m to the southwest of the junction with High Street. It involved an intoxicated driver who attempted to pull away while a passenger was exiting the vehicle resulting in the passenger being seriously injured.
- 2.29 The third serious accident occurred approximately 30m east of the Broadway/Jubilee Way roundabout. The accident involved a vehicle exiting the roundabout but failing to stop for a red signal at the pedestrian crossing. As a result, a cyclist traveling south on the crossing was hit resulting in a serious injury.
- 2.30 There were two accidents recorded along Station Road. The first of these took place at the southern end of Station Road near to the pedestrianised section. A cyclist entered the carriageway after failing to look properly and collided with a car turning into a parking space. The second accident, which transpired 10m west of the junction with Cow Lane, was the result of a cyclist and pedestrian colliding whilst using the shared use cycle track. Both accidents were classified as slight.
- 2.31 There were seven slight accidents recorded at the Broadway/Jubilee Way roundabout junction. A summary of these accidents is given below:
- two accidents involved collisions as a result of vehicles entering the roundabout after failing to give way;
 - two accidents were caused by cars failing to stop at a pedestrian crossing, resulting in collisions with vulnerable road users (one pedestrian and one cyclist);
 - a further accident occurred when a motorcyclist braked sharply for an emergency vehicle and lost control of their vehicle;
 - a rear-end collision between two cars waiting at a pedestrian crossing after exiting the roundabout; and
 - a collision between a cyclist and a vehicle on the roundabout.

- 2.32 One slight accident occurred along Central Drive near to the exit of the Petrol Filling Station. It involved two cars and occurred when one of the vehicles exiting the PFS failed to give way to another vehicle travelling along the carriageway.
- 2.33 Another slight accident took place at the junction between Hitchcock Way and High Street. The accident occurred in wet conditions and involved a rear end collision between two cars, one of which was stopping for a red signal.
- 2.34 A further two slight accidents occurred along Broadway, adjacent to Market Place. The first accident involved a car travelling away from the pedestrianised area which then hit a pedestrian and failed to stop. A second accident occurred when a motorcyclist travelling in slow moving traffic attempted an overtaking manoeuvre and collided with a vehicle turning into a parking area.
- 2.35 The accidents that have been recorded were attributed to human error with likely causes cited as failure to look properly, failure to judge another person's path or speed, driver being intoxicated or wet road conditions. In summary, the majority of slight and serious injuries were as a result of causes that were not due to highway conditions and therefore could not typically be mitigated against.

Accessibility by Non-Car Modes

- 2.36 A key factor in determining the suitability of a location is its accessibility by non-car modes of transport. This helps to reduce the reliance on the use of the private car as well as promoting the aims of sustainable travel choices.
- 2.37 The following section considers the accessibility of the site by walking, cycling and public transport.

Walking

- 2.38 There are a number of routes offering pedestrian access into the Orchard Centre and site area including Station Road, Hitchcock Way (including a subway beneath the railway line connecting with the Ladygrove Estate), High Street and Broadway.

- 2.39 Pedestrian crossing facilities are provided on Hitchcock Way at the junction of Hitchcock Way / Cow Lane, at Hitchcock Way / High Street and between the Ladygrove subway and the Jubilee Way / Hitchcock Way roundabout.
- 2.40 Broadway has footways on both sides of the road with controlled pedestrian crossing facilities provided at the Jubilee Way roundabout, Broadway / High Street junction and at the western end of the existing Orchard Centre.
- 2.41 The key pedestrian links between the town centre and Ladygrove residential area to the north of the town centre are the crossing at Cow Lane, the Ladygrove subway and Broadway.
- 2.42 Central Government research refers to a distance of 2km as the maximum distance over which walking might replace car trips. Similarly, the Institution of Highways and Transportation (IHT) Guidelines suggest a maximum 'acceptable' walking distance for pedestrians without a mobility impairment of 2km. Large residential areas within Didcot including Brasenose, Fleet Meadow and Ladygrove are situated within a 2km walking catchment of the site. This is shown on **Figure 3**.

Cycling

- 2.43 The National Cycle Network (NCN) Route 5 passes through Didcot via a number of on-road routes and traffic-free routes. NCN Route 5 incorporates an off-road route between Basil Hill Road, Didcot Parkway Station and Cow Lane. Route 5 then passes under the railway bridge and travels north via an off-road route to Long Wittenham to join up with the Oxfordshire Cycleway route 40, and east towards South Moreton.
- 2.44 In addition to the National Cycle Network Route 5, there are a number of local cycle routes within Didcot. Segregated off-road cycle routes are provided along both sides of Hitchcock Way, connecting through the Orchard Centre car park on a route adjacent to the petrol filling station. Cyclists also travel along High Street.
- 2.45 The Ladygrove Estate includes a comprehensive network of cycle routes, which link into the National Cycle route and the Ladygrove subway near the roundabout of Hitchcock Way / Jubilee Way.
- 2.46 Central Government research states that cycling has the potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport.

The 5km cycle catchment includes the entire Didcot urban area and beyond to Appleford to the north, North Moreton to the east, Upton and West Hagbourne to the south and Harwell to the west, as shown on **Figure 4**.

Taxi Services

- 2.47 A taxi rank is located on High Street. This has the capacity for approximately four taxis. Taxis are able to arrive and depart the rank from both Broadway and Hitchcock Way. The taxi rank is illustrated on **Figure 2**.

Bus Services

- 2.48 The current arrangement for bus services is for buses to serve bus stops on High Street. There are bus stops on both the northbound and southbound carriageways of High Street, approximately 85m north of the junction with Broadway. The bus stops comprise bus shelters, but do not have any Real Time Information. The majority of services are operated by Thames Travel.
- 2.49 A summary of the bus services that serve Didcot town centre is provided in **Table 2.1**.

Table 2.1: Bus Services, Destinations and Frequencies

Bus Service	Operator	Destinations	Frequency (During Peak Hours)		
			Weekday	Saturday	Sunday
32	Thames Travel	Didcot Parkway – Harwell Campus – Chilton	-	-	1 every hour
91	Whites Coaches	Didcot – Ladygrove – Didcot (Circular)	1 every hour	1 every hour	-
92	Whites Coaches	Didcot Broadway – Swimming Pool – Broadway (Circular)	1 every hour	1 every hour	-
94	Thames Travel	Didcot – West Hagbourne – Blewbury – Didcot	1 every hour	1 every 90 mins	-
95	Thames Travel	Didcot – North Moreton – Blewbury – Didcot	1 every two hours	1 every two hours	-
97	Thames Travel	Didcot – Berinsfield – Wallingford	1 every three hours	1 every three hours	-
98	Walters Coaches	Great Western Park – Didcot – Great Western Park	1 every 30 mins	1 every 30 mins	-
A1	Oxfordshi	Didcot – Ardington –	1 every	-	-

	re County Council	Wantage – Ardington – Didcot	three hours		
M10	Courtney Buses	Milton Park – Didcot – Milton Park	1 every 15 mins	-	-
X1/X32/X33	Thames Travel	Oxford – Abingdon – Milton Park – Harwell Campus – Wantage	1 every 30 mins	1 every 30 mins	1 every 30 mins
X2	Thames Travel	Oxford – Abingdon – Milton Park – Didcot – Wallingford	1 every hour	1 every hour	1 every hour
TOTAL (Buses per hour)			12-15	8-10	3-4

- 2.50 This shows that during weekday peak hours, Didcot town centre is served by 12-15 bus services per hour. This illustrates that the town centre is well-served by buses during weekday peak hours. There is a reduced frequency at other times, particularly Sundays when there are just 3-4 bus services per hour.
- 2.51 Bus services serve local destinations within Didcot and also destinations further afield including Abingdon, Oxford, Wallingford and Wantage.
- 2.52 A plan showing the existing bus routes is shown on **Figure 5**.

Rail Services

- 2.53 The nearest rail station to the site is Didcot Parkway, which is located approximately 650 metres to the north west of the site. It is readily accessible on foot via Hitchcock Way and Station Road, both of which have dedicated pedestrian facilities and crossing points.
- 2.54 Didcot Parkway is served by local services operated by First Great Western from Reading to Didcot and Oxford, and by long distance services from London Paddington to Bristol and South Wales.

Summary

- 2.55 The site is well-located for access by sustainable modes of transport. It is conveniently positioned adjacent to existing retail facilities, providing the opportunity to extend the existing network of pedestrian routes within the town centre. It is also well-connected to the existing cycle network, with high quality segregated cycle routes already provided on Hitchcock Way and connecting through the existing Orchard Centre car park. There are a

number of bus services serving the town centre and rail services are readily available from Didcot Parkway, less than 10 minutes walk from the site.

3 DEVELOPMENT PROPOSALS

Scheme Elements

3.1 The proposals comprise the demolition of the existing industrial buildings and construction of 15,029 sqm of gross external area commercial floorspace. This includes the following elements:

- An anchor store of 1,595 sqm to be occupied by and M&S Foodhall;
- 23 individual retail units with a total floorspace of 9,253 sqm;
- 3 restaurant units and a kiosk with a total floorspace of 709 sqm;
- 7 A1-A3 mixed use units with a total floorspace of 1,874 sqm;
- A gym of 1,509 sqm above the new retail units; and
- Replacement public toilets.

3.2 A copy of the Architect's Scheme Layout is shown in **Appendix B**.

Scheme Layout

3.3 The pedestrianised shopping street (Orchard Street) at the heart of the existing Orchard Centre will be extended. It will be flanked by a range of retail units in two parallel terraces and an anchor store designed specifically for Marks and Spencer, which will terminate the retail circuit at the north east of the site.

3.4 A3 units will be located at the key pedestrian access points; to the north adjacent the proposed anchor store; the pedestrian link to Broadway; and to the south-west adjacent the steps to main Orchard Centre car park. At first floor above the eastern flank of the pedestrian link to Broadway, a gym is proposed.

3.5 A key element of the proposal is the long-term aspiration of creating a 'plaza' at the heart of the town centre, surrounded by shops and restaurants, which will function as the new centre and provide a focal point for visitors. This will connect the existing pedestrianised Orchard Street with the new retail units.

3.6 Footfall and visibility will be maximised by the provision of a number of pedestrian linkages. This includes a link to Broadway and Hitchcock Way adjacent to the M&S Foodhall. These

points are also the proposed locations for the main public spaces, ensuring that they are well-used and overlooked. In addition the existing (poorly used) amphitheatre will be replaced with a food and beverages kiosk and extended public space/seating area. The start of a future easterly pedestrian linkage to a further phase of development will also be provided immediately to the north of the M&S Foodhall.

- 3.7 Further information on the scheme layout will be provided in the Design and Access Statement forming part of the planning submission.

Vehicle Access

- 3.8 Access to the main Orchard Centre car park will continue to be provided from the signalised junction with Hitchcock Way. No changes are required to the layout of this junction.
- 3.9 Access to the site from the existing signalised crossroads junction with Broadway and High Street will be closed and the junction will be converted to a three arm priority junction with Broadway and the southern arm of High Street. A replacement pedestrian crossing facility will be provided in the form of a zebra crossing on Broadway. This accommodates pedestrian movement between the scheme and residential areas to the south of Broadway. A further priority junction will be provided on Broadway to the new car park and existing service yard. The proposals are illustrated on **Drawing no. 110350/A/62/E**.

Car Parking

- 3.10 It is proposed to increase the total parking provision by 101 spaces, from 688 spaces to 789 spaces. The breakdown of different types of parking spaces for the existing and proposed parking provision is provided in **Table 3.1**.

Table 3.1: Car Parking Provision

	Existing		Proposed	
	No.	%	No.	%
Disabled	38	6%	47	6%
Parent & Child	3	0%	13	2%
Standard	650	94%	729	92%
TOTAL	688	100%	789	100%

- 3.11 The increase in car parking provision is provided by extending the existing Orchard Centre car park, creating a new car park adjacent to the west of the Sainsbury’s store and replacing the two car parks accessed from Broadway with a new southern car park with a single point of access from Broadway.
- 3.12 The new car park adjacent to the west of the Sainsbury’s store would be accessed from the main Orchard Centre car park access with Hitchcock Way. A plan illustrating this arrangement is shown at **110350/A/57/E**.
- 3.13 The existing and proposed car parking provision is summarised in **Table 3.2**.

Table 3.2: Car Parking Ratio to Floorspace

	Existing	Proposed
Floorspace	25,256	40,285
Car Parking	688	789
Ratio	1 space per 36.7 sqm	1 space per 51.1 sqm

- 3.14 The South Oxfordshire Local Plan maximum car parking standards are given in **Table 3.3**.

Table 3.3 – Car Parking Standards

Use Classes	Maximum Parking Standards
A1	Food: 1 space per 14 sqm Non Food: 1 space per 20 sqm
A3	1 space per 5 sqm of public space
D2	1 space per 22 sqm

- 3.15 The existing and proposed car parking ratio to floorspace set out in Table 3.2 are higher than the car parking standards for retail uses set out in Table 3.3. The proposed car parking ratio of 1 space per 51.1 sqm of floorspace is higher than the existing ratio of 1 space per 36.7 sqm. Car parking is considered further in Section 6.

Cycle Parking

- 3.16 80 additional covered cycle parking spaces will be provided at three convenient locations around the site. These are:
 - Adjacent to proposed retail terrace within the Orchard Centre car park;
 - Adjacent to the proposed M&S Foodhall unit; and
 - Within the proposed southern car park.

- 3.17 This gives a ratio of 1 space per 175 sqm of additional floorspace.
- 3.18 The South Oxfordshire Local Plan minimum cycle parking standards are illustrated at **Table 3.4**.

Table 3.4 – Cycle Parking Standards for different Use Classes

Use Classes	Parking Provision Minimum Standards
A1	Food: 1 stand per 12 staff (1 staff per 50 sqm) & 1 stand per 200 sqm Non Food: 1 stand per 6 staff (1 staff per 50 sqm) & 1 stand per 200 sqm
A3	1 stand per 12 staff (1 staff per 7 sqm) & 1 stand per 20sqm of public space
D2	1 stand per 12 staff (1 staff per 7 sqm) & 1 stand per 20sqm of public space

- 3.19 It is recognised that the proposed cycle parking provision does not accord with the minimum cycle parking standards. However, since the existing cycle parking provision is under-utilised it is considered that the additional cycle parking will be more than sufficient to meet demand. Nonetheless, cycle parking usage will be monitored through the Travel Plan and additional cycle parking will be provided if necessary.

Motorcycle Parking

- 3.20 In the absence of parking standards for motorcycles, it is proposed that six motorcycle spaces will be provided within the Orchard Centre Car Park. The spaces will be conveniently located in the south eastern corner of the main Orchard Centre car park, adjacent to the pedestrianised area.

Taxi Rank

- 3.21 There will be a pick-up / drop-off point for taxis in the new southern car park, accessed from Broadway. The existing pick-up / drop-off point adjacent to the Sainsbury’s store will be maintained.
- 3.22 A new taxi rank will also be created in the main Orchard Centre car park. This replaces the existing taxi rank on High Street.

Bus Services

- 3.23 The extension of the Orchard Centre will require the rerouting of some buses, which currently make use of bus stops on High Street. Following detailed discussions with OCC, SODC and the bus operator, Thames Travel, it is proposed to reopen Station Road as a two-

way route for buses. Station Road previously functioned as a two-way bus route prior to the opening of Phase 1 of the Orchard Centre. The pedestrianised area between Station Road and Broadway has been designed to accommodate a shared surface for buses / pedestrians and cyclists. The bollards at the southern end of Station Road would be removed to provide a through route for buses. At the junction with Broadway, there is an existing dropped kerb which buses would be able to use to turn right onto and left from Broadway. New signage would be required on Station Road and Broadway.

- 3.24 Replacement bus stops will be provided at the northern end of the shared surface area. **Drawing no. 110350/A/54/H** shows the proposed arrangement.
- 3.25 The effects of the proposals on bus services is discussed further in Section 8.

Deliveries and Servicing

- 3.26 Deliveries and servicing will take place off-street within a dedicated secure service yard accessed from the existing signalised junction with Hitchcock Way, rather than requiring a new access direct to the external road network. The service yard is located to the rear of the retail terrace and it would accommodate all of the servicing requirements of the new retail units. Deliveries to the retail units within the western terrace would be trolleyed through an entry point located to the south of the anchor store. Swept path analysis is provided on **Drawing no.'s 110350/AT/D01/D** and **110350/AT/D02/C** to demonstrate that the manoeuvres of servicing vehicles can be accommodated within the service yard and within the turning area.
- 3.27 The access to the service yard for the existing Orchard Centre on Broadway has been amended. It would be taken from a new priority junction on Broadway which would also provide access to the southern car park. There would be no change in the layout of the service yard for the existing Orchard Centre.

Framework Travel Plan

- 3.28 A Framework Travel Plan has been prepared and is included at **Appendix C**. This sets out the overarching aims and objectives which will be apply to each retailer and visitors to the site. It has been developed in accordance with OCC's guidance document published in March 2014 named 'Transport assessments and travel plans.'

Stopping Up

- 3.29 It is proposed that the section of High Street between Broadway and Hitchcock Way is closed and stopped up as public highway. New highway would be provided along the existing pedestrianised area between Broadway and Station Road, to reprovide the bus facility on High Street. An application is being made under Section 247 of the Town and County Planning Act 1990.
- 3.30 A plan showing the area proposed to be stopped up and the area proposed for new highway is shown at **Drawing number 110350/SK/58/B**.

4 POLICY CONTEXT

4.1 This section of the report considers the current and emerging planning policy guidance at national and local level.

National Policy

National Planning Policy Framework (NPPF)

4.2 The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied.

4.3 One of the 12 core land-use principles within the NPPF includes:

"[to] actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable."

4.4 Section 4 of the NPPF deals with 'Promoting sustainable transport.' Paragraph 29 states that:

"the transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel."

4.5 Paragraph 32 sets out the transport issues which should be addressed within Development Plans and decisions. These are:

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

National Planning Practice Guidance (March 2014)

- 4.6 On 6 March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance (NPPG) web-based resource. One section relates specifically to Transport and is titled 'Travel Plans, Transport Assessments and Statements in decision-taking' and this provides the overarching principles of Travel Plans, Transport Assessments and Statements.
- 4.7 The guidance explains the role of Transport Assessments and Statements as: "ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans)". The guidance also states that Travel Plans are "long term management strategies for integrating proposals for sustainable travel into the planning process" and they; "should where possible be considered in parallel to development proposals and readily integrated into the design and occupation of the new site rather than retrofitted after occupation."
- 4.8 The guidance demonstrates that Transport Assessments and Statements and Travel Plans can positively contribute in the following ways:
- *"encouraging sustainable travel;*
 - *lessening traffic generation and its detrimental impacts;*
 - *reducing carbon emissions and climate impacts;*
 - *creating accessible, connected, inclusive communities;*
 - *improving health outcomes and quality of life;*
 - *improving road safety; and reducing the need for new development to increase existing road capacity or provide new roads."*

Local Policy

Oxfordshire County Council: Transport for New Developments: Transport Assessments and Travel Plans (March 2014)

- 4.9 The objective of the document is to demonstrate the requirements needed within Transport Assessments and Travel Plans.
- 4.10 OCC states that for *'larger developments a Transport Assessment and Travel Plan are required'* (para. 1.7). OCC also states that pre-application discussions are *'strongly recommended'* (para. 1.10) to determine whether a Transport Assessment is required. On the 25th of September and 1st of December pre-application responses were received from OCC in relation to this application.
- 4.11 This Transport Assessment Report follows the guidance set by OCC which states that *'an assessment of all of the modes of transport and travel pattern of any development may range from a simple and straightforward process to one that is complex and 'non-standard''* (Para 1.5). An assessment on the impact of all modes of transport will be carried out in this assessment.
- 4.12 The document states that the following points (where relevant) should be contained within the document (para. 3.7):
- the extent and feasibility of the development access proposals, including plans showing any necessary highway improvements and the impact these and any additional traffic will have on the existing local environment;
 - how the development can be accessed by walking, cycling, motor cycling, public transport, cars, service and delivery vehicles, and emergency services;
 - how encouragement will be given to travel by walking and cycling within the development;
 - proposals for new public transport provisions and details of any facilities related to these;
 - how future travel patterns will be monitored and reviewed, and
 - parking provisions to be made for cars, cycles and motorcycles.

4.13 These points are covered in the Transport Assessment and Framework Travel Plan.

South Oxfordshire District Council Core Strategy

4.14 South Oxfordshire District Council’s Core Strategy was adopted in December 2012. It sets out to ensure that *“residents continue to enjoy the quality of life the district offers”*.

4.15 Policy CSDID2 specifically relates to The Orchard Centre. It has been reproduced below.

<p>Policy CSDID2 The Orchard Centre</p> <p>Permission will be granted for a mixed-use retail-led development to include:</p> <ul style="list-style-type: none"> ▪ 20,000 m² to 25,000 m² gross of additional retail floorspace (Use Classes A1-A5) ▪ approximately 300 dwellings, and ▪ may also include leisure, community, commercial and hotel uses <p>on land at the Orchard Centre (as shown on the Adopted Policies Map) provided that the scheme:</p> <ul style="list-style-type: none"> ▪ provides for the comprehensive development of the whole site ▪ provides a movement network that extends and improves the existing urban pattern ▪ maximises the amount of active frontage onto streets ▪ creates an attractive and multi-functional urban realm ▪ creates a safe and lively environment ▪ provides a form of development which responds to the topography of the site with building heights appropriate to adjacent development ▪ provides additional car parking and servicing including reconfiguring the existing provision where necessary, and ▪ considers alternatives to the spine road through the site.
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4.16 In terms of transport, Policy CSDID2 states that the scheme should provide additional parking and servicing and consider alternatives to the spine road through the site.

4.17 Objective 5 of the Core Strategy relates to transport and has been reproduced below.

<p>Objective 5: Getting around</p> <ul style="list-style-type: none"> (i) Encourage the use of sustainable modes of transport whilst recognising that the rural nature of the district means that many residents will rely on car travel. (ii) Make sure that new development is accompanied by the necessary infrastructure for efficient and effective transport systems. (iii) Encourage adequate provision for parking. (iv) Encourage improvements to make cycling and walking safer and more attractive. (v) Support local and community led transport initiatives.

4.18 Policy CSM1 of the Core Strategy relates to transport and has been reproduced below.

Policy CSM1 Transport

The council will work with Oxfordshire County Council and others to:

- (i) in partnership with the Vale of White Horse District Council, actively seek to deliver the transport infrastructure and measures which improve movement in Didcot and within the Didcot/ Wantage and Grove corridor, in particular linking Didcot with the major employment sites at Harwell and Milton Park as identified in the County Council's LTP3 SVUK Area Strategy and Southern Central Oxfordshire Transport Study;
- (ii) actively seek to ensure that the impact of new development on the strategic and local road network, in particular the Milton, Chilton and Marcham junctions of the A34 and the road links and junctions identified in the Council's Evaluation of Transport Impact and County Council's Southern Central Oxfordshire Transport Study is adequately mitigated (see Policy CSM2);
- (iii) support improvements for accessing Oxford;
- (iv) work with the authorities affected by cross Thames travel in the Reading area to ensure that traffic and environmental conditions in South Oxfordshire are improved by the implementation of measures which also improve access to Reading;
- (v) support measures which enable modal shift to public transport, cycling and walking particularly where these support the network of settlements in the district;
- (vi) promote and support traffic management measures and environmental improvements which increase safety, improve air quality, encourage the use of sustainable modes of transport and/or make our towns and villages more attractive;
- (vii) adopt a comprehensive approach to car parking aimed at improving the attraction of our town and village centres;
- (viii) encourage the use of sustainable modes of transport;
- (ix) promote electronic communications allowing businesses to operate throughout the district and to provide services and information which reduce the need to travel and encourage sustainable modes of transport; and
- (x) cater for the needs of all users.

4.19 The relevant parts of Policy CSM1 are (v) supports measures to enable a mode shift to sustainable modes, (vii) adopts a comprehensive approach to car parking aimed at improving the attraction of town centres, (viii) encourage the use of sustainable modes of transport and (x) cater for the needs of all users.

Summary

4.20 The proposals seek to accommodate the needs of sustainable transport users including pedestrians, cyclists, bus, taxi and rail users. Improving pedestrian links within the site and providing connections to the wider area is one of the key aims of the scheme. The proposals also include upgrades to cycle parking and replacement facilities for bus users. Additional parking will be provided, but this will not be pro-rata the increase in retail floorspace, encouraging the uptake by sustainable modes.

4.21 Therefore, the development proposals comply with the relevant transport policies at national and local level.

5 MULTI-MODAL TRIP ATTRACTION

Background

- 5.1 When considering the future expansion of the Orchard Centre, it is important to understand that an increase in retail floorspace and trade will not lead to a proportional increase in trips to the centre. i.e. a 10% increase in retail floorspace will not result in a 10% increase in trips. This is because residents of Didcot are likely to already undertake a shopping trip to the town centre because the Orchard Centre and Broadway already offer a range of comparison retail units as well as a Sainsbury's supermarket. Hence a significant majority of the increase in trade is likely to come from existing customers on existing trips to the Orchard Centre and who are already using local transport networks. For example, an existing customer may spend more of their shopping budget during one trip (due to the greater range of goods on offer). There is limited scope for a considerable increase in new trips.
- 5.2 Limited recent data is available from retail extensions within town centres, as is in the case with the Orchard Centre. This is possibly because of the difficulty in undertaking traffic surveys in town centres where customers may have a choice of town centre car parks and there may be changes in traffic levels attributed to other local developments.
- 5.3 Nevertheless, there is other evidence available to support this including customer transaction data that has been obtained at Sainsbury's supermarket extensions to identify the average uplift in customer transactions compared to pro-rata the increase in sales area. It's worth noting that supermarket extensions typically increase the range of goods on offer, particularly non-food items such as electricals and clothing. This is also illustrated within the TRICS Research Report 14/1 published in December 2014 which states that *'as gross floor area increases, the facilities provided within the store expands.'*
- 5.4 Data from Sainsbury's supermarket extensions collected between 2002-2003 shows that typically a 10% increase in floorspace leads to only a 1.9% increase in customers. Detailed evidence of this is provided in **Appendix D**. Even though the Sainsbury's data relates to foodstores the principles apply whether the issue is food or comparison shopping. The use of this data for assessing non-food planning applications has been accepted by a number of planning and highway authorities in recent years.

- 5.5 This includes planning permissions for extension of retail parks including Coliseum Retail Park in Cheshire, The Peel Centre, Bracknell, The Fort Shopping Park in Birmingham, Bluewater Shopping Centre and Ashford Retail Park, Kent. These are all primarily non-food retail facilities. Further details are provided in **Appendix D**.
- 5.6 This methodology is also particularly relevant to the Orchard Centre Extension since there is an existing Sainsbury’s supermarket at the Orchard Centre which contributes to a significant proportion of the existing trip generation.
- 5.7 To further illustrate that retail extensions attract a small proportion of new trips, interview surveys were conducted at Lakeside Shopping Centre in April 2007 in consultation with Thurrock Borough Council and the Highways Agency. The Lakeside Shopping Centre is surrounded by other retail uses such as IKEA, B&Q, Costco, Tesco and a retail park. The primary purpose of the survey was to gain information in relation to the existing level of trip linkage (i.e. whether people were visiting more than one of the different retail areas in the Lakeside area). On the Friday, 95% of trips were linked and on the Saturday 94% of trips were linked.
- 5.8 Further evidence is provided from ‘before’ and ‘after’ traffic surveys undertaken following a significant retail expansion in the Birstall area near Leeds. Two sets of automatic traffic counts were undertaken, one in 1999 and one in 2004. In the intervening period there was a major expansion of the retail area including:
- Opening of the Junction 27 Retail Park (circa 11,250 sqm)
 - Significant expansion of the Birstall Retail Park (circa 2,500 sqm)
 - Extension of the Ikea store (circa 2,500 sqm)
- 5.9 The results of the Automatic Traffic Counts (ATC) are shown in **Table 5.1**.

Table 5.1: Comparison of 1999 and 2004 traffic flows on A62 at Birstall

Peak Period	1999 PCUs	2004 PCUs
Friday Evening	1,316	1,133
Saturday	1,527	1,548
Sunday	1,789	1,808

- 5.10 As can be seen, the traffic flows are very similar notwithstanding the significant increase in retail area.

5.11 A second piece of evidence from ‘before’ and ‘after’ traffic surveys is from the Bell Green area in Sydenham. Automatic Traffic Counter surveys were carried out on the highway network before and after opening of a Savacentre Superstore of 13,857 sqm with over 1,000 car parking spaces. Savacentres comprised a Sainsbury’s food retail element and a BHS non-food comparison element. This is comparable to the mix of food / non-food retail that would be provided by the Orchard Centre Extension. The results of the traffic counts collected in 2000 and 2001 are provided in **Table 5.2** below.

Table 5.2: Car trips before and after Savacentre opening

Peak Period	Before Opening (2000)	After Opening (2001)
Friday	1,421	1,416
Saturday	1,697	1,613

5.12 As can be seen, there was no significant change in traffic flows on the surrounding highway network notwithstanding the opening of the Savacentre store.

5.13 From the evidence that is available, there is likely to be a very significant level of trip linkage between the existing Orchard Centre and the proposed extension. This will assist in reducing the number of trips undertaken by customers and thus carbon emissions.

5.14 The following paragraphs set out the methodology to establish the additional vehicular trips which are likely to be attracted to the extension. The first stage is to consider the number of new trips attracted to the Orchard Centre. The second stage considers how this traffic will be split between the different types of trips.

Uplift Factor

5.15 The planning application will increase the retail floorspace at the Orchard Centre by up to 10,669 sqm gross internal area, which is 42% of the existing 25,256 sqm of floorspace at the existing Orchard Centre. Applying the uplift factor in customer / staff numbers derived from the Sainsbury’s extensions data shows that there would be a corresponding increase in customer / staff numbers of 8%. However, it is acknowledged that the final mix of retailers at the Orchard Centre Extension is unknown at this stage. Thus to provide a robust assessment of the estimate of additional trips, a 50% increase to account for this uncertainty has been applied to the 8% increase derived from Sainsbury’s extensions data. This gives a 12% uplift in trips.

- 5.16 At the request of the highway authority, a sensitivity test has been carried out with a higher level of traffic attraction. A 100% increase has been applied to the 8% increase derived from Sainsbury's extensions data. This gives an uplift of 16%. However, based on the evidence from other retail extensions presented in this section, we do not consider this increase will be realised.
- 5.17 With specific regard to vehicle trips, the observed traffic entering / exiting from the existing Orchard Centre as obtained from a traffic survey (a copy of which is included at **Appendix G**), will be factored up by this percentage to derive the proposed development traffic flows. It's worth noting that a large proportion of the existing traffic is attributed to the Sainsbury's supermarket. Given that food retail trip rates are higher than non-food retail trip rates, applying an uplift to the existing traffic visiting the Orchard Centre is robust.
- 5.18 OCC has suggested that the increase in the number of retail units is a determinant in the trip attraction, rather than the increase in retail floorspace. This is not the case in respect of the Orchard Centre Extension and it should not be considered as a guide to the potential increase in trips. Firstly, it is widely accepted that an anchor store of the equivalent floorspace to a number of individual units creates more of a destination and would attract more customers. Secondly, the proposed retail units are likely to complement the existing range of retail units and will not fundamentally alter the retail mix within the town centre.
- 5.19 Trips to the proposed gym have also been considered. The vast majority of these trips will be linked with existing trips to the Orchard Centre. Also, the gym is unlikely to attract new trips during peak hours, since gym users are unlikely to make a dedicated leisure trip when the road network is busiest. However, to provide a robust assessment the TRICS database has been interrogated for leisure centres including gyms in order to derive vehicle trip rates. It is then proposed to apply an 80% reduction to take account of linked trips. The resultant vehicle trips will be included in the trip attraction. The TRICS output is included at **Appendix D**.
- 5.20 Not all of the additional vehicle trips will be "new" to the road network. Customers are not simply sitting at home waiting for a retail development to open. Hence, consideration has been given to the different types of vehicle trips that may be attracted to the proposed extension of the Orchard Centre.

Vehicle Trip Types

- 5.21 During peak network periods it is highly likely that a large proportion of those visiting the Orchard Centre will be on the way from or to another activity, e.g. during the weekday evening peak hour on the way home from work. In other words few people will leave their homes during the network peak to make a primary trip to the Orchard Centre. This is evidenced from surveys at other retail schemes as discussed in paragraphs 5.1 to 5.14.
- 5.22 Thus the additional trips attracted to the Orchard Centre could take the form of one of many types, as set out below:
- New / Transferred: these trips do not appear anywhere on the local road network prior to the opening of the development.
 - Diverted: where a trip is already on the local road network, e.g. the A4130 Milton Road or the B4016 Jubilee Way but not the roads from which site access is taken (Broadway and Hitchcock Way), and will divert from their existing route to visit the Orchard Centre.
 - Pass-by: this takes account of the fact that some trips to the retail development would be passing by en route to an alternative destination, e.g. on the way home from work passing along Broadway or Hitchcock Way. Pass-by trips occur for visits to food and non-food retail. There are several examples of pass-by trips for non-food retail including, for example, visiting to purchase a new pair of socks or a birthday card when on the way home from work.
- 5.23 TRICS Research Report 14/1 specifically relates to Pass-by and Diverted Trips. It notes that commercial research undertaken by Somerfield in 1996 and Tesco in 2001 has presented a correlation between the proximity of a store to a town centre and the propensity for store customers to visit other shops within a town centre. With specific reference to pass-by trips the report notes *'as a store's proximity to a town centre increases, the potential percentage of pass-by trips also increases.'* This research is relevant because the Orchard Centre Extension will be located within Didcot town centre. It would therefore suggest that which facilitates a higher proportion of pass-by trips could be expected at the extension because of its town centre location.

- 5.24 The TRICS report also notes that in calculating pass-by and diverted trips, *‘the proximity of the development to major infrastructure should be calculated. This includes, but is not limited to, railway stations and public transport interchanges; schools; large residential areas; other commercial areas; competition sites; and major office / workplace areas.’* The Orchard Centre Extension is located in proximity to Didcot Parkway Rail Station which has a bus interchange; and is also adjacent to residential areas and other commercial areas along Broadway within the town centre.
- 5.25 In view of the evidence set out above, the following breakdown of trip types is proposed, as shown in **Table 5.3**.

Table 5.3 – Trip Types

Type	Proportion	Rationale
Diverted	10%	The Orchard Centre is located near to strategic routes such as the B4016 and a proportion of trips can simply divert to visit the proposed development.
Pass-By	30%	Some customers may pass-by whilst en route to an alternative destination, e.g. on the way home from work. The Orchard Centre is well-located adjacent to Broadway and Hitchcock Way, which are both key routes within Didcot.
Primary	60%	These are trips that are dedicated to the Orchard Centre and do not appear on the local road network prior to the opening of the development. However, in reality many will transfer from other retail facilities elsewhere from Didcot.
Total	100%	

- 5.26 Table 5.3 demonstrates that 60% of the additional trips are anticipated to be new to the local road network altogether. 30% would be pass-by trips and 10% would be diverted trips.

Vehicle Trip Attraction

- 5.27 Based on a 12% and 16% increase in existing traffic flows, the resultant breakdown in additional vehicle trips during the development peak hours is shown in **Tables 5.4** and **5.5**. Trips associated with the existing uses to be demolished have been discounted from the proposed vehicle trip attraction.

Table 5.4 – Net Additional Vehicle Trip Attraction: 12% Uplift Scenario

	Friday PM Peak Hour (16:15–17:15)			Saturday Peak Hour (12:00–13:00)		
	Arr	Dep	Tot	Arr	Dep	Tot
Diverted	5	7	12	7	8	15
Pass-By	16	20	35	21	24	45
Primary	31	39	70	42	48	90
Gym	5	3	8	7	7	14
Existing Use	-7	-7	-14	-4	-5	-9
Total	50	61	111	74	81	155

Table 5.5 – Net Additional Vehicle Trip Attraction: 16% Uplift Sensitivity Test

	Friday PM Peak Hour (16:15–17:15)			Saturday Peak Hour (12:00–13:00)		
	Arr	Dep	Tot	Arr	Dep	Tot
Diverted	7	9	16	9	11	20
Pass-By	21	26	47	28	32	60
Primary	42	52	94	57	63	120
Gym	5	3	8	7	7	14
Existing Use	-7	-7	-14	-4	-5	-9
Total	67	83	150	97	107	205

5.28 This shows that there would be a maximum net increase of 205 vehicle trips during the Saturday peak hour.

Vehicle Trip Distribution

5.29 Primary trips to the store have been distributed according to 2011 Census origin-destination data. This is the best source of site specific information available and despite it being related to journeys to work, it is also relevant for shopping trips. The car trips into the middle super output area where the site is (South Oxfordshire O10) have been interrogated to determine where they originate from and how many trips are undertaken. Assumptions on route choice between the origins and destination have been made and percentages have been attributed to each key link on the local network. Further details are provided at **Appendix E**.

5.30 It has also been assumed that the majority of the traffic will use the Hitchcock Way access instead of the Broadway access as there are more opportunities to park. On this basis it is assumed that approximately 95% of the generated traffic would use the Hitchcock Way

access and 5% would use the Broadway access. These proportions have been calculated based on the car parking provision provided from each access.

- 5.31 Based on the description above, the distribution for primary trips generated by the proposed scheme is shown in **Table 5.6** below.

Table 5.6: Distribution

Link	% via Hitchcock Way Access		% via Broadway Access	
	Arrivals	Departures	Arrivals	Departures
Broadway	7.8	7.8	1.4	1.4
B4016	23.7	29.3	2.6	2.6
Hitchcock Way	47.2	47.2	0	0
Jubilee Way	10.6	10.6	1.2	1.2
Cow Lane	5.6	0	0	0

Mode Split

- 5.32 2011 census data for journeys to work within the Didcot All Saints ward (the ward containing the Orchard Centre) has been used to derive a mode split. This is shown in **Table 5.7**.

Table 5.7: Mode Split

Mode	Mode Share
Train	2%
Bus	3%
Taxi	0%
Motorcycle	1%
Car Driver	55%
Car Passenger	5%
Cycle	7%
On Foot	27%
TOTAL	100%

- 5.33 The greatest proportion of journeys take are by car driver with 55% of the total. However, a significant proportion of journeys to the Orchard Centre take place on foot, with 27% of the total. This is followed by 7% cycling, giving a total of 34% of journeys on foot or bicycle.
- 5.34 A multi-modal trip attraction for the Friday and Saturday peak hours is included in the Transport Assessment, based on the mode split in Table 5.7.

Multi-Modal Trip Attraction

5.35 The resultant multi-modal trip attraction is set out in **Table 5.8** for the 12% Uplift scenario and **Table 5.9** for the 16% Uplift scenario.

Table 5.8: Multi-Modal Trip Attraction – 12% Uplift Factor

Mode	Fri PM Peak Hour			Sat Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Train	2	2	4	3	3	5
Bus	3	4	6	4	4	8
Taxi	0	0	0	0	0	0
Motorcycle	1	1	2	1	1	3
Car Driver	52	65	117	71	79	150
Car Passenger	5	6	11	6	7	14
Cycle	7	8	15	9	10	19
On Foot	26	32	57	35	39	74
TOTAL	94	118	213	129	144	273

Table 5.9: Multi-Modal Trip Attraction – 16% Uplift Factor Sensitivity Test

Mode	Friday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Train	3	3	6	3	4	7
Bus	4	5	9	5	6	11
Taxi	0	0	0	0	0	0
Motorcycle	1	2	3	2	2	4
Car Driver	69	87	156	94	106	200
Car Passenger	6	8	14	9	10	18
Cycle	9	11	20	12	13	25
On Foot	34	43	77	46	52	98
TOTAL	126	158	284	172	192	364

5.36 This shows that a 12% uplift in trips would attract an additional 273 trips during the Saturday peak hour. A 16% uplift in trips would attract an additional 364 trips during the Saturday peak hour.

6 CAR PARKING

- 6.1 It is proposed to increase the total parking provision by 101 spaces, from 688 spaces to 789 spaces.
- 6.2 The proposed car parking ratio is 1 space per 51.1 sqm of floorspace, which is higher than the existing ratio of 1 space per 36.7 sqm.
- 6.3 This section provides justification for the car park proposals.

Existing Car Park Occupancy

- 6.4 A car park occupancy survey of the existing car parking provision was undertaken on Saturday 21st April 2012 between the hours of 11:00 and 16:00 which is the busiest period of the week. The car parks surveyed included the Broadway East, High Street and Orchard Centre car parks. The Broadway West car park was also surveyed, although this was undertaken by SODC on Friday 5th September 2014.
- 6.5 The combined capacity of each of the car parks on-site is 688 parking spaces. A summary of the survey results is provided in the **Table 6.1** below.

Table 6.1: Existing Car Park Occupancy (688 existing spaces)

Time	Orchard Centre Car Park	Broadway East	High Street	Broadway West	Total (688 spaces)	Occupancy
11:00	392	49	18	20	479	70%
11:15	422	48	19	20	509	74%
11:30	447	51	20	20	538	78%
11:45	449	52	22	20	543	79%
12:00	456	55	28	27	566	82%
12:15	425	53	25	27	530	77%
12:30	405	54	24	27	510	74%
12:45	361	56	22	27	466	68%
13:00	328	52	22	20	422	61%
13:15	316	52	21	20	409	59%
13:30	306	54	25	20	405	59%
13:45	285	52	22	20	379	55%
14:00	258	50	17	22	347	50%
14:15	244	46	19	22	331	48%
14:30	217	42	14	22	295	43%
14:45	221	44	14	22	301	44%
15:00	220	43	15	18	296	43%
15:15	202	40	15	18	275	40%
15:30	186	35	15	18	254	37%
15:45	165	38	13	18	234	34%
16:00	149	35	12	22	218	32%

- 6.6 The results in Table 6.1 show that the maximum occupancy of the existing car parking was 82% at 12:00, whilst at other times of day, notably from 13:00 onwards, occupancy was considerably lower with a high proportion of spaces unoccupied.
- 6.7 Evidence of existing parking demand at the town centre car parks operated by SODC has also been considered, given the propensity for trips to be linked within the town centre. The most recent survey was undertaken on 5th September 2014. The car parks surveyed include Broadway East (64 spaces), Broadway West (33 spaces), Edinburgh Drive (126 spaces) and High Street (52 spaces). The results across all car parks are summarised in **Table 6.2**.

Table 6.2: Town Centre Car Park Occupancy – Friday 5th September 2014

Time	275 Total Spaces	
	Vehicles Parked	% Occupancy
08:00-09:00	30	11%
09:00-10:00	77	28%
10:00-11:00	141	51%
11:00-12:00	151	55%
12:00-13:00	161	59%
13:00-14:00	161	59%
14:00-15:00	143	52%
15:00-16:00	134	49%
16:00-17:00	159	58%
17:00-18:00	114	41%
18:00-19:00	64	23%

6.8 Table 6.2 illustrates that the maximum existing car park occupancy for the town centre car parks was 59% between 12:00 and 14:00 on the surveyed Friday. This illustrates that there was spare capacity across the day and visitors would have easily found an unoccupied space.

Proposed Car Park Occupancy

- 6.9 In order to calculate the proposed car park occupancy as a result of the Orchard Centre Extension, it is necessary to increase the dwell time to take account of existing customers who are likely to spend more and take longer to complete their visit. Based on research contained within the “Quantitative Analysis of Retail Travel” (Peter Mynors, 1995 TRICS Conference) it has been calculated that the increase in retail floorspace (10,669 sqm) will result in an average additional dwell time of 12 minutes. The car park occupancy has been increased by 20% (12 minutes or a fifth of an hour).
- 6.10 An assessment of the impact on car park occupancy of the additional traffic associated with the Orchard Centre Extension has been undertaken for a Saturday as this is the busiest day of the week (as highlighted by traffic surveys included at Appendix G).
- 6.11 The assessment is based on the proposed car parking provision of 789 spaces and an uplift in development traffic of 12%. An assessment has also been undertaken for an uplift of 16% as a sensitivity test. **Table 6.3** shows the results of the assessment.

Table 6.3: Car Park Occupancy With Development (789 proposed spaces)

Time	12% Uplift Scenario		16% Uplift Scenario (Sensitivity)	
	Vehicles Parked	Occupancy	Vehicles Parked	Occupancy
11:00	644	81.6%	667	84.5%
11:15	684	86.7%	709	89.8%
11:30	723	91.6%	749	94.9%
11:45	730	92.5%	756	95.8%
12:00	761	96.4%	788	99.9%
12:15	712	90.3%	738	93.5%
12:30	685	86.9%	710	90.0%
12:45	626	79.4%	649	82.2%
13:00	567	71.9%	587	74.5%
13:15	550	69.7%	569	72.2%
13:30	544	69.0%	564	71.5%
13:45	509	64.6%	528	66.9%
14:00	466	59.1%	483	61.2%
14:15	445	56.4%	461	58.4%
14:30	396	50.3%	411	52.0%
14:45	405	51.3%	419	53.1%
15:00	398	50.4%	412	52.2%
15:15	370	46.8%	383	48.5%
15:30	341	43.3%	354	44.8%
15:45	314	39.9%	326	41.3%
16:00	293	37.1%	303	38.5%

6.12 Taking into account the increase in dwell time, Table 6.3 shows that a 12% increase in development traffic results in a maximum occupancy of 96.4%. Between 11:15 and 12:30 the car park operates at above 85% occupancy whilst at other times of day there is a significantly greater amount of spare capacity. A 16% increase in development traffic results in a maximum accumulation of 99.9% although capacity only exceeds 85% for a short period of time between 11:15 and 12:30. This shows that although the car park is anticipated to operate at capacity during a short period of time on a Saturday (the busiest day of the week) for a scenario of a 12% and 16% increase in development traffic, there is greater capacity at other times and visitors are likely to change their travel patterns to visit at quieter times when there is greater car parking availability or travel by alternative modes.

6.13 It should also be noted that further town centre car parking is located in on-street parking bays on Broadway and at the Edinburgh Drive car park. Didcot Parkway rail station (less than ten minutes walk from the site) also provides car parking. Visitors are very likely to visit more

than one facility on a visit to the Didcot town centre rather than make a dedicated trip to the Orchard Centre Extension and hence it is relevant that alternative parking is available.

- 6.14 The Orchard Centre Extension is also very well-served by sustainable modes of transport, as discussed in detail in Section 8. The design of the scheme facilitates improved permeability and connectivity for pedestrians and cyclists, as well as a new bus link and associated infrastructure. A shift to sustainable modes will also be promoted through a Travel Plan. These improvements to non-car modes coupled with the fact that retail extensions do not attract a pro rata increase in trip attraction demonstrate that the proposed car parking provision is appropriate.
- 6.15 Finally, it should also be remembered that car parking standards for retail uses are maximum standards and given that the parking provision does not exceed the maximum, the proposal is therefore policy compliant.
- 6.16 Further details on car park surveys are included at **Appendix F**.

Summary

- 6.17 This section of the report has demonstrated that the correct balance has been struck in providing additional car parking to cater for demand, whilst ensuring that excessive parking is not provided which would encourage further car trips. The proposals include the implementation of a Travel Plan, a bus route and new stops and improved pedestrian and cycle facilities. Therefore, non-car based modes of transport to the Orchard Centre are readily available and provide a viable alternative to car-based travel.

7 TRAFFIC FLOWS

Methodology

7.1 This section sets out the traffic flows which have been derived for use in the assessment of the highway impacts of the scheme. The scope of the study network has been agreed with the highway authority, OCC.

Observed Flows

7.2 Traffic surveys were undertaken to understand existing traffic movements on the highway network surrounding the site. The following set of surveys were commissioned:

- Automatic Traffic Counters undertaken between Sunday 26th February and Saturday 3rd March 2012;
- Weekday PM peak period between 16:00 and 19:00 and Saturday peak period between 12:00 and 16:00 manual classified turning movements and queue lengths at five minute intervals at the key junctions on the local highway network; and
- Car park occupancy surveys undertaken in April 2012.

7.3 The traffic surveys have been undertaken within the last three years, in accordance with the 'Guidance on Transport Assessments' 2009. Traffic survey data is included at **Appendix G**.

7.4 The observed traffic flows for the Weekday PM peak and Saturday peak are shown in **Traffic Figures 1 & 2**.

7.5 From the traffic surveys it has been determined that the network peak hours are as follows:

- **Weekday PM Peak:** 16:15 – 17:15
- **Saturday Peak:** 12:00 – 13:00

7.6 The traffic impact is assessed during these hours.

Assessment Years and Scenarios

7.7 The assessment years and scenarios to be assessed are proposed to be as follows:

- 2012: Observed Traffic Flows;

- 2017: Opening Year Baseline Traffic Flows;
- 2017: Opening Year Baseline + Development Traffic Flows;
- 2022: Future Year Baseline Traffic Flows; and
- 2022: Future Year Baseline + Development Traffic Flows.

Committed Development

7.8 The traffic impact assessment has considered the vehicle trip generation associated with the following developments which have been granted planning consent but have not yet been constructed:

- Aldi supermarket of 1,600 sqm (App ref. P14/S4066/FUL) ;
- Ladygrove East Major Development Area for 630 dwellings (App ref. P97/W0721); and
- Hadden Hill Bovis Homes scheme for 74 dwellings (App ref. P13/S3489).

7.9 In absence of any distribution data in the relevant planning documents, the trips generated by the Aldi and Ladygrove developments have been distributed according to the distribution for the Orchard Centre’s primary trips. The Hadden Hill residential committed development traffic has been distributed according to the distribution contained in its associated Transport Assessment. For all committed development traffic, where Saturday trip generation information is absent it has been assumed that the Saturday peak would generate the same amount of traffic as the Weekday PM peak.

7.10 These committed development trips have been added to the 2017 and 2022 growthed traffic flows on the local network and will form the baseline traffic flows.

Traffic Growth

7.11 Medium rate traffic growth factors have been applied to the future year assessments of 2017 and 2022. The growth factors were calculated by adjusting a National Transport Model (NTEM) factor by a local TEMPRO factor for Didcot using the urban and principal parameters. The resultant growth factors are shown in **Table 7.1**.

Table 7.1: Peak Hour Traffic Growth Factors

	PM Peak	Saturday
2012 – 2017	1.03597	1.03692
2012 - 2022	1.10597	1.10976

7.12 Further details regarding the calculation of growth factors are included at **Appendix H**.

Junction Assessment

7.13 Stand-alone junction and signalised network assessments have been undertaken with the appropriate modelling software (e.g. ARCADY 8 and LinSig 3.2 as necessary) at the following junctions:

- Jubilee Way roundabout –Hitchcock Way / B4016 Broadway / B4016 Jubilee Way
- Broadway / High Street
- Hitchcock Way / High Street
- Hitchcock Way / Station Road / Cow Lane

Baseline Flows

7.14 The 2012 observed traffic flows have been growthed using the growth rates set out in Table 7.1 and the committed development flows have been added. The resultant PM peak hour and Saturday peak hour baseline traffic flows for the opening year of 2017 and a future year of 2022 are displayed on **Traffic Figures 3 to 6**.

Development Flows

Primary Traffic Flows

7.15 As shown in Table 5.3, primary traffic flows will comprise 60% of the development traffic. As described in Section 5, the development traffic has been distributed according to origin-destination Census data for the zone in which the site is located. The distribution used for development traffic is displayed on **Traffic Figure 7**. The primary traffic flows for the Weekday PM peak hour and Saturday peak hour are shown in **Traffic Figures 8 & 9**.

Pass-By Traffic Flows

7.16 The development flows for pass-by traffic have been distributed assuming that traffic will pass-by the site access on Hitchcock Way and Broadway from both the eastbound and westbound direction, in accordance with the proportion of existing traffic along each road. It is also assumed that a higher percentage of traffic will pass-by along Hitchcock Way there are more opportunities to park. This results in the following distribution:

- Hitchcock Way – 55% to / from eastbound and 40% to / from westbound
- Broadway – 2% to / from eastbound and 3% to / from westbound

7.17 The development distribution for pass-by traffic flows for the weekday PM peak hour and Saturday peak hour respectively is shown on **Traffic Figures 10** and **11**. The resultant pass-by traffic flows for the Weekday PM peak hour are shown on **Traffic Figure 12** and for the Saturday peak hour on **Traffic Figure 13**.

Diverted Traffic Flows

7.18 The development flows for diverted traffic have been distributed based on the assumption that only southbound traffic on the B4016 arm of the Jubilee Way roundabout, eastbound traffic on the Jubilee Way arm of the Jubilee Way roundabout and westbound traffic from Cow Lane will divert to the site (via the Hitchcock Way or Broadway access). It is expected that a higher percentage of traffic will divert to Hitchcock Way as 5% of the proposed car parking provision is accessed from Hitchcock Way when compared to 95% from Broadway.

7.19 The development distribution for diverted traffic flows for the weekday PM peak hour and Saturday peak hour is shown on **Traffic Figures 14** and **15**. The resultant diverted traffic flows for the Weekday PM peak hour are shown on **Traffic Figure 16** and for the Saturday peak hour on **Traffic Figure 17**.

Gym Trips

7.20 The peak hour trips have been derived using TRICS data. The TRICS outputs can be found in **Appendix D**. For both peak hours the trips generated by the gym have been reduced by 80%, which is the assumed percentage of linked trips. These trips have been distributed by using the primary trips distribution. The gym trips for the Weekday PM peak hour and the Saturday peak hour are shown in **Traffic Figures 18** and **19** respectively.

Existing Use

7.21 Traffic flows associated with the existing light industrial use on the site can be subtracted from the development flows as the light industrial uses would be demolished to accommodate the proposed development. The existing light industrial traffic flows into and out of the site were observed during the traffic surveys conducted in March 2012. These trips have been distributed onto the wider network using an altered version of the primary

trips distribution, where all traffic uses the Hitchcock Way access. This is shown on **Traffic Figure 20**. The light industrial trips (that are to be subtracted) for the Weekday PM peak hour and the Saturday peak hour are shown in **Traffic Figures 21** and **22** respectively.

Total Development Traffic Flows

- 7.22 The total development traffic flows have been derived by combining primary, pass-by, diverted and gym trips and subtracting the existing use traffic flows. The Weekday PM peak hour flows are shown on **Traffic Figure 23** and for the Saturday peak hour on **Traffic Figure 24**.

Baseline + Development Flows

- 7.23 The traffic flows for the Baseline + Development scenarios are shown on **Traffic Figures 25** and **26** for the 2017 Weekday PM peak hour and Saturday peak hour respectively and on **Traffic Figures 27** and **28** for the 2022 Weekday PM peak hour and Saturday peak hour respectively.

Sensitivity Test Flows

- 7.24 The traffic flows for the 16% Uplift Sensitivity Test are shown on **Traffic Figures 29** and **30** for the 2022 Weekday PM peak hour and Saturday peak hour respectively. **Traffic Figures 31** and **32** show the traffic flows for the Baseline + Sensitivity Development scenarios for the 2022 Weekday PM peak hour and Saturday peak hour respectively.

8 IMPACT ON SUSTAINABLE MODES

Walking

- 8.1 Improving pedestrian connectivity and permeability across the site is one the key aims of the proposed extension of the Orchard Centre. The development would extend the existing shopping street (known as Orchard Street), creating a high quality pedestrian shopping environment.
- 8.2 In addition, it is recognised that pedestrian routes need to be created to connect with the existing town centre, surrounding residential areas and the railway station, to maximise and further encourage opportunities for walking. According to 2011 census data, walking contributes to 27% of the mode share and the development aims to increase this further.
- 8.3 The design of the scheme incorporates pedestrian linkages to the surrounding area, which include the following:

- Rail Station / Gateway development – Pedestrian access to the rail station and proposed Gateway development would be promoted along Station Road and along the existing dedicated footway through the Orchard Centre car park from Hitchcock Way.

The pedestrian route along Station Road would be widened to 2 metres adjacent to the site and the pedestrian link to the Sainsbury's store would be enhanced.

- Broadway – a pedestrian crossing facility in the form of a zebra crossing would be provided on Broadway at the junction with High Street, connecting with residential areas to the south. The existing pedestrian access points to the site from Broadway would be enhanced with a route provided from Broadway directly to the new plaza, which would act as a focal point for visitors

The route then connects with the existing Orchard Street and continues north towards Hitchcock Way. This replaces the existing north-south pedestrian route along High Street.

- Hitchcock Way / Ladygrove Estate – The route between the site and the Ladygrove Estate will be maintained. The Ladygrove Estate is accessible via a route along a

subway under the railway line. The route then connects with Hitchcock Way and is in proximity to the M&S Foodhall at the north eastern corner of the site.

- 8.4 The pedestrian routes within the site will be of high quality being direct, along key desire lines, with wide footways and lighting.
- 8.5 This demonstrates that compared to the existing situation, the permeability and connectivity of the site is improved, as the scheme significantly enhances the pedestrian links both within and across the site. The key pedestrian links are shown on **Figure 6**.

Cycling

- 8.6 For cyclists visiting the development, 80 additional cycle parking spaces are proposed and would be conveniently located in three locations in proximity to the new retail units. In addition, the existing cycle parking would be maintained.
- 8.7 In summary, the cycle links to the surrounding area can be described as follows:
- Rail Station / Hitchcock Way (west) – cyclists have two choices of route into the site from this direction. The first route is along Station Road. Cyclists can travel on the carriageway and then make use of a shared footway / cycleway link to arrive at the Orchard Centre car park adjacent to the Sainsbury's store. The second route is along the segregated footway / cycleway on Hitchcock Way which continues south through the main Orchard Centre car park
 - Broadway – cyclists can use existing cycle parking located on Broadway. Alternatively, cyclists can continue to penetrate the site from either the new southern car park where further cycle parking would be provided or from the shared surface route provided for buses connecting with Station Road
 - Hitchcock Way / Ladygrove Estate – cycle access from Hitchcock Way along the segregated footway / cycleway would be maintained. There is a toucan crossing at the signalised access junction with the Orchard Centre car park. This connects with the route from the Ladygrove Estate. Cycle parking would be located at the M&S Foodhall.

8.8 It is acknowledged that cyclists are currently able to travel through the site along High Street between Broadway and Hitchcock Way. In future, there are three alternative options as follows:

- Shared surface bus route / Station Road – cyclists would be permitted to travel along the shared surface bus route to connect with Station Road where they can travel along the carriageway
- Via the Jubilee Way roundabout – cyclists can travel on the carriageway on Broadway and then join the segregated footway / cycleway on Hitchcock Way
- Via the southern and main Orchard Centre car parks – cyclists can cycle through the southern car park and then dismount their bicycles to cross the extended pedestrianised Orchard Street

Bus Services

8.9 The proposals necessitate the section of High Street between Broadway and Hitchcock Way to be closed and for the bus only link to be removed. This is because it is located at the core of the extended shopping street and hence its removal is necessary to meet one of the key aims of the proposed extension of the Orchard Centre; to create a high quality pedestrian shopping environment with a continuous shopping street, prioritising pedestrian movement.

8.10 A number of alternative options have been explored for re-routing bus services, involving detailed discussions with OCC, SODC and the bus operator, Thames Travel. These options are set out in a report included at **Appendix I**. As a result of these discussions, it has been concluded that a new two-way bus route should be provided along Station Road, with a shared surface section along the pedestrianised area and connecting with Broadway.

8.11 From Hitchcock Way, buses would turn right into Station Road. No changes are required to the layout of the Hitchcock Way / Station Road junction, as illustrated on **Drawing no. 110350/AT/P01**.

8.12 Buses would then continue southbound along Station Road. In order to maintain the existing on-street parking on the western side of Station Road and the two-way movement of buses, it is proposed that Station Road is widened by approximately 1 metre on the eastern side of the carriageway.

- 8.13 The narrow section of the eastern footway is approximately 40 metres in length (equating to a 30 second walk) and 1.6 metres in length. Manual for Streets provides design guidance for the footway widths required for different street users. 0.9 metres accommodates a wheelchair user, 1.2 metres accommodates an adult and child, whilst 1.5 metres accommodates two adults with a pushchair. It's worth noting that the narrow section of footway has a straight alignment with good forward visibility so that pedestrians passing in opposite directions would be clearly visible from a distance. There is also a footway on the western side of the carriageway as well.
- 8.14 A flag and pole bus stop would be provided in the southbound direction, south of the junction with White Leys Close. A further southbound bus stop with shelter would be provided on the shared surface section towards the junction with Broadway. A northbound bus stop with shelter would be provided on the shared surface section nearer Station Road. This requires the relocation of three disabled parking spaces and removal of the turning head. Delivery vehicles would instead be permitted to travel on the shared surface section with buses, rather than turn and exit along Station Road.
- 8.15 The new bus stops are conveniently located for access to the Orchard Centre and town centre, being located adjacent to existing retail units on Orchard Street.
- 8.16 A give way arrangement for buses would operate along the shared surface section, to provide a single lane through the pedestrian environment. Close to the junction with Broadway, the single lane section widens to allow buses travelling in opposite directions to pass each other, so that free flow of traffic on Broadway is maintained. Swept path analysis illustrating the manoeuvres of buses at the junction with Broadway is shown on **Drawing no. 110350/A/54/H**. This shows that the junction layout accommodates the manoeuvres of buses between Station Road and Hitchcock Way.
- 8.17 The shared surface section for buses would be delineated from the footway either side by a different type and colour of paving.
- 8.18 The bus routes which would travel along Station Road and the new shared surface section are anticipated to be routes 32, 91, 98, A1, M10, X1, X32 and X33. The combined frequency of these routes across a typical weekday is shown in **Table 8.1**.

Table 8.1: Bus Frequency on Station Road

Time	One-Way Hourly Frequency
0700-0800	10
0800-0900	11
0900-1000	7
1000-1100	7
1100-1200	6
1200-1300	10
1300-1400	10
1400-1500	7
1500-1600	4
1600-1700	4
1700-1800	5
1800-1900	5
Average	7

- 8.19 Table 8.1 shows that the maximum one-way hourly number of buses is 11 between 08:00 and 09:00. The average across the day between 07:00 and 19:00 is 7. This equates to an average of a bus every 9 minutes in either direction.
- 8.20 Re-routing buses along Station Road has a beneficial effect on bus journey times compared to the existing route along High Street. This is because the distance travelled on the highway network is reduced and buses would no longer travel through the signalised access junction to the Orchard Centre from Hitchcock Way.
- 8.21 Furthermore, the extension of the Orchard Centre would enhance the attractiveness of the town centre and thereby increasing the patronage of existing bus services, which brings additional fares and increased revenue.
- 8.22 Shopping trips are typically spread over weekdays as well as weekends, rather than concentrated during traditional peak hours. Therefore the scheme would increase patronage to improve the sustainability of commercial services and assist in maintaining a regular frequency throughout the day.
- 8.23 In summary, the proposed re-routing of bus services and new bus stops ensures that buses remain an attractive mode of transport for visitors to Didcot town centre.

Rail Services

- 8.24 The Orchard Centre benefits from excellent access to rail services at Didcot Parkway station. In future, the station will continue to be accessible on foot via Hitchcock Way with dedicated

pedestrian routes provided through the Orchard Centre car park or along Station Road. The Orchard Centre will also continue to be accessible by bus services, with several bus routes providing connections between the Rail Station and town centre.

- 8.25 This shows that travelling to the Orchard Centre by rail is an attractive mode of transport.

Taxi Services

- 8.26 The reprovision of a taxi rank at a new location opposite the petrol filling station ensures that taxis continue to benefit from a waiting facility. The pick-up / drop-off layby outside Sainsbury's will be maintained. A further taxi facility is proposed within the Broadway car park, since this is closer to the retail units and it ensures that customers have a choice. It is anticipated that this would accommodate the level of demand.
- 8.27 This ensures that taxis will continue to be a viable mode of travel to / from the Orchard Centre.

Summary

- 8.28 This section has discussed the impact of the development on sustainable modes. It has demonstrated that the requirements of pedestrians, cyclists, bus, rail and taxi users have been carefully considered in the design of the scheme. Overall, it has shown that the scheme has sought to maximise the opportunities for sustainable travel.

9 IMPACT ON THE HIGHWAY NETWORK

Introduction

9.1 This section considers the effects of the proposals on the highway network within the study area. Junction assessments have been carried out at the following junctions:

- Jubilee Way Roundabout (Broadway / Hitchcock Way / Jubilee Way / B4016)
- Broadway / High Street
- High Street (Site Access) / Hitchcock Way
- Hitchcock Way / Station Road / Cow Lane

9.2 The modelling output for each junction is included at **Appendix J**.

Jubilee Way Roundabout (Broadway / Hitchcock Way / Jubilee Way / B4016)

9.3 **Table 9.1** provides a summary of the ARCADY8 output for the observed operation of the junction, for both the 2012 Weekday PM and Saturday peak hours. The model has been calibrated according to queue surveys which were recorded alongside the manual classified counts.

Table 9.1 Jubilee Way Roundabout – 2012 Observed

Arm	Weekday PM Peak		Saturday Peak	
	RFC	Queue	RFC	Queue
Hitchcock Way	1.00	16	0.92	8
B4016	0.79	4	0.63	2
Jubilee Way	0.75	3	0.71	3
Roebuck Court	0.03	0	0.04	0
Broadway	0.87	6	0.97	13

9.4 Table 9.1 shows that the roundabout operates at capacity in the observed scenario on the Hitchcock Way arm during the weekday PM peak hour and on Broadway during the Saturday peak hour.

9.5 **Table 9.2** shows the operation of the Jubilee Way roundabout in the opening year of 2017.

Table 9.2 Jubilee Way Roundabout – 2017

Arm	Weekday PM Peak				Saturday Peak			
	2017 Base		2017+ Dev		2017 Base		2017+ Dev	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Hitchcock Way	1.26	80	1.30	92	1.13	48	1.16	59
B4016	0.86	6	0.87	6	0.70	3	0.71	3
Jubilee Way	0.91	7	0.94	8	0.83	5	0.86	6
Roebuck Court	0.04	0	0.04	0	0.05	0	0.05	0
Broadway	1.00	16	1.01	18	1.15	44	1.19	52

9.6 Table 9.2 shows the roundabout operates over capacity on the Broadway and Hitchcock Way arms during both peak hours. However, it is important to compare the change in performance of the junction when development traffic is added. Queue lengths do not provide an accurate measurement of performance when a junction is over capacity, since the model becomes unstable. The Ratio of Flow to Capacity (RFC) value is a better indicator of performance for this scenario.

9.7 During both peak hours there is a negligible difference in the RFC value as a result of the development. The deterioration in the performance of the junction as compared to the observed is because of traffic growth forecast from other planned and committed development in the area.

9.8 **Table 9.3** below shows the operation of the Jubilee Way roundabout in the assessment year of 2022, five years post-opening when the full impact of the development is likely to be realised.

Table 9.3 Jubilee Way Roundabout – 2022

Arm	Weekday PM Peak				Saturday Peak			
	2022 Base		2022+ Dev		2022 Base		2022+ Dev	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
Hitchcock Way	1.35	125	1.37	140	1.19	68	1.22	85
B4016	0.91	9	0.92	10	0.75	3	0.76	3
Jubilee Way	1.05	19	1.08	22	0.93	9	0.96	12
Roebuck Court	0.04	0	0.04	0	0.05	0	0.05	0
Broadway	1.08	33	1.10	37	1.29	74	1.33	83

- 9.9 Table 9.3 shows that adding development traffic makes very little difference to the junction performance. In both the weekday and Saturday peaks the RFCs increase by up to 3% on the Hitchcock Way arm which is not a material increase.
- 9.10 Therefore, it is the estimated increase in background traffic (generated by other developments in the area) that causes the capacity issues at the junction, not the traffic generated by the proposed development at the Orchard Centre. The analysis in 2022 should also be seen in context. The assessment assumes TEMPRO growth rates for 2022 i.e. growth factors of 1.10597 in the weekday PM peak and 1.10976 in the Saturday peak. In any event, the results are a worst case scenario since they do not include any mitigation measures which would be delivered in association with other planned development. Such improvements would increase traffic capacity and improve the performance of the junction.
- 9.11 **Table 9.4** below shows the operation of the Jubilee Way Roundabout in 2022 under the sensitivity test for a 16% uplift in development traffic.

Table 9.4 Jubilee Way Roundabout – 2022 Sensitivity Test

Arm	Weekday PM Peak		Saturday Peak	
	RFC	Queue	RFC	Queue
Hitchcock Way	1.43	163	1.23	90
B4016	0.92	10	0.76	4
Jubilee Way	1.08	23	0.97	13
Roebuck Court	0.04	0	0.06	0
Broadway	1.10	37	1.34	85

- 9.12 Table 9.4 shows that that the impact of the sensitivity test on the performance of the junction as measured by RFC values is negligible compared to the results in Table 8.3. This highlights that the junction is not particularly sensitive to an increase in development traffic above the forecast demand.

Broadway / High Street

- 9.13 The junction of High Street with Broadway is currently a four arm signalised crossroads. The northern arm of High Street is proposed to be closed and stopped up. The southern arm of High Street will be converted to a three arm priority junction with Broadway.
- 9.14 **Table 9.5** provides a summary of the Junctions 8 output for the operation of the junction in the opening year of 2017 and five years post opening year in 2022.

Table 9.5 Broadway / High Street – 2017 & 2022

Arm	Weekday PM Peak				Saturday Peak			
	2017 Base + Dev		2022 Base + Dev		2017 Base + Dev		2022 Base + Dev	
	RFC	Queue	RFC	Queue	RFC	Queue	RFC	Queue
High Street	0.25	0	0.27	0	0.15	0	0.16	0
Broadway	0.14	0	0.16	0	0.08	0	0.09	0

9.15 Table 9.5 shows that the Broadway / High Street junction operates with ample spare capacity and no capacity issues in 2017 and 2022 with the addition of development traffic.

9.16 **Table 9.6** below shows the operation of the Broadway / High Street junction in 2022 under the sensitivity test.

Table 9.6 High Street / Broadway – 2022 Sensitivity Test

Arm	Weekday PM Peak		Saturday Peak	
	RFC	Queue	RFC	Queue
High Street	0.28	0	0.16	0
Broadway	0.16	0	0.09	0

9.17 Table 9.6 shows that the Broadway / High Street junction performs with ample spare capacity taking into account the impact of the sensitivity test.

High Street (Site Access) / Hitchcock Way

9.18 **Table 9.7** provides a summary of the LinSig output for the observed operation of the High Street (Site Access) / Hitchcock Way signalised junction, for both the 2012 Weekday PM and Saturday peak hours.

Table 9.7 High Street (Site Access) / Hitchcock Way – 2012 Observed

Arm	Weekday PM Peak		Saturday Peak	
	Deg Sat	MMQ	Deg Sat	MMQ
Hitchcock Way (E)	65.0%	7	72.9%	7
Site Access	64.7%	5	71.5%	6
Hitchcock Way (W)	58.9%	5	53.3%	6
	Cycle Time = 75		Cycle Time = 75	
	PRC = 38.4%		PRC = 23.5%	

9.19 Table 9.7 shows that the signalised junction operates currently operates within capacity during the peak hours assessed, with a maximum queue of 7 vehicles on the Hitchcock Way (East) arm during both the weekday and Saturday peak hours.

9.20 **Table 9.8** shows the operation of the Site Access / Hitchcock Way signalised junction in the opening year of 2017.

Table 9.8 Site Access / Hitchcock Way – 2017

Arm	Weekday PM Peak				Saturday Peak			
	2017 Base		2017+ Dev		2017 Base		2017+ Dev	
	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ
Hitchcock Way (E)	70.6%	8	76.0%	8	75.3%	8	84.7%	9
Site Access	70.0%	5	74.7%	6	73.9%	6	83.0%	8
Hitchcock Way (W)	70.9%	6	73.4%	6	66.5%	6	67.2%	7
	Cycle Time = 75		Cycle Time = 75		Cycle Time = 75		Cycle Time = 75	
	PRC = 26.9%		PRC = 18.5%		PRC = 19.5%		PRC = 6.2%	

9.21 Table 9.8 shows that the Site Access / Hitchcock Way operates within capacity in the base and development scenarios in 2017, with the same length cycle time as per the observed scenario. The queue lengths are not materially different with the addition of development traffic during either peak hours assessed. The maximum degree of saturation is 84.7% on the Hitchcock Way (east) arm during the Saturday peak hour.

9.22 **Table 9.9** below shows the operation of the Site Access / Hitchcock Way signalised junction in the future year of 2022.

Table 9.9 Site Access / Hitchcock Way – 2022

Arm	Weekday PM Peak				Saturday Peak			
	2022 Base		2022+ Dev		2022 Base		2022+ Dev	
	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ
Hitchcock Way (E)	72.2%	8	76.0%	9	78.7%	9	81.2%	9
Site Access	73.0%	6	77.6%	7	79.6%	7	85.8%	9
Hitchcock Way (W)	73.1%	7	75.7%	7	68.6%	6	68.5%	7
	Cycle Time = 75		Cycle Time = 75		Cycle Time = 75		Cycle Time = 75	
	PRC = 23.1%		PRC = 15.9%		PRC = 13.0%		PRC = 4.9%	

9.23 Table 9.9 shows that the Site Access / Hitchcock Way continues to operate within capacity in each scenario assessed. The cycle time has been maintained at 75 seconds, as per the observed scenario. The maximum degree of saturation is 85.8% on the Site Access arm during the Saturday peak hour. This shows that the Site Access / Hitchcock Way junction can comfortably accommodate the impact of development traffic.

9.24 **Table 9.10** below shows the operation of the Site Access / Hitchcock Way in 2022 under the sensitivity test.

Table 9.10 Site Access / Hitchcock Way – 2022 Sensitivity Test

Arm	Weekday PM Peak		Saturday Peak	
	Deg Sat	MMQ	Deg Sat	MMQ
Hitchcock Way (E)	80.3%	9	88.6%	10
Site Access	78.4%	7	86.9%	10
Hitchcock Way (W)	77.1%	7	70.5%	7
	Cycle Time = 75		Cycle Time = 75	
	PRC = 12.1%		PRC = 1.6%	

9.25 Table 9.10 shows that there is not a material difference in the performance of the junction compared to the development scenario as presented in Table 9.10. This shows that the Site Access / Hitchcock Way junction can accommodate an uplift in traffic of 16%.

Hitchcock Way / Station Road / Cow Lane

9.26 **Table 9.11** provides a summary of the LinSig output for the observed operation of the signalised crossroads, for both the 2012 Weekday PM and Saturday peak hours. Pedestrians are called every other cycle.

Table 9.11 Hitchcock Way / Station Road / Cow Lane – 2012 Observed

Arm	Weekday PM Peak		Saturday Peak	
	Deg Sat	MMQ	Deg Sat	MMQ
Cow Lane	83.4%	8	79.6%	7
Hitchcock Way (E)	35.7%	7	39.8%	5
Station Road	10.4%	1	12.5%	1
Hitchcock Way (W)	82.7%	14	78.2%	13
	Cycle Time = 144		Cycle Time = 144	
	PRC = 8.0%		PRC = 13.1%	

9.27 Table 9.11 shows that the signalised junction operates within capacity during the observed scenario. The Hitchcock Way (west) arm records the highest queues of 14 vehicles during the Friday PM peak hour and 13 vehicles during the Saturday peak hour. Cow Lane records the highest degree of saturation of 83.4% during the Friday PM peak hour.

9.28 **Table 9.12** shows that the operation of the Hitchcock Way / Station Road / Cow Lane signalised crossroads in the opening year of 2017.

Table 9.12 Hitchcock Way / Station Road / Cow Lane –2017

Arm	Weekday PM Peak				Saturday Peak			
	2017 Base		2017+ Dev		2017 Base		2017+ Dev	
	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ
Cow Lane	94.8%	11	99.8%	14	89.9%	9	95.1%	11
Hitchcock Way (E)	38.9%	5	40.2%	6	42.8%	6	44.0%	7
Station Road	10.4%	1	10.4%	1	13.0%	1	13.0%	1
Hitchcock Way (W)	98.6%	27	98.6%	28	93.0%	21	94.2%	22
	Cycle Time = 144		Cycle Time = 144		Cycle Time = 144		Cycle Time = 144	
	PRC = -9.6%		PRC = -10.9%		PRC = -3.4%		PRC = -5.7%	

9.29 Table 9.12 shows that the Hitchcock Way / Station Road / Cow Lane signalised crossroads operates over capacity in each of the scenarios assessed. It also shows that there is an increase in queues of up to 3 additional vehicles when the development traffic is added to the base traffic in 2017. However, the deterioration in the performance of the junction is largely because of the background traffic growth, rather than the additional of development traffic.

9.30 **Table 9.13** below shows the operation of the Hitchcock Way / Station Road / Cow Lane signalised crossroads in the future year of 2022.

Table 9.13 Hitchcock Way / Station Road / Cow Lane – 2022

Arm	Weekday PM Peak				Saturday Peak			
	2022 Base		2022+ Dev		2022 Base		2022+ Dev	
	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ	Deg Sat	MMQ
Cow Lane	101.5%	16	101.9%	16	96.6%	13	97.4%	13
Hitchcock Way (E)	41.8%	6	43.4%	7	45.6%	7	47.6%	7
Station Road	0.6%	1	11.4%	1	14.0%	1	14.0%	1
Hitchcock Way (W)	104.3%	43	106.3%	50	98.6%	28	101.7%	35
	Cycle Time = 144		Cycle Time = 144		Cycle Time = 144		Cycle Time = 144	
	PRC = -15.9%		PRC = -18.1%		PRC = -9.5%		PRC = -12.9%	

9.31 Table 9.13 shows that the Hitchcock Way / Station Road / Cow Lane signalised crossroads operates further over capacity in the each of the scenarios assessed in 2022. However the difference between the baseline and development scenarios is negligible, with a maximum increase in the degree of saturation of 2%. The change in queue lengths is not an accurate indicator in the performance of the junction, since the model becomes unstable when it is over capacity.

9.32 **Table 9.14** below shows the operation of the Hitchcock Way / Station Road / Cow Lane signalised crossroads in 2022 under the sensitivity test.

Table 9.14 Hitchcock Way / Station Road / Cow Lane –2022 Sensitivity Test

Arm	Weekday PM Peak		Saturday Peak	
	Deg Sat	MMQ	Deg Sat	MMQ
Cow Lane	102.3%	17	102.5%	17
Hitchcock Way (E)	43.9%	7	47.2%	7
Station Road	11.4%	1	14.0%	1
Hitchcock Way (W)	106.8%	52	100.8%	33
	Cycle Time = 144		Cycle Time = 144	
	PRC = -18.7%		PRC = -13.9%	

9.33 Table 9.14 shows that there is a marginal increase in the degree of saturation at the junction, as compared to the development scenario presented in Table 9.14. For example, the maximum degree of saturation was recorded as 106.8% for the Hitchcock Way (west) arm during the weekday PM peak hour, compared to 106.3% for the development scenario in Table 9.13. This shows that the sensitivity test does not have a significant impact on the performance of the junction compared to the development scenario.

Summary

9.34 The assessment of the highway network has shown that the Broadway / High Street and Site Access / Hitchcock Way junctions operate within capacity with the addition of development traffic.

9.35 The Jubilee Way roundabout already operates at capacity and with forecast traffic growth from other planned developments and with additional traffic from the development, its performance deteriorates further. This is also the case with the Hitchcock Way / Cow Lane / Station Road junction. It's worth noting that the assessment of the impact of development traffic at both of these junctions is negligible since development traffic contributes to a small proportion of total traffic flows. The analysis at these junctions represents a worst case for the following reasons:

- The effect of the mode shift within the Framework Travel Plan for the extension has not been included in the assessment of development traffic. This will reduce the number of car-based trips and reduce the impact of the development on the highway network;
- The effect of mitigation measures proposed at key junctions as a result of other planned development has not been considered; and
- It does not take account of the dynamic nature of demand. If there is an increase in delay at the junction, drivers will seek to minimise their inconvenience by choosing alternative routes, opting to travel at different times (peak spreading), choosing alternative modes of transport or simply not choosing to travel at all. Thus the estimate of vehicles utilising the local road network during the peak hours assessed is unlikely to be realised.

9.36 It is clear that the impact of the additional traffic generated by the development is very modest.

10 SUMMARY AND CONCLUSIONS

Summary

- 10.1 Hammerson UK Properties plc is seeking detailed planning permission for the extension of the Orchard Centre to provide an additional 15,029 sqm of gross external area of new commercial floorspace.
- 10.2 It has been demonstrated the Orchard Centre is accessible by walking, cycling, bus and rail services. There is an extensive network of bus services calling at the town centre and Didcot Parkway Rail Station is within an acceptable walking distance. Additional cycle parking will be provided at the development and pedestrian permeability and connectivity will be enhanced. Therefore, it is considered that the proposed development is sustainable from a transport perspective.
- 10.3 Vehicle access will continue to be provided from the existing signalised junction with Hitchcock Way and a new priority junction with Broadway.
- 10.4 The extension of the Orchard Centre will require the rerouting of some buses, which currently make use of bus stops on High Street. Following detailed discussions with OCC, SODC and the bus operator, Thames Travel, it is proposed to reopen Station Road as a two-way route for buses.
- 10.5 It is proposed that the section of High Street between Broadway and Hitchcock Way is closed and stopped up as public highway. An application is being made under Section 247 of the Town and County Planning Act 1990.
- 10.6 With regards car parking, 101 additional car parking spaces will be provided in a new car adjacent to the Sainsbury's service yard. The car park will operate within capacity at most times of day on a Saturday.
- 10.7 The servicing arrangements include amendments to the existing service access from Broadway and servicing of the new retail terrace from the existing access on Hitchcock Way.
- 10.8 An assessment of the highway network has taken place for the Friday PM peak hour and Saturday peak hour on the basis of an overall increase in Orchard Centre traffic of 12% during peak hours. A sensitivity test has been undertaken for an increase in traffic of 16%.

The assessment has assumed a breakdown of new trips between 10% diverted trips, 30% pass-by trips and 60% new / transferred trips.

- 10.9 The results of the assessment of the highway network illustrate that development traffic can be accommodated at the Broadway / High Street and Site Access / Hitchcock Way junctions. The Jubilee Way roundabout and the Hitchcock Way / Cow Lane / Station Road junction currently operate at capacity at peak times. In the future year assessments capacity is exceeded at these junctions, although this is primarily because of forecast traffic growth from planned developments other than the Orchard Centre. The impact of the additional traffic generated by the proposed expansion of the Orchard Centre is minimal.
- 10.10 A Travel Plan will be implemented at the development to minimise travel by Single Occupancy Vehicles. A Framework Travel Plan has been produced and is appended to this document. This will mitigate the traffic impact and reduce the number of car-based trips and reduce the impact of the development on the highway network.
- 10.11 We therefore consider that the proposed development is in accordance with relevant policy guidance and that the transport demand generated by the proposed land uses can be successfully accommodated by the local highway, public transport, walking and cycling networks. In particular, the proposals comply with the NPPF by being sustainable development that does not have a severe impact on the surrounding transport networks.

Conclusion

- 10.12 In conclusion, it is considered that the development proposals are reasonable and appropriate for the location and that there are no traffic or transport reasons why it should not be granted planning permission.