

Wakefield Road, Barnsley – Review of Optima Highways Transport Assessment

Client name
Barnsley Metropolitan Borough Council

Project name
Wakefield Road, Athersley

Date
January 2018

Project number
60549427

Prepared by
Natasha Smithson

Approved by
Stephen Moss

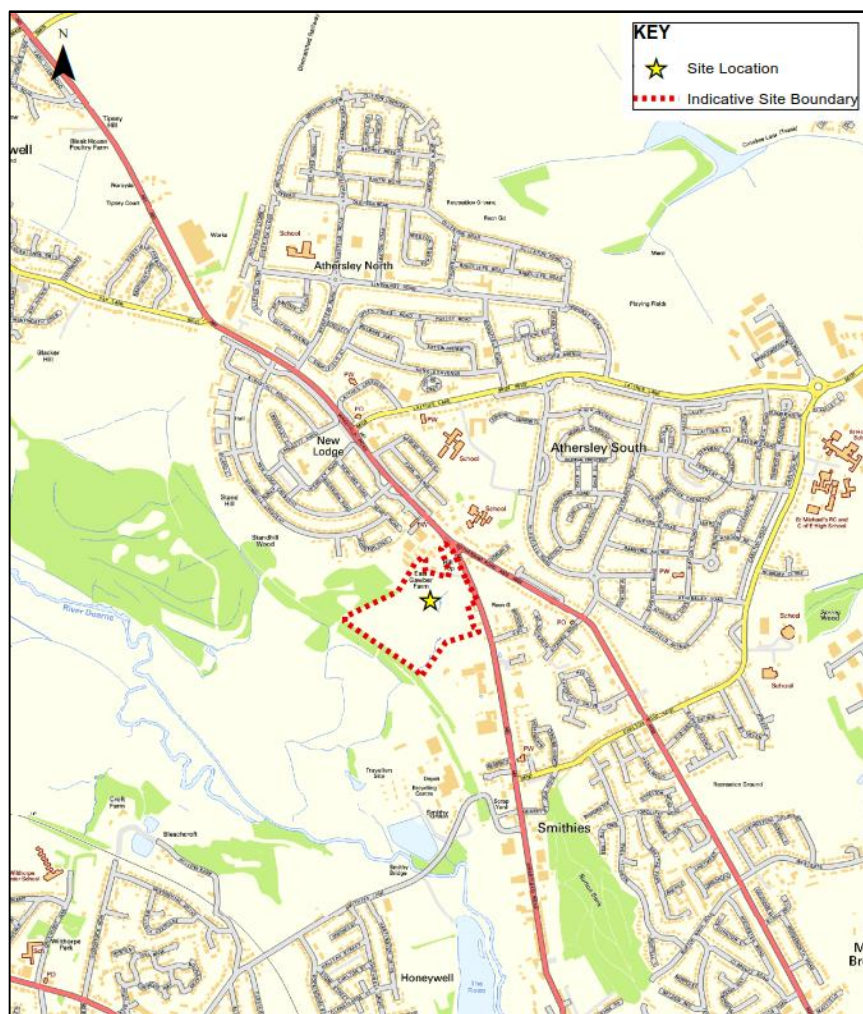
Revision History

Revision	Revision date	Details	Authorised	Name	Position
----------	---------------	---------	------------	------	----------

Introduction

This Technical Note has been prepared on behalf of Barnsley Metropolitan Borough Council (BMBC) in order to review the Transport Assessment (TA) dated September 2017 as prepared by Optima Highways for a residential development consisting of 220 dwellings, and for ease of reference the site location, as given by Optima Highways can be shown below in **Figure 1**.

Figure 1: Site Location Plan (Optima Highways TA, Figure 2)



The proposed site is situated to the west of Wakefield Road, on the southwestern edge of Athersley, Barnsley. The proposed site is bounded to the east by Wakefield Road, the north and south by commercial uses and east by the old railway line (now a public footpath). The 7.73ha site will comprise of 220 units.

AECOM were commissioned by BMBC to provide a review of the Scoping Note dated July 2017, the key finding of which was that some further information should be provided before the impact of the development on the local road network can be agreed. The review concluded the following:

- Whilst we agree with the principle of deriving a trip rate based on local flows, we recommend that these be compared to trip rates derived within TRICS to ensure that they are representative and applicable;
- It is understood that a sensitivity test is being undertaken based upon TRICS data, and given the “local trip rates” we would consider that this may represent a more realistic assessment?
- Optima Highways have estimated the likely distribution based on 2011 census Journey to Work data for the Middle Super Output Area 007. However the proposed development site lies on the boundary with Middle Super Output Area 010, and we propose that a distribution based on the average of both areas be conducted;
- Further information on base traffic flows and growth factors should be provided to confirm the validity of the assessments;
- The following junctions have been considered to be assessed:
 - Site access;
 - Wakefield Road / Rotherham Road roundabout;
 - Carlton Road / Wakefield Road signalised junction; and
 - Wakefield Road / Smithies Lane signalised junction.
- Optima Highways are not proposing to assess the Wakefield Road / Laithes Lane junction given their predicted level of impact, although this should then be compared against a TRICS based approach;
- Once the exact trip generation can be agreed upon, a decision on which junctions should be assessed can be made, as an assessment based upon TRICS will likely increase the impact of the development, and
- The two committed developments will be taken into account within the background traffic growth, which is considered reasonable in this instance.

Existing Site Conditions

This section of the TA provides an overview of the existing situation around the development including descriptions of the local highway network, pedestrian, cycle and public transport facilities.

The TA states that pedestrian facilities are provided along Wakefield Road and provide access to the nearest local amenities located at the Wakefield Road / Laithes Lane junction. A Public Right of Way (PRoW Footpath No. 1) was also identified passing along the western boundary of the site.

In terms of cycle facilities, there is a shared pedestrian / cycle path along Laithes Lane connecting to the B6132. It is also considered that the local roads are lightly trafficked and will facilitate cycling.

There are a number of bus stops provided along Wakefield Road, the closest of which is located 200m southwest of the centre of the site. The TA states that four frequent bus services operate from these bus stops. Barnsley train station is also located approximately 2.5km south of the site. Whilst this is further than an acceptable 2km walking distance as stated in Paragraph 4.2.3 of the TA, AECOM agree that it is accessible by cycle or bus and provides access to regional and national destinations.

Fully classified turning counts were undertaken on Thursday 22nd June 2017 between 07:00-10:00 and 16:00-20:00 at the following junctions:

- Wakefield Road / Laithes Lane;
- Wakefield Road / Rotherham Road (A633);
- Rotherham Road / Carlton Road;
- Wakefield Road / Carlton Road;

- Wakefield Road / Smithies Lane;
- Wensley Road (West) / Medical Centre; and
- Langset Road / Medical Centre.

The peak morning and evening hours were identified as 07:45-08:45 and 17:00-18:00.

Accident data was obtained from BMBC for the most recent five year period (2011 – 2015 inclusive). In total 70 accidents were recorded, of which 57 were considered slight and 13 were considered serious. None were fatal. Optima Highways note that whilst a cluster of accidents have been identified at the Wakefield Road / Rotherham Road junction, the geometrical layout of the junction is not considered high for a junction of this type. There are also no accidents recorded in the vicinity of the proposed site access. Optima Highways conclude that the development proposals are unlikely to have a negative impact on the existing accident rates.

Development Proposals and Access Strategy

This section of the report provided information relating to the proposed development and its access.

The proposed development is a residential scheme comprising up to 220 private dwellings along with associated parking, public realm and infrastructure works, as shown by the masterplan provided in Appendix C of the TA and also presented in **Figure 2** below. The internal layout has been designed in accordance with standards set out in Manual for Streets.

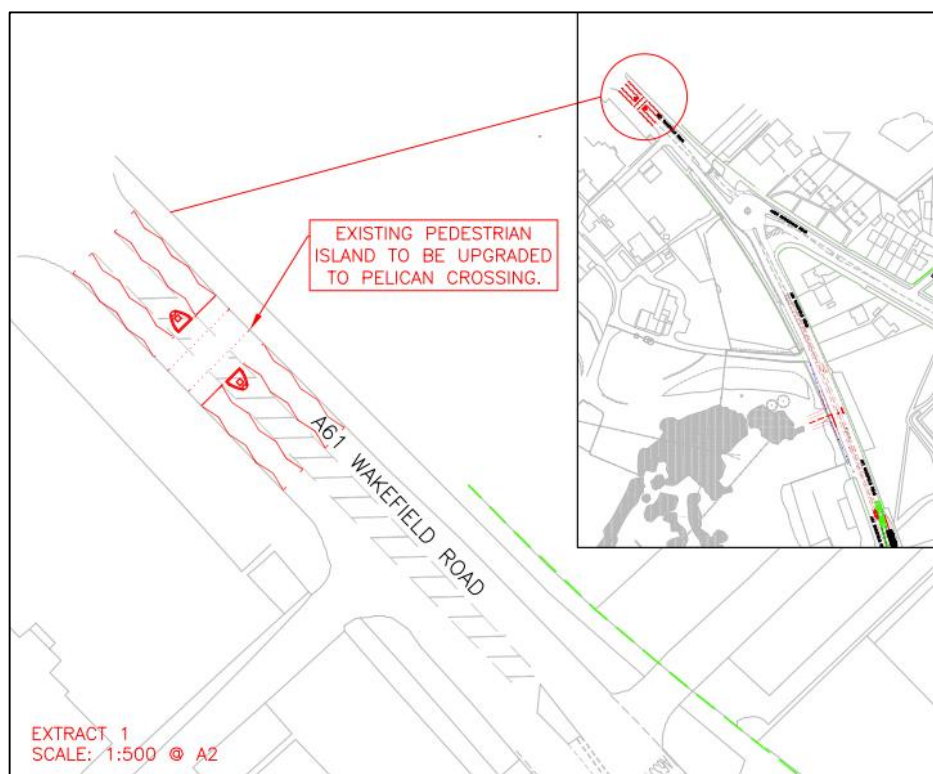
Figure 2: Illustrative Masterplan (Optima Highways TA, Appendix C)



As well as the footways at the site access on Wakefield Road, there are three accesses connecting to the PRoW Footpath No. 1 along the western boundary of the site and two pedestrian / cycle accesses through the northern boundary. The site has been designed so that all properties can be accessed by pedestrians / cyclists, encouraging walking / cycling for short journeys.

A major improvement has been proposed for a signalised crossing north of the Wakefield Road / Rotherham Road roundabout further enabling pedestrian / cycle accessibility and was well received at a public consultation event. This is shown in **Figure 3** below (and within Appendix D of the TA):

Figure 3: Proposed Pelican Crossing (Optima Highways TA, Appendix D)



The proposed site access along Wakefield Road has been designed to standards set out in Design Manual for Road and Bridges (DMRB) TD42/95. Whilst we agree that this approach is satisfactory, the visibility splays have been done in accordance with Manual for Streets and the South Yorkshire Residential Design Guide providing 2.4m x 40m visibility splays at the site access. We would consider that given the junction is designed to DMRB standards, the visibility splays should also accord with DMRB. Therefore we advise a visibility splay of 70m for a speed limit of 50kph (30mph) imposed along Wakefield Road should be provided from 4.5m of the site access give-way line.

Parking standards for the site are contained within the BMBC Supplementary Planning Document on Parking (March 2012) and states that 1 space for dwellings with 1 or 2 bedrooms and 2 spaces for dwellings with 3 or more bedrooms. Parking on the proposed site will accord with these standards and that parking for visitors will also be accommodated.

Site Accessibility and Measures to Influence Travel Behaviour

This section of the TA describes the accessibility of the site for non-car modes.

A 2km walking distance covers the areas of Athersley and Smithies which include a number of local amenities and areas of employment. An 8km cycle distance encompasses much of Barnsley town centre and areas further afield. Laithes Lane is also classified as a traffic-free cycle route on Barnsley Councils Cycle Map further enabling cycle journeys. A number of bus stops can be reached within a 400m walking distance, and Barnsley train station is located approximately 2.5km south of the site and can be accessed by cycle or bus.

A number of measures have been proposed in order to encourage travel by sustainable modes, including:

- Several boundary connections with the existing highway network to facilitate pedestrian / cycle trips in all directions from the site;
- Pedestrian refuges and improved half layby at bus stop;
- A new pelican crossing to be provided north of the Wakefield Road / Rotherham Road roundabout junction; and
- Internal pedestrian / cycle facilities.

Overall, the site is considered to be highly accessible by sustainable modes of travel, further encouraged by the measures listed above and the issue of a Travel Plan.

Trip Generations and Distributions

Optima Highways have undertaken a trip rate survey for the week commencing 17th June 2017 at the New Lodge housing estate located north of the proposed site. The survey trip rates and trip generations are provided in **Table 1** below:

Table 1: New Lodge Trip Rates and Trip Generations

New Lodge Assessment				
		Arrivals	Departures	Two-Way
AM	Trip Rate	0.177	0.215	0.392
	Trip Generation	39	47	86
PM	Trip Rate	0.259	0.180	0.439
	Trip Generation	57	40	97

The trip rates and trip generations determined from the survey were compared to trip rates and trip generations derived from TRICS, as recommended by AECOM in the Scoping Note review. It was considered by Optima Highways that the survey at New Lodge and the TRICS assessment conducted by Optima were comparable, with only a small difference between the resultant trip generations identified.

The trip rates and trip generations of the TRICS assessment have been verified against an AECOM TRICS assessment, as shown in **Table 2** below and using the following parameters, the outputs of which are contained within Appendix A of this review:

- Land use: Residential – Houses Privately Owned;
- Regions: Greater London and Irish sites excluded;
- Trip Rate Parameters: Number of units between 50 and 400;
- Date range: 1st January 2012 to 29th November 2016 (latest six years);
- Days included: Monday to Friday; and
- Location Type: Suburban and Edge of Town locations.

Table 2: Optima Highways and AECOM TRICS Trip Rates and Trip Generations

		Optima Highways TRICS Assessment			AECOM TRICS Assessment		
		Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
AM	Trip Rate	0.099	0.345	0.444	0.113	0.329	0.442
	Trip Generation	22	76	98	25	72	97
PM	Trip Rate	0.298	0.156	0.454	0.320	0.151	0.471
	Trip Generation	66	34	100	70	33	104

Whilst it is considered that the TRICS assessment conducted by Optima is comparable to the AECOM TRICS assessment, we would recommend the higher TRICS derived trip rate by Optima Highways be used in order to provide a robust assessment.

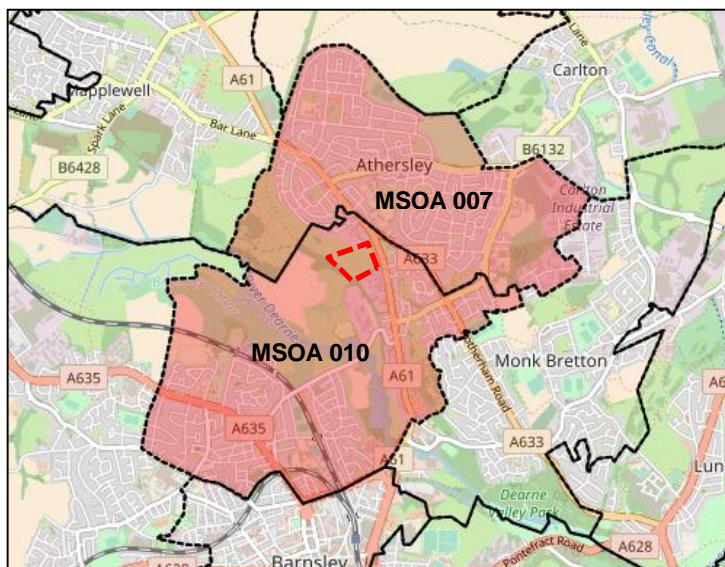
The traffic distribution has been based on the 2011 Census Journey to Work data for the Barnsley Middle Super Output Area (MSOA) 007 and has been proposed as:

Table 3: Route Assignment Summary (Optima Highways TA, Table 5.7)

Smithies Lane	Carlton Road	Rotherham Road	Wakefield Road (N)	Wakefield Road (S)	Laithes Lane	Chatsworth Road	Local Traffic	Total
4.33%	4.17%	22.94%	27.53%	30.27%	9.44%	1.31%	0.00%	100%

AECOM previously suggested in the Scoping Note Review that because the site was located on the boundary between MSOA 007 and MSOA 010, the average of both areas be used. The MSOA areas and proposed site location are shown in Figure 4 below. MSOA 010 does cover some residential areas, including a section of Athersley South and whilst it is considered that the average of both MSOA areas would provide the most robust assessment of distribution, the result will be a minor change and the proposed site does lie on the edge of MSOA007. Therefore in this instance it is considered acceptable.

Figure 4: Middle Super Output Area 007 and 010



Growth Factors

Growth factors for MSOA 010 were derived from TEMPRO by Optima Highways and were compared to the growth factors set out by AECOM in the scoping review:

Table 4 – Optima Highways Growth Factors

2017-2022	Optima Highways Growth Factor
AM	1.0802
PM	1.0778

Whilst this contradicts the MSOA area used to determine the trip distribution, it reflects the area covered by the assessment and can therefore be agreed in this instance.

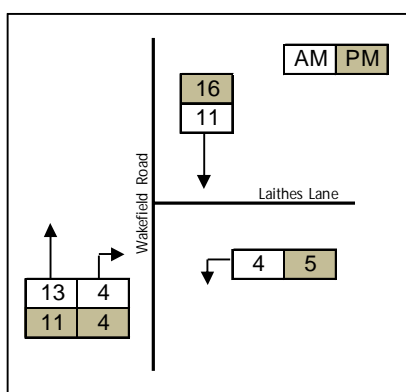
Identification of Impacts and Mitigation

As Optima Highways have so far followed the methodology set out in their scoping note, it was considered that the extent of the study work should also remain the same. As such the junctions assessed in this chapter are as follows:

- Site access;
- Wakefield Road / Rotherham Road roundabout;
- Wakefield Road / Carlton Road signalised junction; and
- Wakefield Road / Smithies Lane signalised junction.

Optima Highways proposed not to assess the Wakefield Road / Laithes Lane junction, though AECOM believed the predicted level of impact should be compared against a TRICS based approach. Given that the TRICS derived trip generations were slightly higher, the level of impact at the Wakefield Road / Laithes Lane junction should be investigated. The trip generations for the Wakefield Road / Laithes Lane junction are shown in Figure 5 below.

Figure 5: Wakefield Road / Laithes Lane Trip Generation



The two-way trip generations at the Wakefield Road / Laithes Lane junction are 32 and 36 in the AM and PM peak hours, respectively. Therefore it is considered that this junction will need to be assessed, as it currently operates with

The traffic surveys identified the peak hours of 07:45-08:45 and 17:00-18:00 and have assessed the junctions listed above for the 2017 base, 2022 base and 2022 with development scenarios. The following is concluded:

Site Access

The site access junction is expected to operate within capacity during 2022 plus development traffic with a maximum Ratio to Flow Capacity (RFC) of 0.12 in the AM and PM peaks.

However, geometries differ from those stated in Section 3.3.3 and 3.3.4 and need to be verified.

Wakefield Road / Rotherham Road Roundabout

The Wakefield Road / Rotherham Road roundabout junction is expected to operate within capacity during the 2022 plus development traffic scenario with a small increase from the Base 2022 scenario. The maximum RFC during the AM peak is 0.62 along the Wakefield Road (N) approach with an associated queue of 2 vehicles. During the PM peak, the maximum RFC is 0.78 along the Wakefield Road (S) approach with an associated queue of 4 vehicles.

It should be noted that Figure 6 (noted in Paragraph 6.6.20 in the TA) showing the existing Wakefield Road / Rotherham Road roundabout arrangement has not been provided within the report, from which the geometries can be checked and verified.

Wakefield Road / Carlton Road / Smithies Lane Signalised Junction

The Wakefield Road / Carlton Road / Smithies Lane signalised junction is expected to operate within capacity during all scenarios. During the 2022 plus development traffic scenario, the maximum DoS in the AM peak is 80% and an associated queue of 15 vehicles along the Carlton Road approach. During the PM peak, the maximum DoS is 84% with an associated queue of 11 vehicles along the Smithies Lane approach. This is considered to be only a slight increase in DoS and queuing from the Base 2022 scenario.

The geometries and inputs were checked and appear to be acceptable. However, the Transyt was run without a pedestrian phase and we request that this be completed to ascertain the impacts of the development on the local highway network.

Carlton Road / Rotherham Road Signalised Junction

The Carlton Road / Rotherham Road signalised junction is likely to operate within capacity during the 2022 plus development traffic scenario. During the AM peak, the maximum DoS is 82.7% along the Carlton Road WB approach, with an associated queue of 9 vehicles. In the PM peak, the maximum DoS is 70.0% with an associated queue of 7 vehicles.

The geometries and inputs were checked and appear to be acceptable. It should be noted that the Linsig was run without a pedestrian phase and for completeness AECOM ran the model with a pedestrian phase every cycle which concluded that the junction was still within capacity.

Therefore, we ask Optima to check and verify the geometries given above as well as including an assessment of the Wakefield Road / Carlton Road / Smithies Lane signalised junction with a pedestrian phase.

Conclusion

AECOM have reviewed the Transport Assessment by Optima Highways on behalf of Barnsley Metropolitan Borough Council for a residential development consisting of 220 dwellings along Wakefield Road on the southwestern edge of Athersley, Barnsley. The full comments above can be summarised as follows:

- The site access has been designed to standards set out in the DMRB TD42/95, however the visibility splays at the site access have been provided in accordance with MfS and the South Yorkshire Residential Guide. As Wakefield Road has a speed limit of 30mph, we suggest that the visibility splays should be provided to 70m from 4.5m of the give-way line in accordance with that designed.
- Optima Highways undertook a survey of the New Lodge residential estate north of the proposed site in order to estimate the trip rate and trip generation. A sensitivity test was also carried out in which trip rates and trip generations were derived from TRICS. Whilst the two approaches were comparable, the TRICS derived trip rates resulted in slightly higher trip generations, and it is therefore considered that this be used to provide a robust assessment.
- Whilst AECOM recommended in the Scoping Note review (dated July 2017) that a distribution based on the average of MSOA 007 and MSOA 010 should be considered as the proposed site sits on the boundary of both sites. Optima Highways did not consider it appropriate to assess the average of both MSOA's and as the effect of this will likely be minimal, it can be agreed in this instance.
- The growth factors have been derived from TEMPRO for the MSOA 010, which covers the area for assessment and is therefore considered appropriate.
- We would suggest the Wakefield Road / Laithes Lane junction be assessed as the two-way vehicle movements are more than 30 during the AM and PM peak hours.
- The junction assessments concluded that associated development traffic could be accommodated on the local highway network, however verification of some geometries should be conducted as some discrepancies were identified, and the pedestrian phase should be included in the Transyt assessment of the Wakefield Road / Carlton Road / Smithies Lane signalised junction. This will need to be agreed before we can provide final comments.

Travel Plan Review

A Travel Plan was also submitted as part of the application, and has been reviewed by AECOM.

Objectives and Targets

The objectives set out in the Travel Plan are as follows:

- Promoting walking, cycling and public transport as the primary modes of travel;
- To deliver mode shift from car journeys to alternative modes including multi-occupancy vehicle trips;
- To reduce vehicle emissions through the take up of alternative transport modes; and
- To deliver education and promotion of walking and cycling as options for a healthier lifestyle.

These objectives will be achieved by SMART targets. In order to understand the baseline figures, 2011 Census Journey to Work by Mode data was derived for the MSOA 007. This would be replaced once actual mode share information is available from travel surveys.

Optima Highways suggest a target of 5% reduction in journeys to work by car and a maximum of 30% journeys to school by car to be achieved within 3 years of occupation of the site.

These objectives and targets are considered to be acceptable.

Roles and Responsibilities

A Travel Plan Co-ordinator (TPC) will be appointed by the housebuilder 3 months prior to occupation and should be retained for a minimum period of 5 years post full build out of the site. The TPC role will then be passed to a residents group. Within 6 months of occupation, the TPC will provide a detailed Travel Plan to the Travel Plan Officer at BMBC, and will be based on results from the travel surveys.

Measures

It will be the TPC's responsibility to collate and distribute a Sustainable Travel Leaflet to each resident which will include details of walking and cycle organisations, cycle events and DfT Cycle to Work scheme. However, it should be noted that cycle groups should be promoted through BMBC's website, rather than through the Sheffield City Council website. The TPC will also promote travel by bus, car sharing, electric car use and home delivery services, as well as providing personalised travel planning advice to new residents on initial occupation.

Whilst the above is acceptable, it is considered that these are just informative measures and that more commitment is required.

Implementation / Communication

It is stated in Paragraph 6.2.2 that "*A full travel survey of all residents will take place one year after first occupation of the development*". However, it was discussed in Paragraph 4.3.1 that a detailed Travel Plan will be submitted to BMBC within 6 months of occupation, and will be based on results from the travel surveys. Further clarity is required on when the travel surveys will be undertaken.

Any revised measures and revisions to modal split targets as a result of the travel surveys will then need to be agreed with BMBC within 3 months of the travel surveys.

Monitoring and Review

Annual reports will be submitted to the relevant external organisations and will describe the progress made for that year. It will be reviewed and any further measures will be identified and implemented.

Conclusion

Having reviewed the report submitted, the key findings can be identified as follows:

- The Travel Plan outlines a target for a 5% reduction in car journeys to work and a maximum of 30% of school trips by car and will be achieved within 3 years of occupation of the site;
- The Travel Plan Co-ordinator should be in post 3 months prior to occupation and remain in place 5 years beyond full occupation;
- The objectives and measures are considered to be reasonable, though more commitment is required;
- Clarity should be provided on when the travel surveys will be undertaken; and
- A budget for the TPC should be outlined within the Travel Plan.