



West Harrogate – Transport Assessment Requirements Note
August 2021

1. Overview

This note has been prepared by Harrogate Borough Council (HBC) and North Yorkshire County Council (NYCC), to agree the approach to development of the Transport Assessments that will support planning applications for development of the adopted (March 2020) Harrogate District Local Plan 2014-2035 allocations in west Harrogate.

Harrogate Borough Council (as the Local Planning Authority) and North Yorkshire County Council (as the Local Highway Authority) will be considering proposed developments, in west Harrogate, on a cumulative impact basis. As such it is recommended that a single Transport Assessment (TA) is undertaken to quantify and adequately identify the impacts of the planned developments. The intention is that the cumulative impact of the west Harrogate development sites, across the highway network, in accordance with the Parameters Plan work is tested and understood by all parties, rather than a 'first past the post' approach to development.

This note builds upon a previous Technical Note "West Harrogate – Approach to Transport Assessment proposed by Vectos for H49" that was developed following the circulation of NYCC's TA requirements to all relevant promoters in February 2020. There has been significant change since that note was produced, in terms of committed sites, apportionment work etc, as such this note aims to provide greater clarity on the requirements for a TA covering west Harrogate developments. This note should be read in accordance with the updated "Harrogate Strategic Modelling and Apportionment Note" produced in August 2020; this sets out how costs for mitigation measures are apportioned between the various site promoters. It is recognised that site promoters' TA will further define the need for on- and off-site mitigation which will ultimately inform the development of the West of Harrogate Parameters Plan and subsequent whole site masterplans and planning applications.

It should be noted that this note does not provide an exhaustive list of items that should be included within a Transport Assessment; this can be found in Government Guidance and NYCC's guidance. As such the typical requirements for a TA are not referenced in this note rather this note seeks to provide additional context and clarify requirements specific to the cumulative nature of the proposals.

This note includes the following:

Section 2 - provides an overview of the scope of the TA study area.

Section 3 – details the committed and allocated developments.

Section 4 - sets out the scenarios that are to be tested

Section 5 – details the assessment criteria required to be included in the TA

Section 6 – summarises the non-highway mitigation measures that are to be included

Section 7 – provides a summary and identifies the next steps.

2. Traffic Assessment Study Area

The Harrogate District Transport VISUM Model (HDTM) was developed to support the production of the Harrogate District Local Plan. The HDTM was used to test and assess differing scenarios of planned development across the district, to inform decisions on the location and quantum of development, together with any required mitigation measures. This work formed part of the

evidence base for the Harrogate District Local Plan and was scrutinised in the Examination in Public (EIP) in January 2020.

This traffic modelling work identified the junctions in Harrogate that would require mitigation, in order to adequately accommodate the forecast future traffic flows associated with the sites allocated for development in the Local Plan. The modelling approach and further details of the assessment of proposed mitigation measures, is available in the 'Harrogate – Phase 2 Harrogate Borough Council Option 3 Modelling Update' report; this summarises the results and methodology of the modelling work and is available online at <https://www.harrogate.gov.uk/downloads/file/286/traffic-modelling-option-3-update-january-2018>.

A subsequent Apportionment Note has been produced by HBC and NYCC, to outline the strategic junctions (identified by the HDTM) and the local junctions that are anticipated to require mitigation and has sought to apportion costs based on the impact each site has on each junction. The apportionment note is a "live" document and it is anticipated that the TA work for the west Harrogate sites will provide updates on the mitigation work required.

The sites that are to be considered as part of the cumulative impact assessment are included in Figure 1, for Harrogate, and Figure 2 for Knaresborough and the broad location for a new settlement. In addition to sites that comprise the West Harrogate Parameters Plan area, a smaller number of other sites, more remote from the West of Harrogate also impact on the junctions set out in the apportionment note and the impact of these sites needs to be brought in to the Cumulative TA.

Figure 1: Location of Sites in Harrogate to be Included in Cumulative TA

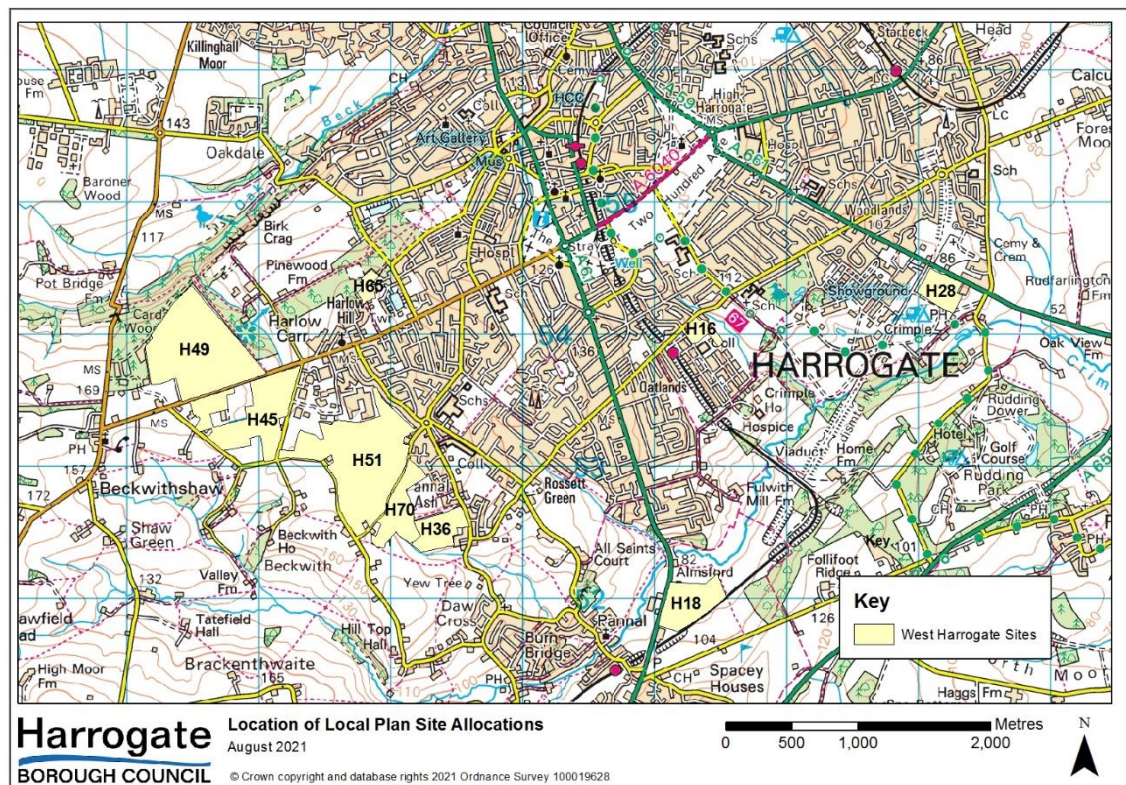
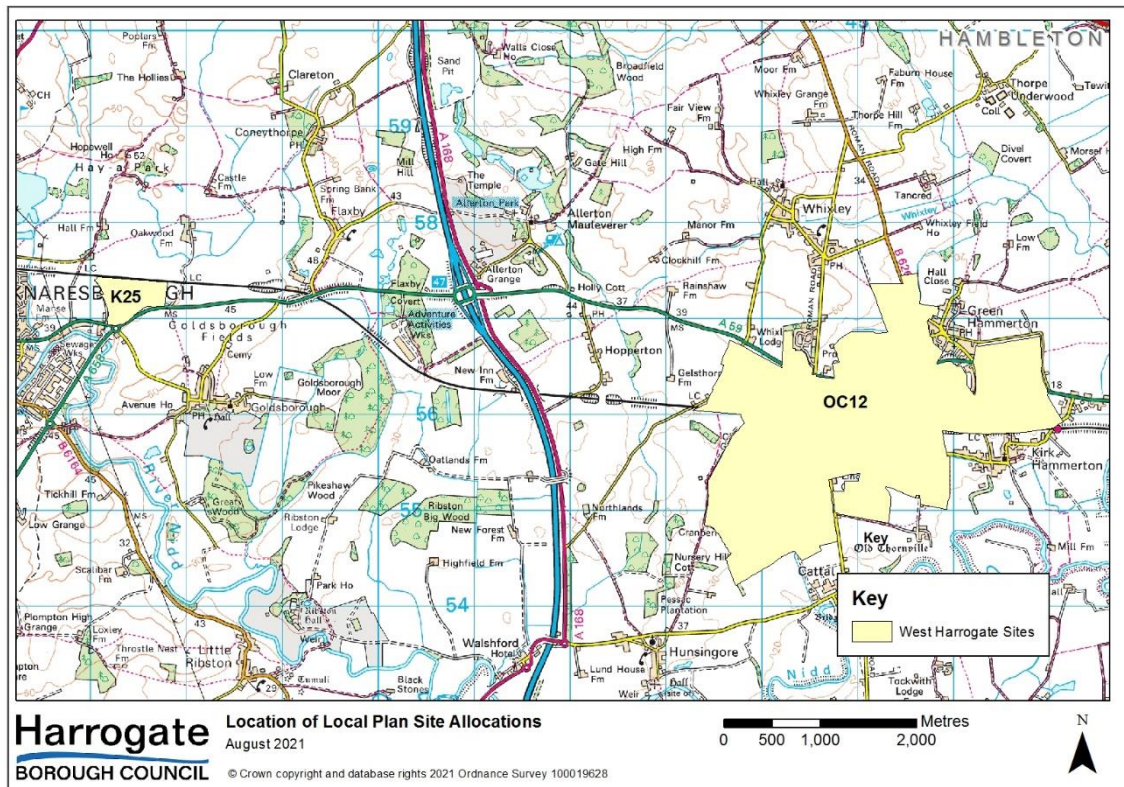


Figure 2: Location of Knaresborough and New Settlement Sites to be Included in Cumulative TA



2.1 Capacity Assessment – Junctions and Links

As referred to above, the Apportionment Note highlighted the initial junctions that are forecast to be significantly impacted by developments planned for west Harrogate. At the time of writing, the junctions and links that have been identified as potentially requiring mitigation as part of the apportionment work are listed (and shaded in yellow) in Table 1. The outputs of the traffic modelling work in terms of assignment of flows at each of the junctions identified in the apportionment note are summarised in Appendix A.

In addition to the junctions and links referred to above, assessment of the proposed site accesses and other junctions and links in close proximity to the development sites in west Harrogate are also required. Analysis of the capacity of the roads/links that will be affected by traffic generated by the proposed developments needs to be undertaken to ensure that the new trip distribution can be appropriately assigned to the existing road network. Mitigation of impacts will need to be considered where existing issues have been identified; this could include consideration of the impacts that new trips onto the network may have on the deterioration of the highway network and need for subsequent additional maintenance (as a result of extraordinary traffic) as well as adverse impacts relating to road safety, congestion and delay.

As such, the scope of the TA study area should include, as a minimum, the junctions and links listed in Table 1 and illustrated in Figure 3 together with any other junctions that experience more than 30 two-way trips assigned through the junction (from west Harrogate developments) and an increase of 2.5% over the base flow. Additionally, the proposed site accesses will also need to be assessed – to avoid confusion these have not been included in the table given the exact location of these has not yet been confirmed.

Table 1: Junctions and Links to be Assessed in the TA

Map Ref	Junction or Link	Description <i>(Junctions identified in Apportionment Note are shaded in yellow)</i>
1	Junction	A658 / B6164 Grimbald Crag Way roundabout
2	Junction	A61 Leeds Road / Leadhall Lane / Hookstone Road (Marks & Spencer)
3	Junction	A661 Wetherby Road / Hookstone Chase / Hookstone Drive (Woodlands)
4	Junction	B6162 Otley Road / Crag Lane / Beckwith Head Road
5	Junction	A61 The Carr / Leeds Road / Follifoot Road / Pannal Bank
6	Junction and Link	Howhill Road / Otley Road <i>Howhill Road between Otley Road and Beckwith Head Road</i>
7	Junction	Beckwith Road / Otley Road
8	Junction	Pannal Ash Road / Otley Road
9	Junction	Cold Bath Road / Otley Road
10	Junction	A61 / Otley Road (Prince of Wales roundabout)
11	Junction	Rossett Green Lane / Green Lane / Leadhall Lane
12	Junction	Burn Bridge Lane / A61
13	Junction	A61 / A658 roundabout
14	Junction	Beckwith Road / Yew Tree Lane / Green Lane / Whinney Lane / Pannal Ash Road
15	Junction	Otley Road / B6161 (Pot Bank roundabout)
16	Link	Yew Tree Lane/Burn Bridge Road/Burn Bridge Lane from its roundabout junction at Whinney Lane/Pannal Ash Road to its junction with A61 Harrogate Road including the pinch point at the bridge over the Harrogate Line and the pinch point over Crimple Beck at the Black Swan public house (Maltkiln Lane).
17	Link	Hill Top Lane/Hill Foot Lane from its junction with Whinney Lane to its junction with Burn Bridge Road
18	Junction	Whinney Lane/Hill Top Lane/Lady Lane
19	Junction	Lady Lane/Beckwith Head Road
20	Junction	Yew Tree Lane/Rossett Green Lane
21	Junction	Burn Bridge Lane/Hill Foot Lane
22	Junction	A61/Park Drive/South Drive/Langcliffe Avenue
23	Junction	Otley Road/Harlow Moor Road
24	Junction	York Place/Station Parade
25	Junction	A61/A59
26	Junction	Skipton Road/Knaresborough Road/Wetherby Road (Empress Roundabout)
27	Junction	Burn Bridge Road/Brackenthwaite Lane
28	Junction	Burn Bridge Road/Malthouse Lane
29	Junction	Otley Road/Cardale Business Park
30	Junction	Otley Road/Scampston Drive (Persimmon development)
34 (linked with 6)	Link	Lady Lane from its junction with Beckwithhead Road to its junction with Whinney Lane
35	Link	Whinney Lane from its roundabout junction with Yew Tree Lane/Pannal Ash Road roundabout to its junction with Lady Lane/Hill Top Lane
36	Link	Pannal Bank / Main Street / Station Road / Spring Lane, Pannal from A61 to Burnbridge Road
37	Link	North Rigton - Shaw Lane / High Moor Road / Brackenthwaite Lane.

As part of NYCC's validation and calibration work for initial assessments undertaken to date in connection with west Harrogate sites it has been identified that the saturation flows at junction assessments are too high. Consequently using the RR67¹ geometrical calculations for capacity will

¹ TRL Research Report 67 (RR67) 'The prediction of saturation flows for road junctions controlled by traffic signals'

overestimate the capacity at the junctions being assessed and result in under reporting of queues and delay. This is something that is recognised in the industry with TRL highlighting where a site is considered to be poor or average in terms of its operation then the saturation flow may be between 5 and 25% less than the standard 1,800 pcu/hr used (a useful summary of this is provided on the [TRL website](#)). It is suggested that the majority of the junctions in Harrogate could be considered as 'average' or 'poor', as such the saturation flows will need amending accordingly.

Capacity assessments of the roads listed in Table 1 and illustrated in Figure 3 need to be included in the TAs for the west Harrogate sites. The assessments must consider the following elements:

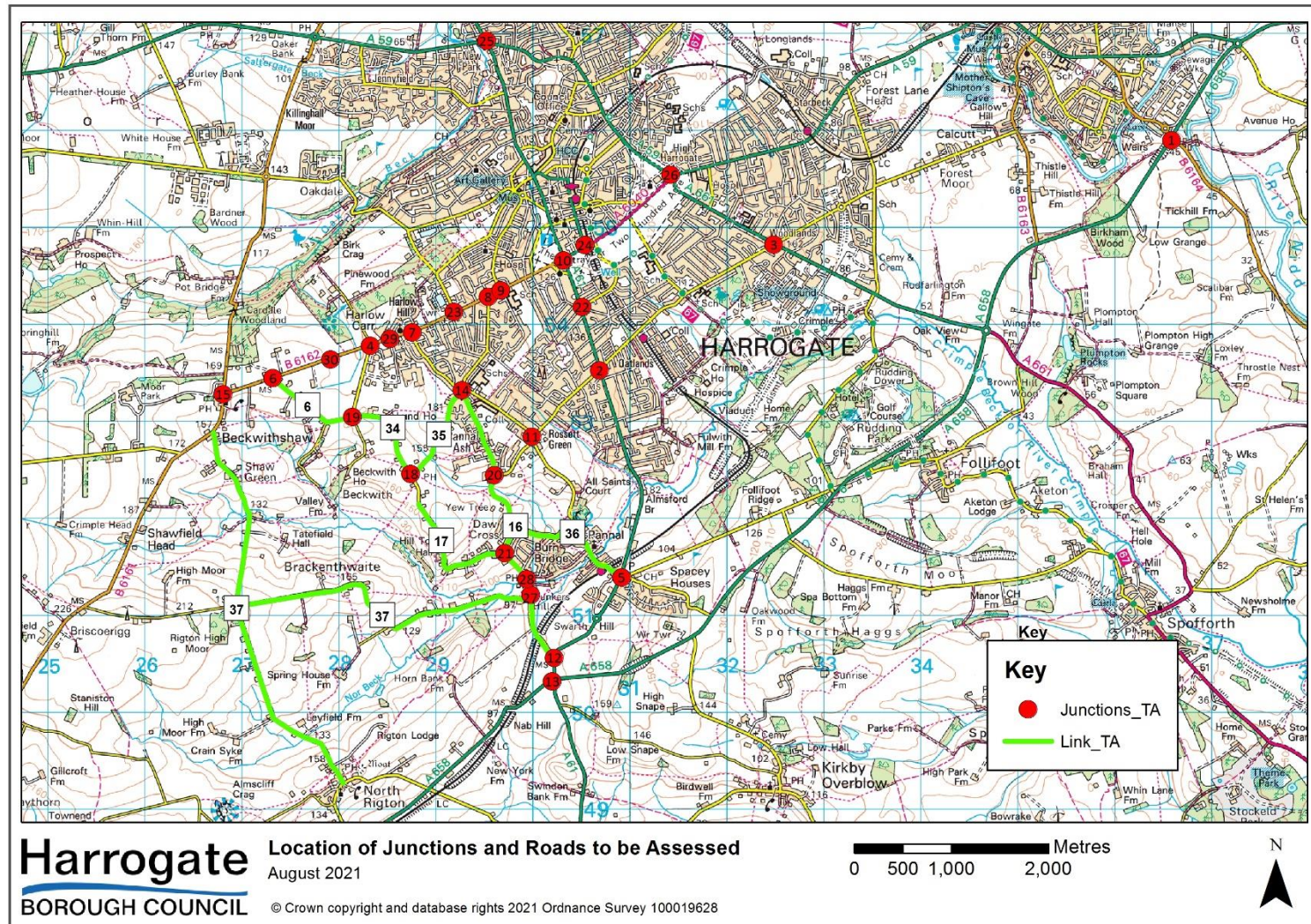
- Vertical and horizontal alignment
- Forward visibility
- Road safety and an assessment of any existing traffic calming measures in accordance with design standards.
- Parking - particularly at peak times to indicate potential capacity constraints
- Road condition²

The findings of the above assessments should illustrate how the distribution of the trips generated by the proposed developments onto the network will be affected.

This section of the TA should conclude with a summary of potential mitigation measures required to improve the capacity of the identified junctions and links where applicable.

² A number of these routes have been road cored which shows the carriageway construction depths to be significantly lacking, requiring NYCC to carry out frequent maintenance work, beyond normal routine maintenance regimes. Increased vehicle trips onto the network will exacerbate this issue further limiting the life-expectancy of the asset.

Figure 3: Location of Junctions and Roads to be Assessed in Cumulative TA



3. Committed Developments

A list of committed developments was set out in the Technical Note produced by NYCC in February 2020. However, the situation has changed due to some sites being removed from the process as they have been completed or not progressed; these include 12/00295/OUTMAJ, 12/01980/OUTMAJ and 09/02704/FULMAJ. Table 2 presents the list of committed developments to be included in the assessment:

Table 2: Committed Developments

Local Plan Ref.	Site Name (no. dwellings)	Planning Application Ref	Built out Status
H74	Crag Lane/Harlow Grange (119)	16/04107/REMMAJ	Partial (nearing completion)
H46	Otley Road (Horticap) (125)	15/01999/EIAMAJ	Partial
PN15	Pannal business park (133 + other)	17/0213/REMMAJ 19/05273/FULMAJ	Partial
H50	Penny Pot Lane (600)	14/02737/EIAMAJ 16/03651/REMMAJ	Partial
H88	Beckwith Knowle employment	16/01607/OUTMAJ	Not started
H88	Beckwith Knowle employment etc	17/00094/OUTMAJ	Not started
H71	Land off Skipton Road (Bellway) (170)	14/03119/FULMAJ	Complete
H72	Skipton Road phase 1 (210)	14/00854/OUTMAJ 17/01398/REMMAJ	Partial
H38	Otley Road, Killinghall (46)	18/04183/FULMAJ	Not started
H73	Skipton Road phase 2 (135)	14/02944/OUTMAJ	Not started
H51	Whinney Lane - Mulgrave (40)	18/02960/FULMAJ	Partial
H6	ST Georges former BT training (88)	18/00821/REMMAJ	Partial
H70	Castle Hill Farm, Whinney Lane (130)	19/02342/REMMAJ	Partial
K25 ³	Highfield Farm, Knaresborough (402)	18/04456/EIAMAJ	Not started
NA	Starbucks (near Woodlands)	19/02171/FUL	Not started

Base traffic growth should be applied to all junctions and then committed development trips added as per the study area / junctions in the committed development TA. It is recognised that committed developments' study areas and associated trips may not directly correlate with the scope of this development but relevant trips should be included in the TA for west Harrogate as appropriate.

Trips associated with the committed developments will be added to the network according to the distributions agreed as part of the associated transport assessments.

³ Resolution to grant permission, the S106 has not been signed.

4. Scenario Tests

The following core scenarios should be tested in the TA:

1. 2020 base;
2. 2030 base plus committed;
3. 2030 base plus committed plus all developments (no school) in Table 3.

The following allocations in Table 3 are to be considered as part of the core development scenario test:

Table 3: Local Plan Allocation Sites to be considered as a Sensitivity Test

Local Plan Ref.	Site Name (no. dwellings, Local Plan indicative yields)	Planning Application Ref (proposed dwelling yield)	Status
H51	Lady Lane / Whinney Lane (Gladman) (690 for whole H51) Employment 17,000 sqm (B1 use)	18/05202/EIAMAJ (480)	Pending
H51	Lady Lane / Whinney Lane (Banks Group) inclusive of School (690 for whole H51)	20/01706/EIAMAJ (270)	Pending
H45	Bluecoat Park (450) plus school if agreed	21/01916/SCOPE (560)	
H36	Police Training College (161)	20/0238/OUTMAJ (200)	Pending
H49	Windmill Farm (776) inclusive of school	19/00294/SCOPE (1000)	
GH11	New Settlement (Hammerton/Cattal) (Min of 3,000 homes)	19/00017/EIAMAJ (4,000)	Pending
H28	Employment allocation, Land at Wetherby Road (16,000 Sq.m - B2/B8 uses)		
H16	Employment allocation, Harrogate College, Hornbeam Park (12,000 Sq.m split 40/60 between B1/retail/café and B2/B8)		
PN18	Pannal Employment site (46,500 Sq.m split 60/40 between B1 and B2) ⁴		

* Trip rates for the Pannal site are agreed to be lower than those shown in Table 3 below.

In respect of the core tests, the TA should include assessment of the number of dwellings tested as part of the Local Plan assessment process. This is to ensure the Local Plan yields can be accommodated, with suitable mitigation in place. This can then form the base for further sensitivity testing for promoters to cumulatively 'test' different yields.

Likewise, sensitivity tests can be undertaken to take account of the build out rates of development and any other changes considered appropriate for testing. For example, the potential for significant modal shift along the Otley Road corridor, as a result of increased uptake of public transport and cycling following the implementation of the Otley Road cycle corridor and enhanced bus

⁴ Note quantum back to 46,500 Sq.m following discussion with HBC (Agreed on 25/3/21)

improvements. A 10% reduction in the development generated private vehicle flows along junctions along Otley Road only could be applied to test the impact of this.

5. Assessment Criteria

This section sets out the key criteria to be included within the various assessments within the TA.

5.1 Assessment periods

The TA will need to assess the impact of development during the weekday morning and evening peak periods.

5.2 Trip Rates

As part of the strategic modelling work undertaken for the production of the Harrogate District Local Plan the trip rates set out in Table xx were applied to all of the Local Plan allocations.

For consistency, these trip rates should be applied to the proposals within the TA. Lower trip rates for the allocation site in Pannal (PN18) were agreed. This is due to its different geographical location within Harrogate and proximity to different levels of public transport provision; including the high frequency 36 bus route (linking Harrogate with Ripon and Leeds) and the proximity to Pannal Rail Station (with services connecting Harrogate with Leeds and York).

Table 4: Trip Rates

	AM			PM		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Residential	0.159	0.420	0.579	0.391	0.191	0.582
B1a	1.819	0.242	2.061	0.195	1.463	1.658
B1c/B2	0.714	0.351	1.065	0.153	0.506	0.659
B8	0.301	0.192	0.493	0.125	0.250	0.375
Trip Rates for Pannal site PN18 only						
B1a	1.408	0.2145	1.6225	0.10725	0.80465	0.91190

5.3 Traffic Growth

Traffic Growth will be applied from opening year to 2030.

It is suggested that TEMPRO growth is applied to enable future year base traffic flows to be calculated. However, it is recognised that inclusion of this may duplicate some of the growth associated with committed development. As such manual adjustments in growth rates may be appropriate to account for this issue, resulting in different growth rates for each junction. Where manual adjustments have been made this should be set out in the TA for each junction.

5.4 Trip Distribution

Data for the 2011 Census Middle super output area (MSOA) "Harrogate 020" should be used to determine a distribution of traffic for residential and employment purposes. It is considered this is the most representative area to reflect the likely patterns for the west Harrogate developments;

Harrogate 018 is considered to be too rural and not reflective of the proximity to Harrogate central area. Adjustments should be made to reflect the highway capacity assessment findings (see Section 2) and potential mitigation measures.

5.4.1 Journey to Work trips

The percentages in Table 5 should be applied for the initial distribution of journey to work trips from the proposed west Harrogate sites and the wider area. Adjustments may need to be made to reflect earlier work regarding highway capacity of surrounding routes as well as the location of the applicant site. Given the detailed distribution of trips will differ any adjustments should be justified in the TA.

Table 5: Distribution of Journeys from Residential Sites and to Employment sites in West Harrogate

Origin / Destination	Percentage trip distribution for journeys from residential sites within West Harrogate	Percentage Distribution of trips for journeys to employment within west Harrogate
Pot Bank (north)	12%	5%
Pot Bank (south)	7%	14%
A61 Burn Bridge Junction	23%	24%
From North and East ⁵	58%	57%

Percentages are based on Journey to Work data for Harrogate 020

Census Journey to Work data should be used to demonstrate the routing, and how this is applied should be included within the TA.

5.4.2 Residential Trips

In accordance with the methodology agreed for the Ashley Helme Associates TA for H51, undertaken in 2020, 67% of the residential trips are to be work-related and 33% education-related in the morning peak, while in the evening peak, 67% are work-related but the remaining 33% has 'other' purposes.

5.4.3 Educational Trips

Two new Primary Schools are being proposed in the west Harrogate allocations (in H49 and H51), as indicated in the Parameters Plan. Operational hours of the school will be as per other local primary schools.

The TA should model the educational trips that originate within the west Harrogate site. The school (and local centre trips) that originate from outside the site will only be considered as part of a sensitivity test as will the 'Eddington' land trips. This is to ensure that the access junctions are 'right sized' but that any traffic mitigation or impact from those trips is outside the planning application.

It is recognised that the proposed education facilities will support the new development proposed in west Harrogate and it will be difficult to redistribute existing education trips by pupils at existing

⁵ 'North' is Harrogate centre and the A61 north of Harrogate. 'East' reflects trips heading east towards Pannal, Knaresborough and the south and eastern areas of Harrogate. Initial findings suggest around 40% of trips originate within the centre of, or from, the north / north west of Harrogate.

schools. It is anticipated that the numbers moving schools will be small as such it is not suggested this is included in the TA.

The education trips should be split into primary and secondary, with an assumption that 80% of the education trips would be primary and 20% secondary. Those educational trips with onward journey to work will follow the residential journey to work distribution.

The assignment of primary school trips to the network will depend on the agreed location of the school(s). Please see section 0(Trip Assignment) below for further details.

5.4.4 Retail and Work-Related Trips

To simplify the assessments it is envisaged that retail centres within west Harrogate allocation sites will not generate any external vehicular movements in the AM and PM peak hours; in general trips associated with them would either be active mode trips or form part of trip chains linked to trips already occurring from those within the area. As such, trips from outside the area travel to this centre instead of other retail units, those trips would not be considered new to the network. Longer distance retail trips such as those to Harrogate centre should be dealt with as separate trips. Section 5.5 includes the route assignment of these trips.

5.5 Mode Choice and Trip Assignment

The 2011 census MSOA “Harrogate 020” should be used to estimate modal splits for residential and employment trips. Mode splits for trips generated by the schools should be based on data from local primary schools, where available, alternatively using, National Travel Survey data.

The assignment of trips, by purpose (i.e. work, education or other), should be undertaken using National Traffic Survey Data. Where applicable it should also be used to route those trips that return to home or have onward destinations such as ‘educational’ escort journeys.

The following trip assignment figures have been agreed with NYCC and should be used. For educational AM peak trips, the proposed assignment is as follows:

- 80% to the school on site (primary education) as applicable;
- 10% to Rossett High School (secondary education): Via Green Lane;
- 5% St Aidens C o E (secondary education): Via Green Lane/Leadhall Lane,
- 5% Harrogate Grammar (secondary education): Via Pannal Ash Road and Arthurs Lane.

For Other PM peak, the proposed assignment is as follows:

- 10% Local Retail Centre within Site (as H49 site has also a retail centre, it would be assumed that these trips would not leave the site)
- 50% Harrogate Town Centre,
- 20% Plumpton Retail Park,
- 10% Oatlands Retail Park,
- 10% Hornbeam Park.

In addition, an amendment was made to the turning percentages at Cold Bath Road and Harlow Moor Road to reflect the use of Harlow Moor Road as a route to the north of Harrogate centre as well as Cold Bath Road. NYCC agreed that this approach should be taken by all the developers.

6. Non-Highway mitigation Measures

In addition to identifying the specific highway mitigation measures (discussed in Section 2), additional interventions have been identified through the Infrastructure Delivery Plan and previous discussions relating to emerging TA work undertaken by west Harrogate site promoters. These measures seek to reduce the additional motorised vehicular trips generated by the developments in the west of Harrogate to acceptable levels. The additional measures included are:

- Walking and Cycling Infrastructure
- Traffic Regulation Orders – e.g. speed limit changes
- Otley Road - Intelligent Signals Corridor
- Bus Service Provision

The apportionment note sets out how the costs are split across the various sites. In summary, the apportionment of costs associated with these measures has been spread across all sites for all interventions, with the exception of site reference PN18, which was not included for contributing to bus service provision in the west of Harrogate; due to its geographic location, in Pannal, being distinct from the west of Harrogate.

6.1 Public Transport

The two major bus operators in Harrogate (Harrogate Bus Company and Connexions) have been consulted by HBC and NYCC on the draft West Harrogate Parameters Plan and the potential for the operation of commercial bus services in west Harrogate. Both operators have identified the potential for improved bus services in the area on a commercial basis once the sites are fully developed. Initial considerations for developers to note subject to detailed comments being received from the operators are:

- Requirement for initial pump priming to run services until sufficient level of housing is constructed;
- Routes within both sites should serve the local centres;
- Level of accessibility for passengers across the various sites;
- Strong preference to avoid right turns out onto roads from junctions that are not signalised or roundabouts;
- Need to incorporate bus provision into phasing plans (i.e. ensuring the ability to serve smaller parcels of early developed land is not compromised);
- Bus stop infrastructure should be of a high standard, with real time information displays, bus boarder kerbs, shelters provided;
- Roads proposed for bus routes should be a minimum of 6.5 metres wide on the main distributor roads and an absolute minimum width of 6 metres elsewhere. The use of Traffic Regulations Orders to regulate parking will need to be considered where there is the potential for obstructions.

HBC and NYCC have had initial discussions with the bus companies regarding the preferred routing of new/extended bus services for West Harrogate – these are illustrated in Figure 4. This would include:

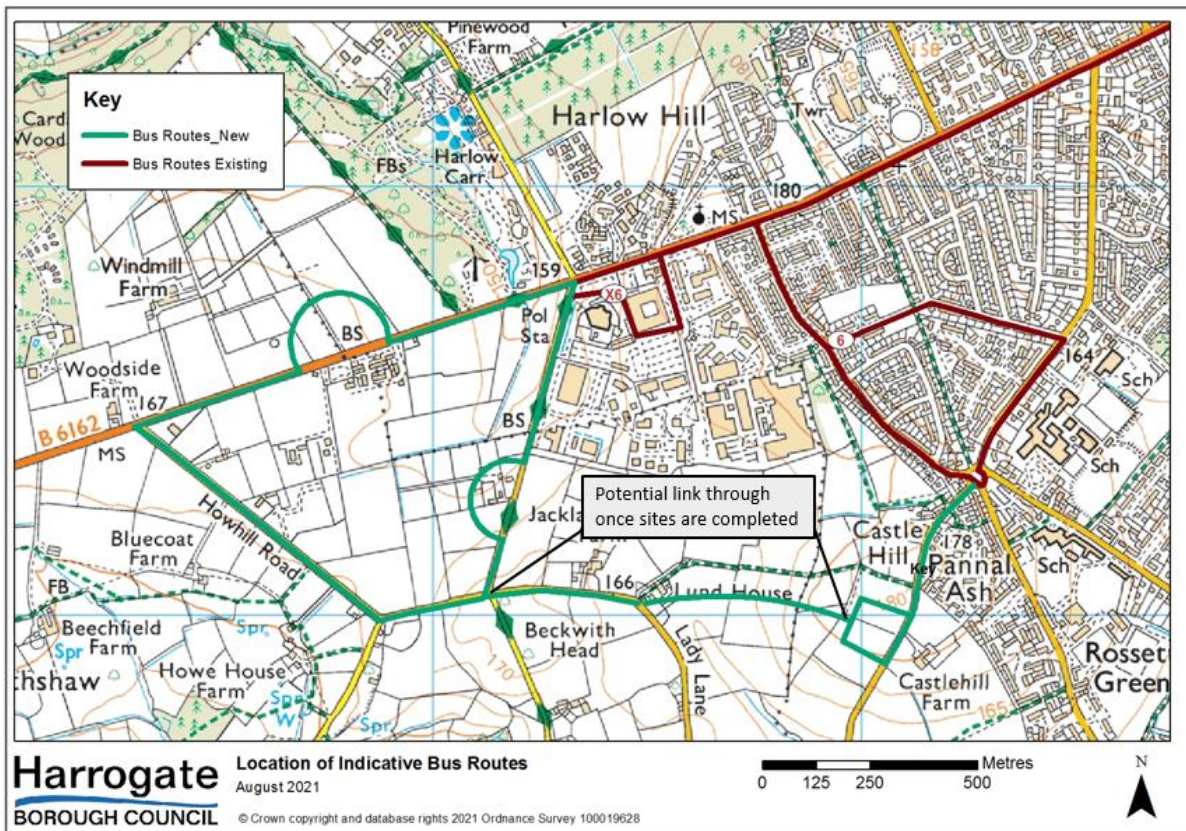
- Rerouting and extension of Service no 6 from Pannal Ash to serve H51 every 30 minutes. The route would be as existing from Harrogate to Beckwith Avenue then operates the opposite way round the Harlow Avenue loop to Pannal Ash Roundabout then into H51,

back to Pannal Ash Roundabout then along Beckwith Road and resuming the existing route to Harrogate from Otley Road.

- X6 service frequency would be altered to run every 30 minutes throughout the day, rather than just peak hours only as existing, and extended from Beckwith Knowle Business Park to serve H49 then along Howhill Road and Beckwith Head Road, also serving H45 / H46, and back to Harrogate via Otley Road.

It is anticipated that once all sites are built out there would be potential to link the two loops together – as illustrated in Figure 4.

Figure 4 – Preferred Bus Routes



As set out in the Apportionment Note the sites expected to contribute to improved bus provision include H36, H45, H49, H51, H65 and H70.

6.2 Active Modes

The provision of high quality walking and cycling infrastructure on and off-site is a vital component of the development of the west Harrogate sites. The design of walking and cycling infrastructure should be given the same, if not greater, priority than designing for the movement of private motorised transport. The movement of people via sustainable transport modes is an intrinsic part of the masterplanning process, and should not be considered an afterthought. It is acknowledged that site layouts may change throughout the planning application process however, sufficient land/space should be made available for provision of high quality active mode infrastructure, designed in accordance with the [Department for Transport's Local Transport Note \(LTN\) 1/20: Cycle Infrastructure Design](#). Additionally, the design of road and junction layouts must take account of safe movement of people by all transport modes.

LTN1/20 sets out the five core design principles for walking and cycling networks – these are for the routes to be Coherent; Direct; Safe; Comfortable and Attractive. In terms of ‘directness’ this is both temporally and spatially so promoters should seek to incorporate the shortest and quickest routes for walking and cycling.

The TA should include a ‘Movement and Accessibility Appraisal’ which we suggest is undertaken collaboratively by all Site Promoters to ensure a clear understanding and consistent approach when looking at existing and possible future movement patterns, with the Movement Appraisal informing the preparation of a movement framework for the development, which should include the following elements for each mode of transport:

- how the site will connect to existing routes;
- how the site will connect to key facilities i.e schools, sports facilities, local centres;
- how the best connections to these routes can be made;
- identification of barriers to walking / cycling (e.g. the need to cross a busy road);
- facilities for people with disabilities (e.g. the need for alternative routes to avoid steep gradients).;
- what improvements need to be made to these routes;
- calculation of mean journey times (typically 400m equating to 5 minute walking and 1km equating to 5 minutes cycling).

Additionally, LTN1/20 requires the completion of ‘Cycle Level of Service’ (CLOS) Audits and ‘Junction Assessment Tool’ (JAT) Audits which shall accompany all applications.

Space for pedestrians and cyclists may either be segregated or shared/combined, but must be ‘user-friendly’ meeting the core principles of LTN1/20. Such routes would generally require a width of **3.0m to 4.0m**.

When designing Walking and Cycling facilities, the following should be taken into consideration:

- not be too far removed from natural surveillance or hidden from roads or houses;
- shall be well lit to encourage use, unless they are primarily for leisure use where night time use is would be unlikely, or in rural surroundings where lighting would be inappropriate;
- cycling speeds, forward visibility requirements and the likely levels of use;
- frequency of interruptions from side accesses and crossings which should be an inclusive part of the design solution.

It is anticipated that a contribution towards off-site provision of improved active mode infrastructure will be required as part of the developments in west Harrogate; this is included in the apportionment note. NYCC has commissioned consultants to review the Harrogate Cycling Infrastructure Plan and undertake further work on feasibility and potential costings of cycle routes that would benefit occupiers of the west Harrogate sites.

Convenient, safe and secure cycle storage should be provided in homes and outside community facilities, workplaces, schools, shops and other public destinations, be weather protected and either within a lockable curtilage or have good natural surveillance.

6.3 Otley Road Corridor

NYCC has previously raised concerns regarding the impacts of the west Harrogate developments on the Otley Road corridor and the number of signalised junctions that are being added to the corridor. It is recognised that modelling of junctions in isolation is unlikely to be representative given the 'platooning' effects that are likely to take place with introduction of additional signalised junctions. As such, it is recommended that a holistic approach to assessing this corridor is undertaken (potentially using TRANSYT or micro-simulation modelling), particularly given the proposals for this corridor becoming an Intelligent Signals Corridor and recommended by NYCC's Traffic Signals Team.

7. Summary and Next Steps

This note provides a summary of the methodology to be used for a cumulative TA for the west Harrogate sites, in line with the collaborative approach to delivery of the sites and associated mitigation measures.

Collaborative working between all promoters and the local authorities is essential, to deliver the west Harrogate sites, and required infrastructure, in a holistic and coordinated way.

APPENDIX A – Summary of Traffic Flows

The traffic flows below have been taken from the Harrogate District Strategic Transport Model and includes modelled flows for each of the junctions included in the Apportionment Note.

The flows are given for the Do Minimum (base flows plus committed development) and the Do Something (Do Minimum plus Local plan allocations) scenarios for the AM and PM peak periods.

Flows have been derived using the Select Link Analysis outputs that were used to calculate the developers' contribution in the apportionment methodology.

All flows are given as total vehicles originating from each of the junction arms

A61 Ripon Road / A59 Skipton Road				
Arm	DM		DS	
	AM	PM	AM	PM
A59 E	638	894	652	973
A61 N	920	1080	1079	1171
A61 S	343	378	337	389
A59 E	46	1080	46	58

Leeds Road/Leadhall Lane (M&S)				
Arm	DM		DS	
	AM	PM	AM	PM
Hookstone Road	237	242	181	350
Leeds Road N	709	835	1060	834
Leeds Road S	527	696	508	801
Leadhall Ln	150	208	269	222

A661 Wetherby Road/Hookstone Chase (Woodlands)				
Arm	DM		DS	
	AM	PM	AM	PM
Woodland Dr	0	0	0	0
Hookstone Chase	364	366	473	385
Wetherby Rd N	751	739	837	704
Hookstone Drive	756	798	756	985
Wetherby Rd S	485	492	538	590

A661/A658				
Arm	DM		DS	
	AM	PM	AM	PM
A661 E	668	662	702	665
A658 N	1116	1027	1375	1182
A658 S	615	837	677	879
A661 W	1083	1162	1075	1354

A658 / B6164 Grimbald Crag Way Roundabout				
Arm	DM		DS	
	AM	PM	AM	PM
A658 N	634	639	750	750
Grimbald Crag Way	729	742	821	802
Wetherby Road	181	355	207	431
A658	932	943	1019	1051

A59 York Road / B6164				
Arm	DM		DS	
	AM	PM	AM	PM
A59 E	486	554	581	624
Chain Lane	380	373	441	425
B6164	159	202	171	224
A59 W	493	552	539	609

A61 The Carr Leeds Road / Follifoot Road				
Arm	DM		DS	
	AM	PM	AM	PM
Foolifoot Road	204	251	222	314
A61 N	430	651	412	734
A61 S	505	574	544	533
Pannal Bank	206	280	274	293

B6162 Otley Road / Crag Lane				
Arm	DM		DS	
	AM	PM	AM	PM
B6121 Otley Road E	639	381	874	876
Crag Ln	107	168	461	276
Beckwit Head Road	171	381	262	490
B6121 Otley Road W	105	92	290	156

Howhill Road/Otley Road				
Arm	DM		DS	
	AM	PM	AM	PM
B6121 Otley Road E	44	217	75	177
B6121 Otley Road W	324	155	482	319
Howhill Road	100	245	203	437

Beckwith Road/Otley Road				
Arm	DM		DS	
	AM	PM	AM	PM
B6121 Otley Road E	700	587	915	974
B6121 Otley Road W	337	536	672	713
Beckwith Road	196	173	189	178

Pannal Ash Road/Otley Road				
Arm	DM		DS	
	AM	PM	AM	PM
B6121 Otley Road E	506	511	728	786
B6121 Otley Road W	189	132	257	175
Pannal Ash Road	237	280	374	372

Cold Bath Road/Otley Road				
Arm	DM		DS	
	AM	PM	AM	PM
Cold Bath Road	367	300	489	408
B6121 Otley Road E	243	290	369	478
Arthurs Ave	69	53	99	138
B6121 Otley Road W	372	320	482	399

A61 / Otley Road (Prince of wales roundabout)				
Arm	DM		DS	
	AM	PM	AM	PM
W Park	0	0	0	0
A61 E	557	751	627	789
A61 S	664	933	605	1022
B6121 Otley Road	588	418	773	468

Rossett Green Lane/ Green Lane/ Leadhall Lane				
Arm	DM		DS	
	AM	PM	AM	PM
Leadhall Lane	335	161	374	323
Church Lane	39	136	29	148
Rossett Green Lane	60	48	96	61
Green Lane	149	76	173	100

Burn Bridge Lane/A61				
Arm	DM		DS	
	AM	PM	AM	PM
A61 N	382	681	400	743
A61 S	1010	868	1138	921
Burn Bridge Lane	458	479	644	560

A61/A658				
Arm	DM		DS	
	AM	PM	AM	PM
A61 N	798	1118	985	1256
A658 E	778	675	855	773
A61 S	100	101	151	108
A658 W	1138	1242	1143	1172

Beckwith Road/Yew Tree Lane/Green Lane/Whinney Lane/Pannal Ash Road				
Arm	DM		DS	
	AM	PM	AM	PM
Pannal Ash Road	325	331	321	360
Green Lane	152	170	192	291
Yew Tree Lane	294	241	311	284
Whinney Lane	114	105	340	197
Beckwith Road	250	399	401	435

Otley Road/B6161				
Arm	DM		DS	
	AM	PM	AM	PM
Pot Bank	365	345	454	478
B6162	144	462	278	598
B6161	500	321	572	360

Yew Tree Lane				
Direction	DM		DS	
	AM	PM	AM	PM
NB	339	254	351	305
SB	345	374	455	369

Hill Top Lane				
Direction	DM		DS	
	AM	PM	AM	PM
NB	136	77	201	140
SB	56	79	185	175

