Technical note

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1. Introduction

Hydrock Fore are commissioned by Equites Newlands (Goldthorpe) Ltd in relation to a hybrid planning application for a proposed employment development on land to the south of Dearne Valley Parkway, near Goldthorpe, Barnsley. The commission includes the preparation of a Transport Assessment (TA) and Framework Travel Plan (FTP) for submission with the planning application to Barnsley Metropolitan Borough Council (BMBC).

This note sets out a response to comment received from BMBC Highways Development Control on the above planning application on 30 July 2024, specifically in relation to the 'Technical Note' response prepared by Hydrock Fore (dated 27 June 2024), which in turn addressed consultation received in February and May 2024 from BMBC Highways Development Control officers.

2. Response to Consultation

2.1 BMBC Comment

> *With regard to the gravity modelling, from the pre-application stage it was suggested by BMBC officers that there was an opportunity to provide survey data of nearby employment sites to inform any predictions of traffic movements.*
>
> *The argument against this method is a maintained stance that as the applicant does not presently know who the final occupants will be and that likely HGV movements therefore cannot be known. Whilst it is acknowledged that there is no way of knowing the future commercial traffic movements with any certainty, this shouldn't give carte blanche to disregard the movements from nearby sites as anomalous*.

Response

The gravity model approach taken to assess the distribution of HGV trips where future occupiers are not known (and consequently where there is no certainty on supply chain patterns and related operational HGV trips) is accepted practice (such an approach was accepted for the purposes of transport assessment work undertaken for comparable development proposals at Hoyland on behalf of Newlands Developments in 2020 and 2021).

Notwithstanding that the approach and specific methodology of the gravity model has been discussed at length and refined in consultation with BMBC (and National Highways), as requested by BMBC opportunity has been taken to gather survey data from nearby employment sites, comprising the Aldi distribution centre (plus the adjacent employment development around Goldthorpe Industrial Estate) as well as the Asos distribution centre off Park Springs Road).

As such BMBC's suggestion was accepted, and has been considered and assessed appropriately (as set out in the Technical Note dated 27 June 2024, relevant extracts of which are provided at Appendix A).

2.2 BMBC Comment

Whilst the gravity model suggests that 67% of HGVs will travel west from the site, the measured data reveals that only 31% of HGVs presently travel in this direction from the nearby sites surveyed. The figures are further weighted towards eastbound movements when only considering the morning peak.

There is an argument put forward that these results are skewed by the movements from the Aldi distribution centre as this site is used to serve stores to the east of the country. However, there appears to have been no effort to remove these vehicles from the results (or not count them in the first place) and BMBC are only able to assess the data put forward by the applicant.

Response

HGV trips associated with the Aldi distribution centre are fully counted as part of the survey, alongside HGV trips associated with Goldthorpe Industrial Estate. In combination, this area forms a valid proxy for future development that could be brought forward on the proposed application site and as such it is not necessary for the purposes of the assessment to isolate HGV trips associated with the Aldi distribution centre.

Notwithstanding this, the measured survey data also clearly demonstrates that the pattern of HGV movements associated with the Asos distribution centre varies considerably from that observed for the Aldi distribution centre / Goldthorpe industrial estate area, both in terms of distribution on the highway network and the number of HGVs generated at peak times. Specifically, the Asos distribution centre is observed to generate significantly fewer HGVs towards the A635, either east (towards Hickleton) or west, than the Aldi distribution centre / Goldthorpe industrial estate. This is a key point that is to be acknowledged in any consideration of the surveyed HGV movements, and on this basis the gravity model remains the best, most reasonable, and commonly accepted approach to assessing the impact of HGV trips associated with the proposals.

2.3 BMBC Comment

The results presented in Table 1 in point 2.2.1 of the Technical Note produced by Fore Hydrock restate that 66.0% of "assumed for development traffic" will travel west in a column that has no bearing on the rest of the table and is simply a statement reiterated from the findings of the gravity modelling. The survey results show only 31% of HGVs travelling in this direction and there is no acknowledgement that the ANPR survey results do not match the expectations set out in the Transport Assessment other than to dismiss the findings and to suggest that "the HGV routing assumptions used for the submitted assessment is within the range of HGV traffic patterns observed locally, and therefore the results of the ANPR survey appropriately validate the assessment approach". BMBC would dispute the legitimacy of that concluding statement.

BMBC would reiterate concerns that the existing routing of HGVs at nearby industrial units does not reflect the predictions made by using gravity modelling data and disagree with the absolute assertion that "assuming HGV traffic patterns for the development based on existing occupiers is not considered to be a reasonable basis on which the traffic impacts of the proposed development can be definitively confirmed".

Response

The purpose of quoting the distribution arising from the gravity model approach in Table 1 of the Technical note is to put this in context with the observed survey results. The survey data is not dismissed, rather it is concluded that the survey data very clearly shows that HGV trips related to developments that could be considered similar to that proposed on the application site vary significantly, both in terms of distribution on the network on a proportionate basis, and in absolute terms.

On this basis, the survey data confirms that linking HGV trips that may be generated by the proposed development to a particular existing operation, which in turn will have specific supply chain requirements that in practice are likely to differ from future occupiers of the development (such as the Aldi distribution centre), is not a reasonable approach for the assessment.

2.4 BMBC Comment

However, although BMBC cannot fully agree with the conclusions made by Hydrock Fore, it is apparent that both the City of Doncaster Council (CDC) and National Highways (NH) have accepted the methodology of predicting vehicle movements by way of workplace-based gravity modelling. Given the suggestion remains that only 33% of vehicles will travel east towards Doncaster and the A1, the traffic generation predictions could be seen as a worst-case scenario for the junctions to the west of the site within Barnsley district. The implications of the gravity model distribution compared to the surveyed distributions are that fewer HGVs would be assumed to be travelling into Doncaster district, through Hickleton and Marr, and to the A1.

Response

The surveyed HGV distribution cannot be taken as definitive confirmation of HGV patterns, and specifically that it implies a higher proportion of HGV trips would in practice travel towards the Doncaster district via Hickleton, Marr or the A1 compared to that assessed based on the gravity model approach.

Although the surveyed data does confirm that a higher proportion of journeys associated with the Aldi distribution centre and Goldthorpe industrial estate than assessed based on the gravity model approach would travel east (to / from the Doncaster district), it should equally be acknowledged that:

- At certain times of the day, between 75% and 100% of HGV trips associated with the Asos distribution centre travel via the A635 west or the A6195 (towards M1 Junction 36); as such the proportion of trips via the Doncaster district and A1 is less than assessed using the gravity model approach.
- The absolute number of HGV trips along the A635 corridor associated with the Asos distribution centre is significantly lower than those associated with the Aldi distribution centre / Goldthorpe industrial estate.

2.5 BMBC Comment

Given the above, and without prejudice to further consultations with CDC and NH, BMBC would not wish to raise an objection to the trip generation assessments. However, officers would ask that the HGV Distribution survey results are shared with both CDC and National Highways alongside these comments so that they are aware of the survey finding and are able to revise their own responses to the Transport Assessment should they so wish. Any change in stance from other consultees would have to be included in a future BMBC response and the toleration of the methodology by BMBC is based principally on the acceptance of the findings from CDC and NH.

Response

It is noted that no objection is raised accordingly by BMBC, and it is confirmed that the survey results (in the form of the Technical Note, dated 27 June 2024) are submitted for consideration by the relevant parties (e.g. National Highways and CDC) as part of the planning application consultation process.

Appendix A

Extract of Technical Note 'Response to BMBC Highway Development Control', dated 27 June 2024

2.1.6 BMBC Comment

Additionally, the Council's Transportation and PROW departments are likely to provide further comment both on this outline explanation of improvements to the public footpath and to the anticipated detailed layout of the proposals.

Response

The above works demonstrated on the drawings submitted to BMBC accord with ongoing discussions with Transportation and PROW officers.

2.2 Transport Assessment

2.2.1 BMBC Comment

It is anticipated in the Transport Assessment that two thirds of commercial traffic will head west towards Barnsley on the A635, and all modelling has been produced on this assumption. Approximately 550m east of the proposed access is another roundabout serving industrial units off Dudley Drive. It was noted in pre-application correspondence that manual surveys of this junction and other local industrial zones would give a more accurate prediction of the vehicle movements from the site access.

The surveys carried out on 21/06/22 show significantly more heavy good vehicles travelling east on the A635 towards the Doncaster boundary than travel westwards towards Barnsley. This is especially the case when only considering the largest OGV2-classified vehicles. As such, although it is acknowledged that it is difficult to make any precise calculation at this outline stage, the assumption that most HGVs will turn left out of the site seems unfounded. This is corroborated by on-site observations taken on the morning of 31/01/24 by HDC Officers. It is noted that National Highways wish to see further justification for using a 'population-based' gravity model to derive HGV trip distribution.

Although the occupants of the site are still unknown, it would still seem likely that results from observed local traffic habits would be the best gauge to predict likely HGV distribution from this site. As such, the figures in the Transport Assessment (and therefore all junction modelling) do not appear to be supported by the actual recorded driver behaviour.

Response

At this stage of the planning process and given the nature of the hybrid planning application, the proposed buildings on site are not fixed and the operators of the proposed development (and the related activities associated with their operational use) are not known. Likely patterns of HGV vehicle movements (which in practice are specific to the supply chain requirements of individual occupiers) cannot therefore be confirmed with certainty.

Consequently, for the purposes of the Transport Assessment work submitted with the planning application, a population-based gravity model was used. This is on the basis that population centres are generally located close to potential generators of HGV traffic, including ports, airports and major distribution centres, and therefore a population-based gravity model is a reasonable proxy for the distribution of HGV trips on the wider highway network. Briefly, the gravity model approach results in:

- The majority of HGV trips (circa 67%) are predicted to utilise the strategic road network junctions to the east and west of the site (A1(M) Junction 37 and M1 Junction 36).
- The remaining trips (circa 33%) are predicted to utilise local primary routes between the site and other regional destinations, including the A635 Doncaster Road, the A633 and the A6195 Park Spring Road. Such routes are 'A'-category routes of appropriate standard for HGV use and therefore this assumption is considered reasonable.

In lieu of specific information from future operators that will locate at the development (who, as above, are not confirmed at this stage of the planning process, and on this basis it is not possible in the context of this planning application to be definitive about the distribution of HGV trips that may be generated), the resulting

distribution provides a reasonable assessment of potential routing patterns of HGVs to/from the proposed development, reflecting a suitable balance of local, regional and national journeys.

The principle of using a gravity model-type approach in this way (to assess HGV trip distribution effectively as a proxy for specific information from a future operator) is commonly accepted practice. It is noted that such an approach was used as part of the transport assessment work undertaken for a comparable development at Hoyland on behalf of Newlands Developments (approximately in 2020 and 2021), as well as by Hydrock Fore for other, similar developments elsewhere in the region. Furthermore, specific routing parameters and assumptions underpinning the gravity model were discussed in detail and agreed with BMBC highways officers through the preparation of the planning application, including at meetings on 24 October and 7 November 2023.

Following submission of the planning application, and in response to discussion and consultation to the application by National Highways, a sensitivity test assuming use of 'workplace population', rather than 'resident population' as the basis for the gravity model, was undertaken to validate the approach. In response to this sensitivity test, National Highways (in their consultation dated 27 March 2024) confirmed that the approach taken to estimate HGV traffic to the site as set out in the submitted Transport Assessment is appropriate, and the resulting traffic impacts assessed are agreed. Similarly, in their formal consultation to the planning application (dated 22 April 2024). the City of Doncaster Council has similarly accepted the methodology and resulting traffic impacts as assessed.

Consequently, the approach taken for the purposes of the submitted Transport Assessment and its related conclusions in respect of the distribution of HGV trips on the network is considered to be appropriate and robust.

Notwithstanding the above, and as specifically requested by BMBC, a further survey of HGV traffic travelling between the M1 (via Dearne Valley Parkway) and A1(M) (via Hickleton) routes and existing commercial development off Dudley Drive / Commercial Road (approximately east of the site, comprising the existing Aldi regional distribution centre) and Park Spring Road (the existing Asos distribution centre, to the north of the site) has been undertaken. Briefly, the survey was an origin-destination survey undertaken using automatic numberplate recognition (ANPR) technology, allowing HGVs using identified routes to be counted. The survey was undertaken during the AM and PM peak periods consistent with the periods assessed for the purposes of the submitted Transport Assessment on Tuesday 12 March 2024, as a representative weekday. As such, the ANPR survey represents a 'snapshot' of HGV movements on one day, as an indication of typical HGV route patterns for comparison purposes. No incidents occurred that were observed to affect the results.

The results of the survey are summarised in Table 1.

Table 1: Summary of Surveyed 'Snapshot' of HGV Distribution

Route	Areas off Dudley Drive / Commercial Rd					Park Spring Road					Assumed for Dev. Traffic
	AM Peak		PM Peak			AM Peak		PM Peak			
	07-08:00	08-09:00	15-16:00	16-17:00	17-18:00	07-08:00	08-09:00	15-16:00	16-17:00	17-18:00	
Observed HGVs											
A635 E (via Hickleton)	33	29	34	19	18	6	1	0	0	2	*n/a*
A635 W / A6195	12	15	21	7	3	1	3	3	3	1	*n/a*
% Observed HGVs by Route											
A635 E (via Hickleton)	73.3%	65.9%	61.8%	73.1%	85.7%	85.7%	25.0%	0.0%	0.0%	66.7%	34.0%
A635 W / A6195	26.7%	34.1%	38.2%	26.9%	14.3%	14.3%	75.0%	100%	100%	33.3%	66.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Notwithstanding that the ANPR survey indicates a 'snapshot' of HGV route patterns at peak times on a typical day, the results confirm that:

- Routing of operational HGVs varies significantly, both in absolute and proportional terms, by respective operators given their specific requirements and supply chains.
- HGV traffic distribution patterns can be expected to vary significantly through the course of a typical day.

Consequently, assuming HGV traffic patterns for the development based on existing occupiers is not considered to be a reasonable basis on which the traffic impacts of the proposed development can be definitively confirmed.

However, the HGV routing assumptions used for the submitted assessment is within the range of HGV traffic patterns observed locally, and therefore the results of the ANPR survey appropriately validate the assessment approach.

2.2.2 BMBC Comment

The Junctions 10 modelling of the A635/Red Hill Lane/Hickleton Road crossroads reveals that there is presently a 2-minute delay at peak times on Red Hill Lane, and whilst a 'do minimum' prediction sees this increase to over 10 minutes, the introduction of the proposed development sees vehicles queueing for over 23 minutes (1417 seconds). A delay such as this would dramatically affect driver behaviour both in terms of risk-taking exiting the junction and also using other routes to avoid the crossroads altogether. This is the most extreme example of situations throughout the network that will suffer from queueing and capacity issues but are dismissed as "not considered to be significant and there is sufficient stacking space to accommodate the modelled queue without impacting on upstream junctions". Whilst stacking space may be available on the existing network, it is not desirable to cause significant delay and no justification or mediation is provided within the submitted documents.

Response

The assessment of the operation of this junction and related mitigation is confirmed as accepted by the City of Doncaster Council in their formal consultation to the planning application, as the respective local highway authority.