

TECHNICAL NOTE			
from:	ALAN DAVIES	date:	26/9/2021
subject:	PROPOSED ERECTION OF STORAGE AND DISTRIBUTION BUILDING (USE CLASS B8) WITH ANCILLARY OFFICE SPACE AND ASSOCIATED PARKING, LANDSCAPING, ACCESS AND ANCILLARY WORKS 2021/92603 LAND WEST OF M62, SOUTH OF, WHITEHALL ROAD, CLECKHEATON.	file ref:	J1346-TN1

Introduction

DTPC have been appointed on behalf of the local residents group to review the application details from a highway safety and transportation perspective.

A detailed planning application has been submitted with supporting Transport Statement, this has been reviewed and concerns are raised on a number of areas that lead to a formal objection been made to the submission.

Details of a number of areas are seen as critical areas for clarification of the concerns raised as they are fundamental to the potential impact of the scheme.

A full reply will be issued covering the remaining areas of concern to complete the objection on behalf of the residents.

This Technical Note sets out the response to the trip rates, historic view and changes over time in recent years not truly reflected in the TRIC'S data base and even planning descriptions/classes.

Headline concerns

The TA relies on other Amazon approvals to cross reference trips and acceptability using historic data. It does not provide any actual survey data of Amazon facilities as they are used despite a number in operational use – Why? (we have done this and set out the implications later in the note).

It assumes a fixed shift system and number of operatives etc however these are changeable i.e. the historic B8 distribution has shifts that swap mid afternoon and are shorter i.e. 8 hours thus AM and mid peaks.

They rely on a 12 hour shift but use historic B8 uses that are 8 hour based.

It suggests that over a year the unit will not have daily flow or even seasonal changes with increased demand or flows, clearly unrealistic given the increase due to supplier sales over the year, the autumn and Xmas demands with black Friday type peaks.

It suggests that the flows are not related to the number of loading bays i.e. the unit cannot or does not need the number set out, why then as a bespoke unit it adds to the construction costs significantly for features not to be used?

The staff numbers suggest are fixed however Amazon advertise and are advertising for seasonal staff at hubs with the ability to have double shifts thus operate 24/7 with no restrictions.

The size of the building is to accommodate large levels of stock that changes across the day etc to increase through put thus inbound is demand led, stock is not held for long periods.

It suggests that the land is allocated for employment uses and thus should not be an issue even though the site intensifies the employment floor area and does not test if the remainder of the allocation can be served as the site soaks up the previously modelled trip numbers.

The following sets out direct information and quotes that massively undermine the approach set out in support of the approval and indicate that the testing of the network has been underestimated at scale.

The Amazon operation

Using their own web site, videos and statements ref 1 sets out the operation in more detail of a highly efficient computerised pick system that provides a step change in capacity and meeting orders over the current manual based systems hence the increase in unit sizes to hold more stock.

Amazon is the market leader and one could say unique in the distribution network as it is largely private sales based not business to business like Fedex etc.

Other parcel distribution business like DPD etc actually rely on major hubs as applied for as part of the cascade of goods and they split loads and have smaller hgv's and vans etc, the application site is an HGV based centre hub distributing to smaller transshipment hubs.

They quote –

Outside of the Christmas period, the majority of our total UK fulfilment centre workforce is made up of permanent employees. To manage variation in customer demand and as a way of finding high-quality permanent employees we also engage seasonal employees. At periods of peak demand, seasonal employees play a critical role in helping to meet increased demand from customers. We create thousands of seasonal positions in the run up to each Christmas.”

*PETERBOROUGH NEWS - **Sep 6, 2020 12:15 PM** - Getting ready for a busy Christmas, Amazon are already looking to hire 1,000 seasonal roles in Peterborough (doubling the work force on site) in addition to the 7,000 permanent roles they're creating across the UK this year.*

“Hitting the road: lorries - Amazon lorries, carrying more than 2,000 boxes at a time, bring orders from fulfilment centres to sortation centres, where packages are distributed by location and the required delivery speed. From here, they could be loaded onto a variety of transportation modes, from Amazon lorries to carriers such as Hermes, DPD, and the Royal Mail”.

*Black Friday - Amazon's Peterborough warehouse is the size of seven football pitches. The enormous warehouse covers 500,000 sq ft, the equivalent of seven football pitches, and contains miles of shelves holding thousands of products. **THIS is the Amazon warehouse where staff are planning to dispatch 85 items every SECOND as Brits prepare for the biggest Black Friday EVER.**”*

Simple maths from the above says 1 HGV would take 30 seconds to be fully allocated – not loaded but 2000 parcels/85. The unit is a fifth the size of that proposed thus even if not directly proportioned an increase per second will be seen for sheer volume.

Ref 1 sets out that HGV's are timed on and off the loading bays to increase efficiency.

Ref 2 sets how loading details for pallets and times taken to add to the above details.

The calculations set out 2 loads per hour per bay, the 30 out indicates a need for 15 bays, even if you say flexibility requires each hour to be independent then 30 bays needed.

Extreme flexibility would be 60 bays the number applied for suggesting inherent inefficiencies which does not fit the business model set out. In addition 191 trailer spaces provided thus 3 times the worst case demand again suggesting the ability to have a higher turn over of loads undermining the supposed limit for hgv movements off site.

The average 30 per hour out quoted suggests much longer loading times in terms of hours not minutes, this does not fit the level of efficiency set out. Also assumes no ability to handle seasonal impacts.

The supporting reports all seek to cross reference other approvals for the approaches taken as such the following data has been abstracted from the submitted documents.

Application site 60 loading docks thus $265706/60 = 4428\text{sqm}$ per dock

Wakefield 82 loading docks thus $47644/82 = 581\text{ sqm}$ per dock

Stockton 64 loading docks thus $187036/64 = 2922\text{ sqm}$ per dock

Hull 55 loading docks thus $186940/55 = 3399\text{ sqm}$ per dock

Gateshead 55 loading docks thus $186960/55 = 3399\text{ sqm}$ per dock

From the above larger sites the demand for docks is 78 to 91 suggesting an on site shortfall or an increase in through put efficiency to ensure deliveries are made suggesting the full number of dock levers will be in use and thus increase HGV movements.

Clearly the data submitted and Amazon own operational details shows a mis match in outbound goods/numbers of HGV's supporting a view that the flows are underestimated at scale.

Survey undertaken

Ref 3 sets put the survey results for the Amazon site below believed to be the largest operational Amazon unit to date.



The survey undertaken was focussed on the HGV movements as these relate to the activities on site and the loading bay requirements.

For the floor plate set out the following trip rates are derived, in themselves not large trip rates per hour but the scale of the development is the key factor.

Bespoke trip rate Amazon Edinburgh						
TIME / CLASS	77800			77800		
	in	in	total in	out	out	total out
	OGV1	OGV2		OGV1	OGV2	
7-8 HOURLY TOTAL	1	6	0.009	0	0	0.000
8-9 HOURLY TOTAL	0	7	0.009	3	3	0.008
9-10 HOURLY TOTAL	1	11	0.015	0	10	0.013
10-11 HOURLY TOTAL	1	8	0.012	1	5	0.008
11-12 HOURLY TOTAL	2	14	0.021	1	12	0.017
12-13 HOURLY TOTAL	0	7	0.009	0	13	0.017
13-14 HOURLY TOTAL	2	9	0.014	2	10	0.015
14-15 HOURLY TOTAL	1	6	0.009	1	4	0.006
15-16 HOURLY TOTAL	1	4	0.006	1	7	0.010
16-17 HOURLY TOTAL	2	2	0.005	1	4	0.006
17-18 HOURLY TOTAL	0	0	0.000	2	6	0.010
18-19 HOURLY TOTAL	0	4	0.005	0	0	0.000

Despite the ability to source bespoke trip rates the applicant has relied on historic trip rates for B8 uses

TRIC'S HGV review

The assessments refer to other approved Amazon sites to gain support for the approach taken i.e., use a small number of sites and compare the trip rates as a level of acceptability.

The report uses previous approved rates from other cross reference applications. The sites referenced and indeed others used in those reports are in reality **reserved matters** applications i.e. using a previously approved B8 distribution site with associated trips etc and defining the building as an Amazon unit in terms of design. They are not new applications from first principles as the application is, **they are typical B8 approvals.**

The data base in TRIC'S sets out distribution as a use class for a wide variety of operations with a cap of 80000 sqm for an Argos site but has 500 staff so not truly relatable.

Historically distribution has bulky goods, food distribution etc with internal picking/sorting not the way Amazon operates.

The data base does have a sub set for parcel delivery not referred to but covers DPD sites etc so a possible direct comparator.

Ref 5 provides the TRIC'S output detail and again the focus is on the HGV trips to and from the site. The derived trip rates are provided overleaf.

Parcel distribution trip rate						
TIME / CLASS	in		total in	out		total out
	OGV1	OGV2		OGV1	OGV2	
7-8 HOURLY TOTAL			0.093			0.067
8-9 HOURLY TOTAL			0.077			0.159
9-10 HOURLY TOTAL			0.108			0.077
10-11 HOURLY TOTAL			0.077			0.118
11-12 HOURLY TOTAL			0.082			0.067
12-13 HOURLY TOTAL			0.077			0.067
13-14 HOURLY TOTAL			0.062			0.046
14-15 HOURLY TOTAL			0.052			0.077
15-16 HOURLY TOTAL			0.057			0.077
16-17 HOURLY TOTAL			0.154			0.103
17-18 HOURLY TOTAL			0.036			0.062
18-19 HOURLY TOTAL			0.046			0.077

From the TA submitted table 5.4 shows the B8 trip rates.

Table 5.4 – B8 Vehicle Trip Rates

Time Period		HGVs		
		Arrivals	Departures	Two-Way
0700-0800		0.02	0.01	0.03
0800-0900		0.02	0.02	0.03
0900-1000		0.02	0.02	0.04
1600-1700		0.02	0.01	0.03
1700-1800		0.01	0.01	0.01
1800-1900		0.00	0.01	0.02
Daily		0.251	0.234	0.485

The derived rates show that the parcel sites trip levels are significantly higher than the bespoke trip rates and these are higher than the application generic B8 trip rates.

Derived trips

Using the above trip rates for the 265706 sqm applied for the following trips are derived.

The first table shows Bespoke trips compared to the application trips and shows in the AM peak around a third increase from the actual users operations rather than assumed.

Application site trips				
TIME / CLASS	total in	total out	two way	Application flows TOTAL
			TOTAL	
7-8 HOURLY TOTAL	24	0	24	37
8-9 HOURLY TOTAL	24	20	44	40
9-10 HOURLY TOTAL	41	34	75	50
10-11 HOURLY TOTAL	31	20	51	/
11-12 HOURLY TOTAL	55	44	99	/
12-13 HOURLY TOTAL	24	44	68	/
13-14 HOURLY TOTAL	38	41	79	/
14-15 HOURLY TOTAL	24	17	41	/
15-16 HOURLY TOTAL	17	27	44	/
16-17 HOURLY TOTAL	14	17	31	19
17-18 HOURLY TOTAL	0	27	27	19
18-19 HOURLY TOTAL	14	0	14	35

Using the parcel trip rates the flows are noticeably increased suggesting that the comparison may not be truly reflective.

Application site trips

TIME / CLASS	total in	total out	two way	Application flows
			TOTAL	TOTAL
7-8 HOURLY TOTAL	247	178	425	37
8-9 HOURLY TOTAL	205	422	627	40
9-10 HOURLY TOTAL	287	205	492	50
10-11 HOURLY TOTAL	205	314	518	/
11-12 HOURLY TOTAL	218	178	396	/
12-13 HOURLY TOTAL	205	178	383	/
13-14 HOURLY TOTAL	165	122	287	/
14-15 HOURLY TOTAL	138	205	343	/
15-16 HOURLY TOTAL	151	205	356	/
16-17 HOURLY TOTAL	409	274	683	19
17-18 HOURLY TOTAL	96	165	260	19
18-19 HOURLY TOTAL	122	205	327	35

The rates have been applied to the 64251 sqm ground floor plate only to ignore the storage used on the upper floors i.e. a single floor plate as those set out in the database.

This shows HGV trip levels overleaf that are still significantly higher than the B8 or the bespoke trips and suggest that the use of the parcel trips for the review for a higher seasonal type demand.

Application site trips

TIME / CLASS	total in	total in	two way	Application flows
			TOTAL	TOTAL
7-8 HOURLY TOTAL	60	43	103	37
8-9 HOURLY TOTAL	49	102	152	40
9-10 HOURLY TOTAL	69	49	119	50
10-11 HOURLY TOTAL	49	76	125	/
11-12 HOURLY TOTAL	53	43	96	/
12-13 HOURLY TOTAL	49	43	93	/
13-14 HOURLY TOTAL	40	30	69	/
14-15 HOURLY TOTAL	33	49	83	/
15-16 HOURLY TOTAL	37	49	86	/
16-17 HOURLY TOTAL	99	66	165	19
17-18 HOURLY TOTAL	23	40	63	19
18-19 HOURLY TOTAL	30	49	79	35

Staff numbers

The TA sets out 600 staff per shift or 1200 in total on a daily basis. Thus 265706 sqm/1200 = 221 sqm per employee per shift and 887 parking spaces = 74% parking provision.

Wakefield comparator 47644 sqm with 270 staff per shift and 540 in total on a daily basis equates to 88 sqm per employee and 354 parking spaces = 76% parking provision.

Stockton 187036 sqm with 600 on a shift basis or 1200 in total on a daily basis. Thus $187036 \text{ sqm} / 1200 = 156 \text{ sqm per employee}$ and 791 parking spaces = 66% parking provision.

Hull 186 940 sqm with 600 staff on a shift basis or 1200 in total on a daily basis thus $186940 / 1200 = 156 \text{ sqm per employee}$ and 794 parking spaces = 66% parking provision

Gateshead 186 960 sqm with assumed 600 staff on a shift basis thus $186960 / 1200 = 155 \text{ sqm per employee}$ and 820 parking spaces = 73% parking provision

The above indicates a similar parking provision for the sites between 66 and 76%, the key difference using the three larger sites is the number of employees on site with the application site been out of step in terms of overall numbers per sqm. This would suggest 1714 per day or 857 per shift, a 43% significant difference and has a knock on effect on the trips on the network.

They have through all the applications made and this one relied on cross referencing for support to the methodology thus the staff number increase would seem a reasonable increase in level that requires the network to be reassessed for car impacts.

Summary

The above review clearly shows that the data supplied does not truly reflect the site operations and if any small variance is made would have a disproportionate impact locally.

The hgv trips based on larger sites and actual survey data indicate noticeable increases in numbers.

The staff and car assessment is out of step with other sites referred to suggesting a 41% operational increase for normal shift patterns.

No account has been undertaken of the known seasonal changes that the unit will accommodate i.e. a potential doubling of staff numbers and knock on hgv trips.

The assessments assumes the approach is agreed but no control is offered as to fix matters in terms of an hourly cap of trips, shift patterns changes to be reapplied for etc, the approval once given would allow any operator to use with different trips/hours of use.

Alan Davies

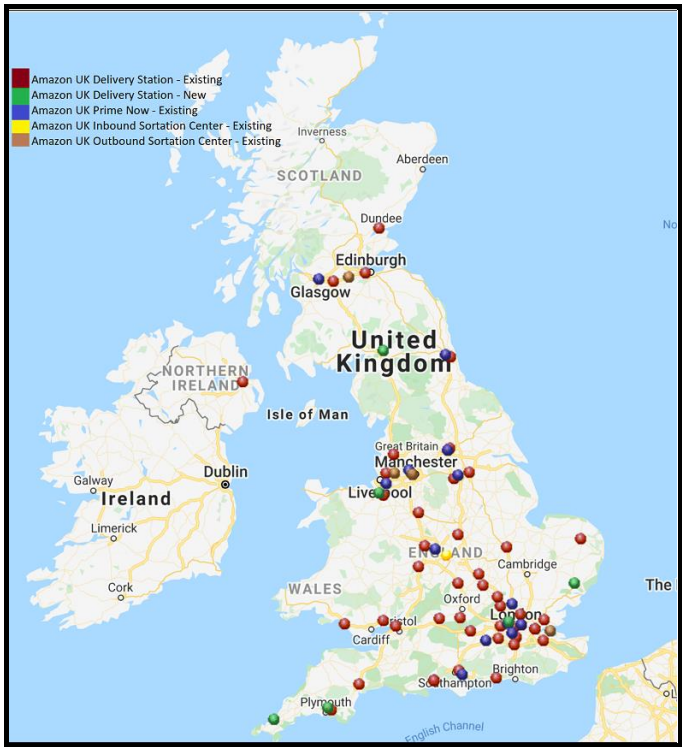
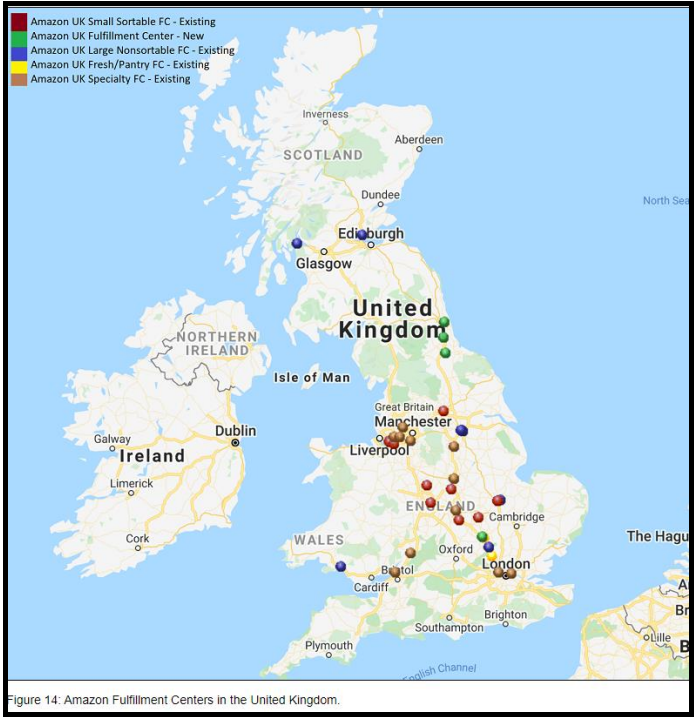
DTPC

2021

Ref 1 Amazon details

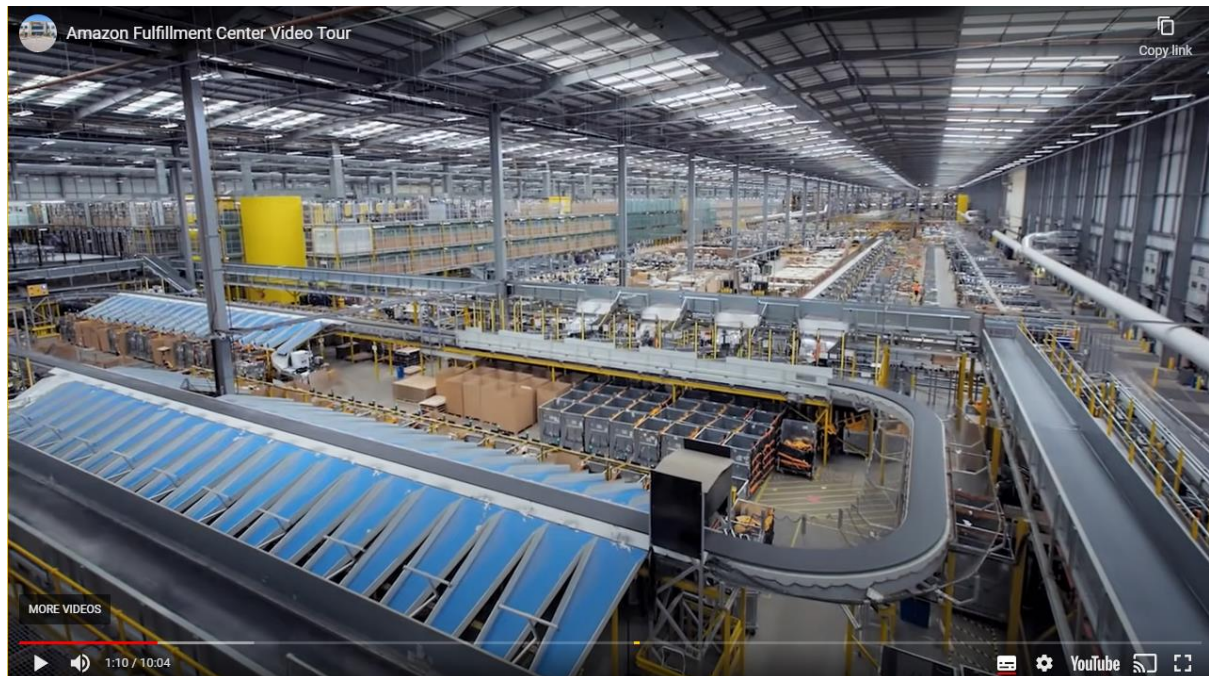
Centre locations and proposed expansion.

The following maps shows the proposed increase to meet demand and increase efficiency supporting the view taken the offer is not typical distribution based.

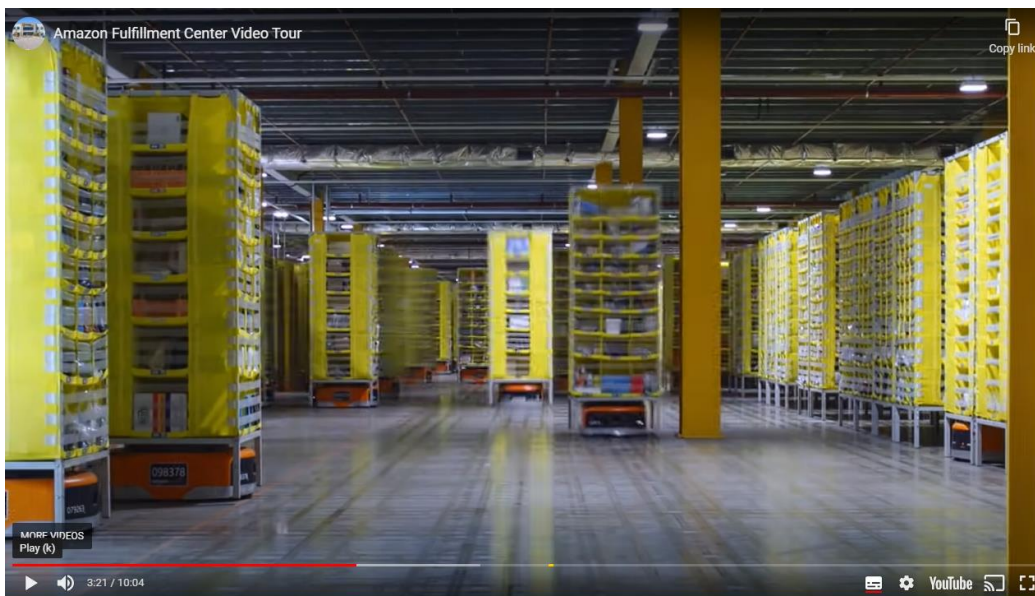
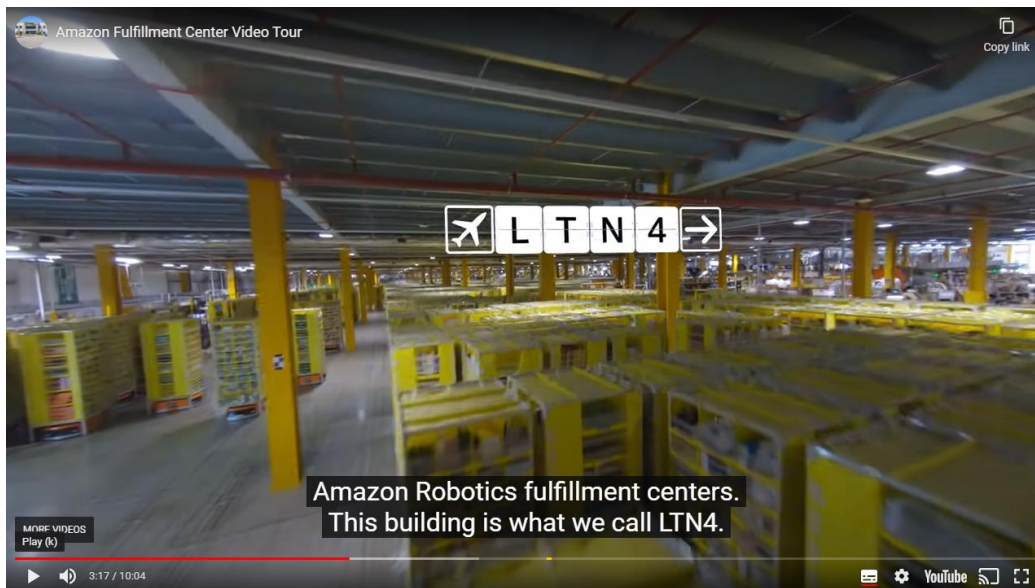


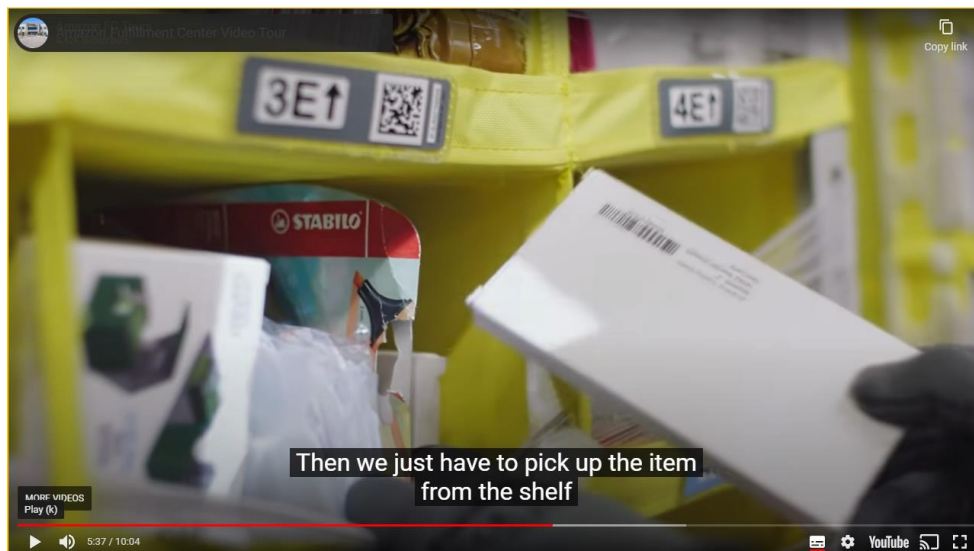
Fulfilment centres the future

The first images are older units and new unit to compare.

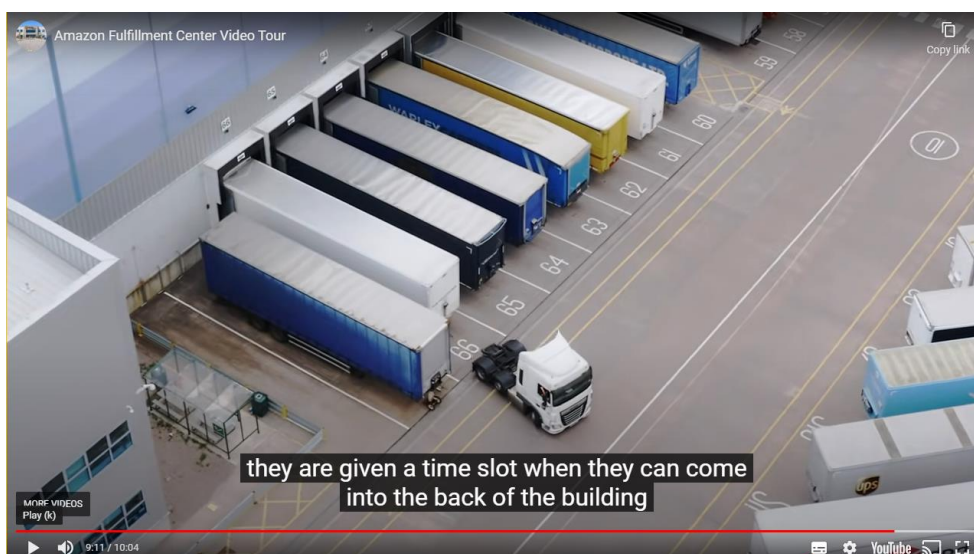


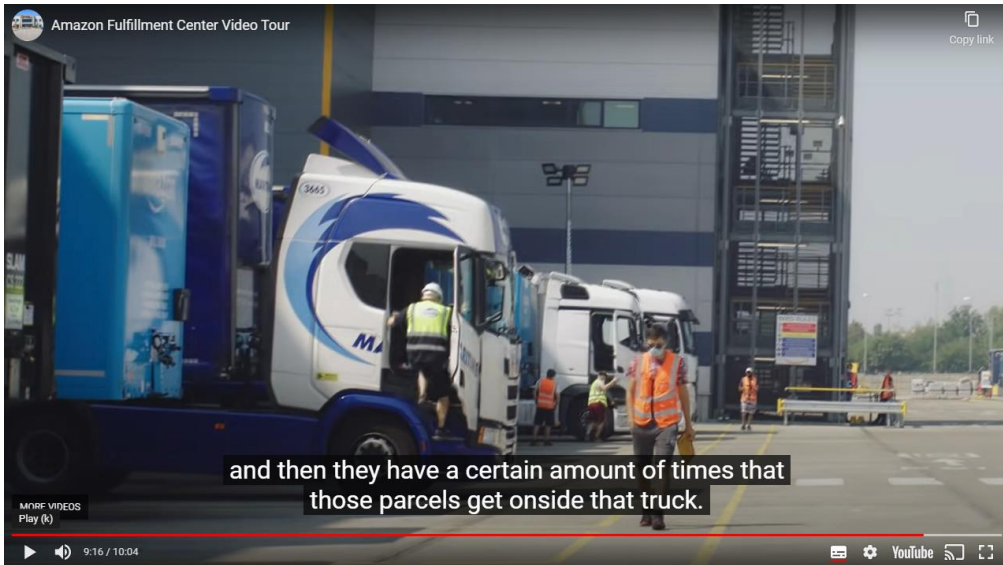
The above smaller unit, the larger/newer units are shown below and much more computerised.





Packed to a conveyor that sends all parcels for a particular distribution hub to be on the same pallet or cage.





Filling the order: fulfilment centres

It all starts in [Amazon's fulfilment centres](#), where products come in on lorries and travel inside on conveyor belts, beginning their journey to you. A surprisingly efficient process kicked into gear once you ordered your blanket. Stowed randomly with millions of other products—a method that ensures a wide variety of items lie close at hand—the product is whisked to an associate for picking via orange robotic drive units that move inventory around the centre.

After the blanket is picked, it moves along conveyors for packing. Along the way, a computer system scans and tracks progress, weighing the box once it's packed to ensure the order is correct. Once labelled, the box is sent to a waiting lorry based on shipping method, speed of delivery, and location.

Shift details and staff etc

Amazon employees do not have zero hour contracts. Currently over 95% of temporary employees in our fulfilment centres work a 40 hour week. In addition, we have agreements with our employment agencies that all temporary employees in our fulfilment centres will be paid for no less than 20 hours of work per week, even when 20 hours of work is not available.

In the UK fulfilment centre network, employees work four ten-hour shifts per week with three days off every week. This shift pattern helps us improve our ability to provide fast delivery for our customers and gives employees another day for free time and social activities. The shorter working week typically saves employees both time and money and means less commuting for thousands of employees.

Continental shift pattern - This is a classic continuous working pattern based on 12 hour shifts. Participants work for **four consecutive 12-hour days, followed by four consecutive days off**, then four consecutive 12-hour nights, followed by four consecutive days off, then four more days and so on.

Amazon advert - Logistics Co-worker (Warehouse Operative). We have a mixture of part time contracts available . We are offering 1 weekend off out of 4.

Preferred shift patterns:

5 days out of 7 with the possibility of working either, 4am- 8am, or 6am-10am, or 5pm-9pm.

Black Friday announcements

Inside the Amazon warehouse where staff are preparing to dispatch 85 items every SECOND on biggest Black Friday ever

Millions are expected to snap up bargains from midnight with Brits expected to spend £2.6 billion on Black Friday - an 8 per cent increase on last year. [emma lake](#)

16:41, 23 Nov 2017 - Updated: 17:06, 23 Nov 2017

Millions are expected to snap up bargains from midnight and workers at the online giant's Peterborough fulfilment centre are ready for the impending chaos.

As well as thousands of [Black Friday bargains](#) Amazon will once again entice customers with "Lightning Deals".

The deals will see sought after products available at a discounted price, in limited quantities, for a short period of time.

Even smaller retailers selling through Amazon marketplace will get in on the Black Friday deals.



Staff at the warehouse are gearing up for the biggest Black Friday everCredit: GEOFF ROBINSON.



Retail experts are predicting that Black Friday will set new spending records in the UK Credit: GEOFF ROBINSON.



Amazon's lightning deals will be making a return this year offering customers the chance to grab a bargain for a limited time Credit: GEOFF ROBINSON.



Amazon has opened four more distribution centres in the build up to the festive season Credit:
GEOFF ROBINSON.

To keep up with festive demand Amazon has opened four new fulfilment centres, creating more than 3,500 new permanent jobs.

Doug Gurr, Country Manager of Amazon.co.uk, said: "Customers tell us they love getting extra low prices so they can save on their Christmas shopping.

"This year we have hundreds of small businesses from our Marketplace offering great deals on their unique and creative products, making it even easier to find perfect gifts with our Black Friday sale."

The warehouse in Kingston Park, Flaxley Road, has already started its hiring process to prepare for the festive season.

A spokesperson for Amazon said: "The fulfilment centre in Peterborough is hiring for around 1,000 seasonal roles to support around 1,000 permanent employees during the festive period.

Ref 2 HGV loading details

The following sets out how pallets etc are placed on a HGV and the calculation of time taken to fulfil the task using modern techniques.

You can fit maximum 26 pcs of standard pallets in to a curtainsider trailer in single loading plan. On the below picture you can find how to fit maximum amount of standard pallets in a curtainsider trailer.



You can fit maximum 33 pcs of EURO pallets in to a curtainsider trailer in single loading plan. On the below picture you can find how to fit maximum amount of euro pallets in a curtainsider trailer.



The inbound will be bulkier i.e. numbers of the same things as this is the holding area but they do just in time speed movements as such not hold large numbers of each item.

When it leaves it will be packaged for delivery but grouped into areas supported by a smaller unit.

You can get 26 to 33 pallets on a trailer but 26 is the norm for uk. Assume 50 m internal location to loading bay as a worst case, likely to be closer plus truck and back at walking pace of 3m/s (less than normal walking pace) would be $120\text{m}/3 = 40 \text{ secs}$ *26 pallets = 17 minutes or say half an hour per unit with ease allowing backing in and swapping thus 2 loads per hour per bay.

No actual amazon count data is provided just some form of feedback use and agreed elsewhere. Very few sites are of a scale that compare and have access points we can survey to gain independent data, was not in my fee but if costs are reasonable I will seek to adjust to keep the impact down on the overall budget.



Amazon Way, Fife - Manual Traffic Survey: Tuesday, 5 October 2021

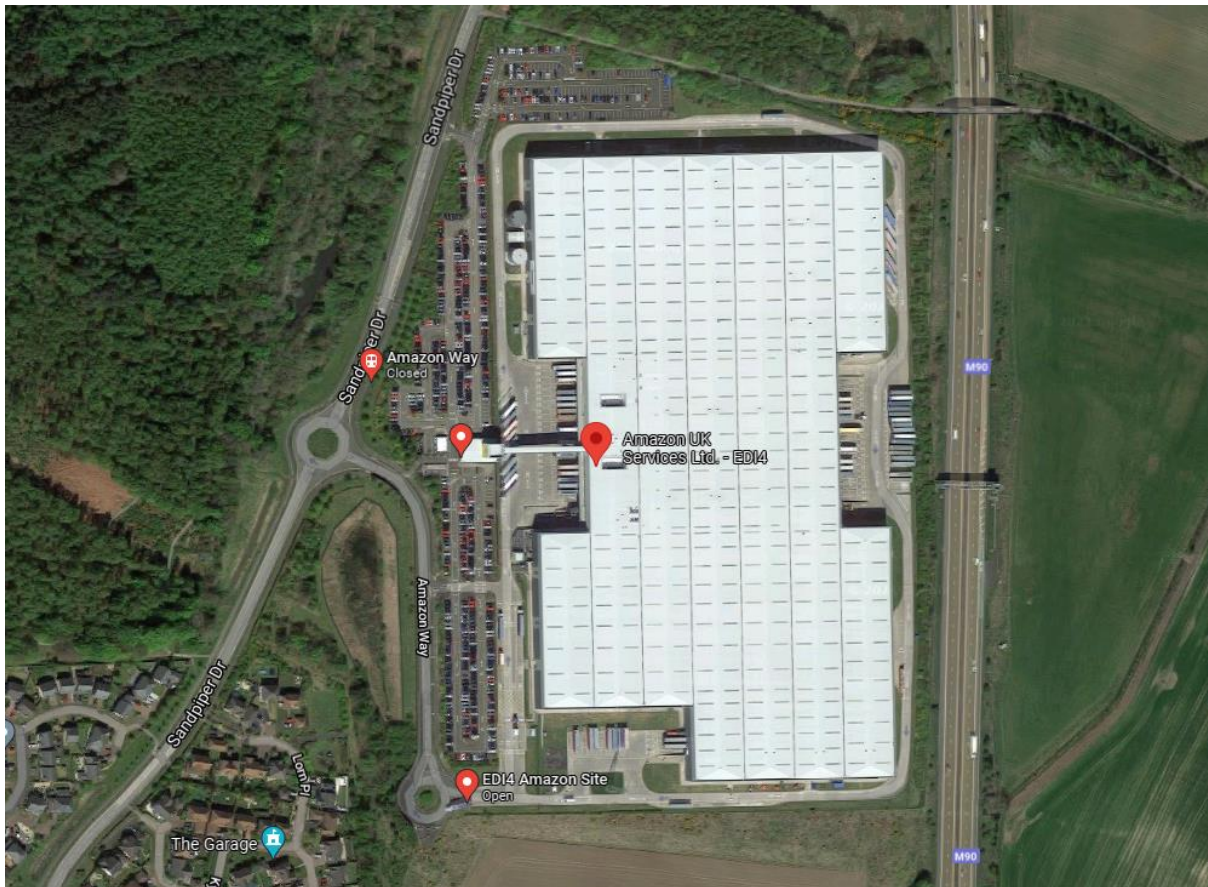
Produced by Streetwise Services Ltd.

Site 1 Amazon Way

TIME	In						Out					
	CAR	LGV	OGV1	OGV2	BUS	TOTAL	CAR	LGV	OGV1	OGV2	BUS	TOTAL
06:00 - 06:15	27	0	0	1	0	28	37	0	0	0	0	37
06:15 - 06:30	43	0	0	1	0	44	29	0	0	0	0	29
06:30 - 06:45	60	1	1	3	0	65	58	0	0	0	0	58
06:45 - 07:00	28	0	0	1	1	30	9	0	0	0	1	10
Hourly Total	158	1	1	6	1	167	133	0	0	0	1	134
07:00 - 07:15	30	0	0	2	0	32	9	1	0	0	0	10
07:15 - 07:30	45	2	0	1	0	48	14	1	1	2	0	18
07:30 - 07:45	37	0	0	2	1	40	14	0	2	0	1	17
07:45 - 08:00	22	1	0	2	0	25	11	0	0	1	0	12
Hourly Total	134	3	0	7	1	145	48	2	3	3	1	57
08:00 - 08:15	3	0	0	2	0	5	0	1	0	0	0	1
08:15 - 08:30	1	0	1	1	0	3	6	0	0	1	0	7
08:30 - 08:45	1	1	1	1	0	4	2	1	1	1	0	5
08:45 - 09:00	5	3	0	2	0	10	1	0	2	2	0	5
Hourly Total	10	4	2	6	0	22	9	2	3	4	0	18
09:00 - 09:15	3	1	0	2	0	6	1	1	0	3	0	5
09:15 - 09:30	4	1	0	3	0	8	1	0	0	2	0	3
09:30 - 09:45	1	2	0	3	0	6	1	0	0	0	0	1
09:45 - 10:00	1	0	1	3	0	5	0	1	0	5	0	6
Hourly Total	9	4	1	11	0	25	3	2	0	10	0	15
10:00 - 10:15	0	1	0	1	0	2	0	0	0	1	0	1
10:15 - 10:30	1	1	0	1	0	3	1	2	0	3	0	6
10:30 - 10:45	1	1	0	2	0	4	3	1	1	1	0	6
10:45 - 11:00	1	0	1	4	0	6	0	1	0	0	0	1
Hourly Total	3	3	1	8	0	15	4	4	1	5	0	14
11:00 - 11:15	0	0	0	3	0	3	0	1	1	1	0	3
11:15 - 11:30	0	1	1	4	0	6	1	1	0	4	0	6
11:30 - 11:45	2	0	0	4	0	6	1	0	0	2	0	3
11:45 - 12:00	0	0	1	3	0	4	2	0	0	5	0	7
Hourly Total	2	1	2	14	0	19	4	2	1	12	0	19
12:00 - 12:15	0	2	0	4	0	6	2	0	0	2	0	4
12:15 - 12:30	0	0	0	0	0	0	2	0	0	3	0	5
12:30 - 12:45	0	0	0	1	0	1	3	0	0	4	0	7
12:45 - 13:00	2	1	0	2	0	5	5	3	0	4	0	12
Hourly Total	2	3	0	7	0	12	12	3	0	13	0	28
13:00 - 13:15	2	1	1	0	0	4	4	0	0	4	0	8
13:15 - 13:30	3	0	0	3	0	6	1	1	1	5	0	8
13:30 - 13:45	3	0	1	3	0	7	4	1	0	0	0	5
13:45 - 14:00	0	1	0	3	0	4	2	0	1	1	0	4
Hourly Total	8	2	2	9	0	21	11	2	2	10	0	25
14:00 - 14:15	1	0	0	2	0	3	1	0	0	0	0	1
14:15 - 14:30	5	0	0	1	0	6	7	0	1	0	0	8
14:30 - 14:45	3	0	0	1	0	4	7	0	0	2	0	9
14:45 - 15:00	3	0	1	2	0	6	2	0	0	2	0	4
Hourly Total	12	0	1	6	0	19	17	0	1	4	0	22
15:00 - 15:15	0	0	0	1	0	1	1	0	1	2	0	4
15:15 - 15:30	5	1	0	1	0	7	6	1	0	1	0	8
15:30 - 15:45	2	0	0	0	0	2	8	0	0	2	0	10
15:45 - 16:00	4	1	1	2	0	8	6	2	0	2	0	10
Hourly Total	11	2	1	4	0	18	21	3	1	7	0	32
16:00 - 16:15	0	0	0	0	0	0	3	0	1	0	0	4
16:15 - 16:30	3	1	1	0	0	5	10	0	0	2	0	12
16:30 - 16:45	1	0	1	1	0	3	5	1	0	2	0	8
16:45 - 17:00	5	0	0	1	0	6	4	1	0	0	0	5
Hourly Total	9	1	2	2	0	14	22	2	1	4	0	29
17:00 - 17:15	5	0	0	0	0	5	20	1	2	5	0	28
17:15 - 17:30	9	0	0	0	0	9	18	1	0	1	0	20
17:30 - 17:45	20	1	0	0	1	22	33	0	0	0	0	33
17:45 - 18:00	15	0	0	0	0	15	29	1	0	0	0	30
Hourly Total	49	1	0	0	1	51	100	3	2	6	0	111
18:00 - 18:15	25	0	0	1	0	26	54	1	0	0	1	56
18:15 - 18:30	49	1	0	1	0	51	42	0	0	0	0	42
18:30 - 18:45	42	0	0	1	0	43	48	0	0	0	0	48
18:45 - 19:00	29	0	0	1	0	30	15	0	0	0	0	15
Hourly Total	145	1	0	4	0	150	159	1	0	0	1	161
Session Total	552	26	13	84	3	678	543	26	15	78	3	665

Ref 4 Fife survey details

Fife unit google image

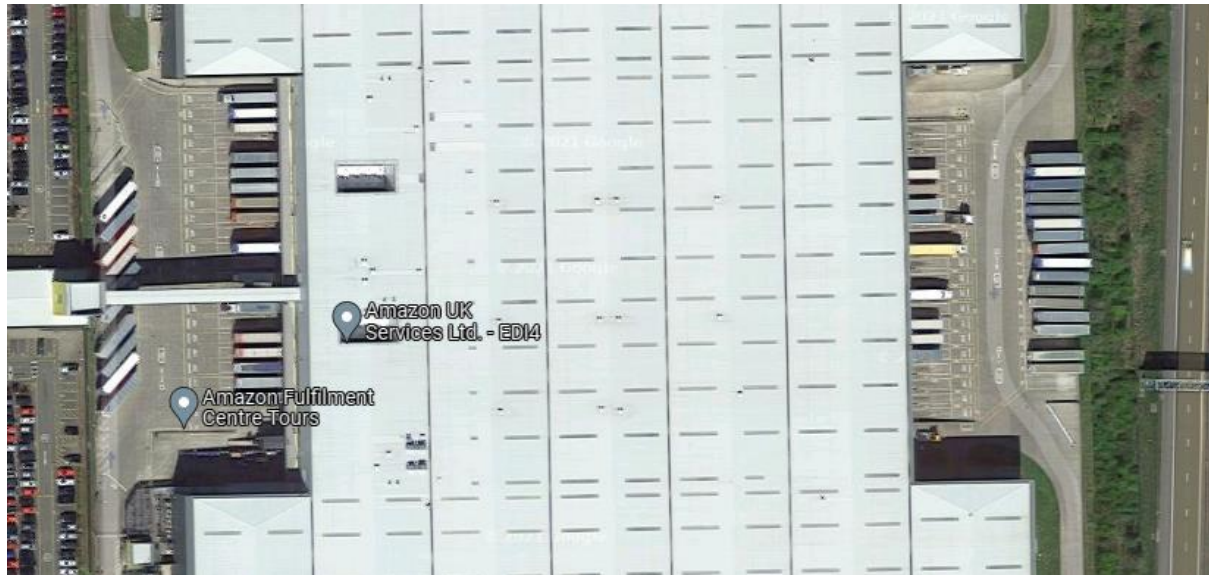


Internal image below to show single floor plate and manual picking i.e. not as efficient as the submitted site.



Ref 3 has the full survey details focussed on the HGV movements to show scale of increase for the new unit, naturally the staff numbers would also increase thus trips as well.

The unit has more limited loading bays as show around 45 in number, well under the proposed site numbers.



Floor area as measured for single plate use 77800 sqm.

The survey and floor space derive the following trip rates.

Bespoke trip rate Amazon Edinburgh						
77800			77800			
TIME / CLASS	in	in	total in	out	out	total out
	OGV1	OGV2		OGV1	OGV2	
7-8 HOURLY TOTAL	1	6	0.009	0	0	0.000
8-9 HOURLY TOTAL	0	7	0.009	3	3	0.008
9-10 HOURLY TOTAL	1	11	0.015	0	10	0.013
10-11 HOURLY TOTAL	1	8	0.012	1	5	0.008
11-12 HOURLY TOTAL	2	14	0.021	1	12	0.017
12-13 HOURLY TOTAL	0	7	0.009	0	13	0.017
13-14 HOURLY TOTAL	2	9	0.014	2	10	0.015
14-15 HOURLY TOTAL	1	6	0.009	1	4	0.006
15-16 HOURLY TOTAL	1	4	0.006	1	7	0.010
16-17 HOURLY TOTAL	2	2	0.005	1	4	0.006
17-18 HOURLY TOTAL	0	0	0.000	2	6	0.010
18-19 HOURLY TOTAL	0	4	0.005	0	0	0.000

Calculation Reference: AUDIT-550501-211015-1057

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : G - PARCEL DISTRIBUTION CENTRES
 MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

01	GREATER LONDON	
	HO HOUNSLOW	1 days
02	SOUTH EAST	
	SO SLOUGH	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
 Actual Range: 3862 to 15583 (units: sqm)
 Range Selected by User: 1600 to 22679 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/13 to 26/04/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	1
Edge of Town	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Commercial Zone	1
Development Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

B8	2 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:

All Surveys Included

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

250,001 to 500,000	2 days
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This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	2 days
-----	--------

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	1 days
1b Very poor	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	HO-02-G-06 FOREST ROAD FELTHAM	DPD & DPD LOCAL		HOUNSLOW
	Suburban Area (PPS6 Out of Centre) Commercial Zone			
	Total Gross floor area:		3862 sqm	
	Survey date: FRIDAY		26/04/19	Survey Type: MANUAL
2	SO-02-G-01 HORTON ROAD SLOUGH COLNBROOK	DHL		SLOUGH
	Edge of Town Development Zone			
	Total Gross floor area:		15583 sqm	
	Survey date: TUESDAY		06/03/18	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/G - PARCEL DISTRIBUTION CENTRES

MULTI-MODAL TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30	1	15583	0.026	1	15583	0.083	1	15583	0.109
00:30 - 01:00	1	15583	0.064	1	15583	0.026	1	15583	0.090
01:00 - 01:30	1	15583	0.058	1	15583	0.051	1	15583	0.109
01:30 - 02:00	1	15583	0.116	1	15583	0.039	1	15583	0.155
02:00 - 02:30	1	15583	0.064	1	15583	0.096	1	15583	0.160
02:30 - 03:00	1	15583	0.135	1	15583	0.064	1	15583	0.199
03:00 - 03:30	1	15583	0.083	1	15583	0.122	1	15583	0.205
03:30 - 04:00	1	15583	0.148	1	15583	0.064	1	15583	0.212
04:00 - 04:30	1	15583	0.064	1	15583	0.135	1	15583	0.199
04:30 - 05:00	1	15583	0.173	1	15583	0.109	1	15583	0.282
05:00 - 05:30	2	9723	0.185	2	9723	0.067	2	9723	0.252
05:30 - 06:00	2	9723	0.309	2	9723	0.103	2	9723	0.412
06:00 - 06:30	2	9723	0.288	2	9723	0.170	2	9723	0.458
06:30 - 07:00	2	9723	0.432	2	9723	0.375	2	9723	0.807
07:00 - 07:30	2	9723	0.329	2	9723	0.206	2	9723	0.535
07:30 - 08:00	2	9723	0.411	2	9723	0.149	2	9723	0.560
08:00 - 08:30	2	9723	0.386	2	9723	0.175	2	9723	0.561
08:30 - 09:00	2	9723	0.591	2	9723	0.355	2	9723	0.946
09:00 - 09:30	2	9723	0.334	2	9723	0.396	2	9723	0.730
09:30 - 10:00	2	9723	0.170	2	9723	0.175	2	9723	0.345
10:00 - 10:30	2	9723	0.134	2	9723	0.247	2	9723	0.381
10:30 - 11:00	2	9723	0.185	2	9723	0.190	2	9723	0.375
11:00 - 11:30	2	9723	0.159	2	9723	0.175	2	9723	0.334
11:30 - 12:00	2	9723	0.221	2	9723	0.231	2	9723	0.452
12:00 - 12:30	2	9723	0.175	2	9723	0.221	2	9723	0.396
12:30 - 13:00	2	9723	0.098	2	9723	0.180	2	9723	0.278
13:00 - 13:30	2	9723	0.123	2	9723	0.231	2	9723	0.354
13:30 - 14:00	2	9723	0.237	2	9723	0.231	2	9723	0.468
14:00 - 14:30	2	9723	0.201	2	9723	0.257	2	9723	0.458
14:30 - 15:00	2	9723	0.195	2	9723	0.201	2	9723	0.396
15:00 - 15:30	2	9723	0.144	2	9723	0.195	2	9723	0.339
15:30 - 16:00	2	9723	0.206	2	9723	0.257	2	9723	0.463
16:00 - 16:30	2	9723	0.221	2	9723	0.406	2	9723	0.627
16:30 - 17:00	2	9723	0.314	2	9723	0.375	2	9723	0.689
17:00 - 17:30	2	9723	0.283	2	9723	0.514	2	9723	0.797
17:30 - 18:00	2	9723	0.242	2	9723	0.401	2	9723	0.643
18:00 - 18:30	2	9723	0.201	2	9723	0.298	2	9723	0.499
18:30 - 19:00	2	9723	0.206	2	9723	0.247	2	9723	0.453
19:00 - 19:30	1	15583	0.237	1	15583	0.244	1	15583	0.481
19:30 - 20:00	1	15583	0.436	1	15583	0.231	1	15583	0.667
20:00 - 20:30	1	15583	0.231	1	15583	0.302	1	15583	0.533
20:30 - 21:00	1	15583	0.128	1	15583	0.148	1	15583	0.276
21:00 - 21:30	1	15583	0.077	1	15583	0.186	1	15583	0.263
21:30 - 22:00	1	15583	0.109	1	15583	0.160	1	15583	0.269
22:00 - 22:30	1	15583	0.154	1	15583	0.231	1	15583	0.385
22:30 - 23:00	1	15583	0.083	1	15583	0.064	1	15583	0.147
23:00 - 23:30	1	15583	0.039	1	15583	0.103	1	15583	0.142
23:30 - 24:00	1	15583	0.122	1	15583	0.122	1	15583	0.244
Total Rates:			9.527			9.608			19.135

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected:	3862 - 15583 (units: sqm)
Survey date date range:	01/01/13 - 26/04/19
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/G - PARCEL DISTRIBUTION CENTRES

MULTI-MODAL OGVS

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30	1	15583	0.013	1	15583	0.032	1	15583	0.045
00:30 - 01:00	1	15583	0.045	1	15583	0.006	1	15583	0.051
01:00 - 01:30	1	15583	0.026	1	15583	0.006	1	15583	0.032
01:30 - 02:00	1	15583	0.045	1	15583	0.032	1	15583	0.077
02:00 - 02:30	1	15583	0.019	1	15583	0.045	1	15583	0.064
02:30 - 03:00	1	15583	0.026	1	15583	0.032	1	15583	0.058
03:00 - 03:30	1	15583	0.026	1	15583	0.058	1	15583	0.084
03:30 - 04:00	1	15583	0.026	1	15583	0.026	1	15583	0.052
04:00 - 04:30	1	15583	0.032	1	15583	0.058	1	15583	0.090
04:30 - 05:00	1	15583	0.039	1	15583	0.051	1	15583	0.090
05:00 - 05:30	2	9723	0.046	2	9723	0.036	2	9723	0.082
05:30 - 06:00	2	9723	0.082	2	9723	0.062	2	9723	0.144
06:00 - 06:30	2	9723	0.051	2	9723	0.036	2	9723	0.087
06:30 - 07:00	2	9723	0.031	2	9723	0.103	2	9723	0.134
07:00 - 07:30	2	9723	0.057	2	9723	0.031	2	9723	0.088
07:30 - 08:00	2	9723	0.036	2	9723	0.036	2	9723	0.072
08:00 - 08:30	2	9723	0.031	2	9723	0.015	2	9723	0.046
08:30 - 09:00	2	9723	0.046	2	9723	0.144	2	9723	0.190
09:00 - 09:30	2	9723	0.072	2	9723	0.046	2	9723	0.118
09:30 - 10:00	2	9723	0.036	2	9723	0.031	2	9723	0.067
10:00 - 10:30	2	9723	0.026	2	9723	0.067	2	9723	0.093
10:30 - 11:00	2	9723	0.051	2	9723	0.051	2	9723	0.102
11:00 - 11:30	2	9723	0.046	2	9723	0.026	2	9723	0.072
11:30 - 12:00	2	9723	0.036	2	9723	0.041	2	9723	0.077
12:00 - 12:30	2	9723	0.062	2	9723	0.046	2	9723	0.108
12:30 - 13:00	2	9723	0.015	2	9723	0.021	2	9723	0.036
13:00 - 13:30	2	9723	0.026	2	9723	0.031	2	9723	0.057
13:30 - 14:00	2	9723	0.036	2	9723	0.015	2	9723	0.051
14:00 - 14:30	2	9723	0.026	2	9723	0.051	2	9723	0.077
14:30 - 15:00	2	9723	0.026	2	9723	0.026	2	9723	0.052
15:00 - 15:30	2	9723	0.031	2	9723	0.026	2	9723	0.057
15:30 - 16:00	2	9723	0.026	2	9723	0.051	2	9723	0.077
16:00 - 16:30	2	9723	0.072	2	9723	0.057	2	9723	0.129
16:30 - 17:00	2	9723	0.082	2	9723	0.046	2	9723	0.128
17:00 - 17:30	2	9723	0.026	2	9723	0.026	2	9723	0.052
17:30 - 18:00	2	9723	0.010	2	9723	0.036	2	9723	0.046
18:00 - 18:30	2	9723	0.010	2	9723	0.036	2	9723	0.046
18:30 - 19:00	2	9723	0.036	2	9723	0.041	2	9723	0.077
19:00 - 19:30	1	15583	0.045	1	15583	0.045	1	15583	0.090
19:30 - 20:00	1	15583	0.019	1	15583	0.064	1	15583	0.083
20:00 - 20:30	1	15583	0.058	1	15583	0.051	1	15583	0.109
20:30 - 21:00	1	15583	0.064	1	15583	0.045	1	15583	0.109
21:00 - 21:30	1	15583	0.032	1	15583	0.032	1	15583	0.064
21:30 - 22:00	1	15583	0.045	1	15583	0.058	1	15583	0.103
22:00 - 22:30	1	15583	0.122	1	15583	0.051	1	15583	0.173
22:30 - 23:00	1	15583	0.039	1	15583	0.013	1	15583	0.052
23:00 - 23:30	1	15583	0.032	1	15583	0.019	1	15583	0.051
23:30 - 24:00	1	15583	0.071	1	15583	0.032	1	15583	0.103
Total Rates:			1.955			1.990			3.945

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.