

DC/20/02052 Castle Hill, Thorndon Planning Application
Calculation of Traffic Volumes

The proposal is for an intensive poultry unit (IPU) consisting of 4 poultry sheds, each housing 47,000 broilers, totalling 188,000 broilers per cycle.

1) Traffic Comparison

TABLE 1

STPC = Stradbroke & Thorndon Parish Councils
 HTTC = The Highway Traffic and Transport Consultancy

Activity	STPC Vehicle Type*	STPC Vehicle No. per Crop**	STPC Vehicle No. per Year**	HTTC Vehicle No. per Crop***	HTTC Vehicle No. per year***	Difference - where HTTC Veh. No. per year is less/more than STPC
Gas deliveries	Tractor/ tanker	3	23	Gas & shavings	Gas & shavings	
Shavings deliveries ⁽¹⁾	44 tonne HGV	4	31	6	42	12
Feed deliveries ⁽²⁾	44 tonne HGV	39	205	20	140	65
Chick deliveries	7.5 tonne LGV	3	23	3	21	2
Bird removal ⁽³⁾	44 tonne HGV	27	203	30	210	-7
Manure/Litter removal ⁽⁴⁾	16t Tractor/Trailer	60	450	12	84	366
Dead bird removal ⁽³⁾	7.5 tonne LGV	7	53	7	49	4
Waste water removal ⁽⁵⁾	Tractor/ tanker	4	31	4	28	3
Sub total	HGV/LGV/ tractor	147	1019	82	574	445
+Staff vehicles ⁽⁶⁾	Car/van	86	654	67	469	
Catcher teams ⁽⁷⁾	Minibus	9	64	-	-	
Cleaning teams ⁽⁸⁾	Minibus	5	32	-	-	
Vet/inspectors	Car	5	31			
Engineer/maintenance	Van	4	30	-	-	
Management		7	52	8	76	
Sub total	Car/van/ minibus	116	863	75	545	318
Total No. Vehicles	All vehicles	263	1882	157	1119	763
Total No. Traffic Movements	All vehicles	526	3764	314	2238	1526
HTTC shortfall v STPC						40%

* Assumptions for vehicle types and size based on STPC research - HTTC Transport Statement does not provide a breakdown by size of vehicle.

** Based on duration of rearing cycle 38 days and turnaround between cycles 10 days (see spreadsheet) NB. There are inconsistencies between the HTTC Transport Statement (S1.06 'only some 7 cycles each year') and Parker Planning's Planning Statement S1.4 'approximately 7.2 flocks per annum'. Transport and Planning Statement estimates 7-10 days between cycles for clear out. However, if 7 day clear out (which would maximise the volumes of bird throughput) is adopted/achieved, then it would result in 8.1 cycles/year, which would increase traffic volume. Note: the Scoping Request submitted by Parker Planning Services on 26th July 2019 details "approximately 8 cycles of birds/year" in the Proposal.

*** Based on 7 cycles per year (HTTC Transport Statement) but see ** above for inconsistency in data reports.

For sources of evidence and assumptions see Appendix 1. For overview of the key stages of the IPU cycle see Appendix 2.

Stradbroke and Thorndon Parish Councils (STPC) have calculated vehicle numbers using data obtained from published legal sources and industry standards and where evidence is unavailable, assumptions have been made based on wide ranging market research.

The outcome of STPC traffic analysis indicates that the actual number of vehicle movements likely to be generated by the proposal for an intensive poultry unit, consisting of 4 poultry sheds (each housing 47,000 broilers, totalling 188,000 broilers per cycle) is nearer 4,000 vehicle movements per year, as opposed to 2,200 vehicle movements per year outlined in the HTTC Transport Statement, which represents a 40% shortfall in reported vehicle numbers/movements.

2) Further Comments on HTTC Transport Statement

The content of the HTTC Transport Statement concerning the transportation dynamics of IPUs is vague and in parts, misleading; the report also contains errors and omissions.

2.1 Staff Transport

Table KAB 7 of the HTTC Transport Statement sets out:

Staff: light van/car 49 per crop plus 126 non-crop time and Management: light van/car 8 per crop plus total of 20 non-crop time. This equates to 545 staff vehicles per year.

This analysis is incorrect.

The staff vehicle numbers in the HTTC Transport Statement are based on one visit per day during the crop growing cycle, whereas DEFRA guidelines⁽⁶⁾ recommend two visits per day (a detail that HTTC did, in fact, accurately reflect in staff vehicle numbers in the Shadingfield DC/19/2195 Transport Statement).

HTTC records the number of vehicles for 'management' but provides no further breakdown of staff vehicle numbers.

2.2 Peak Vehicle Flows

The HTTC Transport Statement (S2.06) states: "The upshot of the discussion is that the worst case vehicle flows that will take place will be when the grown birds are caught and removed from the site."

At KAB 8 The HTTC report sets out:

What are the maximum number of vehicles per day and for how many days?

The most intense activity could be the catching of the birds which for a farm of this size could be 6-10 loads in one day. This could occur twice in the seven weeks typically the 32nd/33rd day and again at 38/39 days. This representing the two different weight ranges.

These figures are increased by the indicated factor of x 1.333 to give the worst case daily inbound flow and doubled to provide the daily two way flow (in + out).

Thus, the maximum articulated hgv flows on only two days per growing cycle will be 15 hgv's/day in + 15 hgv's/day out i.e. a two way flow of only 30 hgv's/day..

These statements are misleading.

The HTTC Transport Statement only provides vehicle numbers for the *whole* cycle and does not provide a *weekly breakdown*. The busiest traffic flow periods are during the last two weeks of the growth cycle and the days in between the cycles when the site is cleared and cleaned and prepared for the next crop of birds. The number of feed deliveries per week increases as the birds grow. The peak vehicle flows will take place during week 5, week 6 and week 7 and will include multiple feed deliveries during weeks 5 and 6, bird collection HGVs and contract catching teams' LGVs on day 32/33 and day 38/39 (which begin in the early hours but due to the volume of birds to be collected may continue into late morning) and once empty of birds, vehicle movements associated with clearing, cleaning, preparing and restocking the site over a number of consecutive days

including removal of litter, contract cleaning teams and equipment, maintenance vehicles, the removal of waste water by specialist companies, delivery of new bedding for the next crop of birds and gas tanker deliveries to heat the sheds to the required temperature before the chicks are delivered.

All of this activity takes place within a concentrated period of one to two weeks over a number of consecutive days but this detail is not provided in the HTTC Transport Statement.

2.3 Traffic Flows Outside Peak Hours

The HTTC Transport Statement (S2.07) states: "Furthermore, these flows will take place outside of peak hours, and likely to be outside of the normal working day. This is because the fully grown birds must be caught in the evening in order to get them to them to the chicken processing site at Eye Airfield in the early morning for the start of processing in the early morning".

This statement is incorrect.

A traffic report submitted as part of a retrospective planning application for the Cranswick plc meat processing factory at Eye Airfield (DC/19/03907) states that "live birds are received on site between 6am and 5pm" (Trundley Design Services: Transport Generation Report April 2017).

In addition, an email from Ian Trundley, dated 8th August 2019 relating to the discharge of conditions application DC/19/03103 (Cranswick factory on Eye Airfield) states that: "Chicken could start arriving as early as 2.30am and cease at 11pm".

2.4 Omissions

The HTTC Transport Statement includes the following: S1.15 "the vehicle flow data within this TS, is based on a recent submission in Shadingfield, where Crown Chickens is also supporting a similar but smaller proposal"; in S1.16 "As that proposal was for 3 poultry units (141,000 birds), and this is for 4 poultry units (188,000) birds, the previously accepted vehicle flow data has simply been increased by a factor of (4/3) 1.333" and in S2.08: "It is confirmed that Cranswick (formerly Crown) is an experienced and important long term chicken producer within East Anglia. In that regard, it has developed a practical and well operated logistics procedure to preclude any likelihood of two hgv's meeting."

As this is a well-established business model, the expectation must be that details of the specific logistics required to produce this number of birds is carefully worked out by the corporation. It is not 'simply' a case of extrapolating vehicle numbers using a factor. Huge amounts of bedding and feed are used and waste generated in order to rear this quantity of birds to precise factory standards and all data will be recorded.

As such, the actual volume of bedding, feed, gas and contracted staff required and waste litter/manure and dirty water produced will be known, the type and capacity of HGVs used for the key operational functions will be known and the source, destination and routes of HGV transportation will be known. However, none of this is included as evidence for vehicle numbers in the HTTC Transport Statement.

3) Comments on SCC Highways recommendations regarding DC/20/02052 Thorndon Planning Application – 7/7/20 (Ref:SCC/CON/2363/20)

On the basis that SCC Highways remarks and recommendations are in relation to the traffic numbers represented in the HTTC Transport Report, the evaluation below uses the same analogy. However, to caveat and reiterate - the Traffic Comparison in Section 1 identifies a shortfall in the vehicle numbers detailed in the HTTC Transport Statement compared to those calculated by STPC.

3.1 SCC Highways conclusions are not based on a 'like for like' comparison.

SCC Highways bullet point 1: "The present HGV movements from the existing sheds are 16 HGVs (32 trips) per 7 week cycle".

SCC Highways has omitted from the present HGV movements, 6 HGVs (12 trips) per cycle for the removal of manure, perhaps because the HTTC Transport Statement identifies these as 'tractor and trailer' and yet SCC Highways has included the same HGV function in the second bullet point, which details 82 HGVs (164 trips). Using HTTC's vehicle numbers, the total for the current HGV movements is 22 HGVs (44 trips) per cycle.

According to the HTTC Transport Statement the current poultry business operates on a 'monthly' cycle ie 30 - 31 days and not 38 days as detailed in the proposal for the new site (note that the current business produces birds to be transferred to another farm to finish growing in a free range environment). Most IPU's allow 7-10 days to empty and clean the sheds once birds have been removed and before restocking and as the current operation is significantly smaller than that of the proposal, it would be reasonable to assume that the turnaround time is likely to be nearer 7 days than 10 days. On that basis the cycle equates to 38 days, which represents a 5 week cycle, not a 7 week cycle.

SCC Highways bullet point 4: "The proposal would generate an increase equates to 132 additional trips over the 7 week period (19 HGV trips/week, therefore, an average increase of 2.7 HGVs per day)."

Again, SCC Highways has omitted the vehicle numbers for the removal of manure in the '132 additional trips' but more importantly has not compared the current and proposed figures on a like for like basis.

3.2 It is misleading to represent HGV numbers throughout the cycle in terms of averages, as this does not represent the true nature of the business and the real impact. The issue is the actual increase in HGV numbers and the highest volume of vehicle movements in a concentrated period of 10 days or so in each growing cycle ie 70 days or so per year.

At present the existing facility, according to the HTTC Transport Statement produces 22 HGVs or 44 movements per cycle; there are 9 growing cycles per year which equates to **198 HGV or 396 HGV movements per annum**. The proposal, as outlined in the HTTC Transport Statement will produce 82 HGVs or 164 movements per cycle; there are at least 7 growing cycles per year which equates to at least **574 HGVs or 1,148 movements per annum**.

The HTTC Transport Statement details in S2.02 "As such there will be a reduction in the net increase in vehicle flows at the farm and on the highway network". *This may be true in principle but it is a misleading statement because the proposal will result in an annual threefold increase in HGV traffic generated by the site.* The most severe impact will be towards the end of each cycle in which the proposal will generate 46 HGVs or 92 movements compared to the existing 10 HGVs or 20 movements. *The volume of HGVs at the end of the cycle will be nearly 5 times greater than the existing operation.*

3.3 SCC Highways has misunderstood the transport logistics in relation to the production cycle of IPU's and has taken the agent's comments at face value without further analysis.

SCC Highways bullet point 3: "The most intensive HGV trips will be over a **2 day period** when removing the birds, where 30 trips/day are expected over a 2 day period. These trips **are outside of the normal working day** so on average, this process equates to just over 2 HGV trips per hour over a 12 hour period over the 2 days. This would happen 7-8 times a year".

The most intensive trips, according to the HTTC Transport Statement, will consist of the removal of birds to the factory ie 15 HGVs (30 HGV movements) on day 37 and 15 HGVs (30 HGV movements) on day 38 of the cycle. It is not correct to assume that all of these trips will be outside the normal working day – see 2.3 above.

Not only that but 'the most intensive trips' are actually over a concentrated period of 10 days or so at the end of and in between cycles. SCC Highways has failed to realise that following the removal of birds to be transported to the meat processing factory, the IPU site will undergo a process of cleaning and preparation over the following 7 to 10 days, which includes (again according to the HTTC Transport Statement) 12 HGVs to remove waste litter/manure and 4 HGVs to remove waste water, 6 HGVs to deliver gas and shavings, 3 HGVs to deliver feed and 3 HGVs to deliver new chicks for the next cycle; that is a total of 58 HGVs or 116 HGV

movements in a concentrated 10 day period, the majority during normal working hours (as opposed to 17 HGVs or 34 HGV movements for the same functions at the existing site).

3.4 SCC Highways have failed to recognise that chicks will be delivered from the nearest Crown hatchery in Kenninghall, near Diss at the start of each cycle and that the vehicles used to transport the chicks will follow the same route through Eye as that set out in the Transport Statement ie Magdalen Street and Cranley Green Road in order to reach the IPU at Thorndon.

According to the HTTC Transport Statement, 3 HGVs will deliver chicks every 7 week cycle, which means that Eye will experience at least another 21 HGVs or 42 HGV movements per year, through the town, for this function alone. Added to the 30 HGVs used to transport the birds to the meat processing factory at the end of each cycle, the total HGV traffic through Eye per year is at least an additional 231 HGVs or 462 movements.

The MLM Eye Town Centre Traffic Review, commissioned by Eye Town Council states in Section 7 'Potential Future HGV Growth':

MLM has been advised that there is potential for the construction of chicken rearing units to the south and east of Eye to serve the new Cranswick factory at the junction of the A140 and Castleton Way. This could attract additional HGV movements which may route via Eye and would further compound the safety and amenity issues identified. Any future associated planning application should consider the likely route of these vehicles and impact on the centre of Eye. The impact should also be considered in the context of the cumulative effect of one or more of these factories rather than each site taken in isolation.

Given the base line evidence of existing traffic, safety and amenity issues in Eye Town Centre it is clear that additional HGV movements will severely compound these problems. The MLM Report also highlights evidence that HGV traffic, during the evening and early hours of the morning, routes through the centre of Eye as a short cut, despite the existing weight limit in place, which is difficult to prevent and is a cause for concern raised by Eye Town Council.

3.5 SCC Highways has failed to consider a contingency plan in the event that the weight restriction proposal comes to fruition in Eye town centre and have 'turned a blind eye' to the fact that they acknowledge 'this may result in increased HGVs through local villages and less suitable minor local roads'.

It is not acceptable to ignore the alternatives in the event that Eye Town Council obtain weight restrictions to prevent the IPU from routing HGVs through the town. If HGV traffic to and from the A140 is rerouted through other rural parishes via inadequate 'minor local roads' it will have a severe impact on villages such as Thorndon, Occold, Redlingfield, Denham, Hoxne, Horham and Stradbroke, to name but a few.

3.6 SCC Highways has failed to identify that HTTC provided incorrect information regarding accident/collision data at or near the site as follows:

The following extracts are taken from the HTTC report:

"Page 6 para 1.11 This position is supported by the lack of any relevant accident/collision data over a significant 20 years record period for the existing substandard commercial access to the B1077, and the wider local highway network (see KAB 12).

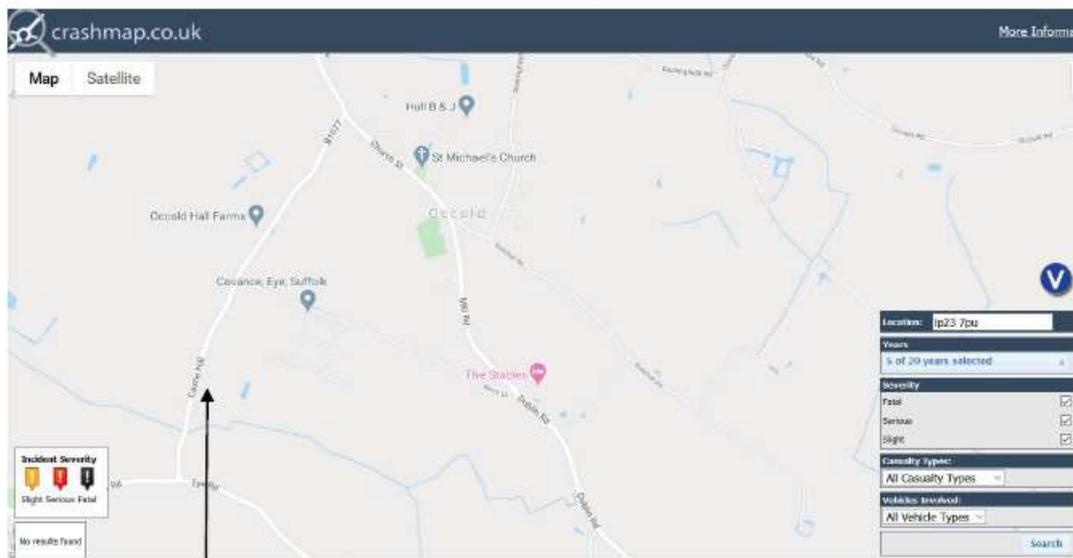
Page 10 para 2.03 As already indicated, the government's 20 years Crashmap data (KAB 12) confirms that, even with the existing commercial poultry use, and the substandard access, the substandard junction visibility, there were no collisions recorded at the existing accesses over a 20 years record period. This is an excellent accident record at this "substandard" junction.

Page 17 para 3.01 As already confirmed, and as will be seen at KAB 12, no collisions have been recorded along Castle Hill, at the existing site access, or on the nearby highway network, over a twenty years record period. Hence, there are no underlying highways safety problems which can be identified."

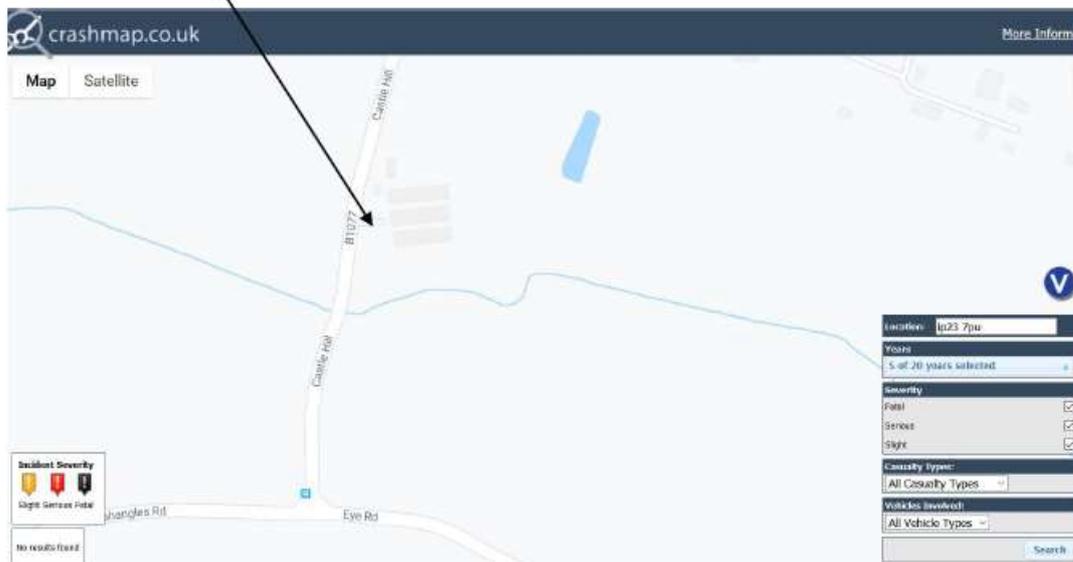
As noted above Page 6 para 1.11, Page 10 para 2.03 and Page 17 para 3.01 of the submitted HTTC report quotes data over a 20 year period and refers to KAB 12, however KAB 12 shows maps that are taken from a 5 year period only with no indication which 5 year period has been selected:

KAB 12|

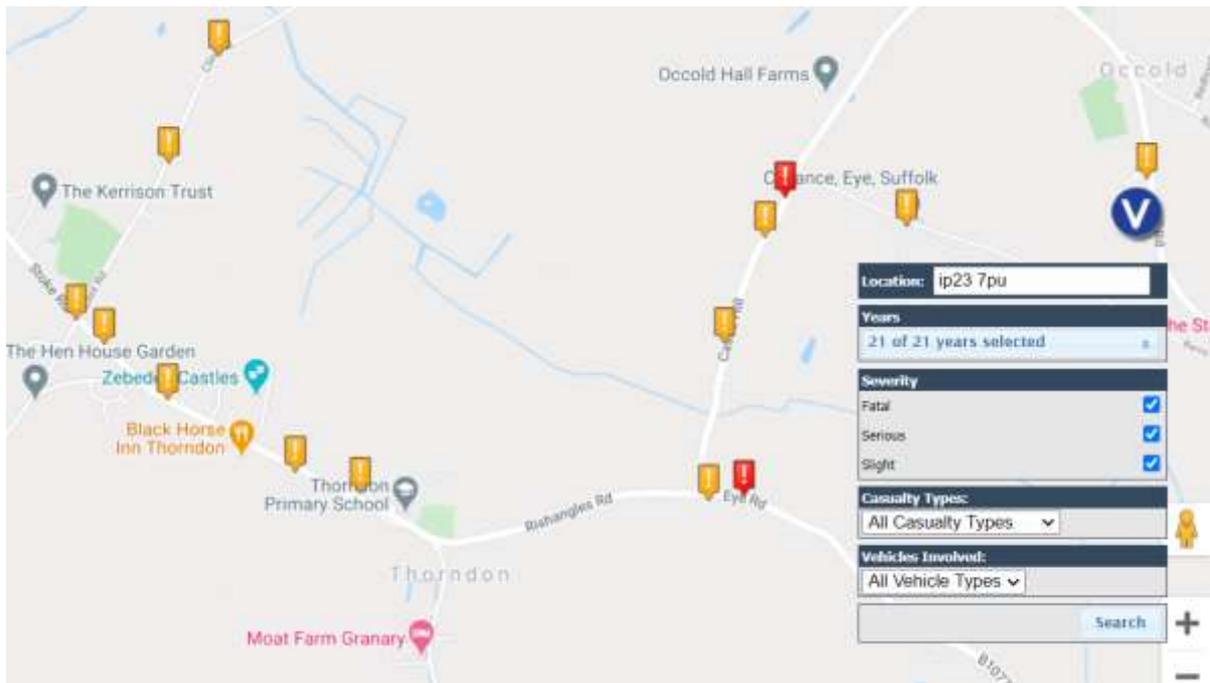
**Five years collision record.
No collisions recorded along B1077 in the vicinity of the existing site access
or on nearby highway network**



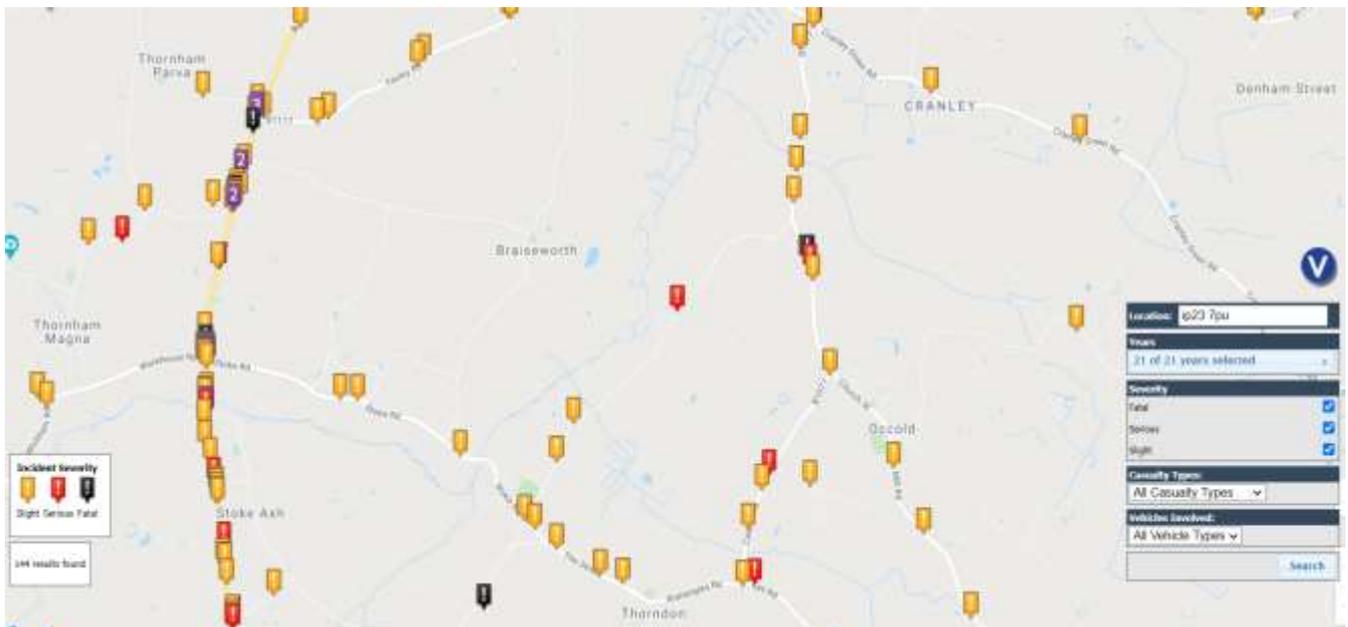
site access



CRASHMAP UK – the full 21 year record shows the following collisions/accidents:



CRASHMAP UK – the full 21 year record of the wider higher network is shown below:



HTTC states in S1.06 of the Transport Statement:

“As demonstrated, this development proposal will not result in any material increase in vehicle flows along Castle Hill, B1077, or on the wider highway network, including through Eye. Furthermore as set out in a later section of this TS, the peak vehicle flows take place only over a period of a couple of days, during each chicken production “cycle”, with only some seven cycles each year i.e. peak vehicle flows on only some fourteen days of the year, and at a level of only some 30 vehicles per day (15 vehs in and 15 vehs out – see KAB 7 & 8). *A material increase is one which will have an adverse effect on the junction capacity, or link capacity of the highway network, or highway safety. The addition of a few vehicles per hour (as with this proposal) cannot*

have any noticeable effect on the results of junction capacity calculation, nor can it have any perceptible effect on link flow capacity. Additionally, flows at such levels cannot have any potential adverse effects on highway safety."

As highlighted in the report (S3.2 and S3.3) the peak vehicle flows will more likely take place over some 70 days or so throughout the year; the lack of recognition of this fact, together with the use of erroneous accident data in the HTTC report means that the real impact on the highways network has not been correctly modelled.

3.7 SCC Highways has failed to consider the wider impact of this proposal on the rural location of the Crown Chicken feed mill at Denham, despite the fact that Denham Parish Council has recently made representations to SCC Highways (Cllr Andrew Reid) due to rising concerns about increasing numbers of HGVs travelling to and from the feed mill and has reported safety concerns and near accidents.

According to the HTTC Transport Statement 20 HGVs will be required to deliver feed every cycle, however, this is likely to be an underestimation (see Table 1). Feed is delivered to the IPU weekly and the number of feed deliveries per week increases as the birds grow. The peak vehicle flows will take place during week 5, week 6 and week 7 and will include multiple feed deliveries during weeks 5 and 6, Denham parish and other rural parishes on route to the IPU will be severely impacted by this increase in HGV traffic, which has not been considered.

3.8 SCC Highways has failed to consider the wider route network and specific destination for waste litter/manure and the potential impact of the removal of over 3,000 tonnes of waste from the IPU, despite the fact that the Scoping Decision states "Application documents should include an assessment of expected waste generation from the construction and lifetime phases of the development" .. "This assessment should provide details of the location and capacity of waste management facilities, both on and off-site, and the associated noise and traffic impacts arising from the arrangements."

The HTTC Transport Statement does not detail vehicle movements in relation to waste litter removal. It is unclear, from all of the documentation submitted with the planning application, exactly what the destination is, the only reference to waste/litter removal is in the Planning Statement, towards the end of the document: "At the end of each 6 – 8 week growing period, broilers will be removed from the houses with used litter taken away from the farm in covered trailers". The Scoping Request by Parker Planning Services in July 2019 made no mention of waste litter either - it may be destined for use elsewhere on land at the farm or another farm (note the implications of this in relation to the Court of Appeal case R. (on the application of Squire) v Shropshire Council 19th March 2019 but if not and it is 'destined for a local biodigester' it could potentially be transported to Barley Brigg at Stradbroke or possibly Eye Power Station. There is currently no evidence to suggest that either of these waste facilities has the capacity to utilise the waste from the proposed IPU but if this changes then the potential for severe impact on rural routes for both of these destinations is very real.

3.9 Finally, SCC Highways has recommended that 'a planning condition is added to any permission to require an agreed transport plan, taking into account timings and routing of HGV traffic. This can then be monitored and if not complied with, enforcement action can be taken'. This is akin to 'shutting the stable door after the horse has bolted'.

IPUs generate a significant volume of traffic. It is neither reasonable nor prudent to make planning decisions for an IPU facility without first understanding beforehand the actual volume of bedding, feed and gas required, waste litter/manure and dirty water produced and contract and associated staff needed to service the operation, the type and capacity of vehicles used for the key operational functions and the source, destination and routes of transportation proposed.

Only with such information can SCC Highways properly assess the impact of the IPU on the highway network affected by the proposal and it must be stressed that this has to be assessed in the context of the 'in combination' or cumulative effect.

4) Conclusion

The content of the HTTC Transport Statement concerning the transportation dynamics of IPUs is vague and contains errors and omissions. SCC Highways has used incorrect data and flawed analysis to reach an unsubstantiated conclusion.

Despite the fact that SCC Highways has recognised that the 'cumulative impact is significant for the roads in Eye Town Centre' it has determined that SCC Highways 'should not recommend the refusal of the application on transport grounds' as 'traffic movements are low' and 'peak flows from this development are not in the 'normal working day''.

However, as demonstrated in this report, this is incorrect and SCC Highways has based its decision on erroneous data and a flawed analysis. Not only that but SCC Highways has failed to consider the potential for the wider cumulative impact on other rural villages and unsuitable minor local roads in relation to supply chain transportation routes for key functions conducted at the site of the proposed IPU.

Submitted by:

Stradbroke Parish Council and Thorndon Parish Council

5th October 2020

Appendix 1

Sources of evidence and assumptions for Table 1

- (1) RSPCA Welfare Standards for Chickens (Nov 2013)
<https://www.berspcaassured.org.uk/media/1086/rspca-standards-chickens-nov2013.pdf>
5(e) (bedding) to be an average minimum depth of 5cm to allow for the dilution of faeces. Chapmans UK Ltd <https://www.chapmansqualitybedding.co.uk/poultry> Extract: Each 230kg maxi bale will cover 1,000sqft of floor space to 1". 36 bale HGV capacity (DC/19/2195/FUL Parker Planning letter dated 13th August 2020).
- (2) National Statistics (Indicator 7: Poultry Sector Feed Conversion Ratio derived from DEFRA Hatcheries and Poultry Slaughter House Surveys)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/835758/ghindicator-7poultrysector-02oct19.pdf January 2019 data for broiler production, records a moving average feed conversion ratio (FCR) of 2.6kg feed per kg of meat produced, on a slight downward trend. However, the volume of feed required for the Shadingfield planning application has been calculated using a report produced for the RSPCA:
<https://www.rspca.org.uk/documents/1494939/7712578/Everyone%27s+a+winner+chicken+report+%28PDF+590KB%29.pdf/d7079dbf-30a5-f240-285e-1086668f02e9?t=1554205296757> which specifically refers to broilers reared to Red Tractor Standards (the same growth cycle as that proposed). Birds reared to this standard require 1.8kg feed to produce 1kg meat. The average live weight of birds at point of slaughter is based on DEFRA United Kingdom Poultry and Poultry Meat Statistics July 2020, UK Poultry Slaughtering, Weights and Poultry Meat Production:
<https://www.gov.uk/government/statistics/poultry-and-poultry-meat-statistics> providing an average of 2.23kg for the year July 2019 to July 2020.
- (3) Everyone's a Winner - Broiler Analysis (Report for RSPCA) by Agra CEAS Consulting, 2006. Page 11, Table 2.
<https://www.rspca.org.uk/documents/1494939/7712578/Everyone%27s+a+winner+chicken+report+%28PDF+590KB%29.pdf/d7079dbf-30a5-f240-285e-1086668f02e9?t=1554205296757>
Average level (%) of mortality for birds reared to ACP (labelled Red Tractor) standards = 5.1% (Approximate range 2.0 – 8.8%).
- (4) (DEFRA) The Nitrate Pollution Prevention Regulations 2015, Schedule 1, Manure, nitrogen and phosphate produced by livestock:
<https://www.legislation.gov.uk/uksi/2015/668/schedule/1/made> states chickens raised for meat are categorised as producing 0.06kg manure daily. Poultry litter itself is the mixture of bird manure, chicken feed, feathers, sawdust and bedding material that accumulates at the bottom of chicken sheds, therefore the calculation is also based on the weight of bedding removed from the sheds, assuming adherence to industry welfare recommendations: RSPCA Welfare Standards for Chickens (Nov 2013)
<https://www.berspcaassured.org.uk/media/1086/rspca-standards-chickens-nov2013.pdf>
whereby "the floor of the house must be completely covered in litter" and "be an average minimum depth of 5cm to allow for the dilution of faeces".

Parker Planning – Planning Statement (Annex 2 - 14th July submission) dated May 2020 page 20 paragraph 6.21 states:
"At the end of each 6 – 8 week growing period, broilers will be removed from the houses with used litter taken away from the farm in covered trailers ..."
- (5) Northern Ireland Environment Agency Guidance for Operators on Preparing an Agricultural Water Audit for IPPC Farming Installations January 2011.
<https://www.daera-ni.gov.uk/sites/default/files/publications/doe/pollution-guidance-operators-preparing-an-agricultural-water-audit-ippc-farming-installations-2011.pdf>

Appendix 2 details the average broiler unit (housing birds 2-2.5kg) requires 6.8 litre/square metre during the cleanout process. Total internal floor area is 4,923m², which will create 271,531 litres waste water per year. Removal assumed by 11,000 litre tractor drawn tanker.

- (6) DEFRA Broiler (Meat) Chickens: Welfare Recommendations (updated 5th July 2019)
<https://www.gov.uk/government/publications/poultry-on-farm-welfare/broiler-meat-chickens-welfare-recommendations> S3. Inspecting your flock - Birds should be checked twice a day.
- (7) Review of the Poultry Catching Industry in England and Wales, report prepared for Department of Environment, Food and Rural Affairs and Food Standards Agency by ADAS Poultry Consultancy Group October 2006
<https://acss.food.gov.uk/sites/default/files/multimedia/pdfs/poultrycatchreview.pdf> Catchers are organised into teams which, in the poultry meat sector typically consist of 4-6 people working together in a single poultry house. Whilst depopulation is taking place, large farms may have more than one catching team on site at a particular time. Biosecurity awareness, interpretation and practice amongst poultry catchers Research Article in Preventative Veterinary Medicine 1/6/17 Authors: Caroline Millman, Rob Christley, Dan Rigby, Diana Dennis, Sarah J O'Brien and Nicola Williams
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5450931/> Working in teams, usually of around 4–6 people, catchers collect 5000 to 6000 birds per hour, placing them in crates or 'modules', and moving the modules on to trucks for transportation to the factory.
- (8) <https://www.pedersen-group.co.uk/pcs/mucking-out/>
Three or four contractors in each cleaning team. Cleanout fleet includes tractors and tankers, tractors with trailers, Bobcat skid steers (2 per shed for pushing the litter to the centre of the shed; also using brush attachment for final sweep of sheds) and telehandlers (compact telehandlers run down the centre of the shed to load the litter into waiting lorries or tractors and trailers).

Appendix 2

Overview of the Key Stages of the Intensive Poultry Unit (IPU) Cycle

Broiler IPUs operate on any number of cycles per year, whereby the more cycles completed, the more birds produced.

- Start (Installation)
 - Delivery of new bedding
 - Delivery of gas for heating of sheds
 - Delivery of feed for new crop
 - Delivery of day old chicks

- During (Growth)
 - Weekly deliveries of feed
 - Weekly collection of dead birds
 - Daily Staff visits
 - Ad hoc inspection visits (Environment Agency/APHA etc)
 - Ad hoc maintenance visits
 - Ad hoc management visits
 - Ad hoc vet visits

- End (Harvest)
 - Thinning (typically day 32 or 33). A proportion of smaller live weight birds are removed from the crop to be slaughtered and processed at the factory, leaving capacity in sheds for remaining birds to reach higher live weights.
 - Harvest (typically day 38 or 39). All remaining birds are caught, crated and transported to the factory.
 - Catching teams are brought in to the site by minibus to capture and load the birds into crates and onto lorries for transfer to the factory.
 - Dead birds are removed and transported to rendering facilities.
 - Staff and management visits.

- End (Clear out and preparation for next crop)
 - Cleaning teams are brought in to the site by minibus to clear out and load spent litter onto tractors and trailers/lorries to be removed from the site.
 - Shed maintenance is carried out.
 - Sheds and surrounds are washed down, disinfected and dried in preparation for the arrival of the next crop.
 - Dirty water is removed from holding tanks on the site.
 - Staff, inspection and management visits.