

TECHNICAL NOTE

DATE:	02 June 2021	CONFIDENTIALITY:	Internal
SUBJECT:	Response to Clifton Neighbourhood Forum - May 2021		
PROJECT:	Calderdale Local Plan Transport Evidence Base	AUTHOR:	Tom Randall
CHECKED:	Simon Pratt	APPROVED:	Simon Pratt

INTRODUCTION

1. This note responds to the consultation input received by the inspector from the legal team working on behalf of the Clifton Neighbourhood Forum on the 24/5/21. The correspondence details issues that in the main have been raised via previous rounds of consultation, nevertheless, WSP have been instructed to respond where appropriate.
2. The issues raised regarding the Transport Evidence Base are as follows:
 - The CSTM, which is some 12 years old, is materially out of date and cannot reasonably or justifiably be relied on to demonstrate the plan has been positively prepared and is sound.
 - A review of base year model validation by TTHC against their own counts and journey time surveys shows the model to under-represent base highway conditions.
 - The model is further discredited as it has been subject to replacement by a multi-modal model, quoting the approval for funding of this exercise as proof that the 2014 CSTM is no longer fit for purpose
3. These points are then used to make the argument that all the work on mitigation, air quality assessment and infrastructure is fundamentally flawed.
4. The issues raised are tackled in turn in the rest of this note.

Review of methodology and modelling

Prior to the Examination in Public beginning, a thorough review of the modelling carried out in support of the local plan was undertaken and reported within Technical Note 10 (EV 54.11).

In relation to the base year model, this concluded the following:

- Model coverage and performance is suitable for a local plan assessment
- A comparison against the Kirklees Traffic Model showed the CSTM to perform equally or better
- The CSTM has been used for assessing West Yorkshire Combined Authority transport schemes

This technical note also considered the methodology for forecasting future traffic conditions and concluded that this was in line with the expectations of NPPF, with some minor changes incorporated into the latter stages of modelling.

The modelling is considered to be proportionate to the Local Plan process and has also taken a conservative approach in terms of assumptions around travel patterns and modes, adopting a business as usual approach to modal share and trip rates based on historic patterns.

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Base Year of CSTM and intervening traffic trends

One criticism made of the CSTM has been that it represents a base year of 2014, with some elements being from the original version in 2008, and as such is now beyond its useful life (typically being taken as 5 years for a strategic transport model) and not representative of current conditions (pre-pandemic). The 5 year rule of thumb is based on the expectation that changes in land use and trends in travel will have impacted significantly the level of traffic and subsequent congestion and journey times.

Calderdale MBC regularly count traffic on roads around the district and several of these are within Brighouse. The trends between 2014 (or the closest year observed) and 2019 (the latest year pre-pandemic) have been examined to understand if there have been any significant changes that would indicate that the model is under-representing the level of traffic as is claimed.

Regular counts, either annually or biennially, are carried out at the following locations:

- A641, Huddersfield Road (in the centre of the town)
- A644, Wakefield Road
- A641, Bradford Road (to the north of the town centre)
- A644, Ludenscheid Link

The traffic trends from each of the locations are shown below.

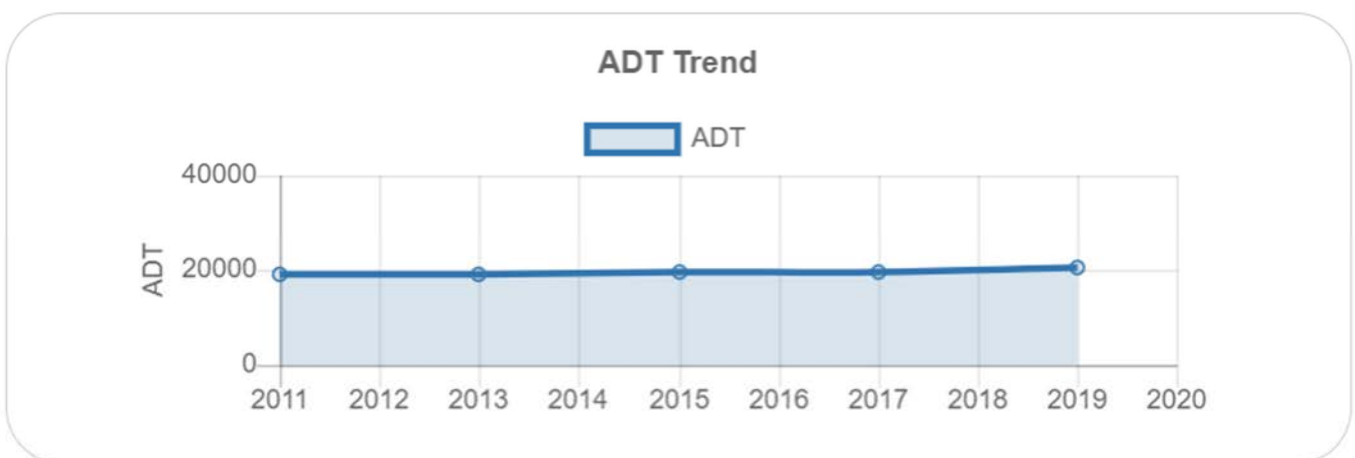


Figure 1 - Annual Daily Traffic at regular count site on the A641, Huddersfield Road. 2013 volume 18,872, 2019 volume 20,331 (+8%)

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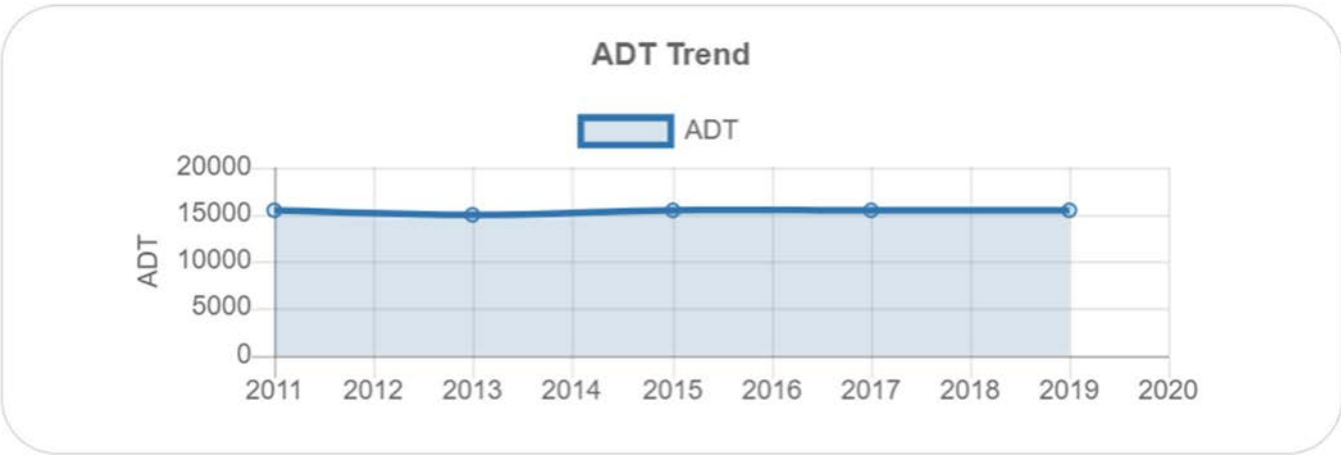


Figure 2 -Annual Daily Traffic at regular count site on the A644, Wakefield Road. 2013 volume 15,067, 2019 volume 15,382 (+2%)

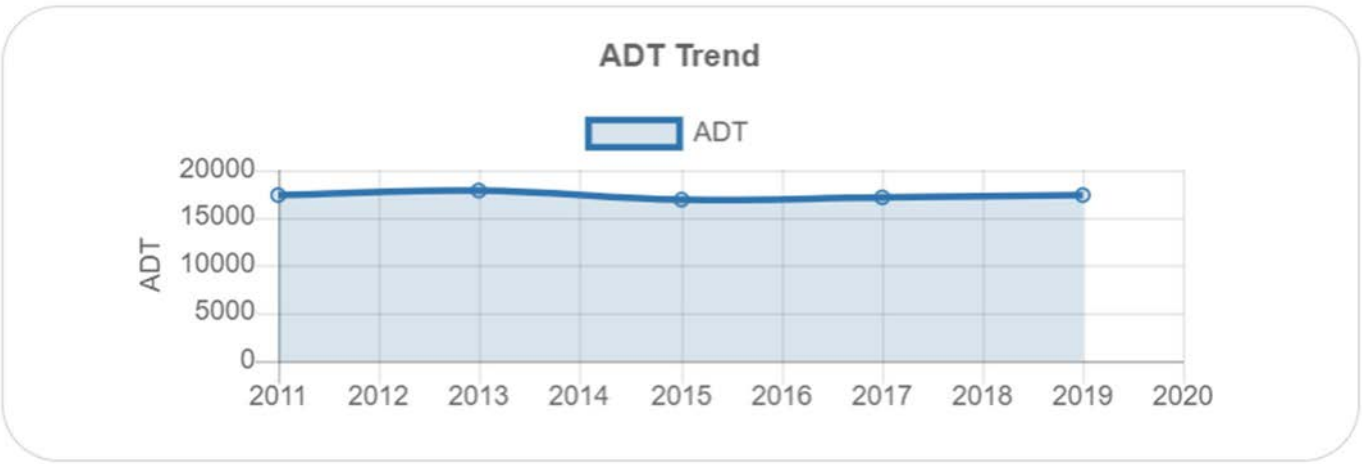


Figure 3 -Annual Daily Traffic at regular count site on the A641, Bradford Road. 2013 volume 17,742, 2019 volume 17,447 (-2%).

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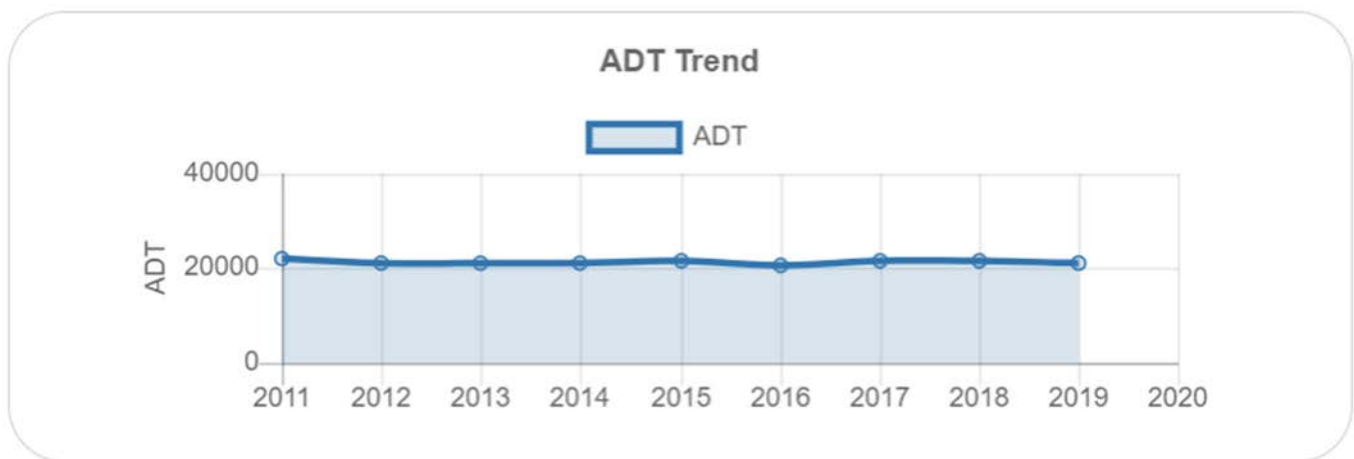


Figure 4 -Annual Daily Traffic at regular count site on the A644, Ludenscheid Link. 2014 flow 21,071, 2019 flow 20,989 (-0.4%)

For three of the four counts in Brighouse, minimal change is shown between the counts that are closest to the base year of the CSTM and 2019, and as such the 2014 model is shown to still be valid. There have been no major changes in land use in Brighouse in this period which is reflected in the traffic flow observations.

Comparison against new model

Calderdale have recently received the 2019 base year multi-modal model from AECOM, this represents a much wider area, effectively covering Calderdale and Kirklees in detail and the surrounding region in skeletal detail. The model has been completed and validated to the expected levels set out by the Department for Transport, but has not yet been approved for use by West Yorkshire Combined Authority and it would also take several months to undertake the work of creating future year scenarios with the Calderdale Local Plan sites represented. As such it is not practical to use without significant delay to the Local Plan process, it will however be available for more detailed work on assessing site impacts in the future.

However, as a further check of the 2014 model that has been used for the Local Plan evidence base a comparison of flows at key locations in Brighouse has been made.

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Table 1 – Comparison of modelled flows between CSTM 2014 and 2019 multi-modal model

Location	2014 Hourly Model Flow (PCU)		2019 Hourly Model Flow (PCU)	
	AM	PM	AM	PM
A644 Wakefield Road (at junction with A643)	447 westbound 991 eastbound	716 westbound 697 eastbound	504 westbound + 561 eastbound -	441 westbound - 446 eastbound -
A641 Huddersfield Road (north of Mill Royd Street)	979 northbound 959 southbound	801 northbound 1070 southbound	928 northbound - 800 southbound -	778 northbound - 888 southbound -
A643 Clifton Road (at junction with A644)	506 westbound 407 eastbound	220 westbound 425 eastbound	415 westbound - 360 eastbound -	392 westbound + 422 eastbound -
Ludenscheid Link	853 westbound 1059 eastbound	863 westbound 821 eastbound	695 westbound - 627 eastbound -	670 westbound - 691 eastbound -
A641 Bradford Road (north of Bonegate Road)	480 northbound 707 southbound	564 northbound 547 southbound	583 northbound + 713 southbound +	669 northbound + 644 southbound +

Sites that are significantly different (around 100 PCU or greater) between the models are highlighted and the direction of change is shown by +/- symbols. In the majority of cases, the 2019 model shows lower traffic flows than the 2014 model. This further demonstrates that the 2014 model is not underplaying traffic levels as suggested.

TTHC submission and critique of the model

The submission in 2017 by TTHC consultants included a number of critiques of the model.

Journey Times

TTHC undertook moving observer journey time recordings through Brighouse in 2017 and made a comparison against the journey times used in 2014 for validation of the model. Generally, the observations match closely between the two sets of data, apart from the westbound route on the A644 where the TTHC data showed slower journey times.

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There are a few key differences between the methods employed to provide journey time data. The TTHC observations only included 2 journey time runs per peak period for each day, whereas the data used for the model was extracted from Trafficmaster GPS data from a sample of vehicles over an entire month of weekdays, and therefore includes a much larger number of observations, that have been averaged to produce the typical journey time. The journey time data collected by TTHC was not at a “neutral” time of the year as defined by the Department for Transport, whereas the model data was collected in June 2014 as this is a neutral month for traffic.

Journey times do fluctuate day to day and between periods of the year and this is why the DfT's Transport Appraisal Guidance stipulates the use of validation data that is representative of average conditions for the year.

Traffic levels

TTHC also recorded traffic flows using automatic traffic counters (ATC) for a period of one week in September 2017 and compared these observations to those used for the model validation. As with the Journey time observations there is a reasonable match between the two sources of data, with the exception of the A644 count location that showed lower volumes in the TTHC count.

There are again some methodological differences between the surveys, with the ATCs recorded for the model validation having been carried out for at least two weeks in order to give more representative observations, rather than a single week as was done by TTHC.

On the A644 route, the trend data from the count site in figure 2 above showed the following volumes in 2013 and 2017.

Table 2 - A644 ATC traffic volumes for weekdays 2013 and 2017

Time Period	2013	2017
Daily (24 hrs)	6,431 westbound, 9,265 eastbound	5,701 westbound, 8,503 eastbound
AM peak hr (0800-0900)	370 westbound, 578 eastbound	303 westbound ,599 eastbound
PM peak hr (1700-1800)	448 westbound, 674 eastbound	345 westbound, 560 eastbound

The argument put forward by TTHC is that there has been an increase in delays between 2014 and 2017 that has reduced the throughput of the westbound movement, and this is not replicated by the model. However, the data in the table above shows that the reduced volumes of traffic are seen over 24 hours as well as in the peak hour. This indicates that overall demand is reduced, rather than the peak period becoming longer because throughput in the peak hours is reduced.

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Validation

Finally, TTHC reviewed the validation of the model against the traffic counts recorded in 2014 and highlight that generally the model shows lower levels of traffic than observed. This fact is not disputed, however it should be noted that the model has been validated against the criteria set by DfT for model validation across the model area which covers the Calderdale district. WSP have reviewed the validation levels of the model and this was reported in Technical Note 10, showing that overall there was no particular issue in the Brighouse area for validation against journey times or traffic volumes.

Conclusion

To summarise, this note has demonstrated the following:

1. That the modelling methodology is robust and proportionate for the task of providing input to the Local Plan decision making process.
2. That there has been little change in traffic flows between the base year of the CSTM and 2019
3. The explanation for differences between the TTHC observations of traffic flow and journey times and those captured for the modelling exercise. Also, that those undertaken for modelling have been undertaken to meet DfT guidance on building models.
4. That validation of the model is of an acceptable level for a Strategic Model and that there is no inherent weakness in the Brighouse area.

Attached for reference – Clifton Neighbourhood Forum submission, including TTHC review as Appendix 2.

Calderdale Local Plan - Publication Draft Consultation (2018)

Representations on behalf of Clifton Village Neighbourhood Forum

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Appendices

Appendix 1 – Representations to the Calderdale Draft Local Plan (2017)

Appendix 2 – TTHC review of the Calderdale Local Plan Publication Draft (2018)

1. Introduction

- 1.1 These representations are submitted by NJL Consulting on behalf of Clifton Village Neighbourhood Forum to the Calderdale Local Plan Publication Draft Consultation.
- 1.2 The representations follow previous submissions (enclosed at Appendix 1) which raised fundamental concerns with the Draft Plan and the associated Evidence Base. Our previous concerns, which went to the heart of the local plan strategy, have not been properly considered or addressed. The Publication Draft Local Plan remains unsound.
- 1.3 As the Council is aware, it is duty bound to prepare a Local Plan based on appropriate evidence. The Plan must be submitted with a full and complete evidence base in order for the Secretary of State make an informed conclusion on 'soundness'. The Council cannot lawfully submit a plan for examination on the basis that further key evidence can be provided at a later date, for example once requested by the Inspector.
- 1.4 Leading Counsel advises that to do so would risk undermining the statutory scheme but also that this prior consultation is likely to be in conflict with the 'Gunning Principles':
- 1.5 In R (Moseley) v Haringey LBC [2014] 1 WLR 3947 (paragraph 25), Lord Wilson said;

"In R v Brent London Borough Council, Ex p Gunning (1985) 84 LGR 168 Hodgson J quashed Brent's decision to close two schools on the ground that the manner of its prior consultation, particularly with the parents, had been unlawful. He said, at p189:

'Mr. Sedley submits that these basic requirements are essential if the consultation process is to have a sensible content. First, that consultation must be at a time when proposals are still at a formative stage. Second, that the proposer must give sufficient reasons for any proposal to permit of intelligent consideration and response. Third... that adequate time must be given for consideration and response and, finally, fourth, that the product of consultation must be conscientiously taken into account in finalising any statutory proposals.'

Clearly Hodgson J accepted Mr. Stephen Sedley QC's submission. It is hard to see how any of his four suggested requirements could be rejected or indeed improved. The Court of Appeal expressly [has]... The time has come for this court also to endorse the Sedley criteria. They are, as the Court of Appeal said in R

(Royal Brompton and Harefield NHS Foundation Trust) v Joint Committee of Primary Care Trusts (2012) 126 BMLR 134, para 9, 'a prescription for fairness'."

1.6 Clearly, therefore, the Council must undertake a proper and reasoned consultation on all aspects of the Publication Draft, including:

- A full and credible evidence base which correctly models both the existing 'base' position and the position with key mitigation in place;
- An up to date Infrastructure Delivery Plan which demonstrates that essential mitigation is deliverable and when.

Clifton Village Neighbourhood Forum

1.7 To be clear, Clifton Village Neighbourhood Forum is not 'anti-development' in absolute terms and they recognise some form of development is needed and justified. However, the proposed level of development allocated to Brighouse is entirely out of kilter with the local plan evidence and is wholly unsustainable, undeliverable and not supported by critical key infrastructure.

1.8 The Forum formed on 18 August 2017 and is made up of a representative cross-section of the local community. Their objective is to ensure that the future approach to growth in the area is taken forward in the most appropriate way. To this effect the Forum was granted Neighbourhood Forum status on 1st August 2018 and can prepare a Neighbourhood Plan in due course.

1.9 The Forum will wish to continue to be involved in the Calderdale Local Plan as it moves forward so that the Plan is genuinely effective, deliverable and based on sound evidence such that the Neighbourhood Plan can also be considered in the same way.

Summary position

1.10 The Draft Local Plan is unsound.

1.11 The draft plan proposes a wholly unsustainable approach. Its strategy, policies, delivery timescales and evidence base are simply not aligned, and this presents a fundamental flaw. This must be addressed before other detailed matters (such as site allocations and detailed policies) are considered in any further detail.

1.12 For example, housing delivery targets are dependent on two major Green Belt releases in Brighouse, which is a secondary settlement below Halifax in the hierarchy. Both sites are within key areas of Green Belt and the evidence base (referenced in Section 2)

correctly concludes that both score highly when judged against the purposes and objectives of Green Belt and both should be retained.

- 1.13 Notwithstanding this clear, well evidenced, conclusion on the high value of the sites in terms of Green Belt functions, the Publication Draft Local Plan continues to propose Green Belt release to accommodate two 'Garden Suburbs'. In reality these are nothing more than disproportionately large housing allocations (which from hereon in will be referred to accordingly) on areas of land which perform highly in Green Belt terms.
- 1.14 The Plan envisages housing delivering starting on these two major allocations within the next seven years at over 140 dwellings per annum. This is despite the sites requiring significant infrastructure works (as evidenced in the Thornhills Site Assessment Report and Woodhouse Site Assessment Report), including major improvements to M62 Junctions 24 and 25 and a potential new Junction 24a which has no funding commitment or timescales for delivery. In fact Highways England previously stated it will be neither promoting nor funding a new junction 24a.
- 1.15 Given these fundamental issues, the plan should be revised and cannot lawfully be submitted to the Secretary of State in its present form.
- 1.16 The following representations consider these matters in detail.

2. Evidence Base

- 2.1 The Draft Local Plan is supported by a series of documents which are listed as the appropriate evidence base to prepare a sound plan. However, we have significant concerns with how this evidence has been used (or otherwise) to inform the Draft Plan.
- 2.2 As far as we can see from the documents list, no further evidence has been provided which justifies the proposed strategy, or where evidence has been commissioned it has been largely ignored and/or the plan has remained unchanged despite evidence demonstrating the need to amend the Plan and its strategy.
- 2.3 We are particularly concerned at continued reliance on major allocations adjoining Brighouse (sites: LP1232, LP1451 and LP1463) when the local plan evidence base demonstrates these sites are clearly not deliverable in the proposed timescales. In fact there is no evidence that they are required or, if they required, that they can be delivered as currently proposed.

Housing need

- 2.4 The Publication Draft Local Plan is based on out of date housing needs evidence, particularly the Strategic Housing Market Assessment (SHMA) which has been prepared using now superseded population data.
- 2.5 The publication draft identifies a need for 12,600 new homes across the plan period (840 units per annum) derived from the 2014-based household projections and related growth assumptions. These 2014 projections identified a 'base' need for 755 new homes per annum, before economic growth and local objectives are applied (which results in the publication draft target of 840 units).
- 2.6 Using the latest population projections (September 2018, based on 2016 data), the 'base' need falls to circa 565 homes per annum (some 200 homes per annum less than the publication draft). Carrying forward this reduction to a potential local plan figure, results in a revised housing need of circa 640 homes per annum and 9,600 new homes across the plan period – i.e. some 3,000 less units than currently proposed.
- 2.7 This potential significant reduction in housing need has clear implications for the Local Plan, both at a strategic and site allocation level, and must be resolved before the draft local plan is next published for consultation.

Cross boundary and Duty to Co-Operate

- 2.8 The evidence base, and Duty to Co-operate Statement in particular, demonstrate the significant relationship between neighbouring local authority areas with regards to key issues such as housing, economic growth, major infrastructure and Green Belt.
- 2.9 Notably, Brighouse has low levels of worker containment (only 45% of Brighouse residents work in Calderdale boundary). The majority of working Brighouse residents therefore travel to work outside the borough, further emphasising Brighouse's clear cross boundary role in providing workers for other employment locations in the area (Leeds, Bradford and Huddersfield, for example).
- 2.10 The Publication Draft Plan then recognises (at paragraph 2.35) that cross-boundary commuting is leading to major traffic congestion, particularly at the M62 junctions. This will only be exacerbated without considering the resulting problems in more detail, and with sufficient rigour, through the Duty to Co-operate and by using a traffic model which, unlike the traffic model which has informed the evidence base, is fit for purpose.
- 2.11 The consequence of failing to consider this further is that major housing in Brighouse will simply meet the needs of those working in Kirklees (i.e. Huddersfield) and beyond. Thereby exacerbating an unsustainable pattern of development which promotes long distance commuting in private vehicles in direct conflict with the plan's strategic objectives. The proposed housing allocations at Thornhills and Woodhouse would be no more than dormitory housing estates for people working outside Calderdale, with a high proportion of people travelling to work by car, via the M62.
- 2.12 A more rigorous approach to addressing cross boundary issues is required, particularly as the Kirklees Local Plan is due to be adopted by early 2019 and its adoption will have implications for Calderdale. For example, essential highways improvements to enable housing delivery in Kirklees (the Bradley housing site) include works to key junctions in Calderdale (i.e. land close to the Cooper Bridge junction is within Calderdale).
- 2.13 These key issues are simply not addressed in anything approaching sufficient detail and there is no robust analysis of the implications.

Green Belt

- 2.14 The Green Belt Review fails to establish the duty to co-operate has been considered in any meaningful way, despite paragraph 1.2 of the Review specifically stating the importance of Green Belt as a key cross-boundary issue. This is critical in Brighouse

where Green Belt release in Kirklees has a direct impact on settlement gaps between Brighouse and Huddersfield, gaps which are further eroded by proposed Green Belt release in the Calderdale Plan.

- 2.15 The Plan is entirely at odds with the Green Belt Review. Paragraphs 6.5 to 6.8 of the Review clearly define the area around Brighouse as containing the **'Most Sensitive Green Belt Parcels'**. Paragraph 6.6 is clear in explaining why:

'Generally, the parcels to the eastern side of the district contribute significantly to the purposes of Green Belt due to a combination of good inter-visibility and close proximity between large built up areas. These land parcels play an important role in helping to prevent the urban areas from merging. In addition, many of these parcels contain few significant boundaries and the land within them would be vulnerable to encroachment and sprawl.'

- 2.16 Despite the Council's own clear conclusion, the Publication Draft Local Plan still includes significant Green Belt release in Brighouse without any further analysis of:

1. The acknowledged importance of the land concerned to the Green Belt
2. The need to demonstrate exceptional circumstances; and
3. All other means of meeting identified needs have not been exhausted.

- 2.17 Clearly, the latest population projections (showing lower population growth and lower housing need) have direct implications for the level and location of Green Belt release.

Settlement hierarchy and locations for growth

- 2.18 Our previous representations (Appendix 1) raised concerns with the proposed growth apportionment, these concerns are exacerbated given the lack of further evidence.

- 2.19 The Settlement Hierarchy evidence, produced in 2013, placed Brighouse (Principal Town) second in the hierarchy after Halifax (Sub-Regional Town). In this context the evidence concluded Brighouse should accommodate up to 20% of the overall housing needs of the Plan area and a similar level of economic growth. No further evidence has been provided to justify or in any way explain the subsequent shift to the now proposed very different alternative.

- 2.20 The Publication Draft Plan proposes 50% of all housing allocations are directed to Brighouse, largely focussed to two sites ('Woodhouse' - LP1451; and, 'Thornhills' - LP1463). This is a major shift from the evidence base which concludes what a sustainable level of housing should be for each settlement level in the hierarchy. This

imbalance is further compounded by 40% of all new employment land in the plan being directed to Brighouse, with the majority focussed on the Clifton Enterprise Zone (site LP1232). There is no evidence that this approach would overcome the problem of high proportions of Brighouse residents commuting to work outside Calderdale.

- 2.21 This approach to distributing growth has implications on a number of key issues, not least infrastructure. It is also inconsistent with the identified need to secure growth and regeneration in areas such as north Halifax to tackle high levels of deprivation.
- 2.22 Notwithstanding, as demonstrated in Section 3, there is clear uncertainty around the delivery of these three key sites.

Housing and employment growth evidence

- 2.23 The unexplained and unjustified shift to a skewed approach to housing and employment growth has been carried through from the Draft Local Plan to this Publication Draft. As such, our comments as set out at paragraphs 2.9 to 2.15 in our previous representations (at Appendix 1) remain relevant. No evidence has been provided by the council which supports the proposed levels of housing growth allocated to Brighouse.
- 2.24 Additionally, as demonstrated earlier in Section 2 of these representations, the housing need as identified in the publication draft is not based on the latest evidence.

Infrastructure Delivery Plan

- 2.25 A Draft Infrastructure Delivery Plan (IDP) was published in March 2018, and identifies a number of measures required to deliver planned growth in Calderdale.
- 2.26 However, the plan proposes major housing allocations and Green Belt release in Brighouse without any evidence, let alone clear or substantive evidence that the necessary infrastructure can be delivered. For example, major improvements to M62 J24 and J25 and a new J24a are identified as key infrastructure over the plan period (within the Draft IDP (Appendix 2) and Draft Policy IM1), and essential for the delivery of the Brighouse sites, yet this infrastructure has no funding or delivery programme.
- 2.27 The 'Thornhills' and 'Woodhouse' sites require significant infrastructure, with the former requiring a relief road in an attempt to relieve already high levels of congestion. There is no evidence of what the relief road scheme would be, how or when it would be funded/delivered, or whether it would relieve existing congestion, let alone mitigate the impact of 4,000 additional dwellings and 36ha of employment land in Brighouse.

- 2.28 The IDP indicates this essential early infrastructure will be funded by developer contributions secured through the planning application process. It cannot be a sound approach to identify a significant Green Belt release without first understanding the viability or otherwise of developer contributions funding such essential and major strategic infrastructure. If this is not a viable option, then the housing allocations will be rendered undeliverable, or at best only partially deliverable and the entire Local Plan strategy which relies so heavily on these allocations, would be undeliverable.
- 2.29 Furthermore, as evidenced within the TTHC Technical Representations, the levels of existing congestion on existing highway network infrastructure have been grossly understated in the Council's evidence base and are not addressed in the IDP.
- 2.30 There is quite simply no evidence that the necessary major infrastructure can be delivered in the timescales required by the plan strategy.

Viability

- 2.31 The draft plan is supported by a 'Local Plan & Preferred Sites Viability Assessment' (2018). However, the Assessment simply reviews the existing identified sites, rather than assessing all opportunities and then providing evidence to form a preferred strategy. In certain cases, the Council's evidence concludes that allocated sites are unviable and only marginally viable when developer contributions and CIL are excluded.
- 2.32 Therefore the viability evidence is retrofitted to the Draft Plan, rather than the evidence informing the local plan delivery strategy and even then it does nothing more than confirm that certain allocations are not viable and therefore undeliverable.

Transport

- 2.33 Transport matters are addressed in the enclosed TTHC Note (Appendix 2). TTHC has reviewed the Technical Notes released by WSP during 2018, i.e. since the detailed representations on the Regulation 18 Consultation (2017) submitted by NJL Consulting and TTHC on behalf of the Forum.
- 2.34 The issue of Brighouse residents travelling by car to employment locations outside of Calderdale is an existing critical issue which the local plan growth strategy will further exacerbate, placing further reliance on journeys by private car.
- 2.35 TTHC have confirmed there has been no attempt by WSP and/or the council to address fundamental and material concerns raised in respect of the overall strategy and evidence base. Within the Regulation 18 representation, TTHC provided Automated

Traffic Counts and Journey Time Surveys which clearly demonstrated the traffic model, which underpins the evidence base, grossly under-represents the levels of congestion in Brighouse. WSP have not sought to challenge TTHC's information, nor have they taken the opportunity in the intervening 12 months to make use of this representative data to correct their presentation of base traffic conditions in Brighouse.

- 2.36 Although further local authority led highways modelling has been completed, it focusses on the A629 corridor and does not consider the impact of proposed allocations in Brighouse. Previous fully and appropriately evidenced concerns regarding inadequate assessments of the A641, A643 and A644 corridor have been ignored and remain unanswered.
- 2.37 Instead, unsubstantiated Draft Local Plan assertions simply claim that extensive (and potentially undeliverable) highways works will solve congestion problems in Brighouse.
- 2.38 The issue of the validation of the highways model remains, particularly as the model significantly understates the existing traffic flows and acute levels of congestion in and around Brighouse.

Ecology and environment

- 2.39 The Forum is aware that detailed species recording has been carried out by a locally based ecologist living in the Thornhills area and submitted to West Yorkshire Ecology Service. This evidence demonstrates that the Thornhills allocation provides a rich habitat to many species, a good number of which are protected.
- 2.40 The draft plan also downplays the potential impact on environmentally sensitive sites, critically, the Habitat Regulation Assessment (2018) ('HRA') concludes:

"However it is still uncertain at this stage as to whether some elements of the plan have the potential to result in significant adverse effects to the South Pennine Moors (phase 2) SPA & SAC. This is the result of the impact of air pollution from traffic and recreational impact on the moor." And...

The Court of the European Union case of 'People Over Wind and Sweetman v Coillte Teoranta' is noted but has not yet been taken fully into account."

- 2.41 The HRA goes on to conclude that certain allocations, in particular at Thornhills and Woodhouse, will require particular site specific mitigation above and beyond that required for smaller sites. For example, the Thornhills Site Assessment Report concludes

the site has an 'Amber' rating and that '*Some impact on environmentally sensitive areas which can be mitigated against*'. However, the potential mitigation is unknown.

- 2.42 At a strategic plan level, further HRA is required before the plan can progress. Therefore, there is no certainty the proposed Local Plan is legally sound. This is in addition to site by site concerns which are not addressed in the draft plan.

Air quality

- 2.43 Brighouse is within an Air Quality Management Area, largely owing to congestion in the centre of Brighouse at the A641, A643 and A644 junctions. The AQMA in Brighouse has existed for the last 10 years, and forms a key part of the Air Quality Strategy for the area.
- 2.44 In this context, the WSP Air Quality Constraints Report (2016) identifies Brighouse town centre as an existing area of 'High' air quality constraint, with the remainder of the urban area (including A641, A643 and A644 corridors) as 'Medium' constraint. Critically, this identifies existing constraints, i.e. constraints before further development is added.
- 2.45 WSP also identify a correlation between the junction capacity constraints on the network and areas of poor air quality.
- 2.46 It follows that those junctions and road corridors already experiencing poor air quality are likely to see a worsening of air quality once local plan development is brought forward. This is none more so evident than in Brighouse where significant housing and employment allocations will generate large numbers of vehicle movements.
- 2.47 The WSP report then identifies that junction improvements are required in order to enable associated air quality improvements through reduced delays and reduced vehicle waiting. Junction improvement works and critical related infrastructure are therefore critical and essential in Brighouse in order to mitigate existing and future air quality constraints. However, as identified earlier in Section 2 there is no evidence the necessary infrastructure can be delivered.
- 2.48 Therefore, by focussing significant levels of development to Brighouse (as an existing AQMA) the proposed local plan strategy is out of kilter with the associated evidence.

Evidence base summary

- 2.49 The Publication Draft Local Plan is not supported by a thorough or robust evidence base and there are significant gaps in critical evidence, particularly regarding

highways congestion and capacity, key infrastructure, local and site specific infrastructure and Green Belt.

- 2.50 In other cases, where further evidence has been provided (for example in the latest Green Belt Review) the proposed overarching Draft Local Plan strategy remains unaltered. This is despite the evidence base identifying a need to review the strategy or explain and demonstrate why the strategy should not be reviewed despite the findings. The strategy is therefore fundamentally flawed.

Inappropriate use of public money

- 2.51 The Forum is concerned that the Council's attempt to press forward with this local Plan will inevitably lead to a significant waste of public money in attempting to defend a Plan which is very clearly ill-founded, incomplete and lacking in terms of an appropriate and robust evidence base or a robust Infrastructure Delivery Plan.
- 2.52 As identified by Leading Counsel, it would not be lawful at this stage of the process to retrospectively suggest alternative options or to seek to add to the evidence base or IDP. From this point on, it is only open to the Council and then the appointed Inspector to consider the soundness or otherwise of this Publication Draft.

3. Site specific concerns

Brighouse housing allocations (Sites LP1451 and LP1463)

- 3.1 Our previous representations (in 2017) are enclosed and the concerns raised in these representations remain, (previous representations at Appendix 1).
- 3.2 The sites are supported by individual site assessment reports which consider site constraints and required mitigation. In the case of the Thornhills site (LP1463), the updated site assessment fails to adequately address a range of site specific issues in the previous Draft Local Plan and raised our subsequent representations to that draft.
- 3.3 In summary, considering the previous representations and the evidence now presented to support the Publication Draft Local Plan:
- The sites are in the most sensitive area of Green Belt and no justification is given for their release;
 - In particular, lower population projections indicate the proposed major housing allocations at Thornhills and Woodhouse are no longer required;
 - Notwithstanding, major housing in this location will simply serve those working in Kirklees (Huddersfield) and other more distant locations such as Leeds, Bradford and Manchester, and therefore result in wholly unsustainable patterns of growth;
 - The sites will exacerbate existing congestion, with no readily implementable solution – for example there is no evidence the necessary local highways infrastructure, such as improvements to relieve acute congestion on the A641, A643 and A644 can be delivered;
 - There is equally as little certainty on essential strategic highways works to M62 J24, J25 and proposed J24a, all of which likely require Highways England funding. Highways England have confirmed no funding is available;
 - There is a clear correlation between existing congestion (in the A641, A643 and A644 corridor) and areas of poor air quality, particularly in the Brighouse AQMA, and further development in this location will further exacerbate poor air quality;
 - The proposed build-out rates are entirely unachievable due to land assembly, the need for up front early significant infrastructure, on site delivery of sustainable urban drainage solutions, developer funding, uncertainty of ground conditions including extensive historic mine workings, and viability concerns;

- Development is potentially unviable unless affordable housing policies are ignored and an almost zero CIL rate is applied;
- The sites contain valued ecological areas, including designated habitat and notable species such as Schedule 1 Species which have protection under the Wildlife & Countryside Act 1981 and associated high conservation priority;
- Therefore the promotion of these sites is entirely at odds with the Local Plan Strategic Objectives.

3.4 The proposed allocations are entirely unsound.

Clifton Enterprise Zone (Site LP1232)

3.5 Concerns regarding raised in our previous representations (Appendix 1) remain.

3.6 The site has significant delivery constraints in terms of access, highways impact, key infrastructure, ground conditions and market demand. No further evidence has been provided that the site is deliverable, particularly as it has been promoted as a 'premium' employment site since 2000 but with no genuine signs of delivery.

4. Publication Draft Policy – specific policy objections

- 4.1 In light of the above evidence we object to the following Publication Draft Local Plan Policies, on the basis they are unsound.
- 4.2 The policies are not ‘justified’ (they are not supported by appropriate evidence, or in any way an appropriate strategy), ‘effective’ (there is no evidence the housing allocations in particular can be delivered) or ‘consistent’ (with national policy regarding the delivery of sustainable development).

Policy	Reason for objection
SD3	SD3 is not based on the latest available evidence contained in the revised population projections. Additionally, the policy does not identify how housing should be distributed across the plan area. The proposed distribution is unsound.
SD4	SD4 fails to identify the apportionment of employment land across the various areas of Calderdale, despite the Employment Land review identifying different market needs.
SD5 – Site LP1232	Unsound allocation of land for employment use (see Sections 2 and 3 of these representations).
SD7 (Garden Suburbs) – Site LP1453	Unsound major Green Belt release for housing (see Sections 2 and 3 of these representations).
SD7 (Garden Suburbs) – Site LP1461	Unsound major Green Belt release for housing (see Sections 2 and 3 of these representations).
IM1	IM1 is neither effective nor deliverable. A number of infrastructure items are essential to the delivery of Local Plan allocations, yet infrastructure delivery and funding has not been tested or demonstrated. The policy also only includes a number of key infrastructure items as ‘Potential Interventions’, despite the ‘Interventions’ being critical to the Local Plan Strategy.

5. Summary

- 5.1 These representations are submitted on behalf of Clifton Village Neighbourhood Forum, to the Calderdale Local Plan Publication Draft Consultation.
- 5.2 The Forum do not take a position of objecting to all development in Brighouse or the surrounding area, and indeed they recognise that a certain level of development is both essential and justified. However, the emerging Local Plan has been prepared without sound reasoning or logic and is not supported by a co-ordinated robust evidence base.
- 5.3 Rather, the evidence base indicates that alternative strategies may provide for more sustainable patterns of deliverable growth. Yet the Draft Local Plan appears to largely ignore this evidence. In other cases, the evidence is fitted to the plan rather than being used to inform it.
- 5.4 In particular, proposed allocations in Brighouse (sites LP1232; 1451 and 1463) lack the necessary evidence to be included in the plan, let alone carry the strategic importance as currently indicated in the draft plan.
- 5.5 Local Plan Strategic Objectives and Policies do not align and the plan is unsound.
- 5.6 In the Forum's opinion, the Local Plan cannot be submitted to the Secretary of State in the present form as there is insufficient evidence for the appointed Inspector to form a logical and lawful conclusion.

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party. Any such party relies on this report at their own risk.

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Appendix 1

SUBMISSION

CLIFTON VILLAGE NEIGHBOURHOOD FORUM

CALDERDALE INITIAL PLAN LOCAL PLAN REPRESENTATION

SEPTEMBER 2017

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1.0 Introduction

- 1.1 These representations are being made on behalf of the Clifton Village Neighbourhood Forum (CVNF) to the Calderdale Local Plan – Initial Draft which has been published for consultation by Calderdale Council.
- 1.2 The documentation to date has been assessed as far as possible; however we understand that the Council will be continuing to work on further supporting documentation in the near term. CVNF would wish to be involved in the process so as to remain fully informed of the emerging evidence base as it is prepared.

Background to the Clifton Village Neighbourhood Forum

- 1.3 The CVNF was recently formed and constituted on 18 August 2017. The Forum is made up of a representative cross-section of the local community and its objective is to ensure that the most appropriate future approach to the growth of the area is taken forward in the most appropriate way.
- 1.4 To this effect the Forum will be progressing a Neighbourhood Plan to help guide future development in its area.
- 1.5 The Forum will wish to continue to be involved in the preparation of the Calderdale Local Plan as it moves forward so that the Plan is genuinely effective, deliverable and based on sound evidence such that the Neighbourhood Plan can also be considered in the same way.
- 1.6 The Forum do not come from a position of simply seeking to block development. On the contrary, the Forum fully understand that there will inevitably be some development that is justified and necessary in the area.
- 1.7 What is critical, is that the right development, in the right places, with the right level of infrastructure should take place under a fully justified Local Plan process.

Summary Position

- 1.8 At present the Forum's considered and strong view on the Initial Draft of the Local Plan is that it is neither deliverable nor based on sound evidence and cannot therefore be effective; it must therefore be fundamentally re-considered. The reasoning for this is as follows:
 - a. There is a significant level of evidence still to be collected and collated to inform the Plan and to demonstrate it can be delivered without further saturating already inadequate infrastructure, including and most especially the highway network. Notwithstanding this, the major strategic decision to make 2 substantial housing allocations within the Green Belt around Brighouse (Thornhill and Woodhouse – "Garden Suburbs") has already been made. This decision has been based on completely inadequate evidence, particularly in respect of both the existing conditions on the highway network (the existing acute congestion problems in and around Brighouse have been significantly understated and underplayed) and the inevitable levels of impact on that already congested network (the levels of impact have been downplayed by applying flawed assumptions within the WSP Technical Notes which purportedly assess likely levels of impact). Appended to this document is a Technical Representation produced by the Forum's Transport Consultants TTHC which explains in detail how the WSP Technical Notes grossly

underestimate existing levels of congestion, the traffic impact and the overall highway network implications of the Brighouse housing allocations.

- b. Such a major strategic decision can only be rationally made when the full evidence base has been compiled and scrutinised, enabling the impacts and necessary mitigation to be identified. Thus far, it can only be concluded that there has been a premature and pre-determined position taken over the proposed housing allocations and the resulting substantial Green Belt release.
- c. The evidence to date shows that the proposition for 2 such large sites is inherently flawed in any event.
- d. There is a flawed consideration of the actual interaction of the Brighouse Housing Market Area with the Kirklees District Housing Market Area. This also leads to important concerns that Calderdale Council has not discharged its Duty to Co-operate with that neighbouring Council.
- e. There is a flawed consideration of the Green Belt release process. The Green Belt is part of the West Yorkshire Green Belt and it would be inappropriate to release Green Belt on a single Authority basis without due regard to the wider Green Belt context.
- f. There is reliance on an out of date Infrastructure Delivery Plan, even though there is an acknowledgement within the Draft Local Plan that this Delivery Plan does need to be updated. Hence, there is no way of knowing that the proposed major releases can be properly served by development infrastructure. Such major allocations and associated Green Belt release simply cannot be made in advance of and in isolation of an up to date Infrastructure Delivery Plan, which itself must be both realistic and deliverable.
- g. In any event, there is considerable evidence already that the proposals would create such significant and severe impacts on local infrastructure as to be unsustainable.
- h. The overall consideration of the need to release Green Belt, and justification of the very special circumstances is flawed as a consequence of points a, b, and c above. Notably, the proposition is for the more sensitive areas of Green Belt to be released (even according to the Council's own evidence base); hence this creates even more of an imperative that such points are considered in more detail before such sites are even considered for release.
- i. There has been a long-term failure to deliver the Clifton Employment site, which is proposed to be retained in the Initial Draft Plan despite 17 years of unsuccessful promotion. There are key viability factors still remaining to be resolved regarding this site and there is no available evidence in the public domain to demonstrate how and why the Council now believes such factors can in fact be resolved. This is even more of a concern, because despite 17 years of unsuccessful promotion, this site is a significant part of the claimed justification for the two substantial areas of Green Belt release for the Thornhills and Woodhouse housing allocations; the over-simplistic logic being that these substantial areas of new housing will be near the job opportunities to be created on the Clifton Employment site.

- 1.9 There are a number of site specific issues and constraints that are specific to the particular housing allocation sites being considered for release from Green Belt around Brighouse. These include ground conditions/stability (including from substantial areas of past coal mining) and ecology.

- 1.10 As above, many of these issues have yet to be properly analysed by the Council and it is highly likely they will be fundamental to the deliverability of the sites. Given the scale of housing allocation and Green Belt release proposed, if they do prove to be undeliverable, as the current evidence suggests will be the case, this would have a fundamental impact on the delivery and effectiveness of the whole Local Plan.
- 1.11 Hence, it follows that much more detailed evidence is needed before proper consideration can be given to the proposed allocations and releases.
- 1.12 Of critical importance is the impact on highways infrastructure and flooding of the immediate and wider area.
- 1.13 There has been no proper viability analysis of the housing allocation sites nor the Clifton Employment site and hence there is no credible proposition being put forward as to how or why they will be deliverable, particularly in the face of factors such as topography, landscape, site stability and flooding,

As a result, the forum consider that the Plan should be fundamentally re-appraised with a new Strategy that better aligns the required outcomes with the most likely means of achieving them; along with a properly co-ordinated evidence base that appraises the actual ability for sites to be delivered, including full consideration of impacts on transport infrastructure and an up to date and realistic Infrastructure Delivery Plan. This inherently needs to be a very different Local Plan. If necessary, the Forum will make this case, in full, to the Examination, represented by a full technical team including legal representation.

2.0 Evidence Base Assessment

- 2.1 The Initial Draft has a series of documents that have been published thus far that purport to be the appropriate evidence base.
- 2.2 However, we have significant concerns over how this process has evolved to date with regards to the following particular documents.
 - a. Local Plan Viability – The evidence base for this was produced in October 2015 by GVA. They utilised the SHLAA 2014 Review papers as the basis for their consideration. This did not include the Brighouse housing allocations (Garden Suburbs) proposition in any form or at any scale. The Initial draft Plan now utilises a Housing Technical Paper but the viability work has not been updated and does not therefore address at all whether or not the Brighouse housing allocations may be viable.
 - b. Settlement Hierarchy – The data for this was produced in 2013. This placed Brighouse (Principal Town) second in the Hierarchy after Halifax (Sub-Regional Town). This ranking proposed a consequent role for Brighouse to accept between 10 and 20% of the overall housing needs of the Plan area. The Initial Draft Plan proposes that 32% of all housing would be in Brighouse. This is a major shift from the evidence base which concluded what a sustainable level of housing should be for each settlement level in the hierarchy. This imbalance is further compounded by the proposition for 44% of all new employment land to also be in Brighouse.
 - c. Sustainability Appraisal – The latest report is a Scoping Report (2015) followed by the Initial Draft (2017). The 2017 approach identifies 6 alternative housing distribution scenarios (A-F). All of these scenarios determine that any residual requirement would automatically be placed in Brighouse. There is no reasonable alternative proposed or assessed within the draft Sustainability Appraisal that suggests otherwise. This is a key flaw in that it must pre-suppose that Brighouse takes more housing without considering whether or not this is genuinely feasible or deliverable.

It also follows that if the Draft S.A. is using the evidence base collated so far (which it purports to do), then the S.A. must acknowledge why any outcomes or scenarios are different to what the evidence base suggests. This is not the case in the current document – for example it does not propose a scenario which actually fits with the outcomes of the Settlement Hierarchy data.

Housing Technical Paper

- 2.3 The Initial Draft Plan considers the updated Housing Technical Paper (HTP), which brings together the SHMA and SHLAA assessment work.
- 2.4 We do not suggest that the methodology to this work is itself flawed. However, there are key elements of the data provided which raise significant issues that must be considered in more detail. These are as follows:

A. Cross Boundary Matters

- 2.5 The HTP clearly acknowledges at para 2.8 to 2.11 that there is a significant relationship between neighbouring Local Authority Areas with regards to the housing market. This is noted as a strong inter-relationship at para 2.23 and that this will be important to consider in the context of the Duty to Co-operate (see para 2.32). More specifically (see map at 2.53 and Fig 2.11), Brighouse has the lowest level of containment of workers in the area (25% against the Calderdale wide position of 52%).
- 2.6 The HTP therefore demonstrates that, whilst under National Guidance the Calderdale area could be considered as a single housing market area; the major interaction of Brighouse (notably with the Kirklees Area and the Huddersfield housing market) outside of this, must mean that a more rigorous approach to the Duty to Co-operate should be carried out. The Draft Plan does not follow through this clear requirement.
- 2.7 The consequence of not considering this further is that major housing in Brighouse will simply assist in meeting the needs of people working in Kirklees (i.e. Huddersfield) and a less sustainable pattern of development, particularly in respect of resulting travel to work patterns which will be unsustainable.
- 2.8 It is recognised in the Initial Draft (see 2.37 of the Plan) that cross-boundary commuting is leading to major traffic congestion. This will only be exacerbated without considering in more detail and with sufficient rigour through the Duty to Co-operate.

B. Level of Housing Allocated to Brighouse

- 2.9 The Initial Draft proposes a “skewed” approach to housing allocations, insofar as a major amount of new housing is proposed in Brighouse through substantial housing allocations in Green Belt (the so-called Garden Suburbs).
- 2.10 The HTP does not justify this approach, noting that its principal aim was to consider an overall housing need for the Local Plan Area.
- 2.11 However, the HTP does connect the particular issue of housing and economic growth for the Plan area as a whole and does provide evidence of economic growth projections in each particular sub area (see Fig 4.19).
- 2.12 In this regard, it is self-evident from the economic projections that the Brighouse proposition does not fit with this. The basis for the housing projections overall is for a certain level of Calderdale wide growth at 12.8% jobs growth. This is different within each sub area with Brighouse seeing a lower level of future jobs growth at 8.6% compared for example to Halifax at 14.8%. (all figures at Fig 4.19 of the Housing Technical Paper), even with the known about and allocated Clifton Enterprise Zone site.
- 2.13 In addition the HTP shows no other indicators that would suggest that Brighouse would need to achieve higher levels of housing growth (e.g. affordability) way above the Calderdale average. Conversely Halifax shows a three times greater need to address affordable housing (see fig 7.11).
- 2.14 Indeed the HTP shows, when combined with economic growth factors (see Fig 4.19) that Brighouse (including Rastrick and Hipperhome) has a lower proportionate need for more housing than almost all other sub-areas of the Plan.
- 2.15 In conclusion therefore, the evidence base in the HTP demonstrates that there is a very real cross-boundary issue that must be addressed, and that proportionally, relative to other sub areas of Calderdale, there is actually a much lower need for more housing in Brighouse when considering economic growth indicators. The Draft Local Plan simply

does not deal with these issues and in fact goes against and contradicts its own evidence base in respect of these factors.

C. Overall Evidence in HTP

- 2.16 The HTP notes the use of the Regional Economic Model (2014) to inform its assessment of Housing need. This was noted as likely to be updated in 2015/16 (see para 4.56) but it is not clear if such an update has been carried out or used. A further update on economic growth is also referred to at para 9.13 but again seems not to be available. This evidence has to be available for all interested parties for this consultation process to be transparent and fair – the Forum's strong view is that the process so far has been neither.
- 2.17 With regards to housing, the HTP refers (para 2.44) to a new baseline position which will define new housing market areas and form part of the Duty to Co-operate and that this will be completed next year. It also explicitly acknowledges in the same paragraph that there is an "expectation that local authorities will work together where there are evidenced market linkages."
- 2.18 In this regard, there is already such evidence in the HTP itself but no evidence of genuine cross-boundary working. Instead there is simply a statement suggesting that each Local Authority will deal with its own housing needs. Such an approach is inherently flawed as it fails to deal with the realities of housing market interactions across Local Authority boundaries. To be effective, the approach to meeting housing needs has to reflect real housing market interactions which are not contained by or within arbitrary Local Authority boundaries. The approach taken so far will only ever lead to unsustainable patterns of development and travel, particularly in respect of commutes to places of work, as is evidenced by existing data on commuting patterns.

Infrastructure Delivery Plan

- 2.19 The Initial Draft Local Plan readily acknowledges at para 13.1 that there is a need to have a new IDP to inform the Local Plan itself. The current IDP was produced in 2012 and hence is not sufficiently up to date or fit for purpose for this new Local Plan. Yet the Initial Draft has been produced without any new or updated IDP proposition.
- 2.20 This is concerning in that the Initial Draft is proposing major housing allocations and Green Belt release in Brighouse without even knowing if there would or could be sufficient infrastructure in place to deal with it all. Furthermore, as explained and evidenced within the THC Technical Representation, the levels of existing congestion on the existing highway network infrastructure have been grossly understated.
- 2.21 In particular, when considering new housing allocations of the scale proposed in Brighouse, it is imperative that BEFORE proposing such an approach a clear IDP for such specific proposals must have been considered. Allocations of this scale are, by their very nature, complex propositions in terms of development delivery, notwithstanding the wider policy context.
- 2.22 There should be specific consideration of impacts on the road and infrastructure provision in the immediate and wider area with a clear understanding of the cost and development viability matters to ensure that the proposition itself is deliverable.
- 2.23 As noted, the last Local Plan viability assessment by GVA does not address the viability of the Brighouse housing allocations as it pre-dates them. Without this analysis, there is and cannot be, any understanding of whether such a proposition is deliverable and therefore appropriate. Such work should have been done before making such a

proposal in the Plan, irrespective of whether it is an Initial Draft Plan, particularly as the Sustainability Appraisal does not offer any reasonable alternative.

Green Belt and Very Special Circumstances

- 2.24 With regards to consideration of the Green Belt, the Initial Draft considers that, given the overall housing requirement derived from the Housing Technical Paper, there are very special circumstances as to why Green Belt land should now be used for addressing such housing needs.
- 2.25 The designated Green Belt is NOT a single Local Authority area designation. It is a West Yorkshire wide designation which crosses the individual Local Authority boundaries.
- 2.26 Running in tandem with this conclusion is the clear recognition in the HTP of the inherent cross-boundary interaction of Brighouse with Kirklees. Hence, it is imperative that the draft Plan should consider the following questions:
 - a. Why has a West Yorkshire wide Green Belt Review not occurred instead of being reviewed in a piece-meal fashion?
 - b. Where there is a clear cross-boundary housing market interaction would a more sustainable answer involve cross-boundary solutions?
 - c. Would such solutions have to involve Green Belt release or not. If not, then they should be preferred. If they would involve Green Belt release are they more or less sustainable than the proposed Initial Draft Plan, or would they involve the loss of less sensitive areas of Green Belt rather than loss of the most sensitive areas identified in the Draft Plan?
- 2.27 Thus far, the Initial Draft does not seek to answer these questions, yet it is made explicitly clear in the Green Belt Review Final Report (2016) at para 1.2 that cross-boundary consideration of this key strategic matter is an absolute requirement under the Duty to Co-operate.
- 2.28 This is hence a further fundamental failing of the Initial Draft. In reality the appropriate process would be for a West Yorkshire wide process of a Duty to Co-operate over a full Green belt Review. This has not happened thus far and nor has any alternative process been suggested.
- 2.29 This is further complicated by the commitment by Kirklees Council to the Bradley Park Urban Extension to assist in meeting their own housing needs. This is so close to Brighouse that there would be an obvious overlap in how the site would function in terms of a cross-boundary housing market area and further emphasises the need to co-operate between Councils.

Assuming Green Belt is Needed

- 2.30 Even if the above questions were considered and no reasonable alternatives were to be found, it then follows that the next questions must be answered:
 - a. If Green Belt sites are to be released are the most sustainable, deliverable sites actually being identified?
 - b. In any event, would such site(s) meet the objectives of the Plan?
- 2.31 In this regard, more site specific matters thus need considering.

Site Specific Issues – Green Belt

- 2.32 The Initial Draft evidence base on Green Belt (Green Belt Review 2016) identifies that the two housing allocations proposed for the Brighthouse are in the most sensitive parcels of Green Belt (see Parcel Assessment Plan).
- 2.33 The Review considers that such parcels are most sensitive to the factors of urban sprawl, merging of towns and encroachment on open countryside.
- 2.34 Hence, in the first instance significant caution should be applied to considering such releases. Full and transparent consideration should be given to whether or not less sensitive locations are potentially available and appropriate. But, even if one assumes the two sites should be considered further then more specific questions need answering and at present these are simply not addressed at all or in any way.
- 2.35 The housing allocations (Garden Suburbs) are proposed to be released under Policy IM7. The first site, referred to as "Land between Highmoor Lane and Bradford Road" (now referred to as "Thornhills Lane" (ref: LP1463); is subject to a Site Assessment Report as is the second site Woodhouse Site (ref: LP1451)
- 2.36 These Reports recognise numerous site specific factors regarding the sites. In particular they acknowledge the current Green Belt designation and core issues under the current Adopted Local Plan all of which would need to be overcome in detail.
- 2.37 There is a separate Vision for South East Calderdale Report (November 2016) which seeks to consider how both sites could be taken forward for development which we have also reviewed.

A. Flood Risk

- 2.38 The reports acknowledge that there will be flood risk issues. Despite this, no actual detailed assessment has been carried out to consider whether the proposed site releases are feasible or whether they would have a knock on effect to downstream areas.
- 2.39 There is reference to the need to employ on-site Sustainable Urban Drainage Systems (SUDS) but no detailed understanding of drainage capacities, water treatment capacity or impacts downstream. This is a necessary requirement to be able to consider the sites further. In particular the sites have areas of steep topography likely to result in significant run off. These areas also present significant challenges to the ability to achieve SUDS. The Strategic Vision document states "This (topography) is also not suitable for above ground type SUDS presents a possible flood risk in 'exceedance' events. It will also present restrictions to below ground drainage – run-off will flow quickly down the slope concentrating at the bottom."
- 2.40 The document suggests a 1-12 gradient would be feasible for house builders to develop "subject to values". However, there is no financial viability model for either proposition. Hence, this is simply an assumption that is critical to the case but is left completely unanswered.

B. Ownership

- 2.41 There is no analysis to date over ownerships and no plan as to how fragmented ownerships could be brought together to deliver the sites

C. Access/Highways/Traffic impact

- 2.42 There is recognition that there will be major highways issues arising from both sites. Significant reliance is placed on major road improvements, including to the A641 corridor and a new M62 junction 24A, with a suggestion that such matters can be addressed, but this is yet to be confirmed. In fact WSP have confirmed in answer to specific questions raised by TTHC on behalf of the Forum that other than the A629 Corridor improvements, no other highways schemes have been included in the 'with development' or 'do something' scenarios. They state **"No further schemes have been included due to lack of detail at this stage as well as uncertainty of funding."**
- 2.43 As noted earlier in this submission, we have provided detailed comments on all highway matters within the TTHC document at Appendix 1.
- 2.44 WSP have produced several Technical Notes which address the transport implications of the developments proposed in the Local Plan. The Forum believes it is crucial to point out that one of these, REPORT NO 70024842 – TS1 STRATEGIC VISION FOR SOUTH EAST CALDERDALE - TRAFFIC STATEMENT, was produced in October 2016, in time for a report to the Local Plan Working Group on the findings and conclusion of the Strategic Vision for South East Calderdale. At para 1.1.2 the WSP document stated that its main purpose **"is to set out the traffic modelling work that has been carried out to support the Strategic Vision for South East Calderdale and the Masterplan."** At para 5.2.4.1 it included the conclusions, in respect of the 2014 base and 2032 forecast years, that **"In overall terms the analysis shows that the network operates in a reasonably satisfactory manner in the base situation. As with most towns with a historic road network such as Brighouse, there are some issues with capacity at peak times and these have been identified in the SATURN modelling. The Forecast situation takes account of some local highways improvements being implemented and the Local Plan housing allocations being built out. The resulting impacts are not particularly onerous."**
- 2.45 The only highway improvements taken account of by WSP are the introduction of the all-movements signalised junction at Mill Lane (Sainsbury's) which has already been delivered anyway, with no material positive mitigation of acute peak period congestion. The network within Brighouse currently operates at a severe level during the morning and evening peaks.
- 2.46 The Traffic Statement therefore effectively says that the existing Brighouse highway network is operating satisfactorily and that with no further highway improvements over and above the Sainsbury's junction and signals, it will continue to operate without any particularly onerous impacts, when the traffic from up to 6,000 houses and a substantial amount of employment development is added. This was the document produced a few weeks before the Planning Service Lead informed the Local Plan Working Party of his conclusion in a written report presented on 7th December 2016, that **'The Strategic Vision for South East Calderdale has demonstrated that technically it would be possible to deliver additional homes to the south and east of Brighouse. In order to meet the numbers of allocations that are necessary. It also demonstrates that these homes can be delivered in a manner that is well connected to existing and potential infrastructure.'**
- 2.47 The Forum is gravely concerned that this set of conclusions do not stand up to any scrutiny at all, let alone detailed professional scrutiny.
- 2.48 This WSP document appears to have been the basis on which WSP and in turn officers were satisfied between October – December 2016 that the major housing and employment allocations in Brighouse could be satisfactorily accommodated on the existing highways network of Brighouse and advised Members of the Local Plan Working Group accordingly.

- 2.49 The Forum is concerned that this document, having underpinned the decision of the Working Group, is then not referred to in any of WSP's subsequent Technical Notes produced in 2017 and asks why, when it must have been the basis for WSP and officers advising Members in December 2016 that the major allocations **"can be delivered in a manner that is well connected to existing and potential infrastructure"**?

D. Ground Stability

- 2.50 The sites are subject to ground stability issues. There has been significant past mining activity underground and according to Coal Authority records, substantial areas of the sites are affected. The sites are also in a minerals safeguarding zone. These factors are likely to reduce substantially the extent of the sites which would be developable and would impact on viability of those areas which may be developable. None of this has been considered by the Site Assessment Reports or the Strategic Vision Document, which supposedly explored on behalf of the Council, constraints to development.

E. Landscape / Trees

- 2.51 The Vision document does allow for areas of landscape and ecological areas. However, this fails to establish the actual landscape and visual impact of the proposed developments on the current urban area and surrounding wider green landscape.
- 2.52 Without this assessment it is impossible to consider how the scheme would perform on this vital function. This is also inherently linked to the historic factors as flagged up by Historic England.

F. Viability

- 2.53 The Vision document offers the following proposition on page 15:

"These constraints need to be put into context: residential developers will tackle sites significantly in excess of 1 in 12 if the values are there. The constraints described above can be satisfactorily addressed and development is viable where land value or a more philanthropic approach to development warrants the additional cost. Typically therefore the delivery model would not be through volume house builders and development density would be reduced."

- 2.54 The above statement clearly and undeniably demonstrates the complete lack of actual viability assessment to date of either site. The constraints referred to (which we have considered above) are ALL significant impacts on viability and must be properly assessed to even consider if the proposition is actually achievable.
- 2.55 In context, these are the largest single site releases proposed for the Plan. Without them the Plan fails. The above extract from the Vision document does not make sense either as explained below.
- 2.56 The "additional cost" is a necessity not an option. There is no understanding of what this actually entails. Hence, there is no understanding of the likely impact on land values, if indeed a real land value is generated. To suggest that volume house builders are open to a more philanthropic approach to development fails to recognise the reality that increasingly such developers are having to seek to renegotiate s106 agreements for example in respect of affordable housing obligations because of ever increasing viability issues.

- 2.57 Notwithstanding this, there is a suggestion of an alternative delivery model, but this is not explained. It is also not explained as to how development density would be reduced – noting that this would impact anyway on actual ability to achieve housing numbers in the first place.
- 2.58 The proposed masterplans for both sites envisage substantial facilities such as schools, Again, there is no viability proposition as to how such facilities will be paid for.

G. Long Lead in Times

- 2.59 All of the above items will mean that there will be a complex series of steps to go through to start to develop either of the sites such that they could contribute meaningfully to the Local Plan in terms of housing numbers. The Plan end date is 2032. This is 15 years from now.
- 2.60 The Plan itself may take a further 3 years to be adopted. Land ownerships would need consolidating and could take a further 3 years. A suitable planning application process would be needed along with all detailed site reports. This could take a further 3 years with a further year to build out the first houses. This is a reasonably optimistic process compared to other comparable land release processes.
- 2.61 Hence, the earliest date the sites would contribute to the housing supply would be in 10 years' time, leaving only five years to deliver 3183 houses. This is simply not feasible. Even if both sites were released today, this would need an annualised delivery of 106 units on each site running in parallel every year. Again, even this is unfeasible compared to industry standards.

Clifton Park Enterprise Zone

- 2.62 The site was designated in the Replacement Calderdale Local Plan which was adopted in 2006 (Site EM42). That Plan was first proposed in 2000 and the site was seen as being a premium employment site that met criteria to be seen as regionally significant and restricted to B1 (a) and (b) uses only.
- The Employment Update (2008 by R Tym) suggested the site come forward still as a B1 office park.
- 2.63 Employment Land Review 2012 –The site was still not taken up but the review noted constraint of motorway junction and access. The site has again been reviewed in the NLP Employment Land Study (August 2017) and noted as a priority for the Council and the LEP to bring forward urgently.
- 2.64 However, it is now 17 years since the site was first proposed and positively promoted through the Local Plan process without development coming forward. Throughout this process, it would appear that there has been no proper viability analysis of the site.
- 2.65 It is only as recently as this year that site investigations have been taking place to establish the impact of shallow mining activity from the past. These results are thus far not available.
- 2.66 The site is proposed as a designation (ref LP1232) under Policy SD5. The Site Assessment concludes the following with regards to highways:

“The proposed site is larger than Highways England had initially included in their modelling, and so the model now significantly underestimates the potential effects of allocating this site, and committed schemes such as smart motorway will not mitigate

*the effects of allocating the site. Highways England are working with CMBC to understand the implications of the (larger) site and to identify mitigation measures which may facilitate its development. But as committed schemes may not provide enough mitigation, developers of the site may have to deliver or contribute to delivering required mitigation. This should be included in IDP. Suggest site is delivered later in the plan period. Categorised AMBER - **but almost a red.**"*

- 2.67 At present this conclusion alone means there are significant doubts over its ability to be delivered. Even if wider strategic improvements could be achieved, then there would still be a major viability issue over site specific contributions.

- 2.68 Despite this major obstacle the Site Assessment concludes, without further justification or explanation, that it is a "relatively unconstrained" site. Without a clear viability assessment and how the site could be properly accessed – there is a suggestion of an "alpine style" routing through the site – then the site cannot be seen as being deliverable in the Plan period. The Draft Plan does not substantiate in any way the claim the site is relatively unconstrained.

- 2.69 In addition, there has been no detailed Flood risk analysis to demonstrate that there would be no onward impact on flooding in the wider urban area.

- 2.70 Finally, in market terms, the site sits in a zone which is readily acknowledged by all of the Employment Land review studies as being most attractive for industrial and logistics users. The site has not historically been proposed for these uses.

- 2.71 This Draft Plan does now suggest use for logistics purposes, but there is no market analysis and the topography is such that with the necessary "alpine style" approach, it cannot possibly accommodate logistics sheds of sufficient floor area to meet the current requirements of this sector. Whilst it may be understandable that the Council may seek to diversify its employment base, this does not correlate again with the forecast employment growth for Brighouse, nor with the underlying market position of the site itself as commented upon earlier.

3.0 Conclusion

- 3.1 We would reiterate that the Forum do not come from a position of simply seeking to block development and that there is a full understanding that there will inevitably be some development that is justified and necessary in the area. Accordingly, they have attempted to approach this consultation in a way which could help to shape and amend the planned proposals.
- 3.2 However, because the Initial Draft Plan has been prepared thus far without a sound rationale or co-ordinated evidence base, this has simply not been possible. As a result the proposals in the Plan cannot be seen to be credible and the Forum is therefore left with no alternative but to outline, explain, justify and evidence its fundamental and significant concerns. There is no apparent way that the draft Plan in anything near its present form can overcome these concerns.
- 3.3 What is proposed in the Plan does not align with the evidence base that is available to date, notwithstanding the above problem. It further does not align with its own strategic objectives. The Plan proposes a significant change in the proportion of green field versus brownfield land being used. This does not align with Strategic Objective 4.
- 3.4 The Plan proposes such significant incursions into the Green Belt on the most sensitive sites that it cannot align with Strategic Objective 5 to protect and enhance green infrastructure and the natural environment.
- 3.5 The Plan proposes major developments where infrastructure is entirely lacking and unplanned/not committed, without any clear or up to date Infrastructure Delivery Plan. Hence, it cannot align with Strategic Objective 7 regarding transport and providing sustainable solutions.
- 3.6 The Plan does not address specific cross-boundary matters of major significance which again are noted in the evidence base to date. There is no co-ordinated approach to considering the Green Belt across neighbouring authorities nor how genuine market, transport and other spatial interactions occur. The simplistic approach of each Local Authority meeting its own needs fails to recognise the realities of market and travel interactions across arbitrary Local Authority boundaries. This will lead to an unsustainable pattern of development and travel demand and must be fatal to the sustainability of the Draft Plan as a whole.
- 3.7 The spatial distribution of development is deeply flawed and again does not align with the evidence base as set out.
- 3.8 There are major site specific problems with specific identified Green Belt housing allocations and employment allocations around Brighouse that need to be properly addressed to even contemplate being released.
- 3.9 Such is the impact of these sites on the whole plan Strategy that we consider that the whole Local Plan process and evidence base needs completely reviewing and a new Plan formulating alongside the essential Infrastructure Delivery Plan. The Forum will of course welcome involvement in the formulation of a suitably evidenced plan alongside the necessary Infrastructure Delivery Plan.

Appendix 1 Transport Representation

CALDERDALE LOCAL PLAN – INITIAL DRAFT

TRANSPORT REPRESENTATION

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1.0 INTRODUCTION AND BACKGROUND

- 1.1 This Transport Representation (TR) has been produced on behalf of the Clifton Village Neighbourhood Forum (CVNF) to provide an examination and critique of the transport implications relating to proposed allocations within the Calderdale Local Plan Initial Draft (CLPID) 2017, which has been published for consultation.
- 1.2 This TR focuses on the proposed allocations within Brighouse and specifically on key issues relating to the **Thornhills** site, which is situated in Green Belt.
- 1.3 The largest town in Calderdale is Halifax, which provides both the largest existing housing and employment stock within the Borough. It provides the main focus for public transport with good links to Leeds, Manchester, Bradford, Huddersfield, Blackpool and London.
- 1.4 Brighouse is the second largest town within the Borough and has more limited public transport capabilities as well as a more limited and constrained highway network, despite its proximity to the M62.
- 1.5 For context, **Table 1** below outlines the proposed distribution of proposed housing growth set out within the CLPID:

Distribution of Housing Growth by Local Plan Area				
Local Plan Area	New Housing Allocations	Planning Permissions	Windfalls	Total
Halifax	4,351	737	631	5,719
Brighouse	5,550	356	163	6,069
Elland	2,472	208	179	2,859
Sowerby Birdge	432	273	18	723
Hebden Bridge	149	86	20	255
Todmorden	354	289	156	799
Mytholmroyd	220	63	21	304
Northowram & Shelf	1,902	78	18	1,998
Ripponden	132	121	168	421
Totals	15,562	2,211	1,374	19,147

Table 1

1.6 As shown, compared to other Plan Areas within the Borough, Brighouse has been identified to provide the highest overall new housing stock, accounting for around a third of the overall total (ie 6,069/19,148). Of this total, the majority are situated on the eastern side of the town centre, with the proposed Green Belt sites of Thornhills and Woodhouse on their own accounting for more than half at 1926 and 1223 dwellings respectively.

1.7 A similar pattern exists across the Borough in respect of the proposed distribution of employment land. **Table 2** below outlines how the Council propose to allocate this land.

Distribution of Potential New Employment Allocations by Local Plan Area					
Local Plan Area	Gross Area (ha)	Net Developable Area (ha)			
		Brownfield	Greenfield	Mixed	Total
Halifax	27.62	5.92	14.03	0.24	20.19
Brighouse	36.88	3.12	29.15	0.52	32.79
Elland	18.51	3.03	12.43	3.03	18.49
Sowerby Bridge	3.98	0	3.55	0	3.55
Totals	86.99	12.07	59.16	3.79	75.02

Table 2

1.8 As shown, compared to other Plan Areas within the Borough, Brighouse has been identified to provide over 40% (ie 36.88/86.99 ha) of the overall land for employment use and almost 50% (ie 29.15/59.16 ha) of the greenfield total (more than twice that of any other area).

1.9 It is important to have regard to the scale and distribution of the proposed allocations when considering the transport and highway assessment work and the location of mitigation and improvements to address impacts.

1.10 Supporting information has been produced on behalf of the Council which has been used in the preparation of the CLPID.

1.11 With respect to the transport implications of the proposed allocations, assessments have been undertaken by consultants WSP. These

assessments have been high level', utilising a Strategic Transport Model covering a wide geographic area.

- 1.12 CVNF has been informed by WSP that the model was focussed on the A629 (Halifax to Huddersfield) corridor. By definition, and as will be demonstrated, it is highly unlikely that such a model can be sufficiently accurate in other distant locations to be relied upon to the extent necessary to establish (with sufficient reliability) existing levels of congestion in areas such as Brighouse and, indeed, how this part of Calderdale might function in the future.
- 1.13 Model suitability and robust assessment in this location is especially important when considering the disproportionately high scale of housing and employment development proposed for Brighouse.
- 1.14 This TR provides an outline review of the work which WSP has currently undertaken, with particular focus on the transport implications surrounding Brighouse.
- 1.15 In order to provide CVNF, and in turn Calderdale Council (CC), with a more accurate and fit for purpose representation of existing highway network conditions in Brighouse and details of the impacts on those conditions of the significant development suggested within the Draft Plan, TTHC has carried out journey time surveys and commissioned Automatic Traffic Counts (ATCs).
- 1.16 These surveys have been used to gather data on existing traffic flows, delays and queuing through key nodes on the highway network which will be directly affected by the proposed Thornhills housing allocation (garden suburb). This is crucial information because a high proportion of the significant peak hour traffic generated by the proposed housing and employment allocations will have no alternative but to route through these nodes.
- 1.17 The next section of this representation relates to the data collected and observations made by TTHC.

2.0 TTHC SURVEYS AND OBSERVATIONS

General Observations and Existing Conditions

- 2.1 Brighouse is situated to the west of the M62 and to the east of Halifax as shown in **Figure 1**. The most direct connection to the M62 is via the A644 Wakefield Road at Junction 25.
- 2.2 The A644 passes through central Brighouse and on towards Hipperholme to the north-west. Other routes which pass through the centre of Brighouse are the A643, which passes the proposed Thornhills allocation as Highmoor Lane, and runs north-east to south-west, and the A641 which passes the allocation to the west as Bradford Road and which runs broadly north to south.
- 2.3 There is a further radial connection with the centre of Brighouse which is formed by the A6025 Elland Road which routes from the west only.
- 2.4 With the exception of the eastern end of A644 Wakefield Road which is a dual carriageway, all of these routes are single carriageway roads which meet within the centre of Brighouse mostly via a collection of roundabouts of various sizes and standards.
- 2.5 There are only two signal controlled junctions within the centre, the first of which is formed where the A641, A643 and A644 meet (the Huddersfield Road / Wakefield Road junction). The other signal controlled junction exists at the A641 Huddersfield Road / Mill Royd Street junction (Sainsbury's).
- 2.6 Owing to existing congestion these junctions within the centre of Brighouse form the area which is subject to Air Quality Management. The AQMA in Brighouse has existed for the last 10 years.
- 2.7 Around the time the AQMA was established, CC commissioned Mouchel Consultants to undertake a 'Brighouse Traffic Management Review'. This review examined traffic management issues within Brighouse town centre and

included the development of a micro-simulation traffic model, using VISSIM software. A micro-simulation model is better suited (than a strategic model which focuses on an out-of-town corridor) to the assessment of congested urban situations such as that which exists in Brighouse. Indeed, an updated version of this VISSIM model would appear to be a far more suitable tool with which to examine the implications of CC's proposed allocations for Brighouse.

- 2.8 Mouchel's study, which was undertaken in 2007, identified that the 'Peak Hours' actually extended to almost two hours in the morning (0715 to 0900hrs) and to two hours in the evening (1600 to 1800hrs).
- 2.9 TTHC are familiar with the day to day conditions which exist in Brighouse and would note that typically this congestion has now spread beyond these periods.
- 2.10 From around 0700hrs queuing starts to build within the centre and does not disperse until beyond 0900hrs. The heaviest queuing occurs to the eastern side of the town centre (ie the side where the largest two allocations are proposed – Thornhills and Woodhouse).
- 2.11 A degree of congestion essentially remains throughout the day but the evening peak queuing and delays start to build from around 1500hrs and doesn't disperse until after 18:30hrs.
- 2.12 In practice, on the ground, this means slow moving and static queuing traffic on the approaches to all of the main town centre junctions. With respect to the roads onto which the Thornhills Site is proposed to take access, these conditions extend to around 600m from the centre along both A641 Bradford Road and A643 Highmoor Lane. The worst of the congestion and delay is also experienced on the eastern-side of Brighouse with slow moving queuing traffic extending to around 1km on the A644 Wakefield Road.
- 2.13 More detail in respect of these existing conditions is provided in connection with the journey time surveys later within this section of the TR. However, it is

clear from the Mouchel study and the presence of the AQMA that for at least the last ten years there has been and remains a recognised congestion issue for Brighouse which remains unresolved. TTHC would describe these conditions as severe.

- 2.14 To a degree, the prevailing congested conditions are also recognised within some of the literature which sought to inform the CLPID. Within the Site Assessment Reports (SARs) for the proposed Thornhills and Woodhouse allocations, traffic congestion, highway capacity and poor access are noted as matters counting against the site. Specifically in relation to proposed allocation at Thornhills, the SAR notes that:

'It is likely to have significant traffic impact flows in central Brighouse and on the strategic road network when fully developed. Several junctions are likely to require mitigation.'

Up to date Automatic Traffic Counts

- 2.15 In order to obtain a more detailed breakdown of traffic flows and peak period volumes on critical parts of the local highway network, TTHC commissioned ATC surveys, commencing on the 16th September 2017 for a period of one week.
- 2.16 ATCs were installed on the following roads:
- A641 Bradford Road (North of Russell Way);
 - A643 Highmoor Lane (to the South of Jay House Lane), and
 - A644 Wakefield Road (West of Locksley Road).
- 2.17 The location of each of the ATC counters is shown in **Figure 1**.
- 2.18 Given the time constraints of the consultation period the ATCs had to be installed at the end of the school holidays. It is noted that throughout the consultation period the A649 Wakefield Road to the west of the A641

Bradford Road / A649 Birkby Lane junction in Bailiff Bridge (to the north of Brighouse) was closed due to highway works.

- 2.19 Nevertheless, the data collected has been compared against the peak hour ATC totals used with the WSP assessment work for the Council, to determine whether these roadworks have had any significant bearing on the volumes of traffic on the critical sections of the highway network in Brighouse.
- 2.20 From the ATC Data a weekday average has been calculated for each road in both directions. A full copy of the ATC Data is presented in **Appendix A** and summary comparisons with the CC and WSP data provided in the next chapter of this TR.

Journey Time Surveys

- 2.21 The SATURN Model validation report discussed in the next chapter provides journey times for 16 different routes across the Borough. Of the 16 routes, 3 pass through central Brighouse.
- 2.22 Journey time surveys have been undertaken by TTHC which cover these 3 routes plus additional routes across Brighouse town centre. The aim of the surveys has been to compare the results with the times presented in the WSP report and to then provide further detail in respect of what in practice these times mean in terms of the existing performance of the highway network.
- 2.23 The journey time surveys were undertaken on Wednesday 13th and Thursday 14th of September 2017 in both the AM and PM Peak periods. The AM peak period runs were each commenced between 0715hrs and 0915hrs and the PM peak period runs were each commenced between 1615hrs and 1815hrs.
- 2.24 Each route was surveyed twice in each peak for both days.

- 2.25 Plots and details of the 3 journey time routes are attached in **Appendix B**. These can be compared directly with the surveyed results presented in Appendix E of the validation report.
- 2.26 As shown, the TTHC surveys are mostly well-matched with the journey times recorded for model validation purposes. The only exception to this is in respect of the approach into the centre of Brighouse on WSP Route 11 westbound (on the A644 Wakefield Road), whereby the TTHC journey is much slower in both peak periods. This indicates a significant worsening of conditions on this particular approach.
- 2.27 Plotting the journey times in the manner adopted by WSP doesn't easily enable details of what these journeys mean in terms of speeds and delays on component parts of the network, which of course means it is not clear what levels of congestion prevail and precisely where this occurs. The TTHC journey times can be interrogated in more detail by speed for each section such that these details are more obvious. These are discussed below.
- 2.28 In examining these details, the TTHC surveys also have the benefit of an additional 4 routes which were travelled across Brighouse town centre. From the 7 routes surveyed in total, plots have been produced to show the average speeds observed during the two hour peak periods along the highway network. It should be noted that these do not represent the worst journey times experienced in each of the peaks but the average across a two hour period. The plots are presented for AM and PM peaks in **Appendix C**.
- 2.29 As shown, the journey time plots demonstrate there are sections of the highway network in and on the approaches to the centre of Brighouse where speeds of less than 5mph exist, which indicates that some parts are moving at walking pace. Any parts below around 15mph generally indicate slow moving queuing conditions.
- 2.30 Examining the routes which would be taken from the Thornhills site through Brighouse, it can be seen that in the AM peak period, the Highmoor Lane

route (TTHC Route 6) into the centre is almost entirely undertaken at less than 5mph over a distance of almost 1km. The Bradford Road route (TTHC Route 1) is slightly quicker but this is still subject to slow moving queuing conditions over a distance of in excess of 800m.

- 2.31 The Wakefield Road route (TTHC Route 3) is also particularly slow in the AM peak period over a distance of around 800m.
- 2.32 The central sections of each route contain mostly shorter sections of highway, however, these are equally poor in terms of journey speeds. Overall, these journeys demonstrate significant and severe AM peak period congestion.
- 2.33 In the PM peak period, the Highmoor Lane route (TTHC Route 6) remains slow with speeds not exceeding 10mph heading into the centre of Brighouse. The Bradford Road route (TTHC Route 1) is slightly slower than in the morning peak with journey speeds not exceeding 15mph.
- 2.34 The Wakefield Road route (TTHC Route 3) is particular poor in the PM peak period with essentially walking pace speed into the centre for a distance of around 800m.
- 2.35 Again, the central sections of each route also remain poor in terms of journey time performance and overall the position demonstrated by the journey times is again one of significant and severe PM peak period congestion.
- 2.36 It should be remembered that these are existing observed speeds before the addition of traffic which would be generated by the proposed allocation of over 6,000 dwellings and almost 37 hectares of employment land within Brighouse alone and that these allocations would all unavoidably load significant additional traffic onto these severely congested routes. It should also be remembered that these are average speeds over two hour periods, within which in practice there are long periods during which traffic stands in long, often static queues.

3.0 REVIEW OF THE SATURN VALIDATION REPORT

Calderdale Strategic Transport Model Update - 'Local Model Validation Report' (October 2016)

- 3.1 WSP had been commissioned by Calderdale Council under the West Yorkshire plus Transport Fund (WY+TF) to update the existing Calderdale Strategic Transport Model (CSTM) to represent 2014 travel patterns and highway network conditions, to enable assessment of the proposed developments and infrastructure schemes.
- 3.2 The 2014 validation position provides the 'starting point' of the model before future additional demand is added.
- 3.3 The updated CSTM covers the road network within Calderdale and also Kirklees and Bradford. However, as has been established, WSP has advised that the model focuses on the A629 (Halifax to Huddersfield) corridor.
- 3.4 The validation report details the data used to develop the model and the calibration and the validation of the traffic model against WebTAG criteria to represent the 2014 observed traffic levels and routeing behaviour.

Observed Traffic Flow Data

- 3.5 The validation report provides traffic flows on the key routes into and out of Brighouse. The TTHC 2017 ATC data has been compared with the 2014 ATC data used for the CSTM at the same locations, which are shown in **Figure 1**.
- 3.6 **Tables 3 and 4** below show the comparison of the different sources of ATC data.

AM PEAK		TTHC ATC Data	SATURN Validation report – ATC Data
Road	Direction	Weekday Average	Observed
A641 Bradford Road	NB	730	741
	SB	711	690
A643 Highmoor Lane	NB	360	378
	SB	296	335
A644 Wakefield Road	WB	368	466
	EB	747	618

Table 3 Comparison of ATC Traffic Flows AM Peak Hour (Vehicles)

PM PEAK		TTHC ATC Data	SATURN Validation report – ATC Data
Road	Direction	Weekday Average	Observed
A641 Bradford Road	NB	797	763
	SB	784	861
A643 Highmoor Lane	NB	367	405
	SB	446	364
A644 Wakefield Road	WB	373	443
	EB	754	769

Table 4 Comparison of ATC Traffic Flows PM Peak Hour (Vehicles)

3.7 As shown, the TTHC ATC data compares reasonably well with the Saturn Validation Report ATC data. There is a slightly lower flow in the TTHC ATC data in the AM Peak for the southbound direction of the A643 Highmoor Lane but a higher one in the PM Peak.

3.8 A point worth noting is that the westbound flow on be A644 Wakefield Road is lower in both peaks in the TTHC counts. By reference to the journey time information discussed earlier, we know that the delays experienced during the TTHC journey time surveys were greater than those recorded by WSP. It is

believed that the increased delay (as a consequence of worsening congestion) has reduced the 'throughput' of traffic on this particular link.

3.9 The WSP data indicates the 'demand' for this section of road during the AM and PM peak hours, whereas the TTHC data shows what is currently able to pass in those hours now, in 2017.

3.10 Overall, with the exception of this westbound direction on the A644, the 2014 ATC data adopted within the Validation Report appears to be broadly reflective of the current position.

Modelled Traffic Flows

3.11 **Tables 5 and 6** below show the comparison of the Saturn Validation ATC flows against the modelled flow for the area close to the Thornhills Site. This comparison enables the validity of the model to be examined for the highway network most critical to the proposed Thornhills allocation.

AM PEAK		SATURN Validation Report	
Road	Direction	Observed	Modelled
A641 Bradford Road	NB	741	682
	SB	690	620
A643 Highmoor Lane	NB	378	377
	SB	335	399
A644 Wakefield Road	WB	466	470
	EB	618	490

Table 5 Comparison of Observed vs Modelled AM Peak Hour Flows

3.12 As shown, in the AM Peak, the modelled flows for 3 of the 6 directions and links are lower than the observed level of flow. This underrepresentation ranges between around 10% and 20%.

PM PEAK		SATURN Validation Report	
Road	Direction	Observed	Modelled
A641 Bradford Road	NB	763	709
	SB	861	765
A643 Highmoor Lane	NB	405	410
	SB	364	345
A644 Wakefield Road	WB	443	337
	EB	769	884

Table 6 Comparison of ATC Traffic Flows PM Peak Hour (Vehicles)

- 3.13 With respect to the PM Peak, the modelled flows for 4 of the 6 directions and links are lower than the observed level. This underrepresentation ranges between around 5% and 24%.
- 3.14 This reveals that as an overall position, the model used by WSP is generally understating the level of 'existing' demand on the network at critical locations in Brighouse, prior to the addition of any future increases due to background growth and Site allocations.
- 3.15 This needs to be remembered when considering development implications on the network, because the modelled 'starting point' traffic demand (in 2014) is essentially and materially lower than that which has been observed and recorded. This in turn will understate the absolute demand and conditions of future scenario testing, details of which are discussed in the next section of this TR.

4.0 REVIEW OF OTHER WSP DOCUMENTS

4.1 The technical consideration of the proposed allocations is set out in the two key WSP documents listed below:

- Strategic Vision for South East Calderdale – Traffic Statement (Oct 2016)
- Technical Note 4 – Assessment of Cumulative Impact (May 2017)

4.2 The Strategic Vision Traffic Statement relates directly to the allocations on the eastern-side of Brighouse, namely; Thornhills and Woodhouse, whereas Technical Note 4 deals with the wider area of the Calderdale Borough.

4.3 Earlier Technical Notes were also produced by WSP in June and July 2016 but these were prior to the updated Model Validation work and so are not referred to within this TR.

Strategic Vision for South East Calderdale – Traffic Statement (Oct2016)

4.4 The Traffic Statement (TS) was published in October 2016 in time for a presentation to the Local Plan Working Group of the Strategic Vision for South East Calderdale. It sets out the background to the Sustainable Urban Extension Sites (Thornhills and Woodhouse), access to sustainable modes of transport and highway infrastructure improvement which are coming forward.

4.5 Paragraph 1.1.2 of the document states its '*main purpose is to set out the traffic modelling work that has been carried out to support the Strategic Vision for South East Calderdale and the Masterplan.*'

4.6 It should be noted that the modelling work for this TS relates solely to the residential component of the proposed Thornhills and Woodhouse allocations. None of the employment uses or other major allocations are included within the modelling.

Local Highway Network and Accessibility

- 4.7 Under the sub-heading of ‘The Operation of the Local Highway Network’, at paragraph 2.2.2.1, it is stated that:

‘In central Brighouse, the junctions that make up the through-route on the east side of the town are close to capacity. These include the junctions where the A641, A644 and A643 meet, with the inbound A644, inbound A643 and the junction of the A641 having the worst delays.’ [TTHC emphasis added]

- 4.8 It is clear that based on the evidence already referred to, the above locations are at and significantly over capacity (not close to as suggested by WSP) and are in fact operating under severely congested conditions.

- 4.9 Section 2.3 of the TS describes some of the issues in respect of accessibility. This is consistent with the Site Appraisal Report (referred to in Section 2 of this TR) which notes that:

‘The Site is not currently scoring particularly well in accessibility terms, but it could be made much more accessible given the scale of the potential development.’

- 4.10 None of the supporting documents provide any details of suitable mitigation and improvement to demonstrate how the Site could be made to be acceptable in accessibility terms. This is particularly important for a Site such as Thornhills which suffers from significant topographical difficulties.

Development Assumptions

- 4.11 The TS suggests that the Thornhills Site would deliver some 1926 dwellings but there is no reference to the consideration of the significant employment proposals for the Site. Although there are later references to what is a significant employment component, this has not featured in the development

trip generation assessments nor, seemingly, in any consideration of off-site highway impacts on the heavily congested network.

Access

- 4.12 With respect to access for residential purposes, from the western side of the proposed Thornhills allocation, vehicular access is proposed from the west via A641 Bradford Road along Thornhills Beck Lane. The TS recognises, however, that this access is restricted because of existing buildings, the beck and disused rail infrastructure and so suggests an alternative access via an upgraded junction to the north at Calder Industrial Park. No further details are provided regarding the ability for such access to be delivered.
- 4.13 The junction of Thornhills Beck Lane with A641 is a simple crossroads arrangement junction. Along the A641 (northbound) there is currently no right turn storage for traffic turning into Thornhills Beck Lane and so capacity is limited. This is a concern due to the proposed number of dwellings which are expected to be served with the potential for queuing which will block through traffic along the A641(northbound).
- 4.14 Thornhills Beck Lane is subject to 30mph. There are footways on one side of the road from the A641 junction as far as the ford. After the ford the road narrows and there are no footways. There is street lighting only up to the railway bridge.
- 4.15 The WSP document states *“the easiest access to the site is from the wide A643 to the north east via Jay House Lane”*. Jay House Lane is a very narrow road, mostly single track, with no footways or street lighting and is derestricted. The road is also unsuitable for heavy goods vehicles and has forward visibility issues at particular sections along the lane, including on the immediate approach to its junction with the A643. Such limitations and safety concerns are not referenced by WSP.

- 4.16 The A643 meets with the A649 Halifax road to the north of the Site. The document states the layout of the A643 / A649 junction 'does not comply with modern day standards but operates satisfactorily at present'. With the additional proposed traffic this may have a significant operational effect at the junction.
- 4.17 There are two other possible access points off the A643, via either Cam Lane or Thornhills Lane, which the TS makes reference to.
- 4.18 Cam Lane is a single track access serving only a small number of dwellings.
- 4.19 Thornhills Lane is a residential access road and so has some potential.
- 4.20 However, with respect to these potential access points, the TS notes that:
- "...these options concentrate traffic onto a single road into Brighouse [A643] and onto numerous junctions which are already operating with limited capacity".*
- 4.21 These junctions which WSP suggest are operating with limited capacity are amongst those which have been shown earlier in this TR to be operating well over capacity.
- 4.22 The final potential access point the document refers to for the Thornhills Site is a track from Woolrow Lane to the north of the Site. Woolrow Lane, and its continuation of Birkhouse Road, is again restricted to single track with no pedestrian provision and forward visibility issues.
- 4.23 Based on the details in the TS, it has not been demonstrated that the Site is capable of achieving suitable access provision in order to serve almost 2000 dwellings.
- 4.24 All of the suggested potential access points are subject of significant constraints and there is no suggestion how these would be overcome.

Off-Site Highway Mitigation

4.25 With respect to off-site highway mitigation, paragraph 3.4.13 states that:

“The West Yorkshire Plus Transport Fund programme includes three potential transport investment projects that would, if delivered, support the delivery of the two urban extension sites.”

4.26 The schemes referred to are:

- A641 Bradford – Brighouse – Huddersfield (seeks to improve traffic flows between Bradford and Huddersfield, although no information is provided as to what the scheme entails);
- A644 Improvements (delivery of a new link road from Bradley Road to the A644 to serve another housing allocation – Bradley Golf Course), and
- M62 Junction 24a (delivery of a new motorway junction, which would potentially influence the A641 scheme, although it is recognised that the merits of the scheme have not been examined in any detail).

4.27 No information is provided on these schemes in terms of timescale and deliverability. Although there is further reference to the above schemes in the WSP November 2016 Strategic Vision document (which has seemingly been informed by the TS), there is no evidence to suggest that these improvements have been satisfactorily assessed and evaluated.

4.28 Only the first and third schemes would be likely to have any bearing on traffic movements on the network around the proposed Thornhills allocation. However, it is clear that there has at best been only very limited assessment of these and although they are being presented as ‘potentially’ assisting the proposed allocations, there is simply no evidence to confirm that this would be the case. In fact WSP have informed CVNF that no highway schemes other than the A629 corridor scheme (phases 1a and 1b) have been included in

their modelling “due to lack of detail at this stage as well as uncertainty of funding”.

- 4.29 The allocation for Thornhills has been promoted in advance of confirming that it is even capable of being successfully accessed and mitigated for the unavoidable impacts the proposals would have on an already severely congested highway network.
- 4.30 Given the extremely limited information which has been evidenced to support the proposed allocation, TTHC has sought to quantify the residential impacts on the existing highway network through further technical assessment. Details of this exercise are referred to later within this TR.

Traffic Modelling

- 4.31 Limited traffic modelling has been undertaken by WSP using the CSTM SATURN model referred to in Section 4 of this TR.
- 4.32 The TS reports that the SATURN model assumed there would be a total of 6,736 dwellings for Brighouse (which is slightly higher than the Local Plan total of 6,069 dwellings) but that of this total the ‘sustainable urban extension sites’ within Brighouse would comprise 2,854 dwellings, the assumption being:

Site Ref	Location	Area	Modelled Dwellings
LP1451	Land between, Bradley Wood and Woodhouse	Brighouse	766
LP1452	Land between Dewsbury Road, Pinfold Lane and New Hey Road	Brighouse	165
LP1453	Land Off Lillands Lane	Brighouse	214
LP1463	Land between Highmoor Lane and Bradford Road (Thornhills)	Brighouse	1709

Table 7 Modelled Dwellings in Brighouse

4.33 Para 5.1.1.6 of the TS states:

“the masterplanning process has shown that the Thornhills Lane site can deliver 1926 dwellings and the Woodhouse site can deliver 1223 dwellings. This gives a total of 3149 dwellings which is 295 dwellings greater than the 2854 which have been modelled. Hence, modelling underestimates the size of the Sustainable Urban Extensions by some 10%.”

4.34 However, the total tested in **Table 7** above includes two sites (165 dwellings and 214 dwellings) which are on the western and south-western sides of Brighouse. Based on the dwelling numbers in the table it shows the model has assumed a total of 2,475 dwellings on the eastern side of Brighouse for the Thornhills and Woodhouse combined, which is actually underestimating by more than 20%.

4.35 In terms of vehicle trips (based on WSP’s trip rates) this would equate to approximately 290 trips not assigned to the network in both the AM and PM peaks. This of course is only the under-estimate in respect of the residential components and does not include for the lack of assessment of the employment components.

4.36 Para 5.1.1.7 seeks to suggest that this variation in dwelling numbers is relatively minor in the context of the Local Plan and the long timescale for delivery and that it will not affect the conclusions of the strategic modelling which has been carried out. However, given the circumstances of very critical levels of congestion which already exist and the need to identify suitable mitigation to address the impacts of the proposed allocations, these differences are very significant.

4.37 With regard to this future scenario modelling (which has been undertaken for the year 2032), this includes the following highway improvement works.

- 4.38 It should be noted that these works have been implemented since the 2014 validation year model and so strictly are part of any Baseline scenario – these schemes do not represent highway mitigation of the proposed allocations. Furthermore, only scheme 3 is actually within Brighouse.

	Scheme	Description
1	Ovenden Road / Shroggs Road	Junction operated under MOVA
2	Queens Road / Kings Cross Road	Junction signalised
3	A641 / Mill Lane	Junction signalised
4	Rochdale Road/West Vale/Stainland Road	Signalised Right turn Lane
5	Copley Valley Link Road	New Link Road

Table 8 Committed Highway Improvements

- 4.39 There has been no other highway-related improvement scheme adopted or assumed within the traffic modelling nor has there been any detailed assessment of access proposals. There is also no reference to any of the strategic highway improvements listed previously in the report which Brighouse would supposedly would benefit from. As referenced earlier, WSP have confirmed this is due to lack of detail at this stage (of the strategic improvements), as well as uncertainty of funding.
- 4.40 WSP conclude that the overall results from the modelling work suggest that the network operates in a reasonably satisfactory manner in the Base situation. This is despite clear evidence of significant and severe levels of congestion of all key modes on which the allocations would rely. They suggest that there are some issues with capacity at peak times and that these have been identified.
- 4.41 Although WSP suggest that *‘the prospect of the strategic highway improvements have been considered as part of the masterplanning exercise and that these would resolve the vast majority of capacity issues in the west of the town centre and close to the southern end of the Thornhills Lane site’*, none of this highway mitigation has been tested and evidenced to support the allocation.

- 4.42 WSP complete their conclusions in respect of modelling by acknowledging that the network will require further improvements to mitigate the development of the Thornhills and Woodhouse proposed allocations, but suggest that their modelling of the Future Year shows impacts that are '*not particularly onerous*', that the sites can be '*readily mitigated*' and that '*There is no justifiable reason why these two sites should not be allocated.*'.
- 4.43 It should be remembered that these conclusions have been drawn in respect of the future year (2032) with no further highway improvements having been modelled (beyond those which have already been implemented and which were present during the TTHC journey time surveys) and with the addition of the assumed dwelling numbers (which have been understated).
- 4.44 Against the backdrop of the existing critical performance of the highway network which is operating with severe levels of congestion throughout long peak periods, the lack of assessment of how the proposed allocations could come forward, even in a much smaller scale than that currently proposed, is simply unacceptable. There is no evidence that the proposed allocations can be successfully mitigated.

WSP Technical Note 4: Assessment of Cumulative Impact (May 2017)

- 4.45 Whilst the TS provided details of the modelling work undertaken in October 2016 solely in respect of the residential component of the proposed Thornhills and Woodhouse allocations, WSP have also produced a later Technical Note which was undertaken to examine the traffic modelling of the cumulative impact of other proposed Local Plan allocations.
- 4.46 The modelling consists of two stages, Stage 5A outlines indicative traffic modelling and Stage 5B defines a subsequent modelling exercise carried out with the preferred site information.

Stage 5A Modelling

- 4.47 The Stage 5A modelling is suggested as being based on the Local Plan information provided in August 2016. Although the Note is dated May 2017, it is not clear from the document when the modelling work took place. If the modelling took place pre October 2016 the output information would not be based on the updated SATURN model.
- 4.48 At the time of the modelling the overall potential dwellings for the Local Plan during the period of 2012 to 2032 was 17,651. This figure was reduced to take account of actual delivery rates between 2012 to 2014 and so the tested dwelling numbers were 16,648. This is some 2,499 dwellings lower than the total proposed within the CLPID.
- 4.49 The proposed site sizes were then adjusted to meet the target of 16,648. The document states in para 2.3.4 “Sites with a capacity of less than 10 units were not modelled explicitly as these effectively constitute background growth for modelling purposes, the sites being too small to register significant impacts on the modelled network in their own right”.
- 4.50 The revised number of proposed dwellings modelled is not presented in the document but from the information presented TTHC has estimated the revised figure is 14,959 dwellings, representing a further reduction of around 10% from the assumed 16,648 figure but over 4,000 lower than the actual proposed allocations figure (19,147 dwellings). So the traffic from over 4,000 proposed dwellings has not been modelled at all.
- 4.51 The residential trip rates applied to the proposed dwellings are the average trip rates presented in the Traffic Statement document (October 2016).
- 4.52 No background growth has been applied to the model as it is suggested that the proposed number of dwellings (not all of which have been accounted for) and jobs were reasonably well matched with the data from the National Trip End Model (NTEM) and so the development allocations were deemed to be equivalent to overall NTEM growth.

4.53 With regards to committed highway schemes to be included in the model, the same schemes have been included as the ones listed previously in the document in **Table 8**.

4.54 In terms of implications for Brighouse it is suggested that the model output shows key impacts in terms of increased delay along A641 SB and A644 SB at Ludenscheid Link, A641/A644 and A644 SB towards M62 J25. At paragraph 3.2.3 it is stated that:

“Transport interventions will be planned as part of the master-planning process for the largest sites in Brighouse. This exercise has further emphasised the need for these mitigation works. The severity of the impacts (alongside other considerations) has meant that CMBC have reduced the scale of these sites as part of the decision-making process for the preferred set of allocations, although they are still of a significant enough size to meet the growth targets needed for the overall plan.” [TTHC emphasis added]

4.55 It is not clear what is meant by the suggestion of a reduction in the allocations as the published figures are actually significantly higher than the figures tested within the Technical Note.

Stage 5B Modelling

4.56 Stage 5B model is based on the Local Plan information assumed in December 2016. The proposed number of dwellings from the Local Plan between 2012 to 2032 is 17,651. As with the Stage 5A modelling, a reduction of 432 dwellings has been to the local plan to take account of housing completions between 2012 and 2014.

4.57 Under the Stage 5A modelling sites with less than 10 dwellings were excluded from the model due to sites being too small to register significant impacts in the modelled network.

- 4.58 For Stage 5B modelling this exclusion was raised to 50 dwellings, meaning that even more sites were not modelled. No explanation is provided as to why this was cut-off was adopted or why this is an acceptable assumption to make.
- 4.59 By excluding sites with less than 50 dwellings, the overall number of proposed dwellings (2014-2032) decreases from 17,219 to 12,034, a reduction of 30% and over 7000 dwellings lower than published in the CLPID. These exclusions are simply not tested or assessed.
- 4.60 No factoring appears to have been included in the traffic model to take account of the 'smaller' development sites nor is there any information provided in the Technical Note to advise on where these exclusions are geographically in relation to the larger allocations.
- 4.61 As with Stage 5a modelling no traffic growth has been applied to the highway network.
- 4.62 The Stage 5B modelling is based on a Do-Minimum scenario and a Do Something scenario. The Do-Minimum includes the committed highway schemes listed in **Table 8**. The Do-Something scenario includes the A629 Phases 1a and 1b, which we know from WSP was the focus of the model. The Do-Something scenario does not include any A641 corridor improvements, or the potential M62 J24a.
- 4.63 The Do-Minimum scenario shows there would be levels of congestion that would be unacceptable across the network. The Technical Note describes the key impacts from the Do-Something in Brighouse at the following locations:
- The western Ludenscheid Link roundabout SB and NB movements are over capacity;
 - The Thornhills site has a major impact on congestion and delays at A644 and A643 junction

- The Thornhills site produces an impact as a result of additional traffic using inappropriate links in the network e.g. Thornhills Beck Lane (although it was noted in the Traffic Statement document that Thornhills Beck Lane is a potential access point for the development).
- Existing congestion is worsened through the centre of Brighouse on the A641.
- There are links on the network with a V/C of greater than 90%

4.64 It should be noted the above congestion / capacity issues are based on a model with a 40% reduction in the number of proposed dwellings from the figures in the CLPID.

4.65 Overall the modelling shows there would be congestion in Brighouse as a result of the proposed development. However, without providing any evidence whatsoever as to how, the document states the congestion is resolvable. Paragraph 6.7.7 states:

“The problem locations align with the proposed A641 corridor WY+PT scheme which is currently at a pre-feasibility stage and can be tailored to suit the impacts of the Local Plan, and the significant transport infrastructure that will form part of the master planning of the Thornhills urban extension site and Clifton employment site”.

4.66 There is no SATURN testing of the proposed route and no evidence has been presented which demonstrates that this corridor improvement is capable of addressing the inevitable severe impacts which the proposed allocation would have on the highway network.

4.67 Having reviewed all of the supporting technical evidence to the publication of the CLPID, it is clear that the evidence base which should have been compiled in order to determine the implications of the allocations and

establish the mitigation which would be required to address those implications, simply hasn't been gathered.

- 4.68 The testing undertaken has at least confirmed that the network is in need of substantial improvement if it is to stand any chance of being able to accommodate the proposed allocations. However, even these conclusions are based on deficient technical input, inappropriate exclusions and limited modelling work.
- 4.69 The consequence of these shortcomings is that the scale and severity of impact has been significantly understated.
- 4.70 In order to put some of this impact into context, TTHC has undertaken a technical development distribution exercise for the residential component of the Thornhills Site only, to demonstrate the scale of increase on some of the critical parts of the highway network. This work is set out briefly in the following section of this TR.

5.0 THORNHILLS IMPLICATIONS ON KEY PARTS OF THE NETWORK

5.1 The exercise set out below has been undertaken in order to provide some context of the scale of impact of the Thornhills allocation in terms of the residential component alone. It is included in order to provide some clarity as to the scale of impact which would need to be addressed in the event that the proposed allocation is pursued at the level currently proposed.

Trip Generations

5.2 For simplicity, the proposed trip generations for the Thornhills Site are based on the trip rates for Sustainable Urban Extension Sites, as shown in WSP Technical Note 4 report. The proposed trip rates are presented in **Table 9** below along with the resulting trip generation from the proposed development.

TRICS Trip Rates (per dwelling)			
	Arrivals	Departures	Total
AM Peak	0.159	0.589	0.748
PM Peak	0.417	0.257	0.674
Trip Generation (1926 units)			
	Arrivals	Departures	Total
AM Peak	306	1134	1441
PM Peak	803	495	1298

Table 9 – Thornhills TTHC Estimated Residential Trip Generation

Trip Distribution

5.3 The trip distribution of vehicular trips has been derived from 2011 Census Travel to Work data. The census data classifies people currently resident in each area by method of travel and shows the movement between their area of residence and workplace.

5.4 The distribution has been based on census data for the four 'Super Output Areas' which cover the Brighouse area, Calderdale zones 15, 19, 23 and 24.

The Thornhills Lane Site sits within the Calderdale 15 area. However, this area may not provide a true distribution of people travelling from Brighouse as the area does not cover a wide area of residential properties.

- 5.5 The majority of the residential properties located within Calderdale 15 are located within the Bailiff Bridge area. It is possible if solely using the Calderdale 15 area that it would not represent journeys travelling north to south through Brighouse. Therefore by using the four zones this will represent the journey to work characteristics for the whole of Brighouse.
- 5.6 Traffic has been assigned to the network via the most direct route to each destination. Where there is a route choice, traffic has been assigned with reference to simple desktop drive time comparisons (Google maps drive time calculations).

Trip Assignment

- 5.7 The Strategic Vision for South East Calderdale (Nov 2016) provides an Indicative Development Masterplan of the Thornhills Lane Site. In terms of access points the document describes access points from A643 / Jay House Lane and a new access to the north of Thornhills Beck Lane through the Calder Industrial Park which joins with the A641. From the Masterplan drawing four additional junctions for the Site are located along the A643 at the following locations:
- To the east of Alegar Street
 - Thornhills Lane
 - To the north of Cam Lane
 - Bronte Way (new access located to the south of Jay House Way)
- 5.8 The Masterplan provides an Indicative Housing Development Schedule for the Site which details the development plots and provides the number of dwellings for each plot. No information is provided to show how each plot will

be accessed and, therefore, TTHC have assigned each plot to a particular junction by judgement.

- 5.9 In terms of the development accessing the highway network, **Table 10** below shows the proposed arrivals and departures from each access point.

Location		AM PEAK			PM PEAK		
		ARR	DEP	TOTAL	ARR	DEP	TOTAL
1	A641 Junction	49	181	230	128	79	207
2	A643 / Jay House Lane	75	278	353	197	121	318
3	A643 / Bronte Way	59	218	277	155	95	250
4	A643 (North of Cam Lane)	52	192	244	134	83	217
5	A643 / Thornhills Lane	34	126	160	89	55	144
6	A643 (East of Alegar St)	38	139	177	99	61	160
Total		307	1134	1441	802	494	1296

Table 10 – Thornhills TTHC Estimated Residential Trip Site Access Movements

- 5.10 With regards to impact on some of the critical links, the development flows have been distributed and assigned to the highway network with the proposed percentage impacts calculated at the points where the TTHC ATC surveys were carried out. These are presented in **Table 11** below.

Location		AM PEAK			PM PEAK		
		TTHC ATC	Dev Flows	% increase	TTHC ATC	Dev Flows	% increase
A641 Bradford Road	NB	730	34	5%	797	80	10%
	SB	711	113	16%	784	51	7%
A643 Highmoor Lane	NB	360	244	68%	367	177	48%
	SB	296	174	59%	446	201	45%
A644 Wakefield Road	WB	368	55	15%	373	145	39%
	EB	747	206	28%	754	90	12%

Table 11 – Thornhills TTHC Estimated Residential Trip Impacts

- 5.11 As shown, purely on the basis of the residential component of the Thornhills Site in isolation, individual impacts (on what have already been established as critical links operating under severe congestion conditions) will be as high as an additional 68%. This scale of impact demonstrates that the implications of

the proposed allocations have to be appropriately modelled and mitigated. This work should have been undertaken prior to advancing the Site for the scale of development proposed.

6.0 SUMMARY AND CONCLUSIONS

- 6.1 This Transport Representation has been produced on behalf of the Clifton Village Neighbourhood Forum to provide an examination and critique of the transport implications relating to proposed allocations within the Calderdale Local Plan Initial Draft 2017, which has been published for consultation.
- 6.2 This TR focuses on the proposed allocations within Brighouse and specifically on key issues relating to the **Thornhills** site, which is situated in Green Belt.
- 6.3 Brighouse has been identified to provide the highest overall new housing stock, accounting for around a third of the overall total, as well as over 40% of the overall land for employment use and almost 50% of the greenfield total (more than twice that of any other area).
- 6.4 The scale and distribution of the proposed allocations is particularly important when considering the transport and highway assessment work and the location of mitigation and improvements to address impacts.
- 6.5 With respect to the transport implications of the proposed allocations, assessments have been undertaken by consultants WSP. These assessments have been 'high level', utilising a Strategic Transport Model covering a wide geographic area. CVNF has been informed by WSP that this model was focussed on the A629 (Halifax to Huddersfield) corridor.
- 6.6 Model suitability and robust assessment of the highway network of Brighouse is especially important when considering the disproportionately high scale of housing and employment development proposed for this Plan Area. Indeed, there has previously been a micro-simulation of Brighouse which had been commissioned by CC which would be a far more suitable tool with which to examine the implications of the proposed allocations.
- 6.7 Owing to existing congestion within the centre of Brighouse the area has been subject to an AQMA for the last 10 years.

- 6.8 The morning and evening peak ‘hours’ have essentially spread to over two hours in both peaks. The heaviest queuing occurs to the eastern side of the town centre (ie the side where the largest two allocations are proposed – Thornhills and Woodhouse).
- 6.9 On the ground, this means slow moving and queuing traffic on the approaches to all of the main town centre junctions including those which the Thornhills Site is proposed to take access from.
- 6.10 Journey time surveys undertaken by TTHC demonstrate that there are sections of the highway network in and on the approaches to the centre of Brighouse where speeds of less than 5mph exist, which indicates that some parts are moving at walking pace. These journey time surveys demonstrate significant and severe peak period congestion.
- 6.11 It is clear from the previously commissioned CC study and the presence of the AQMA that for at least the last ten years there has been and remains a recognised congestion issue for Brighouse which remains unresolved.
- 6.12 These conditions are those which exist before the addition of over 6000 dwellings and almost 37 hectares of employment land within Brighouse alone. The proposed allocations would all unavoidably load significant additional traffic onto these severely congested routes.
- 6.13 With regard to development testing, WSP have been commissioned by Calderdale Council to update the Calderdale Strategic Transport Model by validating to represent 2014 traffic patterns. The 2014 validation position then provides the ‘starting point’ for the model before future additional demand is added.
- 6.14 Overall, with the exception of the westbound direction of the A644, the 2014 ATC data adopted within the Validation Report appears to be broadly representative of the current (2017) position.

- 6.15 However, the modelled position of the 2014 Validation Report is understating these observed flows on the parts of the network which are most critical in respect of the Thornhills site.
- 6.16 In the AM Peak, the modelled flows are underrepresenting the observed flow levels by between 10% to 20%. In the PM peak this underrepresentation ranges between 5% and 24%.
- 6.17 As an overall position, the model used by WSP is generally understating the level of 'existing' demand on the network, prior to the addition of any increases due to background growth and Site allocations.
- 6.18 This needs to be remembered when considering development implications on the network as the modelled 'starting point' traffic demand (in 2014) is essentially lower than that which has been observed and recorded. This in turn will understate the absolute demand and conditions of future scenario testing, details of which have been earlier in this TR.
- 6.19 The technical consideration of the proposed allocations is set out in the two key WSP documents listed below:
- Strategic Vision for South East Calderdale – Traffic Statement (Oct 2016)
 - Technical Note 4 – Assessment of Cumulative Impact (May 2017)
- 6.20 The Strategic Vision Traffic Statement document relates directly to the allocations on the eastern-side of Brighouse, namely; Thornhills and Woodhouse, whereas Technical Note 4 deals with the wider area of the Calderdale Borough.
- 6.21 Within the Traffic Statement, it is suggested that with respect to the current operation of the local highway network, the junctions on the east side of the town are close to capacity. However, it is clear that based on the evidence already referred to, these locations are at and above capacity (not close to as WSP suggest) and are operating under severely congested conditions.

- 6.22 The Traffic Statement also highlights issues with respect of the difficulties with the accessibility of the Site, although it does not set out how such shortcomings would be mitigated or addressed.
- 6.23 It should be noted that the modelling work set out within the WSP Traffic Statement relates solely to the residential component of the proposed Thornhills and Woodhouse allocations. None of the employment uses or other significant allocations are adopted within the modelling.
- 6.24 All of the suggested access points for the Thornhills Site are subject of significant constraints and there is no suggestion as to how these would or could be overcome.
- 6.25 With respect to off-site highway mitigation three 'potential' strategic highway improvement schemes are referred to which would be subject to West Yorkshire Plus Transport funding. Again, however, no evidence has been produced which would suggest that any of these potential schemes have been satisfactorily assessed and evaluated.
- 6.26 Indeed, the allocation for Thornhills has been promoted within the CLIPD in advance of being to demonstrate that it can be successfully accessed and mitigated for the unavoidable impacts that the proposals would have on an already severely congested highway network.
- 6.27 Only limited traffic modelling has been undertaken by WSP.
- 6.28 This modelling only includes a limited range of highway improvements all of which have already been implemented since 2014. There has been no other highway-related improvement scheme adopted or assumed within the traffic modelling nor has there been any detailed assessment of access proposals. There is also no inclusion of any of the potential strategic highway improvements referred to, because as WSP have confirmed, there is *'lack of detail at this stage as well as uncertainty of funding'*.

- 6.29 Although WSP suggest that *'the prospect of the strategic highway improvements have been considered as part of the masterplanning exercise and that these would resolve the vast majority of capacity issues in the west of the town centre and close to the southern end of the Thornhills Lane site'*, none of this highway mitigation has in fact been tested and evidenced to support the allocation.
- 6.30 WSP complete their conclusions in respect of modelling by acknowledging that the network will require further improvements to mitigate the development of the Thornhills and Woodhouse proposed allocations, but suggest that their modelling of the Future Year shows impacts that are *'not particularly onerous'*, that the sites can be *'readily mitigated'* and that *'There is no justifiable reason why these two sites should not be allocated.'*
- 6.31 It should be remembered that these conclusions have been drawn in respect of the future year (2032) with no further highway improvements having been modelled (beyond those which have already been implemented and which were present during the TTHC journey time surveys) and with the addition of the assumed dwelling numbers (which have been understated).
- 6.32 Against the backdrop of the existing critical performance of the highway network which is operating with severe levels of congestion throughout long peak periods, the lack of assessment of how the proposed allocations could come forward, even in a much smaller scale than that currently proposed, is simply unacceptable. There is no evidence that the proposed allocations can be successfully mitigated.
- 6.33 Whilst the TR provided details of the modelling work undertaken in October 2016 solely in respect of the residential component of the proposed Thornhills and Woodhouse allocations, WSP have also produced a later Technical Note which was undertaken to examine the traffic modelling of the cumulative impact of other proposed Local Plan allocations.

- 6.34 However, with respect to the assumed dwelling numbers, the assumptions adopted for this work appear to be over 4,000 units short of the actual total proposed within the CLPID.
- 6.35 Despite this very significant shortfall in the assessed dwelling numbers, the Technical Note work concludes that the impacts within Brighouse would be severe.
- 6.36 It is suggested that the severity of the impacts has meant that the Council have reduced the scale of the sites as part of the decision making process for the preferred set of allocations. However, it is not clear what is meant by this statement as the published figures are actually significantly higher than those tested within the Technical Note.
- 6.37 A further stage of modelling set out in the Technical Note appears to reduce the tested dwelling numbers still further, which through excluding site sizes of less than 50 dwellings, assesses over 7000 fewer dwellings than published within the CLPID. Such exclusions are clearly very significant and undermine the whole basis of any conclusions drawn and support for the proposed allocations.
- 6.38 Despite the very low numbers tested within this additional work, WSP conclude that even the Do-Minimum scenario would result in levels of congestion that would be unacceptable across the network. Although the Do-Something test within this additional modelling work includes an assumed scheme for the A629 corridor nothing is included that might benefit the Thornhills Site and as such WSP conclude that this scenario would result in major impacts on congestion and delays through the junctions within central Brighouse.
- 6.39 However, without providing any evidence whatsoever, the Technical Note states that the congestion is resolvable. This appears to be concluded on the basis of the problem locations aligning with the A641 corridor for which a scheme is currently at 'pre-feasibility stage'. Therefore, even by WSP's and

the Council's standard, the proposed allocation at Thornhills (and most probably others) is therefore dependent on a scheme which is so embryonic in its development that it hasn't yet even reached any level of feasibility assessment. This simply cannot be the correct and proper basis upon which to promote Local Plan allocations.

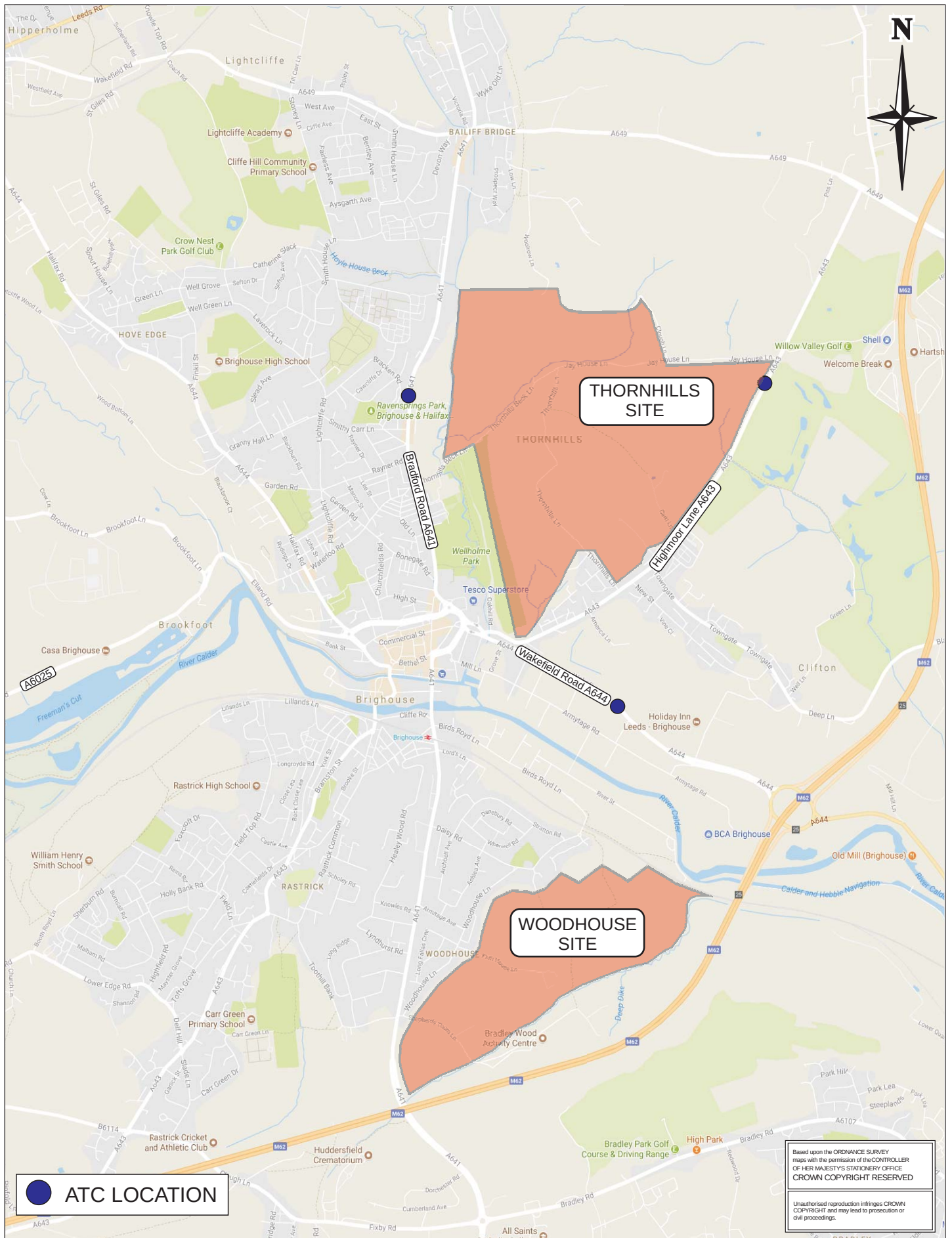
- 6.40 To be clear, there is no SATURN testing of the proposed route and no evidence has been presented which demonstrates that this corridor improvement is capable of addressing the inevitable severe impacts which the proposed allocation would have on the highway network.
- 6.41 Having reviewed all of the supporting technical evidence to the publication of the CLPID, it is clear that the evidence base which should have been compiled in order to determine the implications of the allocations, and establish the mitigation which would be required to address those implications, simply hasn't been gathered.
- 6.42 The testing undertaken has at least confirmed that the network is in need of improvement if it is to stand any chance of being able to accommodate the proposed allocations. However, even these conclusions are based on deficient technical input, inappropriate exclusions and limited modelling work.
- 6.43 The consequence of these shortcomings is that the scale and severity of impact has been significantly understated.
- 6.44 In order to put some of this impact into context, TTHC has undertaken a technical development distribution exercise for the residential component of the Thornhills Site only, to demonstrate the scale of increase on some of the critical parts of the highway network.
- 6.45 Purely on the basis of the residential component of the Thornhills Site in isolation, individual impacts (on what have already been established as critical links operating under severe congestion conditions) will be as high as an additional 68%. This scale of impact demonstrates that the implications of the

proposed allocations has to be appropriately modelled and mitigated. This work should have been undertaken prior advancing the Site for the scale of development proposed.

- 6.46 There is a significant level of evidence required to demonstrate the proposed Thornhills allocation can be delivered without further significant worsening of the already severely congested highway network within Brighouse.
- 6.47 The decision to propose the allocation of such significant development sites within Brighouse has been based on completely inadequate highway evidence.
- 6.48 The levels of impact have been downplayed by applying flawed assumptions within the technical work.
- 6.49 Such a major strategic decision can only be rationally made when the full evidence base has been compiled and scrutinised, enabling the impacts and necessary mitigation to be identified.
- 6.50 In any event, there is considerable evidence already that the proposals would create such significant and severe impacts on local infrastructure as to be unsustainable.
- 6.51 This is particularly concerning as the Initial Draft is proposing major housing allocations and Green Belt release in Brighouse without even knowing if there would or could be sufficient infrastructure in place to deal with it all.
- 6.52 There is recognition that there will be major highways issues arising from both the Thornhills and Woodhouse sites. However, significant reliance is placed on major road improvements, including the A641 corridor, with a suggestion that such matters can be addressed despite there not being any technical evidence to support this conclusion.

- 6.53 It is concluded that based on the review undertaken, the proposed allocation at Thornhills is fundamentally flawed.

FIGURES



	Drawing No	Rev	BRIGHOUSE	
	M17070-C-014	.		
	Date	Rev Date	LOCAL HIGHWAY NETWORK AND LOCATION OF ATC SURVEYS	
26.09.2017	.			
Drawn By	Authorised	Scale	FIGURE 1	
GB	MWI	NTS		

APPENDIX A

Automatic Classified Counts, Brighthouse

LOCATION: BRADFORD ROAD

Direction : NORTHBOUND

NORTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	22	32	9	14	42	14	127	41	37
00:30	28	20	18	11	41	18	99	37	34
00:45	24	26	14	7	133	12	132	60	50
01:00	29	16	9	4	134	8	149	61	50
01:15	21	32	12	2	175	6	194	78	63
01:30	19	16	7	3	153	8	215	77	60
01:45	10	24	8	4	105	8	145	54	43
02:00	10	20	5	4	167	8	113	59	47
02:15	13	13	4	4	134	8	132	56	44
02:30	9	16	5	4	120	4	164	59	46
02:45	8	14	4	3	132	3	142	57	44
03:00	7	10	3	9	129	5	121	53	41
03:15	9	8	3	2	128	3	39	35	27
03:30	4	8	3	4	122	2	14	29	22
03:45	3	6	2	2	109	5	16	27	20
04:00	2	6	2	4	21	6	8	8	7
04:15	2	8	5	7	18	8	4	8	7
04:30	5	6	7	11	7	4	13	8	8
04:45	8	4	2	7	10	3	15	7	7
05:00	6	5	6	7	15	7	2	7	7
05:15	7	8	13	12	15	7	11	12	10
05:30	10	7	21	22	20	22	23	22	18
05:45	14	4	23	38	33	26	27	29	24
06:00	19	17	44	38	46	46	50	45	37
06:15	16	13	31	41	41	41	43	39	32
06:30	26	17	70	70	62	56	71	66	53
06:45	23	24	103	90	97	91	99	96	75
07:00	34	21	113	141	126	144	132	131	102
07:15	46	32	160	186	155	171	167	168	131
07:30	28	23	176	230	205	174	207	198	149
07:45	62	24	212	205	178	229	190	203	157
08:00	64	30	175	222	181	204	198	196	153
08:15	65	31	177	232	203	189	183	197	154
08:30	71	29	151	188	181	161	164	169	135
08:45	85	51	170	161	147	177	187	168	140
09:00	107	44	138	176	162	158	180	163	138
09:15	100	54	151	138	151	153	157	150	129
09:30	132	85	143	146	153	150	158	150	138
09:45	117	88	135	154	141	118	162	142	131
10:00	144	93	126	102	131	147	120	125	123
10:15	174	103	117	111	160	137	135	132	134
10:30	151	116	111	108	146	122	125	122	126
10:45	145	126	137	126	128	120	136	129	131
11:00	171	161	129	99	129	148	138	129	139
11:15	179	145	135	126	135	149	170	143	148
11:30	194	136	171	128	153	116	150	144	150
11:45	187	160	126	132	168	148	130	141	150
12:00	211	194	126	144	163	145	151	146	162
12:15	226	159	131	153	139	136	166	145	159
12:30	215	222	173	121	160	136	148	148	168
12:45	217	156	148	153	146	134	177	152	162
13:00	202	194	147	116	165	149	180	151	165
13:15	200	152	175	111	179	153	148	153	160
13:30	212	185	153	127	134	123	155	138	156
13:45	174	178	128	147	152	139	184	150	157
14:00	181	143	147	130	140	146	156	144	149
14:15	188	153	174	141	133	132	145	145	152
14:30	185	177	140	144	131	145	185	149	158
14:45	165	150	178	142	146	153	164	157	157
15:00	198	132	177	166	163	155	175	167	167
15:15	143	174	149	153	188	150	187	165	163
15:30	116	176	196	175	175	159	189	179	169
15:45	136	160	156	186	209	169	200	184	174
16:00	150	153	181	162	174	170	177	173	167
16:15	161	171	171	223	219	178	152	189	182
16:30	181	137	161	171	242	172	196	188	180
16:45	141	116	207	215	218	201	212	211	187
17:00	141	113	173	210	189	185	180	187	170
17:15	166	118	201	217	220	200	188	205	187
17:30	166	96	210	176	204	218	209	203	183
17:45	175	104	198	196	201	212	197	201	183
18:00	163	73	178	204	213	178	197	194	172
18:15	162	96	206	198	186	159	168	183	168
18:30	137	82	139	143	157	168	118	145	135
18:45	123	94	130	161	156	131	141	144	134
19:00	122	88	101	133	119	137	122	122	117
19:15	101	93	115	133	115	133	133	126	118
19:30	100	94	98	121	114	136	92	112	108
19:45	86	78	86	134	107	132	108	113	104
20:00	102	60	85	123	91	104	117	104	97
20:15	86	63	76	110	90	104	95	95	89
20:30	70	66	79	93	65	110	102	90	84
20:45	91	57	68	88	73	117	87	87	83
21:00	56	44	70	103	64	101	73	82	73
21:15	60	39	74	124	99	107	74	96	82
21:30	52	47	55	89	103	117	70	87	76
21:45	68	25	35	97	108	89	51	76	68
22:00	52	35	28	68	81	73	52	60	56
22:15	41	31	40	88	71	77	65	68	59
22:30	53	41	36	68	101	84	64	71	64
22:45	78	22	32	51	81	50	43	51	51
23:00	59	26	19	35	53	53	52	42	42
23:15	51	20	18	46	48	155	39	61	54
23:30	56	17	16	23	27	231	46	69	59
23:45	47	18	13	25	15	198	50	60	52
00:00	43	18	17	22	17	142	25	45	41
7-19	7179	5677	7594	7688	8028	7604	8024	7788	7399
6-22	8202	6453	8780	9313	9464	9259	9423	9248	8699
6-24	8630	6646	8971	9671	9877	10249	9807	9715	9122
0-24	8919	6972	9200	9894	11886	10490	11762	10646	9875

Automatic Classified Counts, Brighthouse

LOCATION: BRADFORD ROAD

Direction : SOUTHBOUND

SOUTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	24	18	6	12	13	12	14	11	14
00:30	25	19	20	10	2	8	15	11	14
00:45	23	21	5	5	3	8	7	6	10
01:00	14	12	1	1	5	6	5	4	6
01:15	16	18	3	3	7	3	3	4	8
01:30	13	13	2	4	2	3	2	3	6
01:45	11	10	2	1	2	4	3	2	5
02:00	11	11	5	2	3	5	7	4	6
02:15	17	14	2	3	4	4	5	4	7
02:30	7	11	3	5	2	4	4	4	5
02:45	5	10	6	2	5	3	4	4	5
03:00	12	3	5	2	1	2	2	2	4
03:15	9	3	4	4	2	3	0	3	4
03:30	7	9	2	0	4	5	1	2	4
03:45	4	8	3	4	4	2	9	4	5
04:00	4	4	6	3	2	3	5	4	4
04:15	2	8	4	3	2	4	5	4	4
04:30	7	8	7	1	4	1	2	3	4
04:45	8	8	5	8	13	11	8	9	9
05:00	4	4	8	7	3	2	3	5	4
05:15	8	1	6	6	10	8	6	7	6
05:30	9	8	8	10	17	17	11	13	11
05:45	15	14	38	36	34	25	31	33	28
06:00	20	12	29	35	42	37	39	36	31
06:15	10	7	36	49	29	34	31	36	28
06:30	20	17	42	44	67	47	44	49	40
06:45	36	14	85	87	96	86	101	91	72
07:00	33	24	108	105	130	123	107	115	90
07:15	32	31	133	142	136	134	118	133	104
07:30	45	20	156	156	166	152	147	155	120
07:45	55	26	179	156	194	164	190	177	138
08:00	85	26	191	187	184	195	169	185	148
08:15	85	37	175	174	172	156	159	167	137
08:30	87	35	170	176	176	164	181	173	141
08:45	115	39	166	187	209	183	183	186	155
09:00	132	44	186	179	187	161	176	178	152
09:15	119	68	137	159	169	163	153	156	138
09:30	125	83	154	154	145	130	161	149	136
09:45	137	90	167	116	153	134	152	144	136
10:00	153	124	107	147	138	124	125	128	131
10:15	178	110	121	118	132	120	146	127	132
10:30	178	142	113	111	116	129	137	121	132
10:45	148	137	126	114	125	138	164	133	136
11:00	171	139	104	106	125	122	131	118	128
11:15	195	114	134	134	110	127	143	130	137
11:30	175	169	112	116	146	135	151	132	143
11:45	176	143	118	141	100	118	144	124	134
12:00	139	150	136	117	128	117	130	126	131
12:15	196	163	138	119	143	133	131	133	146
12:30	165	139	142	140	136	155	163	147	149
12:45	183	165	146	153	128	125	132	137	147
13:00	196	135	144	124	148	138	145	140	147
13:15	157	131	127	124	144	129	188	142	143
13:30	179	161	134	125	140	148	167	143	151
13:45	185	149	121	132	126	111	139	126	138
14:00	154	147	131	126	144	141	152	139	142
14:15	156	163	115	115	168	120	131	130	138
14:30	152	150	151	132	134	127	141	137	141
14:45	147	142	154	144	148	125	165	147	146
15:00	151	136	130	130	135	135	160	138	140
15:15	162	129	144	158	111	154	166	147	146
15:30	145	132	147	144	158	155	186	158	152
15:45	169	114	163	151	137	166	195	162	156
16:00	136	138	174	174	177	170	123	164	156
16:15	124	101	208	185	204	187	187	194	171
16:30	131	73	171	203	178	158	178	178	156
16:45	155	95	187	162	206	208	213	195	175
17:00	139	105	174	165	193	214	191	187	169
17:15	128	69	230	195	208	190	195	204	174
17:30	123	115	198	196	211	201	184	198	175
17:45	129	86	192	201	204	206	172	195	170
18:00	143	93	184	200	173	169	179	181	163
18:15	137	90	190	193	203	199	171	191	169
18:30	108	97	170	172	170	146	177	167	149
18:45	123	65	133	164	136	184	160	155	138
19:00	85	95	154	135	130	132	152	141	126
19:15	108	77	89	124	111	128	121	115	108
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20:00	77	63	90	108	85	96	96	95	88
20:15	65	56	74	75	57	81	77	73	69
20:30	59	62	47	69	56	70	73	63	62
20:45	77	54	41	62	57	52	53	53	57
21:00	52	42	45	42	49	50	52	48	47
21:15	58	37	48	47	47	48	62	50	50
21:30	43	43	49	63	49	64	45	54	51
21:45	42	32	32	49	48	48	47	45	43
22:00	44	24	26	41	27	32	52	36	35
22:15	35	31	29	21	34	34	37	31	32
22:30	47	20	25	26	23	39	48	32	33
22:45	36	22	21	29	32	32	40	31	30
23:00	33	6	26	18	15	16	30	21	21
23:15	29	13	10	17	22	29	31	22	22
23:30	25	16	15	19	12	23	34	21	21
23:45	41	15	10	14	16	19	28	17	20
00:00	33	10	9	6	16	14	21	13	16
7-19	6688	5105	7337	7252	7504	7292	7703	7418	6983
6-22	7617	5789	8345	8432	8625	8485	8907	8559	8029
6-24	7896	5922	8490	8582	8795	8691	9176	8747	8222
0-24	8171	6169	8670	8749	8981	8871	9367	8928	8425

Automatic Classified Counts, Brighthouse

LOCATION: HIGHMOOR LANE

Direction : NORTHBOUND

NORTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	11	11	1	7	6	3	12	6	7
00:30	11	11	3	7	15	4	13	8	9
00:45	5	13	4	5	16	3	15	9	9
01:00	8	5	1	2	12	3	10	6	6
01:15	10	8	2	2	12	4	14	7	7
01:30	3	9	1	1	8	6	10	5	5
01:45	5	7	1	3	7	2	8	4	5
02:00	9	6	1	1	9	2	6	4	5
02:15	4	9	2	3	6	1	11	5	5
02:30	4	4	0	1	6	1	9	3	4
02:45	2	2	2	1	6	0	3	2	2
03:00	1	7	5	1	6	2	7	4	4
03:15	3	2	1	1	13	3	4	4	4
03:30	0	2	0	0	6	2	3	2	2
03:45	2	2	1	2	9	1	2	3	3
04:00	6	2	1	2	1	0	1	1	2
04:15	1	2	1	2	0	1	0	1	1
04:30	1	1	2	1	5	3	3	3	2
04:45	5	3	4	3	2	3	2	3	3
05:00	0	0	1	2	2	5	2	2	2
05:15	5	1	3	4	8	1	5	4	4
05:30	5	1	5	5	5	5	6	5	5
05:45	7	2	11	9	7	10	9	9	8
06:00	5	6	7	12	8	8	10	9	8
06:15	2	2	12	15	21	20	14	16	12
06:30	7	3	14	19	23	23	21	20	16
06:45	10	6	28	29	26	36	23	28	23
07:00	7	9	40	46	43	41	46	43	33
07:15	17	7	60	46	63	53	51	55	42
07:30	17	6	81	74	92	91	95	87	65
07:45	22	12	108	116	106	115	93	108	82
08:00	20	8	99	93	97	83	89	92	70
08:15	24	14	95	84	101	102	75	91	71
08:30	24	18	75	92	111	85	82	89	70
08:45	35	12	84	90	79	93	92	88	69
09:00	40	25	58	64	77	77	63	68	58
09:15	25	34	63	93	79	80	69	77	63
09:30	43	25	49	52	51	53	52	51	46
09:45	51	33	50	46	38	31	51	43	43
10:00	60	37	55	57	61	50	58	56	54
10:15	71	29	48	46	33	56	51	47	48
10:30	51	50	52	37	49	47	61	49	50
10:45	76	49	51	62	43	48	57	52	55
11:00	58	54	51	51	51	35	55	49	51
11:15	67	43	50	61	50	58	56	55	55
11:30	72	50	45	61	53	48	55	52	55
11:45	59	69	59	56	54	44	61	55	57
12:00	80	69	45	52	53	59	52	52	59
12:15	67	59	51	43	72	51	69	57	59
12:30	68	60	51	57	50	54	73	57	59
12:45	57	70	61	54	57	70	67	62	62
13:00	58	59	55	62	60	58	58	59	59
13:15	65	69	70	40	58	48	63	56	59
13:30	66	57	42	51	54	48	64	52	55
13:45	49	79	43	52	52	49	79	55	58
14:00	92	58	60	54	58	59	72	61	65
14:15	59	55	54	53	66	59	75	61	60
14:30	61	70	44	60	53	51	56	53	56
14:45	60	58	54	61	56	47	81	60	60
15:00	45	54	53	54	72	65	75	64	60
15:15	58	57	73	62	59	84	64	68	65
15:30	62	45	87	80	77	60	75	76	69
15:45	55	60	64	62	69	61	84	68	65
16:00	47	61	62	67	60	65	75	66	62
16:15	53	47	90	76	79	74	89	82	73
16:30	59	54	95	67	74	92	83	82	75
16:45	54	51	96	112	102	86	93	98	85
17:00	51	46	80	84	83	90	78	83	73
17:15	66	41	81	106	115	98	97	99	86
17:30	56	29	89	84	106	98	88	93	79
17:45	69	33	88	87	86	107	92	92	80
18:00	59	29	93	92	66	91	71	83	72
18:15	63	34	68	71	76	79	70	73	66
18:30	52	44	62	54	65	73	50	61	57
18:45	46	24	49	67	55	45	50	53	48
19:00	45	31	65	44	52	57	55	55	50
19:15	41	28	44	36	48	61	57	49	45
19:30	39	22	30	42	52	53	46	45	41
19:45	41	19	30	51	35	54	34	41	38
20:00	31	27	32	42	32	43	23	34	33
20:15	29	24	24	29	30	31	26	28	28
20:30	24	14	35	31	35	39	25	33	29
20:45	9	23	24	15	33	35	31	28	24
21:00	23	12	23	38	25	30	30	29	26
21:15	17	17	23	23	32	33	29	28	25
21:30	14	15	29	28	31	28	18	27	23
21:45	27	7	22	21	23	27	17	22	21
22:00	12	11	11	36	26	21	24	24	20
22:15	18	12	17	16	30	27	22	22	20
22:30	18	6	13	23	15	16	27	19	17
22:45	22	7	12	19	20	19	17	17	17
23:00	19	6	9	11	15	15	22	14	14
23:15	14	10	5	10	15	26	8	13	13
23:30	12	6	1	9	9	18	12	10	10
23:45	14	6	8	9	5	20	14	11	11
00:00	13	2	0	6	3	17	3	6	6
7-19	2554	2078	3158	3189	3273	3227	3364	3242	2978
6-22	2887	2317	3579	3690	3788	3802	3828	3737	3413
6-24	3017	2372	3644	3793	3900	3960	3953	3850	3520
0-24	3130	2488	3704	3870	4075	4033	4118	3960	3631

Automatic Classified Counts, Brighthouse

LOCATION: HIGHMOOR LANE

Direction : SOUTHBOUND

SOUTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	15	6	2	7	1	0	4	3	5
00:30	9	9	0	2	2	5	6	3	5
00:45	8	6	2	3	4	2	3	3	4
01:00	9	3	0	2	3	0	2	1	3
01:15	5	7	3	1	1	0	2	1	3
01:30	4	14	1	0	4	1	4	2	4
01:45	5	5	0	1	1	5	1	2	3
02:00	4	7	0	2	1	3	0	1	2
02:15	5	4	2	1	2	1	1	1	2
02:30	6	3	0	1	1	0	0	0	2
02:45	2	2	1	2	1	0	0	1	1
03:00	1	7	0	0	2	1	1	1	2
03:15	1	3	1	2	1	0	0	1	1
03:30	4	2	0	1	4	0	0	1	2
03:45	1	2	0	2	2	1	2	1	1
04:00	0	2	2	1	1	1	1	1	1
04:15	1	1	1	1	1	0	1	1	1
04:30	1	1	1	1	3	1	2	2	1
04:45	1	2	1	0	0	0	2	1	1
05:00	3	2	3	2	2	3	1	2	2
05:15	0	3	9	4	1	3	9	5	4
05:30	2	1	3	5	6	6	7	5	4
05:45	3	2	10	13	9	10	10	10	8
06:00	7	1	11	7	11	6	7	8	7
06:15	7	5	7	6	12	5	7	7	7
06:30	7	2	12	12	17	12	11	13	10
06:45	9	6	29	32	30	37	28	31	24
07:00	19	8	44	48	49	61	58	52	41
07:15	10	5	60	80	67	66	56	66	49
07:30	12	10	79	90	87	77	76	82	62
07:45	19	7	94	84	91	93	74	87	66
08:00	18	15	63	72	74	75	69	71	55
08:15	33	22	78	87	61	77	84	77	63
08:30	34	9	66	81	72	61	76	71	57
08:45	43	27	62	84	83	78	76	77	65
09:00	44	18	66	70	69	71	89	73	61
09:15	33	26	65	57	69	59	50	60	51
09:30	49	28	59	51	42	50	65	53	49
09:45	53	39	62	41	60	53	45	52	50
10:00	52	43	40	45	65	52	56	52	50
10:15	50	37	45	35	48	51	49	46	45
10:30	57	56	35	40	39	43	53	42	46
10:45	52	52	38	42	45	41	50	43	46
11:00	83	49	36	43	46	50	53	46	51
11:15	63	46	55	49	43	51	67	53	53
11:30	72	55	60	54	31	60	60	53	56
11:45	55	41	45	36	44	41	42	42	43
12:00	84	55	50	49	50	45	57	50	56
12:15	66	44	37	35	46	47	58	45	48
12:30	67	54	49	48	39	50	60	49	52
12:45	69	41	44	37	46	50	62	48	50
13:00	63	66	51	37	51	53	79	54	57
13:15	89	75	46	51	64	50	67	56	63
13:30	81	62	55	55	47	58	59	55	60
13:45	78	54	48	59	72	46	69	59	61
14:00	85	74	51	50	57	50	62	54	61
14:15	68	57	65	50	51	64	56	57	59
14:30	52	55	41	64	50	50	61	53	53
14:45	66	54	61	55	62	54	61	59	59
15:00	66	51	60	70	72	56	69	65	63
15:15	62	49	65	64	77	69	91	73	68
15:30	52	45	58	67	61	60	71	63	59
15:45	45	37	63	78	78	61	73	71	62
16:00	47	41	70	71	61	60	95	71	64
16:15	63	34	82	88	68	80	104	84	74
16:30	55	53	84	87	74	87	76	82	74
16:45	63	39	81	84	81	82	75	81	72
17:00	43	36	86	73	93	92	91	87	73
17:15	40	48	109	105	94	100	109	103	86
17:30	49	35	99	95	94	105	84	95	80
17:45	43	38	64	104	87	80	75	82	70
18:00	37	37	67	87	78	86	74	78	67
18:15	53	25	69	98	84	84	75	82	70
18:30	41	34	57	65	70	63	58	63	55
18:45	55	34	55	62	66	56	69	62	57
19:00	49	24	51	49	55	68	47	54	49
19:15	47	43	43	49	34	55	57	48	47
19:30	42	21	39	44	33	44	45	41	38
19:45	32	28	34	47	42	36	31	38	36
20:00	36	22	23	50	45	31	24	35	33
20:15	25	22	30	32	18	14	28	24	24
20:30	23	21	20	23	33	33	31	28	26
20:45	22	22	25	30	15	28	26	25	24
21:00	18	12	10	16	19	22	29	19	18
21:15	20	16	16	12	11	31	24	19	19
21:30	9	17	18	7	23	16	14	16	15
21:45	13	10	17	11	13	16	20	15	14
22:00	10	13	6	16	15	6	18	12	12
22:15	18	10	10	19	10	22	15	15	15
22:30	16	10	8	10	7	13	13	10	11
22:45	12	4	6	10	19	14	20	14	12
23:00	10	4	4	7	9	7	16	9	8
23:15	19	2	4	6	7	13	15	9	9
23:30	5	1	5	13	5	9	6	8	6
23:45	14	3	7	5	4	10	9	7	7
00:00	7	1	4	3	0	0	10	3	4
7-19	2563	1936	2926	3078	3064	3055	3277	3080	2843
6-22	2902	2204	3299	3513	3473	3502	3728	3503	3232
6-24	3003	2239	3347	3586	3534	3590	3832	3578	3304
0-24	3100	2334	3400	3647	3598	3639	3898	3636	3374

Automatic Classified Counts, Brighthouse

LOCATION: WAKEFIELD ROAD

Direction : WESTBOUND

WESTBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	26	28	6	6	28	16	93	30	29
00:30	15	25	9	8	50	10	63	28	26
00:45	16	21	6	3	98	13	118	48	39
01:00	15	22	14	5	83	7	113	44	37
01:15	6	14	7	6	98	6	143	52	40
01:30	10	10	0	5	66	9	112	38	30
01:45	12	17	3	6	81	4	94	38	31
02:00	13	13	3	8	85	2	73	34	28
02:15	7	11	4	6	64	8	71	31	24
02:30	12	8	3	9	71	8	83	35	28
02:45	5	4	6	6	66	5	82	33	25
03:00	9	2	3	2	72	8	57	28	22
03:15	8	6	5	4	71	4	24	22	17
03:30	6	8	4	5	66	4	6	17	14
03:45	5	4	3	1	49	5	4	12	10
04:00	3	6	2	2	3	4	5	3	4
04:15	9	7	3	5	11	4	3	5	6
04:30	8	4	7	4	7	1	4	5	5
04:45	6	11	6	4	7	8	7	6	7
05:00	8	5	8	7	10	12	7	9	8
05:15	11	8	22	11	16	8	9	13	12
05:30	10	4	13	17	21	27	26	21	17
05:45	12	6	18	31	37	29	23	28	22
06:00	13	8	29	26	20	35	48	32	26
06:15	19	10	29	33	40	41	33	35	29
06:30	22	14	57	54	55	68	62	59	47
06:45	21	13	72	77	60	61	78	70	55
07:00	45	15	89	89	86	92	100	91	74
07:15	23	16	100	99	123	108	114	109	83
07:30	30	19	129	108	108	129	101	115	89
07:45	38	18	123	130	158	126	123	132	102
08:00	47	22	106	100	84	110	107	101	82
08:15	53	26	100	93	83	93	97	93	78
08:30	62	38	83	91	96	87	94	90	79
08:45	83	36	67	76	82	96	93	83	76
09:00	79	34	93	68	88	106	82	87	79
09:15	73	57	81	89	69	81	82	80	76
09:30	71	47	71	81	95	83	93	85	77
09:45	85	81	104	90	96	84	90	93	90
10:00	93	91	103	97	113	98	120	106	102
10:15	79	83	86	70	89	114	104	93	89
10:30	89	63	106	100	114	101	107	106	97
10:45	90	88	92	114	91	84	112	99	96
11:00	107	93	100	97	63	103	121	97	98
11:15	114	85	81	100	80	99	102	92	94
11:30	113	92	96	103	88	95	120	100	101
11:45	95	100	95	102	103	106	93	100	99
12:00	95	115	103	113	89	119	112	107	107
12:15	117	103	108	110	138	109	139	121	118
12:30	122	136	116	72	95	122	111	103	111
12:45	122	145	102	109	85	108	113	103	112
13:00	103	120	111	94	79	115	109	102	104
13:15	124	117	113	113	114	100	87	105	110
13:30	128	110	102	107	116	115	107	109	112
13:45	108	99	116	96	107	107	99	105	105
14:00	102	109	104	105	126	116	108	112	110
14:15	79	110	102	99	111	126	106	109	105
14:30	126	109	104	116	115	117	115	113	115
14:45	107	109	119	115	100	129	111	115	113
15:00	100	120	113	119	126	123	106	117	115
15:15	98	111	103	99	121	126	121	114	111
15:30	89	119	105	119	98	113	120	111	109
15:45	108	106	103	117	117	106	110	111	110
16:00	102	109	116	103	99	131	92	108	107
16:15	107	103	127	121	102	106	97	111	109
16:30	127	111	118	87	129	98	91	105	109
16:45	126	122	100	89	106	93	120	102	108
17:00	98	109	87	100	95	100	96	96	98
17:15	108	100	82	95	104	90	105	95	98
17:30	96	81	69	74	81	99	100	85	86
17:45	115	93	92	102	99	85	112	98	100
18:00	102	83	93	73	101	107	132	101	99
18:15	106	88	120	124	125	137	141	129	120
18:30	102	85	112	120	135	135	111	123	114
18:45	90	62	104	129	138	130	116	123	110
19:00	96	90	93	111	117	129	112	112	107
19:15	88	75	104	119	119	102	113	111	103
19:30	83	83	90	98	82	103	90	93	90
19:45	80	58	75	88	88	92	91	87	82
20:00	74	63	77	75	68	82	77	76	74
20:15	73	58	46	73	74	70	65	66	66
20:30	64	57	59	58	78	130	79	81	75
20:45	49	38	52	63	63	114	59	70	63
21:00	50	42	47	83	52	107	57	69	63
21:15	41	36	37	73	75	80	64	66	58
21:30	43	30	34	77	99	79	50	68	59
21:45	44	32	36	84	99	69	35	65	57
22:00	40	25	28	55	81	74	44	56	50
22:15	39	25	29	51	73	72	40	53	47
22:30	37	23	33	74	107	71	46	66	56
22:45	39	17	22	52	58	53	37	44	40
23:00	37	17	19	46	54	40	44	41	37
23:15	24	19	23	34	35	174	31	59	49
23:30	32	20	23	20	24	160	33	52	45
23:45	32	18	20	26	17	154	38	51	44
00:00	24	9	11	25	7	105	24	34	29
7-19	4527	4163	4853	4839	4991	5194	5154	5006	4817
6-22	5363	4812	5785	6038	6210	6558	6251	6168	5860
6-24	5627	4960	5965	6366	6585	7387	6544	6569	6205
0-24	5872	5212	6149	6553	7765	7624	7812	7181	6712

Automatic Classified Counts, Brighthouse

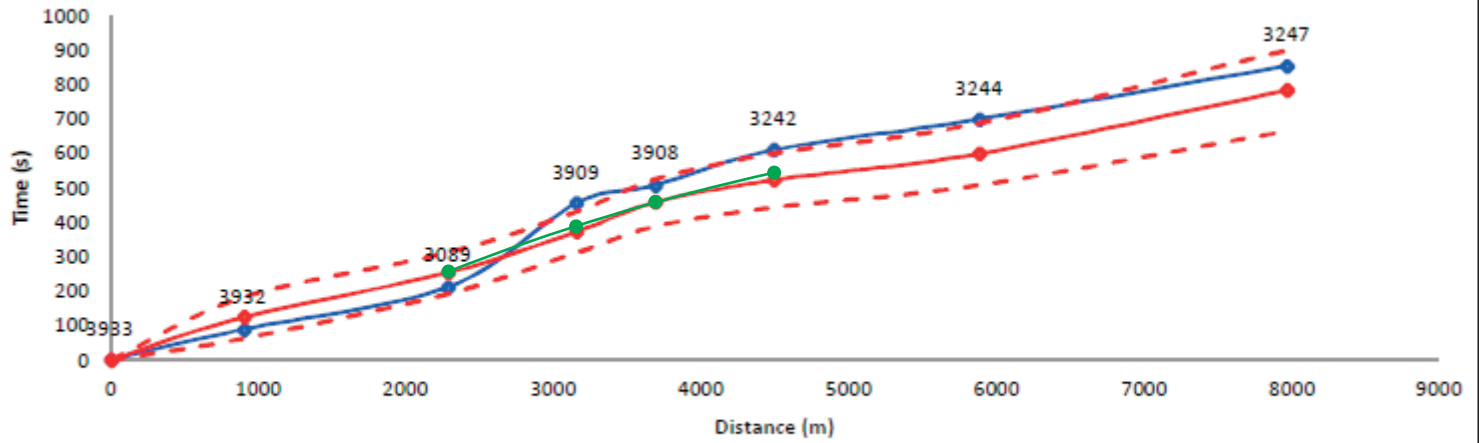
LOCATION: WAKEFIELD ROAD

Direction : EASTBOUND

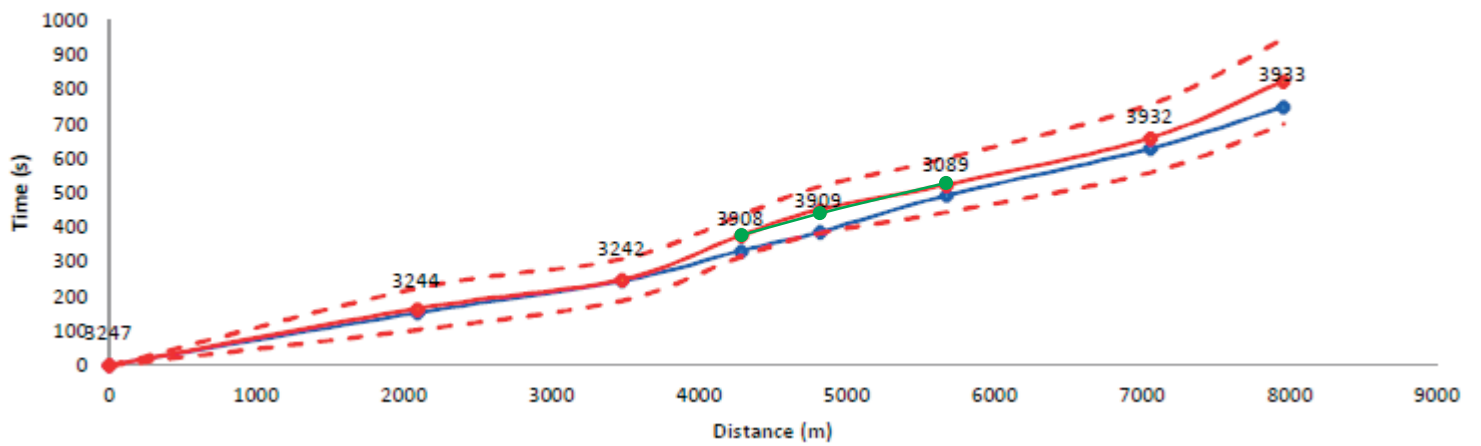
EASTBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	21	21	9	7	7	5	12	8	12
00:30	26	15	6	7	14	9	12	10	13
00:45	23	14	8	10	13	4	8	9	11
01:00	17	13	7	6	5	2	7	5	8
01:15	16	9	7	8	2	0	7	5	7
01:30	16	6	4	5	5	6	5	5	7
01:45	12	13	2	7	14	3	11	7	9
02:00	7	12	1	2	2	4	4	3	5
02:15	9	7	3	3	3	6	9	5	6
02:30	7	11	4	4	5	5	6	5	6
02:45	6	7	3	4	5	3	9	5	5
03:00	3	6	8	6	6	10	4	7	6
03:15	12	4	5	10	10	1	8	7	7
03:30	7	9	8	9	2	0	3	4	5
03:45	5	6	13	4	11	8	7	9	8
04:00	8	10	8	6	9	11	8	8	9
04:15	4	7	8	13	10	15	12	12	10
04:30	4	7	25	14	28	15	13	19	15
04:45	12	6	34	25	16	17	24	23	19
05:00	11	7	23	25	21	26	19	23	19
05:15	17	9	36	39	33	39	27	35	29
05:30	25	11	56	45	53	44	48	49	40
05:45	30	22	78	67	72	72	73	72	59
06:00	32	11	77	70	84	75	64	74	59
06:15	27	8	93	90	89	77	92	88	68
06:30	37	20	146	148	156	147	134	146	113
06:45	49	24	184	202	195	186	144	182	141
07:00	51	24	188	190	191	176	199	189	146
07:15	54	19	222	274	262	249	217	245	185
07:30	60	31	273	265	254	261	240	259	198
07:45	69	41	217	201	207	206	232	213	168
08:00	65	50	240	215	205	199	217	215	170
08:15	78	43	190	227	191	243	187	208	166
08:30	97	38	151	175	181	193	174	175	144
08:45	90	58	156	156	136	144	153	149	128
09:00	91	69	134	162	194	167	154	162	139
09:15	130	75	171	192	190	173	157	177	155
09:30	135	108	113	137	137	134	146	133	130
09:45	131	112	165	146	141	147	177	155	146
10:00	115	98	143	157	170	150	148	154	140
10:15	135	109	129	164	130	136	161	144	138
10:30	149	128	133	160	145	148	159	149	146
10:45	150	95	137	150	113	136	161	139	135
11:00	118	130	141	171	155	156	175	160	149
11:15	164	115	132	128	143	162	173	148	145
11:30	150	140	156	133	147	173	172	156	153
11:45	138	129	141	139	167	156	165	154	148
12:00	141	144	168	171	149	119	157	153	150
12:15	172	129	186	160	135	146	166	159	156
12:30	159	148	148	155	137	168	160	154	154
12:45	161	128	148	148	137	192	201	165	159
13:00	140	130	136	163	150	164	168	156	150
13:15	138	113	147	153	159	159	158	155	147
13:30	137	140	176	152	147	172	154	160	154
13:45	129	151	164	174	154	178	154	165	158
14:00	133	113	157	141	180	149	158	157	147
14:15	132	98	150	150	158	177	148	157	145
14:30	104	121	159	139	151	168	153	154	142
14:45	129	130	146	160	131	152	135	145	140
15:00	127	105	137	117	110	153	130	129	126
15:15	115	111	141	154	104	135	158	138	131
15:30	103	92	146	157	163	176	135	155	139
15:45	107	117	169	152	198	164	159	168	152
16:00	93	115	134	169	144	160	158	153	139
16:15	114	92	223	229	213	198	174	207	178
16:30	107	86	172	164	163	168	158	165	145
16:45	87	86	164	200	188	216	158	185	157
17:00	100	91	186	184	163	190	134	171	150
17:15	103	88	244	262	254	208	185	231	192
17:30	92	74	165	200	184	173	139	172	147
17:45	122	81	188	204	182	171	156	180	158
18:00	100	77	123	147	157	142	115	137	123
18:15	91	100	117	156	132	103	109	123	115
18:30	95	65	111	129	98	110	120	114	104
18:45	99	81	93	128	117	111	98	109	104
19:00	78	64	90	135	95	86	104	102	93
19:15	79	64	86	128	86	112	117	106	96
19:30	62	62	72	122	94	80	72	88	81
19:45	56	51	57	91	73	65	75	72	67
20:00	60	49	47	85	63	66	74	67	63
20:15	46	41	42	66	66	71	74	64	58
20:30	42	36	43	59	50	38	43	47	44
20:45	34	30	21	44	58	51	47	44	41
21:00	37	27	39	35	29	54	31	38	36
21:15	33	27	39	46	50	54	48	47	42
21:30	32	22	32	48	48	60	42	46	41
21:45	30	24	32	33	35	46	45	38	35
22:00	20	25	26	42	44	31	33	35	32
22:15	29	26	42	34	25	32	32	33	31
22:30	38	23	23	42	36	40	42	37	35
22:45	54	11	23	29	27	26	30	27	29
23:00	31	13	27	16	13	30	20	21	21
23:15	21	10	13	10	19	19	22	17	16
23:30	31	15	6	11	12	11	27	13	16
23:45	24	11	7	6	13	11	23	12	14
00:00	26	6	14	14	11	19	24	16	16
7-19	5527	4658	7632	8105	7721	7941	7670	7814	7036
6-22	6222	5192	8779	9534	9048	9255	8940	9111	8139
6-24	6476	5307	8934	9696	9204	9443	9160	9287	8317
0-24	6806	5550	9367	10092	9634	9823	9560	9695	8690

APPENDIX B

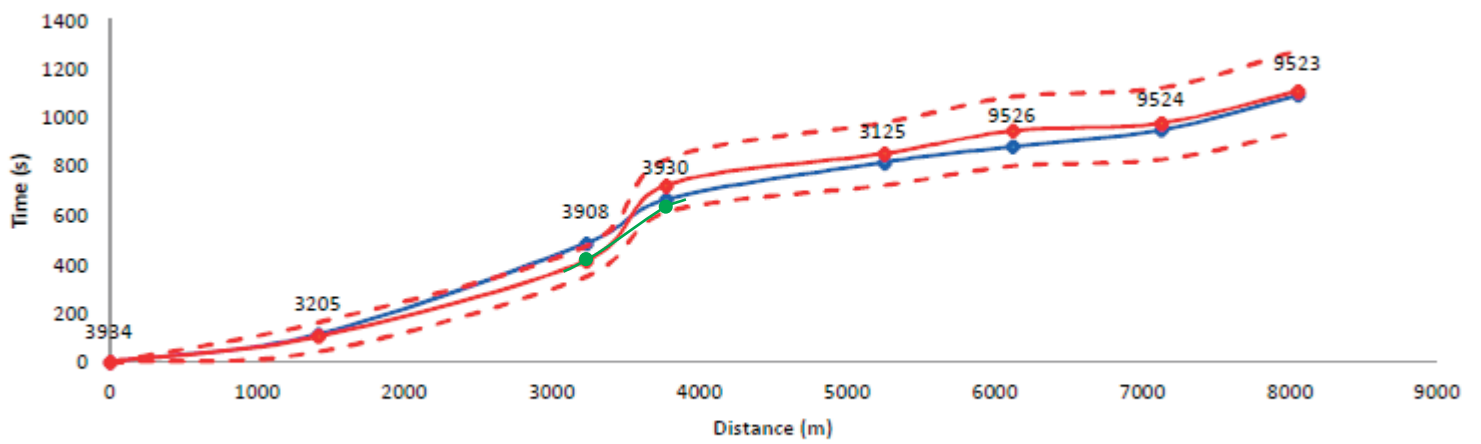
Route 9 Southbound



Route 9 Northbound



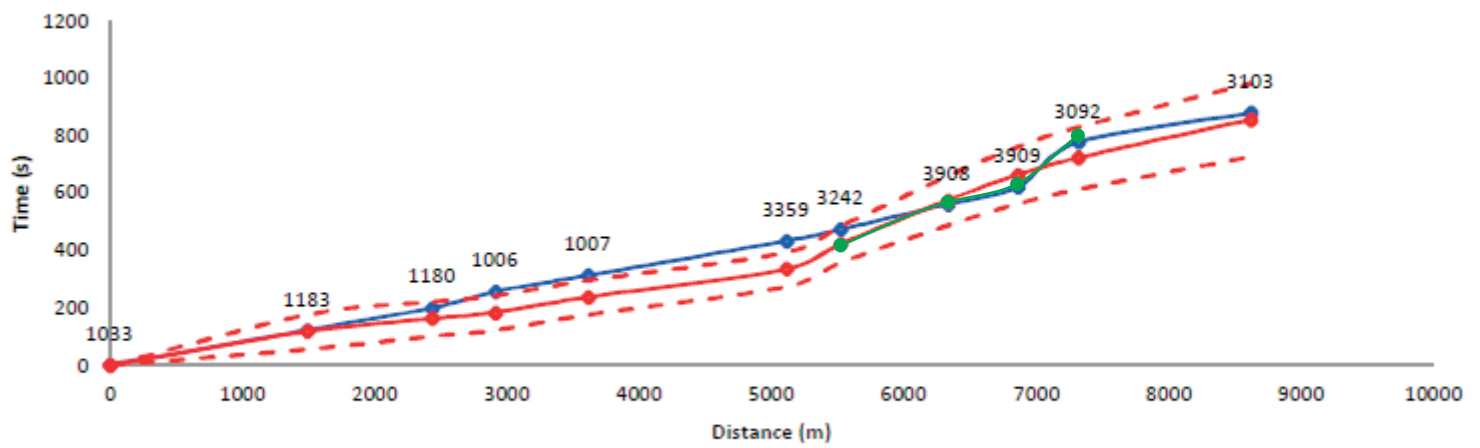
Route 10 Southbound



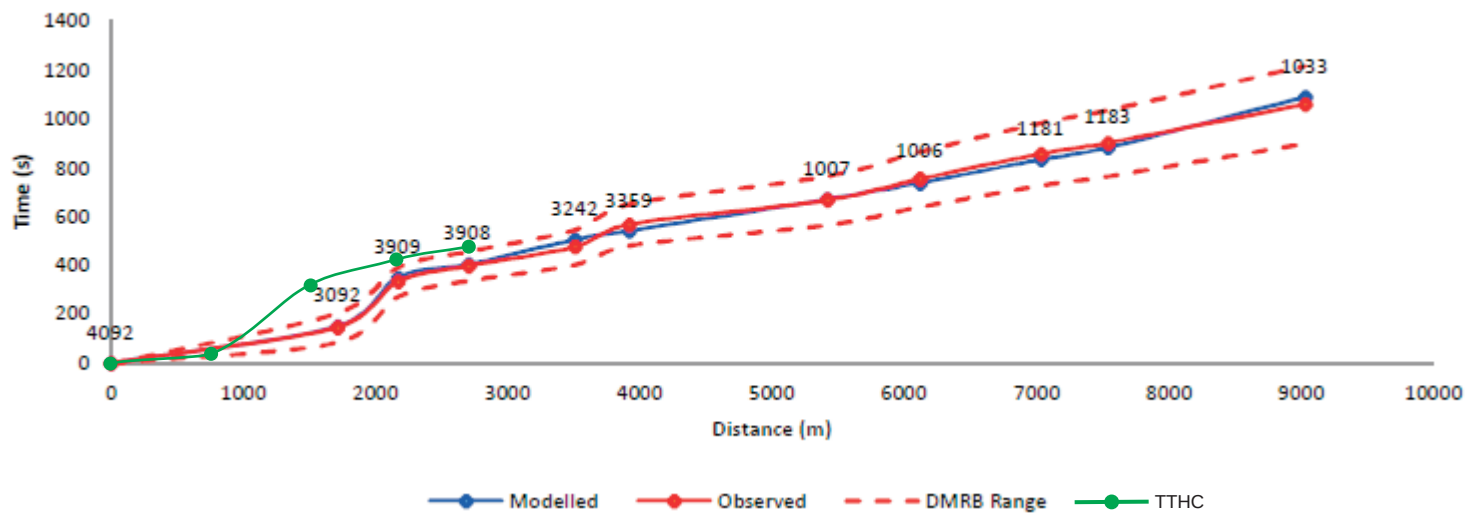
Modelled Observed DMRB Range TTHC

Route 11 Eastbound

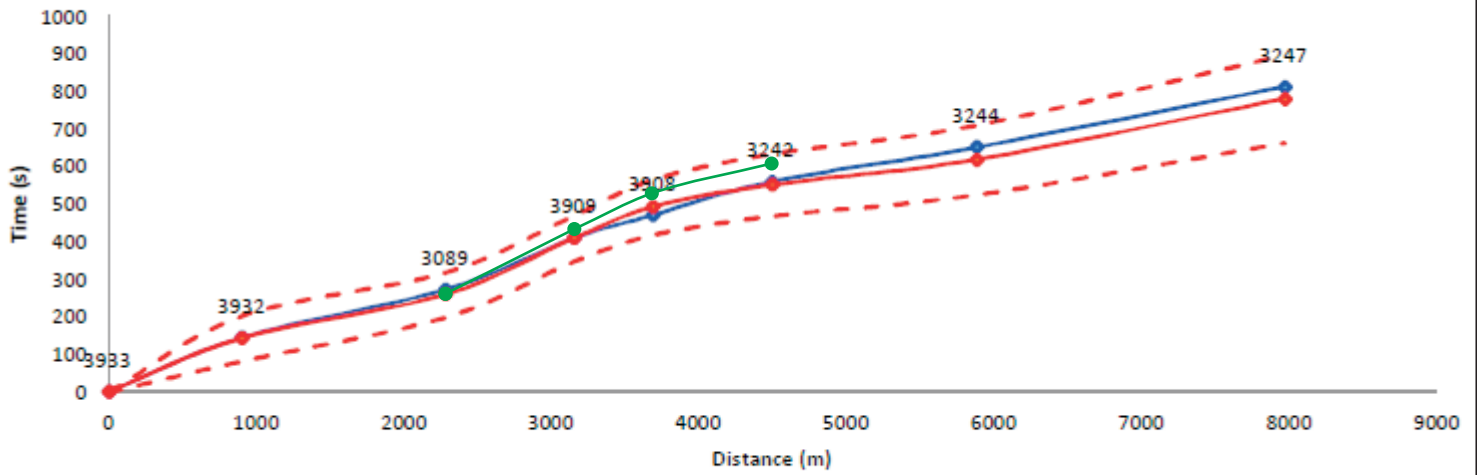
AM PEAK



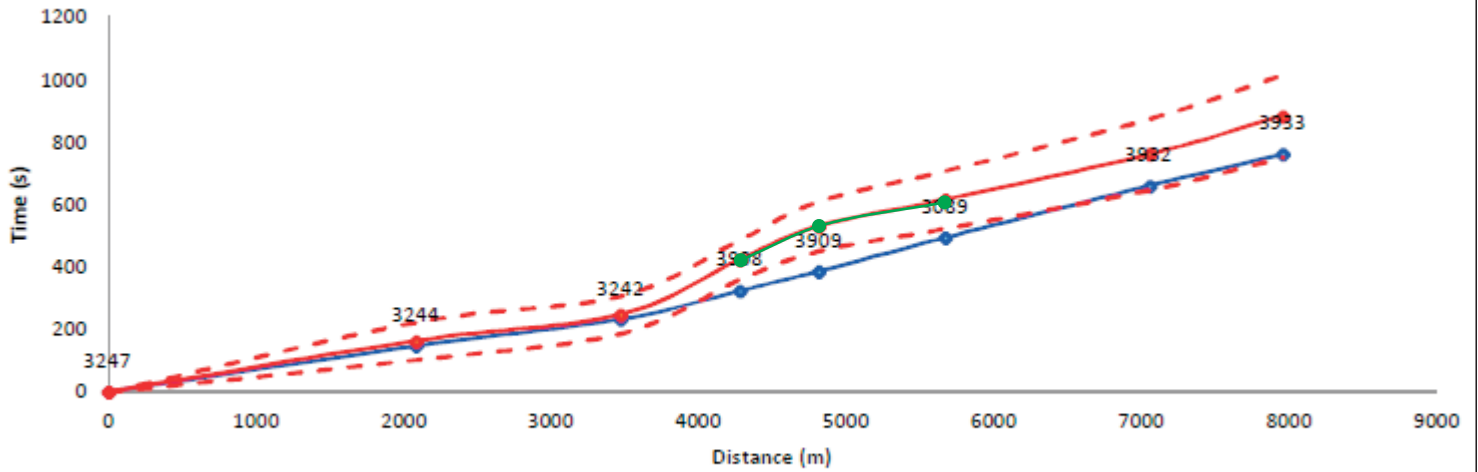
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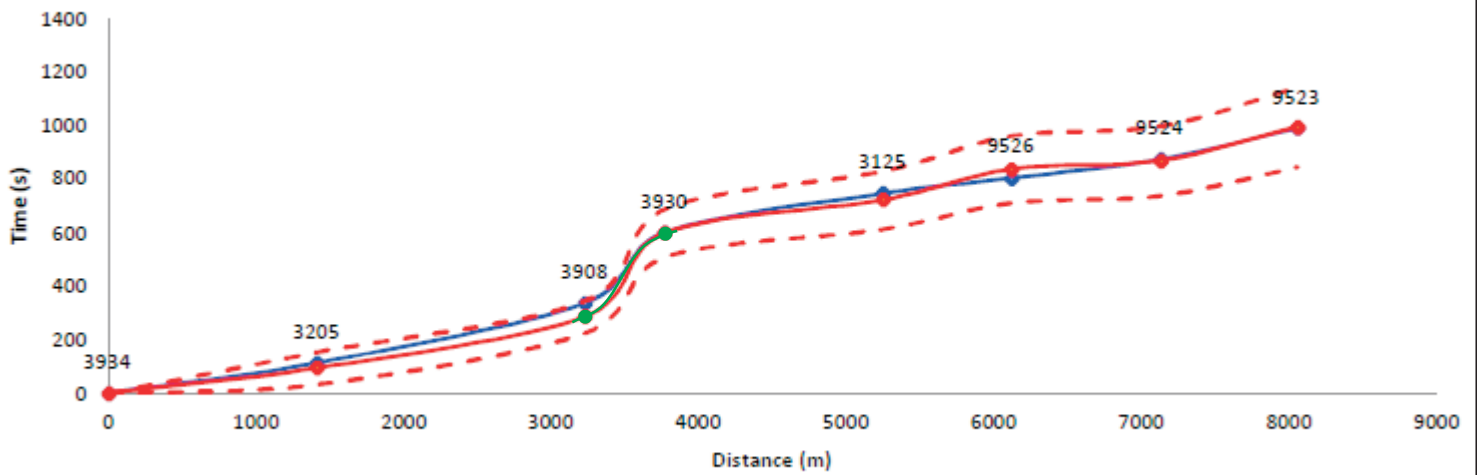
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Route 9 Northbound

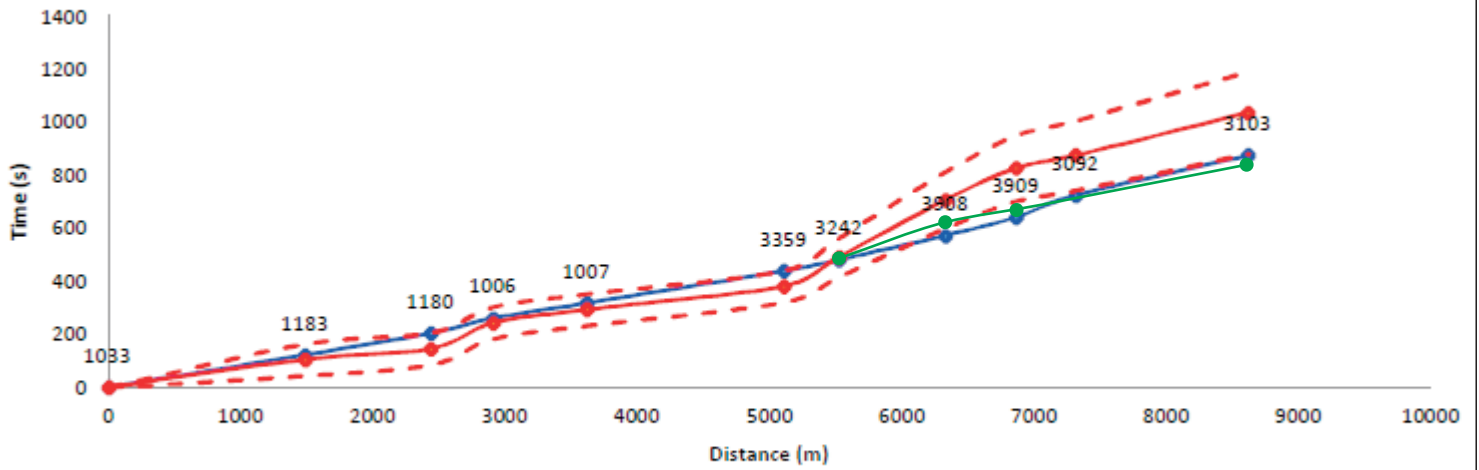


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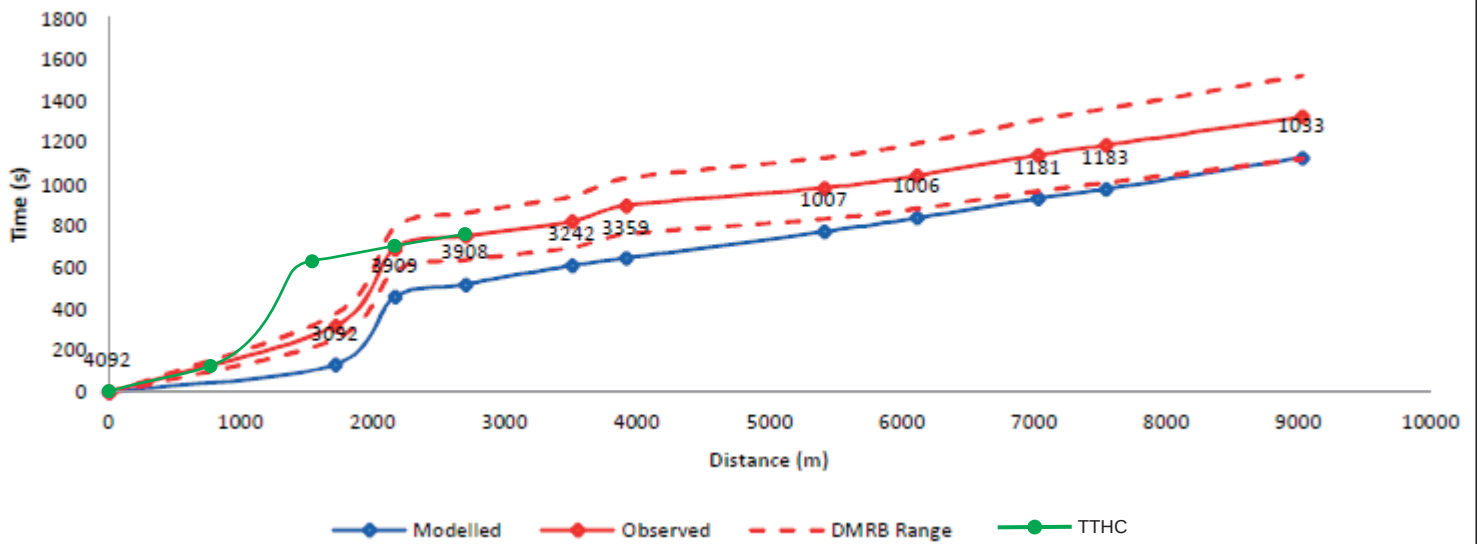


Modelled Observed DMRB Range TTHC

Route 11 Eastbound



Route 11 Westbound



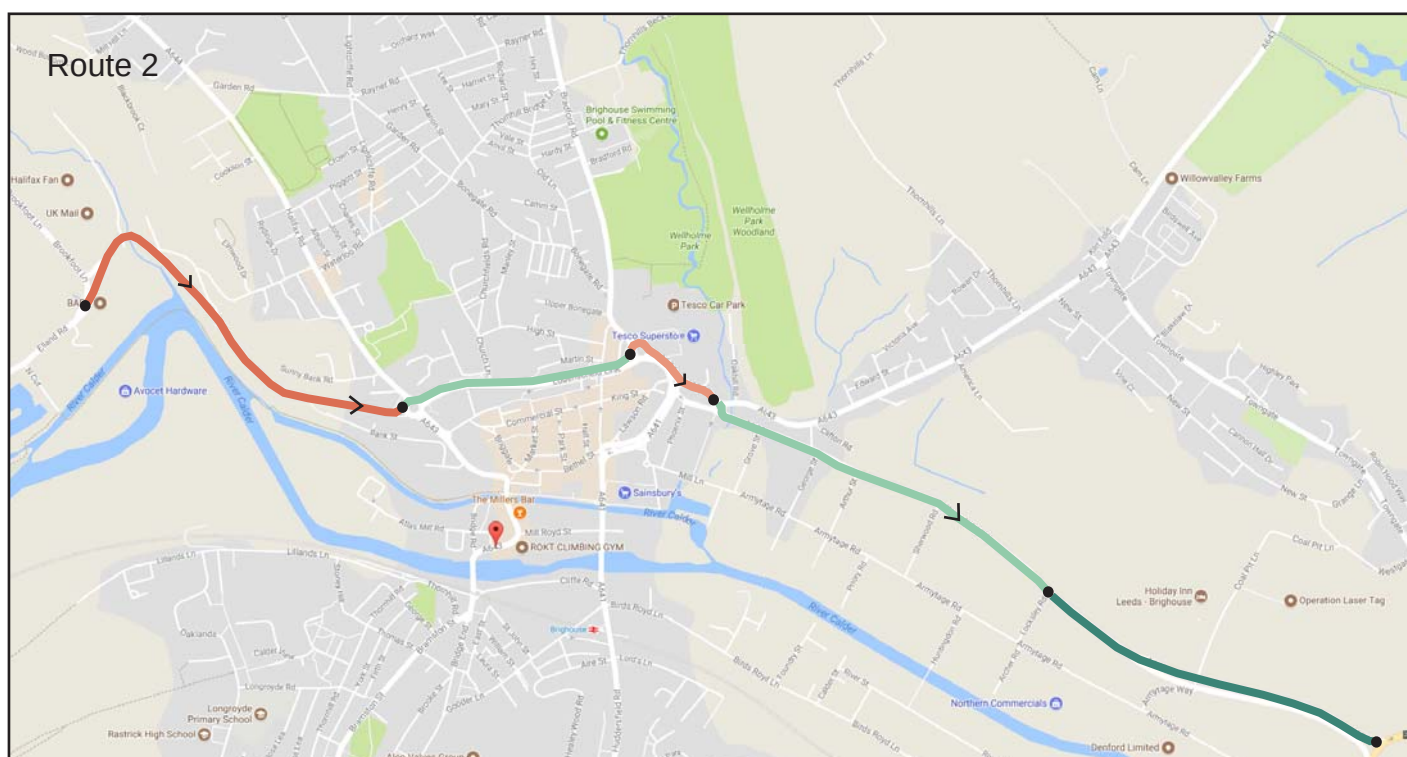
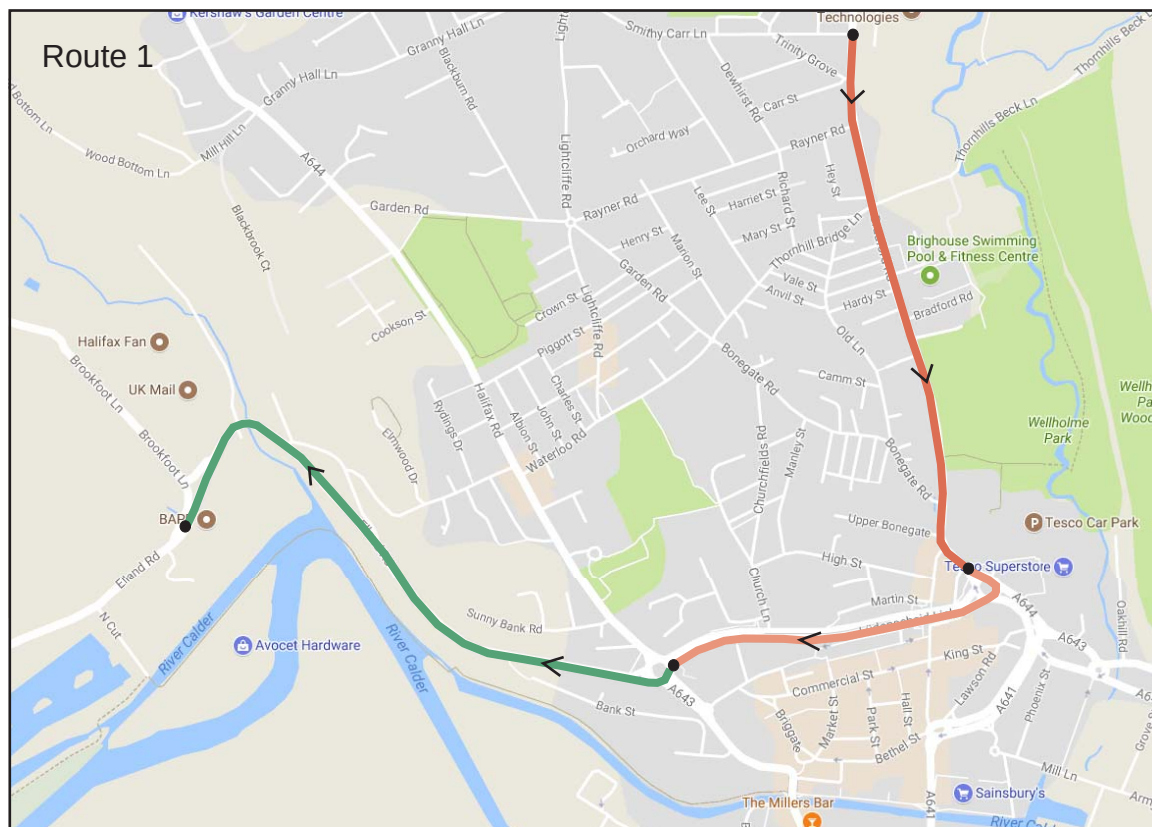
APPENDIX C

Clifton, Brighouse

AM PEAK HOUR

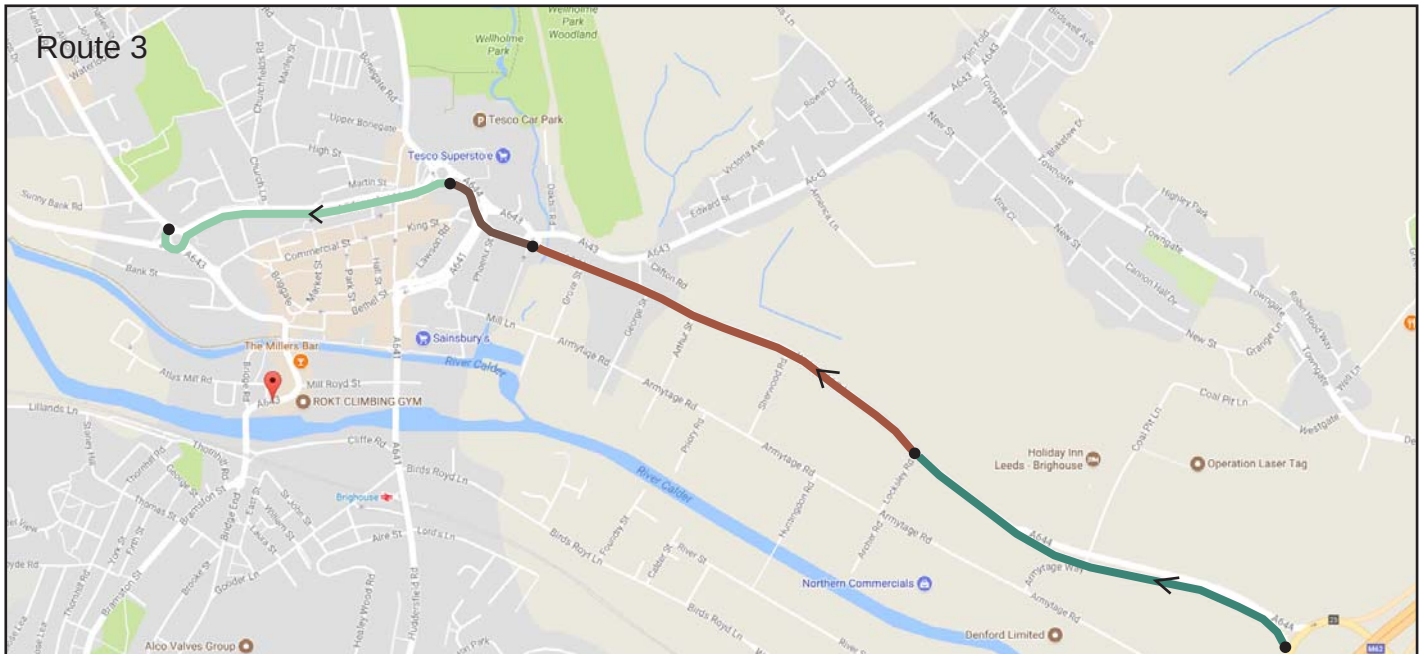
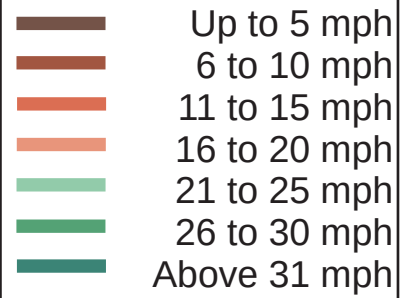
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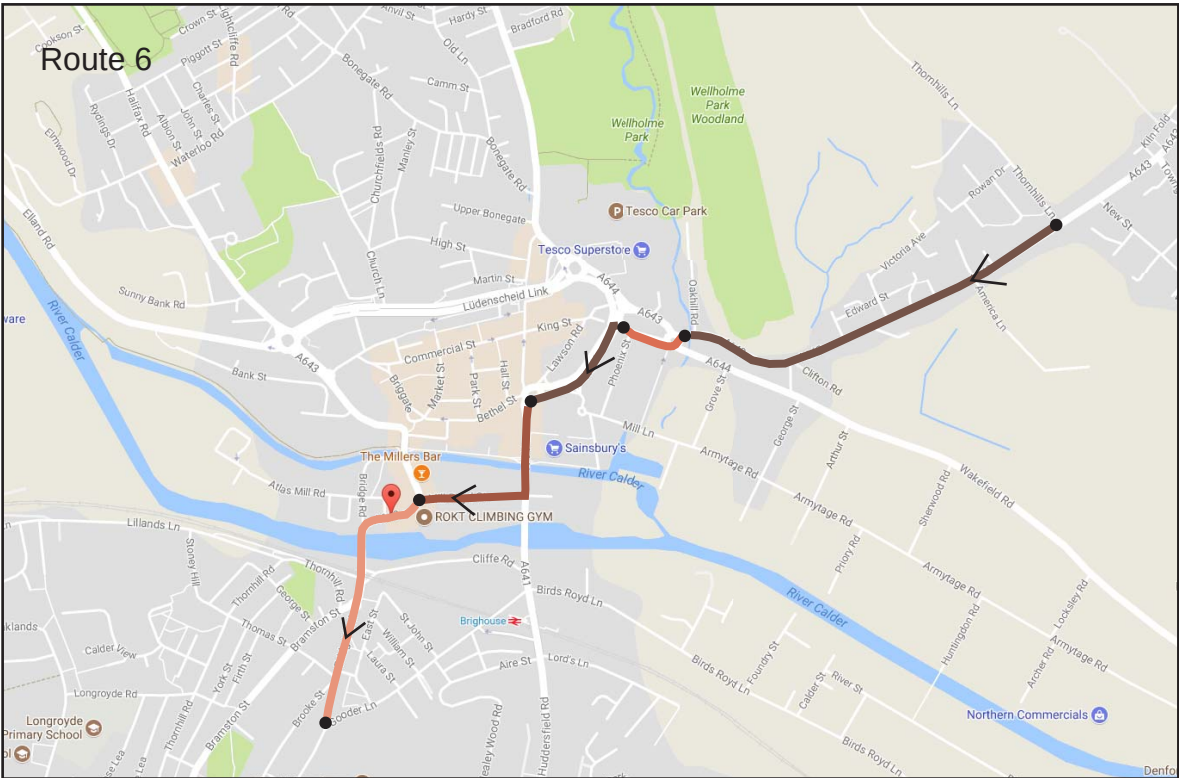
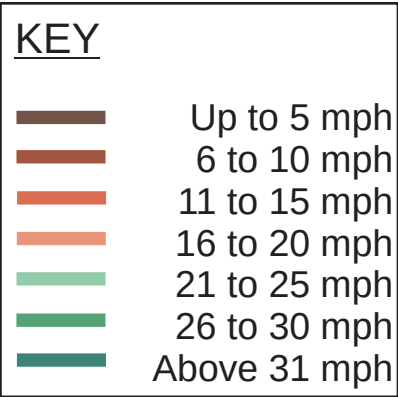
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	6 to 10 mph
	11 to 15 mph
	16 to 20 mph
	21 to 25 mph
	26 to 30 mph
	Above 31 mph

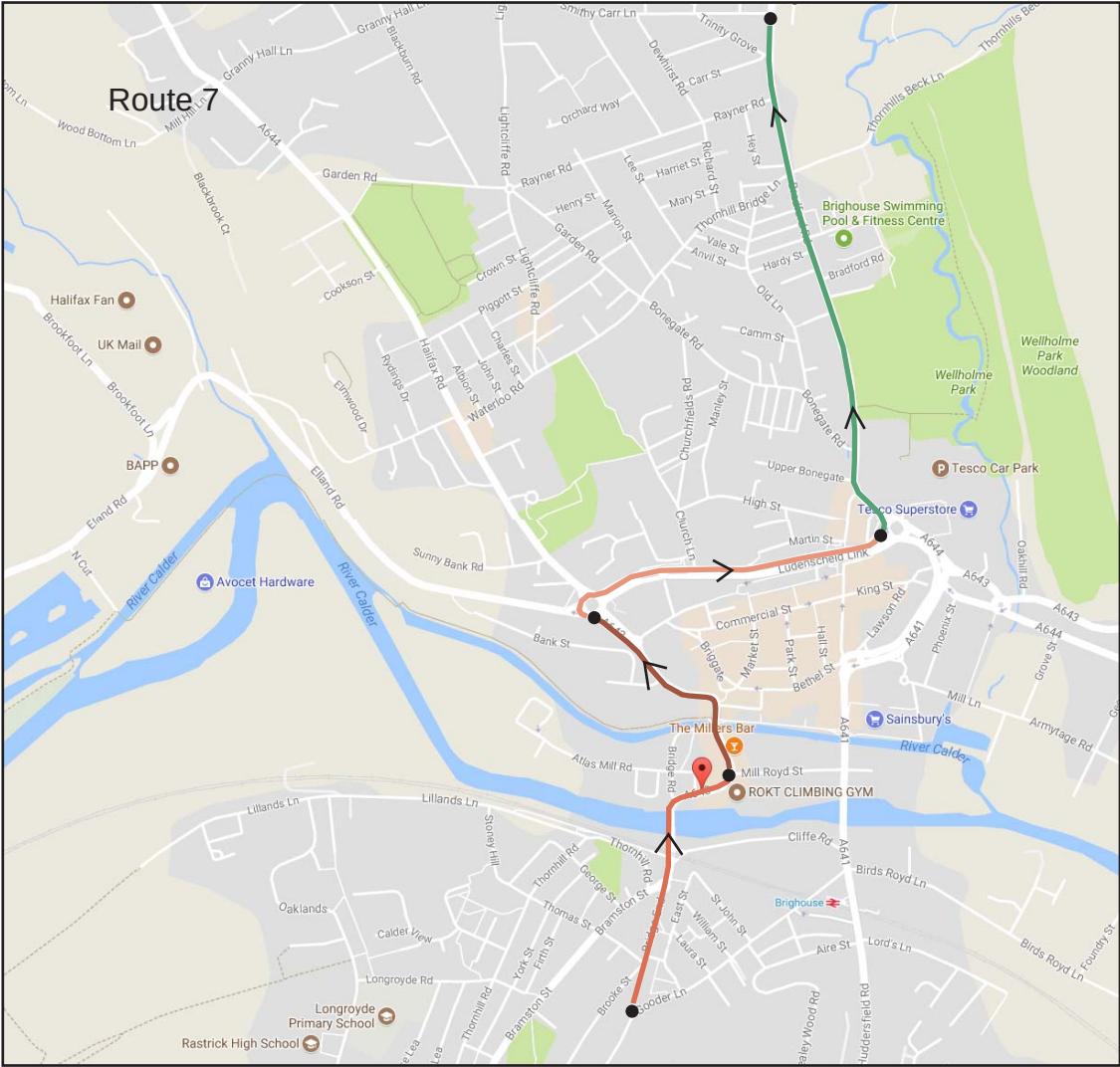
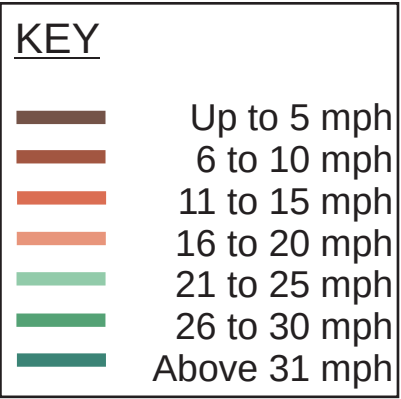


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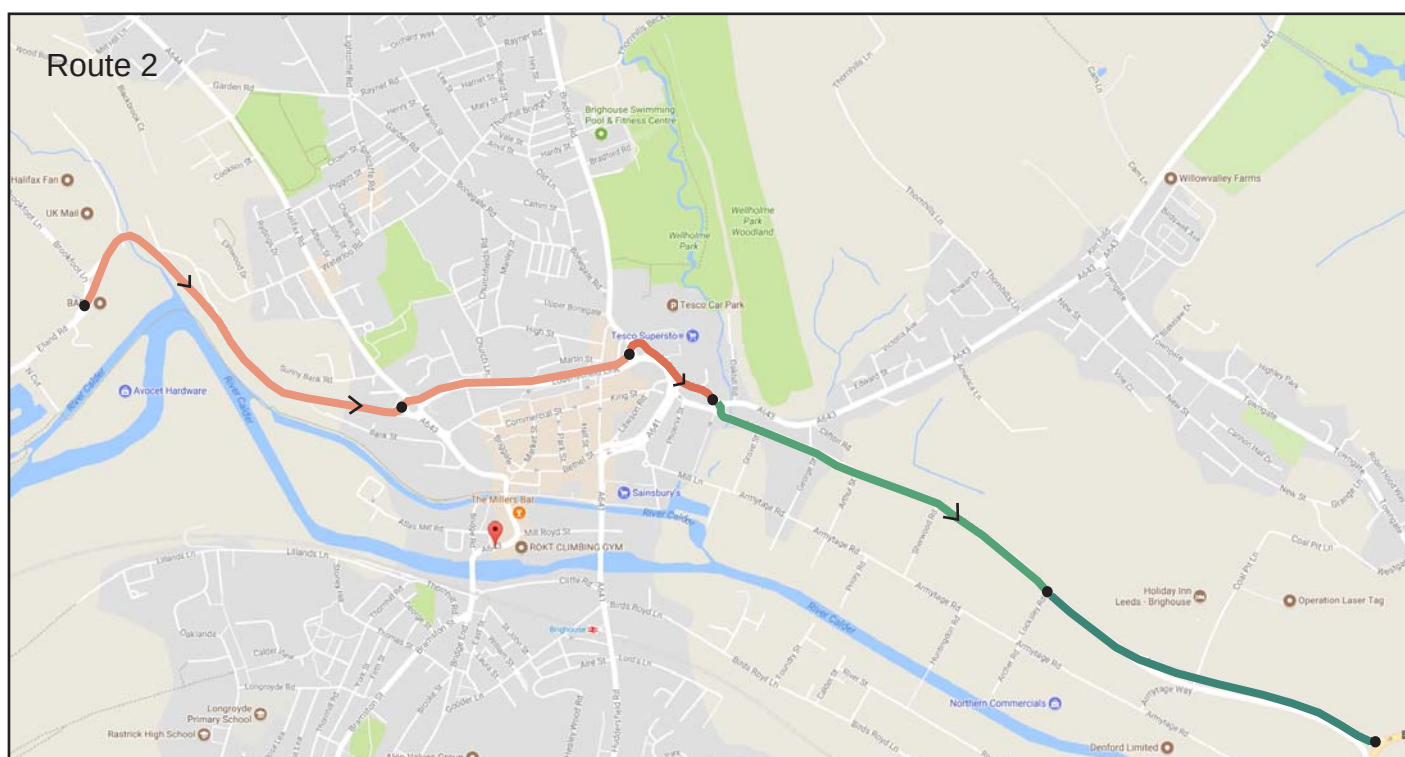
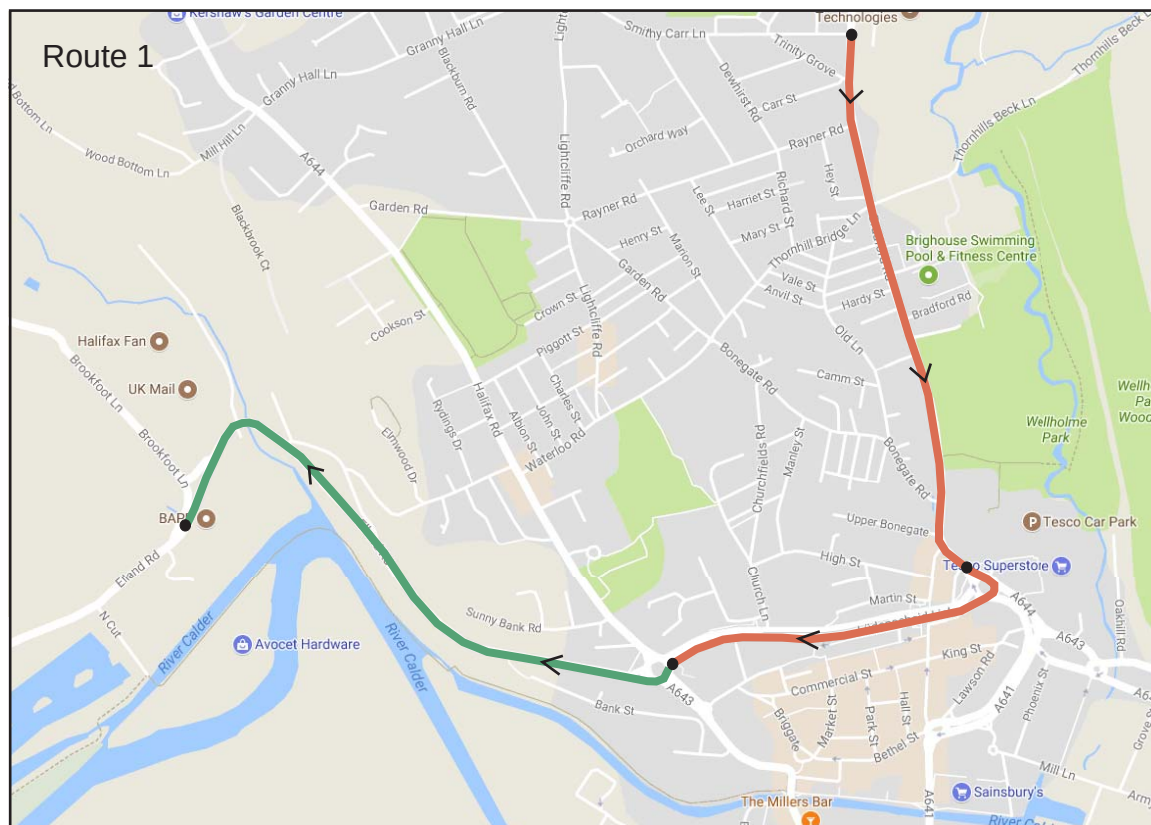
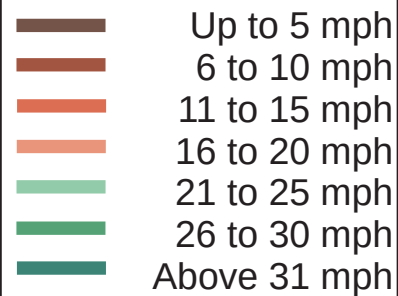




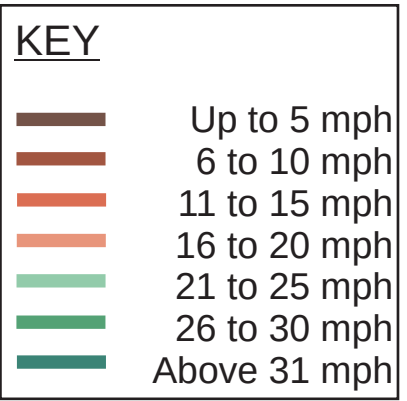
Clifton, Brighouse

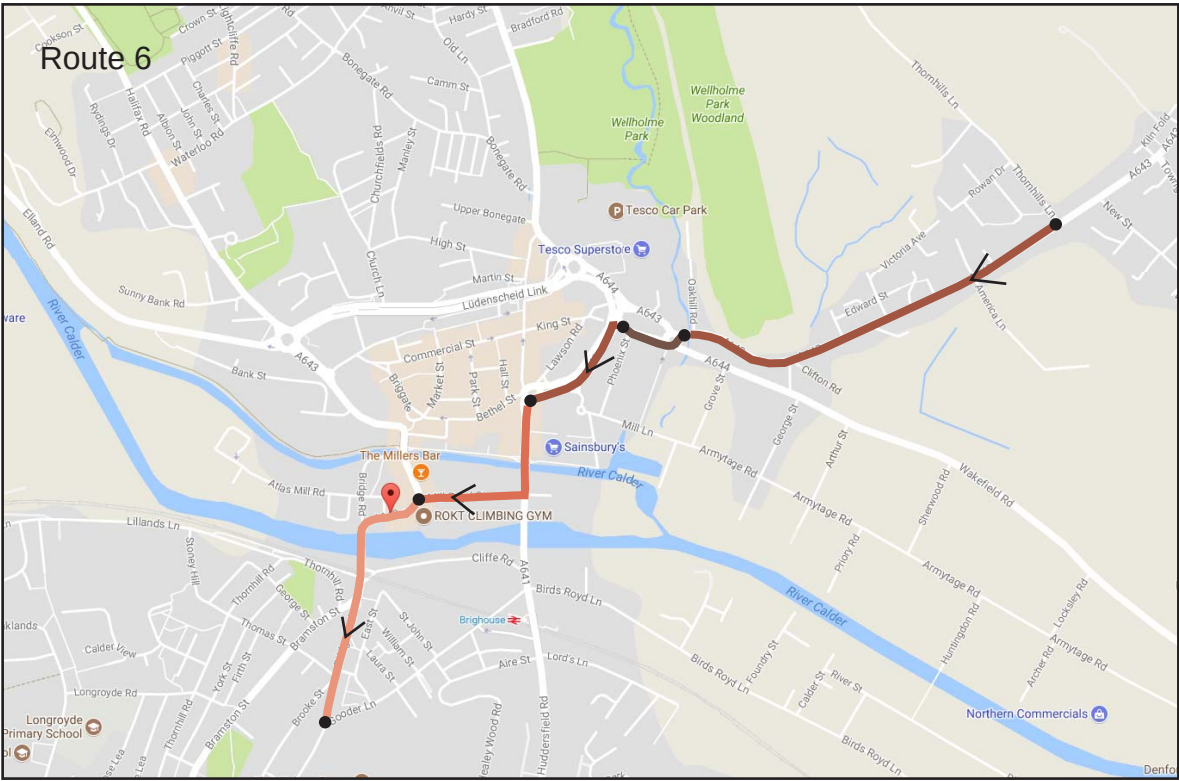
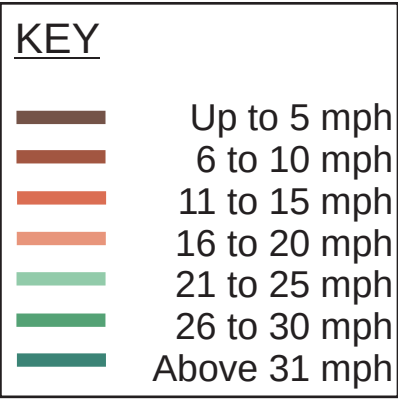
PM PEAK HOUR

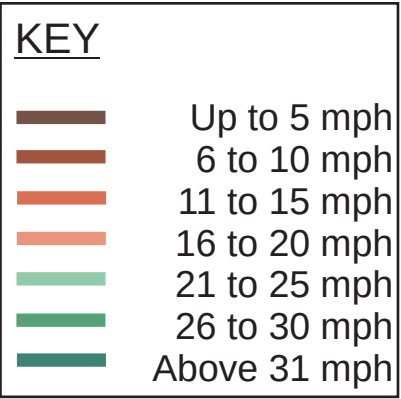
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Appendix 2

CALDERDALE LOCAL PLAN – PUBLICATION DRAFT

2018 TRANSPORT REPRESENTATION

(Clifton Village Neighbourhood Forum)

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Date: September 2018

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Appendix B	2011 Census Data for Brighouse

1.0 INTRODUCTION AND BACKGROUND

- 1.1 TTHC Ltd produced a **Transport Representation** (TR) on behalf of the Clifton Village Neighbourhood Forum (CVNF) in September 2017 to provide an examination and critique of the transport implications relating to proposed allocations within the Initial Draft of the Calderdale Local Plan, and in particular the proposed allocations within Brighouse. This September 2018 TR has been prepared in response to the Publication Draft Local Plan and related documents which have been issued by or on behalf of Calderdale Metropolitan Borough Council (CMBC) since the 2017 TR submission.
- 1.2 A copy of the 2017 TR is attached to this latest representation in **Appendix A**. This 2018 TR should be read in conjunction with both the 2017 representation and the ‘covering’ representation prepared by NJL.
- 1.3 The most significant allocation within the Draft Local Plan is the Thornhills Site, an allocation of 1,926 residential dwellings in Green Belt.
- 1.4 The 2017 TR responded to and critiqued a number of documents including:
- WSP Local Model Validation Report (SATURN modelling)
 - Strategic Vision for South East Calderdale – Traffic Statement (Oct 2016)
 - WSP Technical Note 4 – Assessment of Cumulative Impact (May 2017)
- 1.5 In order to provide evidence for the issues associated with the significant levels of existing congestion within Brighouse, TTHC also carried out traffic counts, journey-time surveys and observations in the Brighouse area and these were reported in the original 2017 TR.
- 1.6 The 2017 TR showed that the modelling relied upon to support the proposed allocation is understating the observed flows on the parts of the network (up to 24% lower) which are most critical to the Thornhills site and that the level of development across the borough had been understated, as residential sites of

less than 50 dwellings and employment areas had been excluded from the modelling.

- 1.7 The 2017 TR also highlighted that the significant existing highway congestion within Brighouse, which the WSP work fails to properly acknowledge, would be worsened by the original allocations of over 6,000 residential dwellings and 37 hectares of employment land.
- 1.8 Air quality is also a significant issue as Brighouse has been subject to an Air Quality Management Area (AQMA) for at least 10 years.
- 1.9 WSP's modelling work included an assumed scheme for the A629 corridor in the Do Something Scenario, but this would not mitigate the impacts of the Thornhills Site to any material extent, certainly at the most critically congested locations and as such WSP concluded that this scenario would result in major impacts on congestion and delays through the junctions within central Brighouse (ref Section 6.7 of WSP Technical Note 4). Overall the modelling shows there would be congestion in Brighouse as a result of the proposed development. However, without providing any evidence whatsoever as to how, the document states the congestion is resolvable. Paragraph 6.7.7 states:
- “The problem locations align with the proposed A641 corridor WY+PT scheme which is currently at a pre-feasibility stage and can be tailored to suit the impacts of the Local Plan, and the significant transport infrastructure that will form part of the master planning of the Thornhills urban extension site and Clifton employment site”.*
- 1.10 CMBC have now progressed the Local Plan to a Publication Draft. This update to the 2017 Transport Representation provides feedback in connection with the additional documents produced in conjunction with the Publication Draft consultation stage. It should be noted that at this stage, TTHC have not had access to the modelling outputs and so further representations may be necessary. CVNF's position is reserved in this respect.

**2.0 MATTERS UPDATED SINCE PREVIOUS REPRESENTATION
(SEPTEMBER 2017)**

2.1 Since September 2017, further documents have been published by CMBC and their consultants. These are summarised below.

2.2 **WSP Technical Note 9 – Review of Previous Local Plan Evidence Base (May 2018).** Although this is labelled Technical Note 10, TTHC believe this was intended to be Technical Note 9. This Technical Note reviews the previous network modelling methodology in terms of trip rates, distribution and modal split used in WSP Technical Note 4 (which was covered in the original TR).

2.3 **WSP Technical Note 10 – Assessment of Cumulative Impact 2018 (July 2018).** This follows on from Technical Note 9 and reviews the Do Minimum and Do Something modelling. It makes some limited suggestions for changes to the network modelling.

2.4 **Draft Calderdale Infrastructure Delivery Plan (March 2018).** The IDP identifies the proposed infrastructure which would need to be delivered over the Local Plan period to support the proposed development allocations. Chapter 5 covers transport infrastructure.

2.5 **Site Report – LP1463 (Thornhills Site).** This is an updated site report for the Publication Draft. It includes comments from Highways England in response to the 2017 Consultation and CMBC Highways Development Management.

3.0 REVIEW OF PUBLICATION DRAFT EVIDENCE BASE

Site Allocations

- 3.1 The original modelling by WSP excluded residential sites smaller than 50 dwellings. TTHC and Highways England identified that this was a deficiency in the modelling process. WSP TN9 (para 8.10) states that the smaller sites have now been included in the model, and the updated list of residential sites is included in WSP TN10 (Appendix A).
- 3.2 The Publication Draft includes some minor changes to the allocated employment sites in Brighouse. The area of site LP0032 has been slightly reduced, and the proposed use categories (Class B1/B2/B8) have been changed for three sites. WSP TN9 suggests that these changes are not expected to result in significant changes to trip generation. The updated list of employment sites is included in WSP TN10 (Appendix B).
- 3.3 The Publication Draft also includes changes to the allocated mixed-use sites in Brighouse. Sites have been removed (total of 43 acres) and one site has been added (0.6 acres).
- 3.4 Data from the 2011 Census shows that for all working Calderdale residents:
- 64% work within Calderdale
 - 27% work outside the borough elsewhere in West Yorkshire (Kirklees, Leeds, Bradford and Wakefield)
 - 9% work outside West Yorkshire, including Greater Manchester
- 3.5 However, examination of the four MSOAs which cover the Brighouse area (as referred to by TTHC in the 2017 TR) shows that the trip characteristics are significantly different. The relevant data is presented in **Appendix B**.

3.6 The data shows that for residents of these four MSOAs who travel to work:

- 52% work with Calderdale
- 42% work outside the borough elsewhere in West Yorkshire
- 6% work outside West Yorkshire, including Greater Manchester

3.7 And specifically for the residents who drive to work:

- 45% work with Calderdale
- 48% work outside the borough elsewhere in West Yorkshire
- 7% work outside West Yorkshire, including Greater Manchester

3.8 This is not surprising given the proximity of Brighouse to junctions 24 and 25 of the M62. What this demonstrates is that the most likely effect of providing in the region of 4,000 additional houses in the Brighouse area, supposedly to meet the housing needs of Calderdale, will be to provide new housing estates within the Calderdale Green Belt which will serve as dormitory housing for people working outside Calderdale. In other words, the proposed housing in Brighouse will perpetuate and exacerbate unsustainable commuter travel to work patterns.

Highway Modelling

3.9 WSP have made no attempt to address the matters raised in the 2017 TR, nor have they challenged the data gathered through traffic counts and journey time surveys which demonstrates the extent of the severe levels of congestion within Brighouse. The only 'responses' on highways are in relation to the representation from Highways England in connection with the Strategic Road Network (SRN).

3.10 Section 3 of the 2017 TR highlighted that the WSP validation model (i.e. the starting point) was generally understating (by as much as 24%) the level of existing demand on the network at critical locations within Brighouse. TTHC are aware that earlier in 2018, Automatic Traffic Counters (ATCs) had been laid within Brighouse and it had been assumed that these would be used in some way to seek an improved validation of the WSP modelling work. However, no

reference is made to this within the latest submissions, nor as referenced above have WSP sought to challenge the traffic count and journey time data presented within the 2017 TR.

3.11 Beyond the model validation (which significantly understates the level of traffic within Brighouse), WSP TN10 includes modelling of two highway networks – a Do Minimum model (the existing network plus committed schemes), and a Do Something model (which also includes the A629 Phases 1a and 1b which are committed through the West Yorkshire + Transport Fund (WY+TF) process.

3.12 WSP TN10 identifies the significant impact in Brighouse (para 3.7.2):

The key impacts seen in Brighouse are listed below:

- *The western Ludenscheid Link roundabout experiences southbound and northbound movements that are over capacity.*
- *The traffic related to the large Thornhills housing site has a major impact on congestion and delays at the junction of the A644 and A643.*
- *The Thornhills site also produces an impact as a result of additional traffic using inappropriate links in the network, e.g. Thornhills Beck Lane.*
- *Existing congestion is worsened through the centre of Brighouse on the A641. The model showing an increase in delay of 4 minutes northbound and 1 minute southbound in the AM peak and 2 minutes in each direction in the PM peak.*

3.13 These impacts are particularly concerning against the backdrop of the poor model validation (i.e. the model starting point). This can only mean that impacts in Brighouse would be considerably worse than TN10 suggests.

3.14 With regard to the other schemes which would be required locally, WSP have also explicitly stated (in TN10) that further phases of the A629 scheme and the

A641 corridor scheme have not been included, and that “There is also less certainty over their delivery within the plan period.” [TTHC emphasis added] It is therefore not credible for WSP to place any weight on these schemes to conclude that the highway network on the edge of or within Brighouse will function adequately during the Local Plan period.

Access Points

- 3.15 In the 2017 TR, TTHC highlighted that all of the suggested potential access points to the Thornhills Site have significant constraints and that WSP had not provided any suggestions as to how these would be overcome. There is no response at all within the recent Technical Notes to confirm how these constraints would be addressed.

Mitigation Measures (Highways and Public Transport)

- 3.16 As in the Initial Draft, the Publication Draft evidence base gives no clarity or certainty that suitable mitigation of the additional development traffic can be provided.
- 3.17 Highways England's consultants CH2M carried out a review of the Initial Draft in September 2017. This concluded that further information would be required, specifically: “*It is necessary for intervention/mitigation schemes to be modelled in order to demonstrate their suitability to be considered as mitigation*”. WSP have responded: “*It is not considered necessary to model all the possible mitigation schemes which are suggested, as they are generally concepts only at this stage.*”
- 3.18 This response does nothing more than to highlight the fact that despite the passage of a year since the previous consultation exercise, the (lack of) response of the Publication Draft is to provide no evidence whatsoever which demonstrates that the allocations can be satisfactorily mitigated, nor even that existing levels of congestion can be improved.

- 3.19 This lack of evidence is confirmed by reference to the revised IDP (Appendix 6) which states: *“The prospect of significant strategic highway improvements in the vicinity of [the Thornhills and Woodhouse sites] has been considered as part of the master planning process. These include for the A641 Bradford-Brighouse-Huddersfield corridor improvements, the A644 improvement scheme and the introduction of a new motorway junction onto M62. Whilst these improvements are at the early stages of the design development, there is a reasonable prospect that they will be forthcoming during the Local Plan period. It is noticeable that the A641 corridor improvements would resolve the vast majority of capacity issues in the west of the town centre and close to the southern end of the Thornhills Lane site.”* [TTHC emphasis added] No details or assessments for these schemes have been provided.
- 3.20 There is in fact no evidence to back up these completely unsubstantiated claims. The covering representation from NJL includes confirmation from leading Counsel that the Council cannot lawfully submit a plan for examination on the basis that further key evidence can be provided at a later date and that if the Council attempted to take this approach, then this prior consultation is likely to be in conflict with the ‘Gunning Principles’.
- 3.21 CVNF are also aware that CMBC will be carrying out roadside interview surveys in the near future. If the information gathered via these surveys is intended to supplement the inadequate transport assessment carried out to date, then this would also conflict with the Gunning Principles.
- 3.22 The IDP (Figure 5) shows the areas of Calderdale which are served by frequent bus services (shown as either 4, 6 or 8 buses per hour within 400m). The majority of the Thornhills Site falls outside these areas; therefore the Site does not benefit from good public transport links, and would potentially generate higher vehicle trip rates than other sites in the absence of mitigation measures such as additional bus services to local centres. Section 4 of the 2017 TR

references the poor accessibility of the Site and the Publication Draft again provides no meaningful response.

Kirklees Local Plan

- 3.23 Kirklees is the neighbouring borough which borders Calderdale just outside Clifton. Kirklees Metropolitan Borough Council (KMBC) submitted the Kirklees Local Plan to the Department for Communities and Local Government in April 2017.
- 3.24 The evidence base for the Kirklees Local Plan includes a Statement of Common Ground between KMBC and CMBC. This statement confirms that mitigation of highway impacts will be required, including on the A629 and A641 corridors and the M62 Junction 24a scheme. It also states that the Thornhills allocation “...*will require significant infrastructure interventions to enable it to come forward*”. As highlighted, the inescapable fact is that despite the substantial size of the Thornhills allocation and the unequivocal agreement between the two Authorities that significant infrastructure interventions are required, the Publication Draft, its evidence base and the 2018 Draft IDP all fail completely to provide any evidence of what the interventions would be let alone how or when the essential interventions would be delivered.

4.0 MATTERS WHICH REMAIN OUTSTANDING

- 4.1 With the exception of the previous omission of the residential allocations below 50 units and all employment sites from the transport modelling, which WSP state have now been included in the modelling, all other issues raised within the 2017 TR remain outstanding and without any effective response.
- 4.2 These issues include:
- 4.3 Only 'high level' assessments have been undertaken, utilising a Strategic Transport Model covering a wide geographic area and which focuses on the A629 (Halifax to Huddersfield) corridor.
- 4.4 Unsuitable modelling of the highway network in Brighouse, despite the disproportionately high scale of housing and employment development proposed for this Plan Area.
- 4.5 Lack of technical consideration of existing congestion within the centre of Brighouse, which has been subject to an AQMA for the last 10 years and where the heaviest congestion (on the eastern side of the town centre) coincides with the location of the largest proposed allocations – Thornhills and Woodhouse).
- 4.6 Journey time surveys undertaken by TTHC demonstrate that there are sections of the highway network in and on the approaches to the centre of Brighouse where speeds of less than 5mph exist, which indicates that some parts are moving at walking pace on average which in turn demonstrates extensive problems of static traffic.
- 4.7 These conditions are those which exist before the addition of over 6000 dwellings and 32 hectares of employment land within Brighouse alone, which would unavoidably load significant additional traffic onto severely congested routes.

- 4.8 The modelled position of the 2014 Validation Report is understating these observed flows on the parts of the network which are most critical in respect of the Thornhills site.
- 4.9 In the AM Peak, the modelled flows are underrepresenting the observed flow levels by between 10% to 20%. In the PM peak this underrepresentation ranges between 5% and 24%.
- 4.10 This in turn will understate the absolute demand and conditions of future scenario testing, details of which have been noted earlier in this TR.
- 4.11 The Strategic Vision Traffic Statement highlights issues in respect of the difficulties with the accessibility of the Site. Neither this nor any other document sets out how such shortcomings would be mitigated or addressed.
- 4.12 All of the suggested access points for the Thornhills Site are subject to significant constraints and there is no suggestion as to how these would or could be overcome.
- 4.13 The SoCG between CMBC and KMBC concedes that the Thornhills allocation would require significant infrastructure interventions, specifically off-site highway mitigation. No evidence has been produced which would suggest that any schemes have been satisfactorily assessed and evaluated. There is therefore no evidence they can be delivered,
- 4.14 Only limited traffic modelling has been undertaken by WSP which includes only a limited range of highway improvements, all of which have already been implemented since 2014.
- 4.15 Highways England have previously made the completely valid point that specific details of the mitigation and the effects of this mitigation should be modelled. In response, WSP are suggesting this work is not necessary.

- 4.16 The Publication Draft of the Calderdale Local Plan does not demonstrate that the impacts of the proposed allocation at Thornhills would be suitably mitigated, and it is therefore concluded that the allocation remains fundamentally flawed.

5.0 SUMMARY & CONCLUSIONS

- 5.1 Against the backdrop of the existing critical performance of the highway network which is operating with severe levels of congestion throughout long peak periods and beyond, the lack of assessment of how the proposed allocations could come forward, even on a much smaller scale than that currently proposed, is simply unacceptable. There is no updated highways evidence which accurately reflects existing severe levels of congestion, nor which demonstrates that the proposed allocations can be successfully mitigated.
- 5.2 There is a significant level of evidence required to demonstrate the proposed Thornhills allocation can be delivered without further significant worsening of the already severely congested highway network within Brighouse.
- 5.3 The decision to propose the allocation of such significant development sites within Brighouse has been based on completely inadequate highway evidence and a failure to recognise the established commuter travel to work patterns which demonstrate that the majority of working residents occupying housing in Brighouse travel to work outside Calderdale.
- 5.4 The levels of impact on the highway network have been downplayed by applying flawed assumptions within the technical work.
- 5.5 Such a major strategic decision can only be rationally made when the full evidence base has been compiled and scrutinised, enabling the impacts and necessary mitigation to be identified.
- 5.6 In any event, there is considerable evidence already that the proposals would create such significant and severe impacts on local infrastructure as to be unsustainable.
- 5.7 This is particularly concerning as the Publication Draft still proposes major housing allocations and Green Belt release in Brighouse without any certainty

that there would or could be sufficient infrastructure in place to handle the resulting impacts.

- 5.8 Whilst there is some passing recognition that there will be major highways issues arising from both the Thornhills and Woodhouse sites, significant misplaced reliance is made on major road improvements, including the A641 corridor, with a suggestion that such matters can be addressed despite there not being any technical evidence to support this conclusion.

Appendix A

TTHC 2017 Transport Representation

CALDERDALE LOCAL PLAN – INITIAL DRAFT

TRANSPORT REPRESENTATION

(CLIFTON VILLAGE NEIGHBOURHOOD FORUM)

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Appendix A	TTHC ATC Data
Appendix B	Journey Time Comparison Plots
Appendix C	Survey Speed Plots

1.0 INTRODUCTION AND BACKGROUND

- 1.1 This Transport Representation (TR) has been produced on behalf of the Clifton Village Neighbourhood Forum (CVNF) to provide an examination and critique of the transport implications relating to proposed allocations within the Calderdale Local Plan Initial Draft (CLPID) 2017, which has been published for consultation.
- 1.2 This TR focuses on the proposed allocations within Brighouse and specifically on key issues relating to the **Thornhills** site, which is situated in Green Belt.
- 1.3 The largest town in Calderdale is Halifax, which provides both the largest existing housing and employment stock within the Borough. It provides the main focus for public transport with good links to Leeds, Manchester, Bradford, Huddersfield, Blackpool and London.
- 1.4 Brighouse is the second largest town within the Borough and has more limited public transport capabilities as well as a more limited and constrained highway network, despite its proximity to the M62.
- 1.5 For context, **Table 1** below outlines the proposed distribution of proposed housing growth set out within the CLPID:

Distribution of Housing Growth by Local Plan Area				
Local Plan Area	New Housing Allocations	Planning Permissions	Windfalls	Total
Halifax	4,351	737	631	5,719
Brighouse	5,550	356	163	6,069
Elland	2,472	208	179	2,859
Sowerby Birdge	432	273	18	723
Hebden Bridge	149	86	20	255
Todmorden	354	289	156	799
Mytholmroyd	220	63	21	304
Northowram & Shelf	1,902	78	18	1,998
Ripponden	132	121	168	421
Totals	15,562	2,211	1,374	19,147

Table 1

1.6 As shown, compared to other Plan Areas within the Borough, Brighouse has been identified to provide the highest overall new housing stock, accounting for around a third of the overall total (ie 6,069/19,148). Of this total, the majority are situated on the eastern side of the town centre, with the proposed Green Belt sites of Thornhills and Woodhouse on their own accounting for more than half at 1926 and 1223 dwellings respectively.

1.7 A similar pattern exists across the Borough in respect of the proposed distribution of employment land. **Table 2** below outlines how the Council propose to allocate this land.

Distribution of Potential New Employment Allocations by Local Plan Area					
Local Plan Area	Gross Area (ha)	Net Developable Area (ha)			
		Brownfield	Greenfield	Mixed	Total
Halifax	27.62	5.92	14.03	0.24	20.19
Brighouse	36.88	3.12	29.15	0.52	32.79
Elland	18.51	3.03	12.43	3.03	18.49
Sowerby Bridge	3.98	0	3.55	0	3.55
Totals	86.99	12.07	59.16	3.79	75.02

Table 2

1.8 As shown, compared to other Plan Areas within the Borough, Brighouse has been identified to provide over 40% (ie 36.88/86.99 ha) of the overall land for employment use and almost 50% (ie 29.15/59.16 ha) of the greenfield total (more than twice that of any other area).

1.9 It is important to have regard to the scale and distribution of the proposed allocations when considering the transport and highway assessment work and the location of mitigation and improvements to address impacts.

1.10 Supporting information has been produced on behalf of the Council which has been used in the preparation of the CLPID.

1.11 With respect to the transport implications of the proposed allocations, assessments have been undertaken by consultants WSP. These

assessments have been high level', utilising a Strategic Transport Model covering a wide geographic area.

- 1.12 CVNF has been informed by WSP that the model was focussed on the A629 (Halifax to Huddersfield) corridor. By definition, and as will be demonstrated, it is highly unlikely that such a model can be sufficiently accurate in other distant locations to be relied upon to the extent necessary to establish (with sufficient reliability) existing levels of congestion in areas such as Brighouse and, indeed, how this part of Calderdale might function in the future.
- 1.13 Model suitability and robust assessment in this location is especially important when considering the disproportionately high scale of housing and employment development proposed for Brighouse.
- 1.14 This TR provides an outline review of the work which WSP has currently undertaken, with particular focus on the transport implications surrounding Brighouse.
- 1.15 In order to provide CVNF, and in turn Calderdale Council (CC), with a more accurate and fit for purpose representation of existing highway network conditions in Brighouse and details of the impacts on those conditions of the significant development suggested within the Draft Plan, TTHC has carried out journey time surveys and commissioned Automatic Traffic Counts (ATCs).
- 1.16 These surveys have been used to gather data on existing traffic flows, delays and queuing through key nodes on the highway network which will be directly affected by the proposed Thornhills housing allocation (garden suburb). This is crucial information because a high proportion of the significant peak hour traffic generated by the proposed housing and employment allocations will have no alternative but to route through these nodes.
- 1.17 The next section of this representation relates to the data collected and observations made by TTHC.

2.0 TTHC SURVEYS AND OBSERVATIONS

General Observations and Existing Conditions

- 2.1 Brighouse is situated to the west of the M62 and to the east of Halifax as shown in **Figure 1**. The most direct connection to the M62 is via the A644 Wakefield Road at Junction 25.
- 2.2 The A644 passes through central Brighouse and on towards Hipperholme to the north-west. Other routes which pass through the centre of Brighouse are the A643, which passes the proposed Thornhills allocation as Highmoor Lane, and runs north-east to south-west, and the A641 which passes the allocation to the west as Bradford Road and which runs broadly north to south.
- 2.3 There is a further radial connection with the centre of Brighouse which is formed by the A6025 Elland Road which routes from the west only.
- 2.4 With the exception of the eastern end of A644 Wakefield Road which is a dual carriageway, all of these routes are single carriageway roads which meet within the centre of Brighouse mostly via a collection of roundabouts of various sizes and standards.
- 2.5 There are only two signal controlled junctions within the centre, the first of which is formed where the A641, A643 and A644 meet (the Huddersfield Road / Wakefield Road junction). The other signal controlled junction exists at the A641 Huddersfield Road / Mill Royd Street junction (Sainsbury's).
- 2.6 Owing to existing congestion these junctions within the centre of Brighouse form the area which is subject to Air Quality Management. The AQMA in Brighouse has existed for the last 10 years.
- 2.7 Around the time the AQMA was established, CC commissioned Mouchel Consultants to undertake a 'Brighouse Traffic Management Review'. This review examined traffic management issues within Brighouse town centre and

included the development of a micro-simulation traffic model, using VISSIM software. A micro-simulation model is better suited (than a strategic model which focuses on an out-of-town corridor) to the assessment of congested urban situations such as that which exists in Brighouse. Indeed, an updated version of this VISSIM model would appear to be a far more suitable tool with which to examine the implications of CC's proposed allocations for Brighouse.

- 2.8 Mouchel's study, which was undertaken in 2007, identified that the 'Peak Hours' actually extended to almost two hours in the morning (0715 to 0900hrs) and to two hours in the evening (1600 to 1800hrs).
- 2.9 TTHC are familiar with the day to day conditions which exist in Brighouse and would note that typically this congestion has now spread beyond these periods.
- 2.10 From around 0700hrs queuing starts to build within the centre and does not disperse until beyond 0900hrs. The heaviest queuing occurs to the eastern side of the town centre (ie the side where the largest two allocations are proposed – Thornhills and Woodhouse).
- 2.11 A degree of congestion essentially remains throughout the day but the evening peak queuing and delays start to build from around 1500hrs and doesn't disperse until after 18:30hrs.
- 2.12 In practice, on the ground, this means slow moving and static queuing traffic on the approaches to all of the main town centre junctions. With respect to the roads onto which the Thornhills Site is proposed to take access, these conditions extend to around 600m from the centre along both A641 Bradford Road and A643 Highmoor Lane. The worst of the congestion and delay is also experienced on the eastern-side of Brighouse with slow moving queuing traffic extending to around 1km on the A644 Wakefield Road.
- 2.13 More detail in respect of these existing conditions is provided in connection with the journey time surveys later within this section of the TR. However, it is

clear from the Mouchel study and the presence of the AQMA that for at least the last ten years there has been and remains a recognised congestion issue for Brighouse which remains unresolved. TTHC would describe these conditions as severe.

- 2.14 To a degree, the prevailing congested conditions are also recognised within some of the literature which sought to inform the CLPID. Within the Site Assessment Reports (SARs) for the proposed Thornhills and Woodhouse allocations, traffic congestion, highway capacity and poor access are noted as matters counting against the site. Specifically in relation to proposed allocation at Thornhills, the SAR notes that:

'It is likely to have significant traffic impact flows in central Brighouse and on the strategic road network when fully developed. Several junctions are likely to require mitigation.'

Up to date Automatic Traffic Counts

- 2.15 In order to obtain a more detailed breakdown of traffic flows and peak period volumes on critical parts of the local highway network, TTHC commissioned ATC surveys, commencing on the 16th September 2017 for a period of one week.
- 2.16 ATCs were installed on the following roads:
- A641 Bradford Road (North of Russell Way);
 - A643 Highmoor Lane (to the South of Jay House Lane), and
 - A644 Wakefield Road (West of Locksley Road).
- 2.17 The location of each of the ATC counters is shown in **Figure 1**.
- 2.18 Given the time constraints of the consultation period the ATCs had to be installed at the end of the school holidays. It is noted that throughout the consultation period the A649 Wakefield Road to the west of the A641

Bradford Road / A649 Birkby Lane junction in Bailiff Bridge (to the north of Brighouse) was closed due to highway works.

- 2.19 Nevertheless, the data collected has been compared against the peak hour ATC totals used with the WSP assessment work for the Council, to determine whether these roadworks have had any significant bearing on the volumes of traffic on the critical sections of the highway network in Brighouse.
- 2.20 From the ATC Data a weekday average has been calculated for each road in both directions. A full copy of the ATC Data is presented in **Appendix A** and summary comparisons with the CC and WSP data provided in the next chapter of this TR.

Journey Time Surveys

- 2.21 The SATURN Model validation report discussed in the next chapter provides journey times for 16 different routes across the Borough. Of the 16 routes, 3 pass through central Brighouse.
- 2.22 Journey time surveys have been undertaken by TTHC which cover these 3 routes plus additional routes across Brighouse town centre. The aim of the surveys has been to compare the results with the times presented in the WSP report and to then provide further detail in respect of what in practice these times mean in terms of the existing performance of the highway network.
- 2.23 The journey time surveys were undertaken on Wednesday 13th and Thursday 14th of September 2017 in both the AM and PM Peak periods. The AM peak period runs were each commenced between 0715hrs and 0915hrs and the PM peak period runs were each commenced between 1615hrs and 1815hrs.
- 2.24 Each route was surveyed twice in each peak for both days.

- 2.25 Plots and details of the 3 journey time routes are attached in **Appendix B**. These can be compared directly with the surveyed results presented in Appendix E of the validation report.
- 2.26 As shown, the TTHC surveys are mostly well-matched with the journey times recorded for model validation purposes. The only exception to this is in respect of the approach into the centre of Brighouse on WSP Route 11 westbound (on the A644 Wakefield Road), whereby the TTHC journey is much slower in both peak periods. This indicates a significant worsening of conditions on this particular approach.
- 2.27 Plotting the journey times in the manner adopted by WSP doesn't easily enable details of what these journeys mean in terms of speeds and delays on component parts of the network, which of course means it is not clear what levels of congestion prevail and precisely where this occurs. The TTHC journey times can be interrogated in more detail by speed for each section such that these details are more obvious. These are discussed below.
- 2.28 In examining these details, the TTHC surveys also have the benefit of an additional 4 routes which were travelled across Brighouse town centre. From the 7 routes surveyed in total, plots have been produced to show the average speeds observed during the two hour peak periods along the highway network. It should be noted that these do not represent the worst journey times experienced in each of the peaks but the average across a two hour period. The plots are presented for AM and PM peaks in **Appendix C**.
- 2.29 As shown, the journey time plots demonstrate there are sections of the highway network in and on the approaches to the centre of Brighouse where speeds of less than 5mph exist, which indicates that some parts are moving at walking pace. Any parts below around 15mph generally indicate slow moving queuing conditions.
- 2.30 Examining the routes which would be taken from the Thornhills site through Brighouse, it can be seen that in the AM peak period, the Highmoor Lane

route (TTHC Route 6) into the centre is almost entirely undertaken at less than 5mph over a distance of almost 1km. The Bradford Road route (TTHC Route 1) is slightly quicker but this is still subject to slow moving queuing conditions over a distance of in excess of 800m.

- 2.31 The Wakefield Road route (TTHC Route 3) is also particularly slow in the AM peak period over a distance of around 800m.
- 2.32 The central sections of each route contain mostly shorter sections of highway, however, these are equally poor in terms of journey speeds. Overall, these journeys demonstrate significant and severe AM peak period congestion.
- 2.33 In the PM peak period, the Highmoor Lane route (TTHC Route 6) remains slow with speeds not exceeding 10mph heading into the centre of Brighouse. The Bradford Road route (TTHC Route 1) is slightly slower than in the morning peak with journey speeds not exceeding 15mph.
- 2.34 The Wakefield Road route (TTHC Route 3) is particular poor in the PM peak period with essentially walking pace speed into the centre for a distance of around 800m.
- 2.35 Again, the central sections of each route also remain poor in terms of journey time performance and overall the position demonstrated by the journey times is again one of significant and severe PM peak period congestion.
- 2.36 It should be remembered that these are existing observed speeds before the addition of traffic which would be generated by the proposed allocation of over 6,000 dwellings and almost 37 hectares of employment land within Brighouse alone and that these allocations would all unavoidably load significant additional traffic onto these severely congested routes. It should also be remembered that these are average speeds over two hour periods, within which in practice there are long periods during which traffic stands in long, often static queues.

3.0 REVIEW OF THE SATURN VALIDATION REPORT

Calderdale Strategic Transport Model Update - 'Local Model Validation Report' (October 2016)

- 3.1 WSP had been commissioned by Calderdale Council under the West Yorkshire plus Transport Fund (WY+TF) to update the existing Calderdale Strategic Transport Model (CSTM) to represent 2014 travel patterns and highway network conditions, to enable assessment of the proposed developments and infrastructure schemes.
- 3.2 The 2014 validation position provides the 'starting point' of the model before future additional demand is added.
- 3.3 The updated CSTM covers the road network within Calderdale and also Kirklees and Bradford. However, as has been established, WSP has advised that the model focuses on the A629 (Halifax to Huddersfield) corridor.
- 3.4 The validation report details the data used to develop the model and the calibration and the validation of the traffic model against WebTAG criteria to represent the 2014 observed traffic levels and routeing behaviour.

Observed Traffic Flow Data

- 3.5 The validation report provides traffic flows on the key routes into and out of Brighouse. The TTHC 2017 ATC data has been compared with the 2014 ATC data used for the CSTM at the same locations, which are shown in **Figure 1**.
- 3.6 **Tables 3 and 4** below show the comparison of the different sources of ATC data.

AM PEAK		TTHC ATC Data	SATURN Validation report – ATC Data
Road	Direction	Weekday Average	Observed
A641 Bradford Road	NB	730	741
	SB	711	690
A643 Highmoor Lane	NB	360	378
	SB	296	335
A644 Wakefield Road	WB	368	466
	EB	747	618

Table 3 Comparison of ATC Traffic Flows AM Peak Hour (Vehicles)

PM PEAK		TTHC ATC Data	SATURN Validation report – ATC Data
Road	Direction	Weekday Average	Observed
A641 Bradford Road	NB	797	763
	SB	784	861
A643 Highmoor Lane	NB	367	405
	SB	446	364
A644 Wakefield Road	WB	373	443
	EB	754	769

Table 4 Comparison of ATC Traffic Flows PM Peak Hour (Vehicles)

3.7 As shown, the TTHC ATC data compares reasonably well with the Saturn Validation Report ATC data. There is a slightly lower flow in the TTHC ATC data in the AM Peak for the southbound direction of the A643 Highmoor Lane but a higher one in the PM Peak.

3.8 A point worth noting is that the westbound flow on be A644 Wakefield Road is lower in both peaks in the TTHC counts. By reference to the journey time information discussed earlier, we know that the delays experienced during the TTHC journey time surveys were greater than those recorded by WSP. It is

believed that the increased delay (as a consequence of worsening congestion) has reduced the 'throughput' of traffic on this particular link.

3.9 The WSP data indicates the 'demand' for this section of road during the AM and PM peak hours, whereas the TTHC data shows what is currently able to pass in those hours now, in 2017.

3.10 Overall, with the exception of this westbound direction on the A644, the 2014 ATC data adopted within the Validation Report appears to be broadly reflective of the current position.

Modelled Traffic Flows

3.11 **Tables 5 and 6** below show the comparison of the Saturn Validation ATC flows against the modelled flow for the area close to the Thornhills Site. This comparison enables the validity of the model to be examined for the highway network most critical to the proposed Thornhills allocation.

AM PEAK		SATURN Validation Report	
Road	Direction	Observed	Modelled
A641 Bradford Road	NB	741	682
	SB	690	620
A643 Highmoor Lane	NB	378	377
	SB	335	399
A644 Wakefield Road	WB	466	470
	EB	618	490

Table 5 Comparison of Observed vs Modelled AM Peak Hour Flows

3.12 As shown, in the AM Peak, the modelled flows for 3 of the 6 directions and links are lower than the observed level of flow. This underrepresentation ranges between around 10% and 20%.

PM PEAK		SATURN Validation Report	
Road	Direction	Observed	Modelled
A641 Bradford Road	NB	763	709
	SB	861	765
A643 Highmoor Lane	NB	405	410
	SB	364	345
A644 Wakefield Road	WB	443	337
	EB	769	884

Table 6 Comparison of ATC Traffic Flows PM Peak Hour (Vehicles)

- 3.13 With respect to the PM Peak, the modelled flows for 4 of the 6 directions and links are lower than the observed level. This underrepresentation ranges between around 5% and 24%.
- 3.14 This reveals that as an overall position, the model used by WSP is generally understating the level of 'existing' demand on the network at critical locations in Brighouse, prior to the addition of any future increases due to background growth and Site allocations.
- 3.15 This needs to be remembered when considering development implications on the network, because the modelled 'starting point' traffic demand (in 2014) is essentially and materially lower than that which has been observed and recorded. This in turn will understate the absolute demand and conditions of future scenario testing, details of which are discussed in the next section of this TR.

4.0 REVIEW OF OTHER WSP DOCUMENTS

4.1 The technical consideration of the proposed allocations is set out in the two key WSP documents listed below:

- Strategic Vision for South East Calderdale – Traffic Statement (Oct 2016)
- Technical Note 4 – Assessment of Cumulative Impact (May 2017)

4.2 The Strategic Vision Traffic Statement relates directly to the allocations on the eastern-side of Brighouse, namely; Thornhills and Woodhouse, whereas Technical Note 4 deals with the wider area of the Calderdale Borough.

4.3 Earlier Technical Notes were also produced by WSP in June and July 2016 but these were prior to the updated Model Validation work and so are not referred to within this TR.

Strategic Vision for South East Calderdale – Traffic Statement (Oct2016)

4.4 The Traffic Statement (TS) was published in October 2016 in time for a presentation to the Local Plan Working Group of the Strategic Vision for South East Calderdale. It sets out the background to the Sustainable Urban Extension Sites (Thornhills and Woodhouse), access to sustainable modes of transport and highway infrastructure improvement which are coming forward.

4.5 Paragraph 1.1.2 of the document states its '*main purpose is to set out the traffic modelling work that has been carried out to support the Strategic Vision for South East Calderdale and the Masterplan.*'

4.6 It should be noted that the modelling work for this TS relates solely to the residential component of the proposed Thornhills and Woodhouse allocations. None of the employment uses or other major allocations are included within the modelling.

Local Highway Network and Accessibility

- 4.7 Under the sub-heading of ‘The Operation of the Local Highway Network’, at paragraph 2.2.2.1, it is stated that:

‘In central Brighouse, the junctions that make up the through-route on the east side of the town are close to capacity. These include the junctions where the A641, A644 and A643 meet, with the inbound A644, inbound A643 and the junction of the A641 having the worst delays.’ [TTHC emphasis added]

- 4.8 It is clear that based on the evidence already referred to, the above locations are at and significantly over capacity (not close to as suggested by WSP) and are in fact operating under severely congested conditions.

- 4.9 Section 2.3 of the TS describes some of the issues in respect of accessibility. This is consistent with the Site Appraisal Report (referred to in Section 2 of this TR) which notes that:

‘The Site is not currently scoring particularly well in accessibility terms, but it could be made much more accessible given the scale of the potential development.’

- 4.10 None of the supporting documents provide any details of suitable mitigation and improvement to demonstrate how the Site could be made to be acceptable in accessibility terms. This is particularly important for a Site such as Thornhills which suffers from significant topographical difficulties.

Development Assumptions

- 4.11 The TS suggests that the Thornhills Site would deliver some 1926 dwellings but there is no reference to the consideration of the significant employment proposals for the Site. Although there are later references to what is a significant employment component, this has not featured in the development

trip generation assessments nor, seemingly, in any consideration of off-site highway impacts on the heavily congested network.

Access

- 4.12 With respect to access for residential purposes, from the western side of the proposed Thornhills allocation, vehicular access is proposed from the west via A641 Bradford Road along Thornhills Beck Lane. The TS recognises, however, that this access is restricted because of existing buildings, the beck and disused rail infrastructure and so suggests an alternative access via an upgraded junction to the north at Calder Industrial Park. No further details are provided regarding the ability for such access to be delivered.
- 4.13 The junction of Thornhills Beck Lane with A641 is a simple crossroads arrangement junction. Along the A641 (northbound) there is currently no right turn storage for traffic turning into Thornhills Beck Lane and so capacity is limited. This is a concern due to the proposed number of dwellings which are expected to be served with the potential for queuing which will block through traffic along the A641(northbound).
- 4.14 Thornhills Beck Lane is subject to 30mph. There are footways on one side of the road from the A641 junction as far as the ford. After the ford the road narrows and there are no footways. There is street lighting only up to the railway bridge.
- 4.15 The WSP document states *“the easiest access to the site is from the wide A643 to the north east via Jay House Lane”*. Jay House Lane is a very narrow road, mostly single track, with no footways or street lighting and is derestricted. The road is also unsuitable for heavy goods vehicles and has forward visibility issues at particular sections along the lane, including on the immediate approach to its junction with the A643. Such limitations and safety concerns are not referenced by WSP.

- 4.16 The A643 meets with the A649 Halifax road to the north of the Site. The document states the layout of the A643 / A649 junction 'does not comply with modern day standards but operates satisfactorily at present'. With the additional proposed traffic this may have a significant operational effect at the junction.
- 4.17 There are two other possible access points off the A643, via either Cam Lane or Thornhills Lane, which the TS makes reference to.
- 4.18 Cam Lane is a single track access serving only a small number of dwellings.
- 4.19 Thornhills Lane is a residential access road and so has some potential.
- 4.20 However, with respect to these potential access points, the TS notes that:
- "...these options concentrate traffic onto a single road into Brighouse [A643] and onto numerous junctions which are already operating with limited capacity".*
- 4.21 These junctions which WSP suggest are operating with limited capacity are amongst those which have been shown earlier in this TR to be operating well over capacity.
- 4.22 The final potential access point the document refers to for the Thornhills Site is a track from Woolrow Lane to the north of the Site. Woolrow Lane, and its continuation of Birkhouse Road, is again restricted to single track with no pedestrian provision and forward visibility issues.
- 4.23 Based on the details in the TS, it has not been demonstrated that the Site is capable of achieving suitable access provision in order to serve almost 2000 dwellings.
- 4.24 All of the suggested potential access points are subject of significant constraints and there is no suggestion how these would be overcome.

Off-Site Highway Mitigation

4.25 With respect to off-site highway mitigation, paragraph 3.4.13 states that:

“The West Yorkshire Plus Transport Fund programme includes three potential transport investment projects that would, if delivered, support the delivery of the two urban extension sites.”

4.26 The schemes referred to are:

- A641 Bradford – Brighouse – Huddersfield (seeks to improve traffic flows between Bradford and Huddersfield, although no information is provided as to what the scheme entails);
- A644 Improvements (delivery of a new link road from Bradley Road to the A644 to serve another housing allocation – Bradley Golf Course), and
- M62 Junction 24a (delivery of a new motorway junction, which would potentially influence the A641 scheme, although it is recognised that the merits of the scheme have not been examined in any detail).

4.27 No information is provided on these schemes in terms of timescale and deliverability. Although there is further reference to the above schemes in the WSP November 2016 Strategic Vision document (which has seemingly been informed by the TS), there is no evidence to suggest that these improvements have been satisfactorily assessed and evaluated.

4.28 Only the first and third schemes would be likely to have any bearing on traffic movements on the network around the proposed Thornhills allocation. However, it is clear that there has at best been only very limited assessment of these and although they are being presented as ‘potentially’ assisting the proposed allocations, there is simply no evidence to confirm that this would be the case. In fact WSP have informed CVNF that no highway schemes other than the A629 corridor scheme (phases 1a and 1b) have been included in

their modelling “*due to lack of detail at this stage as well as uncertainty of funding*”.

- 4.29 The allocation for Thornhills has been promoted in advance of confirming that it is even capable of being successfully accessed and mitigated for the unavoidable impacts the proposals would have on an already severely congested highway network.
- 4.30 Given the extremely limited information which has been evidenced to support the proposed allocation, TTHC has sought to quantify the residential impacts on the existing highway network through further technical assessment. Details of this exercise are referred to later within this TR.

Traffic Modelling

- 4.31 Limited traffic modelling has been undertaken by WSP using the CSTM SATURN model referred to in Section 4 of this TR.
- 4.32 The TS reports that the SATURN model assumed there would be a total of 6,736 dwellings for Brighouse (which is slightly higher than the Local Plan total of 6,069 dwellings) but that of this total the ‘sustainable urban extension sites’ within Brighouse would comprise 2,854 dwellings, the assumption being:

Site Ref	Location	Area	Modelled Dwellings
LP1451	Land between, Bradley Wood and Woodhouse	Brighouse	766
LP1452	Land between Dewsbury Road, Pinfold Lane and New Hey Road	Brighouse	165
LP1453	Land Off Lillands Lane	Brighouse	214
LP1463	Land between Highmoor Lane and Bradford Road (Thornhills)	Brighouse	1709

Table 7 Modelled Dwellings in Brighouse

4.33 Para 5.1.1.6 of the TS states:

“the masterplanning process has shown that the Thornhills Lane site can deliver 1926 dwellings and the Woodhouse site can deliver 1223 dwellings. This gives a total of 3149 dwellings which is 295 dwellings greater than the 2854 which have been modelled. Hence, modelling underestimates the size of the Sustainable Urban Extensions by some 10%.”

4.34 However, the total tested in **Table 7** above includes two sites (165 dwellings and 214 dwellings) which are on the western and south-western sides of Brighouse. Based on the dwelling numbers in the table it shows the model has assumed a total of 2,475 dwellings on the eastern side of Brighouse for the Thornhills and Woodhouse combined, which is actually underestimating by more than 20%.

4.35 In terms of vehicle trips (based on WSP’s trip rates) this would equate to approximately 290 trips not assigned to the network in both the AM and PM peaks. This of course is only the under-estimate in respect of the residential components and does not include for the lack of assessment of the employment components.

4.36 Para 5.1.1.7 seeks to suggest that this variation in dwelling numbers is relatively minor in the context of the Local Plan and the long timescale for delivery and that it will not affect the conclusions of the strategic modelling which has been carried out. However, given the circumstances of very critical levels of congestion which already exist and the need to identify suitable mitigation to address the impacts of the proposed allocations, these differences are very significant.

4.37 With regard to this future scenario modelling (which has been undertaken for the year 2032), this includes the following highway improvement works.

- 4.38 It should be noted that these works have been implemented since the 2014 validation year model and so strictly are part of any Baseline scenario – these schemes do not represent highway mitigation of the proposed allocations. Furthermore, only scheme 3 is actually within Brighouse.

	Scheme	Description
1	Ovenden Road / Shroggs Road	Junction operated under MOVA
2	Queens Road / Kings Cross Road	Junction signalised
3	A641 / Mill Lane	Junction signalised
4	Rochdale Road/West Vale/Stainland Road	Signalised Right turn Lane
5	Copley Valley Link Road	New Link Road

Table 8 Committed Highway Improvements

- 4.39 There has been no other highway-related improvement scheme adopted or assumed within the traffic modelling nor has there been any detailed assessment of access proposals. There is also no reference to any of the strategic highway improvements listed previously in the report which Brighouse would supposedly would benefit from. As referenced earlier, WSP have confirmed this is due to lack of detail at this stage (of the strategic improvements), as well as uncertainty of funding.
- 4.40 WSP conclude that the overall results from the modelling work suggest that the network operates in a reasonably satisfactory manner in the Base situation. This is despite clear evidence of significant and severe levels of congestion of all key modes on which the allocations would rely. They suggest that there are some issues with capacity at peak times and that these have been identified.
- 4.41 Although WSP suggest that *‘the prospect of the strategic highway improvements have been considered as part of the masterplanning exercise and that these would resolve the vast majority of capacity issues in the west of the town centre and close to the southern end of the Thornhills Lane site’*, none of this highway mitigation has been tested and evidenced to support the allocation.

- 4.42 WSP complete their conclusions in respect of modelling by acknowledging that the network will require further improvements to mitigate the development of the Thornhills and Woodhouse proposed allocations, but suggest that their modelling of the Future Year shows impacts that are '*not particularly onerous*', that the sites can be '*readily mitigated*' and that '*There is no justifiable reason why these two sites should not be allocated.*'.
- 4.43 It should be remembered that these conclusions have been drawn in respect of the future year (2032) with no further highway improvements having been modelled (beyond those which have already been implemented and which were present during the TTHC journey time surveys) and with the addition of the assumed dwelling numbers (which have been understated).
- 4.44 Against the backdrop of the existing critical performance of the highway network which is operating with severe levels of congestion throughout long peak periods, the lack of assessment of how the proposed allocations could come forward, even in a much smaller scale than that currently proposed, is simply unacceptable. There is no evidence that the proposed allocations can be successfully mitigated.

WSP Technical Note 4: Assessment of Cumulative Impact (May 2017)

- 4.45 Whilst the TS provided details of the modelling work undertaken in October 2016 solely in respect of the residential component of the proposed Thornhills and Woodhouse allocations, WSP have also produced a later Technical Note which was undertaken to examine the traffic modelling of the cumulative impact of other proposed Local Plan allocations.
- 4.46 The modelling consists of two stages, Stage 5A outlines indicative traffic modelling and Stage 5B defines a subsequent modelling exercise carried out with the preferred site information.

Stage 5A Modelling

- 4.47 The Stage 5A modelling is suggested as being based on the Local Plan information provided in August 2016. Although the Note is dated May 2017, it is not clear from the document when the modelling work took place. If the modelling took place pre October 2016 the output information would not be based on the updated SATURN model.
- 4.48 At the time of the modelling the overall potential dwellings for the Local Plan during the period of 2012 to 2032 was 17,651. This figure was reduced to take account of actual delivery rates between 2012 to 2014 and so the tested dwelling numbers were 16,648. This is some 2,499 dwellings lower than the total proposed within the CLPID.
- 4.49 The proposed site sizes were then adjusted to meet the target of 16,648. The document states in para 2.3.4 “Sites with a capacity of less than 10 units were not modelled explicitly as these effectively constitute background growth for modelling purposes, the sites being too small to register significant impacts on the modelled network in their own right”.
- 4.50 The revised number of proposed dwellings modelled is not presented in the document but from the information presented TTHC has estimated the revised figure is 14,959 dwellings, representing a further reduction of around 10% from the assumed 16,648 figure but over 4,000 lower than the actual proposed allocations figure (19,147 dwellings). So the traffic from over 4,000 proposed dwellings has not been modelled at all.
- 4.51 The residential trip rates applied to the proposed dwellings are the average trip rates presented in the Traffic Statement document (October 2016).
- 4.52 No background growth has been applied to the model as it is suggested that the proposed number of dwellings (not all of which have been accounted for) and jobs were reasonably well matched with the data from the National Trip End Model (NTEM) and so the development allocations were deemed to be equivalent to overall NTEM growth.

4.53 With regards to committed highway schemes to be included in the model, the same schemes have been included as the ones listed previously in the document in **Table 8**.

4.54 In terms of implications for Brighouse it is suggested that the model output shows key impacts in terms of increased delay along A641 SB and A644 SB at Ludenscheid Link, A641/A644 and A644 SB towards M62 J25. At paragraph 3.2.3 it is stated that:

“Transport interventions will be planned as part of the master-planning process for the largest sites in Brighouse. This exercise has further emphasised the need for these mitigation works. The severity of the impacts (alongside other considerations) has meant that CMBC have reduced the scale of these sites as part of the decision-making process for the preferred set of allocations, although they are still of a significant enough size to meet the growth targets needed for the overall plan.” [TTHC emphasis added]

4.55 It is not clear what is meant by the suggestion of a reduction in the allocations as the published figures are actually significantly higher than the figures tested within the Technical Note.

Stage 5B Modelling

4.56 Stage 5B model is based on the Local Plan information assumed in December 2016. The proposed number of dwellings from the Local Plan between 2012 to 2032 is 17,651. As with the Stage 5A modelling, a reduction of 432 dwellings has been to the local plan to take account of housing completions between 2012 and 2014.

4.57 Under the Stage 5A modelling sites with less than 10 dwellings were excluded from the model due to sites being too small to register significant impacts in the modelled network.

- 4.58 For Stage 5B modelling this exclusion was raised to 50 dwellings, meaning that even more sites were not modelled. No explanation is provided as to why this was cut-off was adopted or why this is an acceptable assumption to make.
- 4.59 By excluding sites with less than 50 dwellings, the overall number of proposed dwellings (2014-2032) decreases from 17,219 to 12,034, a reduction of 30% and over 7000 dwellings lower than published in the CLPID. These exclusions are simply not tested or assessed.
- 4.60 No factoring appears to have been included in the traffic model to take account of the 'smaller' development sites nor is there any information provided in the Technical Note to advise on where these exclusions are geographically in relation to the larger allocations.
- 4.61 As with Stage 5a modelling no traffic growth has been applied to the highway network.
- 4.62 The Stage 5B modelling is based on a Do-Minimum scenario and a Do Something scenario. The Do-Minimum includes the committed highway schemes listed in **Table 8**. The Do-Something scenario includes the A629 Phases 1a and 1b, which we know from WSP was the focus of the model. The Do-Something scenario does not include any A641 corridor improvements, or the potential M62 J24a.
- 4.63 The Do-Minimum scenario shows there would be levels of congestion that would be unacceptable across the network. The Technical Note describes the key impacts from the Do-Something in Brighouse at the following locations:
- The western Ludenscheid Link roundabout SB and NB movements are over capacity;
 - The Thornhills site has a major impact on congestion and delays at A644 and A643 junction

- The Thornhills site produces an impact as a result of additional traffic using inappropriate links in the network e.g. Thornhills Beck Lane (although it was noted in the Traffic Statement document that Thornhills Beck Lane is a potential access point for the development).
- Existing congestion is worsened through the centre of Brighouse on the A641.
- There are links on the network with a V/C of greater than 90%

4.64 It should be noted the above congestion / capacity issues are based on a model with a 40% reduction in the number of proposed dwellings from the figures in the CLPID.

4.65 Overall the modelling shows there would be congestion in Brighouse as a result of the proposed development. However, without providing any evidence whatsoever as to how, the document states the congestion is resolvable. Paragraph 6.7.7 states:

“The problem locations align with the proposed A641 corridor WY+PT scheme which is currently at a pre-feasibility stage and can be tailored to suit the impacts of the Local Plan, and the significant transport infrastructure that will form part of the master planning of the Thornhills urban extension site and Clifton employment site”.

4.66 There is no SATURN testing of the proposed route and no evidence has been presented which demonstrates that this corridor improvement is capable of addressing the inevitable severe impacts which the proposed allocation would have on the highway network.

4.67 Having reviewed all of the supporting technical evidence to the publication of the CLPID, it is clear that the evidence base which should have been compiled in order to determine the implications of the allocations and

establish the mitigation which would be required to address those implications, simply hasn't been gathered.

- 4.68 The testing undertaken has at least confirmed that the network is in need of substantial improvement if it is to stand any chance of being able to accommodate the proposed allocations. However, even these conclusions are based on deficient technical input, inappropriate exclusions and limited modelling work.
- 4.69 The consequence of these shortcomings is that the scale and severity of impact has been significantly understated.
- 4.70 In order to put some of this impact into context, TTHC has undertaken a technical development distribution exercise for the residential component of the Thornhills Site only, to demonstrate the scale of increase on some of the critical parts of the highway network. This work is set out briefly in the following section of this TR.

5.0 THORNHILLS IMPLICATIONS ON KEY PARTS OF THE NETWORK

5.1 The exercise set out below has been undertaken in order to provide some context of the scale of impact of the Thornhills allocation in terms of the residential component alone. It is included in order to provide some clarity as to the scale of impact which would need to be addressed in the event that the proposed allocation is pursued at the level currently proposed.

Trip Generations

5.2 For simplicity, the proposed trip generations for the Thornhills Site are based on the trip rates for Sustainable Urban Extension Sites, as shown in WSP Technical Note 4 report. The proposed trip rates are presented in **Table 9** below along with the resulting trip generation from the proposed development.

TRICS Trip Rates (per dwelling)			
	Arrivals	Departures	Total
AM Peak	0.159	0.589	0.748
PM Peak	0.417	0.257	0.674
Trip Generation (1926 units)			
	Arrivals	Departures	Total
AM Peak	306	1134	1441
PM Peak	803	495	1298

Table 9 – Thornhills TTHC Estimated Residential Trip Generation

Trip Distribution

5.3 The trip distribution of vehicular trips has been derived from 2011 Census Travel to Work data. The census data classifies people currently resident in each area by method of travel and shows the movement between their area of residence and workplace.

5.4 The distribution has been based on census data for the four 'Super Output Areas' which cover the Brighouse area, Calderdale zones 15, 19, 23 and 24.

The Thornhills Lane Site sits within the Calderdale 15 area. However, this area may not provide a true distribution of people travelling from Brighouse as the area does not cover a wide area of residential properties.

5.5 The majority of the residential properties located within Calderdale 15 are located within the Bailiff Bridge area. It is possible if solely using the Calderdale 15 area that it would not represent journeys travelling north to south through Brighouse. Therefore by using the four zones this will represent the journey to work characteristics for the whole of Brighouse.

5.6 Traffic has been assigned to the network via the most direct route to each destination. Where there is a route choice, traffic has been assigned with reference to simple desktop drive time comparisons (Google maps drive time calculations).

Trip Assignment

5.7 The Strategic Vision for South East Calderdale (Nov 2016) provides an Indicative Development Masterplan of the Thornhills Lane Site. In terms of access points the document describes access points from A643 / Jay House Lane and a new access to the north of Thornhills Beck Lane through the Calder Industrial Park which joins with the A641. From the Masterplan drawing four additional junctions for the Site are located along the A643 at the following locations:

- To the east of Alegar Street
- Thornhills Lane
- To the north of Cam Lane
- Bronte Way (new access located to the south of Jay House Way)

5.8 The Masterplan provides an Indicative Housing Development Schedule for the Site which details the development plots and provides the number of dwellings for each plot. No information is provided to show how each plot will

be accessed and, therefore, TTHC have assigned each plot to a particular junction by judgement.

- 5.9 In terms of the development accessing the highway network, **Table 10** below shows the proposed arrivals and departures from each access point.

Location		AM PEAK			PM PEAK		
		ARR	DEP	TOTAL	ARR	DEP	TOTAL
1	A641 Junction	49	181	230	128	79	207
2	A643 / Jay House Lane	75	278	353	197	121	318
3	A643 / Bronte Way	59	218	277	155	95	250
4	A643 (North of Cam Lane)	52	192	244	134	83	217
5	A643 / Thornhills Lane	34	126	160	89	55	144
6	A643 (East of Alegar St)	38	139	177	99	61	160
Total		307	1134	1441	802	494	1296

Table 10 – Thornhills TTHC Estimated Residential Trip Site Access Movements

- 5.10 With regards to impact on some of the critical links, the development flows have been distributed and assigned to the highway network with the proposed percentage impacts calculated at the points where the TTHC ATC surveys were carried out. These are presented in **Table 11** below.

Location		AM PEAK			PM PEAK		
		TTHC ATC	Dev Flows	% increase	TTHC ATC	Dev Flows	% increase
A641 Bradford Road	NB	730	34	5%	797	80	10%
	SB	711	113	16%	784	51	7%
A643 Highmoor Lane	NB	360	244	68%	367	177	48%
	SB	296	174	59%	446	201	45%
A644 Wakefield Road	WB	368	55	15%	373	145	39%
	EB	747	206	28%	754	90	12%

Table 11 – Thornhills TTHC Estimated Residential Trip Impacts

- 5.11 As shown, purely on the basis of the residential component of the Thornhills Site in isolation, individual impacts (on what have already been established as critical links operating under severe congestion conditions) will be as high as an additional 68%. This scale of impact demonstrates that the implications of

the proposed allocations have to be appropriately modelled and mitigated. This work should have been undertaken prior to advancing the Site for the scale of development proposed.

6.0 SUMMARY AND CONCLUSIONS

- 6.1 This Transport Representation has been produced on behalf of the Clifton Village Neighbourhood Forum to provide an examination and critique of the transport implications relating to proposed allocations within the Calderdale Local Plan Initial Draft 2017, which has been published for consultation.
- 6.2 This TR focuses on the proposed allocations within Brighouse and specifically on key issues relating to the **Thornhills** site, which is situated in Green Belt.
- 6.3 Brighouse has been identified to provide the highest overall new housing stock, accounting for around a third of the overall total, as well as over 40% of the overall land for employment use and almost 50% of the greenfield total (more than twice that of any other area).
- 6.4 The scale and distribution of the proposed allocations is particularly important when considering the transport and highway assessment work and the location of mitigation and improvements to address impacts.
- 6.5 With respect to the transport implications of the proposed allocations, assessments have been undertaken by consultants WSP. These assessments have been 'high level', utilising a Strategic Transport Model covering a wide geographic area. CVNF has been informed by WSP that this model was focussed on the A629 (Halifax to Huddersfield) corridor.
- 6.6 Model suitability and robust assessment of the highway network of Brighouse is especially important when considering the disproportionately high scale of housing and employment development proposed for this Plan Area. Indeed, there has previously been a micro-simulation of Brighouse which had been commissioned by CC which would be a far more suitable tool with which to examine the implications of the proposed allocations.
- 6.7 Owing to existing congestion within the centre of Brighouse the area has been subject to an AQMA for the last 10 years.

- 6.8 The morning and evening peak ‘hours’ have essentially spread to over two hours in both peaks. The heaviest queuing occurs to the eastern side of the town centre (ie the side where the largest two allocations are proposed – Thornhills and Woodhouse).
- 6.9 On the ground, this means slow moving and queuing traffic on the approaches to all of the main town centre junctions including those which the Thornhills Site is proposed to take access from.
- 6.10 Journey time surveys undertaken by TTHC demonstrate that there are sections of the highway network in and on the approaches to the centre of Brighouse where speeds of less than 5mph exist, which indicates that some parts are moving at walking pace. These journey time surveys demonstrate significant and severe peak period congestion.
- 6.11 It is clear from the previously commissioned CC study and the presence of the AQMA that for at least the last ten years there has been and remains a recognised congestion issue for Brighouse which remains unresolved.
- 6.12 These conditions are those which exist before the addition of over 6000 dwellings and almost 37 hectares of employment land within Brighouse alone. The proposed allocations would all unavoidably load significant additional traffic onto these severely congested routes.
- 6.13 With regard to development testing, WSP have been commissioned by Calderdale Council to update the Calderdale Strategic Transport Model by validating to represent 2014 traffic patterns. The 2014 validation position then provides the ‘starting point’ for the model before future additional demand is added.
- 6.14 Overall, with the exception of the westbound direction of the A644, the 2014 ATC data adopted within the Validation Report appears to be broadly representative of the current (2017) position.

- 6.15 However, the modelled position of the 2014 Validation Report is understating these observed flows on the parts of the network which are most critical in respect of the Thornhills site.
- 6.16 In the AM Peak, the modelled flows are underrepresenting the observed flow levels by between 10% to 20%. In the PM peak this underrepresentation ranges between 5% and 24%.
- 6.17 As an overall position, the model used by WSP is generally understating the level of 'existing' demand on the network, prior to the addition of any increases due to background growth and Site allocations.
- 6.18 This needs to be remembered when considering development implications on the network as the modelled 'starting point' traffic demand (in 2014) is essentially lower than that which has been observed and recorded. This in turn will understate the absolute demand and conditions of future scenario testing, details of which have been earlier in this TR.
- 6.19 The technical consideration of the proposed allocations is set out in the two key WSP documents listed below:
- Strategic Vision for South East Calderdale – Traffic Statement (Oct 2016)
 - Technical Note 4 – Assessment of Cumulative Impact (May 2017)
- 6.20 The Strategic Vision Traffic Statement document relates directly to the allocations on the eastern-side of Brighouse, namely; Thornhills and Woodhouse, whereas Technical Note 4 deals with the wider area of the Calderdale Borough.
- 6.21 Within the Traffic Statement, it is suggested that with respect to the current operation of the local highway network, the junctions on the east side of the town are close to capacity. However, it is clear that based on the evidence already referred to, these locations are at and above capacity (not close to as WSP suggest) and are operating under severely congested conditions.

- 6.22 The Traffic Statement also highlights issues with respect of the difficulties with the accessibility of the Site, although it does not set out how such shortcomings would be mitigated or addressed.
- 6.23 It should be noted that the modelling work set out within the WSP Traffic Statement relates solely to the residential component of the proposed Thornhills and Woodhouse allocations. None of the employment uses or other significant allocations are adopted within the modelling.
- 6.24 All of the suggested access points for the Thornhills Site are subject of significant constraints and there is no suggestion as to how these would or could be overcome.
- 6.25 With respect to off-site highway mitigation three 'potential' strategic highway improvement schemes are referred to which would be subject to West Yorkshire Plus Transport funding. Again, however, no evidence has been produced which would suggest that any of these potential schemes have been satisfactorily assessed and evaluated.
- 6.26 Indeed, the allocation for Thornhills has been promoted within the CLIPD in advance of being to demonstrate that it can be successfully accessed and mitigated for the unavoidable impacts that the proposals would have on an already severely congested highway network.
- 6.27 Only limited traffic modelling has been undertaken by WSP.
- 6.28 This modelling only includes a limited range of highway improvements all of which have already been implemented since 2014. There has been no other highway-related improvement scheme adopted or assumed within the traffic modelling nor has there been any detailed assessment of access proposals. There is also no inclusion of any of the potential strategic highway improvements referred to, because as WSP have confirmed, there is *'lack of detail at this stage as well as uncertainty of funding'*.

- 6.29 Although WSP suggest that *'the prospect of the strategic highway improvements have been considered as part of the masterplanning exercise and that these would resolve the vast majority of capacity issues in the west of the town centre and close to the southern end of the Thornhills Lane site'*, none of this highway mitigation has in fact been tested and evidenced to support the allocation.
- 6.30 WSP complete their conclusions in respect of modelling by acknowledging that the network will require further improvements to mitigate the development of the Thornhills and Woodhouse proposed allocations, but suggest that their modelling of the Future Year shows impacts that are *'not particularly onerous'*, that the sites can be *'readily mitigated'* and that *'There is no justifiable reason why these two sites should not be allocated.'*
- 6.31 It should be remembered that these conclusions have been drawn in respect of the future year (2032) with no further highway improvements having been modelled (beyond those which have already been implemented and which were present during the TTHC journey time surveys) and with the addition of the assumed dwelling numbers (which have been understated).
- 6.32 Against the backdrop of the existing critical performance of the highway network which is operating with severe levels of congestion throughout long peak periods, the lack of assessment of how the proposed allocations could come forward, even in a much smaller scale than that currently proposed, is simply unacceptable. There is no evidence that the proposed allocations can be successfully mitigated.
- 6.33 Whilst the TR provided details of the modelling work undertaken in October 2016 solely in respect of the residential component of the proposed Thornhills and Woodhouse allocations, WSP have also produced a later Technical Note which was undertaken to examine the traffic modelling of the cumulative impact of other proposed Local Plan allocations.

- 6.34 However, with respect to the assumed dwelling numbers, the assumptions adopted for this work appear to be over 4,000 units short of the actual total proposed within the CLPID.
- 6.35 Despite this very significant shortfall in the assessed dwelling numbers, the Technical Note work concludes that the impacts within Brighouse would be severe.
- 6.36 It is suggested that the severity of the impacts has meant that the Council have reduced the scale of the sites as part of the decision making process for the preferred set of allocations. However, it is not clear what is meant by this statement as the published figures are actually significantly higher than those tested within the Technical Note.
- 6.37 A further stage of modelling set out in the Technical Note appears to reduce the tested dwelling numbers still further, which through excluding site sizes of less than 50 dwellings, assesses over 7000 fewer dwellings than published within the CLPID. Such exclusions are clearly very significant and undermine the whole basis of any conclusions drawn and support for the proposed allocations.
- 6.38 Despite the very low numbers tested within this additional work, WSP conclude that even the Do-Minimum scenario would result in levels of congestion that would be unacceptable across the network. Although the Do-Something test within this additional modelling work includes an assumed scheme for the A629 corridor nothing is included that might benefit the Thornhills Site and as such WSP conclude that this scenario would result in major impacts on congestion and delays through the junctions within central Brighouse.
- 6.39 However, without providing any evidence whatsoever, the Technical Note states that the congestion is resolvable. This appears to be concluded on the basis of the problem locations aligning with the A641 corridor for which a scheme is currently at 'pre-feasibility stage'. Therefore, even by WSP's and

the Council's standard, the proposed allocation at Thornhills (and most probably others) is therefore dependent on a scheme which is so embryonic in its development that it hasn't yet even reached any level of feasibility assessment. This simply cannot be the correct and proper basis upon which to promote Local Plan allocations.

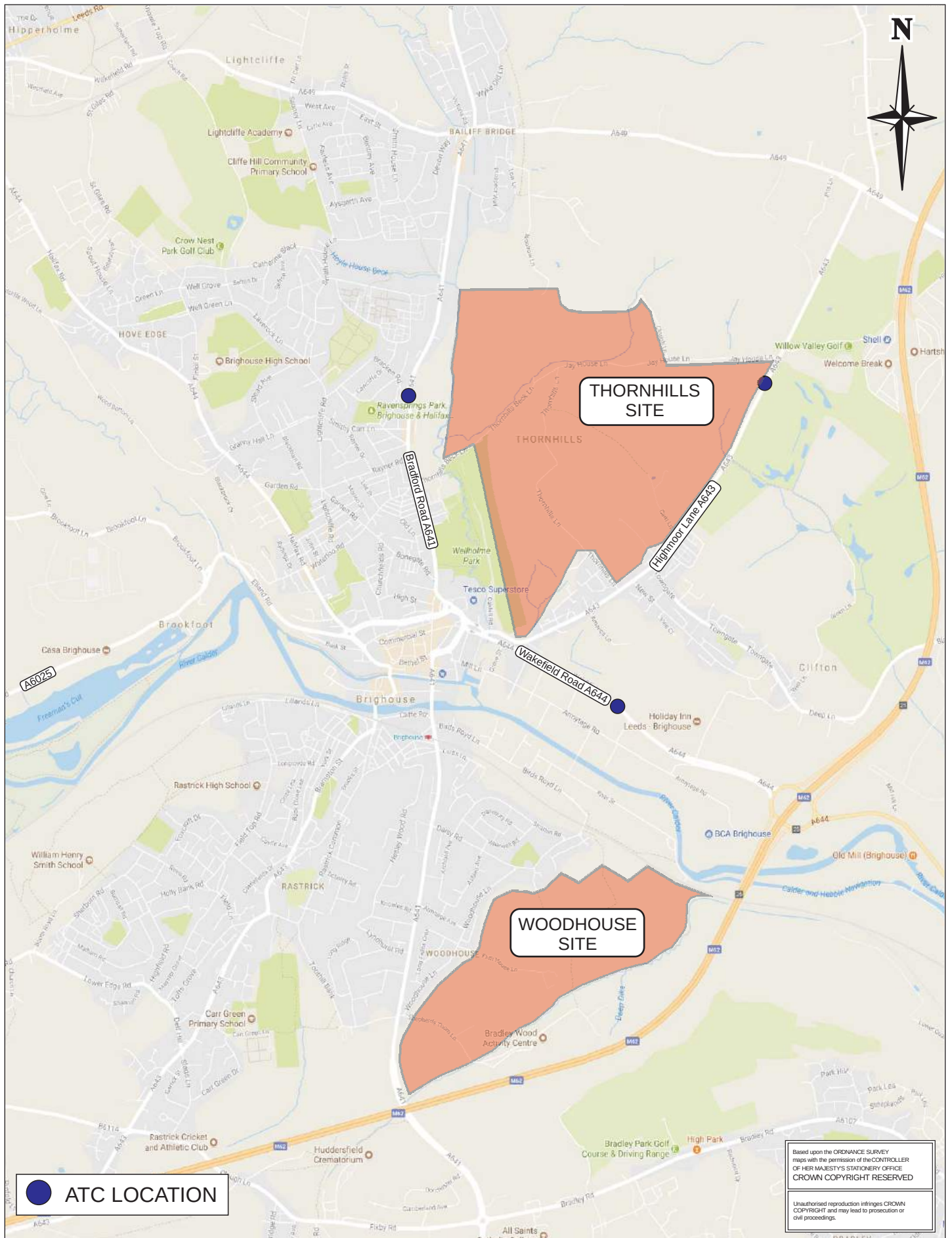
- 6.40 To be clear, there is no SATURN testing of the proposed route and no evidence has been presented which demonstrates that this corridor improvement is capable of addressing the inevitable severe impacts which the proposed allocation would have on the highway network.
- 6.41 Having reviewed all of the supporting technical evidence to the publication of the CLPID, it is clear that the evidence base which should have been compiled in order to determine the implications of the allocations, and establish the mitigation which would be required to address those implications, simply hasn't been gathered.
- 6.42 The testing undertaken has at least confirmed that the network is in need of improvement if it is to stand any chance of being able to accommodate the proposed allocations. However, even these conclusions are based on deficient technical input, inappropriate exclusions and limited modelling work.
- 6.43 The consequence of these shortcomings is that the scale and severity of impact has been significantly understated.
- 6.44 In order to put some of this impact into context, TTHC has undertaken a technical development distribution exercise for the residential component of the Thornhills Site only, to demonstrate the scale of increase on some of the critical parts of the highway network.
- 6.45 Purely on the basis of the residential component of the Thornhills Site in isolation, individual impacts (on what have already been established as critical links operating under severe congestion conditions) will be as high as an additional 68%. This scale of impact demonstrates that the implications of the

proposed allocations has to be appropriately modelled and mitigated. This work should have been undertaken prior advancing the Site for the scale of development proposed.

- 6.46 There is a significant level of evidence required to demonstrate the proposed Thornhills allocation can be delivered without further significant worsening of the already severely congested highway network within Brighouse.
- 6.47 The decision to propose the allocation of such significant development sites within Brighouse has been based on completely inadequate highway evidence.
- 6.48 The levels of impact have been downplayed by applying flawed assumptions within the technical work.
- 6.49 Such a major strategic decision can only be rationally made when the full evidence base has been compiled and scrutinised, enabling the impacts and necessary mitigation to be identified.
- 6.50 In any event, there is considerable evidence already that the proposals would create such significant and severe impacts on local infrastructure as to be unsustainable.
- 6.51 This is particularly concerning as the Initial Draft is proposing major housing allocations and Green Belt release in Brighouse without even knowing if there would or could be sufficient infrastructure in place to deal with it all.
- 6.52 There is recognition that there will be major highways issues arising from both the Thornhills and Woodhouse sites. However, significant reliance is placed on major road improvements, including the A641 corridor, with a suggestion that such matters can be addressed despite there not being any technical evidence to support this conclusion.

- 6.53 It is concluded that based on the review undertaken, the proposed allocation at Thornhills is fundamentally flawed.

FIGURES



	Drawing No	Rev	BRIGHOUSE		
	M17070-C-014	.			
	Date	Rev Date	LOCAL HIGHWAY NETWORK AND LOCATION OF ATC SURVEYS		
Drawn By	Authorised	Scale	FIGURE 1		
GB	MWI	NTS			

APPENDIX A

Automatic Classified Counts, Brighthouse

LOCATION: BRADFORD ROAD

Direction : NORTHBOUND

NORTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	22	32	9	14	42	14	127	41	37
00:30	28	20	18	11	41	18	99	37	34
00:45	24	26	14	7	133	12	132	60	50
01:00	29	16	9	4	134	8	149	61	50
01:15	21	32	12	2	175	6	194	78	63
01:30	19	16	7	3	153	8	215	77	60
01:45	10	24	8	4	105	8	145	54	43
02:00	10	20	5	4	167	8	113	59	47
02:15	13	13	4	4	134	8	132	56	44
02:30	9	16	5	4	120	4	164	59	46
02:45	8	14	4	3	132	3	142	57	44
03:00	7	10	3	9	129	5	121	53	41
03:15	9	8	3	2	128	3	39	35	27
03:30	4	8	3	4	122	2	14	29	22
03:45	3	6	2	2	109	5	16	27	20
04:00	2	6	2	4	21	6	8	8	7
04:15	2	8	5	7	18	8	4	8	7
04:30	5	6	7	11	7	4	13	8	8
04:45	8	4	2	7	10	3	15	7	7
05:00	6	5	6	7	15	7	2	7	7
05:15	7	8	13	12	15	7	11	12	10
05:30	10	7	21	22	20	22	23	22	18
05:45	14	4	23	38	33	26	27	29	24
06:00	19	17	44	38	46	46	50	45	37
06:15	16	13	31	41	41	41	43	39	32
06:30	26	17	70	70	62	56	71	66	53
06:45	23	24	103	90	97	91	99	96	75
07:00	34	21	113	141	126	144	132	131	102
07:15	46	32	160	186	155	171	167	168	131
07:30	28	23	176	230	205	174	207	198	149
07:45	62	24	212	205	178	229	190	203	157
08:00	64	30	175	222	181	204	198	196	153
08:15	65	31	177	232	203	189	183	197	154
08:30	71	29	151	188	181	161	164	169	135
08:45	85	51	170	161	147	177	187	168	140
09:00	107	44	138	176	162	158	180	163	138
09:15	100	54	151	138	151	153	157	150	129
09:30	132	85	143	146	153	150	158	150	138
09:45	117	88	135	154	141	118	162	142	131
10:00	144	93	126	102	131	147	120	125	123
10:15	174	103	117	111	160	137	135	132	134
10:30	151	116	111	108	146	122	125	122	126
10:45	145	126	137	126	128	120	136	129	131
11:00	171	161	129	99	129	148	138	129	139
11:15	179	145	135	126	135	149	170	143	148
11:30	194	136	171	128	153	116	150	144	150
11:45	187	160	126	132	168	148	130	141	150
12:00	211	194	126	144	163	145	151	146	162
12:15	226	159	131	153	139	136	166	145	159
12:30	215	222	173	121	160	136	148	148	168
12:45	217	156	148	153	146	134	177	152	162
13:00	202	194	147	116	165	149	180	151	165
13:15	200	152	175	111	179	153	148	153	160
13:30	212	185	153	127	134	123	155	138	156
13:45	174	178	128	147	152	139	184	150	157
14:00	181	143	147	130	140	146	156	144	149
14:15	188	153	174	141	133	132	145	145	152
14:30	185	177	140	144	131	145	185	149	158
14:45	165	150	178	142	146	153	164	157	157
15:00	198	132	177	166	163	155	175	167	167
15:15	143	174	149	153	188	150	187	165	163
15:30	116	176	196	175	175	159	189	179	169
15:45	136	160	156	186	209	169	200	184	174
16:00	150	153	181	162	174	170	177	173	167
16:15	161	171	171	223	219	178	152	189	182
16:30	181	137	161	171	242	172	196	188	180
16:45	141	116	207	215	218	201	212	211	187
17:00	141	113	173	210	189	185	180	187	170
17:15	166	118	201	217	220	200	188	205	187
17:30	166	96	210	176	204	218	209	203	183
17:45	175	104	198	196	201	212	197	201	183
18:00	163	73	178	204	213	178	197	194	172
18:15	162	96	206	198	186	159	168	183	168
18:30	137	82	139	143	157	168	118	145	135
18:45	123	94	130	161	156	131	141	144	134
19:00	122	88	101	133	119	137	122	122	117
19:15	101	93	115	133	115	133	133	126	118
19:30	100	94	98	121	114	136	92	112	108
19:45	86	78	86	134	107	132	108	113	104
20:00	102	60	85	123	91	104	117	104	97
20:15	86	63	76	110	90	104	95	95	89
20:30	70	66	79	93	65	110	102	90	84
20:45	91	57	68	88	73	117	87	87	83
21:00	56	44	70	103	64	101	73	82	73
21:15	60	39	74	124	99	107	74	96	82
21:30	52	47	55	89	103	117	70	87	76
21:45	68	25	35	97	108	89	51	76	68
22:00	52	35	28	68	81	73	52	60	56
22:15	41	31	40	88	71	77	65	68	59
22:30	53	41	36	68	101	84	64	71	64
22:45	78	22	32	51	81	50	43	51	51
23:00	59	26	19	35	53	53	52	42	42
23:15	51	20	18	46	48	155	39	61	54
23:30	56	17	16	23	27	231	46	69	59
23:45	47	18	13	25	15	198	50	60	52
00:00	43	18	17	22	17	142	25	45	41
7-19	7179	5677	7594	7688	8028	7604	8024	7788	7399
6-22	8202	6453	8780	9313	9464	9259	9423	9248	8699
6-24	8630	6646	8971	9671	9877	10249	9807	9715	9122
0-24	8919	6972	9200	9894	11886	10490	11762	10646	9875

Automatic Classified Counts, Brighthouse

LOCATION: BRADFORD ROAD

Direction : SOUTHBOUND

SOUTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	24	18	6	12	13	12	14	11	14
00:30	25	19	20	10	2	8	15	11	14
00:45	23	21	5	5	3	8	7	6	10
01:00	14	12	1	1	5	6	5	4	6
01:15	16	18	3	3	7	3	3	4	8
01:30	13	13	2	4	2	3	2	3	6
01:45	11	10	2	1	2	4	3	2	5
02:00	11	11	5	2	3	5	7	4	6
02:15	17	14	2	3	4	4	5	4	7
02:30	7	11	3	5	2	4	4	4	5
02:45	5	10	6	2	5	3	4	4	5
03:00	12	3	5	2	1	2	2	2	4
03:15	9	3	4	4	2	3	0	3	4
03:30	7	9	2	0	4	5	1	2	4
03:45	4	8	3	4	4	2	9	4	5
04:00	4	4	6	3	2	3	5	4	4
04:15	2	8	4	3	2	4	5	4	4
04:30	7	8	7	1	4	1	2	3	4
04:45	8	8	5	8	13	11	8	9	9
05:00	4	4	8	7	3	2	3	5	4
05:15	8	1	6	6	10	8	6	7	6
05:30	9	8	8	10	17	17	11	13	11
05:45	15	14	38	36	34	25	31	33	28
06:00	20	12	29	35	42	37	39	36	31
06:15	10	7	36	49	29	34	31	36	28
06:30	20	17	42	44	67	47	44	49	40
06:45	36	14	85	87	96	86	101	91	72
07:00	33	24	108	105	130	123	107	115	90
07:15	32	31	133	142	136	134	118	133	104
07:30	45	20	156	156	166	152	147	155	120
07:45	55	26	179	156	194	164	190	177	138
08:00	85	26	191	187	184	195	169	185	148
08:15	85	37	175	174	172	156	159	167	137
08:30	87	35	170	176	176	164	181	173	141
08:45	115	39	166	187	209	183	183	186	155
09:00	132	44	186	179	187	161	176	178	152
09:15	119	68	137	159	169	163	153	156	138
09:30	125	83	154	154	145	130	161	149	136
09:45	137	90	167	116	153	134	152	144	136
10:00	153	124	107	147	138	124	125	128	131
10:15	178	110	121	118	132	120	146	127	132
10:30	178	142	113	111	116	129	137	121	132
10:45	148	137	126	114	125	138	164	133	136
11:00	171	139	104	106	125	122	131	118	128
11:15	195	114	134	134	110	127	143	130	137
11:30	175	169	112	116	146	135	151	132	143
11:45	176	143	118	141	100	118	144	124	134
12:00	139	150	136	117	128	117	130	126	131
12:15	196	163	138	119	143	133	131	133	146
12:30	165	139	142	140	136	155	163	147	149
12:45	183	165	146	153	128	125	132	137	147
13:00	196	135	144	124	148	138	145	140	147
13:15	157	131	127	124	144	129	188	142	143
13:30	179	161	134	125	140	148	167	143	151
13:45	185	149	121	132	126	111	139	126	138
14:00	154	147	131	126	144	141	152	139	142
14:15	156	163	115	115	168	120	131	130	138
14:30	152	150	151	132	134	127	141	137	141
14:45	147	142	154	144	148	125	165	147	146
15:00	151	136	130	130	135	135	160	138	140
15:15	162	129	144	158	111	154	166	147	146
15:30	145	132	147	144	158	155	186	158	152
15:45	169	114	163	151	137	166	195	162	156
16:00	136	138	174	174	177	170	123	164	156
16:15	124	101	208	185	204	187	187	194	171
16:30	131	73	171	203	178	158	178	178	156
16:45	155	95	187	162	206	208	213	195	175
17:00	139	105	174	165	193	214	191	187	169
17:15	128	69	230	195	208	190	195	204	174
17:30	123	115	198	196	211	201	184	198	175
17:45	129	86	192	201	204	206	172	195	170
18:00	143	93	184	200	173	169	179	181	163
18:15	137	90	190	193	203	199	171	191	169
18:30	108	97	170	172	170	146	177	167	149
18:45	123	65	133	164	136	184	160	155	138
19:00	85	95	154	135	130	132	152	141	126
19:15	108	77	89	124	111	128	121	115	108
19:30	103	63	102	119	110	109	128	114	105
19:45	102	69	94	96	103	125	115	107	101
20:00	77	63	90	108	85	96	96	95	88
20:15	65	56	74	75	57	81	77	73	69
20:30	59	62	47	69	56	70	73	63	62
20:45	77	54	41	62	57	52	53	53	57
21:00	52	42	45	42	49	50	52	48	47
21:15	58	37	48	47	47	48	62	50	50
21:30	43	43	49	63	49	64	45	54	51
21:45	42	32	32	49	48	48	47	45	43
22:00	44	24	26	41	27	32	52	36	35
22:15	35	31	29	21	34	34	37	31	32
22:30	47	20	25	26	23	39	48	32	33
22:45	36	22	21	29	32	32	40	31	30
23:00	33	6	26	18	15	16	30	21	21
23:15	29	13	10	17	22	29	31	22	22
23:30	25	16	15	19	12	23	34	21	21
23:45	41	15	10	14	16	19	28	17	20
00:00	33	10	9	6	16	14	21	13	16
7-19	6688	5105	7337	7252	7504	7292	7703	7418	6983
6-22	7617	5789	8345	8432	8625	8485	8907	8559	8029
6-24	7896	5922	8490	8582	8795	8691	9176	8747	8222
0-24	8171	6169	8670	8749	8981	8871	9367	8928	8425

Automatic Classified Counts, Brighthouse

LOCATION: HIGHMOOR LANE

Direction : NORTHBOUND

NORTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	11	11	1	7	6	3	12	6	7
00:30	11	11	3	7	15	4	13	8	9
00:45	5	13	4	5	16	3	15	9	9
01:00	8	5	1	2	12	3	10	6	6
01:15	10	8	2	2	12	4	14	7	7
01:30	3	9	1	1	8	6	10	5	5
01:45	5	7	1	3	7	2	8	4	5
02:00	9	6	1	1	9	2	6	4	5
02:15	4	9	2	3	6	1	11	5	5
02:30	4	4	0	1	6	1	9	3	4
02:45	2	2	2	1	6	0	3	2	2
03:00	1	7	5	1	6	2	7	4	4
03:15	3	2	1	1	13	3	4	4	4
03:30	0	2	0	0	6	2	3	2	2
03:45	2	2	1	2	9	1	2	3	3
04:00	6	2	1	2	1	0	1	1	2
04:15	1	2	1	2	0	1	0	1	1
04:30	1	1	2	1	5	3	3	3	2
04:45	5	3	4	3	2	3	2	3	3
05:00	0	0	1	2	2	5	2	2	2
05:15	5	1	3	4	8	1	5	4	4
05:30	5	1	5	5	5	5	6	5	5
05:45	7	2	11	9	7	10	9	9	8
06:00	5	6	7	12	8	8	10	9	8
06:15	2	2	12	15	21	20	14	16	12
06:30	7	3	14	19	23	23	21	20	16
06:45	10	6	28	29	26	36	23	28	23
07:00	7	9	40	46	43	41	46	43	33
07:15	17	7	60	46	63	53	51	55	42
07:30	17	6	81	74	92	91	95	87	65
07:45	22	12	108	116	106	115	93	108	82
08:00	20	8	99	93	97	83	89	92	70
08:15	24	14	95	84	101	102	75	91	71
08:30	24	18	75	92	111	85	82	89	70
08:45	35	12	84	90	79	93	92	88	69
09:00	40	25	58	64	77	77	63	68	58
09:15	25	34	63	93	79	80	69	77	63
09:30	43	25	49	52	51	53	52	51	46
09:45	51	33	50	46	38	31	51	43	43
10:00	60	37	55	57	61	50	58	56	54
10:15	71	29	48	46	33	56	51	47	48
10:30	51	50	52	37	49	47	61	49	50
10:45	76	49	51	62	43	48	57	52	55
11:00	58	54	51	51	51	35	55	49	51
11:15	67	43	50	61	50	58	56	55	55
11:30	72	50	45	61	53	48	55	52	55
11:45	59	69	59	56	54	44	61	55	57
12:00	80	69	45	52	53	59	52	52	59
12:15	67	59	51	43	72	51	69	57	59
12:30	68	60	51	57	50	54	73	57	59
12:45	57	70	61	54	57	70	67	62	62
13:00	58	59	55	62	60	58	58	59	59
13:15	65	69	70	40	58	48	63	56	59
13:30	66	57	42	51	54	48	64	52	55
13:45	49	79	43	52	52	49	79	55	58
14:00	92	58	60	54	58	59	72	61	65
14:15	59	55	54	53	66	59	75	61	60
14:30	61	70	44	60	53	51	56	53	56
14:45	60	58	54	61	56	47	81	60	60
15:00	45	54	53	54	72	65	75	64	60
15:15	58	57	73	62	59	84	64	68	65
15:30	62	45	87	80	77	60	75	76	69
15:45	55	60	64	62	69	61	84	68	65
16:00	47	61	62	67	60	65	75	66	62
16:15	53	47	90	76	79	74	89	82	73
16:30	59	54	95	67	74	92	83	82	75
16:45	54	51	96	112	102	86	93	98	85
17:00	51	46	80	84	83	90	78	83	73
17:15	66	41	81	106	115	98	97	99	86
17:30	56	29	89	84	106	98	88	93	79
17:45	69	33	88	87	86	107	92	92	80
18:00	59	29	93	92	66	91	71	83	72
18:15	63	34	68	71	76	79	70	73	66
18:30	52	44	62	54	65	73	50	61	57
18:45	46	24	49	67	55	45	50	53	48
19:00	45	31	65	44	52	57	55	55	50
19:15	41	28	44	36	48	61	57	49	45
19:30	39	22	30	42	52	53	46	45	41
19:45	41	19	30	51	35	54	34	41	38
20:00	31	27	32	42	32	43	23	34	33
20:15	29	24	24	29	30	31	26	28	28
20:30	24	14	35	31	35	39	25	33	29
20:45	9	23	24	15	33	35	31	28	24
21:00	23	12	23	38	25	30	30	29	26
21:15	17	17	23	23	32	33	29	28	25
21:30	14	15	29	28	31	28	18	27	23
21:45	27	7	22	21	23	27	17	22	21
22:00	12	11	11	36	26	21	24	24	20
22:15	18	12	17	16	30	27	22	22	20
22:30	18	6	13	23	15	16	27	19	17
22:45	22	7	12	19	20	19	17	17	17
23:00	19	6	9	11	15	15	22	14	14
23:15	14	10	5	10	15	26	8	13	13
23:30	12	6	1	9	9	18	12	10	10
23:45	14	6	8	9	5	20	14	11	11
00:00	13	2	0	6	3	17	3	6	6
7-19	2554	2078	3158	3189	3273	3227	3364	3242	2978
6-22	2887	2317	3579	3690	3788	3802	3828	3737	3413
6-24	3017	2372	3644	3793	3900	3960	3953	3850	3520
0-24	3130	2488	3704	3870	4075	4033	4118	3960	3631

Automatic Classified Counts, Brighthouse

LOCATION: HIGHMOOR LANE

Direction : SOUTHBOUND

SOUTHBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	15	6	2	7	1	0	4	3	5
00:30	9	9	0	2	2	5	6	3	5
00:45	8	6	2	3	4	2	3	3	4
01:00	9	3	0	2	3	0	2	1	3
01:15	5	7	3	1	1	0	2	1	3
01:30	4	14	1	0	4	1	4	2	4
01:45	5	5	0	1	1	5	1	2	3
02:00	4	7	0	2	1	3	0	1	2
02:15	5	4	2	1	2	1	1	1	2
02:30	6	3	0	1	1	0	0	0	2
02:45	2	2	1	2	1	0	0	1	1
03:00	1	7	0	0	2	1	1	1	2
03:15	1	3	1	2	1	0	0	1	1
03:30	4	2	0	1	4	0	0	1	2
03:45	1	2	0	2	2	1	2	1	1
04:00	0	2	2	1	1	1	1	1	1
04:15	1	1	1	1	1	0	1	1	1
04:30	1	1	1	1	3	1	2	2	1
04:45	1	2	1	0	0	0	2	1	1
05:00	3	2	3	2	2	3	1	2	2
05:15	0	3	9	4	1	3	9	5	4
05:30	2	1	3	5	6	6	7	5	4
05:45	3	2	10	13	9	10	10	10	8
06:00	7	1	11	7	11	6	7	8	7
06:15	7	5	7	6	12	5	7	7	7
06:30	7	2	12	12	17	12	11	13	10
06:45	9	6	29	32	30	37	28	31	24
07:00	19	8	44	48	49	61	58	52	41
07:15	10	5	60	80	67	66	56	66	49
07:30	12	10	79	90	87	77	76	82	62
07:45	19	7	94	84	91	93	74	87	66
08:00	18	15	63	72	74	75	69	71	55
08:15	33	22	78	87	61	77	84	77	63
08:30	34	9	66	81	72	61	76	71	57
08:45	43	27	62	84	83	78	76	77	65
09:00	44	18	66	70	69	71	89	73	61
09:15	33	26	65	57	69	59	50	60	51
09:30	49	28	59	51	42	50	65	53	49
09:45	53	39	62	41	60	53	45	52	50
10:00	52	43	40	45	65	52	56	52	50
10:15	50	37	45	35	48	51	49	46	45
10:30	57	56	35	40	39	43	53	42	46
10:45	52	52	38	42	45	41	50	43	46
11:00	83	49	36	43	46	50	53	46	51
11:15	63	46	55	49	43	51	67	53	53
11:30	72	55	60	54	31	60	60	53	56
11:45	55	41	45	36	44	41	42	42	43
12:00	84	55	50	49	50	45	57	50	56
12:15	66	44	37	35	46	47	58	45	48
12:30	67	54	49	48	39	50	60	49	52
12:45	69	41	44	37	46	50	62	48	50
13:00	63	66	51	37	51	53	79	54	57
13:15	89	75	46	51	64	50	67	56	63
13:30	81	62	55	55	47	58	59	55	60
13:45	78	54	48	59	72	46	69	59	61
14:00	85	74	51	50	57	50	62	54	61
14:15	68	57	65	50	51	64	56	57	59
14:30	52	55	41	64	50	50	61	53	53
14:45	66	54	61	55	62	54	61	59	59
15:00	66	51	60	70	72	56	69	65	63
15:15	62	49	65	64	77	69	91	73	68
15:30	52	45	58	67	61	60	71	63	59
15:45	45	37	63	78	78	61	73	71	62
16:00	47	41	70	71	61	60	95	71	64
16:15	63	34	82	88	68	80	104	84	74
16:30	55	53	84	87	74	87	76	82	74
16:45	63	39	81	84	81	82	75	81	72
17:00	43	36	86	73	93	92	91	87	73
17:15	40	48	109	105	94	100	109	103	86
17:30	49	35	99	95	94	105	84	95	80
17:45	43	38	64	104	87	80	75	82	70
18:00	37	37	67	87	78	86	74	78	67
18:15	53	25	69	98	84	84	75	82	70
18:30	41	34	57	65	70	63	58	63	55
18:45	55	34	55	62	66	56	69	62	57
19:00	49	24	51	49	55	68	47	54	49
19:15	47	43	43	49	34	55	57	48	47
19:30	42	21	39	44	33	44	45	41	38
19:45	32	28	34	47	42	36	31	38	36
20:00	36	22	23	50	45	31	24	35	33
20:15	25	22	30	32	18	14	28	24	24
20:30	23	21	20	23	33	33	31	28	26
20:45	22	22	25	30	15	28	26	25	24
21:00	18	12	10	16	19	22	29	19	18
21:15	20	16	16	12	11	31	24	19	19
21:30	9	17	18	7	23	16	14	16	15
21:45	13	10	17	11	13	16	20	15	14
22:00	10	13	6	16	15	6	18	12	12
22:15	18	10	10	19	10	22	15	15	15
22:30	16	10	8	10	7	13	13	10	11
22:45	12	4	6	10	19	14	20	14	12
23:00	10	4	4	7	9	7	16	9	8
23:15	19	2	4	6	7	13	15	9	9
23:30	5	1	5	13	5	9	6	8	6
23:45	14	3	7	5	4	10	9	7	7
00:00	7	1	4	3	0	0	10	3	4
7-19	2563	1936	2926	3078	3064	3055	3277	3080	2843
6-22	2902	2204	3299	3513	3473	3502	3728	3503	3232
6-24	3003	2239	3347	3586	3534	3590	3832	3578	3304
0-24	3100	2334	3400	3647	3598	3639	3898	3636	3374

Automatic Classified Counts, Brighthouse

LOCATION: WAKEFIELD ROAD

Direction : WESTBOUND

WESTBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	26	28	6	6	28	16	93	30	29
00:30	15	25	9	8	50	10	63	28	26
00:45	16	21	6	3	98	13	118	48	39
01:00	15	22	14	5	83	7	113	44	37
01:15	6	14	7	6	98	6	143	52	40
01:30	10	10	0	5	66	9	112	38	30
01:45	12	17	3	6	81	4	94	38	31
02:00	13	13	3	8	85	2	73	34	28
02:15	7	11	4	6	64	8	71	31	24
02:30	12	8	3	9	71	8	83	35	28
02:45	5	4	6	6	66	5	82	33	25
03:00	9	2	3	2	72	8	57	28	22
03:15	8	6	5	4	71	4	24	22	17
03:30	6	8	4	5	66	4	6	17	14
03:45	5	4	3	1	49	5	4	12	10
04:00	3	6	2	2	3	4	5	3	4
04:15	9	7	3	5	11	4	3	5	6
04:30	8	4	7	4	7	1	4	5	5
04:45	6	11	6	4	7	8	7	6	7
05:00	8	5	8	7	10	12	7	9	8
05:15	11	8	22	11	16	8	9	13	12
05:30	10	4	13	17	21	27	26	21	17
05:45	12	6	18	31	37	29	23	28	22
06:00	13	8	29	26	20	35	48	32	26
06:15	19	10	29	33	40	41	33	35	29
06:30	22	14	57	54	55	68	62	59	47
06:45	21	13	72	77	60	61	78	70	55
07:00	45	15	89	89	86	92	100	91	74
07:15	23	16	100	99	123	108	114	109	83
07:30	30	19	129	108	108	129	101	115	89
07:45	38	18	123	130	158	126	123	132	102
08:00	47	22	106	100	84	110	107	101	82
08:15	53	26	100	93	83	93	97	93	78
08:30	62	38	83	91	96	87	94	90	79
08:45	83	36	67	76	82	96	93	83	76
09:00	79	34	93	68	88	106	82	87	79
09:15	73	57	81	89	69	81	82	80	76
09:30	71	47	71	81	95	83	93	85	77
09:45	85	81	104	90	96	84	90	93	90
10:00	93	91	103	97	113	98	120	106	102
10:15	79	83	86	70	89	114	104	93	89
10:30	89	63	106	100	114	101	107	106	97
10:45	90	88	92	114	91	84	112	99	96
11:00	107	93	100	97	63	103	121	97	98
11:15	114	85	81	100	80	99	102	92	94
11:30	113	92	96	103	88	95	120	100	101
11:45	95	100	95	102	103	106	93	100	99
12:00	95	115	103	113	89	119	112	107	107
12:15	117	103	108	110	138	109	139	121	118
12:30	122	136	116	72	95	122	111	103	111
12:45	122	145	102	109	85	108	113	103	112
13:00	103	120	111	94	79	115	109	102	104
13:15	124	117	113	113	114	100	87	105	110
13:30	128	110	102	107	116	115	107	109	112
13:45	108	99	116	96	107	107	99	105	105
14:00	102	109	104	105	126	116	108	112	110
14:15	79	110	102	99	111	126	106	109	105
14:30	126	109	104	116	115	117	115	113	115
14:45	107	109	119	115	100	129	111	115	113
15:00	100	120	113	119	126	123	106	117	115
15:15	98	111	103	99	121	126	121	114	111
15:30	89	119	105	119	98	113	120	111	109
15:45	108	106	103	117	117	106	110	111	110
16:00	102	109	116	103	99	131	92	108	107
16:15	107	103	127	121	102	106	97	111	109
16:30	127	111	118	87	129	98	91	105	109
16:45	126	122	100	89	106	93	120	102	108
17:00	98	109	87	100	95	100	96	96	98
17:15	108	100	82	95	104	90	105	95	98
17:30	96	81	69	74	81	99	100	85	86
17:45	115	93	92	102	99	85	112	98	100
18:00	102	83	93	73	101	107	132	101	99
18:15	106	88	120	124	125	137	141	129	120
18:30	102	85	112	120	135	135	111	123	114
18:45	90	62	104	129	138	130	116	123	110
19:00	96	90	93	111	117	129	112	112	107
19:15	88	75	104	119	119	102	113	111	103
19:30	83	83	90	98	82	103	90	93	90
19:45	80	58	75	88	88	92	91	87	82
20:00	74	63	77	75	68	82	77	76	74
20:15	73	58	46	73	74	70	65	66	66
20:30	64	57	59	58	78	130	79	81	75
20:45	49	38	52	63	63	114	59	70	63
21:00	50	42	47	83	52	107	57	69	63
21:15	41	36	37	73	75	80	64	66	58
21:30	43	30	34	77	99	79	50	68	59
21:45	44	32	36	84	99	69	35	65	57
22:00	40	25	28	55	81	74	44	56	50
22:15	39	25	29	51	73	72	40	53	47
22:30	37	23	33	74	107	71	46	66	56
22:45	39	17	22	52	58	53	37	44	40
23:00	37	17	19	46	54	40	44	41	37
23:15	24	19	23	34	35	174	31	59	49
23:30	32	20	23	20	24	160	33	52	45
23:45	32	18	20	26	17	154	38	51	44
00:00	24	9	11	25	7	105	24	34	29
7-19	4527	4163	4853	4839	4991	5194	5154	5006	4817
6-22	5363	4812	5785	6038	6210	6558	6251	6168	5860
6-24	5627	4960	5965	6366	6585	7387	6544	6569	6205
0-24	5872	5212	6149	6553	7765	7624	7812	7181	6712

Automatic Classified Counts, Brighthouse

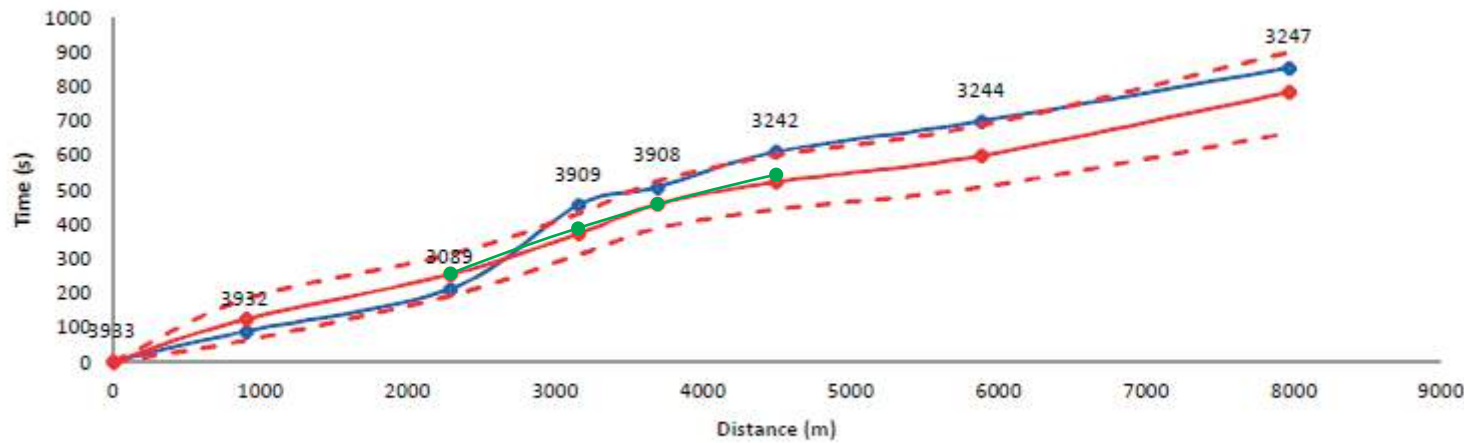
LOCATION: WAKEFIELD ROAD

Direction : EASTBOUND

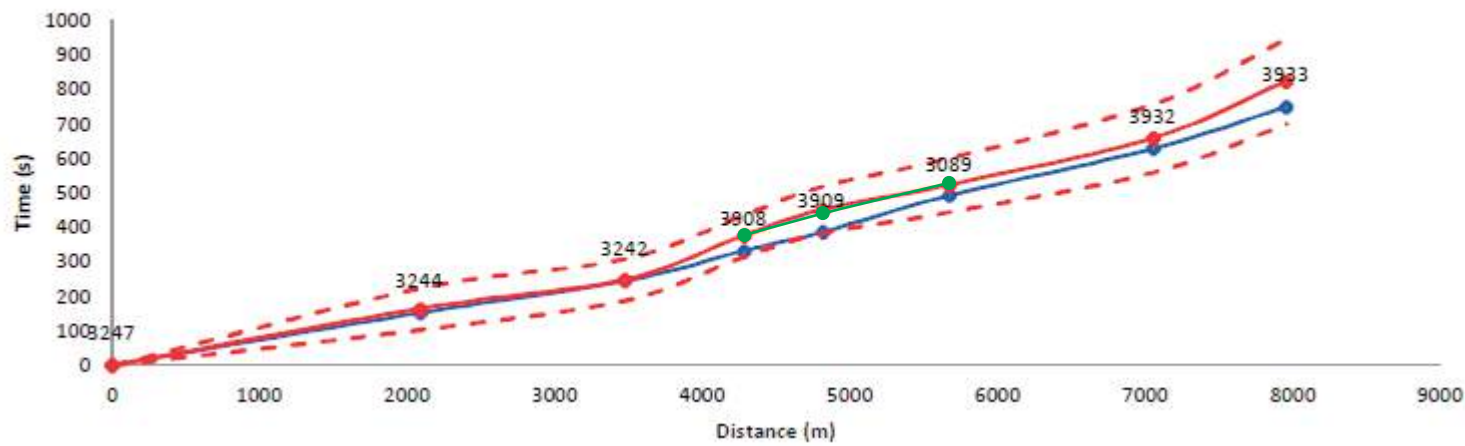
EASTBOUND									
Time	Saturday 16-Sep-17	Sunday 17-Sep-17	Monday 18-Sep-17	Tuesday 19-Sep-17	Wednesday 20-Sep-17	Thursday 21-Sep-17	Friday 22-Sep-17	WEEKDAY AVERAGE	WEEK AVERAGE
00:15	21	21	9	7	7	5	12	8	12
00:30	26	15	6	7	14	9	12	10	13
00:45	23	14	8	10	13	4	8	9	11
01:00	17	13	7	6	5	2	7	5	8
01:15	16	9	7	8	2	0	7	5	7
01:30	16	6	4	5	5	6	5	5	7
01:45	12	13	2	7	14	3	11	7	9
02:00	7	12	1	2	2	4	4	3	5
02:15	9	7	3	3	3	6	9	5	6
02:30	7	11	4	4	5	5	6	5	6
02:45	6	7	3	4	5	3	9	5	5
03:00	3	6	8	6	6	10	4	7	6
03:15	12	4	5	10	10	1	8	7	7
03:30	7	9	8	9	2	0	3	4	5
03:45	5	6	13	4	11	8	7	9	8
04:00	8	10	8	6	9	11	8	8	9
04:15	4	7	8	13	10	15	12	12	10
04:30	4	7	25	14	28	15	13	19	15
04:45	12	6	34	25	16	17	24	23	19
05:00	11	7	23	25	21	26	19	23	19
05:15	17	9	36	39	33	39	27	35	29
05:30	25	11	56	45	53	44	48	49	40
05:45	30	22	78	67	72	72	73	72	59
06:00	32	11	77	70	84	75	64	74	59
06:15	27	8	93	90	89	77	92	88	68
06:30	37	20	146	148	156	147	134	146	113
06:45	49	24	184	202	195	186	144	182	141
07:00	51	24	188	190	191	176	199	189	146
07:15	54	19	222	274	262	249	217	245	185
07:30	60	31	273	265	254	261	240	259	198
07:45	69	41	217	201	207	206	232	213	168
08:00	65	50	240	215	205	199	217	215	170
08:15	78	43	190	227	191	243	187	208	166
08:30	97	38	151	175	181	193	174	175	144
08:45	90	58	156	156	136	144	153	149	128
09:00	91	69	134	162	194	167	154	162	139
09:15	130	75	171	192	190	173	157	177	155
09:30	135	108	113	137	137	134	146	133	130
09:45	131	112	165	146	141	147	177	155	146
10:00	115	98	143	157	170	150	148	154	140
10:15	135	109	129	164	130	136	161	144	138
10:30	149	128	133	160	145	148	159	149	146
10:45	150	95	137	150	113	136	161	139	135
11:00	118	130	141	171	155	156	175	160	149
11:15	164	115	132	128	143	162	173	148	145
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11:45	138	129	141	139	167	156	165	154	148
12:00	141	144	168	171	149	119	157	153	150
12:15	172	129	186	160	135	146	166	159	156
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13:15	138	113	147	153	159	159	158	155	147
13:30	137	140	176	152	147	172	154	160	154
13:45	129	151	164	174	154	178	154	165	158
14:00	133	113	157	141	180	149	158	157	147
14:15	132	98	150	150	158	177	148	157	145
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14:45	129	130	146	160	131	152	135	145	140
15:00	127	105	137	117	110	153	130	129	126
15:15	115	111	141	154	104	135	158	138	131
15:30	103	92	146	157	163	176	135	155	139
15:45	107	117	169	152	198	164	159	168	152
16:00	93	115	134	169	144	160	158	153	139
16:15	114	92	223	229	213	198	174	207	178
16:30	107	86	172	164	163	168	158	165	145
16:45	87	86	164	200	188	216	158	185	157
17:00	100	91	186	184	163	190	134	171	150
17:15	103	88	244	262	254	208	185	231	192
17:30	92	74	165	200	184	173	139	172	147
17:45	122	81	188	204	182	171	156	180	158
18:00	100	77	123	147	157	142	115	137	123
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18:30	95	65	111	129	98	110	120	114	104
18:45	99	81	93	128	117	111	98	109	104
19:00	78	64	90	135	95	86	104	102	93
19:15	79	64	86	128	86	112	117	106	96
19:30	62	62	72	122	94	80	72	88	81
19:45	56	51	57	91	73	65	75	72	67
20:00	60	49	47	85	63	66	74	67	63
20:15	46	41	42	66	66	71	74	64	58
20:30	42	36	43	59	50	38	43	47	44
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21:30	32	22	32	48	48	60	42	46	41
21:45	30	24	32	33	35	46	45	38	35
22:00	20	25	26	42	44	31	33	35	32
22:15	29	26	42	34	25	32	32	33	31
22:30	38	23	23	42	36	40	42	37	35
22:45	54	11	23	29	27	26	30	27	29
23:00	31	13	27	16	13	30	20	21	21
23:15	21	10	13	10	19	19	22	17	16
23:30	31	15	6	11	12	11	27	13	16
23:45	24	11	7	6	13	11	23	12	14
00:00	26	6	14	14	11	19	24	16	16
7-19	5527	4658	7632	8105	7721	7941	7670	7814	7036
6-22	6222	5192	8779	9534	9048	9255	8940	9111	8139
6-24	6476	5307	8934	9696	9204	9443	9160	9287	8317
0-24	6806	5550	9367	10092	9634	9823	9560	9695	8690

APPENDIX B

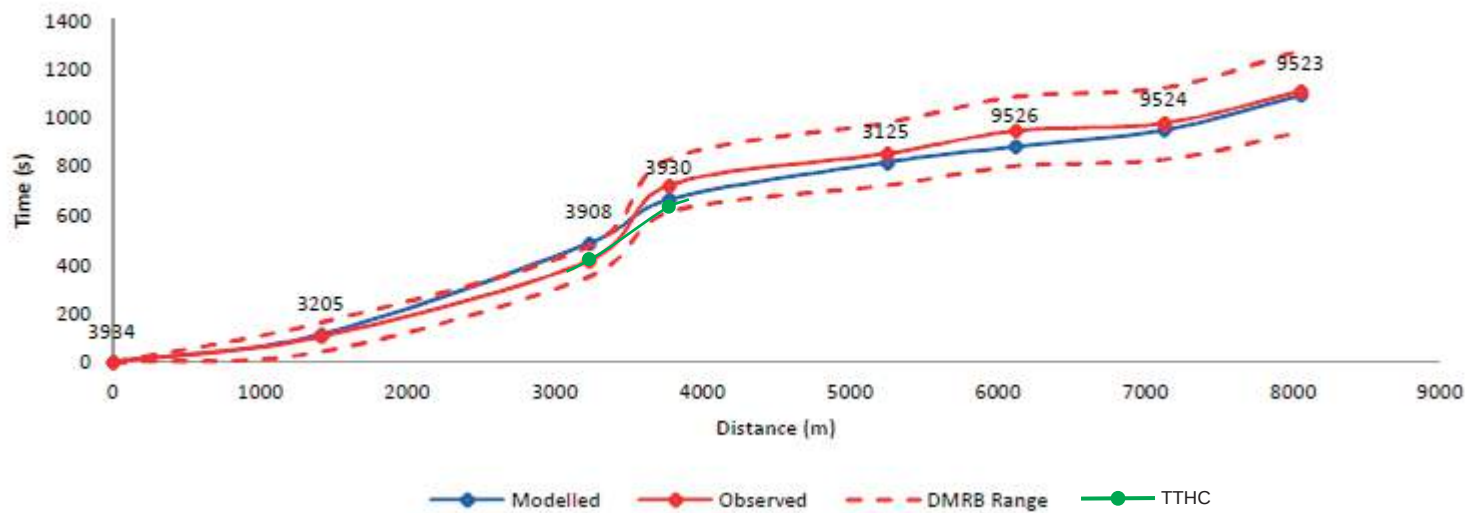
Route 9 Southbound



Route 9 Northbound

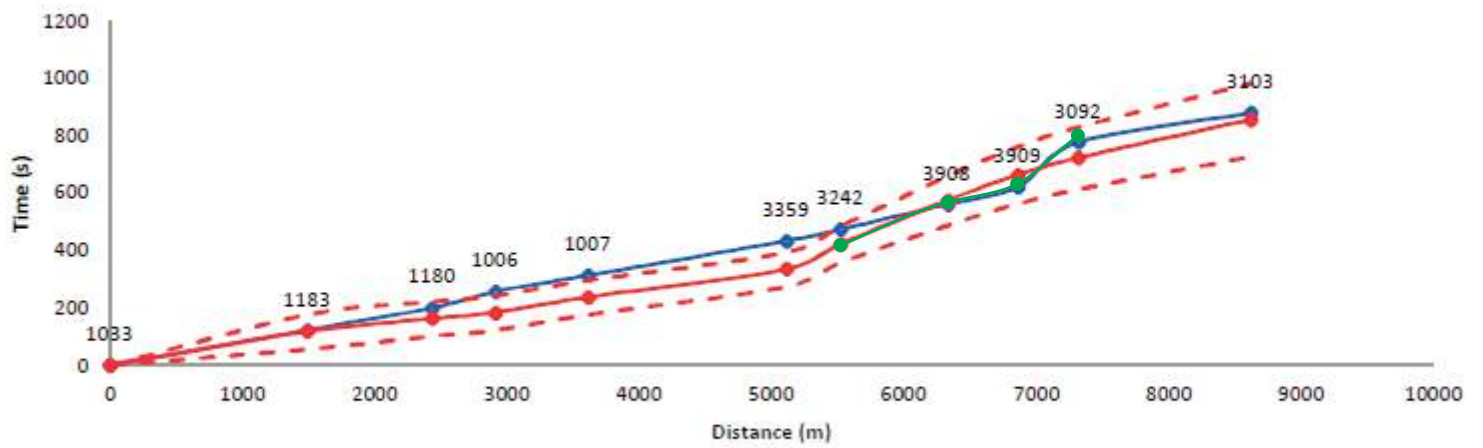


Route 10 Southbound

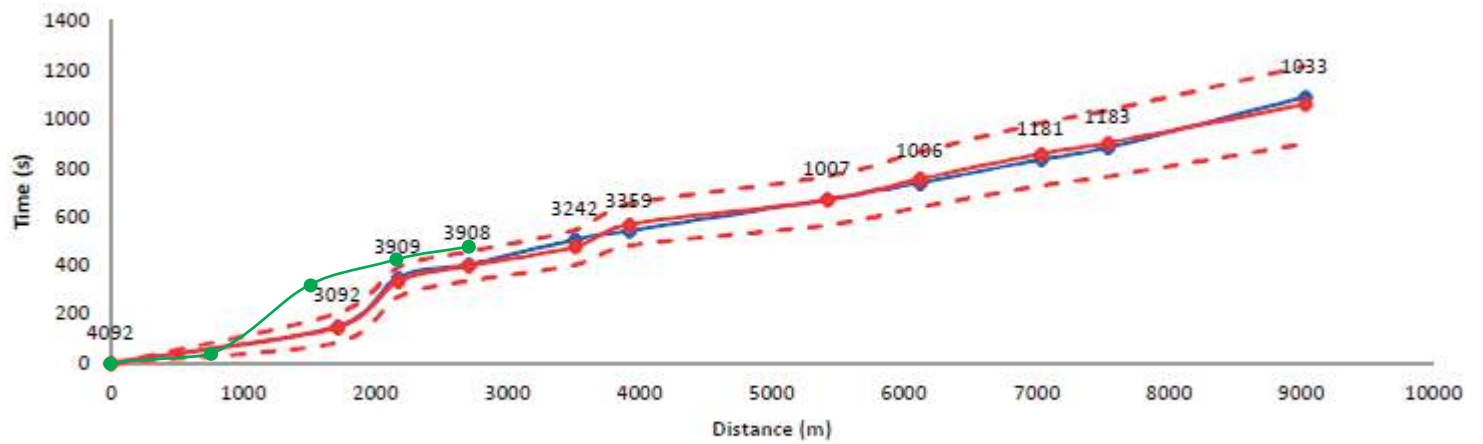


Route 11 Eastbound

AM PEAK

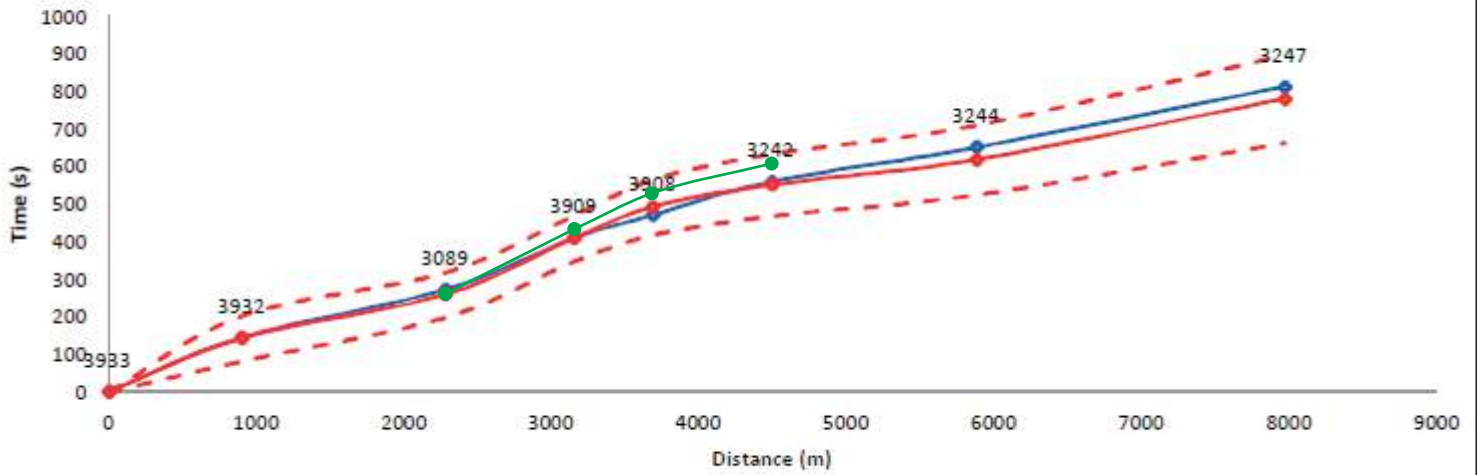


Route 11 Westbound

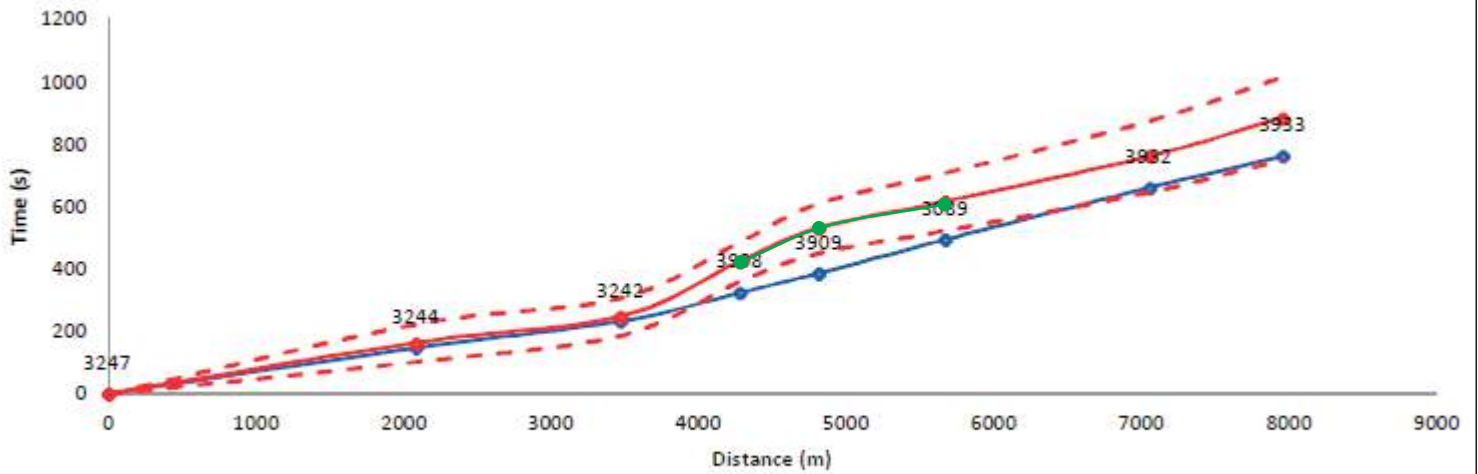


Modelled Observed DMRB Range TTHC

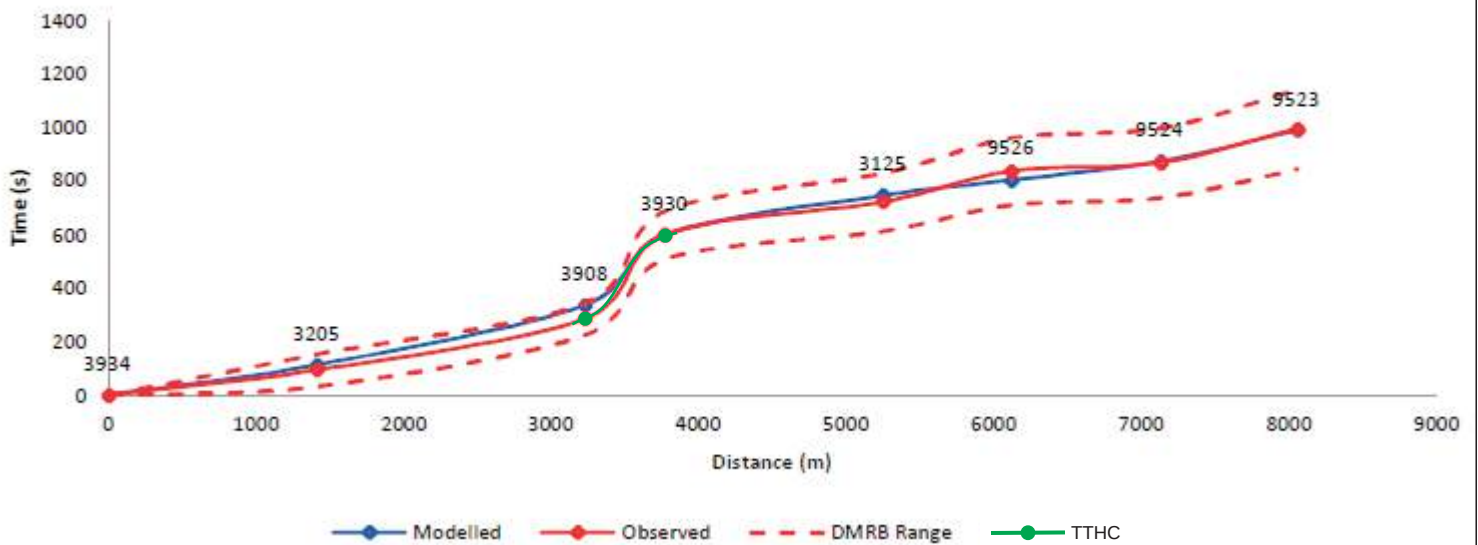
Route 9 Southbound



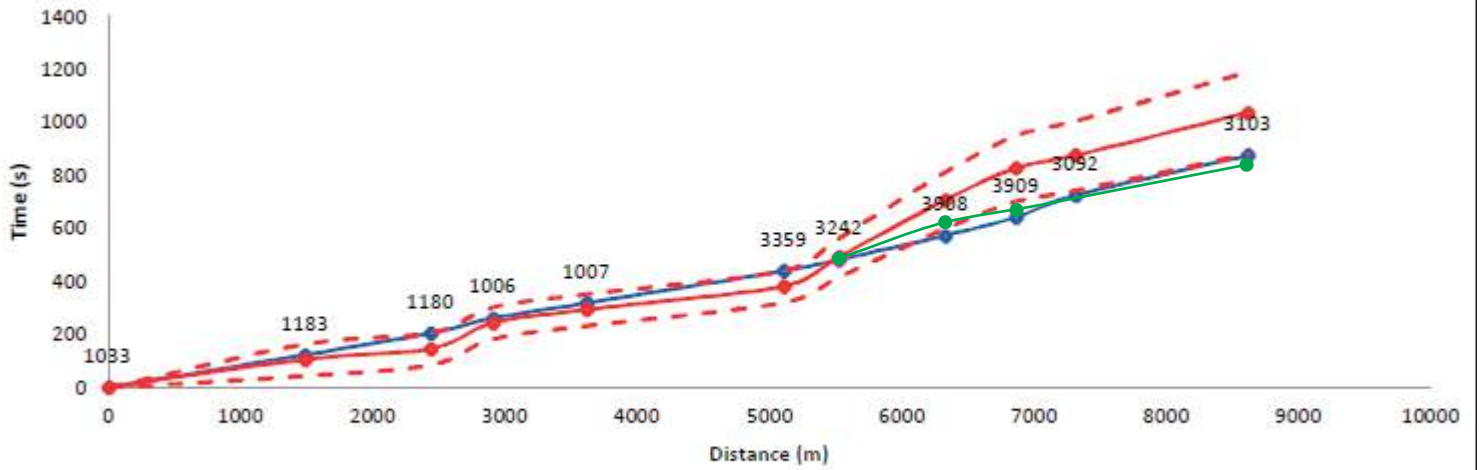
Route 9 Northbound



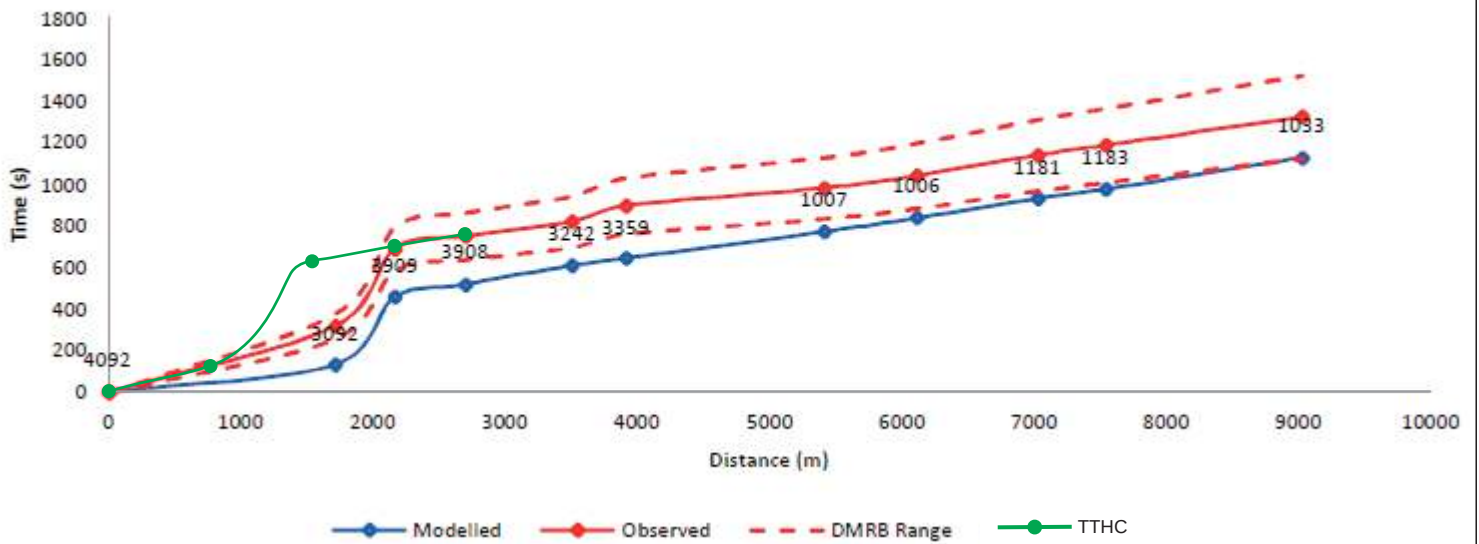
Route 10 Southbound



Route 11 Eastbound



Route 11 Westbound

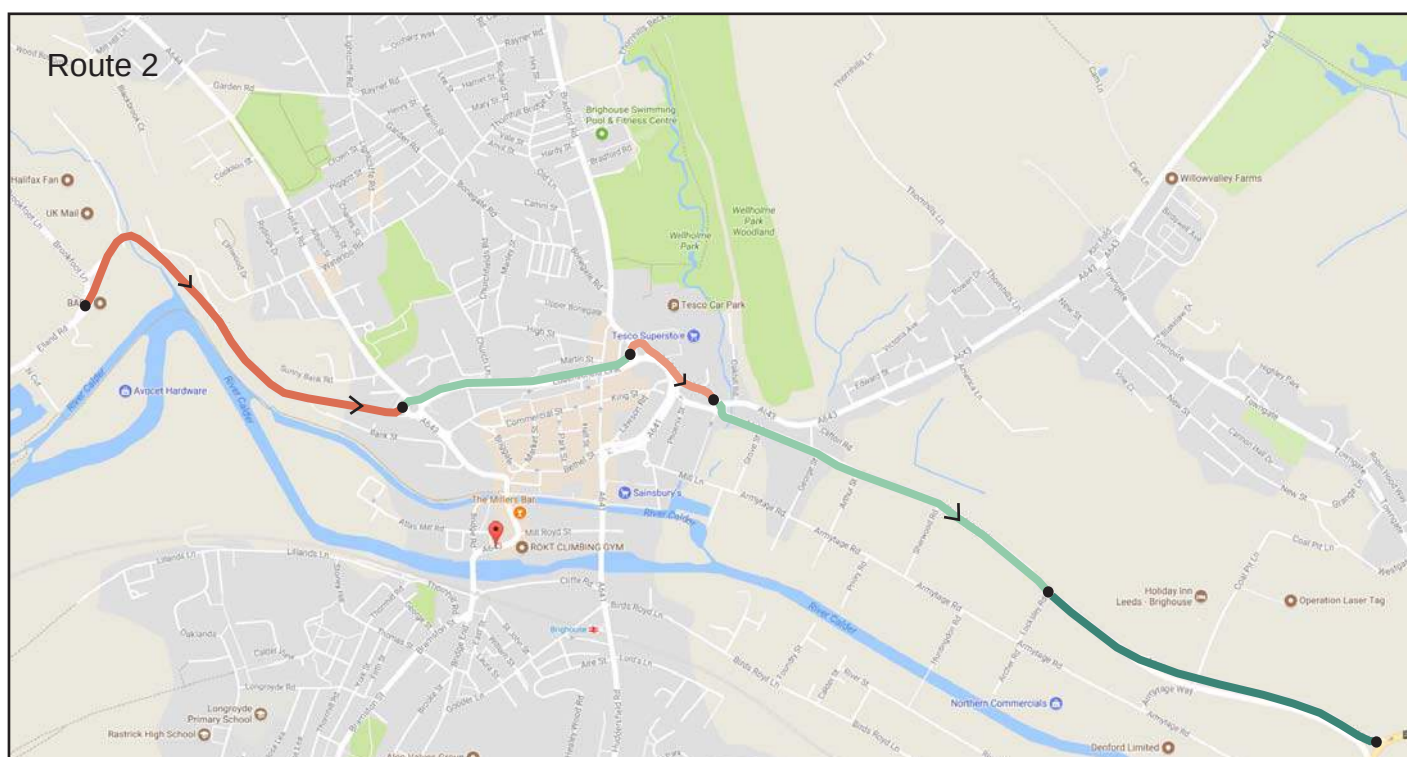
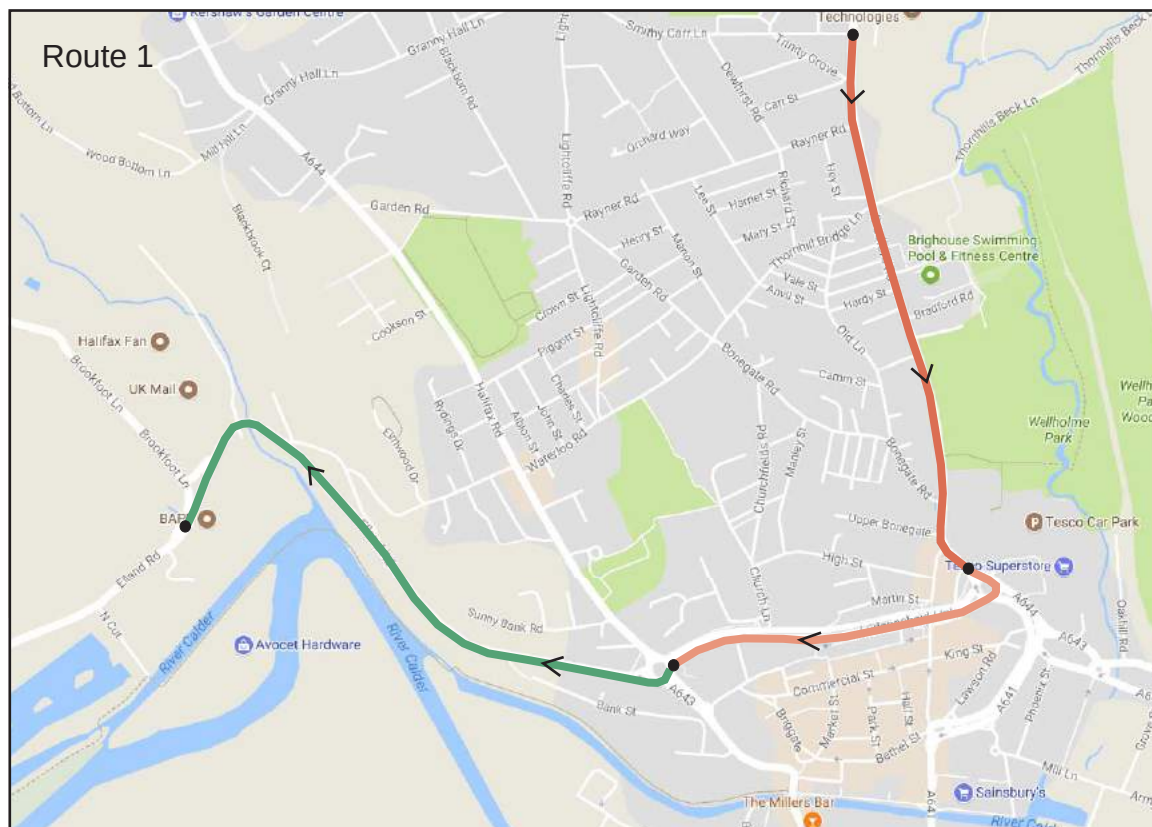
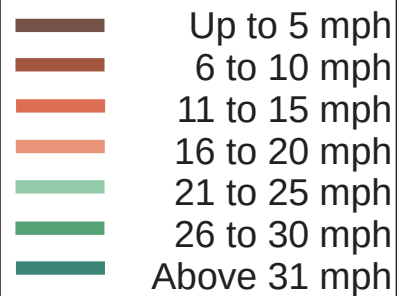


APPENDIX C

Clifton, Brighouse

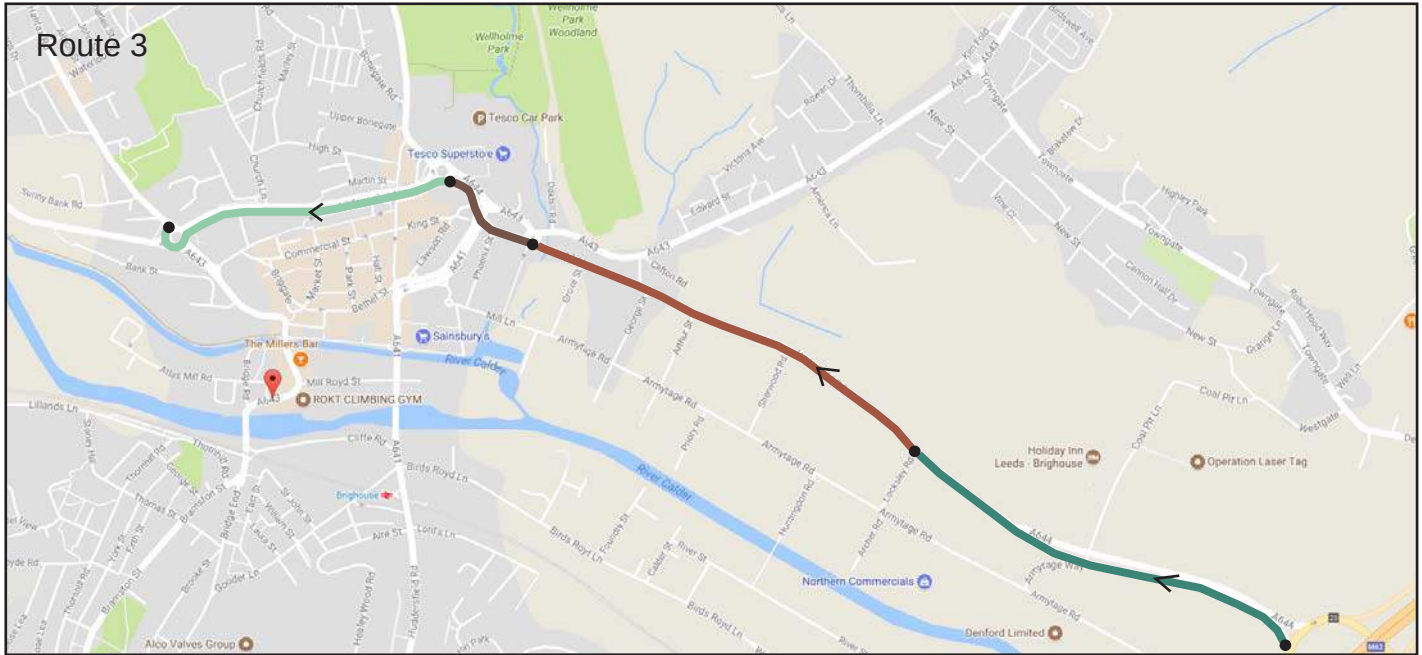
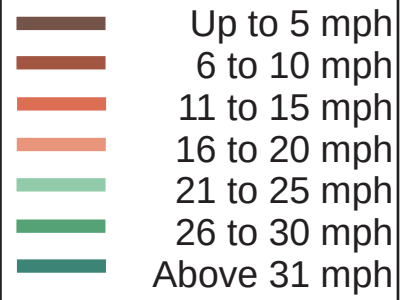
AM PEAK HOUR

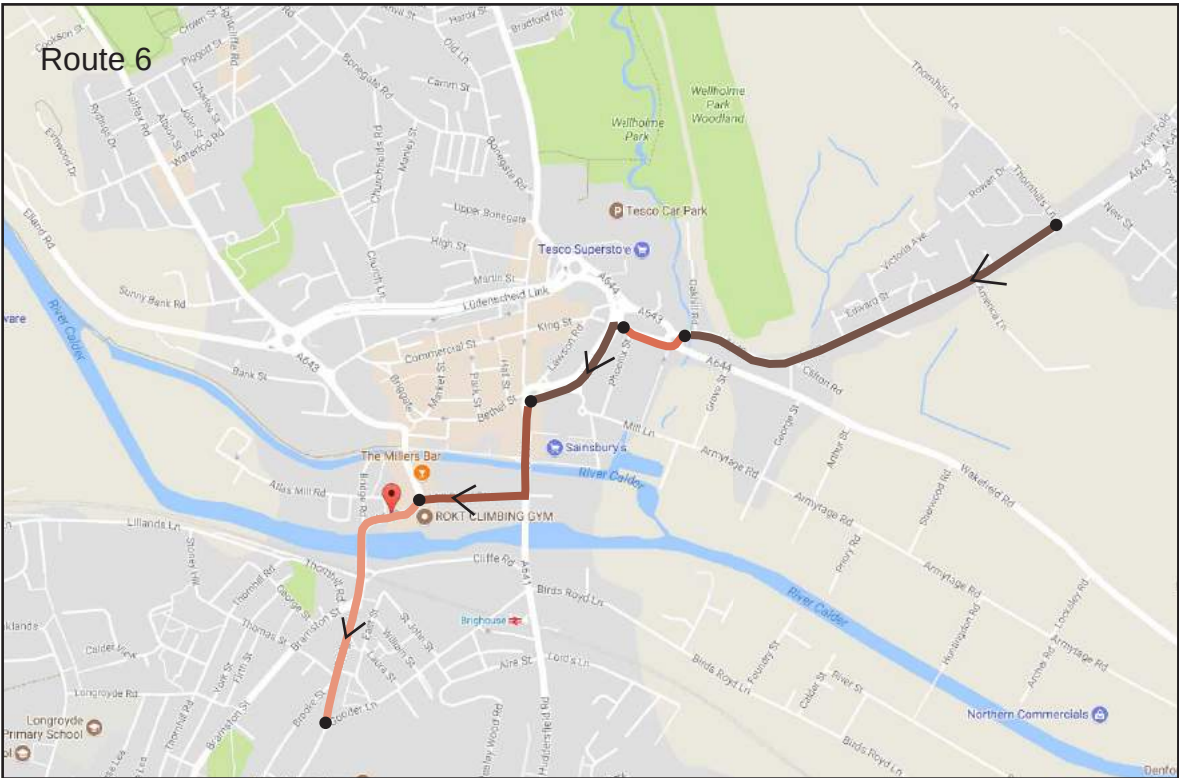
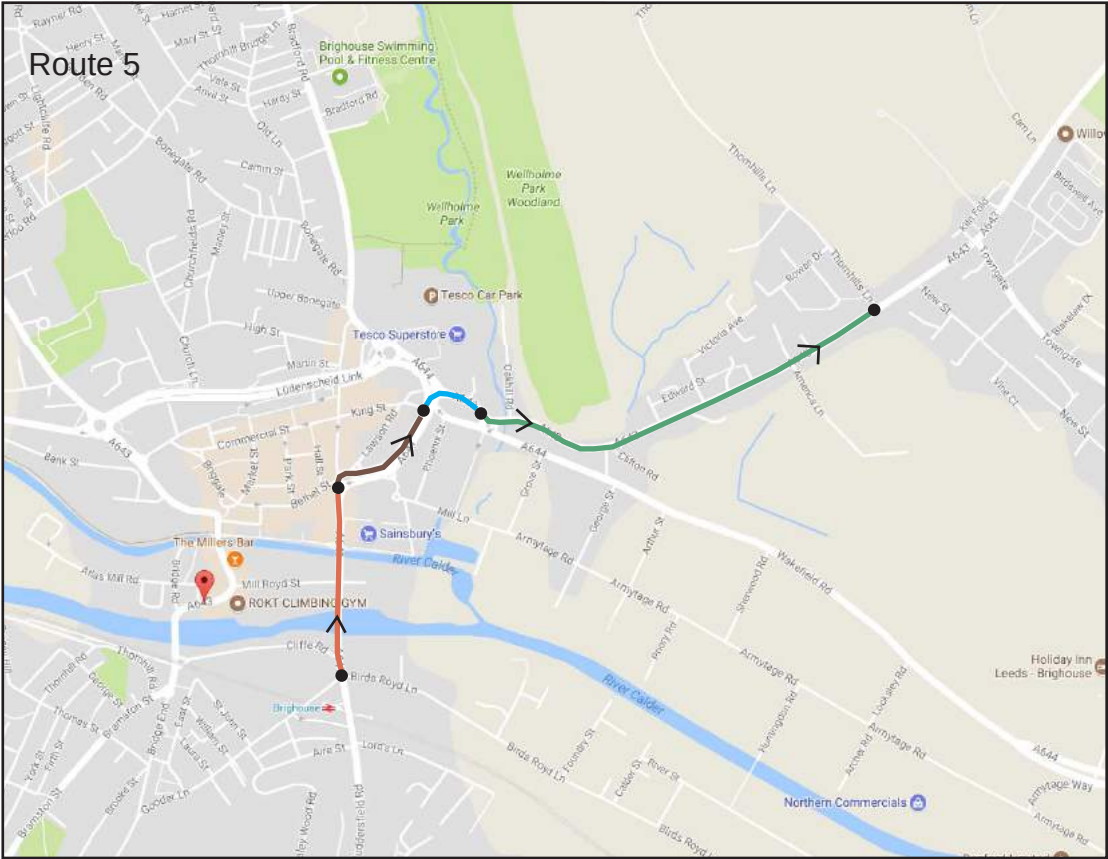
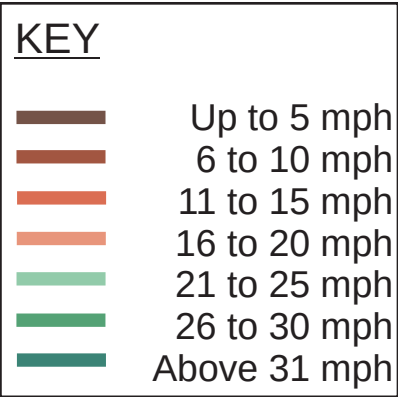
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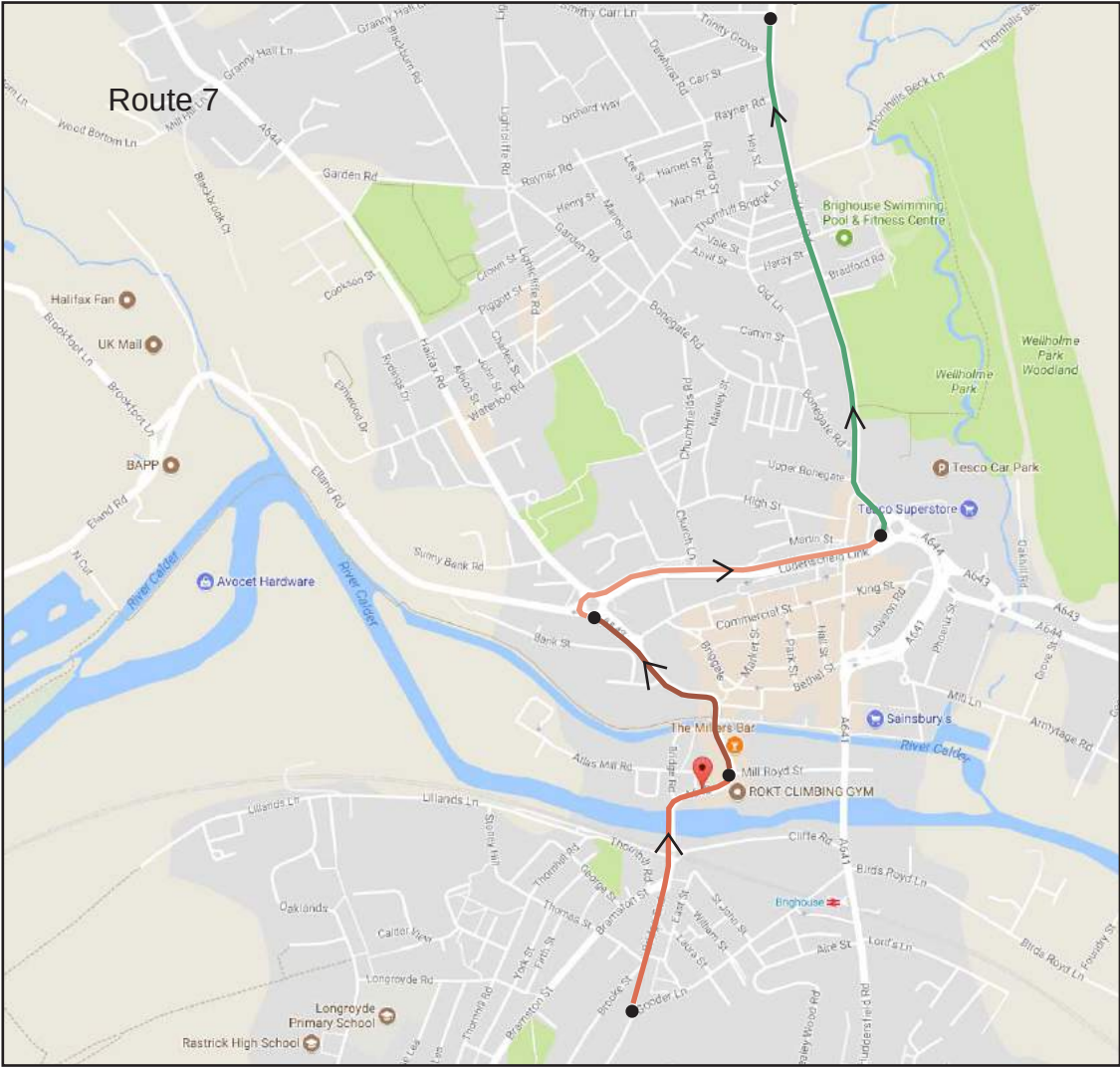
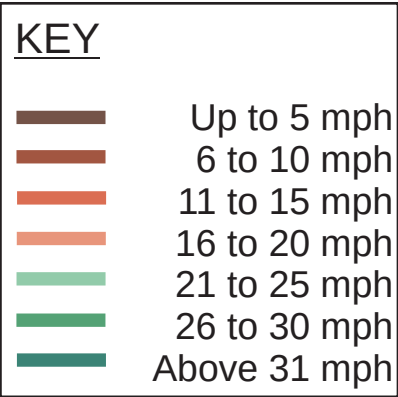


M17070-C-004AM

KEY



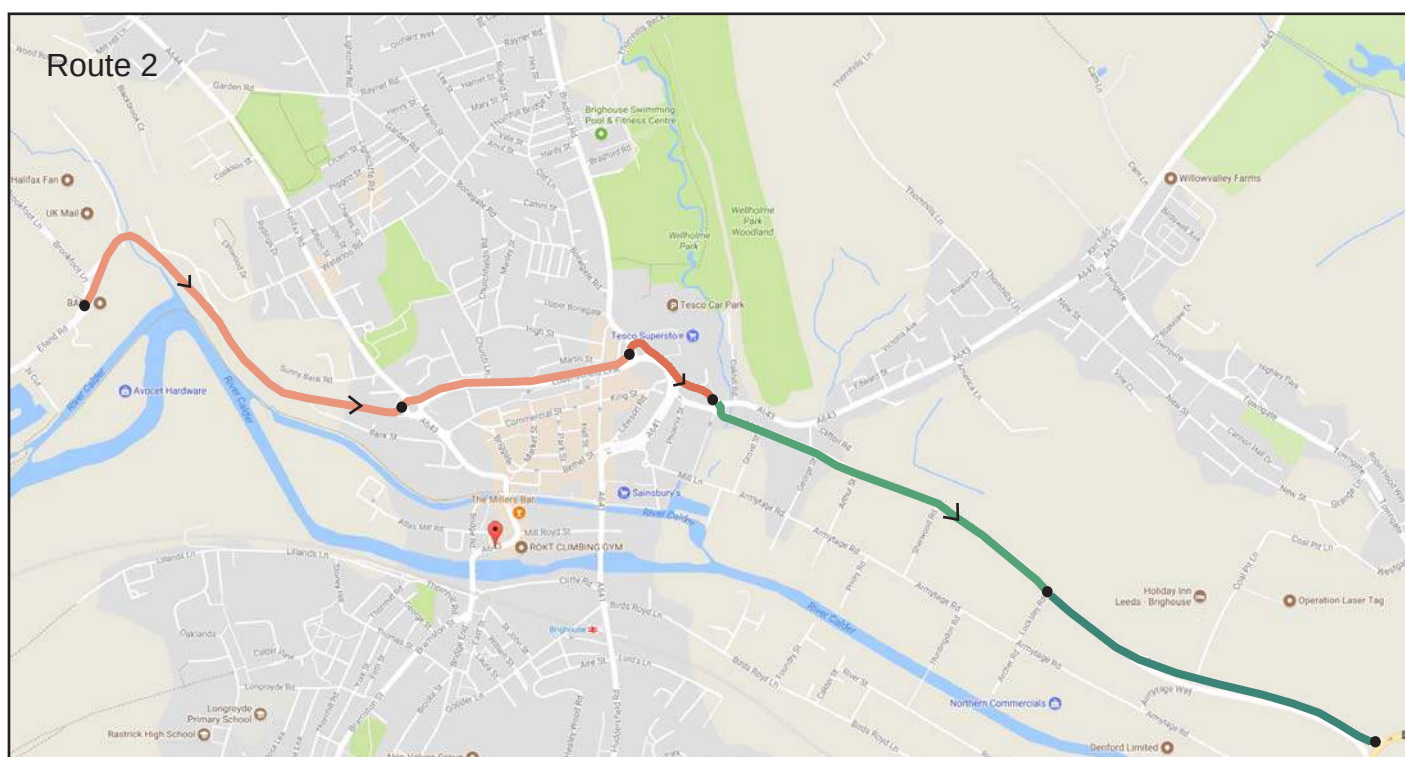
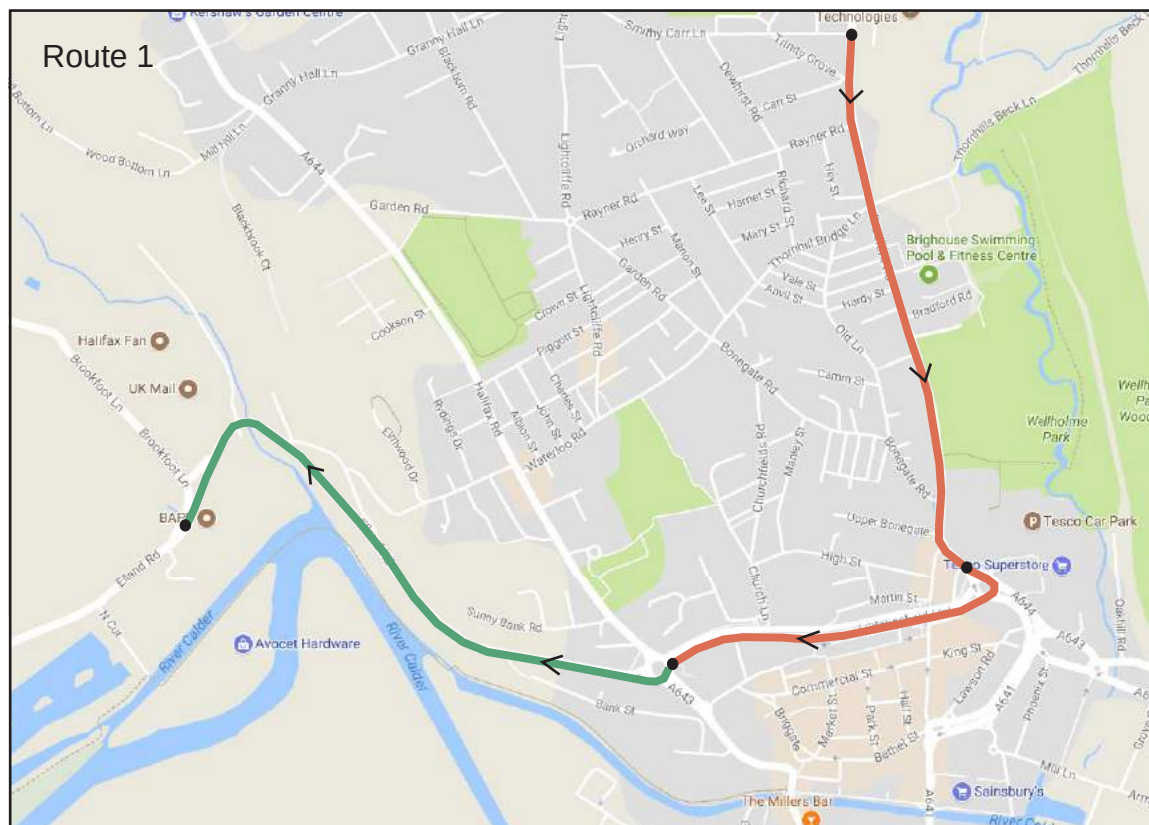
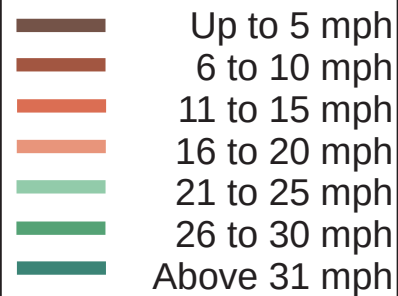




Clifton, Brighouse

PM PEAK HOUR

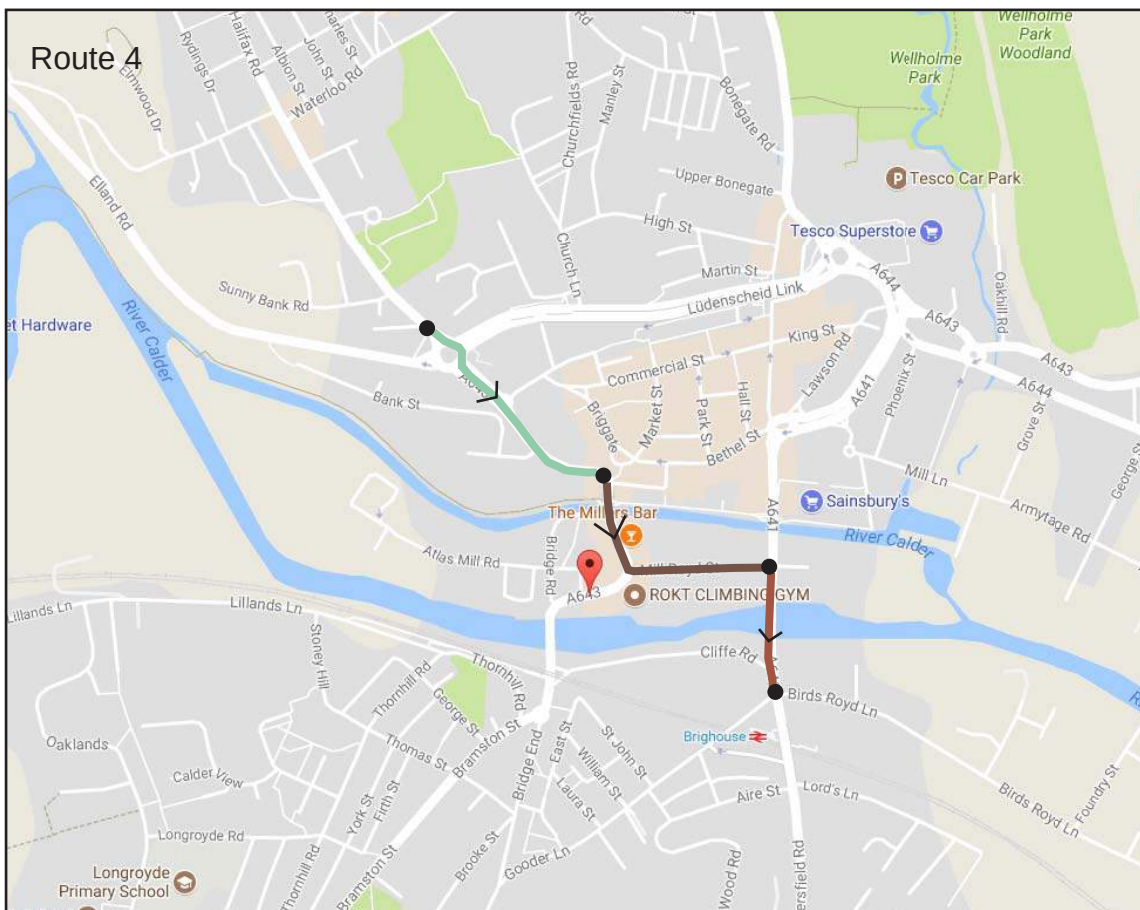
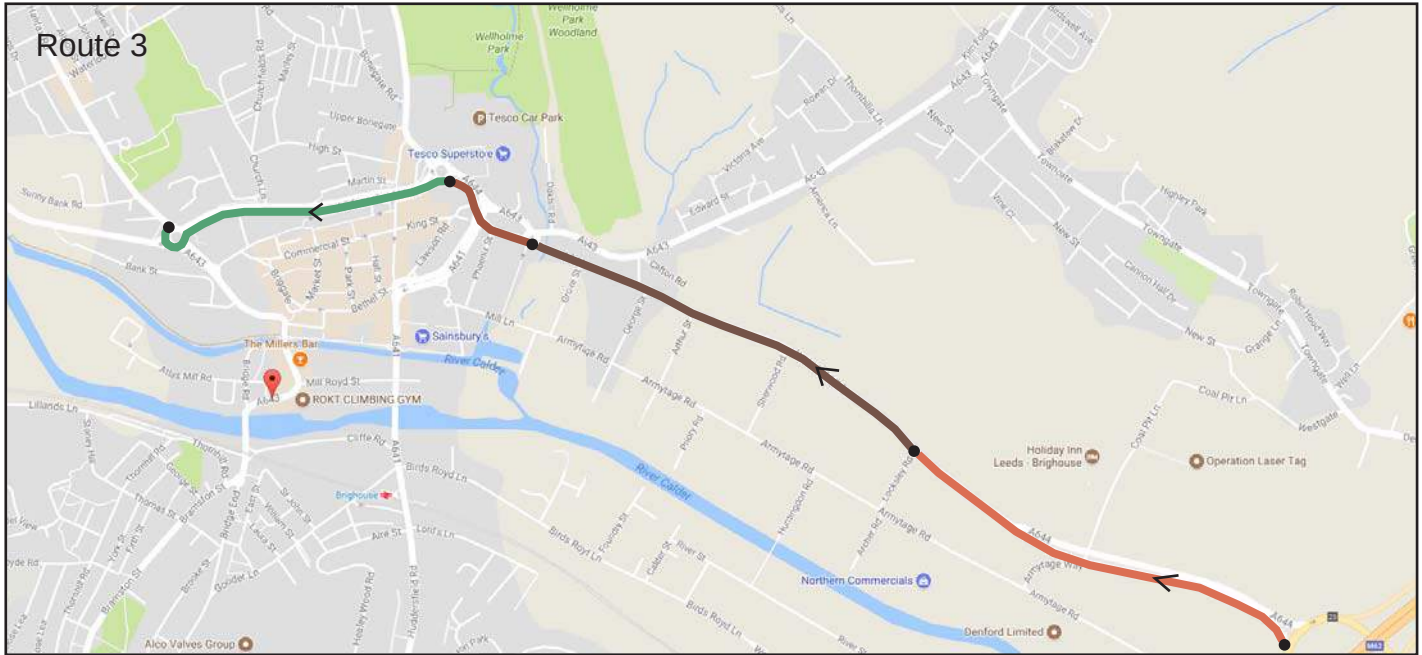
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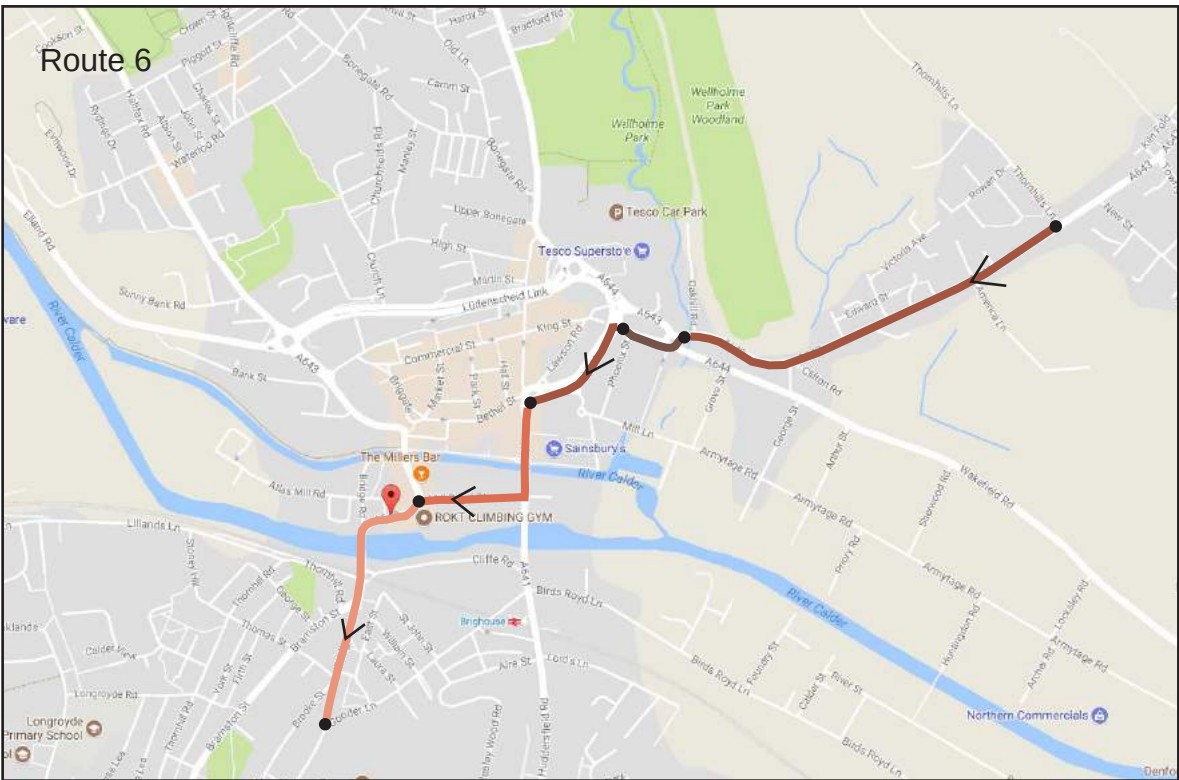
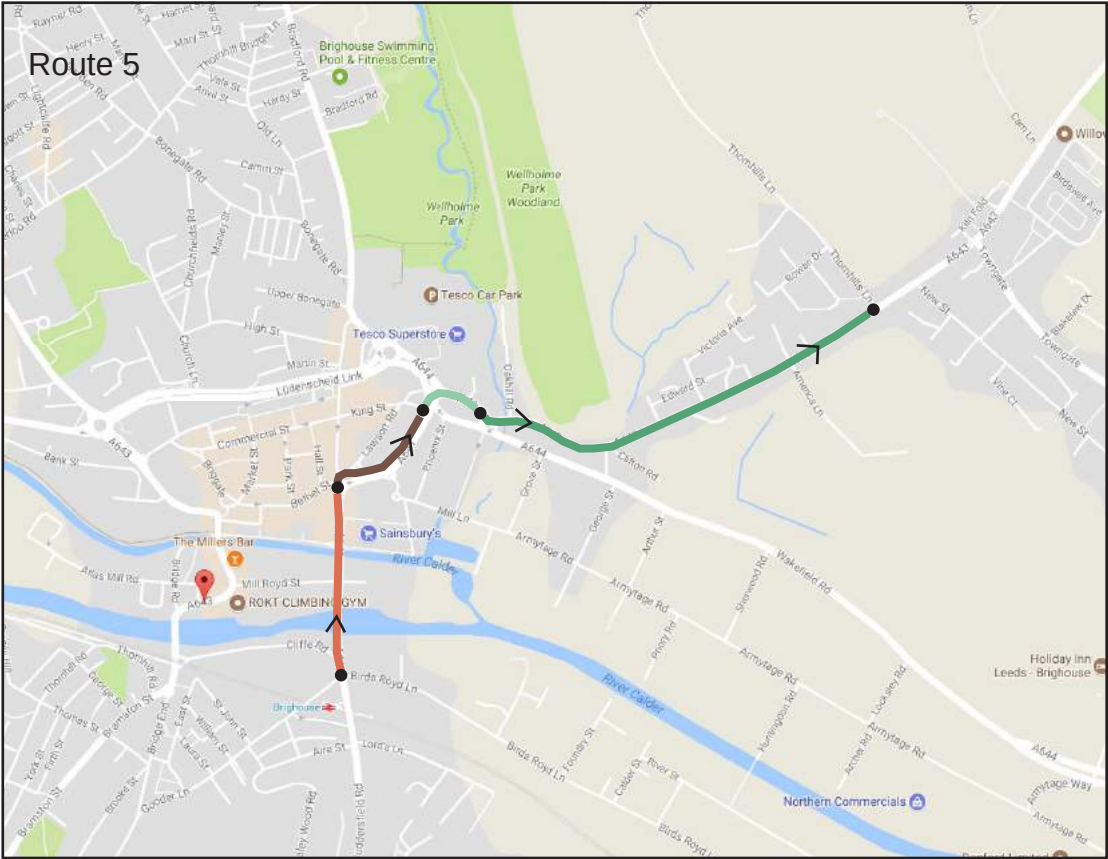
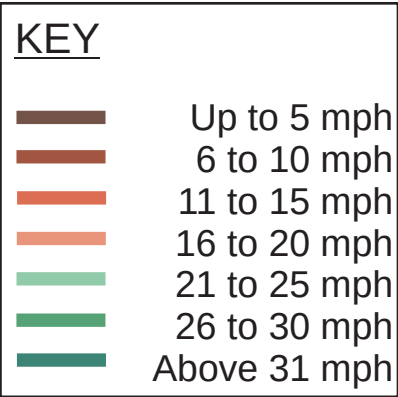


M17070-C-004PM

KEY

	Up to 5 mph
	6 to 10 mph
	11 to 15 mph
	16 to 20 mph
	21 to 25 mph
	26 to 30 mph
	Above 31 mph





KEY

	Up to 5 mph
	6 to 10 mph
	11 to 15 mph
	16 to 20 mph
	21 to 25 mph
	26 to 30 mph
	Above 31 mph



Appendix B

2011 Census Data for Brighthouse

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)													
ONS Crown Copyright Reserved [from Nomis on 26 September 2018]													
population	All usual residents aged 16 and over in employment the week before the census												
units	Persons												
date	2011												
usual residence	E02002258 : Calderdale 015 (2011 super output area - middle layer)												
place of work : 2011 census merged local authority district	All categories: Method of travel to work (2001 specification)	Work mainly at or from home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other method of travel to work	
Hartlepool	0	0	0	0	0	0	0	0	0	0	0	0	
Middlesbrough	0	0	0	0	0	0	0	0	0	0	0	0	
Redcar and Cleveland	0	0	0	0	0	0	0	0	0	0	0	0	
Stockton-on-Tees	0	0	0	0	0	0	0	0	0	0	0	0	
Darlington	0	0	0	0	0	0	0	0	0	0	0	0	
County Durham	4	0	0	0	0	0	0	4	0	0	0	0	
Northumberland	0	0	0	0	0	0	0	0	0	0	0	0	
Gateshead	0	0	0	0	0	0	0	0	0	0	0	0	
Newcastle upon Tyne	1	0	0	0	0	0	0	0	0	0	1	0	
North Tyneside	0	0	0	0	0	0	0	0	0	0	0	0	
South Tyneside	0	0	0	0	0	0	0	0	0	0	0	0	
Sunderland	1	0	0	0	0	0	0	1	0	0	0	0	
Hallam	1	0	0	0	0	0	0	2	0	0	0	0	
Warrington	5	0	0	0	0	0	0	5	0	0	0	0	
Blackburn with Darwen	0	0	0	0	0	0	0	0	0	0	0	0	
Blackpool	0	0	0	0	0	0	0	0	0	0	0	0	
Cheshire East	1	0	0	0	0	0	0	1	0	0	0	0	
Cheshire West and Chester	1	0	0	0	0	0	0	1	0	0	0	0	
Allerdale	0	0	0	0	0	0	0	0	0	0	0	0	
Barrow-in-Furness	0	0	0	0	0	0	0	0	0	0	0	0	
Carlisle	2	0	0	0	0	0	0	2	0	0	0	0	
Copeland	0	0	0	0	0	0	0	0	0	0	0	0	
Eden	0	0	0	0	0	0	0	0	0	0	0	0	
South Lakeland	0	0	0	0	0	0	0	0	0	0	0	0	
Burnley	1	0	0	0	0	0	0	1	0	0	0	0	
Chorley	0	0	0	0	0	0	0	0	0	0	0	0	
Fylde	0	0	0	0	0	0	0	0	0	0	0	0	
Hyndburn	0	0	0	0	0	0	0	0	0	0	0	0	
Lancaster	0	0	0	0	0	0	0	0	0	0	0	0	
Pendle	0	0	0	0	0	0	0	1	0	0	0	0	
Preston	2	0	0	1	0	0	0	1	0	0	0	0	
Ribble Valley	0	0	0	0	0	0	0	0	0	0	0	0	
Rossendale	2	0	0	0	1	0	0	1	0	0	0	0	
South Ribble	0	0	0	0	0	0	0	0	0	0	0	0	
West Lancashire	0	0	0	0	0	0	0	0	0	0	0	0	
Wyre	2	0	0	0	0	0	0	2	0	0	0	0	
Bolton	5	0	0	0	0	0	0	4	0	0	1	0	
Rury	4	0	0	1	0	0	0	3	0	0	0	0	
Manchester	19	0	0	3	1	0	0	14	1	0	0	0	
Oldham	18	0	0	0	0	0	0	7	1	0	0	0	
Rochdale	18	0	0	0	0	0	0	18	0	0	0	0	
Salford	4	0	0	0	0	0	0	4	0	0	0	0	
Stockport	1	0	0	0	0	0	0	0	0	0	1	0	
Tameside	2	0	0	0	0	0	0	2	0	0	0	0	
Trafford	6	0	0	0	1	0	0	4	0	0	1	0	
Wigan	1	0	0	0	0	0	0	1	0	0	0	0	
Knowsley	2	0	0	0	0	0	0	2	0	0	0	0	
Liverpool	0	0	0	0	0	0	0	0	0	0	0	0	
St. Helens	1	0	0	0	0	0	0	1	0	0	0	0	
Sefton	0	0	0	0	0	0	0	0	0	0	0	0	
Wirral	0	0	0	0	0	0	0	0	0	0	0	0	
Kingston upon Hull, City of	0	0	0	0	0	0	0	0	0	0	0	0	
East Riding of Yorkshire	3	0	0	0	0	0	0	3	0	0	0	0	
North East Lincolnshire	0	0	0	0	0	0	0	0	0	0	0	0	
North Lincolnshire	2	0	0	0	0	0	0	2	0	0	0	0	
York	14	0	0	3	0	0	0	10	1	0	0	0	
Craven	4	0	0	0	0	0	0	4	0	0	0	0	
Hambleton	0	0	0	0	0	0	0	0	0	0	0	0	
Harrogate	3	0	0	0	0	0	0	3	0	0	0	0	
Richmondshire	0	0	0	0	0	0	0	0	0	0	0	0	
Redale	1	0	0	0	0	0	0	1	0	0	0	0	
Scarborough	0	0	0	0	0	0	0	0	0	0	0	0	
Selby	4	0	0	0	0	0	0	2	2	0	0	0	
Barnsley	12	0	0	0	1	0	0	11	0	0	0	0	
Doncaster	11	0	0	0	1	0	0	10	0	0	0	0	
Rotherham	2	0	0	0	0	0	0	2	0	0	0	0	
Sheffield	11	0	1	1	0	0	0	9	0	0	12	4	
Bradford	694	0	0	5	73	2	7	547	37	7	12	4	
Calderdale	1,767	0	0	16	152	8	19	1,097	129	25	318	3	
Kirklees	587	0	0	2	56	2	4	475	37	4	7	0	
Leeds	472	0	0	33	20	1	1	390	16	1	0	0	
Wakefield	94	0	0	0	1	0	0	90	0	1	1	0	
Derby	0	0	0	0	0	0	0	0	0	0	0	0	
Leicester	1	0	0	0	0	0	0	1	0	0	0	0	
Rutland	0	0	0	0	0	0	0	0	0	0	0	0	
Nottingham	0	0	0	0	0	0	0	0	0	0	0	0	
Amber Valley	1	0	0	0	0	0	0	1	0	0	0	0	
Bolsover	1	0	0	0	0	0	0	1	0	0	0	0	
Chesterfield	0	0	0	0	0	0	0	0	0	0	0	0	
Derbyshire Dales	1	0	0	0	0	0	0	1	0	0	0	0	
Erewash	0	0	0	0	0	0	0	0	0	0	0	0	
High Peak	1	0	0	0	0	0	0	1	0	0	0	0	
North East Derbyshire	0	0	0	0	0	0	0	0	0	0	0	0	
South Derbyshire	0	0	0	0	0	0	0	0	0	0	0	0	
Blaby	0	0	0	0	0	0	0	0	0	0	0	0	
Charnwood	1	0	0	0	0	0	0	1	0	0	0	0	
Harborough	0	0	0	0	0	0	0	0	0	0	0	0	
Hinckley and Bosworth	0	0	0	0	0	0	0	0	0	0	0	0	
Melton	0	0	0	0	0	0	0	0	0	0	0	0	
North West Leicestershire	0	0	0	0	0	0	0	0	0	0	0	0	
Carby and Winston	0	0	0	0	0	0	0	0	0	0	0	0	
Boston	0	0	0	0	0	0	0	0	0	0	0	0	
East Lindsey	0	0	0	0	0	0	0	0	0	0	0	0	
Lincoln	1	0	0	0	0	0	0	1	0	0	0	0	
North Kesteven	2	0	0	0	0	0	0	1	0	1	0	0	
South Holland	0	0	0	0	0	0	0	0	0	0	0	0	
South Kesteven	0	0	0	0	0	0	0	0	0	0	0	0	
West Lindsey	0	0	0	0	0	0	0	0	0	0	0	0	
Corby	0	0	0	0	0	0	0	0	0	0	0	0	
Basingstoke	0	0	0	0	0	0	0	0	0	0	0	0	
East Northamptonshire	0	0	0	0	0	0	0	0	0	0	0	0	
Kettering	0	0	0	0	0	0	0	0	0	0	0	0	
Northampton	0	0	0	0	0	0	0	0	0	0	0	0	
South Northamptonshire	0	0	0	0	0	0	0	0	0	0	0	0	
Wellingborough	0	0	0	0	0	0	0	0	0	0	0	0	
Ashfield	0	0	0	0	0	0	0	0	0	0	0	0	
Rassellaw	1	0	0	0	0	0	0	1	0	0	0	0	
Broxtowe	0	0	0	0	0	0	0	0	0	0	0	0	
Gedling	0	0	0	0	0	0	0	0	0	0	0	0	
Mansfield	0	0	0	0	0	0	0	0	0	0	0	0	
Newark and Sherwood	0	0	0	0	0	0	0	0	0	0	0	0	
Rushcliffe	0	0	0	0	0	0	0	0	0	0	0	0	
Herefordshire, County of	1	0	0	0	0	0	0	1	0	0	0	0	
Telford and Wrekin	0	0	0	0	0	0	0	0	0	0	0	0	
Stoke-on-Trent	0	0	0	0	0	0	0	0	0	0	0	0	
Shropshire	0	0	0	0	0	0	0	0	0	0	0	0	
Cannock Chase	1	0	0	0	0	0	0	1	0	0	0	0	
East Staffordshire	1	0	0	0	0	0	0	1	0	0	0	0	
Lichfield	0	0	0	0	0	0	0	0	0	0	0	0	
Newcastle-under-Lyme	0	0	0	0	0	0	0	0	0	0	0	0	
South Staffordshire	0	0	0	0	0	0	0	0	0	0	0	0	
Stafford	0	0	0	0	0	0	0	0	0	0	0	0	

Staffordshire Moorlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tamworth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Warwickshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nuneaton and Bedworth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rugby	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stratford-on-Avon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bromsgrove	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malvern Hills	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Redditch	2	0	0	0	0	0	0	2	0	0	0	0	0	0
Worcester	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wychevon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wyre Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Birmingham	2	0	0	1	0	0	0	1	0	0	0	0	0	0
Coventry	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Budley	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandwell	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Solihull	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walsall	3	0	0	0	0	0	0	2	1	0	0	0	0	0
Wolverhampton	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Peterborough	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luton	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Southend-on-Sea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thurrock	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bedford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Bedfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Cambridgeshire	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Fenland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Huntingdonshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Cambridgeshire	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Basildon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Braintree	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brentwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Castle Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chelmsford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colchester	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epping Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harlow	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maldon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rochford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tendring	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uttlesford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Broxbourne	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Dacorum	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Hertfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hertsmere	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Hertfordshire	1	0	0	0	0	0	0	1	0	0	0	0	0	0
St Albans	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stevenage	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Three Rivers	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Watford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Welwyn Hatfield	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Breckland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Broadland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Yarmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
King's Lynn and West Norf	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Norfolk	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norwich	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Norfolk	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Babergh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Heath	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ipswich	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Suffolk	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St Edmundsbury	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Suffolk Coastal	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waveney	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barking and Dagenham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnet	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bexley	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brent	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bromley	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Croydon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ealing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greenwich	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackney	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Hammersmith and Fulham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haringey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harrow	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Havering	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hillingdon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hounslow	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Islington	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kensington and Chelsea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kingston upon Thames	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lambeth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lewisham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Merton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Redbridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richmond upon Thames	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwark	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sutton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tower Hamlets	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waltham Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wandsworth	1	0	0	0	0	0	0	0	0	0	0	1	0	0
Westminster City of London	7	0	1	2	0	0	0	3	0	0	1	0	0	0
Medway	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Bracknell Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Berkshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reading	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Windsor and Maidenhead	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wokingham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Milton Keynes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brighton and Hove	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portsmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southampton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isle of Wight	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aylesbury Vale	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chiltern	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Bucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wycombe	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Eastbourne	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lewes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rother	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wealden	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basingstoke and Deane	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastleigh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fareham	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gosport	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hasl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Havant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rushmoor	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Test Valley	0	0												

Pendle	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Preston	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Ribble Valley	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Rossendale	2	0	0	0	0	0	0	0	0	2	0	0	0	0
South Ribble	2	0	0	0	0	0	0	0	0	2	0	0	0	0
West Lancashire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wyre	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolton	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Bury	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manchester	17	0	0	1	2	0	0	0	0	13	1	0	0	0
Oldham	4	0	0	0	0	0	0	0	0	4	0	0	0	0
Rochdale	15	0	0	0	1	0	0	0	0	13	1	0	0	0
Salford	2	0	0	0	0	0	0	0	0	2	0	0	0	0
Stockport	3	0	0	0	0	0	0	0	0	3	0	0	0	0
Tameside	2	0	0	0	0	0	0	0	0	2	0	0	0	0
Trafford	8	0	0	0	0	0	0	0	0	8	0	0	0	0
Wigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Knowsley	1	0	0	0	0	0	0	0	0	1	0	0	0	0
Liverpool	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Helens	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salfon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wirral	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kingston upon Hull, City of	1	0	0	0	0	0	0	0	0	1	0	0	0	0
East Ridina of Yorkshire	5	0	0	0	0	0	0	0	0	5	0	0	0	0
North East Lincolnshire	1	0	0	0	0	0	0	0	0	1	0	0	0	0
North Lincolnshire	1	0	0	0	0	0	0	0	0	1	0	0	0	0
York	10	0	0	0	0	0	0	0	0	8	0	0	2	0
Craven	5	0	0	0	0	0	0	0	0	5	0	0	0	0
Hambleton	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Harrogate	3	0	0	0	0	0	0	0	0	2	0	0	1	0
Richmondshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ryedale	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scarborough	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Selby	2	0	0	0	0	0	0	0	0	2	0	0	0	0
Barnslev	5	0	0	0	1	0	0	0	0	4	0	0	0	0
Doncaster	2	0	0	0	1	0	0	0	0	1	0	0	0	0
Rotherham	3	0	0	0	0	0	0	0	0	2	1	0	0	0
Sheffield	4	0	0	0	0	0	0	0	0	4	0	0	0	0
Bradford	415	0	0	4	41	5	1	332	21	3	8	0	0	0
Calderdale	1,809	0	0	13	153	20	19	986	134	28	450	6	0	0
Kirklees	486	0	0	11	42	1	8	388	26	5	1	0	0	0
Leeds	263	0	0	31	111	0	3	206	10	1	1	0	0	0
Wakefield	62	0	0	1	0	0	0	59	2	0	0	0	0	0
Derby	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Leicester	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rutland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nottingham	2	0	0	0	0	0	0	1	0	0	0	1	0	0
Amber Valley	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolsover	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chesterfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Derbyshire Dales	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Derbyshire Dales	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Peak	1	0	0	0	0	0	0	1	0	0	0	0	0	0
North East Derbyshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Derbyshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blaby	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Charnwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harborough	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hinckley and Bosworth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Melton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North West Leicestershire	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Carby and Winston	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Boston	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Lindsey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lincoln	1	0	0	0	0	0	0	1	0	0	0	0	0	0
North Kesteven	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Holland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Kesteven	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Lindsey	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corby	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daventry	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Northamptonshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kettering	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Northampton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Northamptonshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wellingborough	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ashfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bassetlaw	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Broxtowe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gedling	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mansfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevers and Sherwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rushcliffe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Herefordshire, County of	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Telford and Wrekin	3	0	0	0	1	0	0	2	0	0	0	0	0	0
Stoke-on-Trent	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shropshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cannock Chase	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Staffordshire	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Lichfield	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Newcastle-under-Lyme	1	0	0	0	0	0	0	1	0	0	0	0	0	0
South Staffordshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stafford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Staffordshire Moorlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tamworth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Warwickshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nuneaton and Bedworth	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rugby	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stratford-on-Avon	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bromsgrove	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makern Hills	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Redditch	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worcester	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wychevon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wyre Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Birmingham	2	0	0	1	0	0	0	1	0	0	0	0	0	0
Coventry	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dudley	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sandwell	1	0	0	0	0	0	0	0	0	0	1	0	0	0
Solihull	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walsall	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wolverhampton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peterborough	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luton	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southend-on-Sea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thurrock	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bedford	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Bedfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Cambridgeshire	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Fenit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Huntingdonshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Cambridgeshire	2	0	0	0	0	0	0	2	0	0	0	0	0	0
Basildon	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Braintree	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Brentwood	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Castle Point	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chelmsford	0	0	0	0	0	0	0	0	0	0	0</			

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East Devon	0	0	0	0	0	0	0	0	0	0	0	0	0
Exeter	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Devon	0	0	0	0	0	0	0	0	0	0	0	0	0
North Devon	0	0	0	0	0	0	0	0	0	0	0	0	0
South Hams	0	0	0	0	0	0	0	0	0	0	0	0	0
Teignbridge	0	0	0	0	0	0	0	0	0	0	0	0	0
Torridge	0	0	0	0	0	0	0	0	0	0	0	0	0
West Devon	0	0	0	0	0	0	0	0	0	0	0	0	0
Christchurch	0	0	0	0	0	0	0	0	0	0	0	0	0
East Dorset	0	0	0	0	0	0	0	0	0	0	0	0	0
North Dorset	0	0	0	0	0	0	0	0	0	0	0	0	0
Purbeck	0	0	0	0	0	0	0	0	0	0	0	0	0
West Dorset	0	0	0	0	0	0	0	0	0	0	0	0	0
Weymouth and Portland	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheltenham	0	0	0	0	0	0	0	0	0	0	0	0	0
Cotswold	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest of Dean	0	0	0	0	0	0	0	0	0	0	0	0	0
Gloucester	0	0	0	0	0	0	0	0	0	0	0	0	0
Stroud	0	0	0	0	0	0	0	0	0	0	0	0	0
Tewkesbury	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendip	0	0	0	0	0	0	0	0	0	0	0	0	0
Sedgemoor	0	0	0	0	0	0	0	0	0	0	0	0	0
South Somerset	0	0	0	0	0	0	0	0	0	0	0	0	0
Taunton Deane	0	0	0	0	0	0	0	0	0	0	0	0	0
West Somerset	0	0	0	0	0	0	0	0	0	0	0	0	0
Isle of Anglesey	0	0	0	0	0	0	0	0	0	0	0	0	0
Gwynedd	0	0	0	0	0	0	0	0	0	0	0	0	0
Conwy	0	0	0	0	0	0	0	0	0	0	0	0	0
Denbighshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Flinshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Wrexham	0	0	0	0	0	0	0	0	0	0	0	0	0
Ceredigion	0	0	0	0	0	0	0	0	0	0	0	0	0
Pembrokeshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Carmarthenshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Swansea	0	0	0	0	0	0	0	0	0	0	0	0	0
Neath Port Talbot	0	0	0	0	0	0	0	0	0	0	0	0	0
Bridgend	0	0	0	0	0	0	0	0	0	0	0	0	0
The Vale of Glamorgan	1	0	0	0	0	0	0	0	1	0	0	0	0
Cardiff	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhondda Cynon Taf	0	0	0	0	0	0	0	0	0	0	0	0	0
Caerphilly	0	0	0	0	0	0	0	0	0	0	0	0	0
Blaenau Gwent	0	0	0	0	0	0	0	0	0	0	0	0	0
Torfaen	0	0	0	0	0	0	0	0	0	0	0	0	0
Monmouthshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Newport	0	0	0	0	0	0	0	0	0	0	0	0	0
Powys	0	0	0	0	0	0	0	0	0	0	0	0	0
Merthyr Tydfil	0	0	0	0	0	0	0	0	0	0	0	0	0
In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.													
WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)													
ONS Crown Copyright Reserved [from Nomis on 26 September 2018]													
population	All usual residents aged 16 and over in employment the week before the census												
units	Persons												
date	2011												
usual residence	E02002266 : Calderdale 023 (2011 super output area - middle layer)												
place of work : 2011 census merged local authority district	All categories: Method of travel to work (2001 specification)	Work mainly at or from home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other method of travel to work	
Hartlepool	0	0	0	0	0	0	0	0	0	0	0	0	0
Middlesbrough	0	0	0	0	0	0	0	0	0	0	0	0	0
Redcar and Cleveland	0	0	0	0	0	0	0	0	0	0	0	0	0
Stockton-on-Tees	0	0	0	0	0	0	0	0	0	0	0	0	0
Darlington	0	0	0	0	0	0	0	0	0	0	0	0	0
County Durham	3	0	0	0	0	0	0	3	0	0	0	0	0
Northumberland	1	0	0	0	0	0	0	1	0	0	0	0	0
Gateshead	0	0	0	0	0	0	0	0	0	0	0	0	0
Newcastle upon Tyne	0	0	0	0	0	0	0	0	0	0	0	0	0
North Tyneside	0	0	0	0	0	0	0	0	0	0	0	0	0
South Tyneside	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunderland	0	0	0	0	0	0	0	0	0	0	0	0	0
Halton	1	0	0	0	0	0	0	1	0	0	0	0	0
Warrington	0	0	0	0	0	0	0	0	0	0	0	0	0
Blackburn with Darwen	0	0	0	0	0	0	0	0	0	0	0	0	0
Blackpool	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheshire East	3	0	0	0	0	0	0	3	0	0	0	0	0
Cheshire West and Chester	2	0	0	0	0	0	0	2	0	0	0	0	0
Allerdale	1	0	0	0	0	0	0	1	0	0	0	0	0
Barrow-in-Furness	0	0	0	0	0	0	0	0	0	0	0	0	0
Carlisle	0	0	0	0	0	0	0	0	0	0	0	0	0
Copeland	0	0	0	0	0	0	0	0	0	0	0	0	0
Eden	0	0	0	0	0	0	0	0	0	0	0	0	0
South Lakeland	0	0	0	0	0	0	0	0	0	0	0	0	0
Burnley	3	0	0	0	0	0	0	3	0	0	0	0	0
Chorley	0	0	0	0	0	0	0	0	0	0	0	0	0
Fylde	0	0	0	0	0	0	0	0	0	0	0	0	0
Hyndburn	0	0	0	0	0	0	0	0	0	0	0	0	0
Lancaster	1	0	0	0	0	0	0	1	0	0	0	0	0
Pendle	1	0	0	0	0	0	0	1	0	0	0	0	0
Preston	2	0	0	0	0	0	0	2	0	0	0	0	0
Ribble Valley	0	0	0	0	0	0	0	0	0	0	0	0	0
Rossendale	0	0	0	0	0	0	0	0	0	0	0	0	0
South Ribble	1	0	0	0	0	0	0	1	0	0	0	0	0
West Lancashire	1	0	0	0	0	0	0	1	0	0	0	0	0
Wyre	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolton	1	0	0	0	0	0	0	1	0	0	0	0	0
Bury	2	0	0	0	0	0	0	2	0	0	0	0	0
Manchester	16	0	0	4	1	0	0	11	0	0	0	0	0
Oldham	4	0	0	0	0	0	0	4	0	0	0	0	0
Rochdale	9	0	0	0	0	0	0	9	0	0	0	0	0
Salford	3	0	0	0	0	0	0	2	1	0	0	0	0
Stockport	1	0	0	0	0	0	0	1	0	0	0	0	0
Tameside	2	0	0	0	0	0	0	2	0	0	0	0	0
Trafford	1	0	0	0	0	0	0	1	0	0	0	0	0
Wigan	2	0	0	0	0	0	0	2	0	0	0	0	0
Knowsley	0	0	0	0	0	0	0	0	0	0	0	0	0
Liverpool	0	0	0	0	0	0	0	0	0	0	0	0	0
St. Helens	0	0	0	0	0	0	0	0	0	0	0	0	0
Sefton	0	0	0	0	0	0	0	0	0	0	0	0	0
Wirral	0	0	0	0	0	0	0	0	0	0	0	0	0
Kingston upon Hull, City of	0	0	0	0	0	0	0	0	0	0	0	0	0
East Riding of Yorkshire	1	0	0	0	0	0	0	1	0	0	0	0	0
North East Lincolnshire	1	0	0	0	0	0	0	1	0	0	0	0	0
North Lincolnshire	3	0	0	0	0	0	0	3	0	0	0	0	0
York	3	0	0	1	0	0	0	2	0	0	0	0	0
Craven	6	0	0	0	0	0	0	6	0	0	0	0	0
Hambleton	1	0	0	0	0	0	0	0	0	0	1	0	0
Harrogate	4	0	0	0	0	0	1	3	0	0	0	0	0
Richmondshire	1	0	0	0	0	0	0	1	0	0	0	0	0
Ryedale	0	0	0	0	0	0	0	0	0	0	0	0	0
Scarborough	0	0	0	0	0	0	0	0	0	0	0	0	0
Selby	4	0	0	0	0	0	0	4	0	0	0	0	0
Barnsley	6	0	0	0	0	0	0	5	0	0	1	0	0
Doncaster	1	0	0	0	0	0	0	1	0	0	0	0	0
Rotherham	1	0	0	0	0	0	0	1	0	0	0	0	0
Sheffield	3	0	0	0	0	0	0	2	1	0	0	0	0
Bradford	277	0	0	6	30	1	2	223	11	1	3	0	0
Calderdale	1,195	0	0	22	70	9	7	765	61	11	248	2	0
Kirklees	515	0	0	7									

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Abington	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Kensington and Chelsea	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Kingston upon Thames	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lambeth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lewisham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Merton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Newham	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Redbridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richmond upon Thames	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sutton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tower Hamlets	3	0	0	2	0	0	0	0	1	0	0	0	0	0	0
Waltham Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wandsworth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster City of London	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Medway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bracknell Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Berkshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reading	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Windsor and Maidenhead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wokingham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Milton Keynes	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Brighton and Hove	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portsmouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southampton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isle of Wight	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aylesbury Vale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chiltern	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Bucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wycombe	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Eastbourne	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lewes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rother	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wexham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Basingstoke and Deane	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
East Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastleigh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fareham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gosport	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hart	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Havant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Forest	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rushmoor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Test Valley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Winchester	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ashford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canterbury	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dartford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gravesham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maidstone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sevenoaks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shepway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thanet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tonbridge and Malling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tunbridge Wells	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cherwell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Oxfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valley of White Horse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Oxfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elmbridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epsom and Ewell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Guildford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mole Valley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reigate and Banstead	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Runnymede	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spelthorne	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surrey Heath	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tandridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waverley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Woking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Adur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chichester	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crayke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Horsham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Sussex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worthing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bath and North East Somers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bristol City of	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Cornwall Isles of Scilly	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Wiltshire	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
North Somerset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Gloucestershire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plymouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Torbay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bournemouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poole	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swindon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Devon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exeter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Devon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Devon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Hams	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Teignbridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Torridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Devon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Christchurch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Dorset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Dorset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Purbeck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Dorset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weymouth and Portland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheltenham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cotswold	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest of Dean	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gloucester	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stroud	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tewkesbury	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mendip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sedgemoor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Somerset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taunton Deane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Somerset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Isle of Anglesey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gwynedd	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conwy	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Denbighshire	0	0	0	0	0	0	0	0	0	0					

[illegible]

Telford and Wrekin	1	0	0	0	0	0	0	0	1	0	0	0	0
Stoke-on-Trent	0	0	0	0	0	0	0	0	0	0	0	0	0
Shropshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Cannock Chase	0	0	0	0	0	0	0	0	0	0	0	0	0
East Staffordshire	1	0	0	0	0	0	0	0	1	0	0	0	0
Lichfield	1	0	0	0	0	0	0	0	1	0	0	0	0
Newcastle-under-Lyme	0	0	0	0	0	0	0	0	0	0	0	0	0
South Staffordshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Stafford	0	0	0	0	0	0	0	0	0	0	0	0	0
Staffordshire Moorlands	0	0	0	0	0	0	0	0	0	0	0	0	0
Tamworth	1	0	0	0	0	0	0	0	1	0	0	0	0
North Warwickshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Nuneaton and Bedworth	0	0	0	0	0	0	0	0	0	0	0	0	0
Rugby	0	0	0	0	0	0	0	0	0	0	0	0	0
Stratford-on-Avon	0	0	0	0	0	0	0	0	0	0	0	0	0
Warwick	0	0	0	0	0	0	0	0	0	0	0	0	0
Bromsgrove	0	0	0	0	0	0	0	0	0	0	0	0	0
Makern Hills	0	0	0	0	0	0	0	0	0	0	0	0	0
Redditch	0	0	0	0	0	0	0	0	0	0	0	0	0
Worcester	0	0	0	0	0	0	0	0	0	0	0	0	0
Wychevorn	0	0	0	0	0	0	0	0	0	0	0	0	0
Wvre Forest	0	0	0	0	0	0	0	0	0	0	0	0	0
Birmingham	0	0	0	0	0	0	0	0	0	0	0	0	0
Coventry	0	0	0	0	0	0	0	0	0	0	0	0	0
Dudley	1	0	0	0	0	0	0	0	1	0	0	0	0
Sandwell	0	0	0	0	0	0	0	0	0	0	0	0	0
Solihull	0	0	0	0	0	0	0	0	0	0	0	0	0
Walsall	0	0	0	0	0	0	0	0	0	0	0	0	0
Wolverhampton	0	0	0	0	0	0	0	0	0	0	0	0	0
Peterborough	0	0	0	0	0	0	0	0	0	0	0	0	0
Luton	0	0	0	0	0	0	0	0	0	0	0	0	0
Southend-on-Sea	0	0	0	0	0	0	0	0	0	0	0	0	0
Thurrock	0	0	0	0	0	0	0	0	0	0	0	0	0
Bedford	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Bedfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Cambridge	0	0	0	0	0	0	0	0	0	0	0	0	0
East Cambridgeshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Fenland	0	0	0	0	0	0	0	0	0	0	0	0	0
Huntingdonshire	0	0	0	0	0	0	0	0	0	0	0	0	0
South Cambridgeshire	1	0	0	0	0	0	0	1	0	0	0	0	0
Basildon	0	0	0	0	0	0	0	0	0	0	0	0	0
Braintree	0	0	0	0	0	0	0	0	0	0	0	0	0
Brenwood	0	0	0	0	0	0	0	0	0	0	0	0	0
Castle Point	0	0	0	0	0	0	0	0	0	0	0	0	0
Chelmsford	0	0	0	0	0	0	0	0	0	0	0	0	0
Colchester	0	0	0	0	0	0	0	0	0	0	0	0	0
Epping Forest	0	0	0	0	0	0	0	0	0	0	0	0	0
Harlow	0	0	0	0	0	0	0	0	0	0	0	0	0
Maldon	0	0	0	0	0	0	0	0	0	0	0	0	0
Rochford	0	0	0	0	0	0	0	0	0	0	0	0	0
Tendring	0	0	0	0	0	0	0	0	0	0	0	0	0
Uttlesford	0	0	0	0	0	0	0	0	0	0	0	0	0
Broxbourne	0	0	0	0	0	0	0	0	0	0	0	0	0
Dacorum	2	0	0	0	0	0	0	2	0	0	0	0	0
East Hertfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Hertsmere	0	0	0	0	0	0	0	0	0	0	0	0	0
North Hertfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0
St Albans	0	0	0	0	0	0	0	0	0	0	0	0	0
Stevenage	0	0	0	0	0	0	0	0	0	0	0	0	0
Three Rivers	0	0	0	0	0	0	0	0	0	0	0	0	0
Watford	1	0	0	0	0	0	0	1	0	0	0	0	0
Welwyn Hatfield	0	0	0	0	0	0	0	0	0	0	0	0	0
Breckland	0	0	0	0	0	0	0	0	0	0	0	0	0
Broadland	0	0	0	0	0	0	0	0	0	0	0	0	0
Great Yarmouth	0	0	0	0	0	0	0	0	0	0	0	0	0
King's Lynn and West Norf	0	0	0	0	0	0	0	0	0	0	0	0	0
North Norfolk	0	0	0	0	0	0	0	0	0	0	0	0	0
Norwich	0	0	0	0	0	0	0	0	0	0	0	0	0
South Norfolk	0	0	0	0	0	0	0	0	0	0	0	0	0
Babergh	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest Heath	0	0	0	0	0	0	0	0	0	0	0	0	0
Ipswich	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid Suffolk	0	0	0	0	0	0	0	0	0	0	0	0	0
St Edmundsbury	0	0	0	0	0	0	0	0	0	0	0	0	0
Suffolk Coastal	0	0	0	0	0	0	0	0	0	0	0	0	0
Waveney	0	0	0	0	0	0	0	0	0	0	0	0	0
Barking and Dagenham	0	0	0	0	0	0	0	0	0	0	0	0	0
Barnet	0	0	0	0	0	0	0	0	0	0	0	0	0
Bexley	0	0	0	0	0	0	0	0	0	0	0	0	0
Brent	0	0	0	0	0	0	0	0	0	0	0	0	0
Bromley	0	0	0	0	0	0	0	0	0	0	0	0	0
Camden	0	0	0	0	0	0	0	0	0	0	0	0	0
Croydon	0	0	0	0	0	0	0	0	0	0	0	0	0
Ealing	0	0	0	0	0	0	0	0	0	0	0	0	0
Enfield	0	0	0	0	0	0	0	0	0	0	0	0	0
Greenwich	0	0	0	0	0	0	0	0	0	0	0	0	0
Hackney	0	0	0	0	0	0	0	0	0	0	0	0	0
Hammersmith and Fulham	0	0	0	0	0	0	0	0	0	0	0	0	0
Haringey	0	0	0	0	0	0	0	0	0	0	0	0	0
Harrow	1	0	0	0	0	0	0	1	0	0	0	0	0
Havering	0	0	0	0	0	0	0	0	0	0	0	0	0
Hillingdon	0	0	0	0	0	0	0	0	0	0	0	0	0
Hounslow	0	0	0	0	0	0	0	0	0	0	0	0	0
Islington	0	0	0	0	0	0	0	0	0	0	0	0	0
Kensington and Chelsea	0	0	0	0	0	0	0	0	0	0	0	0	0
Kingston upon Thames	0	0	0	0	0	0	0	0	0	0	0	0	0
Lambeth	0	0	0	0	0	0	0	0	0	0	0	0	0
Lewisham	0	0	0	0	0	0	0	0	0	0	0	0	0
Merton	0	0	0	0	0	0	0	0	0	0	0	0	0
Newham	0	0	0	0	0	0	0	0	0	0	0	0	0
Redbridge	0	0	0	0	0	0	0	0	0	0	0	0	0
Richmond upon Thames	0	0	0	0	0	0	0	0	0	0	0	0	0
Southwark	0	0	0	0	0	0	0	0	0	0	0	0	0
Sutton	0	0	0	0	0	0	0	0	0	0	0	0	0
Tower Hamlets	0	0	0	0	0	0	0	0	0	0	0	0	0
Waltham Forest	1	0	0	0	0	0	0	1	0	0	0	0	0
Wandsworth	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster City of London	0	0	0	0	0	0	0	0	0	0	0	0	0
Medway	0	0	0	0	0	0	0	0	0	0	0	0	0
Bracknell Forest	0	0	0	0	0	0	0	0	0	0	0	0	0
West Berkshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Reading	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough	2	0	0	0	0	0	0	2	0	0	0	0	0
Windsor and Maidenhead	2	0	0	0	0	0	0	0	0	0	0	0	0
Wokingham	0	0	0	0	0	0	0	0	0	0	0	0	0
Milton Keynes	1	0	0	0	0	0	0	1	0	0	0	0	0
Brighton and Hove	1	0	0	0	0	0	0	0	0	0	0	1	0
Portsmouth	0	0	0	0	0	0	0	0	0	0	0	0	0
Southampton	0	0	0	0	0	0	0	0	0	0	0	0	0
Isle of Wight	0	0	0	0	0	0	0	0	0	0	0	0	0
Aylesbury Vale	0	0	0	0	0	0	0	0	0	0	0	0	0
Chiltern	0	0	0	0	0	0	0	0	0	0	0	0	0
South Bucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Wycombe	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastbourne	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings	0	0	0	0	0	0	0	0	0	0	0	0	0
Lewes	0	0	0	0	0	0	0	0	0	0	0	0	0
Rother	0	0	0	0	0	0	0	0	0	0	0	0	0
Wealden	0	0	0	0	0	0	0	0	0	0	0	0	0
Basingstoke and Deane	0	0	0	0	0	0	0	0	0	0	0	0	0
East Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0
Eastleigh	0	0	0	0	0	0	0	0	0	0	0	0	0
Farnham	0	0	0	0	0	0	0	0	0	0	0	0	0
Gosport	0	0	0	0	0	0	0	0	0	0	0	0	0
Hart	0	0	0	0	0	0	0	0	0	0	0	0	0

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)															
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population	All usual residents aged 16 and over in employment the week before the census														
units	Persons														
date	2011														
usual residence	Total of four MSOAs - Calderdale 015, 019, 023 and 024														
place of work : 2011 census merged local authority district	All categories: Method of travel	Work mainly at or from home	Underground, metro, light rail or tram	Train	Bus, minibus or coach	Taxi	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other method of travel to work	Travel by all mode %	Car drivers %	
Hartlepool	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Middlesbrough	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Redcar and Cleveland	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Stockton-on-Tees	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
Darlington	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
County Durham	10	0	0	0	0	0	0	10	0	0	0	0	0.1%	0.1%	
Northumberland	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Gateshead	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Newcastle upon Tyne	2	0	0	0	0	0	0	0	1	0	1	0	0.0%	0.0%	
North Tyneside	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
South Tyneside	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Sunderland	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
Halton	4	0	0	0	0	0	0	4	0	0	0	0	0.0%	0.0%	
Warrington	9	0	0	0	0	0	0	9	0	0	0	0	0.1%	0.1%	
Blackburn with Darwen	5	0	0	0	1	0	0	4	0	0	0	0	0.0%	0.0%	
Blackpool	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Cheshire East	8	0	0	0	0	0	0	8	0	0	0	0	0.1%	0.1%	
Cheshire West and Chester	5	0	0	0	0	0	0	5	0	0	0	0	0.0%	0.1%	
Allerdale	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Barrow-in-Furness	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Carlisle	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
Copeland	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Eden	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
South Lakeland	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
Burnley	13	0	0	0	0	0	0	11	1	0	1	0	0.1%	0.1%	
Chorley	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Fylde	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Hyndburn	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
Lancaster	2	0	0	0	0	0	0	1	0	0	1	0	0.0%	0.0%	
Pendle	5	0	0	0	0	0	0	3	2	0	0	0	0.0%	0.0%	
Preston	8	0	0	2	0	0	0	6	0	0	0	0	0.1%	0.1%	
Ribble Valley	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Rossendale	9	0	0	0	2	0	0	7	0	0	0	0	0.1%	0.1%	
South Ribble	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
West Lancashire	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Wyre	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
Bolton	14	0	0	1	0	0	0	12	0	0	1	0	0.1%	0.1%	
Bury	9	0	0	1	0	0	0	7	1	0	0	0	0.1%	0.1%	
Manchester	73	0	0	14	5	0	0	52	2	0	0	0	0.6%	0.6%	
Oldham	33	0	0	0	0	0	0	31	1	0	1	0	0.3%	0.3%	
Rochdale	62	0	0	0	1	0	0	58	2	0	1	0	0.5%	0.6%	
Salford	9	0	0	0	0	0	0	8	1	0	0	0	0.1%	0.1%	
Stockport	7	0	0	0	0	0	0	5	0	0	2	0	0.1%	0.1%	
Tameside	9	0	0	0	0	0	0	9	0	0	0	0	0.1%	0.1%	
Trafford	22	0	1	0	1	0	0	19	0	0	1	0	0.2%	0.2%	
Wigan	5	0	0	0	0	0	0	5	0	0	0	0	0.0%	0.0%	
Knowsley	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
Liverpool	3	0	0	1	1	0	0	1	0	0	0	0	0.0%	0.0%	
St. Helens	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Sefton	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Wirral	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Kingston upon Hull, City of	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
East Riding of Yorkshire	9	0	0	0	0	0	0	9	0	0	0	0	0.1%	0.1%	
North East Lincolnshire	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
North Lincolnshire	7	0	0	0	0	0	0	7	0	0	0	0	0.1%	0.1%	
York	34	0	0	5	0	0	0	26	1	0	2	0	0.3%	0.3%	
Craven	18	0	0	0	0	0	0	18	0	0	0	0	0.1%	0.2%	
Hambleton	3	0	0	0	0	0	0	0	1	0	2	0	0.0%	0.0%	
Harrogate	14	0	0	0	0	0	1	12	0	0	1	0	0.1%	0.1%	
Richmondshire	3	0	0	1	0	0	0	1	1	0	0	0	0.0%	0.0%	
Ryedale	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Scarborough	1	0	0	0	0	0	0	0	0	0	1	0	0.0%	0.0%	
Selby	11	0	0	0	0	0	0	9	2	0	0	0	0.1%	0.1%	
Barnsley	36	0	0	0	2	0	0	33	0	0	1	0	0.3%	0.4%	
Doncaster	16	0	0	0	2	0	0	14	0	0	0	0	0.1%	0.2%	
Rotherham	12	0	0	0	0	0	0	11	1	0	0	0	0.1%	0.1%	
Sheffield	29	0	1	1	0	0	0	25	2	0	0	0	0.2%	0.3%	
Bradford	1,639	0	0	19	156	8	13	1,318	81	15	25	4	Bradford	12.9%	14.7%
Calderdale	6,617	0	0	57	549	54	56	4,026	470	79	1,313	13	Calderdale	52.2%	45.0%
Kirklees	2,253	0	0	23	197	5	24	1,801	151	19	33	0	Kirklees	17.8%	20.1%
Leeds	1,174	0	0	119	41	1	12	955	38	5	3	0	Leeds	9.3%	10.7%
Wakefield	264	0	0	4	3	0	0	245	9	1	2	0	Wakefield	2.1%	2.7%
Derby	1	0	0	1	0	0	0	0	0	0	0	0	0.0%	0.0%	
Leicester	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
Rutland	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Nottingham	4	0	0	0	1	0	0	2	0	0	1	0	0.0%	0.0%	
Amber Valley	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Bolsover	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
Chesterfield	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Derbyshire Dales	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Erewash	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
High Peak	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
North East Derbyshire	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
South Derbyshire	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Blaby	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Charnwood	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Harborough	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%	
Hinckley and Bosworth	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Melton	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
North West Leicestershire	3	0	0	0	0	0	0	3	0	0	0	0	0.0%	0.0%	
Cadby and Winston	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Boston	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
East Lindsey	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Lincoln	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%	
North Kesteven	2	0	0	0	0	0	0	1	0	1	0	0	0.0%	0.0%	
South Holland	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
South Kesteven	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
West Lindsey	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Corby	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Daventry	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
East Northamptonshire	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	
Kettering	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%	

[illegible]

Gravesham	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Maldstone	2	0	0	0	1	0	0	1	0	0	0	0	0.0%	0.0%
Sevenoaks	0	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Shepway	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Swale	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Thanet	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Tonbridge and Malling	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Tunbridge Wells	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Cherwell	2	0	0	1	0	0	0	1	0	0	0	0	0.0%	0.0%
Oxford	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
South Oxfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Vale of White Horse	5	0	0	0	0	0	0	2	2	0	1	0	0.0%	0.0%
West Oxfordshire	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Elmbridge	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Epsom and Ewell	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Guildford	1	0	0	0	0	0	0	0	0	0	1	0	0.0%	0.0%
Mole Valley	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Reigate and Banstead	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Runnymede	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Spelthorne	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Surrey Heath	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Tandridge	1	0	0	0	0	0	0	0	0	0	1	0	0.0%	0.0%
Waverley	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Woking	1	0	0	0	0	0	0	0	0	0	1	0	0.0%	0.0%
Adur	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Arun	1	0	0	0	0	0	0	0	0	0	1	0	0.0%	0.0%
Chichester	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Crawley	1	0	0	0	0	0	0	0	1	0	0	0	0.0%	0.0%
Horsham	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Mid Sussex	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Worthing	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Bath and North East Somerset	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%
Bristol, City of	5	0	0	1	0	0	0	4	0	0	0	0	0.0%	0.0%
Cornwall, Isles of Scilly	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Wiltshire	5	0	0	0	0	0	0	3	1	0	1	0	0.0%	0.0%
North Somerset	2	0	0	0	0	0	0	2	0	0	0	0	0.0%	0.0%
South Gloucestershire	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Plymouth	1	0	0	0	0	0	0	0	0	0	0	1	0.0%	0.0%
Torbay	1	0	0	0	0	0	0	1	0	0	0	0	0.0%	0.0%
Bournemouth	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	0.0%
Poole	3	0	0	0	0	0	0	2	1	0	0	0	0.0%	0.0%