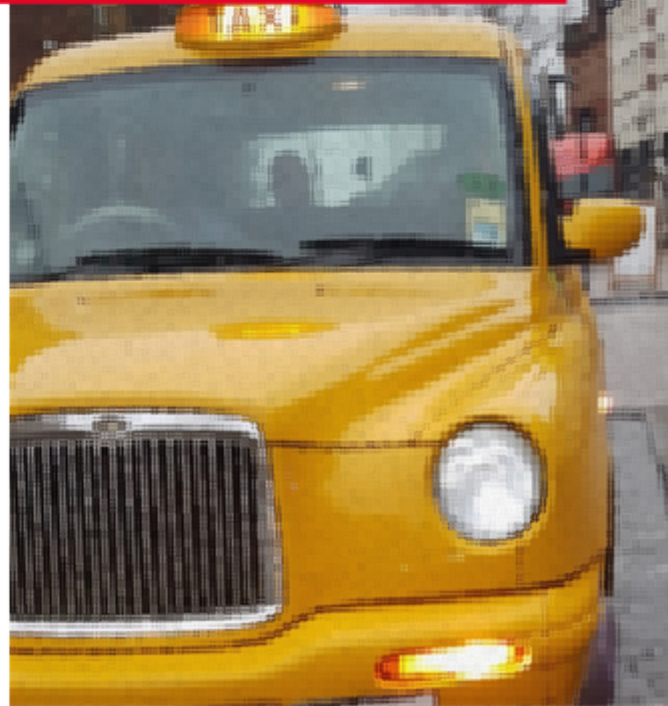


# Unmet demand survey



Leeds City Council  
March 2018  
Unmet demand survey



## Executive Summary

This Unmet demand survey has been undertaken on behalf of Leeds City Council following the guidance of the April 2010 DfT Best Practice Guidance document, and all relevant case history in regard to unmet demand. (to be completed when all other chapters signed off by Council)



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## 1 General introduction and background

Leeds City Council is responsible for the licensing of hackney carriage and private hire vehicles operating within the Council area and is the licensing authority for this complete area. It retains a limit on the number of hackney carriage vehicles licensed. There is no legal means by which either private hire vehicle numbers, private hire or hackney carriage driver numbers, or the number of private hire operators can be limited. DfT sources do not suggest since when this limit has been in place. Prior to this survey, previous tests of the validity of the limit and its level were undertaken in 2009.

This review of current policy is based on the Best Practice Guidance produced by the Department for Transport in April 2010 (BPG). It seeks to provide information to the licensing authority to meet section 16 of the Transport Act 1985 “that the grant of a hackney carriage vehicle licence may be refused if, but only if, the licensing authority is satisfied that there is no significant demand for the services of hackney carriages within its local area, which is unmet.” This terminology is typically shortened to “no SUD”.

Current hackney carriage, private hire and operator licensing is undertaken within the legal frameworks set by the Town Police Clause Act 1847. This has been amended by various following legislation including the Transport Act 1985, Section 16 in regard to hackney carriage vehicle limits, and by the Local Government Miscellaneous Provisions Act 1976 with reference to private hire vehicles and operations. Many of the aspects of these laws have been tested and refined by other more recent legislation and more importantly through case law. Beyond legislation, the experience of the person in the street tends to see both hackney carriage and private hire vehicles both as ‘taxis’ – a term we will try for the sake of clarity to use only in its generic sense within the report. We will use the term ‘licensed vehicles’ to refer to both hackney carriage and private hire.

The legislation around licensed vehicles and drivers has been the subject of many attempts at review. The limiting of hackney carriage vehicle numbers has been a particular concern as it is often considered to be a restrictive practice and against natural economic trends. The three most recent reviews were by the Office of Fair Trading in 2003, through the production of the BPG in 2010, and the Law Commission review which published its results in 2014. None of these resulted in any material change to the legislation involved in licensing.

The upshot of all these reviews in respect of the principal subject of this survey is that local authorities retain the right to restrict the number of hackney carriage vehicle licenses. The Law Commission conclusion included retention of the power to limit hackney carriage vehicle numbers but utilizing a public interest test determined by the Secretary of State. It also suggested the three-year horizon also be used for rank reviews and accessibility reviews.

After introduction of the 1985 Transport Act, Leeds University Institute for Transport Studies developed a tool by which unmet demand could be evaluated and a determination made if this was significant or not. The tool was taken forward and developed as more studies were undertaken. Over time this 'index of significance of unmet demand' (ISUD) became accepted as an industry standard tool to be used for this purpose. Some revisions have been made following the few but specific court cases where various parties have challenged the policy of retaining a limit. Some of the application has differed between Scottish and English authorities due to some court cases in Scotland taking interpretation of the duty of the licensing authority further than is usual in England and Wales.

The DfT asked in writing in 2004 for all licensing authorities with quantity restrictions to review them, publish their justification by March 2005, and then review at least every three years since then. In due course, this led to a summary of the government guidance which was last updated in England and Wales in 2010 (but more recently in Scotland).

The BPG in 2010 also provided additional suggestions of how these surveys should be undertaken, albeit in general but fairly extensive terms. A key encouragement within the BPG is that "an interval of three years is commonly regarded as the maximum reasonable period between surveys". BPG suggests key points in consideration are passenger waiting times at ranks, for street hailings and telephone bookings, latent and peaked demand, wide consultation and publication of "all the evidence gathered".

The most recent changes in legislation regarding licensed vehicles have been enactment of the parts of the Equality Act related to guidance dogs (sections 168 to 171, enacted in October 2010), the two clauses of the Deregulation Act which were successful in proceeding, relating to length of period each license covers and to allowing operators to transfer work across borders (enacted in October 2015), and most recently enactment of Sections 165 and 167 of the Equality Act, albeit on a permissive basis (see below).



In November 2016, the DfT undertook a consultation regarding enacting Sections 167 and 165 of the Equality Act. These allow for all vehicles capable of carrying a wheel chair to be placed on a list by the local council (section 167). Any driver using a vehicle on this list then has a duty under section 165 to:

- Carry the passenger while in the wheel chair
- Not make any additional charge for doing so
- If the passenger chooses to sit in a passenger seat to carry the wheel chair
- To take such steps as are necessary to ensure that the passenger is carried in safety and reasonable comfort
- To give the passenger such mobility assistance as is reasonably required

This was enacted from April 2017. With a mixed hackney carriage fleet, this will apply to Leeds more directly than some other licensing areas with fully WAV fleets. There remains no confirmation of any timetable for instigating either the remainder of the Equality Act or the Law Commission recommendations, or for the update of the BPG.

In respect to case law impinging on unmet demand, the two most recent cases were in 1987 and 2002. The first case (*R v Great Yarmouth*) concluded authorities must consider the view of significant unmet demand as a whole, not condescending to detailed consideration of the position in every limited area, i.e. to consider significance of unmet demand over the area as a whole.

*R v Castle Point* considered the issue of latent, or preferably termed, suppressed demand consideration. This clarified that this element relates only to the element which is measurable. Measurable suppressed demand includes inappropriately met demand (taken by private hire vehicles in situations legally hackney carriage opportunities) or those forced to use less satisfactory methods to get home (principally walking, i.e. those observed to walk away from rank locations).

In general, the determination of conclusions about significance of unmet demand must take into account the practicability of improving the standard of service through the increase of supply of vehicles. It is also important to have consistent treatment of authorities as well as for the same authority over time.

In conclusion, the present legislation in England and Wales sees public fare-paying passenger carrying vehicles firstly split by passenger capacity. All vehicles able to carry nine or more passengers are dealt with under national public service vehicle licensing. Local licensing authorities only have jurisdiction over vehicles carrying eight or less passengers.

These are split between hackney carriages which are alone able to wait at ranks or pick up people in the streets without a booking, and private hire who can only be used with a booking made through an operator. If any passenger uses a private hire vehicle without such a properly made booking, they are not insured for their journey.

## 2 Local background and context

Key dates for this Unmet demand survey for Leeds City Council are:

- appointed CTS Traffic and Transportation on 22nd December 2016
- in accordance with our proposal of December 2016
- as confirmed during the inception meeting for the survey held on 19th January 2017
- this survey was carried out between 19th January 2017 and November 2017
- On street pedestrian survey work occurred in March 2017, with 200 people interviewed in various parts of central Leeds
- A sample of four of the busiest ranks were surveyed during the end of February 2017, with the main wider rank survey post Easter 2017, and a further, but slightly larger sample survey during October 2017 after the universities had returned for their Autumn terms
- Licensed vehicle driver opinions and operating practices were canvassed in May and June including some meetings with trade representatives throughout the study as necessary
- Key stakeholders were consulted throughout the period of the survey
- A draft of this report was reviewed by the client during the course of the project
- and reported to the appropriate Council committee in April 2018.

Leeds City Council is a unitary authority, with a current population of 786,500 using the 2017 estimates currently available from the 2011 census.

In terms of background council policy, Leeds City Council is a unitary authority which has all highway, planning and licensing powers within its jurisdiction. However, the Local Transport Plan (LTP) for the area is the West Yorkshire LTP, adopted on 1<sup>st</sup> April 2011 and valid up to 2026, and known as 'My Journey West Yorkshire'. The LTP is supported by the daughter document 'Leeds Local Implementation Plan' last dated 2011 to 2014. Work is currently under way on the West Yorkshire Combined Authority (WYCA) Transport Strategy which will be a 20-year vision updating the LTP (2016 to 2036). This has been through consultation and the current summary document is the 'Transport Strategy Transport Committee Report' of 24<sup>th</sup> February 2017. The accompanying Leeds City Region Metro Study was completed during 2016 and considered by the Transport Committee on 21<sup>st</sup> April 2017.

The Strategy document identifies that 1% of travel to work in West Yorkshire is by taxi, the same level as by bicycle or motorcycle, and a quarter of the level undertaken by train (4%). Policy RN5 seeks 'to work with the taxi trade to improve taxi facilities and environmental performance. Hackney carriages and private hire vehicles are a valuable part of our transport system, providing more choice for whole or part journeys. Taxis also provide a valuable service for those people with a disability or mobility impairment. We want to enhance this offer'

'We will provide enhanced taxi ranks at appropriate key transport hubs, work with the taxi trades to strengthen safeguarding protection for vulnerable users, to achieve a greater take up of low emission electric taxis, working with the Governments Ultra Low Emission Vehicle programme and accelerating the provision of recharging facilities at transport hubs, car parks and on the highway network'.

A further policy including licensed vehicles is SF2 'deliver mobility as a service for an enhanced customer experience. This would provide a mobility account enabling people to use licensed vehicles as part of their mode mix where appropriate'.

The Transport Strategy consultation included various questionnaires, including one of what mode of transport people used, and how often. 1,596 people responded. Of these, 1471 answered the question about frequency of use of taxis. None said they used taxis four or more days per week, 78% said they used them three or less days and 22% said they never used them. This compared to 20% not driving cars, 11% never using buses and 11% never using cars as a passenger. 9% said they had a particular interest in taxis.

People were also asked if they supported specific policies. 54% said they would support policy RN5, improvement of taxi facilities and their environmental impact, although this was amongst the lowest support for any of the proposed policies.

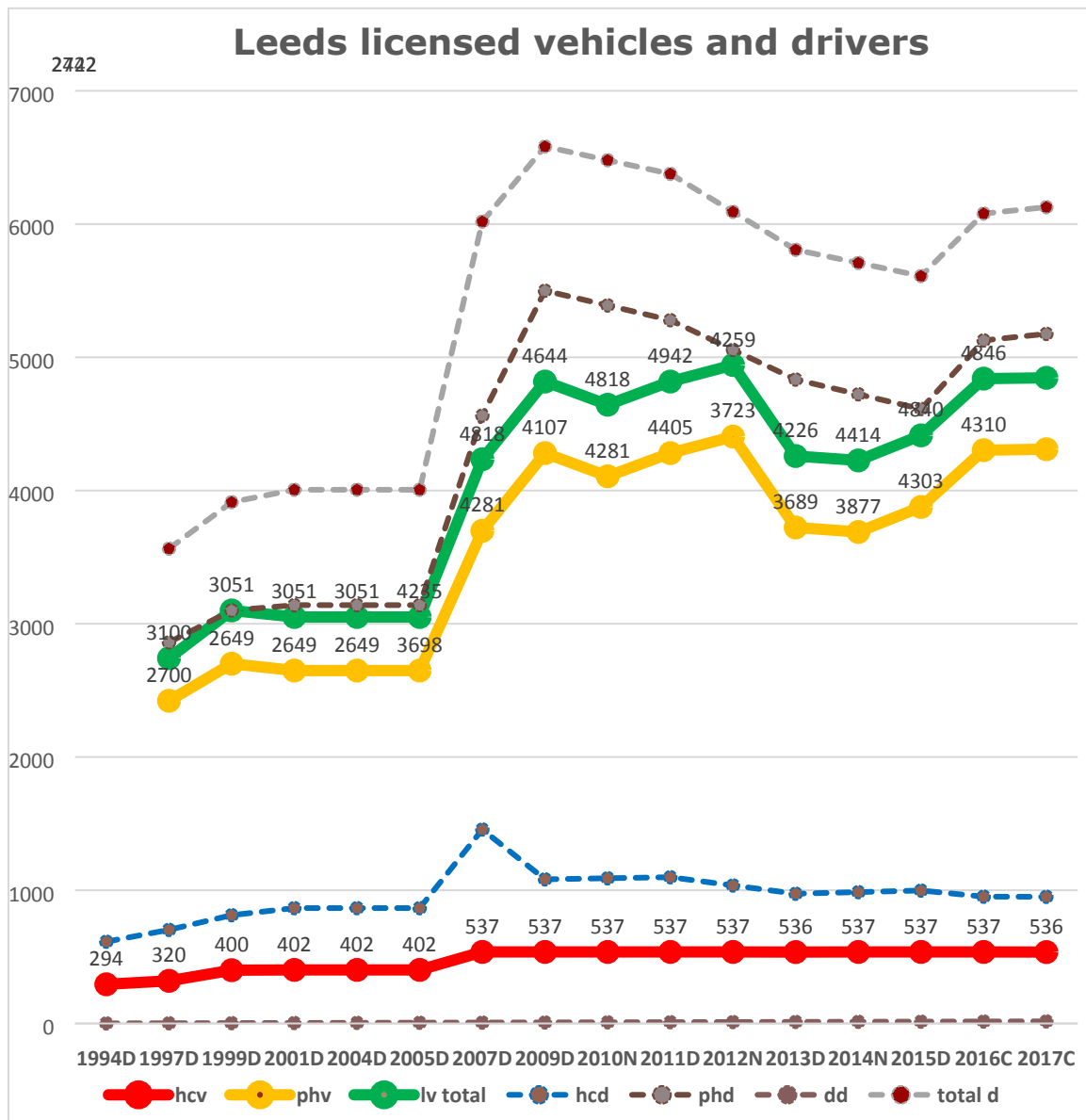
The present vision is the 'LCR Metro' a way by which connectivity will be provided between the principal towns, cities and transport hubs across the City Region. It is not a mode of transport or a brand. It focusses on quality, frequent, reliable, resilient, integrated transport from all modes. However, its focus is on higher capacity transport and as such currently ignores licensed vehicles (and many other modes such as cycling and walking).

The unitary nature of the authority means that rank provision is through the highway section of the Council itself, with full planning, regulatory and enforcement powers directly by the Council itself. Maps and details of the traffic regulation orders (TRO) pertaining to all ranks are available electronically, although overall maps summarizing provision are not updated to take on board the recent central road revisions arising from pedestrianisation.

However, all licensing authorities have full powers over licensing the vehicles, drivers and operators serving people within their area. Leeds City Council has chosen to utilize its power to limit hackney carriage vehicle numbers, and as far as we are aware has done so for some considerable period. It has also regularly reviewed the policy and level of vehicles appropriate.

The background policy for hackney carriage vehicle numbers has been managed growth from 1998 at 40 vehicles per year (target of five years), with this revised by a 2001 study to a level of 45 vehicles per year for three years. The managed growth was set to zero in 2007 although there were clearly not full years of allocation of all the vehicles. Surveys are recorded in 2001 and 2008 (the latter reporting in 2009).

By drawing together published statistics from both the Department for Transport (D) and the National Private Hire Association (N), supplemented by private information from the licensing authority records (C), recent trends in vehicle, driver and operator numbers can be observed. The detailed numbers supporting the picture below are provided in Appendix 1.



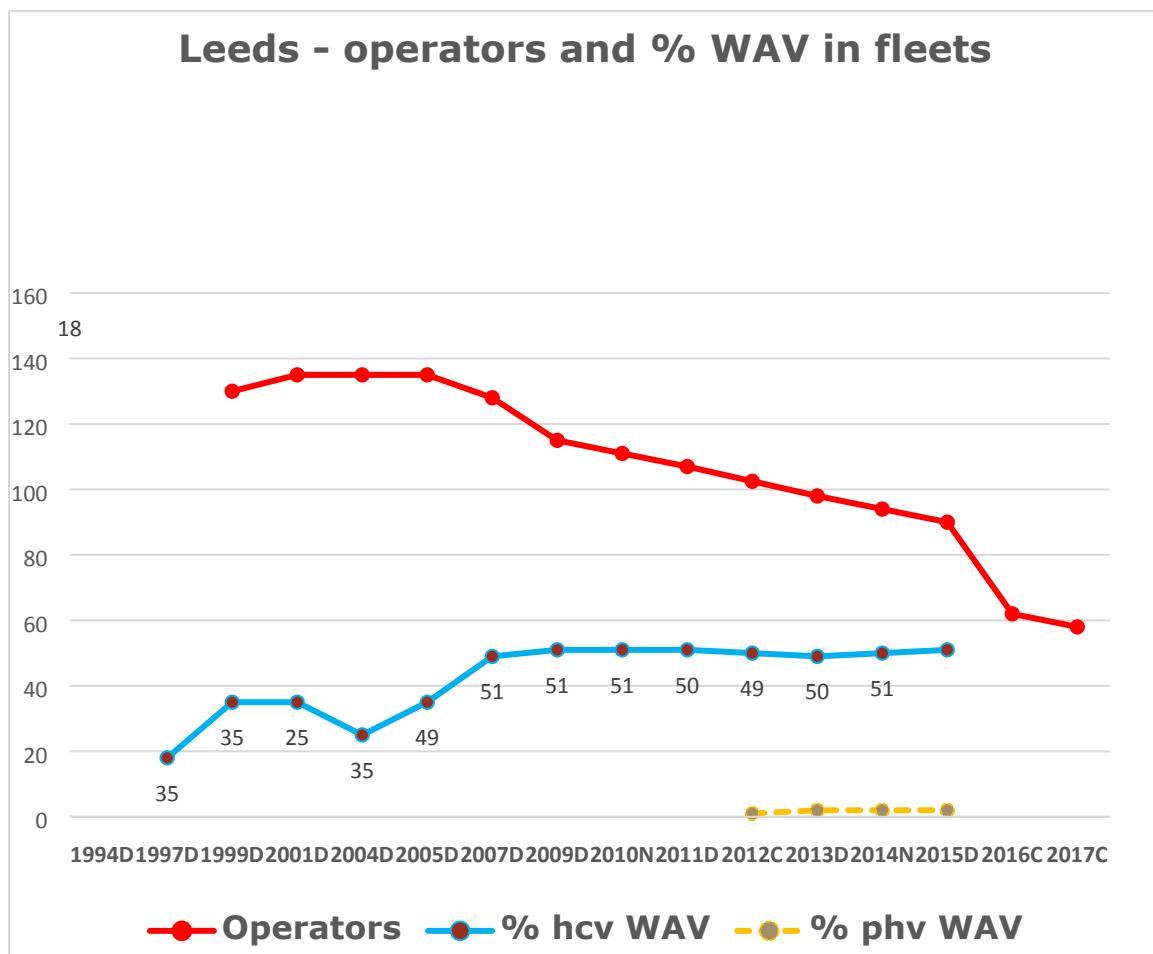
#### Licensing Statistics from 1994 to date

The graph shows 83% growth in hackney carriage vehicle numbers between the start of formal DfT statistics and 2007, when the current number of 537 was reached and fixed. For the total period to date, driver numbers have only increased by 55% suggesting many have changed to having their own vehicle, although the driver ratio is still 1.8 suggesting double shifting still occurs.

Private hire vehicle and driver numbers both saw 82% and 92% growth respectively between the start of data and the peak of 2012 (2007 for drivers), with most taking place between 2005 and 2007. At the peak, there were 4,405 private hire vehicles although the level of drivers by then had fallen from the peak of 5,500 to around 5,056.

Private hire vehicle and driver numbers have seen a slump between 2012 and 2014, with numbers only recovering towards the end of 2016, albeit not to the peaks previously seen. This suggests a relatively volatile market for their services (which may reflect the swops between areas by drivers seeking their best route to be able to drive).

At the end of March 2017, the hackney carriage fleet is 11% of the overall licensed vehicle fleet, whilst hackney carriage drivers are 16% of the total (again suggesting double shifting impacts). This is 0.7 vehicles per thousand of resident population whilst the private hire level is 5.5 vehicles. The national averages are 1.1 and 2.2 respectively (at April 2015). Information is also available from these sources to show how the level of wheel chair accessible vehicles (WAV) has varied. It must be noted that in most cases the values for the private hire side tend to be much more approximate than those on the hackney carriage side, as there is no option to mandate for private hire being wheel chair accessible. In some areas, to strengthen the ability of the public to differentiate between the two parts of the licensed vehicle trade, licensing authorities might not allow any WAV in the private hire fleet at all.



**Operator numbers and levels of WAV provision in the fleet**

The level of hackney carriage which were wheel chair accessible style (WAV) rose from 25% to 51% mainly over the period when new vehicles were added most. Since then the proportion has remained around 51% with some slight reductions over the years. Just a small number of private hire have WAV capability.

The level of operators has, however, reduced steadily since a peak of 2005, with most recent figures continuing to show decline in operator numbers.

Leeds City Council undertakes regular review of its policy to limit hackney carriage vehicle numbers in line with the BPG. The previous surveys were in 2008 and 2001. The 2008 survey reported some 1,500 hours of observations at ranks, but split equally over five different periods (i.e. surveys in each of the five periods were around 300 hours). This format of survey is unusual for standard unmet demand survey processes, which usually choose one typical period. Surveys were undertaken on a similar sample size in February, Easter, August, October and the end of December, in the run up to Christmas.



### 3 Patent demand measurement (rank surveys)

As already recorded in Chapter 2, control of provision of on-street ranks in Leeds City Council is undertaken by the highways section of the Council itself, with all elements of enforcement also under council jurisdiction, although there may be a difference between enforcement by parking and licensing officers in respect of their different aims.

Appendix 2 provides a list of ranks in Leeds City Council at the time of this current survey. Our methodology to derive this list involves a current review both in advance of submitting our proposal to undertake this Unmet demand survey and at the study inception meeting, together with site visits where considered necessary. This provides a valid and appropriate sample of rank coverage which is important to feed the numeric evaluation of the level of unmet demand, and its significance (see discussion in Chapter 7).

In the case of this survey, we began from the listing provided in the 2009 report together with the reported locations which were sampled. At inception, details of the on-line recording of Traffic Regulation Orders was provided, followed by maps and listing of ranks provided by the licensing enforcement team during our visit to them following inception. The issue with TRO data is that actual currency of the information requires a backwards approach to be applied to each TRO since there are several cases where a rank has been removed or amended by the most recent TRO yet will still remain in earlier TRP's which retain some, but not all, ranks listed therein. Further, we identified that the maps provided and still in current use have not been updated since around 2010. Beyond the formal record, as in most licensing areas, there are informal arrangements either not yet reflected formally, with some that may never be so agreed.

Further information was provided from walk-rounds of the city centre, further streetview review based on the listings and maps, and discussion with hackney carriage trade representatives and members of the licensing enforcement team.

During the pre-tender process, it was realized that despite the large number of ranks, as is the case in many places, the main focus of service and demand was to a smaller number of locations. However, it was also realized that the proportion of ranks used in the area might be more significant than suggested in the sample chosen back in 2008. On appointment, further detail of the 2008 rank work was provided, showing a total of 1,235 hours had been collected over five periods, but as already suggested in equal amounts and at a similar set of ranks and times in each period. No detail is available how the individual observations were translated into the average weekly estimates that were reported.

We also found evidence that the level of rank activity has increased particularly in geographic scope since 2008. This has seen both new ranks added and previously unused locations drawn into use. A particular development has been the detailed method which ensures adequate supply is provided to the very busy station rank. To avoid over-ranking in the daytime near the station, vehicles have a large choice of ranks they can proceed to where they wait to be called to the main station rank queue of vehicles. The trade provide a steward and contact means so that vehicles arriving at these points feed through in strict arrival order. Some of the rank locations that feed the station are new and only service the feeder function (e.g. Little Queen Street), whilst others were chosen from little used locations which might gain local footfall were vehicles to wait there, such as Boar Lane McDonalds rank. Further, many suburban ranks are used as waiting points where vehicles servicing hackney carriage radio networks wait for jobs to be allocated, again providing a point of generating some walk in trade.

It was determined that undertaking a similar sample of around 250 hours over five separate periods would not provide a sufficiently comprehensive cover at this time. Further, technology and methodology of surveys has improved since 2008 making use of video data capture and in-office watching of the footage produced. This changes the potential sample structure, allowing longer periods to be covered more readily, and cameras to be located in a concentrated period which makes playing up to the surveys more difficult. Further, modern technology makes the cameras very hard to naturally observe compared to the obvious nature of having a person nearby a rank. Also, Leeds is one of very few locations to base its rank observations over an extended period, rather than one main survey undertaken at a typical period.

The proposed method was to undertake a larger baseline survey of some 460 hours, supplemented by some seasonal data at the four busiest ranks. The 2008 work was used to identify the busiest ranks modified by more recent knowledge. It was also decided that one of the four would be a suburban rank, giving the initial seasonal sample of the Station, the Bus Station, Woodhouse Lane (Pryzm) and North Lane Headingley. Our first sample, undertaken at what is believed to be the quietest period of February, covered a total of 177 hours over these four locations.

The detailed specification of the hours included in the sample is provided in Appendix 3(a) (February), 3 (b) (post Easter, baseline) and 3 (c) (post University return extended sample). After initial analysis of the post Easter baseline it was agreed the originally proposed three similar size samples (August, October and December) to the initial work would be replaced by a more comprehensive single period sample in October once the Universities had returned.

A proposal was also made in late March to cover all currently active ranks but this totaled a survey of some 960 hours. This was felt to be excessive in comparison to a proven method of survey of main ranks with factors being used to produce the average weekly estimate for all hackney carriage usage from ranks. The decision to amalgamate the August and December surveys into a larger October review was to provide a robust test at a time when, if unmet demand was going to become significant, it would be identified and observed.

The August period tends to be one where the absence of school contracts and people on holiday generally provides excess numbers of hackney carriages compared to passengers, although it is accepted night life might be increased given better weather and lighter nights. At Christmas, demand is known to be higher, and unmet demand likely to be increased, but this is counted as atypical demand which it could not be expected any licensed vehicle fleet should reasonably gear up to meet if this implied much higher vehicle levels than were needed for the trade to make a reasonable all-year living. Hence, both periods were not felt to provide best value for money, but a wider review of the student demand was felt to be reasonable and appropriate.

### ***Overview of rank observations***

The principal rank observations were undertaken once the schools had returned from the Easter break, in early April 2017. A total of 12 council ranks, the private Station rank and two informal locations were observed with a total of some 462 hours observed overall. One of the informal ranks did not see any usage by hackney carriages, whereas the other saw some hackney carriages picking up passengers there. One of the ranks covered was an out of town location.

These observations were used to produce a weekly estimate of typical demand across all ranks in the Leeds area. The table below demonstrates the estimated weekly patronage by rank, compared to estimates from the previous survey and also from the February and October samples. They are presented with the rank taking most passengers first to the least used at the bottom of the Table. The estimates for Boar Lane McDonalds for April have been revised based on updated day to average week factors using the longer time period observed in the October data at that site. Previous factors had been based on the belief that the rank only operated at night, which is now known to be incorrect.

Location	Av flow April 17 based)	% of total	Av flow 2009	% of total	Av flow Feb surveys (% on same basis as April)	Av flow Oct surveys (% equiv to April)
Station (private)	15,119	54	11,841	41	14,287 (55)	
Boar Lane Mcdonalds	4,007	10	217	1		3,431 (14)
Est Est Est	(club gone)		2,134	7		
Bus Stn	1,754	7	2,762	9	1,679 (6)	1,623 (7)
Pryzm	1,535	6	2,693	9	1,783 (7)	1,332 (5)
Dortmund Square	1,252	5	482	2		1,159 (5)
Vicar Lane	(gone)		1,118	4		
Merrion St	1,012	4	991	3		1,594 (7)
Halo	(club gone)		847	3		
Greek St	(going)		725	3		
Leeds University	824	3	964	3		483 (2)
Headrow	610	2	120	0.0		
Grand Theatre	511	2	1,062	4		
Call Lane (Revolution)	465	2	2,634	9		149 (0.5)
Nth Lane, Headingley	374	1	675	2	368 (2)	
Revolution Bar	336	1	New			
Baracoa	268	1	New			
Slug and Lettuce, informal	193	1				
Wormald Row, informal	0	n/a				
TOTAL	26,947		29,265		18,117	9,771
Overall apparent change	-8%					
Allow for clubs gone	26,947	+3%	26,284			
Exact like for like	26,150	+7%	24,441			
Feb cf April	18,782				18,117 (96)	
Oct cf April	10,849					9,771 (90)

The estimates suggest just under 27,000 passengers use ranks from the sampled ranks above in a typical week in Leeds. This estimate does not include passenger flows at any other ranks, including several in the suburbs apart from the Headingley location. However, many outer ranks operate as waiting places for hackney carriages principally operating on radio circuits, and most of the other ranks seeing passengers are believed to provide only small amounts of demand, and certainly few if any opportunities for any unmet demand there to be significant. We believe that, if there were to be any unmet demand in the area which was significant, it would occur at one or more of the above observed ranks. An overall estimate of total rank-based demand in a typical week for Leeds would be in the order of 30,000 passengers per week from all ranks.

Comparing the same sites undertaken in February and April, the February value is about 96% of the April value; whilst the comparison between October and April sees the October flows about 90% of those in April. These are not large differences overall and could as easily be differences between one weekend and the next. We consider it prudent to use the April value as a typical one, although trade sources did suggest that weekend was the busiest in the 2017 to that date.

54% of those in April board at the private station rank in central Leeds. The next largest proportion use the rank near McDonalds in Boar Lane – some 10% of passengers. This latter location is growing in use and this may be an underestimate (even though revised with the better October data obtained). It is also a location not directly covered in the previous survey and one which is understood to cover some of the usage which used to obtain vehicles in the Call Lane section which is now often closed off at peak passenger times. It must also be noted that the October survey found that the Call Lane night closure was no longer occurring, though the resumption of this was advised to us to be likely, but the actual date unknown.

The next two largest ranks are the all-day location near the Bus Station, with 7% of demand, and the night rank near to Pryzm (6%). The Dortmund Square rank on the Headrow sees 5% of demand and the Merrion Street rank 4%. The rank outside Leeds University saw 3% of demand.

There were three other ranks that saw 2% of estimated demand (Headrow, Grand Theatre and Revolution) and four with around 1% (North Lane, Headingley; Revolution Bar; Baracoa and the informal location near the Slug and Lettuce). The observations at the Wormald Row informal location did not see any hackney carriage departures.

A validation comparison to the previous survey suggests that, on the basis of total results for both reported surveys, demand at ranks in Leeds is now some 8% below that observed in the 2009 published survey (mainly observed in 2008). However, since the last survey, Call Lane has been closed at night, Vicar Lane has seen significant rank removals, Greek Street became unusable and two well-used clubs closed meaning the ranks observed near to them at that survey are no longer used. If a like for like comparison is done only of ranks surveyed both now and in 2008, the actual values are 24,441 for the 2009 reported survey and 26,150 for our April information, a growth of 7% for similar rank locations. This is not a large amount over eight years, but is higher than many other areas which have tended to see decline even from what was believed to be a low point just after the start of the recession.

It is particularly significant that the fourth and fifth largest rank observation totals from the 2008 data are no longer directly available – though presumably passengers must have transferred to other clubs or locations – such as the Boar Lane location. A test simply taking out the two closed clubs from the 2008 data would imply current levels of usage 3% higher, although as already noted it is more likely many of these would have transferred elsewhere potentially suggesting reduced trade. Overall, on balance, it suggests overall demand is probably relatively similar now at ranks.

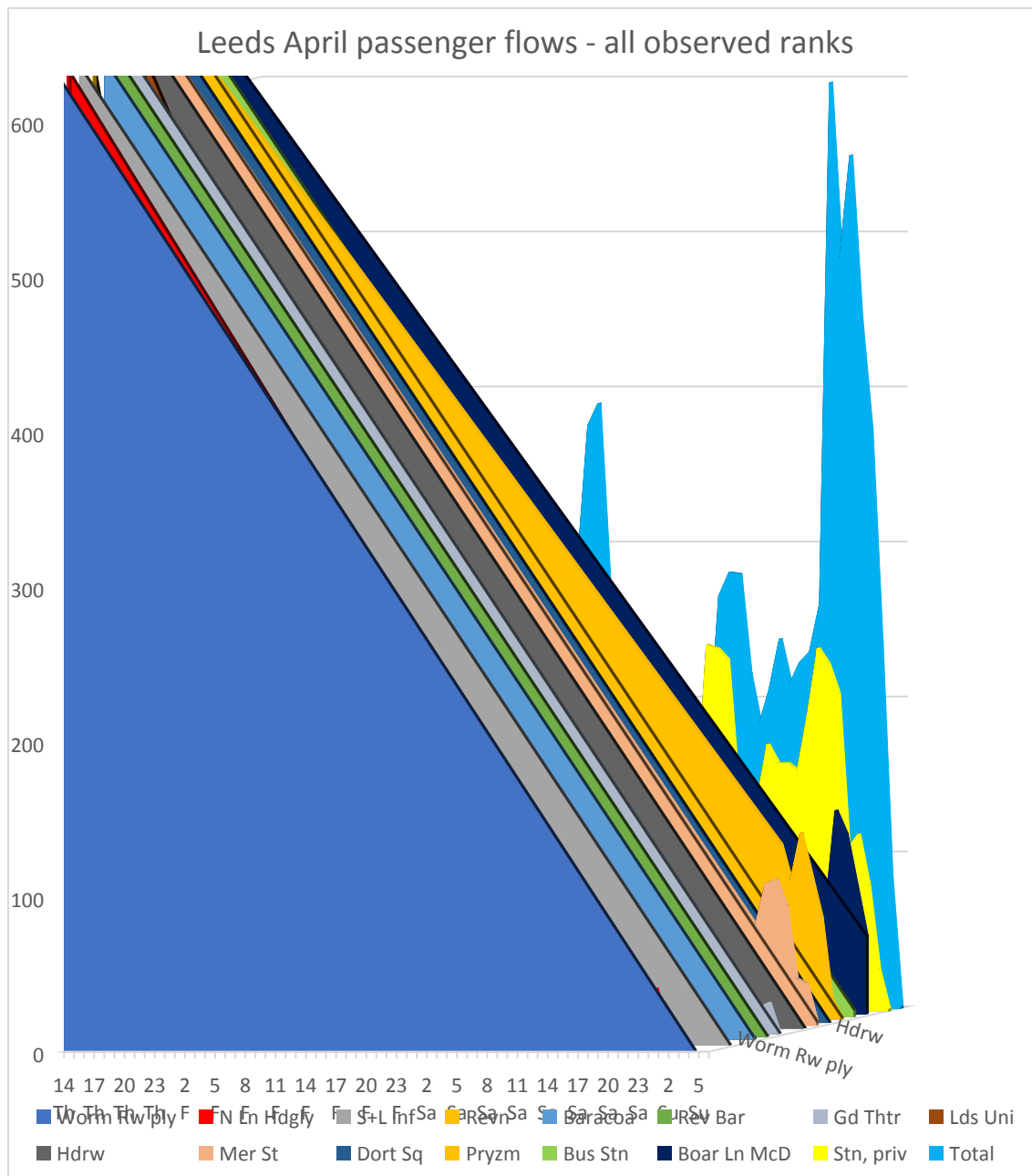
The sample February survey flows are remarkably similar to those observed in April, and even more so when calibrated shares of demand are estimated on the basis that these four sites account for around 70% of the total demand. This suggests there is perhaps less variation in demand in Leeds at the current time than there may have been in the past.

Our proposals for the October 'double' sample of observations covered each of the ranks with 2% or more of demand, but excluding the station rank given that our review suggests there is very little risk of unmet demand of any significant nature arising at the station unless the current arrangements cease, or unless there is a significant event or change that occurs, which would not count as being 'significant unmet demand' that required issue of further plates.

Comparing the seven sites undertaken in both April and October, the October flows are about 10% less than those observed in April. In most cases, the sites retain a similar share of the total usage. However, Merrion Street showed a large increase, almost half as much more in October compared to April whilst both the Leeds University and the Call Lane Revolution ranks have shown reduced usage. Boar Lane also saw higher proportionate usage when considered on a like for like basis (10% of total in April, 14% in October).

All these results tend to suggest less variation through the year than previously expected and tend to confirm our idea that observations in April might be most typical moving forward.

Observed April flows, covering the largest number of ranks, were transferred into graph format below:



The graph firstly shows the dominance of the station rank, but also clearly shows most of the other observed ranks did have moderate passenger flows, many at specific times, including the Headingly out of town location. It is also clear that when the station rank begins to tail off its demand, on all nights other demand kicks in. This is most significant on Saturday nights, but also quite marked on Friday nights. Some locations peak earlier with others following later. There are in the order of eight different locations contributing to the night peaks on both Fridays and Saturdays.



Boar Lane and Pryzm ranks were the two clear top locations used, with Merrion Street also contributing on a Saturday. However, the demand was at a sustained high level from the 23:00 hour on the Saturday (507 passengers) through to the 03:00 hour (374 passengers). The Friday equivalent flows ranged from 390 to 255, but peaking in the midnight hour, and ending an hour earlier. Most daytime flows tend to be between 200 and 300 passengers, with values slightly reduced on the Thursday (148 to 267 in the hours between the 14:00 and the 23:00).

Daytime flows, apart from at the station, focus on up to five ranks. The most dominant is the Bus Station rank, followed by Dortmund Square, the Headrow and the Leeds University rank. The Merrion Street rank seems to operate within this set, but from later in the day.

It is also clear from these reviews that the situation regarding the night clubs along Call Lane and the rank there and at Baracoa needs significant discussion between trade, police and the licensing department, to ensure a consistent and understood provision is made for those needing hackney carriage provision in the clubs in that area.

### ***Overall delay to passengers***

The sample February data found just three hours (2% of the total observed hours) when there was an average waiting time shared out by those travelling in that hour of a minute or more. 7% further saw average waits less than a minute. A total of 92 people (3% of all passengers) experienced a wait, with the longest wait being 10 minutes. None waited more than 11 minutes. A harsh test of the average waiting time only for people travelling in hours with any delay was 23 seconds. Over the full set of passengers, the average passenger delay was just two seconds, or nine seconds for just the council ranks.

Within our April data, there were 22 hours (5%) of the total when the average waiting time of passengers shared out between those travelling in that hour was a minute or more. A further 13% of hours saw average waits of less than a minute. There were a total of 389 people who experienced a wait of a minute or more, but only 7% of these waited 11 minutes or more (and concentrated into nine hours), with the longest recorded wait being one of 34 minutes. The overall average passenger wait was just 18 seconds over the council ranks, and reducing to just eight seconds including the operation at the station rank.



The October data saw just 12 hours (3%) of the total with average waiting time for all passengers shared out in that hour of a minute or more. A further 11% of hours saw waits of less than a minute, again a reduced level compared to April. 268 passengers waited a minute or more, but just ten (4%) of these had waits of 11 minutes or more, negligible. In this set of observations the longest period recorded for a wait was 24 minutes. The October average wait for the ranks observed was just 10 seconds. All this information is consistent with there being lower demand in the October compared to the April.

Further discussion of these results occurs in the test of significance of unmet demand in that Chapter of our report.

### ***Specific rank operation***

This section considers each of the ranks observed by each day which was observed. This provides an overview of how each location is operating, and helps validate the total results from the survey by demonstrating rank by rank that the observed operation was realistic. The ranks are reviewed in order from the busiest to the quietest in passenger terms (irrespective of if the rank is a private one or not). Full results are provided in Appendices 4a, 4b and 4c.

For the sake of clarity, the February observations ran from 15:00 on Thursday 23<sup>rd</sup> February 2017 until 06:59 on Sunday 26<sup>th</sup> February 2017. They produced a total of 177 hours of observation covering four key ranks. In April, we began observations at 14:00 on Thursday 27<sup>th</sup> April, 2017 and ran through at some locations to 06:59 on Sunday morning, 30<sup>th</sup> April, 2017. During this period a total of 461 hours were observed across twelve council, one private and two informal rank locations. Our October observations ran from 14:00 on Thursday 19<sup>th</sup> October 2017 until 07:59 on Sunday 22<sup>nd</sup> October 2017, covering 360 hours at seven council sites.

### ***Railway Station***

The rank at Leeds Station is directly in front of the main exit from the station. However, more recently, further exits from the station have been developed to spread the arrivals and departures, but this remains the principal exit to both the rank, bus stops and the main pedestrian route to the city centre itself. The loading section of the rank is on railway land and requires a supplementary permit from Network Rail. This section has a canopy roof and takes about five vehicles. All can load from the driver side, although there is also some protection on the passenger side of the vehicle depending on where the vehicle actually is. Passengers arriving from the station have had to cross the bus lane and the taxi arrival lane to get to the departure point, and also have to pass along the waiting vehicles at this point.

This main departure section of the rank is fed by spaces in New Station Street, part of which are on the bridge over Neville Street (which is a single lane for the hackney carriages), with a further feeder rank on the opposite side of Station Street as it curves round towards its junction with Boar Lane. These provide in the order of 36 spaces on council highway under local traffic regulation orders. The nature of this rank meant that specific and controlled access was required for installation of the equipment at the pick-up end of the site.

As the busiest expected rank, the location was proposed for cover in February, April, August, October and December in a similar manner to that undertaken in the previous survey. However, given the changed operation here, with a highly organized service pattern, only the February and April observations were deemed important. The station rank was observed throughout the survey period, starting from 15:00 on Thursday 23<sup>rd</sup> February 2017 until 06:59 on the early hours of the Sunday morning of 26<sup>th</sup> February, 2017, and then from 14:00 on Thursday 27<sup>th</sup> April 2017 until 06:59 in the early hours of Sunday 30<sup>th</sup> April 2017.

The local trade representatives made us aware that this rank sees special arrangements to provide cover for the high volumes of passengers and vehicles using the rank. A marshal is employed during main daytime hours who monitors vehicles arriving and passenger levels. All vehicles servicing the rank have some form of communication with the marshal. Further, all vehicles need to choose a feeder rank to wait out beyond the confines of the main station feeder. On arrival, each checks in with the marshal and are then called in order of arrival at feeders to the main feeder. Vehicles at the other feeders may sometimes obtain work from those locations, and the trade confirmed that some of those locations had actually developed trade by the regular presence of vehicles there. This system reduces congestion at the main rank and its feeders, allows rapid refreshing of the main rank when needed, and also helps develop other central ranks which might not otherwise see vehicles. This tends towards reducing the opportunity for unmet demand to become significant, and also reduced the opportunity for latent demand at ranks that might otherwise exist but rarely see vehicles.

Our queue observation began when vehicles arrived at the start of Lower Station Street, and ended with departure from the head of the rank. We have not explicitly included any waiting at feeders beyond this point as it is not easy to link the sites up, and their waiting times will be recorded where that rank has been observed for other demand purposes and discussed accordingly.

Many ranks felt unlikely to see much demand were also excluded from the data collection to ensure we could cover locations more likely to see unmet demand for vehicles rather than unmet supply of passengers.

#### *Thursday observations, February*

During the Thursday observations, some 1,328 passengers used the rank, leaving in 1,154 hackney carriages, a very low occupancy of 1.2 per vehicle. Just 20 vehicles, just 2% of those arriving, left without passengers. No passenger ever arrived to find there was no vehicle available for immediate hire.

The first two observed hours both saw 78 passengers. Numbers then rose over the next three hours to reach the peak of 180 in the 19:00 hour. Flows were then between 134 and 168 in the next four hours. The midnight hour flow was 50, followed by 32, 30 and then six. The 04:00 hour saw no passengers but there were four in the last hour, 05:00.

This day was one of general rail disruption around the country, although Leeds seemed to fare better than many other places, although many of the longer distance trains to the Midlands and London, and from Scotland, were either heavily delayed or cancelled at times. There were two relatively delayed trains arriving in the 02:00 hour but otherwise the night hours mainly saw the regular Manchester Airport to York services operating on time. The first trains left just after 05:00. The overall impact of the adverse weather on Leeds taxi operations would probably have been neutral with some extra trips and others not made.

Most vehicle waits in the observable queue at the Station were between three and ten minutes, with maximum waits of 22 minutes observed. From midnight on the vehicle waits tended to be longer, although they then reduced in the early hours.

#### *Friday observations, February*

The full 24-hours of observation on this day saw 3,117 passengers leave in 2,384 vehicles, a low occupancy of just 1.3 per vehicle. Just 23 vehicles left without taking a passenger, 1% of those arriving. Nearly half of these were in the quieter morning hours when flows reduced and trains were less frequent. No passenger arrived to find there was not a vehicle immediately available for them to hire.

Flows started at 13, then 43, and were then between 99 and 153 in every hour up to and including the 16:00. The next eight hours saw flows ranging from 185 up to 254 with the peak in the 18:00 hour. Flows were 80 in the 01:00 hour, then 62, 31, 19 and 12, with no hour seeing zero passengers at all.

Vehicle waits in the observable queue were between six and eight minutes, with the occasional longer wait. The longest vehicle wait recorded was 20 minutes, apart from the very first hour. From the 01:00 hour on waits of vehicles for passengers extended, with the last four hours seeing some vehicles wait nearly an hour for a passenger with the lower flows.

#### *Saturday observations, February*

The overall 24-hour total for the Saturday hours was slightly lower than the Friday at 3,016 passengers, leaving in 2,367 hackney carriage departures, a similar low occupancy of 1.3 per vehicle. Again, just 1% of arriving vehicles left without a passenger – again mainly towards the end of the day. On this day, there were six people arriving when there was no vehicle available for immediate hire, but the longest wait was just two minutes. Waits occurred in the 11:00 and midnight hours, with most waiting in the midnight hour. However, given the high flows the average passenger delay was negligible.

Flows were 19 and 30 in the first two hours. They then rose quickly to stay between 126 and 201 for most hours up to and including the 01:00 hour, apart from the 13:00 hour with 108 and the 16:00 hour with 82. Interestingly the midnight, 01:00 and 02:00 hours saw much higher passenger occupancies, rising to 1.5 and 1.7. Flows dropped in the 02:00 hour to 83, then 51, 57 and finally just 12 and 11 in the last two hours observed.

General waiting time of vehicles for fares were from two to 11 minutes, although when demand was low this could extend to nearer half an hour, with some vehicles observed waiting in the quieter periods sometimes over an hour, but more usually up to around 40 minutes. In the busier hours, the maximum wait in the observable queue is at worst 20 minutes, often much less.

#### *Thursday observations, April*

During the April observations, on this day some 1,500 passengers were observed leaving in 1,347 vehicles, a very low occupancy of just 1.1 per vehicle, lower than in February. Again, just 1% of vehicles arriving left without passengers, nearly all in the hours towards the end of the night / early morning when flows were very low. During the period observed, one person, in the 03:00 hour arrived to find no vehicle available for immediate hire, but only waited a minute, and the overall average passenger delay was negligible.

Passenger flows were between 89 and 197 in every hour up to and including the 23:00 hour. The busiest hour was 18:00, and the quietest 15:00. After this, flows dropped quickly to 80, 37, 17, six, six, five and 11, with no hour having zero passengers at all. Daytime vehicle waits for passengers were between three and eight minutes. This extended from the 23:00 hour onwards, including some vehicle waits of over an hour in the quietest hours.

#### *Friday observations, April*

The full 24-hours of observation on this Friday saw some 2,721 passengers leaving in 2,324 vehicles, lower than in February. Just ten vehicles left without passengers.

There were seven passengers arriving when no vehicles were available in the 04:00 hour. Their maximum wait was six minutes. However, given the volume of passengers overall, the average passenger delay was negligible.

Passenger flows were 28 in the first hour observed, but were then between 88 and 184 up to and including the 20:00 hour. The peak in that period was at 18:00. Flows were then higher at 232, 220, 193 and 170. The 01:00 hour saw a much lower 61 followed by 80, 24, 27 and then just seven and eight in the last two hours.

#### *Saturday observations, April*

The 24-hour period from 07:00 on the Saturday through to the Sunday morning saw some 7,482 passengers leave in 6,187 vehicle movements, a low occupancy of 1.3 per vehicle. There were just three vehicles leaving without passengers during the period.

Very unusually, there were passengers identified waiting for vehicles to arrive during three hours of this day. One person waited a minute in the 17:00 hour. Another person waited two minutes in the 05:00 hour. 22 people arrived and found no vehicle available for immediate hire in the 04:00 hour, with one person having to wait ten minutes, but the rest waiting no more than five minutes. When shared over all travelling in this hour, the average passenger delay was just under a minute. Shared over the whole day, the typical wait time that could be expected on this day was just two seconds.

Passenger flows started at 10 and rose every hour to reach a three hour peak where flows were between 227 and 236 in each of the hours of 12:00, 13:00 and 14:00. Flows then fell to a level between 125 and 191 in each hour from the 15:00 to the 22:00. There were then three more hours when flows were higher, between 205 and 234 (23:00, midnight and 01:00). Flows then dropped to 105, 114, 81, 27 and finally just one in the last hour observed.

Vehicle waits for fares were between four and 14 minutes in most hours, apart from the first two hours that saw longer waits. Normal longest waiting times by vehicles were never more than 25 minutes, again apart from the first two hours, when one vehicle appeared to wait over an hour for a fare.

### *Summary*

The overall service provide to this rank is **very good** with just the occasional time when people had to wait – but very occasional, and exceptional given the flows experienced.

### ***Boar Lane, McDonalds***

Boar Lane runs west to east from near Leeds Station towards the Bus Station. It has three separate ranks at the current time, two of which are principally night ranks used to feed the station rank when they are operating. The main rank used is three spaces on the north side of Boar Lane just before its junction with Briggate. This is directly outside two burger restaurants and is now a 24-hour rank, though has previously been a night only rank. It is now in a vibrant part of the city centre and has grown in usage.

Our plans for observation were based on our understanding of it being mainly a night rank, but the October observations were extended to cover the location full time. Even with the limited April observations (albeit factored to take into account the shorter hours observed), this rank now appears to be the second busiest in Leeds. The October data confirmed this.

This rank was observed from 23:00 on Friday 28<sup>th</sup> April 2017 until 05:59 on the Saturday morning, and again from 23:00 on Saturday 28<sup>th</sup> April again covering the same hours. In October we covered the location for the full survey period from 14:00 on Thursday 19<sup>th</sup> October until 07:59 in the early hours of Sunday 22<sup>nd</sup> October 2017.

### *Friday observations, April*

The Friday evening into the Saturday morning saw 477 passengers leave the rank in 307 vehicle movements, a moderate occupancy of 1.6 per vehicle. 32 further vehicles, 9% of those arriving, left without passengers. It is understood some of these would be going to service the station rank. Five people had to wait for vehicles to arrive, three in the 23:00 hour, and one each in the 01:00 and 02:00 hours. The longest recorded wait was two minutes, and the average over the period observed was just one second.

Flows increased over the first three hours from 42 up to the peak of 96 in the 01:00 hour. After this, flows dropped back to 48 in the last observed hour of 05:00. Vehicles waited two to five minutes for fares, though this increased to around seven minutes in the last two hours.

#### *Saturday observations, April*

The Saturday had 524 people leave in 330 vehicle movements, the same moderate occupancy of 1.6 per vehicle. On the Saturday just nine other vehicles left without passengers, just 3%. 13 passengers had to wait for a vehicle to arrive, none more than five minutes, in the midnight and 01:00 hours. Over the whole observed period the average passenger delay was four seconds.

Flows started at about the same level as the Friday, but then dropped to 34, before rising to 66 and the peak of 131 in the 02:00 hour (a later and higher peak). Flows then dropped to 116, 83 and 50 in the last hour observed.

Average vehicle wait times for fares were lower, at just one or two minutes apart from being seven minutes in the very last hour.

#### *Thursday observations, October*

The October part Thursday saw 367 passengers leave in 236 vehicles, a moderate occupancy of 1.6 per vehicle. A further 10% of vehicles arriving left without passengers. Just three passengers arrived with no vehicle immediately available for hire – but none waited more than a minute. This was in the 14:00 hour.

Passenger flows were between 13 and 19 in each hour from the start of survey until the 21:00 hour, apart from a dip to just eight in the 15:00 hour. From 22:00 onwards, flows increased to a peak of 47 in the 02:00 hour, after which they dropped back to 19 and then just four in the 06:00 hour.

Vehicle waits were between eight and 25 minutes for fares, with most around the 11 minute mark. The waiting time was longer as flows reduced later in the observations. Longest waits were 35 minutes, although they did rise to over an hour in the overnight observations.



*Friday observations, October*

The Friday saw a total of 608 passengers leave the rank using 381 vehicles, a similar moderate occupancy of 1.6 per vehicle. Just 2% left the area without passengers. There were two hours, the 15:00 and the midnight hour, when passengers arrived and there were no vehicles there for immediate hire. The longest wait, however, was just three minutes with most waiting only briefly. In total just six passengers had to wait.

There were no passengers until the 10:00 hour, and only one vehicle in the 09:00 hour. After this flows were between two and eight up to the 14:00 hour. Flows were then between 11 and 22 in each hour up to the 22:00 hour when flows began to rise, leading to a peak of 77 in the 02:00 hour. Flows then remained around this level for three hours, but dropped to 21 in the 05:00 hour and 18 in the 06:00 hour.

Vehicles tended to wait between three and 22 minutes for fares, with the longest vehicle wait being 36 minutes, which was in the night hours. Early wait times suggest vehicles were only pausing here briefly before moving on – but later most vehicles took passengers.

Overall, the October similar hours were about 10% quieter in passenger terms than the April values.

*Saturday observations, October*

On the Saturday, 940 passengers left the area in 587 vehicles, again a moderate occupancy of 1.6 per vehicle. A slightly higher 4% left without passengers, still very low. One person had to wait two minutes for a vehicle in the 15:00 hour, six up to five minutes in the 23:00 hour and 13 waited with the longest wait being three minutes in the 01:00 hour. Over all passengers, the average passenger delay was just three seconds.

Flows for the same observed hours as April were about 4% higher in October. Unlike Friday, there were some very small passenger flows from 07:00 onwards with between one and eight passengers in the hours up to and including the 12:00. Flows then gently rose to a peak of 56 in the 17:00 hour, after which they fell to a low of 33 in the 21:00 hour. They then rose again to the peak of 95 in the 01:00 hour, after which flows remained about this level until the 03:00 hour, then dropped, with the 07:00 hour seeing just eight passengers.

Vehicle wait times for fares were generally low, often between two and 15 minutes with a few exceptions. The longest recorded vehicle wait, even in the quieter hours, was just 24 minutes.



### *Summary*

The overall service here is **very good**. It is also clear that the rank is used at all times, with a focus on afternoons and the 01:00 to 03:00 hours. Even when flows of passengers are low, vehicles service the rank, although empty departures are relatively low.

### ***Call Lane, Revolution***

This rank has seen recent modification. Since the last survey, this road has been closed off on Friday and Saturday nights due to the high volumes of pedestrians and traffic and concerns about their safety. Since then, a traffic scheme has also been applied which has narrowed the pavement where the rank is, providing double the pavement width on the rank side of the road. Further, what was a 24-hour six space and a further 23:30 onwards six space night rank has become a single rank which operates only from 19:00 to 07:00 with loading at other times. This is also dependent on the road being open, which, as already noted it is not on the busiest nights. However, by October the weekend closures had ceased, albeit temporarily, and the rank was observed in place of the alternative location (although due to uncertainty we also covered the alternative but found it was not used).

When operating, loading is from the passenger side of the vehicle, with driver side loading not safe at all given the traffic passing by and the now narrowed carriageway next to the vehicle.

Observations at this location ran from 18:00 on Thursday 27<sup>th</sup> April until 06:59 in the early hours of the Friday morning. With our understanding the road would be shut on the Friday and Saturday, no plans were made to observe the location when it was not expected to be possible to serve. However, this was not the case in October so in October the location was observed on the Friday and Saturday nights, 20<sup>th</sup> and 21<sup>st</sup> October 2017, from 23:00 until 05:59 on the Saturday and 07:59 on the Sunday mornings respectively.

### *Thursday observations, April*

In the observed period, total passengers were 93, leaving in 59 vehicle movements, a moderate average occupancy of 1.6 per vehicle. A further 16 vehicles, 21% of those arriving, left without passengers.

The rank only saw vehicles and passengers from the 21:00 hour to the 04:00 hour, otherwise it was not used. During this eight hour period, there were just three hours when passenger flows were over 15 in any hour, between midnight and the 02:00 hour. Peak flows were just 30 in the 02:00 hour. No passenger ever arrived without a vehicle being available for immediate hire. Vehicle waits for fares were variable, but generally high, with one vehicle waiting nearly 90 minutes for a fare.

#### *Friday observations, October*

On the Friday observed, there were just 17 passengers who left in nine vehicles, a high occupancy of 1.9 per vehicle. Most passengers were in the 23:00 hour, of which five had to wait, with a longest wait of three minutes. The last two hours saw a very high number of vehicles pausing but then leaving without passengers, with 61% of all vehicles arriving leaving empty.

#### *Saturday observations, October*

The Saturday saw a similar pattern, with 54 passengers leaving in 35 vehicles, a moderate occupancy of 1.5 per vehicle. A lower level of 21% of vehicles left empty. Again, most passengers were in the 23:00 hour, but with a few more using the rank in the midnight, 04:00 and 06:00 hours.

This rank sees **good** service but is not used to a great extent. This may relate to uncertainty if it is operating or not, with passengers most likely heading to other locations where they would always expect to find vehicles.

### **Bus Station**

This rank is directly outside the pedestrian exit from the main Leeds City bus station, and very close to the outdoor market site. Formally there are four spaces on Dyer Street and three on Ludgate Hill, all 24-hour, but the area used tends to extend beyond this into George Street. The area has developed further recently with the new John Lewis building on the opposite side of the road from the Bus Station. During our first site visit we also noted some additional night spaces along George Street, but a further site visit identified that other spaces just south of Vicar Lane, had been removed with the general changes in Vicar Lane.

At the time of setting up our tender, this rank was believed to be the second busiest rank in Leeds based on the previous survey. It was proposed for cover during February, April, August, October and December to act as one of the four control ranks to provide estimates of demand variation through the year. Further review identified the rank to be the third busiest, although it was retained for observation in the larger October sample as well as being covered in February and April.

This rank was observed in February, starting from 14:00 on Thursday 23<sup>rd</sup> until 07:59 in the early hours of Sunday 26<sup>th</sup> February 2017. In April, it was observed from 14:00 on Thursday 27<sup>th</sup> April through to 05:59 on Sunday 30<sup>th</sup> April 2017. In October we covered the location for the full survey period from 14:00 on Thursday 19<sup>th</sup> October until 07:59 in the early hours of Sunday 22<sup>nd</sup> October 2017.

#### *Thursday observations, February*

During the hours observed, the rank saw 179 passengers leave in 118 hackney carriages, a moderate occupancy of 1.5 per vehicle. A further 21 vehicles, 15% of those arriving, left without passengers.

During our observations, five people arrived when there was no hackney carriage waiting for them to board immediately. However, none waited longer than a minute and the average wait shared over all passengers during this set of observations was just two seconds. The passenger waits occurred in the 14:00, 15:00 and 01:00 hours.

The flows at this site were between 17 and 33 in the shopping hours, but dropped to between six and ten in the evening, with a peak of 14 in the 22:00 hour, after which flows dropped to between one and five, apart from a peak of 17 in the 01:00 hour that led to two passengers having to wait. The 03:00 hour saw no passengers at all. The highest flows were 32 and 33 in the consecutive hours of 15:00 and 16:00.

Vehicle waits at this location varied dependent on the passenger flows, with some quite long waits observed. Some vehicles were observed to wait here well over an hour at times.

#### *Friday observations, February*

On the Friday, in a full 24-hour period starting from 07:00, 394 passengers left this rank in some 267 vehicles, again a moderate occupancy of 1.5 per vehicle. A further 25 vehicles, 9% of those arriving, left without passengers.

During this period, 23 people arrived when no vehicle was available for immediate hire. Their average wait shared over all passengers during the day was 14 seconds. The longest wait was eight minutes, and waiting was observed in the 08:00, 12:00 and 22:00 hours, with the worst being in the 12:00 hour on this day. In that hour the average waiting time shared over all passengers was just under two minutes.

Passenger flows were between four and 13 from the 07:00 to the 10:00 hours. After this, levels increased to be between 16 and 34 through to 22:00, with one peak of 47 in the 16:00 hour. After this, flows dropped to 11, then ten, then between one and three with again no flow in the 03:00 hour.

Again vehicle waits depended on flows in an hour, but generally were shorter than on the Thursday, with the longest wait recorded by a vehicle being just under an hour.

#### *Saturday observations, February*

The full 24-hours of observations starting from 07:00 on Saturday found a slightly lower total of 314 passengers leaving in 192 vehicles, a slightly higher but still moderate occupancy of 1.6 per vehicle. A higher 36, or 16% of those vehicles arriving left without passengers.

24 people arrived and found no vehicle there for immediate hire. The longest recorded wait was nine minutes, with the average over all people during this day being 16 seconds. The waits occurred in the 10:00, 11:00, 18:00, 20:00 and 22:00 hours, with the worst waits in the 11:00 hour.

Passenger flows were two to five for the first three hours observed. After that they were between 11 and 31 in the hours up to and including 23:00. The peak was 31, again in the 16:00 hour. The remaining hour from midnight on saw just two or three passengers in each hour, with again none in the 03:00.

Vehicle waits for fares were 10-20 minutes during the daytime hours, but longer first thing and later at night. However, in the very quiet periods waits tended to be shorter suggesting less vehicles operating. However, those servicing the night demand tended to have to wait longer for fares

#### *Thursday observations, April*

The Thursday saw 166 passengers (just slightly less than in February) leave in 108 vehicles, a moderate occupancy of 1.5 per vehicle. Just 15 other vehicles left without passengers, 12% of those arriving. Eleven people arrived and found they had to wait to board a hackney carriage. Waits occurred in the 15:00, 16:00, 19:00, 21:00 and 23:00 hour. One person had to wait 15 minutes in the 23:00 hour, and one six minutes in the 19:00 hour. All other waits were two minutes or less. Averaged over all passengers during this set of observations, the average passenger delay was 18 seconds. In just one of the hours the average wait was over a minute.

The first two hours, 14:00 and 15:00 saw 26 and 33 passengers respectively. Flows were then between 12 and 21 over the next four hours. The 20:00, 21:00 and 22:00 hours saw much lower flows, between four and seven, with 10 in the 23:00 hour, then just six, five and one in the next three hours. There were no vehicles or passengers in the 04:00 hour, but two people in each of the 05:00 and 06:00 hours.

Vehicle waits for passengers were generally quite long, with a range between 11 and 80 minutes, depending on the busyness of the rank. Quite a number of vehicles were observed waiting over an hour.

#### *Friday observations, April*

The full 24-hours on the Friday saw 447 people (marginally more than in the February) leave in 304 vehicle movements, a moderate occupancy of 1.5 per vehicle. A further 23, just 7% of those vehicles arriving, left without passengers.

During the period observed, 45 passengers arrived and had to wait for a vehicle to arrive. Two hours saw average passenger waiting of a minute or more. The worst waits were in the 14:00 hour, when 27 had to wait, with the longest wait being 11 minutes. Nine others waited between six and 10 minutes. Other waiting occurred in the 11:00, 13:00, 16:00, 17:00 and 22:00 hours, although for those passengers most only waited up to two minutes, with just a few having to wait up to five minutes. Over the full period, the average passenger delay was just under half a minute.

Passenger flows were between six and nine for the first three hours observed. They were then between 21 and 37 from the 10:00 hour through to the 14:00 hour. The next three hours saw between 44 and 47 in each hour, the peak flows here. The 18:00 hour saw 26, then 14 passengers, then just nine in the 20:00 hour. Flows were then between 17 and 27 in the next three hours, before dropping to 9, 9 and finally two in the 02:00 hour. There were no passengers or vehicles in the 03:00 hour, after which there were four, six and two passengers respectively.

Average vehicle waits were generally between 12 and 34 minutes, although the period after midnight did see some lower vehicle wait times. There were several cases of vehicles waiting here over an hour for a fare at quieter periods.

Flows on this day were generally similar to the February flows, although more people were observed queueing in this set of observations.

*Saturday observations, April*

The Saturday 24-hour period saw a higher 368 people than in February leave in some 234 vehicle movements. This was a moderate occupancy of 1.6 per vehicle, with a slightly higher 9% of arriving vehicles leaving without a passenger.

47 passengers arrived without a vehicle being available for immediate hire, double that on the same day in February. The longest wait observed was 18 minutes, in the 07:00 hour. Seven hours had average passenger wait times of a minute or more. There was a 15 minute wait for a passenger in the worst hour, the 12:00. Other waits occurred in the 13:00, 14:00, 15:00, 19:00, 20:00, midnight and 01:00 hours. Over the whole period, the average passenger delay was 41 seconds.

The profile of flows through the day was similar to the other days, with low starts (3 to 8) in the first three hours, then 20-23 over the next three hours, 35-39 in the three hours of 13:00, 14:00 and 15:00, 22 -28 in the next three hours, 15-20 in the next four hours, and then just one to three after midnight, with again 03:00 completely quiet. Flows then were 2 in the 04:00 hour and 4 in the 05:00.

Vehicle waits for passengers were lower, between five and 31 minutes in general. The longest wait was lower at just 38 minutes, compared to other days.

*Thursday observations, October*

The October part Thursday saw 152 passengers leave the rank in some 113 vehicles, a low average occupancy of just 1.3 passengers per vehicle. Some 17% of vehicles arriving left without passengers. During the course of the observations, just two passengers arrived when no vehicles were available for immediate hire. These both were in the 06:00 hour early on the Friday morning, but the overall average passenger waiting time for all passengers was just one second.

Daytime and evening passenger flows varied from six to 27 people in any hour with the peak in the 14:00 hour. The hours from midnight on saw much lower flows, between none and three, although there was only the 03:00 hour which saw no passengers, and every hour saw at least one vehicle operating there.

General vehicle wait times for fares were quite long, generally being between 19 and 44 minutes, but often longer. However, the early hours saw shorter waits suggesting many may have been booked passengers, or drivers arriving to service specific coach arrivals.

*Friday observations, October*

The Friday saw some 381 passengers leave the rank in 270 vehicles, a low overall occupancy of 1.4 per vehicle. A further 9% of vehicles arrived and left without passengers.

In total some 38 people arrived and found no vehicle there available for immediate hire. The longest recorded wait was nine minutes. People waited in the 08:00, 13:00, 14:00, 16:00 and 17:00 hours, with the highest numbers and longest waits in the 16:00 hour. Shared over all passengers during this 24-hour period, average passenger delay was 21 seconds.

Passenger flows were between four and 14 in the hours up to and including the 11:00 hour. They were then between 26 and 38 over the next four hours, rising to a peak of 48 and 51 in the 16:00 and 17:00 hours. Flows were then between 15 and 22 until the midnight hour, with one very low flow of just five people in the 20:00 hour. The 01:00 hour saw just three passengers, with none in the next three hours, and three in the 05:00 rising to eight in the 06:00.

Vehicle waiting times for fares were generally five to 20 minutes, although there were some severely extended waiting times in the early evening after the main peak. In this period there were some vehicles waiting nearly two hours here.

*Saturday observations, October*

The Saturday flows, at 367, were very similar in total to those on the Friday. They left in 253 vehicles, a moderate occupancy of 1.5 per vehicle, marginally higher than the Friday. 9% of vehicles left without passengers, the same as on the Friday.

Ten people arrived when no vehicle was available for immediate hire – with two people waiting 24 minutes in the 01:00 hour. However, shared over all passengers during the 24 hours, the average passenger delay was small at just 13 seconds. Other waits occurred in the 18:00, 22:00 and 04:00 hours, though none were over three minutes.

There were no passengers in the 08:00 hour, but two in each of the hours either side of this. Flows were then between 15 and 23 in the next four hours. They were then between 24 and 43 between 14:00 and 19:00 with the peak at 14:00. Flows were then 18 and 17 after which there was a peak of 30 in the 22:00 hour. Remaining flows were between two and six, with no passengers in the 03:00 hour.



Vehicles tended to wait longer for fares on this day, although there were some smaller waits in busy hours.

### *Summary*

The overall service here is **fair** with regular instances of waiting, but also some high cost to vehicles in terms of times they had to wait for vehicles to arrive.

### ***Pryzm (Woodhouse Lane)***

This rank is a 24-hour rank which is principally used at night to service the night club, currently known as Pryzm, whose exit is adjacent to the head of this four space rank. The club was previously known as Oceana. It is located in a lay-by, meaning there is little extra capacity beyond the rank, and loads from the passenger side of the vehicle. Any loading from the driver side would be very dangerous given the other passing traffic, albeit in a one-way system, but a wide section of road.

Our pre-appointment information suggested that this rank was the third busiest location in Leeds based on the previous survey. More recent information suggests it is actually the fourth busiest with it being supplanted by a more recently developing location. On the original basis it was proposed for observation in February, April, August, October and December, but with the revised package of observations cover was undertaken in February, April and October.

The location was observed in February from 23:00 on Friday 24<sup>th</sup> February until 05:59 the next morning and repeated for the same hours for the Saturday night, 25<sup>th</sup> February into the Sunday morning. The April observations ran from 23:00 on Friday 28<sup>th</sup> April until 05:59 on the Saturday morning, and again for the same hours starting from Saturday evening. In October the location was observed on the Friday and Saturday nights, 20<sup>th</sup> and 21<sup>st</sup> October 2017, from 23:00 until 05:59 on the Saturday and 07:59 on the Sunday mornings respectively.

### *Friday observations, February*

During the observed hours a total of 251 passengers left the rank using 116 hackney carriages, a relatively high occupancy of 2.2 per vehicle. A further 14, or 11% of those arriving here, left without passengers. There were just three passengers arriving when no vehicle was available for their immediate hire. The longest waited ten minutes, in the 03:00 hour. Shared over all those travelling during these observations, the average passenger delay was eight seconds.



Passenger flows began at 35 and rose to the peak of 69 in the 01:00 hour. They then fell back with the 04:00 hour seeing just 11, and the 05:00 seeing no passengers or vehicles. Vehicle waits for fares were short, three to eight minutes, and the longest observed vehicle wait was just 18 minutes.

#### *Saturday observations, February*

The Saturday saw more than double the number of passengers, 519, leaving in 234 vehicles, still the same high occupancy of 2.2 per vehicle. Whilst the number of vehicles leaving empty was the same, the higher number of vehicles meant this was just 6% of the total.

25 passengers arrived to find no vehicle available for immediate hire. None, however, waited longer than three minutes. The average passenger delay on this set of observations was five seconds.

Passenger flows began higher, at 78, and rose to the peak of 157 again at 01:00, then dropping to 111, 66 and six. There were no passengers in the 05:00 hour, nor vehicles, but there was a solitary passenger picked up in the 06:00 hour. Vehicle wait times for fares were very low, just one to three minutes.

#### *Friday observations, April*

The Friday saw a total of 198 passengers use 100 departures to leave the rank, a relatively high occupancy of 2 per vehicle. This is lower than in February, with a higher 16% of vehicles leaving the rank without passengers. Just one person arrived and found no hackney carriage there to take them – waiting three minutes for a vehicle to arrive.

Flows started at 33, rose to the peak of 67 in the midnight hour, then dropped to 55, 31, 11 and finally one in the 04:00 hour after which the area saw no passengers and just one vehicle. Vehicle waits for passengers were four to 11 minutes. This flow profile and range was very similar to February despite overall flows being about 20% lower in these observations in April.

#### *Saturday observations, April*

The Saturday saw some 495 passengers leave the rank in 227 vehicle movements, a relatively high occupancy of 2.2. 10% of arriving vehicles left without a passenger. This is just 5% less than in February, but with a slightly higher level of empty departures.

86 passengers arrived and found they had to wait for a vehicle. However, the longest wait, in the 23:00 hour, was eight minutes. Apart from in this first hour, all but two people obtained vehicles in three minutes or less, with the average passenger delay being 20 seconds. People did wait in every hour from the 23:00 through to the 03:00, effectively most hours the rank was operational.

Flows started at 113, dropped to 89, then rose to the peak of 120 in the 01:00 hour. They then dropped to 93, 66, 13 and just one in the final 05:00 hour. Given the queues and busyness of the rank, vehicle waits for fares were low at just one to three minutes. The peak flow was lower than in February but the queues were more significant now, over three times as many.

#### *Friday observations, October*

The Friday in October saw a total of 159 passengers leave the rank using 83 vehicles, a high average occupancy of 1.9 per person. 19% of arriving vehicles left without passengers. Just three people in the 01:00 hour arrived and found no vehicle there to take immediately – but they only waited a minute.

Comparing flows on the Friday over the February, April and October saw numbers reduced as the months progressed, the October flows were 20% lower than those in April and the April themselves were 20% less than those in February. The level of empty vehicle departures increased correspondingly over the three periods observed.

Flows were between 29 and 60 with the peak in the 01:00 hour; there were passengers in the 03:00 to 05:00 hours but only between one and five.

Vehicles waited between six and 14 minutes in general for fares, with longest waits around 35 minutes, although these figures were exceeded in the last hour when flows were very low.

#### *Saturday observations, October*

The Saturday saw a much higher 464 passengers leaving in 217 vehicles, a relatively high occupancy of 2.1 per vehicle. A lower 11% of those arriving left without passengers. The higher flows meant that people waited for vehicles to arrive in every hour from the midnight through to the 04:00 hour. The longest wait, in the midnight hour, was seven minutes, otherwise no-one waited longer than two minutes and most just a minute. Over all using the rank on this night, the average passenger delay was 18 seconds.

Flows began at 87, rising to the peak of 140 at midnight. They were then between 65 and 92 in the next three hours, with just four and two respectively in the next two hours, and no-one at all in the 06:00 and 07:00 hours. There were no vehicles servicing the rank when there were no passengers.

Vehicle waits for fares on this night were never long, with a maximum wait never more than two minutes, and the average lower than this. The fact that just two people waited any longer than two minutes is very indicative of good response to demand.

### *Summary*

This rank sees variable service based on how busy the area is – with higher flows there seems to be slightly reduced service levels, suggesting overall service here is **fair**. However, the October Saturday night saw great response by the trade to high flows, evidenced by only two people having to wait longer than two minutes, and then only seven minutes.

### ***Dortmund Square***

This rank is located in Dortmund Square on the north side of The Headrow. At this point, the Square has a pavement build out into The Headrow's eastbound carriageway, on which a two space hackney carriage rank is located. This is directly outside one of the main exits from the nearby shopping centre. There is a bus stop immediately behind the rank on main carriageway, so there is no extra space for further vehicles to wait at all. Feeder spaces are provided by the more recently provided Miller and Carter / The Light four space rank (which is also on pavement build-out). Our quoted vehicle wait times for fares in this case exclude any previous wait time at the feeder rank.

Dortmund Square rank was observed from 14:00 on Thursday 27<sup>th</sup> April 2017 until 05:59 in the early hours of Sunday morning, 30<sup>th</sup> April 2017. In October we covered the location for the full survey period from 14:00 on Thursday 19<sup>th</sup> October until 07:59 in the early hours of Sunday 22<sup>nd</sup> October 2017.

### *Thursday observations, April*

On the Thursday 136 passengers left this rank in 102 vehicles, a low occupancy of 1.3 per vehicle. 11% of vehicles left without passengers. Four passengers arrived and found no vehicle available for immediate hire. None waited longer than two minutes, with the average passenger delay for the observations just three seconds. People had to wait in the 15:00, 17:00 and 19:00 hours.

Passenger flows were between 16 and 24 in all hours from the 14:00 to the 19:00, then fell to 10, 11 and 9 before the rank saw no further passengers from the 23:00 hour on. There were a few vehicles which paused briefly at the rank in later hours.

The typical waits of vehicles for passengers were between three and six minutes, although occasionally longer. Vehicle waits were up to 23 minutes.

#### *Friday observations, April*

The full 24-hours of observations on the Friday saw a total of 228 passengers leave in 173 departures, again a low occupancy of 1.3 per vehicle. A lower 7% left without passengers. Ten passengers had to wait for a vehicle to arrive, with the longest waiting nine minutes, with all others waiting three minutes or less. Overall, the average passenger wait was ten seconds. People waited in the 12:00, 14:00, 15:00 and 17:00 hours.

Passenger flows did not start till the 09:00 hour, when there was just one passenger. Flows then rose to 2, 6 and 12. They were then between 15 and 27 in every hour from the 13:00 until the 20:00. The peak hour was 17:00. After this, flows varied, with 9, 29, 13, one, five and one in the following hours. There were no passengers or vehicles in the 03:00, 05:00 or 06:00 hours, but one passenger and vehicle in the 04:00 hour.

Vehicle waits were generally three to seven minutes, although there were some longer waits early in the day when it was quieter.

#### *Saturday observations, April*

The full 24-hours of the Saturday saw a marginally higher 270 people leave the rank in 159 vehicles, a moderate and much higher average occupancy of 1.7 per vehicle.

27 people had to wait for a vehicle to arrive. Two waited up to 14 minutes although all others waited no more than three minutes. However, there were waits in the 11:00, 13:00, 15:00, 17:00 and then every hour from 21:00 to the midnight hour. The average waiting time over all passengers was 18 seconds.

Flows were relatively low until the 15:00 hour, with a peak of 15 in the 11:00 hour but otherwise no more than nine in any hour. From the 15:00 hour until flows were between 16 and 30 in all hours up to and including the 22:00 hour. Patronage then dropped to 14, three and three with no passengers or vehicles after the 02:00 hour.

Vehicle waits for fares tended to be between one and six minutes, with a few hours with longer waits. However, the longest vehicle wait observed was 22 minutes.

#### *Thursday observations, October*

The October part Thursday observations saw about the same number, 124 passengers, leaving in 101 vehicles, a marginally very low occupancy of just 1.2 per vehicle. Just 7% left without passengers.

Eleven people, more than in the April, arrived when there was no vehicle available. The longest wait was five minutes, with most being two to three minutes. Waits were in the 14:00, 15:00, 16:00, 18:00 and 23:00 hours, with overall average passenger delay just 15 seconds.

Flows were between 12 and 24 in the hours from the 14:00 hour until the 19:00 hour. They were then just two to seven in the next four hours, with no flows of either passengers or vehicles in the hours after midnight. This is consistent with the rank mainly servicing a shopping street.

Vehicle wait times at this rank were generally three to five minutes when the rank was busy, but around 20 to 25 minutes in the quieter periods. Two vehicles were observed waiting up to 38 minutes for fares.

#### *Friday observations, October*

On the Friday, total flows were about 14% down on those in April. Average occupancy departing was low at 1.4 but slightly more than in April. The same value of 7% of vehicles left without passengers.

Twelve passengers had to wait for a vehicle to arrive. The worst waits were in the 13:00 hour when one person had to wait 11 minutes, and the average wait over the hour for all passengers in that hour was nearly 1.5 minutes. Other passengers waited in the 14:00, 15:00 and 23:00 hours, but none for more than three minutes. Over the full 24-hours and all passengers, the average passenger delay was 14 seconds.

Flows of passengers did not begin until the 09:00 hour, with between two and eight people in each of the next four hours. Flows then rose to between 10 and 28 up to and including the 23:00 hour. Peak flow was in the 14:00 hour.

Vehicle waits on this day for fares were three to nine minutes in the busiest hours but longer otherwise.

*Saturday observations, October*

The Saturday flows were a very similar total to those in April, with 265 people leaving in 150 hackney carriage departures, a high occupancy of 1.8 per vehicle. 8% of vehicles left without fares, and 18 people arrived when there was no vehicle immediately available for hire.

The waiting passengers occurred in all four hours from the 15:00 to the 18:00, 22:00, 23:00 and the 03:00. The longest wait was eight minutes, but most waited no more than three minutes, with the bulk waiting just a minute. Over the full day, the average passenger delay was just ten seconds.

Passenger numbers again did not begin till the 09:00 hour, and were only two or three in the next two hours. The next four hours saw between 10 and 16 in each hour, then rising to between 23 and 38 in the next five hours, with the peak in the 17:00 hour. Flows were then five, 19, 10, 2 and zero from the 01:00 hour onwards. There were some vehicles pausing here in the quiet hours and a solitary passenger in the 07:00 hour on the Sunday morning.

Vehicle waits for fares tended to be six to 13 minutes, but longer in quiet hours.

*Summary*

This rank sees **fair** service, and is mainly operative in the daytime, although with more usage later on the Saturday night, although less so in October.

***Merrion Street***

The Merrion Street rank has six spaces and originally formally operated from 19:00 until 07:00, but is now a 24-hour rank. It is near a former night club, currently closed, but also on the loop road around the city centre and near the Santander bank offices. It is in a layby and entry is from the passenger side of the road. In similar manner to the Pryzm rank, entry from the driver side would be dangerous given the fast passing traffic. The location was observed from 14:00 on Thursday 27<sup>th</sup> April, 2017 until 20:59 on Friday 28<sup>th</sup> April 2017. It was then observed from 23:00 on Saturday 29<sup>th</sup> April until 05:59 the next morning. It is one of the station feeder ranks. In October we covered the location for the full survey period from 14:00 on Thursday 19<sup>th</sup> October until 06:59 in the early hours of Sunday 22<sup>nd</sup> October 2017.

*Thursday observations*

This rank saw some 67 persons leave in 53 vehicles, at a low occupancy of 1.3 per vehicle. However, a very high 79% of vehicles left the rank without passengers, many of which would be proceeding to the station rank as this is one of the feeders in the system providing vehicles to the station. No passenger ever arrived to find a vehicle not available for immediate hire. This is partly a result of the rank being a waiting rank for the station as this provides a regular supply of vehicles here which would not otherwise see anywhere near sufficient levels of demand to justify waiting here.

This is demonstrated by the passenger demand level being between one and five per hour over all observed hours apart from those from 20:00 up to and including the 23:00 hour, when flows were between eight and 14, with the peak in the 23:00 hour. The area saw no passengers in the 04:00 or 05:00 hours but otherwise there were always vehicles and passengers, albeit at a relatively low level. The level of vehicle departures, however, from the 14:00 to the 23:00 hours was never less than 13, and in the 18:00 hour up to 41.

Wait times for fares are generally six to 12 minutes, but occasionally longer, and more so in the very quiet hours. However, vehicle waits before departing are often lower given that vehicles move off to the station rank.

*Friday observations*

The Friday saw less passengers, just 51, leaving in 38 vehicles, still the same low occupancy per vehicle of 1.3. The level of empty vehicle departures was higher at 84%.

On this day, despite the lower flows, there were nine people arriving when there were no vehicles available for immediate hire. There were two people who waited up to three minutes in the 14:00 hour. The worst waiting was in the 20:00 hour when seven people waited, the longest being a wait of 34 minutes, with the average passenger delay at this site on this set of observations being over two minutes. The queues occurred with the peak of 19 passengers arriving, compared to otherwise levels no higher than eight.

Passenger flows on this day were more sporadic, with no passengers in the 07:00, 08:00, 11:00 or 12:00 hours, and no more than five in other hours right up to the 18:00 hour. There were eight in the 19:00 hour and 19 in the last hour observed, the 20:00 hour.

As per the previous day, vehicle waits were generally low, with many vehicles moving on with shorter average waits than those that waited for fares in some cases. After 16:00 there were always 18 or more vehicles passing through in any hour, often many more (the peak was 34).

*Saturday observations*

The Saturday was observed from 23:00 through to the early hours of Sunday morning. This was a very busy period for this rank, with some 385 passengers leaving in 315 vehicles, a very low occupancy of 1.2 per vehicle. There were just three passengers who arrived when no vehicle was available for immediate hire; none waited more than a minute.

Passenger flows began at 64 and rose to a peak of 94 in the 01:00 hour. They then dropped back to 77, 30, 27 and finally two in the 05:00 hour when the area became quiet. During this period the rank was principally operating as a rank rather than a feeder, with just 6% of arriving vehicles leaving without passengers.

Most vehicles only waited one to seven minutes for a fare, with very few long waits by vehicles recorded.

*Thursday observations, October*

The October part Thursday saw a marginally higher number of passengers, 67, with a slightly lower occupancy of 1.3 per vehicle. A very similar 79% left without any passengers. Just two people had to wait just a minute for a vehicle to arrive. The resulting overall average passenger delay was just three seconds.

Passenger flows ranged from none up to a maximum of 15 in the 22:00 hour. 20:00 and midnight were the only other two hours with 10 passengers. There were no vehicles or passengers in the 04:00, 05:00 or 06:00 hours.

Daytime vehicle wait times for fares were between five and 20 minutes, but much longer from midnight onwards. In the daytime vehicles tended to wait up to 30 minutes maximum, but the early hours saw many waiting over an hour.

*Friday observations, October*

The full 24-hours in October on the Friday saw some 277 passengers leave the rank in 178 vehicles, a moderate occupancy of 1.6 per vehicle. 57% left without taking passengers. Just three people arrived and had to wait just a minute for a vehicle to arrive, with the average passenger delay just a second.



Considering the same time period as in April, flows here were lower by nearly a third. However, main flows occurred from 21:00 onwards at this location. Passenger flows were zero until the 16:00 hour apart from there being one person in the 10:00 and two in the 12:00 hours. There were 10 in the 16:00 hour, followed by five, three and one. From 20:00 onwards more used this location, rising from 13 in the 20:00 hour to the peak of 50 in the midnight hour, with 48 in the following hour. Flows then fell till there were no passengers in the 05:00 or 06:00 hours.

Vehicle waits were moderate, five to 25 minutes, relating to the use of this rank to feed the station.

#### *Saturday observations, October*

Saturday flows saw a much higher 675 people leave in 436 vehicles, a moderate occupancy of 1.5 per vehicle. A lower 28% left the rank without passengers.

Four people, shared between the 15:00 and 20:00 hours waited a minute each for a vehicle to arrive. However, there was a much higher shortage of vehicles compared to passengers in the midnight hour. 7 people waited more than 11 minutes, with the longest wait 14 minutes. 9 waited between six and ten minutes with 39 waiting up to five minutes. Average waiting time in that hour shared over the total travelling in that hour was over two minutes. However the 24-hour overall average passenger delay was just 25 seconds.

There were about a third more passengers at this location comparing like hours to those in April. Similarly to other days, there were no flows in the 07:00, 08:00 or 09:00 hours, with no more than six in any hour up to the 16:00 hour. Flows then rose to 12, six, and then increased from 18 in every hour up to and including the peak flow of 120 in the 01:00 hour. Flows then reduced with 38 in the 04:00 hour, and just one in the 05:00 hour. It was the busiest hour that saw most queues.

Vehicle waits for fares tended to be fairly short. Longest vehicle waits were also short, with none more than 38 minutes, and usually much less. This again relates to the use of the rank to feed the station demand.

### *Summary*

Service to this rank is generally **very good**. It demonstrates the value of the station feeder system, although there is still need for care that peoples' expectations of finding a vehicle can be met when there is high demand at the station and the feeders could be ignored. However, there can be occasional peaks that may catch the supply out and lead to relatively higher levels of passenger waiting.

### ***Leeds University***

Cavendish Road forms a loop off Woodhouse Lane near to the main entrance to Leeds University, with a grassed area between the loop and the main road. The rank has five spaces and operates 24-hours and is directly outside the University exit, as well as being near several other pedestrian routes out of various parts of the Campus. In the previous survey, and in formal listings, this location is counted as an out of city rank although in reality it is now part of the extended city centre area. The rank was observed from 14:00 on Thursday 27<sup>th</sup> April 2017 until 06:59 in the early hours of Saturday 29<sup>th</sup> April 2017. In October we covered the location for the full survey period from 14:00 on Thursday 19<sup>th</sup> October until 06:59 in the early hours of Sunday 22<sup>nd</sup> October 2017.

It is mainly understood to be active during tuition hours of the University. There are little other active land uses nearby.

### *Thursday observations, April*

On the Thursday, this rank saw 97 passengers leave in 81 vehicles, a very low occupancy of 1.2 per vehicle. One passenger had to wait five minutes for a vehicle in the 17:00 hour, but the average delay was just three seconds shared over all using the rank in this observation period. 13% of arriving vehicles left without passengers.

Passenger flows were between 10 and 23 in each of the hours from the 14:00 through to the 18:00, with the peak at 16:00. The last three hours with both passengers and vehicles, the 19:00 to the 21:00 hours, saw 6, 4 and 2 people respectively. One vehicle waited at the rank for eight minutes in the midnight hour, otherwise the remaining hours saw no passengers or vehicles.

Vehicle wait times for fares were between a minute and 11 minutes.

*Friday observations, April*

The 24 hours of observations starting on the Friday morning at 07:00 saw a total of 159 passengers leave the rank in some 115 vehicles, a higher occupancy than on the Thursday, but still at a low overall level of 1.4 people per vehicle. There were a much higher, 42% of vehicles which left without passengers.

During this day, 23 people arrived when vehicles were not immediately available for them to hire. In most cases, the waits were one, two or three minutes, or in one case five minutes, but the 23:00 hour did see a wait of up to 26 minutes, with seven people waiting more than 11 minutes. The average wait time for passengers in this hour was over five minutes. However, when shared over all passengers, the average passenger delay was just under 1.5 minutes.

Passenger flows did not start until the 10:00 hour. Flows were then between three and eight in all hours apart from the 15:00, 16:00, 17:00 and the 22:00, 23:00 and midnight hours. The afternoon peak saw either 13 or 14 passengers in each of those three hours. The late night peak took flows to 18, the peak of 32, and then just 11. There were no passengers or vehicles in the 05:00 or 06:00 hours.

Vehicle wait times for fares varied from two to 25 minutes, although the longer waits only occurred in two hours (12:00 and 14:00).

*Thursday observations, October*

The October observations saw exactly the same number of passengers, and the same average occupancy as in April. However, in October only 2% left empty. Five people had to wait for vehicles to arrive, but none for more than three minutes. Waits occurred in the 15:00 and 18:00 hours.

The rank saw between 10 and 22 passengers in the hours between 14:00 and 19:00, and four in the 20:00 hour, after which there were no passengers and only a handful of vehicles servicing the location.

Vehicles tended to wait between one and 20 minutes for fares, with a longest wait of 41 minutes observed in the last but one hour.

*Friday observations, October*

Friday flows in October were about half those in April, with just 83 passengers leaving in 61 vehicles, a low occupancy of 1.4 per vehicle. 38% of vehicles arriving left without passengers. Just three people arrived when there was no vehicle immediately available for hire – none waiting more than two minutes. The average passenger delay resulting was just five seconds.

Flows were just two to 15 in the active hours, which ran from 10:00 to 18:00 with the peak at 16:00. However, there was also some activity, albeit with only two to four passengers per hour, in the 01:00 to 04:00 period. 20:00 to midnight and from 05:00 onwards saw no passengers but occasional vehicles.

Vehicle waits were two to 18 minutes although towards the end of the main period of usage, on vehicle waited over an hour to take a fare. Other than this, the longest observed wait was 33 minutes.

*Saturday observations, October*

The Saturday saw just 18 passengers in the 24-hour period, leaving in 13 vehicles with an average occupancy of 1.9. Just 6% of vehicles left without fares, and no-one ever arrived when no vehicle was available.

There were no passenger flows until 16:00, and none in the 01:00 hour or afterwards. Most flows were one, two or three passengers, with a peak of seven in the 17:00 hour. Vehicle waits were one to eight minutes, but lower in the hours with less passengers, possibly suggesting hailing or bookings.

*Summary*

Service to this location is **good**. The generally low level of demand, however, can mean that vehicles do not always anticipate peaks, which can lead to issues for passengers at times. The demand is mainly related to the academic day, although there is some demand in the early hours of Saturday morning.

***Headrow***

This is a long, 24 hour rank, sometimes known as Headrow North. It has some 16 spaces and is outside the Sports Direct shop at the eastern end of The Headrow. Vehicles load from the passenger side, although there is traffic on the driver side, this can tend to be more slower moving than in other parts. This rank was observed from 14:00 on Thursday 27<sup>th</sup> April 2017 through to Sunday 30<sup>th</sup> April 2017 at 05:59.

*Thursday observations, April*

On this day, during observed hours, 61 passengers left the rank in 48 vehicles, a low occupancy of 1.3 per vehicle. A very high 78% left the rank without passengers, again since this rank does feed vehicles to the station rank. During the observations no passenger ever arrived to find no vehicle available for immediate hire.

Passenger flows were generally just three to 10 people in any hour, with a peak flow of 15 in the 22:00 hour. There were vehicles in the following two hours, but no passengers, and neither passenger nor vehicles in the hours from the 01:00 through to the 06:00. Vehicle waits for fares tended to be five to 17 minutes. In active hours there were never less than 18 vehicles passing through per hour.

*Friday observations, April*

Our Friday observations covered a full 24-hour period. During this time 122 people left the rank in 85 hours, a low average of 1.4 persons per vehicle. A further 73% of those vehicles arriving here left without passengers, presumably moving to the station rank.

During the day, 14 people arrived when no vehicle was available for immediate hire. The worst wait was six minutes in the midnight hour. Other hours saw waits but not more than three minutes – in the 08:00, 15:00 and 21:00 hours, though the worst waiting overall was in the last active hour, the midnight hour. For those waiting in this hour, the average passenger delay was nearly five minutes, but shared over the full observation set, this reduced to just over half a minute.

Passenger flows here were again very low, between two and 14 in any hour, with most towards the lower end. The peak flow was 14 people in the 21:00 hour. Before the 16:00 hour, flows were usually nine or less. There were no passengers or vehicles in the 07:00 hour, nor in any hour from the 01:00 onwards. Interestingly, there were no passengers in the 23:00 hour, which may have contributed to the waiting issue in the next hour as the passengers in the midnight hour may not have been expected in the normal course of events.

Vehicle wait times for fares tended to be low, up to 18 minutes and generally more like three minutes. Most hours saw at least 12 vehicles passing through the rank, and in the peak flows, this rose to 32.

*Saturday observations, April*

The Saturday saw 23 hours of observations undertaken. The total flow was slightly higher than on the Friday, with 140 people leaving the rank in 85 vehicles, a moderate occupancy of 1.6 which was higher than on any other observed day. The proportion of vehicles leaving the rank without a passenger reduced to 60%.

During this day, 20 people arrived to find no vehicle available for immediate hire. The worst wait was 12 minutes, in the 14:00 hour. There was an eight minute wait in the 23:00 hour, but all other waits tended to be no more than two minutes or less. Over the full day, the average passenger delay was 37 seconds.

Passenger flows were between one and 25, with the peak in the 23:00 hour. Flows were generally 12 or more in all but one hour from the 15:00 up to the 23:00 hour. However, there were no vehicles or passengers in the 07:00, 08:00, 12:00 nor any hour from the 02:00 onwards. There were vehicles, but no passengers, in the 11:00 and 13:00 hours.

Vehicle waits for fares tended to be up to eight minutes, although quite a few hours saw shorter waits.

*Summary*

Overall service to this rank is **good**. Again, it is clearly servicing the station rank, and again providing service to flows which may not otherwise see direct supply of vehicles due to their low nature, and sometimes sporadic nature.

***Grand Theatre***

New Briggate has several sections of rank, some 24-hour and some operating part time. The part time (19:00 to 07:00) section lies between the two 24-hour sections to form a more continuous rank at night at this point. The loading for all ranks, however, is on the drive side given the one way nature of this road at this point. This could make driver side loading dangerous, and any need for the driver to assist passengers may also be difficult. The rank here was observed from 23:00 until 05:59 on both Friday 28<sup>th</sup> April 2017 and Saturday 29<sup>th</sup> April 2017.

*Friday observations, April*

On the Friday evening into the early hours of Saturday, 94 passengers left the rank in 70 vehicles, a low occupancy of 1.3 per vehicle. Just 10% of vehicles left without passengers. No passenger ever arrived to find no vehicle available for immediate hire.

Passenger flows ranged from nine to 22, with the peak in the 01:00 hour. Flows halved between the 03:00 and 04:00 hours and then the area became quiet with no passengers or vehicles observed in the 05:00 hour. Vehicle wait times for fares were longer than in other places, between 11 and 18 minutes. One vehicle was observed to wait up to 41 minutes for a fare.

#### *Saturday observations, April*

Observations through into the early hours of Sunday morning saw around the same number of passengers as the previous night, 90. Occupancy, given that they left in 56 vehicles, was however higher, but still at a moderate level, of 1.6 per vehicle.

Flows showed a higher range, between six and 26, with the peak in the first observed hour, 23:00. Again, there were no passengers in the 05:00 hour, but one vehicle was observed. Vehicle waits for passengers were markedly lower, between one and eight minutes, but the empty departure proportion was slightly higher at 15%.

During these observations, nine passengers arrived when there was no vehicle available for immediate hire – but none waited more than three minutes, and the average over the set of observations was 17 seconds.

#### *Summary*

Service to this rank is **good**.

#### ***North Lane, Headingley***

North Lane rank is located on the northern side of the B6157, North Lane in Headingley, North Leeds, immediately outside the Sainsbury's Local store. It has partly faded road markings and signing with notes it is for two vehicles and that it operates at all times. The two spaces south of the rank are for a car club, but it can be abused by vehicles delivering to the many shops in this area.

This rank was chosen as part of the pre-appointment control ranks to be observed to identify temporal differences in demand. It would have been covered in February, April, August, October and December. With the revised plan following receipt of the full April survey data, the location will now be observed in February, April and October. It is the out of town location included in the survey to act as a proxy for other out of town locations.

This location was observed in February from 23:00 on Friday 24<sup>th</sup> February 2017 until 06:59 in the early hours of Sunday 26<sup>th</sup> February, 2017, then in April from 10:00 on Saturday 29<sup>th</sup> April 2017 until 00:59 on the Sunday morning (partly revised based on the observations from February).

#### *Friday observations, February*

In the February, we observed 34 passengers leaving in 21 vehicles, a moderate occupancy of 1.6 per vehicle. Three other vehicles left without passengers, 13% of the total. The rank was only used in the 23:00, midnight and 01:00 hours, with seven people arriving without a vehicle to immediately board in the first hour observed. The longest wait however was just two minutes, and the average passenger delay for the site was 26 seconds during these observations. Vehicles waited one to six minutes for fares, and passenger numbers were 18 in the 23:00 hour, then 14 and then just two, with none in any other observed hours.

#### *Saturday observations, February*

During the longer observations, 64 people used the rank, leaving in 36 vehicles, a high average occupancy of 1.8 per vehicle. A further 17, or nearly a third of other vehicles arriving here, left without passengers. No passenger arrived without a vehicle being available for immediate hire.

Passengers were seen in the 15:00 hour (one), and then in every hour from 18:00 until the 01:00 hour. In this time, flows varied between one and five, apart from for the three hours of 22:00, 23:00 and midnight where numbers rose to 14, 15 and 22, marginally higher and longer in extent than on the Friday night. While most vehicles tended to wait very short times, perhaps suggesting some bookings picking up at the rank, there were others that waited up to eight minutes for a fare.

#### *Saturday observations, April*

Observations here were revised given the results from February. Just the main part of the day and late night were covered on the Saturday, found to be the busiest day. During these observations, 68 passengers left the rank in 29 vehicles, a relatively high occupancy of 2.3 per vehicle. A further seven vehicles, just under a fifth, left without passengers.

During these observations, 13 passengers arrived when no vehicle was available for immediate hire, although the longest wait here was just three minutes. For this day of observations, the average passenger delay was 22 seconds (very similar to that in February). People had to wait in the four main hours when there were passengers.



There was also one passenger in the 18:00 hour, but the main flows were in the 20:00 to midnight hours. Flows were five, 14, eight, the peak of 38 and then just two in these hours. Vehicles tended to wait between two and six minutes for fares to arrive.

### *Summary*

This suburban rank sees principal usage around the time that pubs are closing, with only occasional activity at other times. The Saturday was busiest, with very similar levels of flow between the February and April Saturday nights, although the April night saw passengers spread over a shorter period, though the main focus remained around pub closing times. There may be an element of service from bookings although it is also clear vehicles are waiting here for custom, and service is **good**.

### ***Revolution Bar***

Cookridge Street has two ranks. The 24-hour one is immediately north of the junction with The Headrow but tends to mainly be used at night, and perhaps less often. The Revolution Bar rank is at the northern end of the Street and where traffic has to turn sharp right to continue along Rossington Street. At this point the road is one way, northbound.

The rank is located on the western side of Cookridge Street giving passenger side loading into vehicles. There is a very clear sign showing the rank location and operating hours (19:00 to 07:00) but given it is a part time rank, carriageway markings are very poor and appear to easily wear off. This rank was observed from 23:00 on Friday 28<sup>th</sup> April 2017 until 05:59 in the early hours of Saturday morning. Observations were repeated on the Saturday night covering the same period.

### *Friday observations, April*

The rank saw 58 people leave in 28 vehicles, a relatively high occupancy of 2.1 per vehicle. 28% of vehicles left without passengers, but there were also eight passengers who had to wait for vehicles to arrive. There were waits of up to 25 and 28 minutes recorded, with the average passenger delay for the observations being nearly three minutes.

Passenger flows were not high – ranging from a minimum of eight up to a peak of 21 in the 02:00 hour. The flows were concentrated in the four hours from 23:00 onwards, with no passengers or vehicles in the 03:00 or 04:00 hours, and just one vehicle but no passengers in the 04:00 hour. Interestingly, vehicle waiting times for fares also tended to be quite high, between six and 28 minutes suggesting possible over-reaction to the preceding passenger delays, or perhaps expectations of fares.

*Saturday observations, April*

The Saturday saw higher flows, with 69 people leaving in 32 vehicles, a slightly higher average occupancy of 2.2. Again there were eight passengers who had to wait for a vehicle to arrive, but in this set of observations the maximum wait was just a minute and the average over all passengers just nine seconds. About the same proportion of vehicles left without passengers, 26%.

Passenger flows covered a longer period, starting in the 23:00 hour and running to the 04:00 hour, with only the 05:00 not seeing passengers or vehicles. Peak hour was shared between 01:00 and 03:00 both with 18 people in each hour. Midnight saw just two passengers, and 04:00 six, but most other hours saw between 11 and 18.

Vehicle waits for fares varied from next to no wait up to just over seven minutes, but not dependent on levels of departures.

*Summary*

Service at this rank is **good**.

***Baracoa***

Call Lane had a spell when it was closed on busy nights between The Calls and Boar Lane. This new rank, with about three spaces, operates from 23:30 until 05:00 and is located on the north side just to the west of the section of Call Lane which is closed. Loading would be from the driver side of the vehicle. It is understood that with the main Call Lane section closed, vehicles are allowed to wait along the closed off junction along into The Calls to feed the main rank. The location was observed from 23:00 until 05:59 on both Friday 28<sup>th</sup> and Saturday 29<sup>th</sup> April 2017.

*Friday observations, April*

The observed period from Friday night through to Saturday morning saw 43 passengers leave in 31 vehicles, a low occupancy of 1.4 per vehicle. Some 37% of vehicles left without passengers, but no-one arrived when there was no vehicle available for immediate hire.

Flows were very light in the 23:00, midnight, 03:00 and 04:00 hours (between one and five), and were just 16 in each of the main used hours of 01:00 and 02:00. There were no passengers in the 05:00 hour, but several vehicles did wait. The average vehicle wait time varied from a minute up to eight minutes.

*Saturday observations, April*

The following night / early morning saw nearly half as many passengers again as the Friday night, some 64, leaving in 43 vehicles, a moderate occupancy of 1.5 per vehicle, but not much different to the Friday overall. A lower level of 20% of vehicles left without passengers.

Passenger flows were slightly more concentrated, with no passengers in either 23:00 or 05:00 hours, and a slightly higher peak of 21 in the 01:00 hour. There were less hours with under five passengers – in fact just the 04:00 hour, with all other hours active seeing at least 10 people. Average vehicle waits for fares were less, from a minute up to six minutes.

*Summary*

Overall, service to this rank is **excellent**. This is despite relatively low overall flow levels.

***Slug and Lettuce, informal***

Park Row runs north from the main exit from Leeds Station towards The Headrow. It is an important area for pubs and restaurants, and also has many similar streets leading off it, including Greek Street. It is understood that, being a main artery for traffic, a lot of licensed vehicles tend to arrange to collect passengers near to the Slug and Lettuce. Operations here were observed from 23:00 on Friday 28<sup>th</sup> April 2017 until 05:59 the next morning and similarly from Saturday 29<sup>th</sup> April 2017 23:00 till 05:59 on the Sunday morning of 30<sup>th</sup> April 2017. Given the closure of the Greek Street rank for building work (and then its expected extinction with the finalized new road layout there), this site may become more important for pick-ups in the future.

*Friday observations, April*

During the Friday/Saturday observations, 24 hackney carriages were seen picking up 32 passengers, a low occupancy of 1.3 per vehicle, with 44% of hackney carriages leaving the area without passengers. There were no observed passenger waits. Vehicles did tend to pause here for an average of around four minutes before they obtained fares, suggesting the location is being used as a rank. Passenger flows were 18 in the 23:00 hour, 13 in the midnight hour and just one in the 02:00 hour. There were seven vehicles who waited an average of three minutes each in the 01:00 hour, but no passengers. There was no activity in the hour from the 03:00 hour onwards.

*Saturday observations, April*

The Saturday night / Sunday morning saw about a third more passenger departures, covering four hours. The peak was at midnight, with 19 people. Overall, 43 people left in 33 hackney carriages, a similar and low occupancy of 1.3 per vehicle. A much lower 18% of vehicles passing through left without taking passengers. However, average wait times for fares were much less, no more than two minutes, suggesting more usage of hailing than on the previous night.

*Summary*

This location clearly shows some demand for hackney carriages which would preferably see a rank established here to formalize the arrangements – particularly with the loss of Greek Street. It may also release other currently marked rank spaces which are not used for other kerbside uses.

***Wormald Row, informal***

Wormald Row is a small access road running eastwards from Albion Street, and in towards the St John's Shopping centre (which also feeds out on to Dortmund Square). Given the location, we were advised this was a key location, where licensed vehicles might often arrange to meet passengers, or might wait expecting bookings. Operations here were observed from 23:00 until 05:59 on both Friday 28<sup>th</sup> and Saturday 29<sup>th</sup> April 2017. It is possible this could be felt to be a latent demand location, perhaps serviced by private hire due to the lack of hackney carriages.

*Friday observations, April*

The Friday evening / Saturday morning observations saw just two hackney carriages pausing here for just under a minute each, not gaining any passengers.

*Saturday observations, April*

On the Saturday evening / Sunday morning, there was more activity with four hackney carriages pausing here, one for nearly three minutes, but none gained any passengers.

***Summaries***

Considering the summaries provided for each rank, from those locations sampled, there is one (night) location with excellent service, three locations with very good service, six with good and just three with only fair service, at least one of which has relatively high overall flows, but spread over long periods meaning there is often quite low demand that is more susceptible to people arriving and finding no vehicle there (Bus station).

### ***Other locations***

We are aware from plans and walk-rounds that both central Leeds and the suburbs do have many other ranks in existence. Some have faded markings or signing, but others remain clearly marked. Others have changed operating hours or seen the reason they existed cease. Other places have opened that would possibly benefit from ranks. This is entirely normal for a vibrant city but potentially needs more documentation and review than currently occurs.

Appendix 2 seeks to provide some element of documentation but has only partly been tied up to current traffic orders due to the time that would be required for a full review.

We believe that our review, whilst not covering all hackney carriage observed demands at every rank, has captured all significantly active location, with the specific view of covering any which may give rise to passenger unmet demand, a necessary focus for this study. Further thoughts about this are provided in the synthesis chapter.

### ***Greek Street***

During one of our walk-rounds, we asked at a nearby restaurant about the rank here, which was clearly obstructed by building works. The person in the restaurant said this rank was regularly used but could not be at that time. They also confirmed their customers did use this rank (see key stakeholder comments below). We now understand this location has been deleted from formal provision and is unlikely to be returned to availability as a rank.

### ***Other usage of rank locations***

Our rank review also identified all vehicles at or near the rank locations. In total, just under 14,800 vehicle movements were observed. Of these, 63% were local Leeds hackney carriages. 18% were private hire vehicles, 13% private cars, 5% emergency vehicles and 1% goods vehicles. Some out of town licensed vehicles were noted, but they were a very small proportion, well less than 1% (20 movements in total).

There was a wide range of variation in terms of levels of abuse. The station rank was hardly abused at all, with just a handful of delivery vehicles and a very small number of private cars observed. Most of the emergency vehicles at or near ranks were at the Dortmund Square rank, which is near a major shopping centre which has very few vehicular accesses.

The Wormald Row location was host to some 348 observations during our survey of private hire vehicles picking up or setting down, or waiting. There were also a relatively smaller number of private cars using this location.

The Slug and Lettuce similarly saw just under 300 private hire, but this did compare to some 170 hackney carriages. To set this in context, over the course of the observations at the Slug and Lettuce, hackney carriages picked up 75 passengers during the period that private hire were observed to collect 103, albeit the latter in a lot more vehicle movements, many of which therefore were speculative or empty.

The Baracoa location also saw a high proportion of private hire abuse – about four times the level of hackney carriage usage. Headingley saw about three times as many private hire as hackney carriages at or near the rank.

Merrion Street was the worst location for delivery vehicles with nearly 50 observed there during our survey. The bus station saw a modest 27 such vehicles, and the Headrow 19.

### ***Disability use of ranks***

The proportion of hackney carriage vehicles believed to be wheelchair accessible (WAV) style in the observations for April was 49% WAV. This is very similar to the 50% proportion believed to be within the current fleet, suggesting no difference in usage of saloon against wheelchair accessible vehicles.

In terms of passengers, a total of seven people were seen accessing hackney carriages at ranks in wheel chairs. Three were at the station, two at the bus station and one each at Dortmund Square and at the Headrow.

There were a further 25 people observed to be disabled in some way, but not in a wheel chair. 9 of these were at the bus station rank, six at Dortmund Square, four each at the Headrow and Station, and one each at Pryzm and the Leeds University rank.

### ***Levels of hackney carriage vehicle activity***

A review was undertaken during the period the rank observations were being undertaken of plates active at or near three key locations (the station, the bus station and Woodhouse Lane). Ten hours were observed from early afternoon to early morning on the Saturday.

During the February period, 558 records were obtained of active Leeds hackney carriages. These represented 52% of the available fleet during the time observed. This suggests reasonable spare capacity available were higher demand to occur. It also suggests no attempt of vehicles to play up to the survey being undertaken.

The April activity observations identified 497 records for active Leeds hackney carriages. These vehicle movements represented 51% of the available fleet, a very similar level to that observed in the February for a similar sample and confirming the apparent stability of the current operation.

The October activity observations identified 645 records over the same period, with a further 66 covering a later set of observations at the Woodhouse Lane location. For the same set of information, this suggests 61% of plates active, a higher level than either previous set of observations. The additional observations increased the proportion of plates seen to 65% of the fleet. This was checked with a trade representative who suggested that the October and November period did tend to be one where less vehicles saw drivers on holiday or taking other breaks, or working less hours. Usually, this matched higher demand levels with the full student population most active in these two months.

The largest volume of vehicle observations and the highest proportion of plates seen was in the 19:00 to 21:00 period near the station. The previous period at the station was next highest, followed by the later period at the station, Woodhouse Lane and finally the Bus Station rank. This pattern was true for all three time periods, although the dominance of the 19:00 to 21:00 period at the station was much higher (39% compared to 32%) in October, with a corresponding reduction in the early evening period.

A review was undertaken of where and how often vehicles were observed. In April, some 18% of the active plates observed were only seen in the station evening observations (20% in October). 16% were only seen in the station afternoon, 12% in the late station observations and a similar level only at Woodhouse Lane. A further 11% were observed at the station in both afternoon and evening periods. All other groupings of observations saw 4% or less of the active fleet. Only very small numbers of vehicles were seen more than in one of the sample location / times only.

In April, 42% of all plates were observed during our observation sample at the station rank. In October, this level rose to 50% of the full plate list. This would exclude any vehicles only working the station in the morning or early afternoon.

In both April and October the average time a plate was seen was 1.3 times – with very few plates seen in more than three of the different location/time pairs. This suggests a lot of vehicles service different locations, with little focus on just one rank. However, as already demonstrated a very high proportion will visit the station at some point.

***Review of other observable licensed vehicle demand***

Whilst this survey is focused on identifying unmet demand for hackney carriages and gathering of evidence to clarify if retaining a limit on vehicle numbers remains appropriate, and if so, if it is at the right level, during the inception process we were made aware that it was possible to observe levels of private hire demand clearly in one location.

There was also concern from the operator of the facility that the level of private hire demand might reflect gaps in the hackney carriage service, which may relate to experiences of unmet demand.

A total of 33 hours were observed during the February survey of the pick-up area for private hire vehicles located away from the hackney carriage rank at Leeds station. This comprises a set-down area and a separate pick-up area, also shared with private vehicles. The aim of this observation was to identify the proportion of passengers split between hackney carriage and private hire, with the latter split as far as possible by local private hire and vehicles from further away. Comparison of the observations could also show if there were any periods where private hire were clearly providing for any observed gaps in hackney carriage provision.

The overall results from this survey compared total passenger pick-ups from the main rank and the rear pick-up point by vehicle. During the periods observed, 66% of all passengers departed in hackney carriages from the rank. 16% of passenger departures were in private cars, 12% were in private hire vehicles that were clearly Leeds operators and 5% were in app-based private hire vehicles. 1% of the departures were in hackney carriages but from the rear pick-up area, presumably booked hackney carriages.

When considering only the rear pick-up area, 47% of passenger departures from there were in private cars, 35% in Leeds private hire vehicles, 3% in Leeds hackney carriages and 16% in app-based private hire vehicles.



## 4 General public views

It is very important that the views of people within the area are obtained about the service provided by hackney carriage and private hire. A key element which these surveys seek to discover is specifically if people have given up waiting for hackney carriages at ranks (the most readily available measure of latent demand). However, the opportunity is also taken with these surveys to identify the overall usage and views of hackney carriage and private hire vehicles within the study area, and to give chance for people to identify current issues and factors which may encourage them to use licensed vehicles more.

Such surveys can also be key in identifying variation of demand for licensed vehicles across an area, particularly if there are significant areas of potential demand without ranks, albeit in the context that many areas do not have places apart from their central area with sufficient demand to justify hackney carriages waiting at ranks.

These surveys tend to be undertaken during the daytime period when more people are available, and when survey staff safety can be guaranteed. Further, interviews with groups of people or with those affected by alcohol consumption may not necessarily provide accurate responses, despite the potential value in speaking with people more likely to use hackney carriages at times of higher demand and then more likely unmet demand. Where possible, extension of interviews to the early evening may capture some of this group, as well as some studies where careful choice of night samples can be undertaken.

Our basic methodology requires a sample size of at least 200 to ensure stable responses. Trained and experienced interviewers are also important as this ensures respondents are guided through the questions carefully and consistently. A minimum sample of 50 interviews is generally possible by a trained interviewer in a day meaning that sample sizes are best incremented by 50, usually if there is targeting of a specific area or group (eg of students, or a sub-centre), although conclusions from these separate samples can only be indicative taken alone.

It is normal practice to compare the resulting gender and age structure to the latest available local and national census proportions to identify if the sample has become biased in any way.

More recently, general public views have been enlisted from the use of council citizens' panels although the issue with these is that return numbers cannot be guaranteed. The other issue is that the structure of the sample responding cannot be guaranteed either, and it is also true that those on the panel have chosen to be there such that they may tend to be people willing to have stronger opinions than the general public randomly approached.

Finally, some recent surveys have placed an electronic copy of the questionnaire on their web site to allow interested persons to respond, although again there needs to be an element of care with such results as people choosing to take part may have a vested interest.

For this survey, we undertook a set of central area on-street interviews in mid March 2017, obtaining 200 responses. Full details of results are in Appendix 5.

Of those interviewed, 49% said they had used a licensed vehicle in the Leeds area in the last three months. In the previous survey, this level was 60%, a little higher. 88% of all respondents then told us how frequently they used licensed vehicles. Of these, the largest proportion, some 49% said less than once a month, with the next highest level of usage a few times a month (23%).

The question was used to estimate the average number of trips per person per month by licensed vehicle, providing an estimate of 1.9 trips per person per month. The similar question later, but specifically asking about hackney carriage usage (having explained to the person what a hackney carriage was), reduced to 0.2 trips, around 11% of the total. Interestingly, this proportion exactly matches the proportion the hackney carriage fleet is of the total licensed vehicle fleet in Leeds. It is marginally less than the level saying they used ranks (see below).

People were asked their normal method of getting a licensed vehicle. 44% said mobile or smart phone, 26% said they used an app, 15% said they used ranks, 12% a phone, 2% freephone and 1% hailed. This is different to the previous survey ten years or so ago, when 51% said they got licensed vehicles from ranks and 12% hailed. Phone was 37%, but not split down further (this is now 84%).

Four specific 'apps' were named, with the largest taking 88% of the mentions. The other three only obtained one or two responses each.

96% of those responding (most of those interviewed) said they did not need, nor knew anyone who needed an adapted vehicle. Of those saying they knew someone needing such a vehicle, 75% said need for a WAV and 25% for another type of adaptation, though this response was only between seven people.

44% of those interviewed had regular access to a car. 81% were from the Leeds area. 38% were male (much lower than the census estimate of 49%), 59% were under 30 (compared to census 29%), 26% were the mid age group (39%) and 15% were the older group (31%). This suggests the sample tends towards younger females, which may increase licensed vehicle usage levels in our responses. It is not clear why this sample was thus biased.

People were asked which companies they contacted to obtain a licensed vehicle. There were some 153 responses made by 105 people. 9% gave three companies and 29% two, but most gave just a single company name – 62% of respondents to this question, which suggests a high level of satisfaction with their main choice.

In terms of companies, the top company obtained 31% of the total mentions, the second 23%, the third 19%, the fourth 14% and the fifth 5%. No other company obtained more than 2% of the mentions, with seven companies only mentioned once each. A total of 15 companies received any mention. Three of the top five mentioned were also those people named as having 'apps' which they used.

Questions then focused on peoples' direct views about hackney carriages. Of those responding, 83% said they could not remember the last time they used a hackney carriage. This is again fairly consistent with the 11-15% usage of hackney carriages from earlier estimates. However, a positive view was that only one person said they could not remember seeing a hackney carriage, meaning that hackney carriages are obvious in the area, just not used that much in comparison to other licensed vehicles.

53 people, about a quarter of those responding, told us the ranks they used. Of these people, 38% gave three locations and 21% gave two, with 41%, the largest number, giving just one location. Of all the mentions, 75% of locations were not used, with just a quarter of mentions being used. 16 locations were mentioned, although only three had ten or more total mentions.

The top rank mentioned was the station, with 49% of responses. The Headrow (specific place not given) received 25% and the bus station 11%. However, when the high level of non-use is applied, only six locations are actually used, with the rail station most used followed by Headrow. The bus station is known about but not used by our respondents. One mention is made of an area suggested to us to be an area where private hire tend to pick up (Albion Street), and there were two mentions of a rank at Quarry Hill, with one of the two saying they used it.

The overall low level of response about ranks is matched by no-one saying they considered there was anywhere that needed a rank.

In terms of problems with the hackney carriage service, there were only 15 overall responses, suggesting no real issue. Of these, the highest level of response related to driver issues but no further detail was given.

People were asked if they could get a hackney carriage in Leeds when they needed one, and in what situations. There were 132 responses. Of these 46% were that you could get hackney carriages in the daytime, 41% at night and 13% only in Leeds city centre.

There were more responses, but only a total of 89, to the question what might encourage people to use hackney carriages more. As is usual, the largest response was 73% of mentions being for cheaper fares (much higher than the 44% quoted in the previous survey). The next, and only other significant response, was 16% for better drivers, consistent with the problems question.

Just three people said they had ever given up waiting for a hackney carriage in Leeds. Two were at the station and one in the Headrow. Given that the station is a private location, the council based latent demand value is just 0.5%; whilst that for the station rank is 1%. Neither are significant. This is much reduced from the estimated 11% in the previous survey.

People were asked if they thought people in Leeds that had disabilities got a good service from hackney carriages and their drivers. 82% of those interviewed responded. 40% said they thought people did, 1% said they did not think people did, and 59% said they did not know.

Overall, the set of interviews suggests a general lack of interest in licensed vehicles, and particularly hackney carriages in those we interviewed. However, the responses do seem consistent and include several positive pointers that there are visible and available hackney carriages although for those using licensed vehicles, private hire appear to dominate.

## 5 Key stakeholder consultation

The following key stakeholders were contacted in line with the recommendations of the BPG:

- Supermarkets
- Hotels
- Pubwatch / individual pubs / night clubs
- Other entertainment venues
- Restaurants
- Hospitals
- Police
- Disability representatives
- Rail operators
- Other council contacts within all relevant local councils

Comments received have been aggregated below to provide an overall appreciation of the situation at the time of this survey. In some cases there are very specific comments from one stakeholder but we have tried to maintain their confidentiality as far as is possible. The comments provided in the remainder of this Chapter are the views of those consulted, and not that of the authors of this report. Those consulted are listed in Appendix 6.

Our information was obtained by telephone, email, letter or face to face meeting as appropriate. The list contacted includes those suggested by the Council, those drawn from previous similar surveys, and from general internet trawls for information. Our target stakeholders are as far as possible drawn from across the entire licensing area to ensure the review covers the full area and not just specific parts or areas.

For the sake of clarity, we cover key stakeholders from the public side separately to those from the licensed vehicle trade element, whose views are summarized separately in the following Chapter.

Where the statistical analyses in Chapter 2 demonstrate low levels of wheelchair accessible vehicle (WAV) provision, an increased emphasis will be given to the issue in terms of the focus of stakeholders but also in specific efforts to contact disabled users and their representatives.

### ***Supermarkets***

A sample of ten supermarkets were contacted across the full Leeds City council area. Of these, nine responded and all said that their customers used licensed vehicles. Eight had direct free phones within the store. One of these would also allow staff to phone if people wanted a different company. Another said that people mainly made their own calls.

Four were not aware of any rank, one had provision within its car park and one had a rank on the highway outside (this was a suburban rank). Three however suggested the rank was a private hire company. None had received any complaints about the service provided.

### ***Hotels***

Ten hotels were randomly chosen from across those in the Leeds City council area. Eight replied, all saying their customers did use licensed vehicles. One had a free phone in reception for people to use. The other seven said that staff from reception would call for a vehicle if customers asked. Two were unaware of nearby ranks. Three were aware of the Leeds station rank. One was aware of a suburban rank. Three suggested private hire companies when asked about ranks. Only two had issues, one that phoned for vehicles occasionally did not come at their advised time, and one that vehicles would not come to the hotel as they said people should go to the nearby railway station rank instead.

### ***Public houses***

Across the area, a sample of ten public houses were contacted. Six responded, of which one was not sure if their customers used licensed vehicles or not. The others all said that they did. One had a free phone provided. One said their staff would call for vehicles if asked. Two said people usually phoned themselves whilst another two said that people usually phoned but that they would contact a company if customers asked.

Only one was aware of any nearby rank, whilst two gave private hire company names as rank locations. Only one had any issue, which was that one of the two companies they tended to use had become unreliable.

### ***Night clubs***

Ten night clubs were contacted. Four responded, one saying they did not think customers used licensed vehicles but then said most used an app. Three said they believed their customers did use licensed vehicles. Two said people made their own arrangements whilst one said they thought this was the case, but they would phone if asked.

None were aware of ranks. The only issue they had ever received complaint about was overcharging (but this was the location who felt their customers all used an app).

### ***Other entertainment venues***

Ten entertainment venues were contacted. Seven replied, all saying that their customers did use licensed vehicles. One said staff would call for vehicles if asked, three said customers usually phoned themselves whilst two said they would phone if asked, but that customers often made their own arrangements.

One said people either phone themselves, or used the free phone they provided.

Four were not aware of any ranks. Two named nearby ranks whilst one named a private hire company. None had received any complaints from their customers about the service received.

### ***Restaurants***

A sample of ten restaurants were contacted. Four replied. One was not sure if their customers used licensed vehicles or not. The other three said that they did. Only one would make phone-calls to companies for customers if asked, with the other three saying customers would phone themselves. Three were aware of nearby ranks, but one suggested a private hire company. None had received any complaints regarding the service provided. One restaurant, near a rank closed for building works, said that rank had been well-used before closure, and that their customers had made use of it when it was available.

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## 6 Trade stakeholder views

The BPG encourages all studies to include 'all those involved in the trade'. There are a number of different ways felt to be valid in meeting this requirement, partly dependent on what the licensing authority feel is reasonable and possible given the specifics of those involved in the trade in their area.

The most direct and least costly route is to obtain comment from trade representatives. This can be undertaken by email, phone call or face to face meeting by the consultant undertaking the study. In some cases to ensure validity of the work being undertaken it may be best for the consultation to occur after the main work has been undertaken. This avoids anyone being able to claim that the survey work was influenced by any change in behavior.

Most current studies tend to issue a letter and questionnaire to all hackney carriage and private hire owners, drivers and operators. This is best issued by the council on behalf of the independent consultant. Usual return is now using an on-line form of the questionnaire, with the option of postal return still being provided, albeit in some cases without use of a freepost return. Returns can be encouraged by email or direct contact via representatives. Some authorities cover private hire by issuing the letter and questionnaire to operators seeking they pass them on when drivers book on or off, or via vehicle data head communications.

In all cases, we believe it is essential we document the method used clearly and measure response levels. For Leeds, most of those relating to the licensing section do so using electronic methods. The detailed questionnaire, agreed between ourselves and the Council, was issued by the council to all available email contacts, plus copies were made available in reception at the Licensing Office for people to complete and return while waiting for various matters at the Office.

A total of 78 responses were obtained, with 56% from hackney carriage and 42% from private hire. Just one person said they drove both kinds of vehicle. This is a response rate of 5% for hackney carriage drivers, a typical level for this kind of survey. The private hire rate is much lower, less than half of one percent, whilst the overall level of response, with the much higher number of private hire dominating the calculation, is 1.3%. This is a sufficient response from which a valid result should be obtained.

For the full set of respondees, the average length of service in the Leeds licensed vehicle trade was some 13 years, with a maximum length of service quoted as 43 years. This is a substantial level of expertise available across the service provided.

Of those responding, 47% said they worked six days, 33% five days, with no other number of days having more than 9% of responses (both seven and four days obtained 9% of response each). There was one person who said they worked a single day and another who worked three days. The overall average hours worked were 43, with a maximum quoted of 90 hours.

Of those that told us matters that affected their choice of shift, the highest proportion, 23% said family commitments. 19% said they would avoid working when there was heavy traffic or at rush hour. 15% said they would work at times they knew there was most passenger demand. None suggested they would avoid drunken, violent or abusive customers. Some said their ability to work was restrained by not being able to have access to the vehicle they rented.

Of those responding, 71% owned their own vehicle and just 25% said someone else drove the vehicle they used. For those saying someone else used their vehicles, it was clear that most shared vehicles were out working most hours, with people saying someone else used the vehicle either day or night. In one case, three people shared the vehicle and again it was running more or less 24/7.

In terms of working with others, 84% of the hackney carriages that gave an answer said they worked on a radio circuit. There appeared to be three hackney carriage circuits and one mixed fleet circuit used. Less private hire vehicles said they worked for circuits, suggesting many work on their own account possibly for their own company, or on contracts. Overall, 43% of those naming a company said one of the hackney carriage companies, a further 19% said another of these. The mixed fleet company obtained 9% of responses. There were eight other private hire companies named most of whom obtained just one or two quotes. This suggests the 'phone' element of the licensed vehicle trade in Leeds may be dominated by hackney carriage operators.

In terms of ranks used, there was a high response, but none were really dominant. The highest proportion of the mentions was for the railway station rank (12%) followed by Boar Lane, Call Lane, East Parade and Headrow (not specified which one) (all 5% each). Many other ranks were named, but each just by at most three drivers. Out of town ranks were also named as being used. Some places named were not clear.

The main issue with ranks was felt to be that there were too few ranks and too few spaces at the used ranks. 15% of responses were concerned about rank abuse by private cars.

When asked how drivers obtained their fares, 69% of hackney carriages said their main way was from working the ranks. 14% said from phone bookings, 10% from private contracts and 7% from hailing. All but two of the private hire said they mainly obtained work from bookings. One was mainly a school contract operator.

Most told us their view about the current hackney carriage limit policy. The overall result was 69% who supported the policy and 31% who did not. We tested the split between hackney carriage and private hire on this, and found interestingly exactly the same split if the two parts of the trade were taken separately. In fact, the private hire response was marginally higher than the hackney carriage by 1%.

Despite the clear view above that most supported the continuation of the policy limiting hackney carriage vehicle numbers, there were a vocal number opposing the current policy – but these, as is often the case, were hackney carriage drivers who rented a vehicle and who felt they should have their own vehicle, a reasonable concern. There were a small number who very strongly suggested that the limit was illegal, which is incorrect. However, their point about their frustrations of renting were also very strongly felt.

Some said why they felt the limit benefitted the public. Of all responses, the highest response was by 26% who said it ensured vehicles were always available at ranks. 17% said it ensured clean, safe, well-maintained vehicles, and a further 17% said it stopped over-ranking and congestion. 14% felt it reduced issues over public safety of over-tired drivers. 9% felt it reduced pollution and congestion, and 3% said it was essential to keep the level of WAV vehicles where it was.

Overall, this driver response appears very motivated and reasonable. It suggests a coherent view between both private hire and hackney carriage trades regarding the limit, and also suggests much of the public services provided are likely to be by those on the hackney carriage side of the trade, across the whole city, despite the size of the private hire trade.

In addition to the all-driver survey, trade representatives met us and also provided rank tours at appropriate times, both day and night. This was appreciated and very useful. The only concerns raised by trade reps were the need for some form of 'rest rank', need for review of wheel chair accessibility at the station, concern about the Call Lane night provision, and caution about the rise of app-based operations particularly at the station pick-up point.

Both the trade reps and other information provided to us also drew our attention to the need to address emissions from both hackney carriage and private hire vehicles, and concern on the impacts this might have on vehicle numbers.

## 7 Evaluation of unmet demand and its significance

It is first important to define our specific view about what constitutes unmet demand. Our definition is when a person turns up at a hackney carriage rank and finds there is no vehicle there available for immediate hire. This normally leads to a queue of people building up, some of who may walk off (taken to be latent demand), whilst others will wait till a vehicle collects them. Later passengers may well arrive when there are vehicles there, but because of the queue will not obtain a vehicle immediately.

There are other instances where queues of passengers can be observed at hackney carriage ranks. This can occur when the level of demand is such that it takes longer for vehicles to move up to waiting passengers than passengers can board and move away. This often occurs at railway stations, but can also occur at other ranks where high levels of passenger arrivals occur. We do not consider this is unmet demand, but geometric delay and although we note this, it is not counted towards unmet demand being significant.

The industry standard index of the significance of unmet demand (ISUD) was initiated at the time of the introduction of section 16 of the 1985 Transport Act as a numeric and consistent way of evaluating unmet demand and its significance. The ISUD methodology was initially developed by a university and then adopted by one of the leading consultant groups undertaking the surveys made necessary to enable authorities to retain their limit on hackney carriage vehicle numbers. The index has been developed and deepened over time to take into account various court challenges. It has now become accepted as the industry standard test of if identified unmet demand is significant.

The index is a statistical guide derived to evaluate if observed unmet demand is in fact significant. However, its basis is that early tests using first principles identified based on a moderate sample suggested that the level of index of 80 was the cut-off above which the index was in fact significant, and that unmet demand therefore was such that action was needed in terms of additional issue of plates to reduce the demand below this level, or a complete change of policy if it was felt appropriate. This level has been accepted as part of the industry standard. However, the index is not a strict determinant and care is needed in providing the input samples as well as interpreting the result provided. However, the index has various components which can also be used to understand what is happening in the rank-based and overall licensed vehicle market.

ISUD draws from several different parts of the study data. Each separate component of the index is designed to capture a part of the operation of the demand for hackney carriages and reflect this numerically. Whilst the principal inputs are from the rank surveys, the measure of latent demand comes from the public on-street surveys, and any final decision about if identified unmet demand is significant, or in fact about the value of continuing the current policy of restricting vehicle numbers, must be taken fully in the context of a careful balance of all the evidence gathered during the survey process.

The present ISUD calculation has two components which both could be zero. In the case that either are zero, the overall index result is zero, which means they clearly demonstrate there is no unmet demand which is significant, even if other values are high.

The first component which can be zero is the proportion of daytime hours where people are observed to have to wait for a hackney carriage to arrive. The level of wait used is ANY average wait at all within any hour. The industry definition of these hours varies, the main index user counts from 10:00 to 18:00 (i.e. eight hours ending at 17:59). The present index is clear that unmet demand cannot be significant if there are no such hours. The only rider on this component is that the sample of hours collected must include a fair element of such hours, and that if the value is non-zero, review of the potential effect of a wider sample needs to be considered.

The other component which could be zero is the test identifying the proportion of passengers which are travelling in any hour when the average passenger wait in that hour is greater than one minute.

If both of these components are non-zero, then the remaining components of the index come into play. These are the peakiness factor, the seasonality factor, average passenger delay, and the latent demand factor.

Average passenger delay is the total amount of time waited by all passengers in the sample, divided by the total number of passengers observed who entered hackney carriages.

The seasonality factor allows for the undertaking of rank survey work in periods which are not typical, although guidance is that such periods should normally be avoided if possible particularly as the impact of seasons may not just be on the level of passenger demand, but may also impact on the level of supply. This is particularly true in regard to if surveys are undertaken when schools are active or not.

Periods when schools are not active can lead to more hackney carriage vehicles being available whilst they are not required for school contract work. Such periods can also reduce hackney carriage demand with people away on holiday from the area. Generally, use of hackney carriages is higher in December in the run-up to Christmas, but much lower in January, February and the parts of July and August when more people are likely to be on holiday. The factor tends to range from 0.8 for December to 1.2 for January / February.

There can be special cases where summer demand needs to be covered, although high peaks for tourist traffic use of hackney carriages tend not to be so dominant at the current time, apart from in a few key tourist authorities.

The peakiness factor is generally either 1 (level demand generally) or 0.5 (demand has a high peak at one point during the week). This is used to allow for the difficulty of any transport system being able to meet high levels of peaking. It is rarely possible or practicable for example for any public transport system, or any road capacity, to be provided to cover a few hours a week.

The latent demand factor was added following a court case. It comes from asking people in the on-street questionnaires if they have ever given up waiting for a hackney carriage at a rank in any part of the area. This factor generally only affects the level of the index as it only ranges from 1.0 (no-one has given up) to 2.0 (everyone says they have). It is also important to check that people are quoting legitimate hackney carriage rank waits as some, despite careful questioning, quote giving up waiting at home, which must be for a private hire vehicle (even if in hackney carriage guise as there are few private homes with taxi ranks outside).

The ISUD index is the result of multiplying each of the components together and benchmarking this against the cut-off value of 80. Changes in the individual components of the index can also be illustrative. For example, the growth of daytime hour queueing can be an earlier sign of unmet demand developing than might be apparent from the proportion of people experiencing a queue particularly as the former element is based on any wait and not just that averaging over a minute. The change to a peaky demand profile can tend towards reducing the potential for unmet demand to be significant.

Finally, any ISUD value must be interpreted in the light of the sample used to feed it, as well as completely in the context of all other information gathered. Generally, the guide of the index will tend not to be overturned in regard to significant unmet demand being identified, but this cannot be assumed to be the case – the index is a guide and a part of the evidence.

A test was undertaken using the ISUD components based on the four rank surveyed information from February. This is an extreme test given the small number of ranks covered, albeit perhaps covering a high proportion of all journeys. Estimates were made including and excluding the private station rank. The results are shown below.

ISUD component	Council only	Station	All four ranks
Average passenger delay (min)	0.15	0	0.0333
% off peak hours with any queue	25	0	13.04
% passengers in hours with queue longer than 1 minute average	4.16	0	0.79
Seasonal factor	1.2	1.2	1.2
Peakiness factor	0.5	0.5	0.5
Latent demand factor	1.005	1.01	1.015
ISUD estimate	9.41	0	0.21

The table shows that, even with the extreme test, the level of significance of unmet demand at the council ranks is far from being significant (which requires an index level of 80 or more). The main driver of the level of the value is queuing in the off peak, although the sample of hours is relatively small.

A very interesting result is that the station sees no off peak hour queues and no queues over a minute in any hour. This results in both the off peak and the passenger queue elements of the index being zero, which has the effect of setting the whole index for the station to zero.

When all four ranks are combined, the dominance of the station rank both in terms of passenger performance and volume of flow translates the index down to a very low value of 0.21 overall.

These conclusions give comfort that the full baseline survey is unlikely to find unmet demand in the area which is significant, although this conclusion should not be prejudged and does still require the fuller sample to be used.

The results from the base-line survey are provided in the table below:

ISUD component	Council only	Station	All ranks
Average passenger delay (min)	0.3	0.017	0.133
% off peak hours with any queue	30	0	25
% passengers in hours with queue longer than 1 minute average	5.95	0	2.395
Seasonal factor	1	1	1
Peakiness factor	0.5	0.5	0.5
Latent demand factor	1.005	1.01	1.015
ISUD estimate	26.9	Zero	4.1



Our base-line survey confirms that there is unmet demand in the Leeds area for the non-station ranks. However, the level of this is beneath the cut-off value of 80 which industry standards accept defines the unmet demand to be significant in terms of Section 16 of the 1985 Transport Act. The main component contributing to this index is the proportion of off peak hours which have passenger queueing (of any size).

However, the station sees very little passenger delay at all, and has an ISUD index on its own of zero since both main delay components are both themselves zero. If this information is included with the main council data, the value of the ISUD tool reduces to 8.1, much lower. Therefore the overall viewpoint, using all rank in Leeds surveyed, is that there is clearly unmet demand, but it is far from significant under the industry standard tool evaluation.

When compared to the February surveys, the results of most components have deteriorated but this relates to the widening out of our survey work, which was always expected given that key ranks often receive significant levels of attention from the trade, whilst some lesser used ranks may tend to be less well serviced given their lower potential.

The overall conclusion from this part of the work is that the larger October seasonal test is definitely required, although again we doubt it will prove any unmet demand is significant, but it is needed to provide further comfort that this is the case. The results above also clearly show there is little merit in observing the station rank at that time, and that is much more important to focus on a wider range of other ranks where it is much more likely unmet demand will be observed.

The October data found an average passenger delay of 10 seconds, or 0.167. 26.67% of off peak hours observed had passengers arriving when no vehicle was immediately available but only 3.93% of all passengers travelling in hours when there was delay a minute or more in that hour. The seasonal factor was 1.0 and the peakiness factor 0.5. This provided an ISUD value of 8.8 using the council rank only latent demand factor of 1.005.

These values are all less than those for the April Council sample, consistent with there being reduced demand, with possibly a more active fleet.

The overall conclusion from the test of significance of unmet demand is therefore that there is unmet demand, but that it is far from significant focusing only on council ranks, and even less so if the station data is also taken into account. Further, the station feeder system is very clearly having positive impact not only on supply to the station, but also to the overall provision of hackney carriages in the Leeds city centre.

## 8 Summary, synthesis and study conclusions

This Unmet demand survey on behalf of Leeds City Council has been undertaken following the guidance of the BPG and other recent case history regarding unmet demand and its significance. This study has been undertaken over an extended time period similar to previous Leeds studies, not using the more typical single set of rank observations to evaluate unmet demand and its significance. Further detail and results from this extended survey period are provided below. This Chapter provides a summary of each separate chapter, a synthesis comparing, contrasting and bringing together the various strands of evidence about unmet demand, and the study overall conclusions. Specific recommendations are provided in the next chapter giving a steer based on our national experience of similar studies.

### ***Current legislative and practical background***

At the time of writing this chapter, and throughout the period of undertaking this Survey, the April 2010 Department for Transport Best Practice Guidance (BPG) remained the current benchmark for review of unmet demand and its significance in terms of Section 16 of the 1985 Transport Act. We are unaware of any revised legislation or case history changing the overall background under which our work has been undertaken.

### ***Local background and study context***

This survey for Leeds City Council has been undertaken according to our proposal of December 2016, as modified during our inception meeting of January 2017, and as developed through the course of the survey. Elements of information drawn together include three different periods of rank observation, one set of public on-street interviews in March 2017 with people in central Leeds, key stakeholder discussions throughout the period of the survey and a detailed licensed vehicle driver survey during May and June. We also acknowledge assistance from trade representatives both in identifying the current operable ranks as well as providing information about the present overall operation. We have also received significant assistance from various members of the licensing section of the Council, including discussions about operational issues of the present service.

Leeds is a unitary authority meaning both rank provision and overall transport policy are undertaken within the authority, albeit by different departments to licensing itself. Local statistics confirm that travel to work by taxi is at the same level as bicycle or motorcycle, and about a quarter of the level undertaken by train. The current transport strategy document Policy RN5 recognises hackney carriages and private hire as a valuable part of the local transport system providing more choice for whole or part journeys. This policy aims to enhance the offer of such services.

A key part of this is ensuring sufficient provision of ranks where appropriate. In support of this aim, the highways section has electronic plans of the associated regulation orders behind taxi ranks, although we did find that this was not necessarily up to date at the time we began our review.

Local taxi policy saw managed growth of hackney carriage vehicle numbers until 2007, at which the level of growth was set to zero. This led to 83% growth in vehicle numbers between 1994 when DfT statistics were first gathered until 2007 when the current number of 537 was effectively fixed. The most recent published demand survey covered observations at ranks throughout 2008, reporting in early 2009. This found no unmet demand which was significant. That study provided five sets of rank observations, all for the same sample of hours, equally split between the February, Easter, August, October and December periods.

Hackney carriage driver numbers have tended to decline marginally since the peak of 2007, but there still appears to be significant levels of double shifting of hackney carriage vehicles.

Private hire vehicles and drivers saw higher growth levels between the start of information gathering in 1997 and the peak of 2012. Since that time, numbers slumped with some recovery in the latest statistics available, but still not to the levels of 2012.

Current levels of hackney carriages compared to population are below the national average, with 0.7 vehicles per thousand population for Leeds compared to the national average of 1.1. On the other hand, private hire numbers vastly exceed the national level of 2.2, at some 5.5 vehicles per thousand population.

Present levels of WAV within the hackney carriage fleet remain at the 51% level first reached in 2007. Just a handful of private hire vehicles have chosen to be WAV. Private hire operator numbers have declined since the peak of 2005.

### ***Rank observations***

Concerted effort was made to confirm the current status of rank provision across the City at the start of the project. The City Centre in particular has seen significant change including pedestrianisation and traffic flow revisions since the last study. The initial information on ranks was found to be the situation as in 2010, with key changes such as the recent pavement revisions in Vicar Lane not taken into account. Both licensing and trade sources were used to ensure we had an up to date picture of rank provision.

Appendix 2 provides the status of ranks at the time of instigation of our survey work. Principal changes are the loss of many ranks in the Vicar Lane axis, with the Boar Lane McDonalds rank becoming 24-hour and seeing significant increase in usage. Many new ranks were also added, a number of which related to the system used to provide feeder spaces for the railway station.

We also identified that a comprehensive management system was in place to service the partly private rail station rank. Not all Leeds hackney carriages choose to pay the extra fee for the permit needed to pick up from the head of this rank, and although a good proportion of the feeder system immediately at the station is in fact public highway space it is not possible to service this rank without that permit being in place. The trade pay for a daytime marshal to bring in appropriate numbers of vehicles from various feeder locations to ensure sufficient vehicles at all times to meet demand at this rank. This has the benefit that several rank locations which would not otherwise have vehicles waiting, do have regular available hackney carriages, whilst the immediate station area is kept free from too many waiting vehicles.

The conclusion of our survey was undertaking a small, four-rank survey in February (177 hours), a baseline wider survey of 462 hours at 16 ranks in early April 2017 once schools had returned from the Easter break, and a final set of observations at the top 7 ranks over 360 hours in October once the Universities were all fully functioning.

Strict like for like rank comparisons suggest an increase of 10% now compared to 2008, whereas the actual totals from the total surveys suggest an overall decline of 8% from the 2008 levels. On balance, the actual usage suggested for 2017 is probably therefore very similar to 2008.

Comparisons between the February and April observations found very similar flows. However, comparison like for like between April and October found an overall 10% lower usage in October compared to April. Discussion with a trade representative suggested this was a result of a particularly busy April compared to a more normal October. All the reviews suggest much less variation through the year for the periods covered than was the case in 2008.

Comparing 2008 and now the main change has been the increased usage of the Boar Lane rank now that it is 24-hour, but also the loss of two of the top five ranks of 2008 to club closures or road revisions.

Overall, in 2017, based purely on our sample of ranks, the station provided just over half of all rank-based passengers in the City. The next largest rank provided around 10% of passengers (Boar Lane). The Bus station provided 7%, Pryzm 6% and Dortmund Square 5%. Merrion Street provided 4% and the Leeds University rank 3%. Three other ranks saw 2% of passengers each and a final four 1%. Only small additional amounts would be added from observation of any other ranks.

With regard to passengers arriving when no vehicles were available (unmet demand). In February only three hours, or 2% of the total, had average passenger delays in that hour over a minute. The April data saw 5%, whilst the October data 3%. Overall average passenger delays were highest in April but only 18 seconds when considering council only ranks. The very high performance level at the station reduced that value including the station to just eight seconds. Overall, the active feeder operation at the station reduced the opportunity for unmet demand there to negligible.

Overall performance of ranks saw the two busiest providing very good service to customers. A further rank also provided very good service. One night rank provided excellent service. Six others received good service with the remaining three locations getting fair service. This demonstrates a very active and professional hackney carriage operation in the City at this time.

Whilst our overall observations suggested high levels of private hire vehicles and private cars potentially affecting rank operation, this mainly applied to the lesser used ranks, and more so to the two locations tested in April which were not formally ranks but conversely provided some of the few locations in the City where legitimate private hire pick-ups might be otherwise made, given the relatively low provision of such locations given the high pressures on kerb space in the City.

A test in February at the pick-up location at Leeds station found the level of private hire pick-up very low compared to the volumes dealt with by the hackney carriage provision at the front of the station. Whilst there were clearly some potentially speculative waits, the impact of these overall was very small. For all observed vehicular passenger departures from the station, 66% were using hackney carriages from the rank. Just 16% of vehicle departing passengers left in private cars, and 12% in private hire vehicles, with a further 5% in app-based vehicle departures. It is very clear that the excellent location of the hackney carriage rank still encourages most licensed vehicle usage from the station by hackney carriage.

The proportion of WAV vehicles observed in the rank observations effectively matched the proportion in the fleet, suggesting no discrimination between use of vehicles at ranks in operational terms. Seven people in wheel chairs were seen accessing hackney carriages at ranks with most at the station, but also some at three other ranks.

Tests of vehicle activity levels on the busiest day in each survey period found a very similar proportion – nearly half – active in the February and April surveys. October saw 61% of plates active for the same periods, and 65% when the actual (wider) survey was considered.

### ***On street public views***

49% of those interviewed had used a licensed vehicle in the Leeds area in the previous three months, a reduced level from the 60% giving this answer in 2008. Overall usage was 1.9 trips per person per month. This reduced to just 0.2 for hackney carriage only trips, around 11% of the total, very similar to the proportion of people saying they normally got licensed vehicles from ranks.

Compared to the most recent National Travel Survey results, usage of licensed vehicles in Leeds is about twice the national average of 0.9 trips per person per month. Nationally about 42% of people have used a licensed vehicle less than once a year, or never, with approximately 27% who would have used them in the last three months, suggesting again that Leeds usage is higher than the English average.

Since 2008, the proportion getting vehicles from ranks has reduced from 51% at ranks and 12% hailing, to 15% rank and 1% hail. 56% now use mobile phones or phones with 26% using apps (88% were one app). Freephones are now quite low at just 2%, although it is not clear if this is a reduction or not.

A very high 96% said they did not need, nor knew anyone who needed, an adapted vehicle. Of those needing adaptation, 75% needed a WAV style adapted vehicle.

For those phoning vehicles, 62% of responses just named one company, suggesting overall high satisfaction with companies chosen. Five companies obtained 5% or more of the mentions, with the top company obtaining 31% and the second 23%. 15 companies in total were mentioned although many only got a single mention. Three of the top five companies were those that had 'apps' in use.

All but one person could remember seeing a hackney carriage in the Leeds City area, an encouraging level of knowledge, although this was countered by 83% saying they could not remember the last time they used one.

A quarter of those responding told us ranks they used. The main rank known about was the Station, with 49% of responses. Headrow (actual one not specified) was second with 25% and the bus station 11%. Of 16 locations mentioned only six were actually used. Albion Street was mentioned by one person as a rank – it is known as an informal private hire pick-up point.

No-one suggested need for any new rank locations suggesting overall satisfaction with rank provision although this is tempered by the low number actually known about (not consistent with the rank surveys).

There were no real problems identified with the hackney carriage service. When the opposite question was asked, 73% of responses said if fares were cheaper, and 16% if drivers were 'better'.

46% of respondents said they could get a hackney carriage when they needed one in the daytime, with a slightly lower 41% saying they could get one at night.

Latent demand in terms of observable 'giving up waiting' was 1% for the station rank and 0.5% for council ranks. This is much lower than the 11% quoted in 2008.

40% of those responding to the question regarding if people with disabilities got a good service from hackney carriages felt they did. All but 1% of the remainder were not sure.

Overall, the licensed vehicle and hackney carriage services in Leeds appear to be well appreciated and used. The only concern was lack of knowledge of the wide range of available ranks, although this did not appear to be an issue to those interviewed so it appears they found ranks where they wanted them.

### ***Key stakeholder views***

Supermarkets mainly had free phones to private hire provision, although one suburban store had a rank outside. Hotels also focussed on private hire, though a few more were aware of ranks. The same was true for most public houses. Night clubs were not aware of ranks and most said their customers made their own arrangements to get a vehicle. Some of the entertainment locations responding were aware of ranks, though again most used private hire. Most restaurants were aware of ranks. No other stakeholders reported any issues.



***Driver consultation***

The overall driver response was 5% from hackney carriage and less than 0.5% for private hire, with the total response rate 1.3% of the licensed drivers.

A substantial level of expertise was identified, with average time of service in the trade some 13 years. 47% worked six days and 33% five days. Hours were on average 43, with a maximum of 90 quoted, marginally high compared to other areas.

No driver said they would avoid awkward passengers with the top reason determining when people worked being family commitments (23%) followed by 19% avoiding busy traffic hours. A moderate 71% owned their own vehicles, with 25% saying someone else also drove their vehicle. However, there were several who told us their vehicles was working almost 24/7 with up to three drivers.

84% of hackney carriage drivers said they used radio circuits. Three appeared to be pure hackney carriage circuits, with one mixed hackney carriage / private hire fleet. Overall, the phone element of licensed vehicles in Leeds appears dominated by hackney carriage radio operators.

A lot of drivers told us ranks they used, but usage of specific ranks was very widely spread. Only the station obtained 12% of responses, with four others gaining just 5% of mentions each. However, a major concern was a lack of ranks and lack of space at active ranks.

69% of hackney carriages got most work from ranks.

69% of all respondents supported the limit of hackney carriage vehicles. This split applied to hackney carriage and private hire equally. The strongest opposition to the policy was by those who rented plates. Some of those supporting the limit suggested reasons it benefitted the public. The top number, 26% was that the limit ensured vehicles were always available at ranks with the next highest value being 17% saying it ensured clean, safe and well-maintained vehicles and a further 17% that it stopped over-ranking and congestion.

The overall driver response appears motivated and reasonable, with a coherent view between hackney carriage and private hire respondents.



### ***Unmet demand and its significance***

The formal industry standard index of significance of unmet demand (ISUD) tests found no value exceeding the cut-off of 80 that suggests observed unmet demand to be significant. The worst result obtained was for the council only ranks in April, with a value of 26.9. This was driven by the percentage of off peak hours that had queues of any size. In every case, the station performance was significantly better than that for council ranks, and this meant any value including the station always saw improvement over that just for council ranks. This is consistent with the managed approach to providing demand at the station. The highest levels of ISUD were those for April compared to those in February or October, both of which in fact were harsher tests.

### ***Synthesis***

All the evidence drawn together is generally consistent with a very professional and appreciated hackney carriage service being provided by the current operation and level of vehicles in Leeds. Overall licensed vehicle usage is higher than the national average, although this should be expected for a large City. The hackney carriage fleet is 11% of the overall licensed vehicle fleet, but people suggest 15% of their usage of licensed vehicles is from ranks and 1% from hailing, meaning hackney carriages are taking more than their share on the basis of vehicle numbers. This is even more true when the suggestion that in the order of 84% of hackney carriages also take telephone bookings.

However, the level of usage at ranks seems to be very similar to what it was in 2008 at the time of the last survey. We estimate around 30,000 hackney carriage rank trips in an average week, about half of which will be from the main station rank. On this basis, there would be a further 300 passengers from hailing and a total of just under 200,000 licensed vehicle trips per week across the City. This is over 10 million passengers a year travelling by hackney carriage and private hire.

The rank usage and unmet demand calculations are both consistent in confirming that service to the public at ranks is very good. Even with further limited numbers at the station rank, that location sees an even higher level of service than the other ranks in general. This is very strongly related to the system operated by the trade ensuring there are always vehicles available there during most of the operational periods of the station. This is excellent best practice and also provides benefit in several ranks having regular vehicles present which would not otherwise be the case. Further, it ensures the station area is not clogged up by hackney carriages waiting. The rear pick-up point also helps to ensure the front of the station works efficiently.

We are aware that the current rank location has issues, particularly for those needing to enter the vehicle in a wheel chair, and that compared to the past people now have to cross the bus flows to get to the rank. Despite all this, the rank is very effective and significantly dominates vehicular departures from the station due to its high visibility. This is confirmed by our estimate that two thirds of all passenger departures by vehicle from the station are by hackney carriage (excluding any vehicular pick-ups from the new Southern entrance). It is essential for the benefit of station passengers and the City as a whole that this operation is protected and possibly developed further.

Despite a number of club closures and loss of some important ranks since the last survey, passenger numbers have kept steady. This is even more encouraging given the recent growth in other competition from new forms of licensed vehicle service, i.e. use of apps.

Evidence from the public and drivers, however, suggests better knowledge and marketing of ranks is necessary, and there is also need for clarity with the night ranks around the Call Lane area, which seems to be reducing hackney carriage usage there, and could therefore be putting customers at risk not due to any shortage of vehicles, but due to lack of clarity where they should best obtain them.

### ***Conclusions***

At the present time there is no evidence of any unmet demand in the Leeds City licensing area that can be considered to be significant in terms of Section 16 of the 1985 Transport Act.

The current station operating system paid for by the trade is critical in ensuring the level of service to the station, and to a lesser extent to all the city ranks which are part of the feeder system. This system must be encouraged and continued.

There is clearly some priority given to servicing the station, and any opportunity for unmet demand that could be significant could arise were this balance to tip further against council rank service, but at the present time the operation overall is very well balanced.

At the present time there appears to be some spare capacity within the hackney carriage trade to meet any future growth in demand, although we would advise caution if any pressure was put to bear on the fleet which might reduce numbers – suggesting care is needed in applying requirements for move to more sustainable vehicles in the near future.

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## 8 Recommendations

On the basis of the evidence gathered in this Unmet demand survey for Leeds City Council, our key conclusion is that there is no evidence of any unmet demand for the services of hackney carriages either patent or latent which is significant at this point in time in the Leeds City Council licensing area. The committee therefore has the option of retaining the current limit, at the current level, and should be able to defend this if necessary.

The ultimate decision about being sure about there being no significant unmet demand is for councillors to decide, but our national experience would currently support such a decision that the limit could remain.

There are some specific matters which should be noted and encouraged. A key one is the current station provision including the trade supported feeder system. Another is the good working relationships between the trade and council.

There are also opportunities for further development and continued improvement of the offer provided by hackney carriages in the City.

The most important is to ensure trade, police and council (both licensing and highway) clarity about the Call Lane area in terms of night rank provision.

Consideration is needed to provide better disability access to the rank at the station.

Great care is needed with application of the Clean Air legislation to ensure the current number of hackney carriage vehicles remain available for servicing all ranks.

Some of the further out feeder ranks could be considered for provision of rest-rank facilities, such as those available in London near to the DfT building.

DfT BPG recommends where limits are retained that further surveys should be undertaken within three years. We would strongly recommend therefore that, unless legislation or situations change (e.g. were the station feeder system to be removed), a fresh independent survey of unmet demand should occur with rank work undertaken no later than April 2020.

Given the results of our current work, we would also suggest that a robust decision could be made by one main rank data collection exercise after Easter covering at least 500 hours of observation and at least two suburban locations, with seasonal variation concerns perhaps covered by undertaking surveys at the top three ranks (including the station) for 72-hour periods, preferably in October 2019 so that the final report could be produced and reported in early October 2020.

The other alternative that could be considered to enable the committee to keep ahead of changes in hackney carriage demand could be following the present Edinburgh example of having regular short period surveys covering key locations where there might be unmet demand. This does not need to be expensive and could also be used alongside rank development programmes to test their impact, such as to ensure proper provisions with regard to the Call Lane night life.



## Appendix 1

### Current vehicle statistics

	hcv	phv	lv total	hcd	phd	total d		Ops	% hcv WAV	% phv WAV
<b>1994D</b>	294			614			<b>1994D</b>			
<b>1997D</b>	320	2422	2742	703	2861	3564	<b>1997D</b>		18	
<b>1999D</b>	400	2700	3100	813	3100	3913	<b>1999D</b>	130	35	
<b>2001D</b>	402	2649	3051	866	3140	4006	<b>2001D</b>	135	35	
<b>2004D</b>	402	2649	3051	866	3140	4006	<b>2004D</b>	135	25	
<b>2005D</b>	402	2649	3051	866	3140	4006	<b>2005D</b>	135	35	
<b>2007D</b>	537	3698	4235	1456	4563	6019	<b>2007D</b>	128	49	
<b>2009D</b>	537	4281	4818	1082	5500	6582	<b>2009D</b>	115	51	
<b>2010N</b>	537	4107	4644	<u>1090</u>	<u>5390</u>	<u>6480</u>	<b>2010N</b>	<u>111</u>	<u>51</u>	-
<b>2011D</b>	537	4281	4818	1098	5279	6377	<b>2011D</b>	107	51	
<b>2012N</b>	537	4405	4942	<u>1036</u>	<u>5056</u>	6092	<b>2012C</b>	<u>103</u>	<u>50</u>	<u>1</u>
<b>2013D</b>	536	3723	4259	974	4833	5807	<b>2013D</b>	98	49	2
<b>2014N</b>	537	3689	4226	<u>986</u>	<u>4723</u>	5709	<b>2014N</b>	<u>94</u>	<u>50</u>	<u>2</u>
<b>2015D</b>	537	3877	4414	998	4612	5610	<b>2015D</b>	90	51	2
<b>2016C</b>	537	4303	4840	952	5127	6079	<b>2016C</b>	62		
<b>2017C</b>	536	4310	4846	951	5176	6127	<b>2017C</b>	58		

### Notes

2016 data from 24/11/16, 2017 from 28/3/17. See below for exact details of all vehicles, drivers and operators, only pure hc and ph included above.

DfT stats had 345 dual drivers in 2007 and 284 in 2015, these have been removed and added to hcv totals

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**Appendix 2****List of ranks**

*See separate document*

**Appendix 3****Hours surveyed at ranks**

*See three separate documents for February, April and October*

**Appendix 4****Detailed rank results**

*See three separate documents for February, April and October*

**Appendix 5****On street interview results**

*See separate document*

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## ***Appendix 6***

### ***Key Stakeholders contacted***