IMPLEMENTATION OF THE WORKPLACE PARKING LEVY AS A TRANSPORT POLICY INSTRUMENT

ABSTRACT

Car parking spaces occupy significant areas land within cities and, in many areas, is often provided to motorists free of charge or at low cost. This can encourage car use which leads to traffic congestion and environmental degradation. In response, local authorities have increasingly used parking policies to address these issues. However, the effectiveness of these interventions have been limited by a lack of control over private non-residential parking spaces, including those provided by workplaces. In 2000 the UK Government enacted legislation which enabled local authorities in England to charge employers for the parking they provided for staff via a Workplace Parking Levy (WPL). Whilst this was expected to act as a catalyst for the introduction of other similar schemes throughout the UK, only one authority has introduced a WPL to date.

This paper draws on the results of a national survey of local politicians and transport officers to ascertain the views of policy makers in the UK regarding transport-related issues, and the effectiveness and acceptability of various measures to reduce congestion, specifically the WPL. It explores the reasons why local authorities may consider introducing a WPL, examines issues with respect to the principle of the scheme, and discusses pre- and post-implementation concerns. The final section considers the likelihood of future schemes being introduced. It concludes that whilst there are a number of issues associated with WPL implementation, not least its perceived effectiveness and acceptability, further schemes can be expected in the UK in future.

1. INTRODUCTION AND LITERATURE REVIEW

Car parking is an important and complex feature of the transport system, not least because motor vehicles are parked for a significant proportion of their life. The RAC Foundation (RAC 2012) reported that cars are parked 96% of the time which makes parking a major component of car use. A US estimate suggests that for the 240 million passenger vehicles and 10 million on-road freight vehicles, the number of parking spaces is anything between 722 and 2,100 million spaces (Chester et al 2011), whilst Shoup (2005) notes that 'parking is the single biggest land use in cities'. This land use carries a significant cost, but in practice it is often not paid for by the user which can therefore encourage additional car use and lead to congestion. This is because 'free' parking can make motoring appear more attractive than it would be if it were priced to meet the full economic cost of providing the space. Moreover, parking is also a direct cause of congestion as motorists may be obliged to search for an available parking space after they have arrived at their destination. In addition, the extra car use induced by under-priced parking can be linked to poor air quality – car traffic accounts for 13.4% of the total UK CO_2 emissions (SMMT 2014) – whilst other negative environmental impacts associated with parking include storm water runoff, loss of habitat, water pollution, flooding, heat islands as well as noise pollution from vehicles stopping and starting (Forinash et al 2004).

Due to the issues associated with land use, congestion and the environment, local authorities can deliver significant benefits by introducing parking levies and related policies. First, "well designed parking policies, in various ways, contribute to the promotion of a more efficient use of the transport network, lower emissions, higher densities and better, more inclusive urban design" (Marsden 2006). Second, due to the link between parking and car use, parking policies "can be a useful instrument in managing travel demand and addressing congestion in crowded downtowns" (Qian 2011). Third, charging motorists and "using curb-parking revenue to pay for local public services is much fairer than keeping curb parking free, losing the revenue needed to pay for public services, creating chaotic parking problems on busy streets, and increasing traffic congestion caused by drivers who are searching for free parking" (Pierce and Shoup 2013). However, local authorities can only use parking policies to achieve their policy objectives where they are able to exert some form of control, yet local authorities only have the power to change the price or quantity of public parking provision and have relatively little influence over (the often significant proportion of) privately owned parking, which tends to reduce the effectiveness of parking strategies.

Private parking can include private residential parking such as a driveway or garage at the home, and private non-residential (PNR) parking which encompasses car parks in urban centres which are available to the general public as well as spaces at the workplace for employees. The problems caused by this lack of control are emphasised due to the fact that "private non-residential parking typically forms half or more of the total stock in town centres" (IHT 2005). Specifically, parking at the workplace is of particular concern. As stated, "the availability of convenient, guaranteed, free or cheap parking is a major factor in influencing people's decisions to drive to work" (HMSO 1996), with free workplace parking highlighted as a major contributor to peak period congestion due to the influence of free parking on car use as well as the tidal demand of entering an urban area in the morning and leaving in the evening, which typically revolves around the '9-5 work day' (Hill 2005). While the control on parking is not the only option open to policy makers, there being other approaches such as carpooling (see Vanoutrive et al 2012), it is an important measure to consider when seeking to address the issue of congestion and environmental degradation.

To address the issue of workplace parking, the UK Government gave local authorities power to introduce a Workplace Parking Levy (WPL) in the Transport Act (2000). This allowed authorities to charge employers for the parking provided for their staff, with all the revenue hypothecated to improving local transport. According to the White Paper (preceding the Act), the reasons local authorities might adopt a WPL could be "to reduce the amount of parking available as a means of reducing car journeys and increasing use of public transport, walking and cycling" (DETR 1998). Local authorities also received the power to introduce a Road User Charge (RUC) in the Transport Act 2000. The power to introduce a WPL, however, was legislated in order "to accommodate local authorities who wished to control demand for road travel to city centres but who had indicated, during the consultation processes, that they did not consider road user charging to be an appropriate solution for their locality" (Bonsall and Milne 2003). This was justified on the basis that what is appropriate for London is not necessarily suitable for smaller cities and a weaker demand management measure may be more appropriate (Burchell et al. 2015). Following the introduction of the Transport Act 2000, interest from 35 local authorities (in both the WPL and RUC) meant there was an assumption by the UK government that there would be a number of "workplace parking schemes [introduced] over the next decade" (DETR 2000). Twenty years later however, only one WPL has been introduced in the UK in the city of Nottingham.

One of the main reasons for this relates to the lack of acceptance of a price-based approach to the problem. Many studies including Jones (1991), Ison (2000), Thorpe et al. (2000), Ison and Wall (2002) and Schade and Schlag (2003) have focused on this issue specifically in the area of road pricing. Jones (1991) surveyed public attitudes to UK traffic problems in urban areas and potential approaches to addressing them. Whilst somewhat dated, Jones revealed in a poll of polls of various national and London-based surveys that the measure backed most strongly by the public was for the provision of alternatives to car use, namely the improvement in public transport, Park and Ride schemes, and the encouragement of cycling and walking. Urban road pricing on the other hand was only supported by a minority and was seen as being a 'policy of last resort'. Jones (1998) returned to this point stating that the lack of public support for road user charging could be argued on the grounds that 'Traffic containment or reduction is needed, but it could be better or more appropriately achieved in other ways. Either by simply improving modal alternatives (for example 'better public transport') or through the use of other restraint measures such as bans on road traffic in major shopping streets, or restrictions on access to certain parts of the road network. Something less 'draconian' will suffice'. Similarly, 25 years ago Higgins stated that road pricing is only likely to succeed in conditions of severe congestion (Higgins 1994). This is the line supported by Jones (1998) in that the lack of need for road pricing is argued on the basis that 'road traffic conditions are not bad enough to warrant the use of such an extreme measure, people would rather put up with the delays.'

The aim of this paper is to ascertain the views of policy makers in the UK with respect to the WPL in order to understand their concerns surrounding such a scheme and to determine the likelihood of a WPL scheme being adopted elsewhere, both within the UK and internationally. Specifically, it seeks to understand the views pertaining to transport related issues as well as the effectiveness and acceptability of various measures to reduce congestion. It then explores the reasons why local authorities might introduce a WPL, issues with respect to the principle of the scheme, and pre and post-implementation concerns. The final section considers the future of the WPL as a policy measure in the UK, in terms of the number of future schemes and the degree and type of support required should additional localities choose to pursue this.

2. PARKING LEVIES

Parking levies are a charge on a specific type of parking in a city. Such levies can apply to a whole area or to specific zones, while different schemes have been introduced to cover different categories of parking – from all workplace parking, to all private non-residential parking, or to all parking spaces within a cordon. To date, parking levies have been introduced in Singapore (1975-1998), Australia (in Sydney (1992), Perth (1999), Melbourne (2007) and Adelaide (2014)) and in the UK (Nottingham (2012)). Parking levies have previously been introduced to manage congestion, encourage public transport use, regenerate the area, provide revenue to subsidise and fund public transport investment, improve air quality and encourage (shoppers/visitors) or discourage (commuters) certain type of users (Burchell et al. 2015, Enoch and Ison 2005, Transport for New South Wales 2013 and Hamer et al 2011). Typically, all or a portion, of the revenue is hypothecated to be invested into local transport and is seen as an important factor to ensure that parking levies are effective in meeting their goals.

In the UK, Nottingham City Council (NCC) introduced a WPL in April 2012 and was primarily introduced to raise revenue to improve local transport. However, the Nottingham WPL is also anticipated to regenerate the area, improve land use, deliver environmental improvements, support businesses in developing travel plans, in addition to exerting a direct and indirect impact on traffic congestion (Burchell et al 2015).

Dale et al (2017) provide evidence of congestion constraint due to the WPL with the analysis showing that the number of liable workplace parking places is positively related to delay. The study included a number of exogenous variables known to impact congestion including road work activity and economic activity measured by the number of people of working age not claiming out of work benefits both of which also proved statistically significant. Dale et al conclude that while the WPL does result in congestion constraint this impact is being masked by economic growth and temporarily by road work activity associated with the implementation of the major transport improvements part funded by the WPL. The scale of the WPL effect is quoted as 15 seconds of time saving per vehicle mile in 2013 or 1,146 days. While Dale et al do not comment on whether this effect is significant in the broader sense it would seem that this congestion constraint makes an important contribution as a TDM measure even though other exogenous factors may have impact.

3. METHOD

Between October 2013-February 2014, one Councillor (an elected official) and one Officer (those who manage the implementation and operation of a policy) responsible for transport in each UK local authority that was eligible to implement a WPL were contacted by email to ask if they would be willing to complete a short internet-based survey. The survey population comprised all English County (rural), Unitary (both rural and urban), Metropolitan (large urban), and London Borough (comprising the 32 Districts of London) Councils[1]. In the case of Metropolitan areas (such as those based in Manchester and Birmingham), transport is usually overseen by an overarching Transport Authority which is responsible for a cohesive transport strategy for its constituent Boroughs. In these cases, the views of both the overarching Transport Authority and the individual Metropolitan Boroughs were collected, for although the

[1] See www.politics.co.uk/reference/local-government-structure for more details of the local Government structure in England

decision to introduce a WPL is ultimately the responsibility of the Transport Authority, it is also possible that a WPL could be introduced within a single Borough.

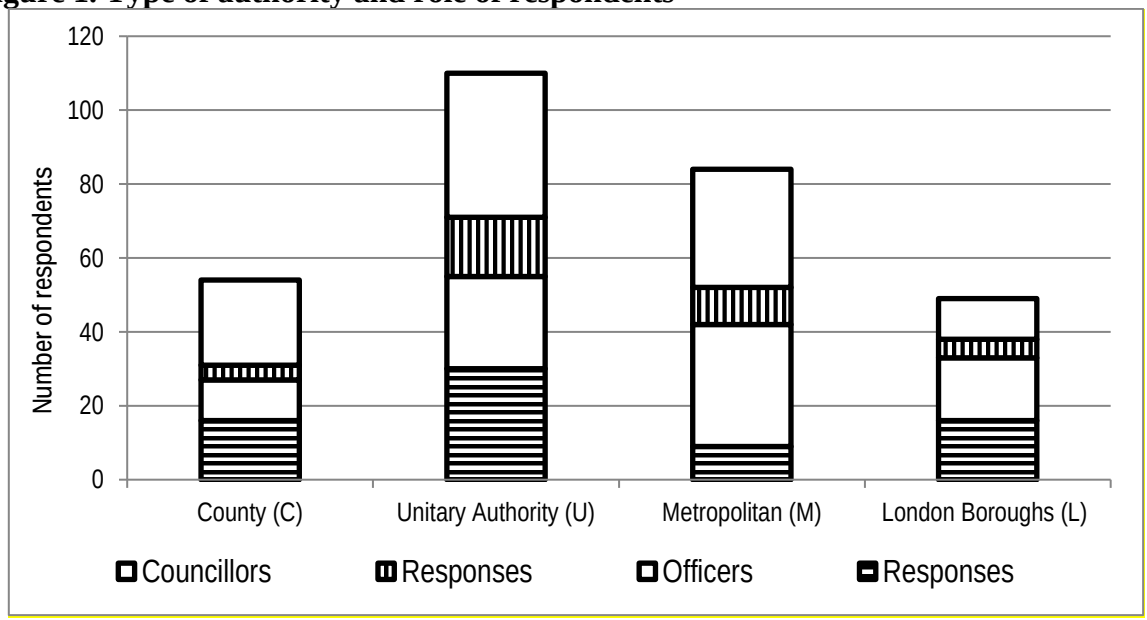
In total 156 authorities, excluding Nottingham City Council (NCC) were contacted by email. Contact details were obtained from the *Municipal Year Book* (2013). Owing to the number of respondents [312], a web-based survey was developed with the aim of enhancing the response rate and giving respondents the option to remain anonymous (which was important due to the political nature of the WPL). Such anonymity can be more difficult to achieve with email surveys, hence why the web-based approach was adopted (Bryman 2004). Table 1 details the authorities who were contacted.

Table 1. Transport Authorities in England

Type	Number of Councils
Unitary Authority	55
County Councils (Two-tier)	27
Integrated Transport Authority (Metropolitan Borough)	6
Districts of Metropolitan Boroughs	36
London Boroughs	32
City of London	1
Total	*157*

The full population was surveyed which meant the views of 156 out of the 157 authorities (excluding NCC) were sought. For each of the 156 authorities, one transport Officer and one transport Councillor were contacted; thus 312 surveys were distributed. All non-respondents were contacted one and two months after the initial contact with the aim of boosting the response rate. In total 133 responses were received (a 43% response rate). The split was fairly even between Councillors and Officers as well as by the different type of authorities although 27 respondents chose to remain anonymous. Figure 1 provides a detailed breakdown of the responses by job role and local authority type.

Figure 1. Type of authority and role of respondents



Base: 106 respondents

In order to obtain the opinions of the various respondents, a self-completion questionnaire was used because it was cheaper to administer than face-to-face interviews (particularly given that the sample was spread geographically); was quicker than face-to-face and telephone interviews; and could be completed anonymously (Bryman, 2004). The web-based questionnaire was developed using Bristol Online Survey (Bristol Online, 2013). The survey was piloted with Officers and Councillors from NCC with a good working knowledge of the WPL. The respondents were asked to complete the survey from a local authority perspective and this provided useful feedback. The majority of questions were of a 5-point Likert scale format ranging from strongly disagree to strongly agree, very unconcerned to very concerned and very unacceptable to very acceptable.

The survey was based on the approach developed by Ison (2000) and Ison and Wall (2002). These together with a wider review of the relevant literature informed the questions. The survey is provided in the Appendix in the format it appeared on the webpage detailing the frame in terms of the effectiveness and acceptance of TDM measures and role played by the WPL in addressing congestion and related issues.

4. FINDINGS

This section is divided into a number of sections, namely: the perception of the respondents to the seriousness of transport related issues, the effectiveness and acceptance of measures used to address traffic-related congestion, including the WPL and the issues/concerns surrounding the implementation of the WPL.

The seriousness of transport related issues

First, respondents were asked about the severity of transport issues. Wear and tear of the road network was identified as being the greatest concern with 60% of respondents stating that this was a *serious* or *very serious* issue. This was followed by 'morning congestion' (45% considered it to be *serious*/*very serious*), 'evening congestion' (44%), 'air pollution' (36%), 'social exclusion' (31%) and 'noise pollution' (21%). Although fewer than half of the respondents stated that congestion was *serious* or *very serious*, under 10% of the respondents

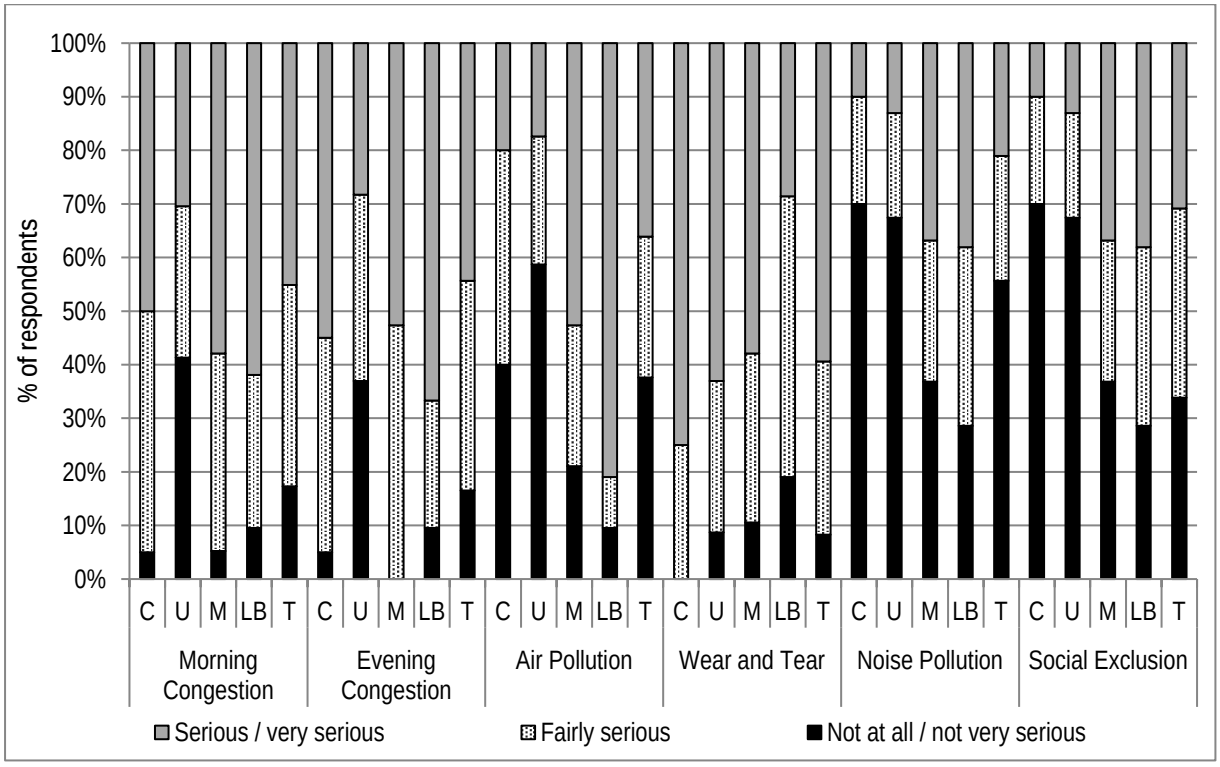
from County Councils, Metropolitan Councils and London Boroughs stated congestion was *not at all or not very serious*.

In addition, the respondents were also segmented into different groups to identify variations in their views. Specifically this included Councillors and Officers at the Unitary, County, Metropolitan and London Borough level. The key findings were:

- The more rural the authority, the more *serious* the wear and tear issue was considered to be. Hence County Councils viewed it as the most significant issue (75%*)* and London Boroughs the least (29%).
- Nearly two-thirds of the respondents from London Boroughs viewed congestion to be *serious* or *very serious* (67% evening/62% morning); the highest amongst the groups.
- London Boroughs and Metropolitan areas (i.e. the most urbanised) viewed problems associated with air, and noise pollution caused by transport and social exclusion as being more of an issue than Unitary and County Councils. Indeed, the single biggest issue for London Borough respondents was the severity of air pollution (82% *serious* or *very serious)*.
- Councillors perceived congestion, air pollution and noise pollution to be slightly more of an issue compared with Officers who perceive wear and tear of the road network to be more of a concern.

The findings are summarised in Figure 2:

Figure 2. Type of authority: Transport related issues



Base: 133 responses

Note: County (C), Unitary (U), Metropolitan (M), London Borough (LB) and Total (T) which presents the average response from all the respondents.

Effectiveness of policy options for reducing congestion

In terms of reducing congestion, the responses concerning the effectiveness and acceptability of the various policy options was on a 5-point Likert scale with '1' representing '*very ineffective/unacceptable'* and '5' '*very effective/acceptable'*. Table 2 presents the findings with respect to the policy options of the different types of authority.

Table 2. Type of authority: Effectiveness of policy measures for addressing congestion (% of respondents)

Policy Measure	Response	County (%)	Unitary (%)	Metropolitan (%)	London Borough (%)	Total Responses	Mean Score
Frequency and Reliability PT	Effective / Very Effective	80	78	89	100	83	4.11
	Ineffective / Very Ineffective	10	4	5	0	5	
Reduce cost of PT	Effective / Very Effective	70	78	79	100	77	4.03
	Ineffective / Very Ineffective	10	7	5	0	8	
Improve Local Railway	Effective / Very Effective	75	65	89	76	72	3.92
	Ineffective / Very Ineffective	15	11	11	10	11	
Improve Cycling and Walking	Effective / Very Effective	50	72	68	90	68	3.68
	Ineffective / Very Ineffective	30	11	16	0	14	
Home Working	Effective / Very Effective	40	63	47	81	59	3.58
	Ineffective / Very Ineffective	5	13	11	10	11	
Introduce RUC	Effective / Very Effective	65	54	47	86	60	3.53
	Ineffective / Very Ineffective	15	22	26	14	21	
Park and Ride	Effective / Very Effective	70	63	84	33	65	3.51
	Ineffective / Very Ineffective	10	15	11	33	17	
Road Expansion	Effective / Very Effective	65	63	68	29	59	3.47
	Ineffective / Very Ineffective	15	17	11	43	19	
Car sharing	Effective / Very Effective	55	48	37	57	52	3.38
	Ineffective / Very Ineffective	20	20	21	19	19	
Increase parking charges	Effective / Very Effective	55	50	42	52	48	3.30
	Ineffective / Very Ineffective	15	26	26	24	24	
Reduce Supply Parking	Effective / Very Effective	55	30	53	62	44	3.20
	Ineffective / Very Ineffective	30	41	37	24	32	
Introduce WPL	Effective / Very Effective	40	33	42	67	40	3.17
	Ineffective / Very Ineffective	40	33	26	14	27	

Base: 133 responses (Mean value – 5 = very effective and 1 = very ineffective)
NB. Percentages may not add up to 100 owing to rounding

The measures seen to be the *most effective* in reducing congestion were policies linked to the attractiveness of public transport, cycling and walking. This included 'improving public transport by reducing the passenger cost' as well as 'more frequent and reliable services';

‘improving local railway services’; and ‘improving cycling and pedestrian routes’. The least effective schemes were all parking related and included the introduction of a ‘WPL’; ‘reduction in parking supply’; and an ‘increase in parking charges’ - incidentally the ‘WPL’ was deemed the *least effective* measure for dealing with congestion out of the policy options provided. However, this view was not uniform, and respondents from London Boroughs viewed parking policies (and ‘WPL’ in particular) to be *more effective* than other measures. Respondents from London Boroughs also stated that ‘park and ride’ and ‘expanding the road network’ were *ineffective* measures for reducing congestion, whereas the other types of authorities tended to view these policies as *effective*.

In addition, the more urban the authority the *more effective* a reduction in the cost of public transport was perceived to be in addressing congestion, whilst Metropolitan areas viewed a ‘RUC’ as the least effective measure for reducing congestion compared with the other types of authority. Also interesting is that Officers tended to view pricing measures such as a ‘RUC’, ‘WPL’ and ‘increased parking charges’ as well as the ‘expansion of the road network’ as *more effective* than Councillors.

Acceptability of policy options for reducing congestion

Similar to the effectiveness of the policies, the *most acceptable* measures were policies that were perceived to deliver improvements; these included ‘reducing the cost of public transport’, ‘improving the frequency and reliability of public transport’, ‘improving local railway services’ as well as an ‘improvement in cycling and walking routes’. The one policy with a major discrepancy relating to effectiveness and acceptability was ‘RUC’. 60% of the respondents thought it was *effective* at reducing congestion but only 14% thought it *acceptable*. Other policies deemed *unacceptable* were associated with a ‘reduction in the availability of parking’ as well as an additional motoring cost such as ‘increasing parking charges’ or a ‘WPL’. Table 3 presents the responses with respect to acceptability.

Table 3. Type of authority: Acceptability of policy measures for addressing congestion (% of respondents)

Policy Measure	Response	County	Unitary	Metropolitan	London Borough	Total	Mean Value
Frequency and Reliability PT	Acceptable / Very Acceptable	90	96	95	100	94	4.55
	Unacceptable / Very Unacceptable	0	4	0	0	3	
Improve Local Railway	Acceptable / Very Acceptable	90	89	95	100	92	4.53
	Unacceptable / Very Unacceptable	5	0	0	0	2	
Reduce cost of PT	Acceptable / Very Acceptable	90	93	95	95	93	4.50
	Unacceptable / Very Unacceptable	10	4	0	0	4	
Improve Cycling and Walking	Acceptable / Very Acceptable	85	89	74	90	86	4.17
	Unacceptable / Very Unacceptable	0	2	5	0	2	
Home Working	Acceptable / Very Acceptable	70	89	68	86	81	4.08
	Unacceptable / Very Unacceptable	0	0	0	10	2	
Park and Ride	Acceptable / Very Acceptable	85	76	84	43	74	3.98
	Unacceptable / Very Unacceptable	0	0	5	14	3	
Car sharing	Acceptable / Very Acceptable	70	76	68	76	74	3.91
	Unacceptable / Very Unacceptable	0	7	0	5	3	
Road Expansion	Acceptable / Very Acceptable	80	80	68	38	70	3.69
	Unacceptable / Very Unacceptable	15	11	11	24	13	
Increase parking charges	Acceptable / Very Acceptable	25	15	26	29	21	2.39
	Unacceptable / Very Unacceptable	60	74	53	38	61	
Reduce Supply Parking	Acceptable / Very Acceptable	15	9	11	33	14	2.19
	Unacceptable / Very Unacceptable	70	74	63	43	66	
Introduce WPL	Acceptable / Very Acceptable	25	11	11	29	16	2.16
	Unacceptable / Very Unacceptable	65	80	74	38	67	
Introduce RUC	Acceptable / Very Acceptable	10	11	5	43	14	1.86
	Unacceptable / Very Unacceptable	85	87	84	33	78	

Base: 133 responses (Mean value – 5 = very acceptable and 1 = very unacceptable)
NB. Percentages may not add up to 100 owing to rounding

Moreover, the more rural the type of authority, the more *acceptable* the 'expansion of the road network' was viewed. Urban authorities, particularly London Boroughs on the other hand, viewed 'road expansion' as an *unacceptable* way to reduce congestion. Once more, the opinions of London Boroughs differed most in comparison to other authorities. In terms of

London Boroughs RUC and WPL were deemed more *acceptable* and policies such as 'park and ride' and 'expanding the road network' were much less *acceptable*. This is perhaps not too surprising. The least *acceptable* measure for an individual type of authority was the introduction of an 'RUC' in a Metropolitan area. Councillors believe introducing a 'WPL', a 'RUC' as well as 'increasing parking charges', are more *acceptable* in comparison to the views of Officers. Despite this, the majority of both groups view these approaches to be an *unacceptable* approach to tackling congestion. Instead, Officers viewed the softer policy interventions as more *acceptable*; these include 'improving cycling and walking', 'car sharing' and 'home working'.

In summary, the 'WPL' is viewed by Councillors and Officers as less *effective*, compared to other measures, especially those that enhance transport provision and *unacceptable* for reducing congestion, though not by everyone. The following findings cover the views of the respondents with respect to the WPL.

Reasons for a WPL

As stated in section 3 one of the prime reasons for the introduction of the WPL in the city of Nottingham was to raise revenue in order to improve local transport provision as part of a package of measures which would lead to a reduction in congestion, an environmental improvement as well as improved land use and urban regeneration. Table 4 provides the views of local authorities with respect to why a WPL might be introduced.

Table 4. Type of Authority: Reason for introducing a WPL (% of respondents)

		County	Unitary	Metropolitan	London Borough	Total	Mean Value
Reduce Congestion	Strongly agree / Agree	70	61	63	62	61	3.56
	Neither agree nor disagree	25	28	5	19	24	
	Strongly disagree / Disagree	5	11	32	19	15	
Raise Revenue	Strongly agree / Agree	55	57	47	57	53	3.45
	Neither agree nor disagree	40	26	32	29	32	
	Strongly disagree / Disagree	5	17	21	14	15	
Environmental Benefit	Strongly agree / Agree	40	52	63	71	51	3.38
	Neither agree nor disagree	40	30	16	19	32	
	Strongly disagree / Disagree	20	17	21	10	17	
Improve Land Use	Strongly agree / Agree	20	33	26	33	26	2.93
	Neither agree nor disagree	45	39	47	43	46	
	Strongly disagree / Disagree	35	28	26	24	28	
Urban Regeneration	Strongly agree / Agree	15	13	32	29	19	2.73
	Neither agree nor disagree	45	50	37	33	45	

Strongly disagree / Disagree	40	37	32	38	36

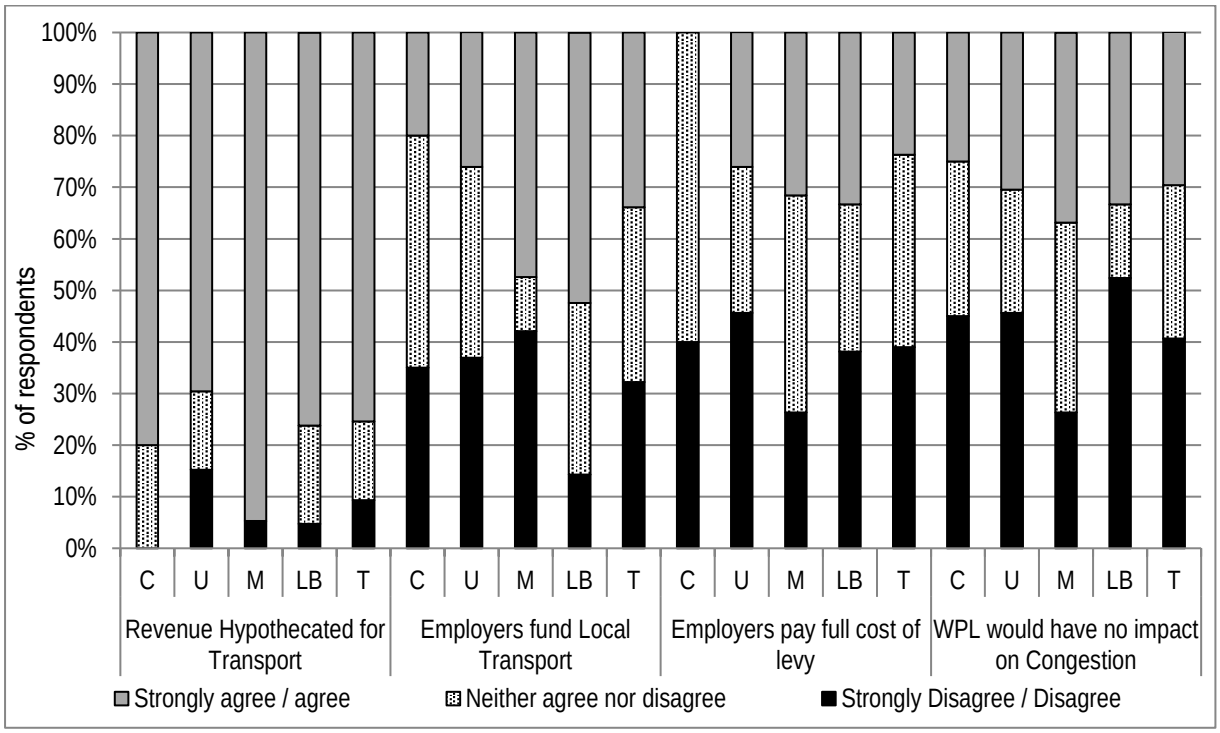
Base: 118 responses
NB. Percentages may not add up to 100 owing to rounding

The three main reasons as to why a local authority might introduce a WPL were to 'reduce congestion' (61% *agree*/*strongly agree*), 'raise revenue to fund transport improvements' (53%) and for 'environmental reasons' (51%). Individual authorities however, placed greater emphasis on specific aspects. For example County Council respondents are more likely to introduce a WPL to 'reduce congestion' whilst urban authorities are more likely to introduce a WPL to achieve 'environmental benefits'.

Similarly, the more urbanised the more likely an authority would introduce a WPL to 'improve land use' and/or 'regenerate the area', though overall 'improving land use' (26% *agree/strongly agree*) and 'urban regeneration' (19%) are the least primary reasons for introducing a WPL. Finally, a greater proportion of Officers *agree*/*strongly agree* that a WPL would be introduced in order to 'reduce congestion' or 'raise revenue' whilst a greater proportion of Councillors believe that a WPL would be introduced for 'environmental reasons' or to 'regenerate the urban area'.

Principles of a WPL
The survey sought to identify the views of respondents with respect to the principles of a WPL. This included the hypothecation of the revenue for local transport purposes; whether employers should be responsible for funding local transport as the WPL implies; and if employers should pay the full cost of the levy or pass the charge on to their employees. See Figure 3.

Figure 3. Type of authority: Principles of a WPL



Base: 118 responses

Three-quarters of the respondents were in *agreement* that the revenue should be 'ring fenced to be spent on improving local transport' and this was consistent across all authority types. By contrast, only 34% *agreed/strongly agreed* that 'employers should fund local transport', with County Councils being the least convinced (20%), though the view of the respondents from London Boroughs was the extreme opposite, where only 14% disagreed. Meanwhile still fewer (24%) responded that 'employers should pay the full cost of the levy', with no-one from County Councils supporting this idea, with 33% from London Boroughs *agreeing*.

Issues associated with introducing a WPL
The views of the respondents with respect to the issues associated with introducing a WPL related to the need for 'political stability'; 'identifying the number of parking spaces'; 'identifying the boundary' within which the levy would apply; the 'cost of implementation'; 'equity' of the scheme; 'available public transport provision'; and the 'use of the revenue'.

At least two thirds of the respondents from all authorities were either *concerned* or *very concerned* with the 'cost of implementation' (74%), 'equity and fairness of the scheme' (72%) and the 'lack of public transport provision' as a realistic alternative to car use (75%). Furthermore, the majority of the respondents viewed 'identifying the boundary' for the area that is affected by the charge (59%) as well as 'how to use the revenue' from a WPL (64%) as further *concerns*. Respondents from London Boroughs were the *least concerned* (57%) with the 'availability of public transport' as an alternative to motoring. Moreover, it was found that the more rural the authority the *more concerned* the respondent was likely to be with regard to 'availability of public transport'. London Boroughs were the *least concerned* (48%) and Metropolitan areas the *most concerned* (84%) with respect to 'how to use the revenue'.

Only 39% of the respondents highlighted a 'lack of political stability' as an issue although the views varied significantly between the different types of authority. This is because 55% of respondents from County Councils, compared to 15% in London Boroughs, *agreed* that a 'lack of political stability' would be a concern for introducing a WPL. The results highlighted that the more urban the authority, the less of an issue political stability seemed to be.

Establishing the number of employer parking spaces was not perceived to be a significant problem, as 47% of respondents stated *disagree* or *strongly disagree* that the number of spaces would be an issue. London Boroughs perceived it as the greatest problem (38%) and County Councils the least (15%).

Issues following the introduction of a WPL
If a WPL were to be introduced, then potential concerns related to business compliance; enforcement; impact on new and existing businesses; displaced parking; and the short and long-term impact of such a scheme.

The greatest concern following the introduction of a WPL were with respect to 'impact on new business' (82% *concerned or very concerned*), the 'impact on the area in the short term' (81%), 'impact on existing business' (79%), 'business compliance' (77%), 'enforcement' (76%), 'displaced parking' (76%) and the 'impact on the area in the long term' (74%).

The area of *most concern* was for the 'impact on new businesses', particularly for County and Metropolitan Councils (90%*).* Another observation was that the more rural the type of authority the *more concerned* they were likely to be with respect to the 'enforcement' of the scheme. The final point is that there is slightly *greater concern* for the impact on the area in the 'short term'

(81%) compared to the 'long term' (74%). Whilst the difference is minimal, it does indicate that fears for adopting a WPL centre more on the immediate aftermath of its introduction than on its continued operation later on.

Influence of existing schemes on future WPL's
As regards the future, it was felt to be important that the influence of schemes already in existence would impact on the attractiveness of the measure as well as the support local authorities would receive if they introduced their own scheme based on locations already with a parking levy.

In the event, only 7% of respondents *agreed* that the introduction of the WPL in Nottingham (the first in the UK) had made their authority more inclined to introduce such a scheme, though a significantly larger proportion (44%) *agreed* that if a WPL was introduced in other locations they would be more inclined to do so.

In more detail, respondents from London Boroughs were most likely to *agree* (52%) that the attractiveness of a WPL would be increased if introduced elsewhere; this was closely followed by County Councils (50%), then Unitary (46%) and Metropolitan Councils (42%). Furthermore, the more rural the type of authority the more likely they were to *disagree* that the introduction of a WPL in Nottingham would make them more inclined to introduce their own WPL. Thus 60% of County Council respondents *disagreed* compared to only 29% from London Boroughs.

With respect to support, only 5% of the respondents stated they would not seek support from local authorities with an existing WPL in the UK if they were to introduce their own scheme. Of these, there is little difference between the different types of Council with approximately 80% of all authorities stating *agree or strongly agree*. A significantly larger proportion of the respondents (41%) stated they would not seek support from local authorities with a WPL from overseas. Here however, Metropolitan areas (47%) and London Boroughs (33%) being most likely to do so in comparison to Unitary Authorities (26%) and County Councils (25%).

Likelihood of another local authority introducing a WPL in the UK
As to the likelihood of additional schemes being implemented in the UK overall less than a fifth of the respondents (21 out of the 118) had previously considered introducing a WPL in their locality. There was a similar level of interest from County Councils, Unitary Authorities and London Boroughs (about 20%), with Metropolitan Districts the least likely (11%) to have considered such a scheme. Interestingly ten respondents stated *agree or strongly agree* that their authority would introduce a WPL in the next five years and 21 respondents stated they would introduce a scheme within the next ten years.

Despite the issues raised, County Councils (20%) were the most likely to *agree* that they would introduce a WPL in the next five to ten years. Whilst London Boroughs were the least likely to *agree* (15%), 48% stated *neither agree nor disagree* which provides an indication that these respondents are not ruling out the possibility of introducing such a scheme. Respondents from Metropolitan Areas were the type of authority most likely to *agree* that they would 'never introduce a WPL', although only marginally more when compared to the other authorities. Moreover, 36% of respondents stated *neither agree nor disagree* for introducing a WPL in 10 years whilst 31% stated they would 'never introduce a WPL'. An indication as to the reasons why some authorities have no interest in a WPL, was provided in the 'any other comments' section of the survey.

"During a time of a struggling economy, [a] *WPL is the last thing that any Local Authority would introduce, especially given the priorities of Local and National Government to regenerate and boost economies."*

"There is an extreme 'nervousness' about using tariffs to influence commuter behaviours in Greater Manchester following the [failed] *Congestion Charging referendum."*

DISCUSSION

There is a pressing need to reduce car dependency and hence traffic congestion and levels of air pollution in cities worldwide. Although parking policies can be used to achieve multiple objectives (Marsden 2006, Qian et al 2011 and Pierce and Shoup 2013), a lack of control over private non-residential parking, particularly at the workplace, reduces the effectiveness of such policies. To correct this, the UK Government enacted legislation in 2000 to allow local authorities to introduce a WPL. It was anticipated that the Act would lead to multiple schemes being introduced across the country. However, to date, only one WPL has been introduced. This paper has focused on the possible reasons for the low uptake and the potential likelihood of future schemes being introduced in the UK.

First, parking policies, and more specifically increasing the cost and reducing the supply of parking, were generally viewed by UK transport policy makers to be ineffective and unacceptable measures for reducing congestion. The exception being that two-thirds of respondents from London Boroughs viewed a WPL as being both acceptable and effective. This however was thought to be because these respondents also identified the seriousness of the issues associated with congestion and air pollution, which can be seen to be the result of the unique circumstances facing London (Burchell et al. 2015).

Second, whilst 75% of the respondents supported the principle that the revenue should be hypothecated to fund local transport which can improve the equity of the scheme (Pierce and Shoup 2013), only 32% of respondents believe employers should fund local transport and only 24% believe employers should pay the full cost of the levy. Once more, however, the London Boroughs differed in their response. This is because these respondents were more in agreement that employers should fund local transport which provides an indication as to why these respondents were more likely to view a WPL as more effective and acceptable.

Third, at least 70% of respondents were *concerned* or *very concerned* with the cost of implementation, compliance, equity, enforcement, displaced parking, impact on business as well as the impact on the area in the short term and long term if a WPL was introduced. These concerns could mean local authorities are reluctant to introduce such a measure. Specifically, rural locations were more concerned than urban locations. For example, County Council respondents were more concerned with political stability. In contrast, political stability was less of a concern for London Boroughs and this could be because the council boundaries are narrower which mean people are more likely to commute from another jurisdiction and therefore having no voting power in the constituency they work in. This could indicate a WPL is more likely to be introduced in areas with smaller administrative areas and narrower boundaries.

Despite these issues, ten respondents stated that their authorities would consider introducing a WPL in the next five years and 23 respondents in the next ten years, primarily to reduce congestion, for environmental reasons and (to slightly lesser extent) to raise revenue. On this

basis, it is likely that a limited number of other authorities are likely to introduce a WPL in the short to medium term following the introduction of the WPL in Nottingham. Furthermore, although less than 10% of the respondents thought the Nottingham WPL had made the scheme more attractive, just under half of the respondents would view the WPL as more attractive if it was also introduced elsewhere. This would suggest that if the new WPL schemes materialise in the next ten years then further schemes could be expected.

If additional schemes are introduced, more than 80% of the respondents stated they would seek support in introducing a WPL from local authorities in the UK that have already implemented such a scheme, but only 30% would seek help/advice from foreign locations. This indicates the preference to learn lessons from locations with similar contextual circumstances and therefore highlights the importance of 'first mover' authorities on a national level when new policies are being adopted. This lesson is of particular importance and reflects experience in Australia, where following the introduction of a parking levy in Sydney, three other cities introduced have their own scheme. Indeed, if this experience is repeated in the UK, as suggested by the respondents, one might argue that the decision of NCC to introduce a WPL could have an impact far beyond the boundaries of the Nottingham scheme and help address the issues associated with peak period congestion caused by free workplace parking in cities across the country as additional WPL's are implemented.

With reference to the final point it is interesting to note that since the survey was undertaken, a number of UK local authorities have begun, albeit somewhat tentatively, to consider the possibility of introducing a WPL. For example, in Scotland it is understood that the City of Edinburgh Council and Glasgow City Council would welcome the Scottish Government affording councils the power to introduce a workplace car parking levy and, in London, it is understood that a consultation is underway within the London Borough of Hounslow as to a proposed hypothecated workplace parking levy. The London Borough of Brent is also reportedly looking into the feasibility of a workplace parking levy. In addition, Reading Borough Council is thought to be exploring the possibility of a workplace parking levy closely based on Nottingham's scheme while Bristol City Council is reportedly considering implementing either a workplace parking levy or a congestion charge as potential ways to raise funding for local transport projects.

CONCLUSION

Rising levels of urbanisation combined with the urgent need to reduce private vehicle dependency and invest in sustainable public transport alternatives to the private car has prompted Governments around the world to introduce a range of legislative interventions that seek to manage demand for car parking spaces by managing demand and/or introducing a levy for certain types of parking. The City of Nottingham in the UK was the first and, to date, only urban area in the UK to introduce a WPL. The reasons for this are complex and offer important lessons for other urban transport authorities worldwide. One important condition underpinning the implementation of any WPL is public acceptance of such a measure as, without it, the political will necessary to enact the intervention will not be forthcoming. Our findings have indicated that local authorities remain concerned at the perceived low levels of public acceptability. However, given the prominence of environmental issues on both global and local political agendas, it is likely that public pressure to actively demand manage polluting transport modes will grow and public willingness to travel on alternative modes will increase. The findings of this research have broad implications for policy and practice, as lessons learned from the UK can be used to inform the development of other WPL and parking pricing interventions overseas.

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Appendix

Local Authority Perspectives with respect to Urban Transport related Issues

Transport in your Locality

1. How would you regard the **seriousness** of each of the following transport-related issues within your Local Authority area?

	Not at all serious	Not very serious	Fairly serious	Serious	Very serious
a. Morning congestion	○	○	○	○	○
b. Evening congestion	○	○	○	○	○
c. Air pollution related to local transport	○	○	○	○	○
d. Road wear and tear	○	○	○	○	○
e. Noise	○	○	○	○	○
f. Social exclusion, such as the number of households without a car, lack of access to public transport and crime on public transport	○	○	○	○	○

Effectiveness and Acceptability

3. How **effective** do you believe the following measures are in terms of reducing congestion?

	Very ineffective	Fairly ineffective	Neither effective nor ineffective	Fairly effective	Very effective
a. Improvement in the frequency and reliability of public transport	○	○	○	○	○
b. A reduction in the cost of public transport for passengers	○	○	○	○	○
c. Improvement in local railway services	○	○	○	○	○
d. An increase in parking charges on-street and off-street	○	○	○	○	○
e. A reduction in the number of parking spaces on-street and off-street	○	○	○	○	○
f. The implementation of a workplace parking levy as part of a package of measures (a charge employers pay based on the number of parking spaces at the workplace for staff)	○	○	○	○	○
g. The implementation of a road user charging scheme as part of a package of measures (a charge motorists pay for the use of roads at certain times)	○	○	○	○	○
h. An improvement in cycle ways and pedestrian routes	○	○	○	○	○
i. An improvement in a park and ride network	○	○	○	○	○
j. Selective expansion of the road network	○	○	○	○	○
k. An encouragement of car sharing	○	○	○	○	○
l. An encouragement of home working	○	○	○	○	○

2. How **important** do you believe the following to be within your Local Authority area?

	Very unimportant	Unimportant	Neither important nor unimportant	Important	Very important
a. An efficient and reliable road network	○	○	○	○	○
b. Efficient and reliable public transport	○	○	○	○	○
c. Improvements to current public transport	○	○	○	○	○
d. Good access to national road and rail links	○	○	○	○	○
e. Safe and efficient cycling and walking routes	○	○	○	○	○
f. Reliable journey times for all modes	○	○	○	○	○
g. Encouraging travellers to use more sustainable methods for travelling to work (Public transport, walking, cycling)	○	○	○	○	○

4. How **acceptable** do you believe the following measures are in terms of reducing congestion?

	Very unacceptable	Fairly unacceptable	Neither acceptable nor unacceptable	Fairly acceptable	Very acceptable
a. Improvement in the frequency and reliability of public transport	○	○	○	○	○
b. A reduction in the cost of public transport for passengers	○	○	○	○	○
c. Improvement in local railway services	○	○	○	○	○
d. An increase in parking charges on-street and off-street	○	○	○	○	○
e. A reduction in the number of parking spaces on-street and off-street	○	○	○	○	○
f. The implementation of a workplace parking levy as part of a package of measures (a charge employers pay based on the number of parking spaces at the workplace for staff)	○	○	○	○	○
g. The implementation of a road user charging scheme as part of a package of measures (a charge motorists pay for the use of roads at certain times)	○	○	○	○	○
h. An improvement in cycle ways and pedestrian routes	○	○	○	○	○
i. An improvement in a park and ride network	○	○	○	○	○
j. Selective expansion of the road network	○	○	○	○	○
k. An encouragement of car sharing	○	○	○	○	○
l. An encouragement of home working	○	○	○	○	○

5. If money was no object, what would be your primary transport scheme or intervention undertaken in order to alleviate congestion in your Local Authority area? *(Optional)*

Local Authority Perspectives with respect to Urban Transport related Issues

Introduction of a Workplace Parking Levy

A Workplace Parking Levy (WPL) is a charge employers pay based on the number of staff car parking spaces at the workplace. All of the revenue raised from a WPL is ring-fenced to be spent on improving local transport. Nottingham City Council were the first, and to-date only Local Authority to introduce a WPL in the UK when a charge of £288 per parking space was placed on employers with 11 or more parking spaces in April 2012.

6. Has your Local Authority considered introducing a WPL?

○ Yes ○ No

7. If your Local Authority were to introduce a WPL, would it be introduced primarily...

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. to reduce congestion	○	○	○	○	○
b. to raise revenue to fund transport improvements	○	○	○	○	○
c. for environmental reasons	○	○	○	○	○
d. to improve land use	○	○	○	○	○
e. to regenerate the area	○	○	○	○	○

8. To what extent do you agree with the following

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. A lack of political stability in your Local Authority would be a barrier to introducing a WPL	○	○	○	○	○
b. Introducing a WPL during the current economic climate would be an issue	○	○	○	○	○
c. The revenue from the WPL should be ring fenced to be spent on improving local transport	○	○	○	○	○
d. A lack of understanding of the impact of a WPL would be an issue	○	○	○	○	○
e. Your Local Authority does not have the resource required to explore and introduce a WPL	○	○	○	○	○
f. It would be difficult to ascertain how many workplace parking places exist	○	○	○	○	○
g. Local employers should fund local transport improvements	○	○	○	○	○
h. The employer should pay the full cost of the levy, and not pass it on to their staff	○	○	○	○	○
i. A WPL would not have an impact on congestion	○	○	○	○	○
j. If other areas introduced a WPL, it would make a WPL in your Local Authority more attractive	○	○	○	○	○
k. Following the introduction of the WPL in Nottingham, authorities will be more inclined to introduce a WPL	○	○	○	○	○
l. If your Authority decided to introduce a WPL, you would seek advice from Local Authorities with a WPL in the UK	○	○	○	○	○
m. If your Authority decided to introduce a WPL, you would seek advice from Authorities with a WPL from overseas	○	○	○	○	○

9. If you were to introduce a WPL, which of the following user categories do you think should receive some form of exemption from the WPL?

	No exemption	Partial Exemption	Full Exemption
a. Schools, colleges and universities	○	○	○
b. Hospitals	○	○	○
c. Other emergency/essential services	○	○	○
d. Charitable owned buildings	○	○	○
e. Local authority premises	○	○	○
f. Employers which promote green travel plans	○	○	○
g. Disabled badge holders	○	○	○
h. Motorcycles	○	○	○
i. Car share (Vehicles with 2+ occupants)	○	○	○
j. Low emission vehicles	○	○	○
k. First few vehicles parked at a location	○	○	○

10. How **concerned** would you be with respect to the following issues?

	Very unconcerned	Fairly unconcerned	Neither concerned nor unconcerned	Fairly concerned	Very concerned
a. The overall cost of implementing a WPL	○	○	○	○	○
b. Employer compliance with a WPL	○	○	○	○	○
c. Enforcement of a WPL	○	○	○	○	○
d. Equity/fairness of a WPL	○	○	○	○	○
e. The public transport provision available as a realistic alternative to car use	○	○	○	○	○
f. How the revenue raised from the WPL would be used	○	○	○	○	○
g. Displaced Parking caused by a WPL	○	○	○	○	○
h. Identifying the boundary where a WPL charge would apply within your Local Authority	○	○	○	○	○
i. The impact on the number of new businesses moving in to your locality	○	○	○	○	○
j. The impact on existing businesses remaining in your locality	○	○	○	○	○
k. The short term impact of introducing a WPL	○	○	○	○	○
l. The long term impact of introducing a WPL	○	○	○	○	○

Local Authority Perspectives with respect to Urban Transport related Issues

The WPL Charge

11. How much do you believe the annual cost of the WPL per parking space would need to be to achieve a significant reduction (more than 10%) in current workplace parking provision?

○ Less than £200 ○ £201-400 ○ £401-600 ○ £601-800 ○ £801-1000 ○ £1001 or over

12. If a WPL was introduced it could raise substantial amounts of revenue. Imagine you have 100 units of money ring-fenced to be spent on transport which represents the total amount of money raised from a WPL, what policies and in what proportion should the 100 units be allocated within your Local Authority? **(It is important to allocate ALL 100 units)**

a. Improve public transport provision	
b. Reduce public transport fares	
c. Make public transport more environmentally friendly	
d. Improve cycling and walking routes	
e. Improve the road network	
f. Provide support for businesses to introduce travel plans	
g. Better enforcement of traffic regulations, such as strengthening of parking controls	
h. Other (Please specify and write text in box with value)	

13. Do you think your Local Authority is likely to consider introducing a WPL in the next...

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. Five years	○	○	○	○	○
b. Ten years	○	○	○	○	○
c. Never	○	○	○	○	○