Pedestrianisation and Politics: Evidence Gaps and a Case Study of Brighton's Old Town

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Abstract

This paper draws on two projects: a pan-European meta-study and a before-and-after evaluation of the partial pedestrianisation of Brighton's Old Town. The EVIDENCE Project reviewed and evaluated academic literature and other international sources on the costs and benefits of measures which may be included in a Sustainable Urban Mobility Plan. Some of those measures relate to pedestrianisation, road closures and road capacity reduction. The findings provide some limited evidence of economic and other benefits from these measures; they suggest that road closures reduce overall traffic levels but there remain significant gaps in the knowledge base. There has been very little published literature on pedestrianisation in Britain in the past 20 years. The Brighton case study began with a baseline survey and traffic count in 2013, which found a high level of public support for the planned pedestrianisation. Over two thirds of visitors arrived using sustainable modes; less than 3% had parked in the immediate area. The post-implementation study found modest traffic reduction within the Old Town and an increase in cycling to the Old Town during the week. The original plans encountered political opposition and planning obstacles; they were implemented in a reduced form. Many of the public surveyed would prefer the Council to go further. What began as a technical study has broadened into a study of process, drawing on interviews with supporters, opponents and councillors from opposing parties. This paper and presentation will tell the story of how politics and public perceptions can thwart, support or deflect plans to improve the quality of the urban environment.

1. Introduction and Context

Pedestrianisation and traffic filtering have been widely used by municipal authorities across Europe since the 1960s as tools to reduce the impact of motor traffic on central areas with high volumes of pedestrians, to improve the urban environment, encourage modal shift towards more sustainable travel and also to benefit retail businesses. Proposals to remove rights of way or parking for motor vehicles are often controversial. Although there is some evidence that retail businesses benefit from pedestrianisation, retailers and organisations representing them often oppose such proposals when they are made. Local residents may also support or oppose proposals, which would improve their immediate environment but could also cause them inconvenience.

This article draws on a literature review conducted for a European-Union funded project and on a case study of the partial pedestrianisation of the Old Town of Brighton. Brighton and Hove has a record since the early 1990s of progressive modal shift away from car travel. Road space has been reallocated to bus lanes and cycle lanes, parking controls have been progressively extended and high density development in the central areas have often been 'car-free' or with very low parking ratios (Melia, 2015). All of these measures have been controversial; transport controversies have contributed to changes of political control of Brighton and Hove Council on several occasions in the past.

Brighton and Hove Council commissioned UWE to evaluate a plan to remove through traffic and extend pedestrianisation in Brighton's Old Town before the details of the plan had been finalised. The implementation process proved more challenging than the Council had originally anticipated, so what began as an evaluation of outcomes also became a study of the implementation process.

2. Literature Review

Considering the prevalence of pedestrianisation and traffic filtering there is surprisingly little recent evidence available, particularly from within Europe. Ex-post evaluations have tended to focus on the impact of pedestrianisation on retail spending and modal share of travel to the pedestrianised area, whereas descriptive case studies have focussed on environmental improvements within the pedestrianised areas and sometimes on implementation processes. A related literature has sought to evaluate the impact of road closures and capacity reductions on traffic levels.

Hass-Klau (1993) remains the most comprehensive review of evidence on the impact of pedestrianisation (and traffic-calming) on retailing. The article, based on UK and German data, is mainly a meta-study, although it also reports the findings of some primary research. The secondary data included 6 UK studies and 11 German studies; some of the studies covered several towns in each country. The data collected by the different studies spanned the period from 1965 until 1992. The primary data showed increases in pedestrian flows ranging from 18% to 92%. A study of 6 German towns showed that retail turnover increased in most of the businesses surveyed. The effect was slightly more positive in the larger towns than smaller towns. Other studies found that there was sometimes a slight fall in turnover immediately following pedestrianisation. In the longer-term, shops on pedestrianised streets tend to benefit, whereas those on trafficked streets nearby tend to suffer. Most of these studies relied on self-reported data, which raises concerns about reliability. One UK study showed that rents on pedestrianised streets were 80% higher than on vehicular streets, although the change in rents immediately following pedestrianisation in 14 towns was similar to the national trend.

Chung (2011) is a rare example of a quasi-experimental evaluation of the impacts of pedestrianisation on the value of retail businesses before and after pedestrianisation of a busy shopping street in Hong Kong in 2003. The intervention street was closed to traffic from 4pm to midnight on Mondays to Saturdays, whilst on the control street, pavements were widened and traffic calmed but it remained open to traffic. In a regression model explaining 51% of the variation, pedestrianisation was found to add 17% to the rateable values of businesses compared to the more limited improvements on the control street.

Several studies of central area pedestrianisation schemes in individual European towns and cities have found evidence that traffic volumes fell on the surrounding streets as well as the pedestrianised streets themselves, bringing modest reductions in air pollution (Civitas Caravel, 2014, Civitas Modern, 2013). Those studies of two Spanish towns both found increased pedestrian numbers within the pedestrianised streets and modal shift in travel to and from the central areas, away from driving and towards public transport. Civitas Caravel (2014) also reported a fall of 4.5 percentage points in the share of travel by car across the whole town, although there was no attempt to control for confounding factors. Parkhurst (2003) found that pedestrianisation in Oxford, UK, was followed by a 17% reduction in traffic entering the city centre, whilst total visitor numbers remained stable; the difference was mainly due to increased bus use.

Cairns *et al*. (2002) found that road closures and capacity reductions, (for a range of temporary and permanent reasons including pedestrianisation) do not displace all the previous traffic volumes onto surrounding streets. Instead, much of the traffic 'disappears'. This finding, which is the inverse of 'induced traffic', was based on secondary data collected by local authorities in 10 countries (though most of the data came from the UK or Germany). Drawing mainly on professional opinions, the authors ascribe the disappearing traffic phenomenon to a range of different behavioural responses including: route changes, reduced frequency of travel, more trip chaining, modal shift, changes of destination and in

the longer term changes of job or residential relocation. The scale of 'disappearing traffic' varied considerably between the case studies; the authors hypothesised that availability of spare capacity on surrounding roads would influence the balance between traffic displacement and journey reduction or modal shift. No attempt was made to control for confounding factors and as the authors did not control the data collection themselves, they could not rule out the possibility that some additional traffic was being displaced outside the areas of measurement.

Subsequent studies of (mainly temporary) road or bridge closures have provided some support for these tentative explanations (Guiver, 2011, Hunt *et al.,* 2002, Hunt *et al.,* 2002, Zhu *et al.,* 2010). One study of a permanent road removal and pedestrian improvement scheme, in Seoul, Korea, found significant modal shift from driving to public transport in the short and medium-terms (Chung *et al.,* 2012), which was more pronounced in the areas closer to the roads removed. Melia (2015) followed up one of the cases reviewed in Cairns *et al*. (2002) – the Cambridge Core Traffic Scheme, which involved several stages of pedestrianisation and closures to through traffic. He found a long-term decline in traffic in the central areas and stable traffic levels on the radial routes, over years when the population and economy of Cambridge were both growing rapidly.

Several studies of the process of pedestrianisation and/or road closures have found considerable resistance, particularly amongst retail businesses, to proposals for pedestrianisation or road closures in central areas, followed by acceptance or positive endorsement after the impacts have been assimilated (Melia, 2015, Hass-Klau, 1993, Hass-Klau, 2015). Groningen in the Netherlands was a pioneer in removing traffic from its city centre, starting with its closure to through traffic in 1977. This provoked opposition from business organisations, who initially lobbied unsuccessfully for the changes to be reversed. Ex-post business surveys explicitly related to the road closure issue showed big declines in retail sales, whereas the annual Chamber of Commerce survey showed profits had increased faster in the city centre than elsewhere in the province (Tsubohara, 2007). This suggests that surveys explicitly related to locally controversial issues may be vulnerable to self-selection bias and/or policy response bias, where a self-selecting group of respondents seek to use the survey to influence public policy (Melia, 2015).

3. Case Study Context: Brighton's Old Town Traffic Improvement Scheme

Brighton's Old Town is a high-density historic area close to the seafront and city centre, with a mixture of shops, restaurants and flats. It includes The Lanes, with very narrow streets that were pedestrianised in 1989 (Figure 1). A section of another street was pedestrianised in 1990 but the rest of the Old Town remained open to through traffic in 2012, when Brighton and Hove Council began consulting on its proposals.

Figure 1 The Lanes

Figure 2 East Street during trial pedestrianisation

The Council's stated reasons for the initiative were that rising traffic volumes were "detracting from the character of the area"; the aim of their proposals were to "reduce the volume of traffic in the area whilst retaining access for those that require it" (Brighton & Hove

CC, 2012). An unpublished traffic survey conducted between 8am and 10am on a weekday during 2008 showed that 40% of the traffic entering the Old Town was through traffic that left the area within 5 minutes.

Figure 3 shows the proposals which were agreed by the Council after the public consultation. These proposals were controversial and following several objections were subject to a planning inquiry in 2013, which recommended in favour of some of the changes but not others. After the inquiry, some further changes were made to address some of the inspector's concerns, following which, the Council decided to implement a more limited scheme, also shown in Figure 3, in two stages:

1. Ship Street was closed to traffic in August 2014, (which effectively closed the area to through traffic).
2. East Street was pedestrianised at weekends in a trial scheme starting May 2015.

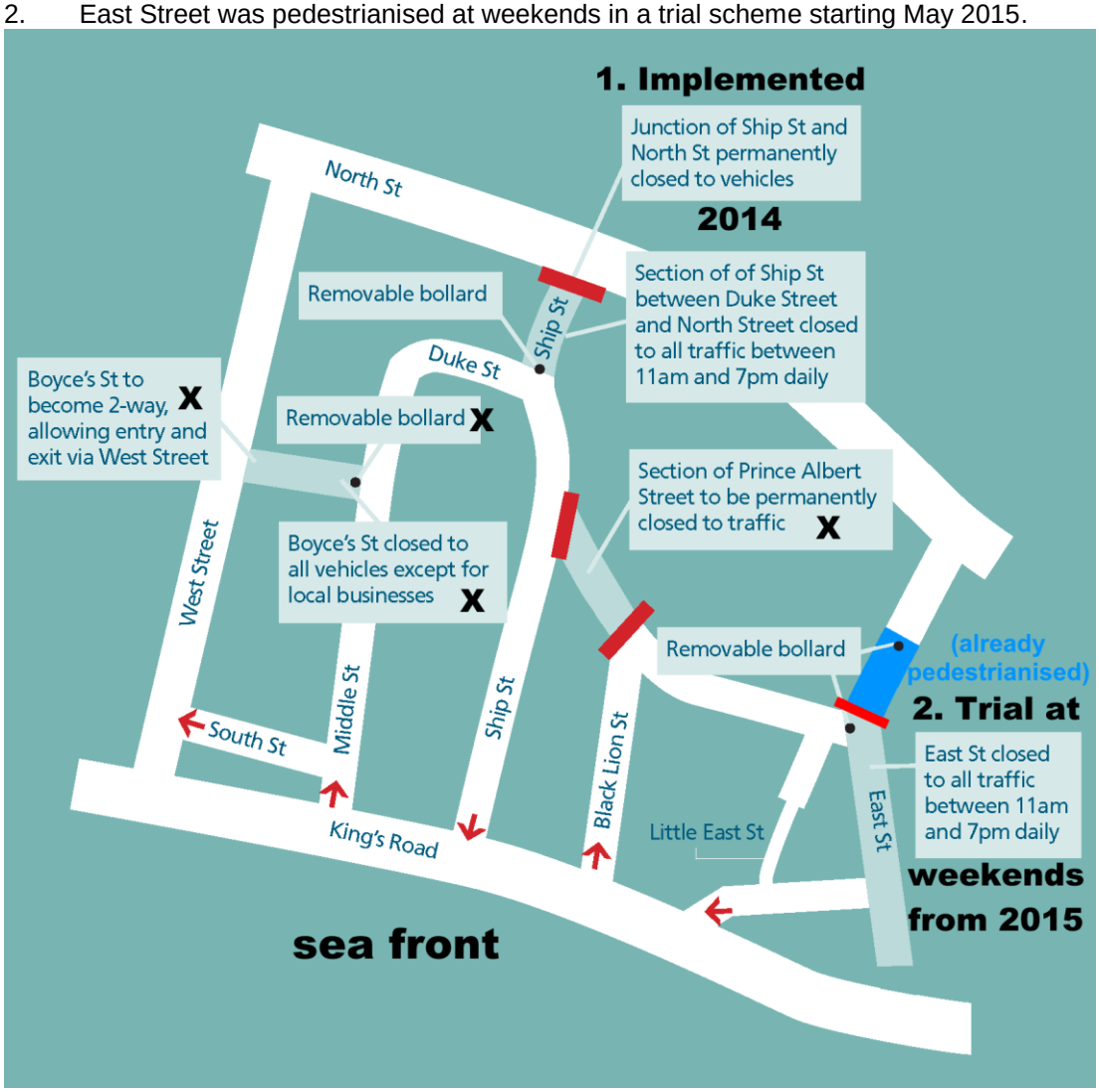

Figure 3 2012 Proposal for Brighton Old Town showing elements implemented and not implemented (X)

4. Methodology

Three methods were used: traffic counts, a before and after street-based survey and interviews with key stakeholders.

On-street surveys of pedestrians in the Old Town were conducted across a single day in June 2013 and on two days in late June 2015 by a team from East Sussex County Council,

using questionnaires designed by UWE. The original intention was to conduct two comparable surveys on weekdays at similar times of the year (both with good weather) before and after the interventions in order to make like-for-like comparisons without relying on multivariate regression (as some of the relevant factors would be difficult to obtain). Following the decision to begin a trial pedestrianisation of East Street at weekends only, it was also decided to conduct a third survey on a Saturday, to assess the impact of the trial. Some of those findings are also compared with the 2013 baseline in the next section, although the differences cannot necessarily be attributed to the intervention.

The questionnaires were designed to assess: why respondents were in the Old Town, how they travelled there, their views of the area and their views on the changes to the road layouts. A structured random sampling method was used; the surveyors were instructed to approach every 5th person who passed them in either direction.

Stakeholder interviews were conducted in person with business owners who favoured and opposed the scheme, the council officer overseeing the scheme and the lead councillors responsible for transport in 2013 and 2015; some additional interviews with business owners were also conducted in person and by telephone. The aims of the stakeholder interviews were to explore the impact of the changes on businesses and to provide an understanding of the implementation process.

5. Traffic Counts

The traffic counts were conducted from 9am until 5pm on a weekday in June 2013 and a weekday in November 2015. The counts were conducted on the three entry points to the Old Town in 2013 and the two remaining entry points in 2015 after Ship Street was closed to motor traffic. As these were manual traffic counts, no attempt was made to differentiate between local and through traffic.

	Ship St.	Black Lion Street			Middle Street			Total		
	2013	2013	2015	Change	2013	2015	Change	2013	2015	Change
Cars	270	254	326	+28%	377	528	+40%	901	854	-5%
Vans	104	140	160	+14%	140	320	+129%	384	480	+25%
Lorries	21	35	32	-9%	146	73	-50%	202	105	-48%
All	408	429	518	+21%	663	921	+39%	1500	1439	-4%

Table 1 Motor Traffic Counts before and after the changes

Some caution needs to be exercised when interpreting Table 1 as the daily variability in traffic levels was not known and the traffic counts were conducted at different times of the year, unlike the street surveys. It suggests that there was some displacement of traffic from Ship Street onto Black Lion Street and Middle Street. The overall volume of motor traffic entering the Old Town fell by just 4%. The fall would have been greater without the big increase in van traffic, which cannot be attributed to the Traffic Improvement Scheme; the general economic improvement over those years and changing patterns of deliveries to businesses and residential properties are the most likely causes. National road traffic estimates show a 6% increase in the volume of van traffic in 2014 compared to 2013 with the increase appearing to accelerate from 2012 onwards (DfT, 2015). The big fall in the volume of lorries may also reflect changes in delivery practices and there could also be a seasonal effect, although it is likely that the closure of Ship Street removed some lorries that previously passed through the Old Town.

6. Survey Findings

280 valid questionnaires were completed in 2013, 219 on the weekday in 2015 and 218 on the Saturday. The proportion of visitors from outside Brighton and the surrounding area (BN, RH and TN postcodes) was considerably higher on the Saturday – when they formed a small majority – than in either of the weekday surveys.

Visitors were asked why they were in the Old Town; two of the categories were functional i.e. working or visiting the Council (which has an office in the area) or public services. Whilst The proportions of visitors ticking one or both of these functional categories were: 32% in 2015, 50% on the weekday in 2015 and 10% on the Saturday. The other main purposes were 'tourism or just wandering', shopping, visiting a café or bar or staying in a hotel.

Car availability (62% always, 18% sometimes) was highest amongst weekend visitors, who were also more likely to be employed full-time, which suggests that a higher proportion of affluent visitors from outside the immediate area visit at weekends.

Table 2 shows the modes of travel for visitors to the Old Town in the three surveys. Using binary cross-tabulations for the two weekdays only, the higher rate of cycling in 2015 was statistically significant (Chi-square test $\rho < 0.001$) whereas the differences in travel by car and on foot were not (Chi-square tests $\rho = 0.148$ and 0.318 respectively). The higher level of train travel at the weekend was statistically significant ($\rho<.001$) and reflects the greater distances travelled by weekend visitors.

	2013	2015 week	2015 Sat.	
Car or van as driver	24.4%	30.9%	35.7%	173
Car or van as passenger	5.2%	1.5%	2.2%	17
On foot	24.9%	20.6%	14.6%	115
Train	17.1%	10.8%	29.7%	109
Bus	24.4%	23.7%	14.6%	120
Cycle	1.6%	8.2%	1.6%	22
Other	2.6%	4.1%	1.6%	16
Valid responses:	193	194	185	572

Table 2 Mode of travel to the Old Town (visitors only)

Those who had driven to the Old Town, were asked where they had parked. The number of people who parked on the streets of the Old Town was very small: 5 or 6 in each of the three surveys, representing less than 3% of visitors.

	2013	2015 week	2015 Sat.	Total
On street in Old Town	10.5%	10.5%	7.5%	17
On street elsewhere	12.3%	7.0%	10.4%	18
In multi-storey	42.1%	73.7%	64.2%	109
Elsewhere off-street	35.1%	7.0%	17.9%	36
Valid Responses:	57	57	67	181

Table 3 Parking locations of visitors who arrived by car

The higher proportion of people parking in the multi-storey car parks in 2015 may have been influenced by the temporary closure of Black Lion Street (see Figure 3) with access only allowed to a multi-storey car park located there. This could have persuaded more drivers to choose this option instead of searching for an on-street space (although most of them would have to leave the Old Town if they wanted to find an on-street alternative).

Respondents were asked whether they had spent money in the Old Town and if so, could they remember how much. The weekday patterns were similar; around a third of respondents spent an average of just over £30. The proportion (43%) and average amounts spent (£66) were both higher at the weekend.

Participants were asked a range of questions about their perceptions of the Old Town as a place to visit. A five point Likert Scale was used to gauge opinions on five statements about the Old Town. Table 4 shows the proportions who strongly agreed with each of the statements in each of the three surveys; there was little disagreement with any of the statements, apart from the last one about traffic. Interestingly, opinions about the Old Town became less positive during the week in 2015 but more positive at the weekend.

Five bivariate ordinal regressions were performed using the Likert scale responses as the dependent variables and the survey date as the independent variable with 2013 as the reference category. The statistically significant differences are emboldened (note that the 'strongly agree' and disagree categories, not shown, also influence those results).

	2013	2015 week	2015 Sat.	Total
I enjoy visiting the Old Town	96.4%	**90.8%***	**97.7%****	714
I like the Old Town as a place to shop	82.7%	**74.8%***	**91.7%****	714
I like the Old Town as a place to eat or drink	90.3%	**85.8%***	**95.4%****	715
The Old Town is a good place for pedestrians	79.9%	77.0%	**91.7%****	715
There is too much traffic in the Old Town	46.0%	52.8%	41.3%	712

Table 4 Proportion of respondents agreeing or strongly agreeing with statements (Bivariate regression with Likert score as the dependent variable: *ρ <0.05, ** ρ <.001)

Residents were more likely than visitors to express concern about traffic; across the three surveys, 60% of residents agreed that there was too much traffic in the Old Town compared to just 43% of visitors. As the characteristics of the respondents varied considerably between the three surveys, multi-variate regressions were performed adding: resident/visitor, gender, employment status and car availability as independent variables. In four of the five regressions this made no difference to the significance of the survey date. The only exception to this was the perception of traffic. Controlling for those differences (particularly the higher proportion of visitors in the 2015 samples) the heightened perceptions of too much traffic on the weekday in 2015 became statistically significant at the 95% confidence level. The implications of those findings are discussed below.

In 2013, before the scheme was implemented, awareness of the proposed changes was low, both amongst visitors, and more surprisingly, amongst local residents. Those who said they were unaware of the proposals were shown a copy of the map produced by the Council which illustrated the proposed changes (Figure 3 without the annotations in black). All respondents were then asked whether they thought the Council was right to propose these changes; 80% of visitors and 68% of residents responded 'yes'.

It may be noted in passing that the surveyors were wearing jackets bearing the logo of East Sussex County Council. Although East Sussex are no longer responsible for highways in Brighton, it is possible that a few respondents might have been unconsciously influenced in answering this question (known as 'the good subject effect' in the literature).

Respondents in 2015 were asked whether they agreed with the changes made to the streets. Again, residents were more positive about the changes, 74% were in favour, whilst 39% of the weekday visitors surveyed and 64% of weekend visitors agreed with the changes. Very few disagreed, although many were unsure.

30% of respondents agreed that they noticed less traffic on the streets of the Old Town since Ship Street was pedestrianised. Agreement was slightly stronger amongst the weekend respondents, who may also have been influenced by the closure of East Street. Only 7% of respondents stated that the changes had caused them any inconvenience. 35% of weekend respondents agreed that 'the changes have made me more likely to visit the area'.

54% of respondents (in the Saturday survey only) disagreed with the suggestion that East Street should be reopened to motor traffic on weekends; only 10% agreed. 34% of respondents (in both 2015 surveys) agreed that the pedestrianisation of East Street should be extended to weekdays, compared to 23% who disagreed.

7. Interview Findings

The semi-structured interviews conducted with stakeholders explored their views about the proposals, the changes that were made and the process followed. The planning inquiry obliged both supporters and opponents of the scheme to think about, and articulate the detail of their positions if involved in the inquiry itself, and it also prompted several reflections on the implementation process.

One issue which emerged in many of the interviews was uncertainty surrounding the policy context and the reasons why the Council was proposing the changes. The earlier pedestrianisation of The Lanes area of the Old Town was seen to be very successful and there was praise for a shared space scheme, which was implemented in New Road, just outside the Old Town. There was also broad acceptance of, and support for the other pedestrian and weekend closure schemes in Brighton which were seen to contribute to the atmosphere and ambience of the city. Opponents to this scheme did though counter that restaurants and cafés siting tables and chairs along East Street would impede pedestrians, particularly those in wheelchairs or with children.

When asked about the Council's motivations for these changes, some interviewees mentioned existing walking and pedestrianisation strategies, and a 'legibility strategy' for the city. The original report to councillors (Brighton & Hove CC, 2012) referred to a 'Walking Network Strategy' but that document is not available online. A 'Draft Walking Strategy' dated 2003 was the only document identifiable from an online search in 2015. The proposed changes were presented to councillors in a series of reports to committees, but these are detailed operational documents rather than broader longer-term strategies.

There was general support amongst interviewees for addressing traffic issues in the area (which is adjacent to major tourist attractors such as the seafront, Brighton Pavilion and The Lanes shopping area), with concerns expressed around pedestrian safety, and traffic 'rat-running' through the area. Involvement in tourism-related initiatives might also have encouraged some of the businesses in East Street to start to think about supporting a scheme in their street. In fact the most visible business support came from those involved more directly in the tourist economy such as restaurants, cafes and bars, with less involvement from national chain retailers or specialist shops.

The perception of the process as piecemeal and uncoordinated was exacerbated by the planning inquiry and its aftermath. Some of the changes, such as the closure of Ship Street, were able to proceed shortly afterwards, whereas others involved further changes and negotiation; the decision to trial pedestrianisation of East Street just at weekends was a political compromise, which emerged during a council meeting, and may have resulted from suggestions by businesses opposed to the 7-day scheme.

For these opponents, the apparent lack of a grand vision or plan for the whole area was an important element of their argument against the proposals. They claimed that such a vision was needed to address the needs of tourists, residents and businesses across the area. It was generally accepted across the interviews, however, that to implement a more widespread plan would of course require more extensive funding, and even to carry out changes to the same extent as seen in New Road would require significant amounts of money – something which everyone acknowledged the local authority did not have.

Those in favour of these changes were more accepting of the step-by-step approach taken so far. From the local authority perspective the limited monies available for such schemes meant taking opportunities as and where they were available, making 'incremental changes'. Such an approach was also seen as "*kind of stepping stones*" towards a more extensive plan by supporters of the East Street closure, although they too were still looking for wider public realm improvements. Another perceived complication arising from the fragmented approach related to consultation with the public and other stakeholders over the changes being proposed. Repeated consultation exercises for each scheme as it came forward were seen to lead to confusion, and perhaps to deter some people from engaging with the process. For some interviewees, consultation had not worked well for these proposals, with the big picture in some form of 'master planning' exercise with the public missing, and the detail (teasing out issues with specific groups) not fully exploited.

As noted in the literature review, resistance to schemes that might impede or remove traffic from a business and retail environment are common – particularly from business representatives and owners. The principle opponents of the proposed changes were an organisation called the 'Lanes Traders' (said to have around 70 members, representing businesses in The Lanes pedestrianised area), as well as people living in a large block of flats at the southern end of East Street and representatives of the taxi trade in Brighton. A group of businesses in East Street – which does not form part of the constituency of the Lanes Traders – were the main supporters of its pedestrianisation. The groups differed in the type of business represented, with jewellery and other specialist shops in The Lanes as opposed to mostly chain retailers and restaurants / cafes in East Street. Thus the council was faced by opposing business groups on either side of the argument. Deliveries and customer parking were key opposition issues, although for the Lanes Traders this was in respect of deliveries to them, not the businesses in East Street which had the advantage of varying degrees of rear access to their premises. The closure of Ship Street also created a detour for business owners who had previously driven into the area from the north, a point made by the Lanes Traders' spokesperson. Other arguments against the original proposals included the ability of clients to reach services (such as solicitors) based in the Old Town, with changes to Prince Albert St seen to be particularly problematic, and the displacement of traffic onto surrounding streets. Concerns were raised about vehicles diverted from East Street onto Little East Street, a narrower road (see Figures 3 & 5). Access was also a key issue for both the residents in the flats and for the taxi trade. These issues were all raised in the planning inquiry.

For both supporters and opponents, the planning inquiry process was seen as unnecessarily adversarial, confrontational and a poor use of scarce funds which would have been better used in implementation. Interestingly one interviewee said it gave the impression that the council was trying to do something "*wrong and underhand*". The Council officer who was the sole witness for the authority at the inquiry believed with hindsight that this was a mistake – that other officers, such as the highway engineers and road safety specialists should also have given evidence.

Although not all of the proposed changes have been implemented, some interviewees suggested that the public perception was that the streets in the area were already pedestrianised (see Fig 4), and at the height of the tourist season it is suggested that it is difficult to drive on some of these streets because of pedestrian numbers, with younger people adopting that view in particular.

Figure 4 Prince Albert St

Figure 5 Little East Street

There is a political dimension to the implementation process. Brighton and Hove Council has changed its political composition several times in recent years, with minority administrations common. The schemes proposed here emerged under a Conservative-led administration, were promoted by a Green-led administration, and are now in the hands of a Labour-led administration. Interviewees were asked specifically if they thought that the scheme had become politicised along the way, and if it had been used for political purposes. Voting on council committees broadly followed party lines and this would have changed as administrations changed power but one interviewee observed that this wasn't "*the type of*

scheme that you could necessarily make obvious politics from". Conversely there was also a view that opposition parties might seek to use an issue such as this to defeat minority administrations. The divisions in the local business community added a complicating factor. There is now an expectation amongst interviewees that the results of the East Street trial be reported and that consultation processes will improve for future proposals.

Following the implementation of the trial weekend closures in East Street there was strong support for the changes from businesses who were able to site tables and chairs on the street, although other retailers were also taking advantage of space in the street. Even those who did not specifically benefit (chain retailers and local specialist shops) did not express concerns over deliveries or access for customers. Support was not unanimous though; some premises in Little East Street expressed concerns about safety for their customers because of traffic diverted from East Street during the weekend closures (see Fig 5). In response to this the council had made some modifications and enhancements to Little East Street. In two follow up phone interviews with café businesses in November 2015 there was still positive feedback on the scheme, with support expressed for extending the closure to seven days a week.

8. Discussion

Traffic and displacement: The only evidence of modal shift comes from the higher proportion of people cycling to the Old Town on the weekday, although with relatively small numbers, not too much weight should be attached to that finding. The traffic counts suggest that the volume of through traffic removed by the closure of Ship Street was relatively small, when measured across the whole day (the 2008 survey was based on a two-hour count in the morning rush hour, when the proportion of through traffic may have been higher). The impact was probably greater than the 4% fall registered, however, because other factors were increasing local traffic, particularly vans. There are several possible reasons for this; the general economic improvement since 2013 may have increased the number of deliveries to businesses and also contributed to building and renovation work in the Old Town.

There was clearly some displacement of local traffic from Ship Street onto Black Lion Street and Middle Street. There is a primary school on Middle Street, which may explain an observed peak of car traffic there around 3:00pm.

Some interviewees, particularly the opponents of the changes, pointed to traffic displacement onto surrounding streets. Some taxi journeys, which used to follow Ship Street, are now obliged to travel further, via Kings Road. The Ship St closure also removed a signal-controlled turn from North St, which increases the flow and speed of the buses using it (already perceived to be travelling too fast by the spokesperson for the Lanes Traders). Some more significant road schemes are still being developed in the city, including one affecting a main road close to the Old Town. The implications for the area remain to be seen, but once again they highlight the importance of an area-wide plan.

Economic impacts: As noted in the literature, some businesses often oppose schemes that restrain motorised access to a street; Brighton Old Town was no different from many others in that respect. Concerns around deliveries and customer access premises were raised, but most of these issues appear to have been allayed through the timing of closures, provision of additional loading bays and perhaps changes in behaviour by some traders (e.g. scheduling deliveries before street closures). The limited scope of this study has not allowed a detailed analysis of trading patterns before and after the changes, or economic indicators such as business rental values. Because the weekend closure of East Street only emerged after the baseline study, the opportunity to measure its economic impact was lost; spending was considerably higher on the Saturday in 2015 but whether the pedestrianisation of East Street contributed to that difference, it would not be possible to say. Two café / restaurant businesses on East Street suggested that they have seen additional custom on the weekend closures, but that may be less likely in the winter months. Other business representatives in East Street said they were not experiencing or expecting significant changes in custom as a result of the weekend closure trial. Although there is very limited parking in East Street, the traders in The Lanes see seven-day pedestrianisation of East Street (and further restraint on through traffic) as a threat to the viability of their businesses, whilst others see street changes as an opportunity to gain additional custom.

Public Perceptions: The general public questioned on the streets were broadly favourable to the changes and more of them favoured seven-day pedestrianisation of East Street than opposed it. Visitors and residents generally express favourable views about the Old Town but Table 4 and the following analysis present an unexpected pattern of changes since the baseline study. During the week, perceptions of too much traffic have worsened since 2013. On some of the streets i.e. Middle Street and Black Lion Street, that perception is accurate, although across the Old Town as a whole the volume of traffic has not substantially changed.

The different composition of the populations surveyed do not explain the more favourable perceptions at the weekend, nor the less favourable perceptions during the week. Psychological studies have demonstrated that people tend to make judgements in relative rather than absolute terms (see Ariely, 2008 for example), so the more positive perceptions of the pedestrianised environment on East Street at the weekends may have unconsciously worsened people's perceptions during the rest of the week.

Party Politics: The changing political complexion of Brighton has complicated every stage of this project. The Green administration which came to power in 2011 had wider aspirations to deliver significant change in respect of road-space reallocation and pedestrianisation but as a minority administration they were limited in their ability to progress such initiatives. They also provoked a sustained campaign of opposition led by taxi businesses, amongst others. All of the political parties were broadly in favour of the aims to reduce traffic and improve the public realm in the Old Town but disagreements between them have delayed the process.

9. Conclusions

This paper adds to the available evidence of the effects of road closure and pedestrianisation in the UK. It provides some insights into the complexities of delivering such interventions in the context of a tourism-based local economy with a large transient population, particularly in the summer months. The scheme as implemented resulted from a series of compromises. It appears to have delivered some improvements valued by the general public and the businesses most immediately impacted and the worst fears about its impacts have not materialised. The very small proportion of people parking in the immediate area illustrates how fears about on-street parking removal are often exaggerated. The volume of through traffic removed by the closure of Ship Street was relatively small, which implies that traffic displacement onto surrounding streets will also have been fairly small. This suggests a paradox: that road closures are easier to implement where volumes of through traffic are already low, but the benefits of traffic removal in such circumstances will be correspondingly limited.

Whilst step-by-step implementation may be more realistic when local authority funding is constrained, this may risk disappointing a public that has already seen more extensive (and expensive) schemes implemented in the city. Even some of those opposing these specific changes declared they were in favour of more extensive, better quality interventions.

Even with considerable support for pedestrianisation and traffic removal amongst the public and within some parts of the business community, there were still delays, changes and obstacles to delivering the partial scheme. Lessons have no doubt been learnt by the local authority that could better enable future schemes.

One conclusion which would be relevant for other authorities considering similar changes is that an area-wide plan, visibly maintained on a Council's website, can help to address some potential criticisms and strengthen the case when projects are examined at a planning inquiry. If funding only allows for piecemeal changes, these can at least be set in a broader, longer-term context.

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