

TRAVEL ADJUSTMENTS AFTER ROAD CLOSURE: WORKINGTON

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Abstract

Travel Adjustments after Road Closure: Workington

The closure of all roads links between south and north Workington following the floods of November 2009 produced an unusual travel situation. Provision of a frequent and free train service and the erection of a footbridge brought good access between both parts of the town by foot, cycle and train, but a heavily congested 18 mile detour by road.

This paper describes the findings of a survey of over 400 Workington residents about how they adapted and how that has affected the way they travel now that road connections have been restored. Adaptations included changing mode, time of travel and changing destinations. Many respondents report personal hardships, including loss of job, health impacts, reduced family visits to relations and the stress caused by extra travelling time. The paper also describes adaptations by organisations and authorities such as providing feeder-bus services, opening a temporary supermarket and offering different worksites or changed hours to help their employees.

The paper considers how the severing of connections required services to be rethought. The discussion questions whether the findings are relevant to more predictable changes such as rising fuel prices and climate change mitigation measures.

Introduction

On November 19th 2009 flood waters from the Cumbrian Fells swept down the River Derwent and its tributaries, flooding the centre of Cockermouth and arriving at the river mouth in Workington the next day. Here they destroyed or damaged every bridge connecting the town centre to its northern suburbs and hinterland except the railway bridge. Although a temporary footbridge was erected by the army within a fortnight and a temporary station and increased train services were available in ten days, road connections remained severed for five months producing a highly unusual situation with most modes cheaper and faster than driving. This project investigated the travel adjustments made by residents to relatively easy train, pedestrian and cycling access across the river, but a detour of at least 18 miles and long delays by car.

The situation is of more than local interest as it represents a natural experiment in making car journeys more expensive in time and money than other modes. The household survey revealed several methods of adaptation: change of mode, origin, destination, timing and frequency of trips with different journey purposes triggering different types of adaptation. Interviews with residents and stakeholders also found that there were a series of other adaptations from agencies such as doctors' surgeries, the Police, a supermarket and the Job Centre.

Literature Review

Given its nature it is not surprising that transport infrastructure and its use are vulnerable to disruption (Berdica 2002) from a number of causes. These include extreme weather (Al Hassan and Barker 1999; Khattack and de Palma 1997; Perry and Symons 1994) seismic activity (Chang and Nojima 2001; Giuliano and Golob 1998; Gordon, Richardson and Davis

1998), accidents, industrial action (Lo and Hall 2006; Noland et al. 2003) and malicious human intervention such as vandalism and terrorism (Williams, Batho and Russell 2000). If predictions about climate change are correct, extreme weather incidents will undoubtedly cause further disruptions (Department for Transport 2010).

The scale of disruption depends on the geographical coverage of the disruption, its duration including any remedial work necessary to restore services, the existence of alternative modes and routes and the relative importance of the services disrupted (Sohn 2006). The collapse of a single bridge, may cause relatively little disruption if it carries a small proportion of the traffic between two locations, but considerable re-adjustments in travel where it is a main route with few alternatives. An earthquake can disrupt all travel modes over a large area for considerable time (Chang and Nojima 2001; Gordon, Richardson and Davis 1998) whereas public transport strikes can result in increased traffic and slower speeds (Lo and Hall, 2006) depending the proportion of people using public transport for different purposes and their access to alternative forms of travel.

The immediate disruption may be followed by a period of instability as travellers individually experiment with their new options of route, mode, timing, etc. to establish which suits them best (Clegg 2007; Zhu and Levinson 2008, Zhu et al., 2010). They also adjust their travel to perceived traffic levels and public transport capacity, which can change as others also adapt their travel. Just as traffic is seen to increase as provision is improved, especially highway capacity (Goodwin et al. 2004), it is not surprising that deterioration in travel provision has been observed to result in reduced demand (Cairns, Atkins and Goodwin 2002; Goodwin, 2005; Giuliano and Golob, 1998). However, Giuliano and Golob (1998) detect a preference to adapt to loss of highway network by adjusting the frequency and timing of trips rather than modal shift.

Zhu and Levinson (2008) list how travellers adjust to reductions in transportation networks, Cairns, Atkins and Goodwin (2002) also produced a list from their research of case studies of where highway capacity had been reduced. The following includes elements of both:

- Change of route, through road/lane closure or congestion caused by reallocated traffic
- Adjustment of time of travel
- Change of destination
- Consolidation of trips, fewer trips
- Change of travel mode
- Re-allocation of duties within the household

The type of adaptation may also vary with journey purpose, for example Datla and Sharma (2008) found that roads carrying commuters experienced less reduction in traffic during heavy snow fall than roads primarily used for recreational purposes and Al Hassan and Barker (1999) report that weekend traffic volumes exhibit more sensitivity to bad weather than weekday traffic volumes. Discretionary trips are also most likely to be abandoned if increases in travel time for utility trips displace other activities and travel (Jenelius 2010).

The damage and repairs to other local infrastructure such as homes, workplaces and facilities from an event such as an earthquake or flood also impact on activity and travel patterns. For example, the evacuation and flooding of New Orleans through Hurricane Katrina (de Souza-Briggs 2006) relocated people, work and all aspects of life. After such events people need to attend to repairing homes, replacing possessions, organising insurance as well as possibly suffering physical and emotional affects (Tapsell et al. 2002).

Once the initial disruption to the network is repaired, there may be some time before previous patterns are resumed, if they are (Zhu and Levinson 2008). The changed situation forces people to revise their habitual travel behaviour and the experience can result in a re-evaluation of their choices.

Context

Workington is a small town (population approximately 26,000) on the West Cumbrian coast, once a small centre of iron and coal mining and related industries. It now has a number of light industries as well retail and service industries and many residents work at the nuclear site Sellafield to the south of the town. Most of the town is on the south bank of the River Derwent, but one estate, Northside, is on the north along with several villages including

Seaton many of whose residents work in the town centre. Workington is situated on the A595 and the West Cumbrian Coast railway between Carlisle and Barrow in Furness, also serving Maryport and Whitehaven, and at the end of the A66 from the M6 and central Cumbria.

Figure 1 shows the bridges across the River Derwent and their fate in the floods. Two bridges were totally destroyed: the Northside road bridge carrying the A596/7 and Navvies Bridge, a footbridge between Northside and the town centre. Two other bridges were damaged and needed to be closed: a pedestrian and railway bridge from the town into the docks and Calva Bridge which carried traffic from A66 onto the A595 and vice versa. With the closure of Broughton Bridge, between Workington and Cockermouth, the nearest operational bridge was Papcastle Bridge on the outskirts of Cockermouth, which was closed intermittently in the week following the floods. Occasionally, immediately after the flooding the only way to drive between both sides of Workington was via the M6 at Carlisle and Penrith, the A66, a detour of over 80 miles. The railway bridge however, after checks on November 20th, was found to be sound and provided the most direct river crossing.

Figure 1: Map of bridge locations, roads and railway



Wikipedia (2010) *Workington bridge damage*, available http://upload.wikimedia.org/wikipedia/commons/a/ab/Workington_bridge_damage.png, licensed under the Creative Commons Attribution-ShareAlike 3.0 license

In the days after the floods, plans were made to open a temporary station on the north side of the river. This was completed in six days and nights and on November 30th it opened along with a half-hourly and free to use train service between Maryport and Workington funded by the Department for Transport. The army erected a temporary footbridge (named Barker Crossing in honour of the Police Officer who had lost his life when Northside Bridge collapsed). This opened on December 7th, 16 days after the floods. Bus shuttle services were provided to bring people from settlements in the north to the new station and footbridge and others picked up passengers in the south side of the footbridge to take them into town.

Other agencies had also acted fast. Tesco, whose northern hinterland had been cut off ran buses to their store and obtained emergency planning permission to erect a temporary store at Northside. Opened on 14th December, this was mostly staffed by employees living north of the river. Workington doctors had first arranged for patients living in the north to be seen in Maryport, but quickly organised temporary daily surgeries in Seaton and Northside. Mobile banks visited Northside. The Job Centre arranged for people making their initial claims to sign on at Maryport. Workington's only cinema on the northern side of the river rearranged its timings to fit with the train timetable. Employers such as the Police and library services redeployed people to work on at centres on the same side of the river as they lived.

A temporary road bridge was opened on 21st April 2010. Because it did not have the capacity of the previous bridges, a campaign to 'Keep Workington Moving' was launched with posters

and fliers encouraging people to continue using public transport, walking and cycling. The town's road layout was also adapted to prevent bottlenecks at the new bridge. A new supermarket has opened in October on the north side of the river, which initially caused congestion which backed up onto the new bridge.

Methodology

Survey forms were sent to 3,000 homes in the Workington and Seaton areas in June 2010 and a further 1,000 distributed to community centres, libraries and other outlets. A parallel online survey was also advertised in the local press, on the survey forms and on posters. The response rate was disappointing with 253 surveys returned (approximately 6.4%) and 23 on-line responses. However, as the questionnaire was designed to find out about the travel patterns of a whole household, this gave us travel information for 435 people.

There were approximately equal numbers of male and female respondents, but younger people were under-represented. While people whose travel patterns changed were probably more motivated to complete the questionnaire, the results give insights into the type of adjustments made although possibly exaggerates the scale.

The questionnaire asked respondents to give details (destination, frequency per week and mode) of journeys for different purposes in three time periods: October, before the bridges were closed, March, while they were closed and May, after the temporary road bridge was opened. The numerical data was analysed using a statistical package and the comments were entered onto a spreadsheet, coded and grouped according to their content. Interviews were conducted with residents and stakeholders in the Workington area. These included transport and service providers, employers and others who had played a role in helping with the situation. Further information was collected from Cumbria County Council's Flood Bulletins, the local press and other sources.

Findings

The survey showed respondents had made fewer journeys for all purposes in March (while bridges were closed), than in October (pre-floods) and although the number of journeys increased for most journey purposes in May (after road connections restored), they did not regain October's levels as can be seen in Figures 2 and 3. Figure 2 shows the number of trips in March and May expressed as a percentage of October's trips. This indicates that the trips which were most likely to reduce in frequency were those for leisure and social reasons. Because they are discretionary, one would expect them to experience the greatest reduction if the costs of travel (time, petrol, effort, etc) increased. However, many of the comments suggest that a major factor was that other trips took up so much time that there was none left for discretionary trips, which caused considerable distress, especially social visits to vulnerable family members.

Figure 2: Changes in total trips and modal share of car trips

	Total Trips	% of October's trips		% car trips		
	October	March	May	October	March	May
work	1142	88	89	80	52	70
education	114	77	80	44	17	43
escort	127	54	50	65	51	68
shopping	696	61	82	80	69	74
social	459	35	83	76	68	71
leisure	357	49	92	89	82	89
health	94	96	90	71	68	68
other	61	52	80	89	47	63
total	3050	67	85	78	59	72

When one compares the modes used, not surprisingly car travel reduced, while train and walking increased. Figure 3 shows the total number of trips by mode for the three periods and Figure 4 shows the number of trips per week in March and May as a percentage of October's figures. It is evident that even in March when respondents' car trips were reduced by 50%, they still far out-numbered trips by any other mode.

Changes in destination for some journeys between October and March were recorded by 23.3% of respondents. Shopping trips were the most likely to change destination with 18% of respondents registering a change in their normal shopping destination. There was also a 39% drop in the total number of shopping trips (from 696 in October to 424 in March).

Apart from health trips, journeys to work experienced least reduction during March with 88% of the number of trips. However, these journeys were most prone to changes in travel mode, with the share of car journeys dropping from 80% to 52%, returning to 70% in May. The biggest percentage change was for train travel which rose from 18 trips per week (2 % of work trips) in October to 130 (13 % of work trips) in March reducing to 24 (2% of work trips) in May. Bus, cycling and mixed mode trips increased in both absolute terms and relative proportions, while surprisingly walking remained constant in March and saw a slight increase in May.

Figure 3: Total Respondent Trips per Week by Purpose: October, March and May

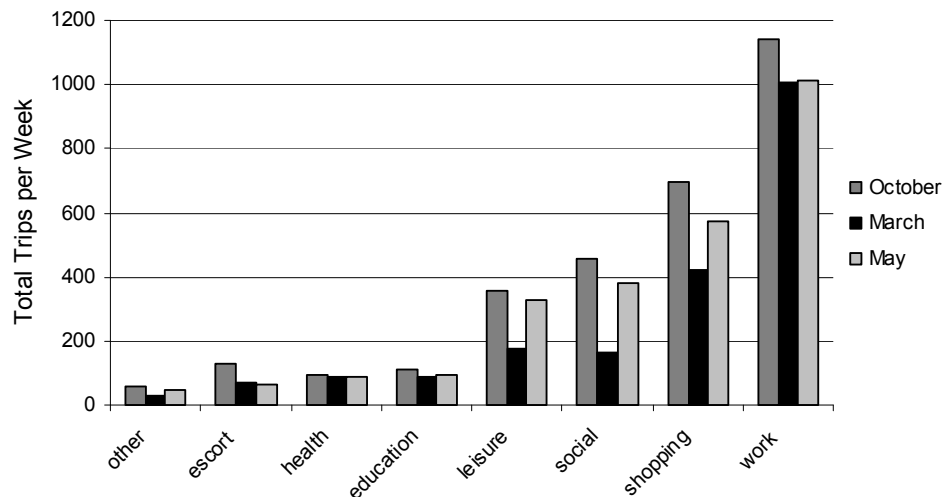
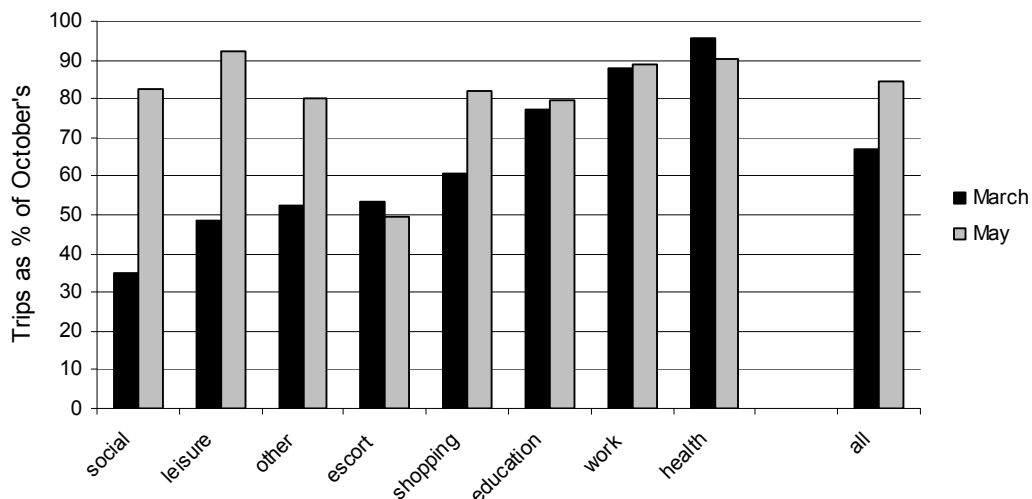


Figure 4: Trips per week in March and May as percentage of trips in October



Changes in mode mostly came from car users using public transport or active modes. In May the number of shopping trips by train increased from six in October, to 19 in March to 55 in

May, although by this time the train service had reduced in frequency and resumed normal fares.

Figure 5: Total Respondent Trips per Week by Mode

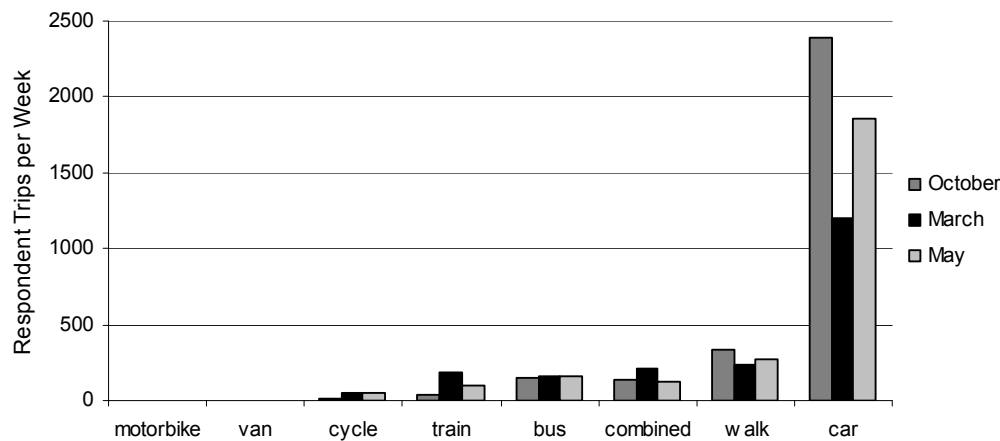
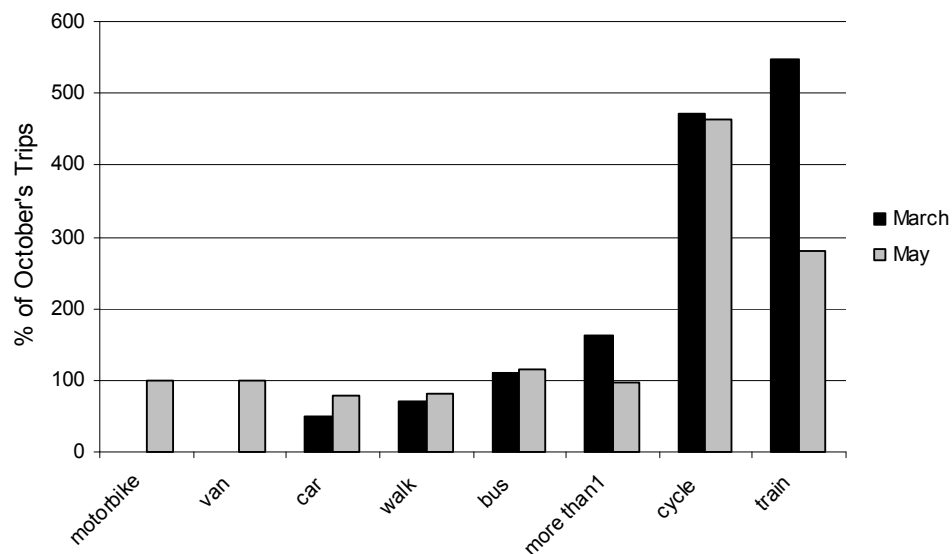


Figure 6: Respondent Trips per Week expressed as a percentage of October's Trips



Leisure and social trips were the most reduced category of journeys before the temporary road bridge was opened. Respondents recorded only 35% of the number of October's social trips and 49% of October's leisure trips in March before the road connections were re-established. Figure 7 (at the end of the paper) shows the modal switches for commuters,

Comments on Survey Forms

The comments reflected on the personal consequences of the situation. Car users who continued to use their cars told of the extra time they needed to complete their journeys and of the difficulty in estimating how long journeys would take, which was particularly important for meeting time commitments such as doctor's appointments. There were also a number of comments about the extra costs, both in petrol and in repairs needed to cars because of the extra mileage, stop-start conditions and rough state of local roads after the floods. Many of

those who resorted to walking, cycling and train travel found it a positive experience because they enjoyed the exercise, the sociability of others walking and the ease of train travel once the shuttles were in place. Some resolved to continue, although there was disappointment that the train service reverted back to its inconvenient timetable and short trains with insufficient capacity.

1. I had to evacuate my house. 2. We were cut off- the nearest bridge being Cockermouth. 3. Traffic was unreal. 4. Making appointments for the Doctor and Hospital was awful as you couldn't gauge the time to get there. 6. Cost of petrol is still very high because of all the extra miles we have to cover.

On the plus side- more people walking and more social feel to the town.

I had a cycling and walking winter. The exercise was beneficial. I met many other walkers and cyclists and it was good to talk with them.

...used free train. However, once bridge was up train times not suitable for my working hours.

Loved using the free train - excellent frequency and parking - shame it ended: I would have continued to use it for work. Existing timetable is not fit for purpose.

Wasted opportunity to improve public transport- people with cars would have stayed on buses and trains if times were better for workers.

During the floods my train travel improved due to two carriages on the peak trains. We struggled with car travel due to our route getting longer and more traffic. Now that the temporary bridge is up car travel is back to normal, but my train travel has got worse and very dangerous due to cuts by Northern Rail back to a single carriage. The company is risking passenger safety.

The consequences ranged from a quicker, healthier journey, missing routine arrangements, having too little time and being too tired to participate in social activities, missing seeing family members, concern about the wellbeing of vulnerable relations, a sense of isolation to stress, health problems and loss of earnings and job. The extra time needed to travel could result in less time being spent at the destination or in less frequent trips.

My mother was in residential care near Whitehaven- couldn't visit her as often as normal.

I couldn't see my mother as it was a four hour round trip for ten miles. Public Transport was rubbish and overcrowded and I couldn't do the shopping by bus. Just getting around Workington takes an extra 20 minutes each way. Petrol costs loads! Buses cost more! Why?

My wife lost her job due to health issues and stress of trying to use Public Transport. She had to walk or face a 36 mile round trip by car. Her employers were south of the river and not very understanding of the difficulties. We both feel the no bridge situation/poor public transport links were a causal factor.

At the time of the floods I was 6 months pregnant. As my pregnancy progressed, I found it increasingly difficult to travel from my home in search of work/taking my other child to school, both in Whitehaven. I found the 2.5 hour one way drive very tiring and ultimately relied upon a lift to the footbridge, walk across/up to Washington St and be placed up at the other side to be taken to Whitehaven. I believe that the high blood pressure that I suffered in pregnancy was because of this.

In order to keep at least some social and leisure activities up, we went but less often, as it meant a 37 mile round trip instead of 4, so much more expense, but less social life, causing places we would have visited - and people concerned - to lose out also, in revenue, friendship, organisation etc. Everything (apart from spending extra petrol money and car-repair bills for resulting bad roads through extra use) nearly ground to a halt. Felt isolated.

Our travel expenses rose by £80 per week and travel to and from work rose by at least 10 hours each per week. Social events were none existent due to extra travel time and expense.

I also visited an elderly relative each week at Cockermouth but had to reduce the time spent there because of the volume of traffic using Cockermouth to access Maryport, Seaton etc.

Some people found flexibility in where they worked and at least one temporarily changed where they were living to be able to fulfil a work placement commitment. Family members took on different roles, particularly to do with child care to accommodate the extra time being spent on commuting by parents. Some travellers adjusted the timing of journeys to avoid the worst delays and they included people whose journeys did not involve a river crossing, but who got caught up in the queues waiting to cross the bridge.

As I was on placement in Workington, living in Seaton was not practical and it was difficult. Therefore I was forced to move and live with a relative in Workington.

The family had to make changes so some members could carry out their job and make sure their children arrived at school. And also to be around to collect the children from school when parents were delayed due to traffic conditions.

Fortunately I live on the South side of Derwent. .. It did affect my trip to Cockermouth due to traffic volumes (and also to Carlisle). I had to leave work early to allow for delays. I stopped my occasional visits to Dunmail Park and Maryport altogether. I covered for others at work who were affected.

Most of the comments about the authorities' role in restoring transport links were complimentary, especially about the speed of constructing the new station and erecting the footbridge. However, a few people criticised the delay in completing the temporary road bridge and the one-way system around the footbridge and road bridge where this lengthened their car journeys. The temporary supermarket was also appreciated.

Events such as the Cumbrian flooding and more recently floods in Cornwall might be seen as evidence of climate change. Transport, accounting for approximately 24% of UK's domestic CO₂ emissions (Energy Saving Trust 2010) could be viewed as a cause, not just the victim of climate change, but only one respondent alluded to this connection.

I now travel by train whenever possible. It jolted me into thinking about transport and how it is affected by climate change.

Interviews

A number of interviews were held with local people and stakeholders in the community, including transport providers, shop keepers and representatives from Tesco's, a doctors' practice, the library services, the Job Centre, the Police and Cumbria County Council's Highways, Schools Transport and Public Transport departments. This information was supplemented by local press reports, letters to the press, Cumbria County Council's flood bulletins and material from the internet.

Immediately after the floods, there was shock at the scale of the destruction, but the authorities quickly assessed the situation and determined what was needed. A conference call was held with Gordon Brown, then Prime Minister, who pledged the help of central government to help fund the temporary arrangements, repairs and rebuilding necessary. There followed a few weeks of rapid action, where agencies worked together to put in temporary provision. Network Rail and Northern Railways '*pulled out all the stops*', with Network Rail undertaking to building the temporary station and Northern Rail providing the customer-facing elements such as signs and timetables. Allerdale District Council made land available for parking at both Workington stations and when, the need became apparent, Maryport Rugby Club and later a local firm also opened their land for parking.

The temporary footbridge was opened a week after the station and the shuttle bus service, now served the bridge as well as the new station and another service picked passengers up/dropped them off for journeys to and from the centre of town. Secondary school children were delivered to the footbridge, walked over it and were picked up on the other side;

however, their younger siblings were still bussed around the road detour, adding several hours onto their school day and to parental anxieties about their well-being. Some interviewees were surprised to find they enjoyed the walk, dubbing it the '*health-kick start*' and a few commented on the pleasant atmosphere of families and groups walking together, even during the harsh winter weather. One had resolved to keep walking once the road was open, but confessed to a lack of will-power once car travel was easier.

Private cars and taxis were banned from the approach roads to the bridge because of fears for pedestrian safety. Taxi drivers were unhappy about this having already lost a lot of trade with the travel situation and even unable to carry regular customers. Later the ban on taxis was relaxed for the evening and night-time, when there were no bus services.

Tesco found that 60% of their staff lived north of the river, along with a considerable proportion of their customers. Immediately after the floods they noted that people were doing less frequent and larger shops and they quickly put on bus services between northern villages and their store. They gained temporary planning permission to erect a temporary store on wasteland and using porta-cabins this was opened on 14th December, operating until June 2010.

The doctors of Workington advised patients needing urgent attention to go to Maryport for the first few days after the floods, but they quickly established temporary surgeries in Seaton and Northside, housed respectively in a vacant house in a sheltered housing complex and in the community centre. Doctors from each of five practices would take turns to staff these surgeries and initially they suffered from not being able to access computer files as well as the small consulting room in Seaton. The Seaton surgery later moved to the Rugby Club kitchen and then into a pre-fab building on the grounds. With no appointment system, it proved difficult to predict the duration of surgery times. The rota system meant that resources were stretched at the Workington surgeries and people expecting to see their regular doctor were sometimes disappointed. '*The tolerance of the unaffected wore thin.*' This was partially remedied by bringing in locums, but rather than sending them to the temporary surgeries, where they would not know the patients and would be working on their own, they 'backed up' for the local doctors doing their turn at the temporary surgeries. Later, it was found that some people from Workington were making their way to the temporary surgeries as they knew they could be seen without an appointment and an appointment system was instigated. Some patients transferred permanently to Maryport practices.

Other organisations made other adjustments to help staff and customers. Library staff and police officers living and working on different sides of the river were redeployed to branches/stations on their side of the river where possible. The Job Centre credited staff commuting by train with an extra ten minutes per journey to allow for their walk between the station and the Centre. Some organisations changed shift times to allow staff to avoid the worst delays and others urged staff to car share to reduce congestion.

The train service was greatly appreciated although some interviewees talked about acquaintances who had found the presence of young people riding up and down for free intimidating. The Police tackled this by travelling on the trains and also gaining a dispersal order for the centre of Workington, where groups from Maryport gathered and caused disruption. Another early problem was young men walking over the railway bridge at night to visit friends on the other side of the river and incidences of people moving the barricades and crossing the damaged bridges at night.

One interviewee summed up the episode '*It developed a sense of common spirit. Some people are still walking, but not many, it broke routines. What had been taken for granted wasn't possible any more.*'

Discussion

The methods of adjustment to the loss of direct road connections included all those referred to in the literature: change of route, travel times, mode, destination, frequency of trips, reallocation of tasks within the household (and extended family). There was also at least one case of moving temporarily closer to work. However, the period of adjustment was probably extended with new developments such as the opening of the station and enhanced train

service, the construction of the footbridge, the new supermarket and other changes. Each one altered the travel context, but there was delay before people heard about them and tested them out. There were heavy monetary and time costs for those who persisted with car travel which impacted on the resources available for other activities. Adjustments were not only undertaken by individuals; various organisations made efforts to accommodate their employees and clients by redeployment, providing services on different sites and adjusting hours, thereby providing extra resilience. However, this sometimes increased costs or reduced the service they were able to provide.

Amongst the respondents, there was a reduction in the number of trips made, particularly for discretionary trips, a move away from car travel, especially for commuting and a change in destination, notably for shopping. However, car trips still predominated, demonstrating the reluctance to change mode from private to active or public transport noted by Giuliano and Golob (1998) and others. There also appears to be a reduction in the total number of trips even since the temporary bridge has opened.

Does this unusual situation offer any lessons about adjustments to rising fuel prices or climate change mitigation measures? The severing was unpredicted, immediate, across a line and temporary in contrast to potential human interventions, yet, like them, it effectively made road transport more expensive in relation to other travel. Some of the solutions adopted may also be relevant to more predicted, general and permanent increases in the cost of travel. Some employers redeployed staff to the side of the river where they lived, primarily to save them time and inconvenience. While this happened within organisations, one can imagine that individuals would also look for jobs closer to home if the cost of travel began to outweigh the benefits and so reduce '*cross-commuting*' (Engwicht 1992:46) whereby one person commutes from an area to a job in another, while another person mirrors their commute to a similar job in the opposite direction. The doctors and supermarket established 'outposts' to serve their clientele faced with extra long journeys to reach their services, while the police and bus company re-allocated services to existing branches on the north side of the river. The main consideration appears to have been the convenience of staff and clients, rather than cost-effectiveness.

There is evidence both for optimists and pessimists. The optimists can point to the reduction in car travel, the changes to other modes and how adaptations were made by organisations as well as individuals increasing resilience. The evidence that trip rates did not immediately return to pre-flood levels is also positive. However, the pessimists will point out that car users mostly continued to use their cars and that even people who had enjoyed walking and expressed the intention of continuing succumbed to the ease of driving once the temporary road bridge was opened. Some organisations which had worked together and for the common good during the emergency re-orientated once it was over. Thus Northern Rail was unable to enhance its train service to retain a proportion of the new users because of its franchising agreements and a lack of rolling stock. The 'outposts' which had brought services to the people on the north of the river were closed; although the opening of a new supermarket means that these services are nearer.

The main deterrent to driving while the road bridges were closed appears to have been the time and frustration endured at the bottleneck bridge at Cockermouth, rather than the cost of travel, although this was important to some respondents. Organisations also seemed to have responded to the inconvenience rather than the extra costs. Fuel-price rises and climate change mitigation measures are likely to hit wallets rather than schedules and as such will have a differential impact on people of different incomes, allowing some to continue as usual, while others will need to reduce their travel or other expenditure to absorb the extra costs.

Conclusions

The survey revealed several methods of adjusting to the loss of direct road connections across the River Derwent at Workington. While most respondents continued to drive, commuters were most likely to change travel mode and shoppers to change destination. Leisure and social trips were reduced, probably both because they were more time consuming and expensive, but also because respondents had less time for such activities after their longer utility trips. Organisations also adjusted to accommodate their staff and clientele's travel difficulties. Once road connections were restored, many people resumed

their pre-flood travel patterns, although there was a reduction in the total number of trips made and a small decrease in the proportion of those made by car.

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Figure 7

People's main mode for work trips

