Valuing the social benefits of local infrastructure in Workington, iBUILD briefing paper 9

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The paper explores a social accounting methodology for valuing infrastructure using the case study of the bridges in Workington, Cumbria to discuss different forms of value. The case study was chosen because all the road and pedestrian bridges were either destroyed or closed after flood damage in November 2009. It provides an example of severance within a community.

The paper is in four sections with the first being a narrative about Workington and its bridges. The second section will examine the economic drivers for rebuilding the bridges. The social accounting methodology is developed in the third section and finally the paper concludes with discussion about the different ways to value infrastructure. The research method was desk based using a wide variety of sources including Cumbria County Council's website, press releases, the local media, comments from the public and existing research by Guiver (2011).

A Narrative of Events

In November 2009 during major flooding across Cumbria, the footbridge and the Northside road bridge in Workington were destroyed, whilst the Calva Bridge was damaged and closed for assessment. After the floods the only bridge intact was the railway bridge. Within ten days a temporary train station was opened in the north of Workington and initially this was used by over 2,000 passengers per day. Also, during December the Royal Engineers assembled a temporary footbridge across the River Derwent. Buses would drop school children off on one side of the bridge and another would pick them up on the other. Drivers wishing to go from the south to the north of Workington had to make a heavily congested detour of around 18 miles (Guiver, 2011).

Cumbria County Council negotiated for funding and a temporary road bridge was opened in April 2010. Then a footbridge was built and the Calva Bridge was reopened in the following year. Following these bridges being completed the temporary train station and interim bridges were dismantled. In 2012, almost three years after the floods the new Northside Bridge was opened to vehicles, cyclists and pedestrians and all of the bridges that had been destroyed or damaged had been either replaced or repaired.

Making an Economic Case

Workington had experienced an environmental disaster, so this was recovery rather than regeneration. After the floods Cumbria County Council (CCC) estimated that across Cumbria the increased travel time cost the private and public sectors £2 million per week. This figure was across

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the county, so only part of this cost could be assigned to Workington. CCC announced that the two road bridges, Calva and Northside were used by 37,000 vehicles daily (CCC, 2010).

The local newspaper the *News and Star* (online version) highlighted that without the road bridges short journeys of a few minutes were now taking hours. It was important to have a road bridge crossing the River Derwent, because both Allerdale Borough Council district and Cumbria had greater percentages of employees involved in manufacturing and hotels/restaurants than the national figures. It was essential that tourists and manufactured goods move easily through the county. The 18 mile detour and accompanying traffic congestion were proving an additional expense for both business and households due to additional time and fuel costs.

Both HM Treasury's *Green Book: Appraisal and Evaluation in Central Government* (2011) and *Valuing Infrastructure Spend: supplementary guidance to the Green Book* (2011) provide a range of options. The *Green Book* methodology monetises positive and negative impacts and assesses the value of a project through cost/benefit analysis. The supplementary guidance suggests looking at some of the wider impacts of infrastructure such as labour market participation, resilience against economic shocks and environmental impacts. These guides give the process and the WebTAG (Web-based Transport Analysis Guidance) data gives financial values to support a business case for building infrastructure.

Using knowledge of the number and type of vehicles and the additional time taken a financial value could be calculated to compare options for the cost of a bridge. The current WebTAG data (2014) has calculated the resource cost to an employer for a car driver would be £22.74 per hour or £10.24 per hour for a LGV driver or passenger.

Another set of figures that could assess a piece of infrastructure and make a case for safer roads would be the COBALT data, which gives financial values for accidents and casualties occurring on the roads. Across Cumbria from 2010 to 2011 the total number of casualties rose from 1719 to 1755 after five years of annual decreases (CRSP, 2013). Monetary values have been applied to fatal, serious and slight accidents. In this way a safer road or bridge can have estimated benefits.

The Government's forms of assessment aim to monetise as many impacts as possible and record the intangible impacts to compare one project against another. In Workington, the town's vehicle and pedestrian/cycle bridges had failed, so it received new and better vehicle and pedestrian/cycle bridges costing around £12m and £1.7m respectively. The benefits from these bridges would be over many decades. The temporary road bridge cost the government approximately £4.6m and remained in Workington for just over two years. As Workington was left with no road bridges after the flood the decision process did not entirely focus on financial costs and benefits.

Making a Social and Environmental Account

In 2014 a desk based study was carried out to examine Workington's recovery. Over 400 news articles, reports and documents were gathered from the CCC website, online newspapers and

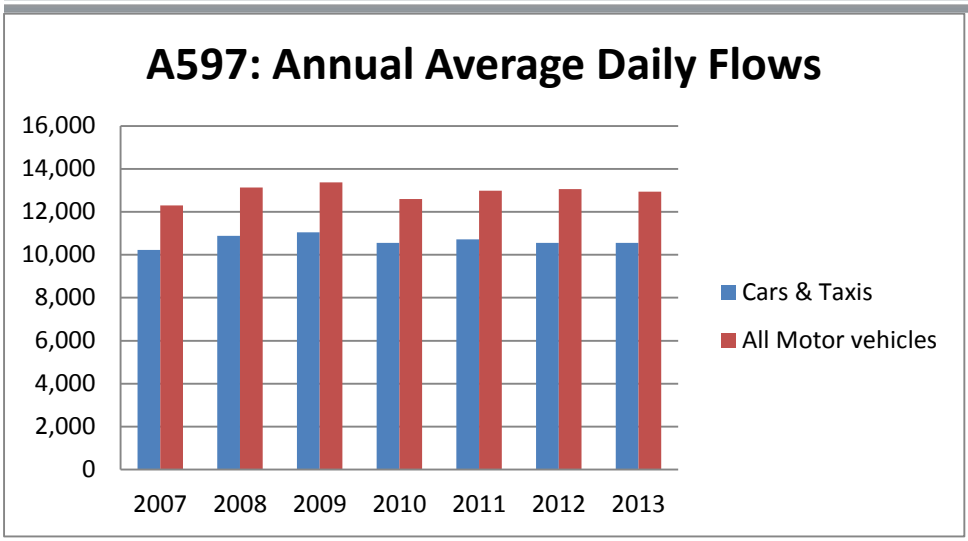
industry information. The social and environmental accounts were synthesised from all these sources. The Council's information gave information about the processes involved in recovery such as tendering for contractors, planning information and progress reports. The online newspaper contained stories about the progress of building the bridges, delays and impacts at very local level within small businesses and families. The paper also offered the public a way of expressing their individual experiences and articulate their difficulties with travel. The industry information gave more technical information about the processes and problems when building and repairing the bridges (Livesey, 2011 and Lynch, 2010 & 2010a). The combination of information proved informative, because the newspapers would announce a delay, the industry articles would give technical information explaining the delay and the public would make comments about the impacts.

Before the floods the Northside and Calva bridges dealt with around 37,000 vehicle journeys per day. This figure could be useful to those wanting to find an average daily cost to drivers. However, the social accounting methodology does not always monetise impacts. The journey times can be monetised, but also can have social impacts.

The local newspaper highlighted how the loss of the bridges impacted on local people, for example through the experience of families changing their travel patterns. In December 2009 and April 2010 the newspaper highlighted the problems of families in Workington. Before the temporary footbridge was opened the school bus could take around two hours to get the children to school. A pre-flood ten minute journey increased to almost two hours and was done twice a day. Families had to get up at 6 am to get to school and extra-curricular activities were stopped. Overall there was less interaction between family and friends, especially if they lived on different sides of the river. Guiver (2011) used a survey to assess how over 400 people had altered their travel patterns without the road bridge and found that because journeys took so long there was not time for discretionary trips such as social visits to vulnerable relatives. The percentage of car journeys to work was slightly reduced and the percentage of health related car journeys increased.

Guiver (2011) found some people started walking, cycling or using the train and enjoyed the health benefits and social interaction. The local newspaper highlighted the elderly and the disabled found the footbridge and the temporary train station not easy to use. These personal impacts were duplicated across Workington with those living on the north side of the river and working on the south side and vice versa spending and increased amount of time travelling.

There were also economic costs linked with the social impacts. Families and businesses spent more on fuel, because of the detours and traffic jams. Families in North Workington were shopping in Carlisle rather than Workington town centre, because it was more convenient. Whilst local people delayed some purchases until the transport infrastructure was repaired/replaced. The shops in Workington experience lower footfall and a resultant reduction in sales. The livelihoods of indigenous employers and employees were affected by severance of the infrastructure.



The average daily traffic figures of the A597 road in Workington illustrates that in 2010 there was a slight fall in the number of motor vehicle journeys. This indicates that whilst businesses and individuals were still driving their vehicles, the reduced usage would still provide an environmental impact from the potential 18 mile detour before the temporary road bridge and the congestion. The CO2 emissions for different types of vehicles and the additional distance could be used to calculate the extra CO2 emitted without the bridges.

After the temporary road bridge was opened there were traffic jams and problems with travel, because Workington had previously had two bridges. CCC requested that people car share or avoided the bridge to reduce traffic jams. Sellafield Ltd asked suppliers to avoid the temporary road bridge, because it could only accommodate 60% of the traffic of the two previous bridges (Sellafield, 2010). The town returned to having two road bridges in March 2011 when the Calva Bridge reopened and the temporary bridge was still in use. The new Navvies footbridge was opened in September 2011 and the new Northside Bridge was opened in October 2012. By late 2012 the town's infrastructure had been returned to pre-flood levels.

To sum up, the bridges were intrinsic to the social and economic wellbeing of Workington. The loss of the bridges increased residents time travelling to work and school and there were fewer journeys for leisure and social activities (Guiver, 2011). During the period of severance, some residents became 'time poor' and experienced additional costs influencing their choices of activities. The partial social account highlights how the loss of the bridges reduced social interactions and after-school activities with resultant loss of physical activity.

Discussion about value

Both the guidance from the *Green Book* and social accounting methodology identify stakeholders and their impacts. The *Green Book* guidance directs the users to monetisation and the use of WebTAG costs. It can be calculated that a driver and passenger in a light goods vehicle will cost X

amount of £s if they spend 60 minutes in a traffic jam. The aim of social accounting is not to monetise impacts, but to record the social impact(s) and outcomes.

Using the Workington case study, which was an extreme example of severance in the UK, the number of drivers and passengers suffering from an additional two hour journey time could be monetised to prove that replacing the bridges was a cost effective proposal. CCC announced that that after the floods there had been an additional cost of £2 million per week to business and the public across the region. However, additional travelling time resulted in residents becoming 'time poor' and having to ration their free time and social activities. Whilst it was relatively soon after the disaster that children managed to get to school, the majority of employees got to work and goods were moved around the county, it is clear that what was lost was intangible and difficult to value, such as the social value of people's free time, ability to see friends and relatives and social interactions.

If a proposed new piece of infrastructure will shorten a journey by 20 minutes, a manufacturer can get their product to market quicker with less financial cost. The resultant saving of 20 minutes will have an economic value that is recognised by the Department for Transport and local and regional government, but it may have a very different value to individuals. One of the problems of assessing value is that it can be context and place specific for example a two hour commute might be acceptable in or around London, but not in Cumbria. The news stories and commentary from the locals in Workington, demonstrated that they wanted their bridge infrastructure replaced with the same capacity as before the floods. In Workington it was more than just a two hour commute to work as the physical links from homes to schools, businesses, shops and health services were severed. Some of the infrastructure and services could be recreated in different places such as a temporary Tesco built in North Workington, a temporary railway station and a GP surgery set up in a sports centre. However, schools, family relationships, social and community infrastructure cannot be so easily moved and recreated.

The people of Workington did suffer from stress and poor quality journeys, but that was only part of their day. The severance altered their home life, social life and retail and leisure activities. The value of the bridge to the community is demonstrated through the impact of the loss of the infrastructure on the people of Workington. The value can be recognised through broader measures than monetisation using social accounting methodology.

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