

CiViTAS
Cleaner and better transport in cities

ARCHIMEDES

AALBORG • BRIGHTON & HOVE • DONOSTIA - SAN SEBASTIÁN • IAŞI • MONZA • ÚSTÍ NAD LABEM

Brighton & Hove

T.71.2 – Cyclist Counter Display

Brighton & Hove

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1. Introduction

1.1 Background CIVITAS

CIVITAS - cleaner and better transport in cities - stands for Clty-VITAlity-Sustainability. With the CIVITAS Initiative, the EC aims to generate a decisive breakthrough by supporting and evaluating the implementation of ambitious integrated sustainable urban transport strategies that should make a real difference for the welfare of the European citizen.

CIVITAS I started in early 2002 (within the 5th Framework Research Programme);
CIVITAS II started in early 2005 (within the 6th Framework Research Programme) and
CIVITAS PLUS started in late 2008 (within the 7th Framework Research Programme).

The objective of CIVITAS-Plus is to test and increase the understanding of the frameworks, processes and packaging required to successfully introduce bold, integrated and innovative strategies for clean and sustainable urban transport that address concerns related to energy-efficiency, transport policy and road safety, alternative fuels and the environment.

Within CIVITAS I (2002-2006) there were 19 cities clustered in 4 demonstration projects, within CIVITAS II (2005-2009) 17 cities in 4 demonstration projects, whilst within CIVITAS PLUS (2008-2012) 25 cities in 5 demonstration projects are taking part. These demonstration cities all over Europe are funded by the European Commission.

Objectives:

- to promote and implement sustainable, clean and (energy) efficient urban transport measures
- to implement integrated packages of technology and policy measures in the field of energy and transport in 8 categories of measures
- to build up critical mass and markets for innovation

Horizontal projects support the CIVITAS demonstration projects & cities by :

- Cross-site evaluation and Europe wide dissemination in co-operation with the demonstration projects
- The organisation of the annual meeting of CIVITAS Forum members
- Providing the Secretariat for the Political Advisory Committee (PAC)
- Development of policy recommendations for a long-term multiplier effect of CIVITAS

Key elements of CIVITAS

- CIVITAS is co-ordinated by cities: it is a programme “of cities for cities”
- Cities are in the heart of local public private partnerships
- Political commitment is a basic requirement
- Cities are living ‘Laboratories’ for learning and evaluating

1.2 Background ARCHIMEDES

ARCHIMEDES is an integrating project, bringing together 6 European cities to address problems and opportunities for creating environmentally sustainable, safe and energy efficient transport systems in medium sized urban areas.

The objective of ARCHIMEDES is to introduce innovative, integrated and ambitious strategies for clean, energy-efficient, sustainable urban transport to achieve significant impacts in the policy fields of energy, transport, and environmental sustainability. An ambitious blend of policy tools and measures will increase energy-efficiency in transport, provide safer and more convenient travel for all, using a higher share of clean engine technology and fuels, resulting in an enhanced urban environment (including reduced noise and air pollution). Visible and measurable impacts will result from significantly sized measures in specific innovation areas. Demonstrations of innovative transport technologies, policy measures and partnership working, combined with targeted research, will verify the best frameworks, processes and packaging required to successfully transfer the strategies to other cities.

1.3 Participant Cities

The ARCHIMEDES project focuses on activities in specific innovation areas of each city, known as the ARCHIMEDES corridor or zone (depending on shape and geography). These innovation areas extend to the peri-urban fringe and the administrative boundaries of regional authorities and neighbouring administrations.

The two Learning cities, to which experience and best-practice will be transferred, are Monza (Italy) and Ústí nad Labem (Czech Republic). The strategy for the project is to ensure that the tools and measures developed have the widest application throughout Europe, tested via the Learning Cities' activities and interaction with the Lead City partners.

1.3.1 Leading City Innovation Areas

The four Leading cities in the ARCHIMEDES project are:

- Aalborg (Denmark);
- Brighton & Hove (UK);
- Donostia-San Sebastián (Spain); and
- Iasi (Romania).

Together the Lead Cities in ARCHIMEDES cover different geographic parts of Europe. They have the full support of the relevant political representatives for the project, and are well able to implement the innovative range of demonstration activities.

The Lead Cities are joined in their local projects by a small number of key partners that show a high level of commitment to the project objectives of energy-efficient urban transportation. In all cases the public transport company features as a partner in the proposed project.

2. Brighton & Hove

Brighton & Hove is an historic city, in the south-east of England, known internationally for its abundant Regency and Victorian architecture. It is also a seaside tourist destination, with over 11km of seafront attracting eight million visitors a year.

In addition, it is a leading European Conference destination; home to two leading universities, a major regional shopping centre, and home to some of the area's major employers. All of this, especially when set against the background of continuing economic growth, major developments across the city and a growing population, has led the city council to adopt a vision for the city as a place with a co-ordinated transport system that balances the needs of all users and minimises damage to the environment.

The sustainable transport strategy that will help deliver this vision has been developed within the framework of a Local Transport Plan, following national UK guidelines. The ARCHIMEDES measures also support the vision, which enables the city to propose innovative tools and approaches to increase the energy-efficiency and reduce the environmental impact of urban transport.

3. Background to the Deliverable

This deliverable documents part of the work conducted in ARCHIMEDES measure 71. The primary focus of this measure is provision of public transport information to the residents of Brighton to enable them to make informed journey choices (Task 8.4). That element of the work is described in detail in deliverable T71.1. However, there is a second element to ARCHIMEDES measure 71 that also involves the provision of travel information to local residents; this involves automated counting of cyclists passing key locations in Brighton and displaying the number of cyclists counted each day in order to demonstrate that cycling is an everyday travel option (Task 8.5). It should be noted that in the project workplan there is no deliverable proposed to document this action, and so this is in effect an extra project deliverable.

Prior to the CIVITAS initiative there were no Cyclist Counter Displays in the city, or indeed in the UK. There has been (and still is), however, a great deal of cyclist monitoring taking place throughout Brighton & Hove. There are automatic cycle counters installed in the city (much like the Cyclist Counter Displays but without the display element) as well as quarterly manual counts, both of which are primarily used by Brighton & Hove City Council (BHCC) staff for monitoring purposes, informing infrastructure needs, and occasionally for promoting sustainable travel as part of wider UK initiatives such as the Cycling Towns programme.¹

Up to now the data from these counters has not been displayed as a matter of routine or fed back to the public (unless requested), and therefore very rarely used to promote cycling or create a sense of community.

There are regular events that take place in Brighton & Hove to promote cycling. These include active promotion in conjunction with the national Bike Week event, promotional activities and events at employers and schools as part of the travel plans process, support for the Bike It² initiative run at schools, cycle anti-theft workshops, road safety events and a cycling stand at the

¹ Brighton & Hove was designated one of six Cycling Demonstration Towns in 2005. It was subsequently one of 17 Cycling Towns in a programme which was run until March 2011 by Cycling England through funding from the UK Department for Transport (DfT). The principle aim of the programme was to increase investment in cycling and boost the use of this mode. Further information can be found at <http://www.dft.gov.uk/cyclingengland/who-we-are/>

² BHCC has actively supported the UK Sustainable Transport Charity, Sustrans', national Bike It initiative including through funding. This places cycling on the school curriculum and includes promotional events at schools in the city. For further information see <http://www.sustrans.org.uk/what-we-do/bike-it/>

city's Take Part³ sports festival. The Cyclist Counter Displays will help build upon this promotion but as part of the everyday cyclist journey, and provide real evidence straight to the public that cycling is not just for a 'niche' market. It is anticipated that this will build up a stronger community of cyclists and encourage other citizens to shift to more sustainable travel options.

3.1 Summary Description of the Task

Cyclist Counter Displays were installed at two key locations in the CIVITAS Plus corridor in Brighton & Hove. These were selected on the basis of the presence of existing cycle lanes and their prominence on two of the major routes into the city centre. These count the cyclists passing and display that number on a nearby sign, locating cyclists as part of the 'everyday' in the city. The counters display daily and yearly totals. The installation of the counters supports wider promotional activities to increase awareness and acceptance of cycling (such as route maps) and to reinforce the idea of cycling as an everyday activity.

4. Cyclist Counter Displays

4.1 Description of the Work Done

This section provides an overview of all work completed within this task and documented in the rest of the deliverable.

- Identification of sites for the measure to be implemented and suppliers commissioned for equipment; took place between 16th February 2009 and 2nd October 2009.
- Final selection of the sites and supplier took place between 2nd October 2009 and 5th November 2009.
- Implementation of the Cyclist Counter Displays took place between 5th November 2009 and 15th May 2010.
- Measure evaluation started on 15th May 2010 and is ongoing.

4.2 Summary of Activities Undertaken

External consultants were commissioned to conduct a feasibility study which identified potential suppliers for the Cycle Counter Display product. This was deemed necessary in order to provide knowledge of the market for these innovative products and improve the quality of the scheme as a consequence. This highlighted that a number of companies had the potential to *develop* products that were in line with the project brief. Upon further consideration, two suppliers were identified as suitable on the basis that they could supply 'off-the-shelf' products:

- one that was in the process of developing a 'second generation' unit, understood to build on cycle counters installed elsewhere in Northern Europe
- a second who supplied ready-made units that were already installed in Copenhagen and Aalborg and as such were understood to be tried and tested.

Other suppliers identified in the initial feasibility study were likely to need to undertake significant research and development in order to be in a position to supply a product in line with the project brief.

³ See <http://www.takepartbrightonandhove.com/aboutus.html>

A decision was made to commission the latter as their unit was most suitable for the needs of this project.

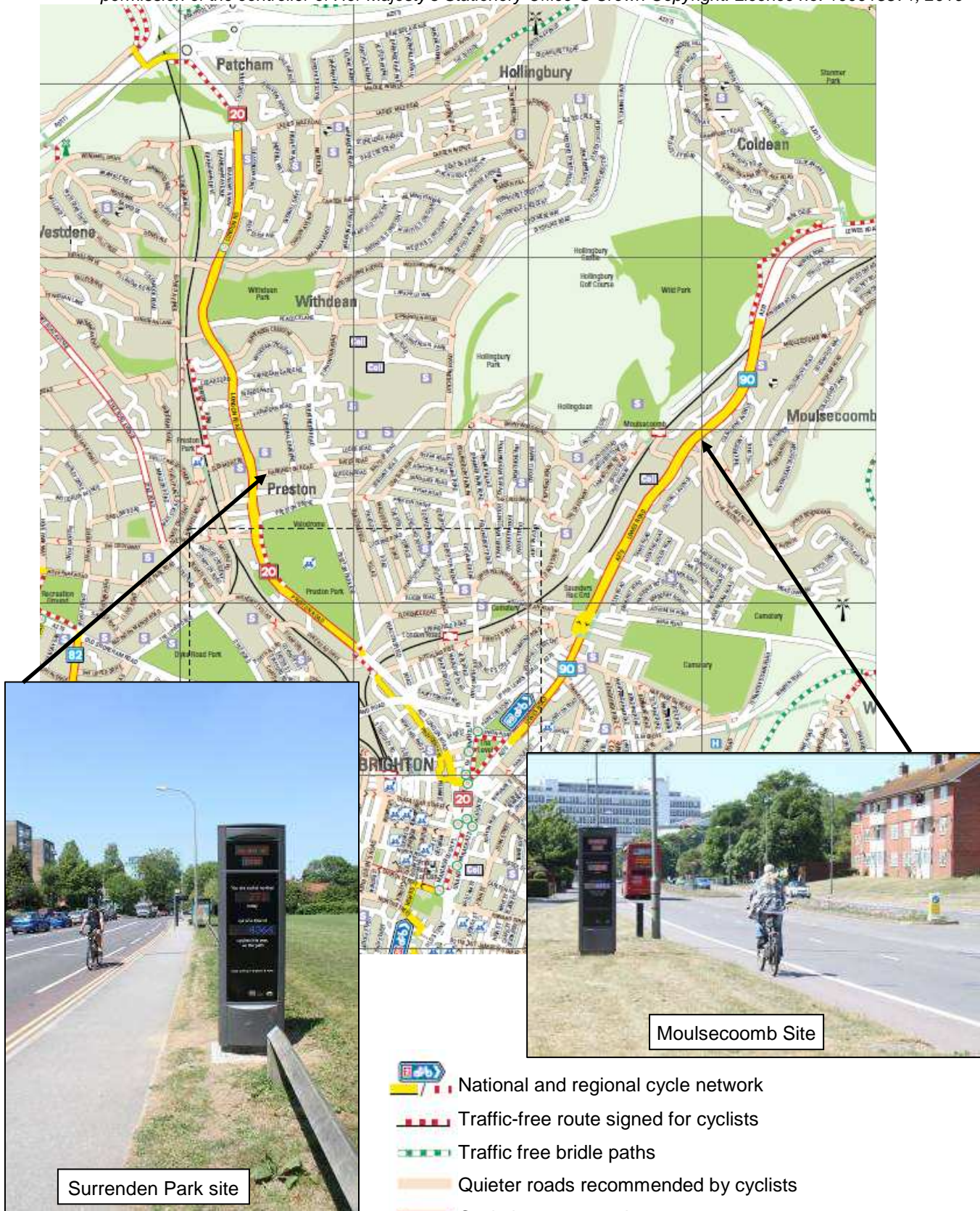
Two locations for the cyclist counter displays were decided upon; one at Surrenden Park on London Road in the northwest of the city, and the other in Moulsecoomb on Lewes Road in the northeast of the city (see Figure 1). As noted in Section 3.1, these were selected on the presence of existing cycle lanes and their prominence on two of the major routes into the city centre.

- London Road is a key commuter link into and out of the city and is a direct route connecting the outskirts of Brighton & Hove to the city centre.
- Lewes Road is also an important commuter link as well as a key route for students to get to and from the two universities in Brighton & Hove.

Two units were subsequently ordered and were delivered in March 2010 and installed by May 2010. The final products are illustrated in Figure 1.

Figure 1: Maps and Images Showing Cycle Counter Location

Source: Base map taken from Brighton & Hove Cycle Map. Reproduced from Ordnance Survey mapping with the permission of the controller of Her Majesty's Stationery Office © Crown Copyright. Licence no: 100015871, 2010



4.2.1 Installation of Cycle Counters

The automated cycle counters work through the installation of a detection 'loop' cut into the highway/ cycle lane. This information is relayed to the counter which records the data. The display units extend this function by actively displaying the information.

Due to problems with the sim cards, the calibration of the sensorlines could not be carried out. This issue was resolved by installing fixed IP 3g routers, in May 2010. After this, the manufacturers carried out the calibrations for the sensorlines. Unfortunately it emerged that the sensorline could not differentiate between cars travelling at 40m/h and bikes travelling at 10-20m/h. It could however differentiate between buses and bicycles. The original intention was to cover the bus lane at the London Road site, but this was no longer possible as cars and taxis use this part of the road as well.

A new shorter sensorline was installed at The London Road site, covering only the cycle lane. The original longer sensorline is still connected to the counter, so for special cycling events (if the road was closed to motor traffic), it could be turned on to count bikes. The permanent sensorline covering just the cycle lane is operational and calibrated and is working within acceptable parameters (95% accuracy).

Meanwhile, the first sensorline installed at the Moulsecocomb site was faulty and a replacement was sent from the manufacturers. This was installed by BHCC's contractors. Unfortunately the counter, even after several trials and calibrations, was still not working within the acceptable parameters (it was only counting 80% of cyclists). The manufacturers suggested the problem was with the way the new sensorlines were installed; the same groove in the highway was used, when a new groove should have been cut. BHCC, the suppliers, and the manufacturers came to an agreement that the latter would send an engineer with new sensorlines to oversee the installation and to calibrate them.

The implementation has been a protracted process and, although significant improvements have been made, accuracy issues continue to be present at one site at the time of writing. The issues discussed in this section are summarized further in Section 4.4.

4.3 Main Outcomes

The main outcomes are as follows:

- Two interactive cyclist counter displays have been installed on major routes in to Brighton & Hove. These are the first of their kind in the UK and therefore represent an innovative technological initiative.
- Testing of this innovative technology since installation has highlighted problems which have subsequently been solved. This kind of problem-solving is an integral part of the implementation of innovative measures, and will provide a clear set of lessons and best practice for any future installations.
- Planning has started on how to promote the cyclist counter displays in light of the fact that so far they have received some negative attention in the press.

4.4 Problems Identified

The main problems experienced with this measure have been to do with technological faults and physical implementation.

- There were initial problems with the sim cards installed in the counters which meant that calibration of the sensorlines could not take place.
- It was also discovered that the sensorlines could not distinguish between cars travelling at 40m/h and bicycles travelling at 10-20m/h. This posed particular problems at the Surrenden Park site where BHCC had intended to count the number of cyclists using the entire side of the carriageway. This limits the accuracy of the data the counter records, as it only represents the numbers of cyclists using the cycle lane, and not the number using the whole route.
- There was also a specific problem at the Moulsecoomb site, where the sensorline was only counting 80% of all cyclists using the cycle lane. It was suggested by an engineer that this was due to the sensorline being installed incorrectly.
- What the above problems identify is a typical occurrence with innovative technology; that trials in the real world will often highlight problems that may not have been picked up in laboratory testing. Also, there is not generally a sufficient amount of other cases from which lessons can be learnt. Therefore, these problems should be seen as learning experiences for future measures.
- An additional problem came from vandalism of one of the counters which subsequently required repairs.
- Finally there were problems resulting from negative press of the cycle display counters; criticisms of the amount of money that was spent to install the counters and the issues with them working. This has had a knock-on effect to the promotion of the project which is on hold until both units are fully functioning. It is anticipated that the faults will be rectified by summer 2011.

4.5 Mitigating Activities

- The faulty sim cards that were preventing calibration were very simply replaced.
- The problem that the sensorlines could not distinguish between cars and bicycles was overcome by reducing the sensorline to cover only the cycle lane and not the whole road. This has reduced the chance of capturing all cyclists on the route but has helped to ensure the robustness of the data that is collected. Accuracy could potentially be improved through the implementation of a physically segregated cycle route as is the case at many sites where the units have been installed elsewhere in Europe. However, this would still rely on all cyclists using this facility and not the adjacent highway.
- The problem at the Moulsecoomb site could only be solved by removing the faulty sensorline and installing a new one. For the new installation an engineer from the manufacturers will be on site to ensure the works are completed to the required specification. This highlights the importance of having the experts fully involved with the work that takes place.
- The problem of vandalism is difficult to combat, however the counters are designed and built to be particularly robust, and with materials that are anti-graffiti. Once the counters

are launched there may be a greater sense of public ownership of the scheme which will hopefully reduce acts of vandalism.

- The issue of negative press seems unlikely to be overcome, except for implementing a successful promotional campaign. The testing period between when the counters are installed and when they are promoted is a difficult time where there is a lack of knowledge of the scheme, and therefore it is open to public criticism. Therefore, reducing the length of this time between installation and promotion is key.

4.6 Future Plans

As soon as the Moulsecoomb cycle display counter is working at a satisfactory level of accuracy, the two can be linked to BHCC's JourneyOn website to provide a live feed to the data. This will bring together the two elements of the measure. This also means that when the website becomes mobile (Task 8.4), the counter data will be available while on the move.

Planning of the promotional side of the project is currently taking place; the intention is to officially launch the counters at the city's annual Bike Week festival. An emphasis will be put on highlighting individual experiences on the routes past the counters, to confirm the position of cyclists within the everyday of transport in Brighton & Hove.

There are also plans for a promotional short film to be made, at the official launch of the counters; mixing footage of cycling around Brighton & Hove with footage of the cycle counter displays. Again this will hopefully reinforce the idea that cyclists are part of the 'normal' urban environment.

In conjunction with the promotional work there will be awareness and acceptance surveys testing people's perceptions of the counters as well as their experiences of cycling in Brighton & Hove. This will hopefully yield a good deal of qualitative information which can inform the measure evaluation and help promote it. For the promotion and monitoring it will be important to link up with the universities in Brighton & Hove to gauge opinions from the students who are heavy users of the Lewes Road corridor.

Further evaluation will be conducted using the quantitative data from the counters on the number of cyclists using the route. This will be assessed in conjunction with historical cycling data for Brighton & Hove.

Plans are under way to decide how best to promote the cyclist counter displays. The main focus will be on identifying cyclists as part of the everyday transport of Brighton & Hove. This promotion will also give an opportunity to start surveying awareness and acceptance of the initiative.