Urban Transport Benchmarking Initiative Year Three

Annex A3

Cycling

Working Group Report

July 2006

Transport & Travel Research Ltd

THE REGIONAL ENVIRONMENTAL CENTER
for Central and Eastern Europe

Annex A3

Cycling

Working Group Report

Prepared for

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by

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0. EXECUTIVE SUMMARY

The main aim for working groups during the third year of the Urban Transport Benchmarking Initiative was to develop the findings from the first two years of the project in order to produce outputs which were of value to cities not involved in the working group as well as the European Commission. In year one of the benchmarking initiative, the Cycling working group was introduced to represent cycling as a viable and desirable alternative to using the car.

The following cities participated in the Cycling working group during the third year of the project; Brescia, Copenhagen, Malmö, Glasgow (Cycling Scotland), The Hague and London. Copenhagen and Brescia have been involved in the Cycling working group since its inception.

The site visits to Santander, The Hague and Malmö provided a very useful insight into cycling practices applied in other European cities and gave participants the opportunity to exchange good practice and experiences. The site visit to Santander was the first site visit in year three where both the 'Cycling' and the 'behavioural and social issues in public transport' working groups met to jointly discuss the links between their chosen themes, thus continuing the cooperation between the groups initiated in year two. The visit to The Hague was also a joint site visit and the groups subsequently held separate events for the final site visit in order to discuss their individual analyses.

There were two main recommendations from year two of the Urban Transport Benchmarking Initiative and the group decided that the research topics for year three should be defined in order to meet these aims. The following research questions were subsequently chosen:

1) How can cities monitor and evaluate cycling?
2) How to encourage intermodality for cyclists and public transport users so that both can benefit?

The following conclusions and observations can be drawn from the analysis of the cycling working group's activities during year three:

<u>How can cities monitor and evaluate cycling?</u>

Cycling policies in participant cities are quite a recent feature over the last decade of their governmental agendas. However, Malmö has had a cycle plan since 1976.

The development of different measures within a cycling policy framework takes a different emphasis in each of the cities. Measures employed include upgrading infrastructure and network length, reducing car emissions by promoting cycling through soft measures, producing cycle quality targets, secure cycle parking, developing best practice, improving cycling safety, encouraging cycle training and action to help cyclists. Priorities for the cycle networks covered in the working group reflected the maturity of the cycle network and the strength of the underlying cycle culture in each of the cities

Action plans are an essential component in making a city's cycling policy work. All but one participating city has one or is developing one. Most have been developed within the last 5 years, but Malmö has had an action plan since 1976. The range and number of elements used in cycle action plans varies greatly between participating cities. This ranges from The Hague which does not have a specific plan, to London which has a comprehensive plan featuring both a strategic vision for the London cycle network, as well as Borough specific objectives.

All cities in the working group monitor policy objectives, particularly the use of the cycle network, in order to demonstrate the utilisation of investment and assure decision makers that value for money is being delivered. Approaches to cycling policy monitoring ranged from informal site visits to the cycle network with cycling associations, to detailed data collection in order to measure cycling policy delivery against a series of targets. Commonly used techniques for monitoring are cordon counts (both manual and through the use of automated counters), personal surveys and travel diaries. In most cities, cycle counts are regarded as an important indicator and are collected either by people counting the bicycles or automated counters. The reasons for monitoring objectives are similar in each of the participating cities cases. They are usually to gauge success or impact of strategies, to see if targets are being met and to inform policy improvements that need to be made to improve strategies. Policy monitoring frequency varied from every quarter to every second year.

Indicators used in cycle policy monitoring were ranked as follows with regards to their value in cycle policy monitoring:

1. Cycle accidents
2. Network length
3. Mode share (% of trips)
4. Risk (KSI/trip length)
5. Cycle parking
6. Bridges/tunnels for bikes
7. Engaging employers
8. Signing strategy
9. Engaging schools
10. Cordon counts
11. Use of cycle parking
12. % of children received cycle training
13. Cycle shops
14. Cycle training programme
15. Behaviour surveys
16. Cycle theft
17. Cycle training
18. Risk (KSI per trip)

Ranking the indicators by usefulness, then difficulty to collect enabled the group to develop a priority list of cycling indicators which should form the basis of cycling policy monitoring activities. The indicators at the bottom of the list are not necessarily regarded as less important for collection than those at the top of the rank. They are merely considered as indicators that should be collected only when a monitoring programme is fully developed having already collected the indicators at the top of the rank. They provide data to back up any trends shown by initially collected data. Safety is regarded as the most important factor to monitor along cycle routes and therefore, data on cycle accidents must be collected in order to see what areas need attention with regards to safety. Modal share and network length are regarded as the most representative measures of progress in cycling policies. Cycling facilities are also regarded as an important indicator of cycle network development.

The Cycling group cities were encouraged to test themselves against the Velo.Info system. Malmö, The Hague and Brescia all completed the Velo Info questions. Malmö received a platinum award, The Hague Gold, and Brescia Silver.

Monitoring indicators are used to check progress on a wide variety of policies and programmes including:

- Copenhagen: Cycling infrastructure and environment.
- Brescia: Sustainable mobility.
- The Hague: Infrastructure.
- The Hague: Bicycle parking.
- London: School cycle parking.

The most frequently used indicators to monitor and evaluate these policies and programmes include:

- Network length.
- Cordon counts (modal share).
- Cycle parking spaces.
- Qualitative opinions on improving infrastructure and policy.

In general, the indicators have been used to give a background for improvement of the various different cycling infrastructures. They are used to predict demand for cycle parking, to justify cycle network extensions, to identify safety black spots and to monitor cycle targets. Monitoring attitudes and satisfaction levels with regards to cycling in the participating cities is also important to progress as they reflect the status of cycling culture in the cities.

There were a variety of difficulties encountered when implementing these policies and programmes which include:

- Revision of initial strategies.
- Limited experience and technical competence.
- High expectations.
- Lack of commercial understanding with regards to the need for cycle parking.
- Lack of consideration when planning for physical obstacles and other infrastructure.
- The need for planning permission, causing delays.

In general, the policies and programmes implemented for cycling in the working group cities were deemed to have been successful. The use of the most appropriate indicators has engendered greater understanding, comprehension and acceptance of policies and programmes, resulting in new infrastructure and facilities being implemented in appropriate locations in order to encourage cycling in cities.

This improved awareness can assist in the maximisation of value from investment in infrastructure, research, promotion and maintenance relating to a city's cycle network. In most cases, the majority of cycle spending is on infrastructure. The only exception to this is Malmö who already have an extensive cycle infrastructure and whose spending goes mainly on maintenance of it. This trend reflects the maturity of the Malmö cycle network and shows that, as cycling is growing as a mode of transport and networks are expanding, the purpose of funding cycle networks changes.

Maintenance uses the second biggest portion of cycle spending budgets. Existing cycle routes need to be maintained to keep them safe and desirable for the public to use. The proportion of spending on maintenance should increase when the cycle network is nearing completion, as demonstrated by Malmö. The majority of cities tend to spend approximately 5% on the promotional sector. Again,

similar to maintenance, the significance of spending in this sector increases as the cycling network nears completion and maturity. For example, in Malmö, the percentage spent on promotion is approximately 12%. The development of the cycling infrastructure in cities is of prime priority, as once this is comprehensive enough; it can then be marketed to increase usage by the public.

How to encourage intermodality for cyclists and public transport users so that both can benefit

Allowing the carriage of bicycles on a wider array of public transport modes and without restrictions, or additional fares, would almost certainly encourage greater use of public transport modes as well as cycling in cities. At present bicycles are only regularly carried on trains and some metro systems in all but one of the working group cities. The municipal authorities in Malmö are trying to make it possible to take bicycles on regional services; although on the whole there is no planned agenda to improve intermodality. The Hague believes that there is low demand for the ability to take bicycles on buses and trams but maybe the ability to do so needs to be in place first before the demand can be seen.

Given the lack of enthusiasm for carriage of bicycles on all public transport modes and a distinct lack of cycle parking at interchanges in all of the working group cities, it appears that the most viable alternative to the carriage of bicycles in the short to medium term is to offer improved cycle storage and changing facilities at major interchanges and key transport nodes in cities. Security is a prime concern anywhere that bicycles are stored. It is therefore surprising to learn that only two of the cities in the group have manned cycle storage facilities, or have invested in purpose built cycle lockers to protect bicycles stored at interchanges.

On further investigation**, it appears that an impasse has currently been reached between public transport operators and cyclists on the topic of intermodailty**. Public transport operators are happy to provide cycling facilities and boost their modal share of passengers, but are eager to charge users for them when it comes to making significant investments in CCTV or secure cycle lockers. Cyclists are keen to use the facilities, but feel that their patronage on public transport entitles them to adequate, secure parking facilities equal to (if not *better than*, given the relative environmental merits of cycling and car use) those offered for car drivers at stops and stations.

Cycle hire facilities tend to be targeted primarily at tourists, rather than considered as an alternative to the issue of the difficulty of integrating public transport with cycling for a daily commute. Conventional cycle hire on a short term hourly to daily basis, keeps track of all the bicycles more easily and fewer are lost. However, as the examples from the working group illustrated, success can be varied when similar schemes are implemented in different cities.

Dedicated websites to promote cycling were established in four of the larger cities involved in the joint working exercise. **Websites are a great way to disseminate to potential customers and can be a persuasive marketing tool.** A total of five cities also have incentive schemes, such as awards, workplace travel plans with match funding and discretionary funding, aimed at employers in order to try to encourage commuters to cycle to their place of work.

Efforts have also been made to encourage employers in cities to provide cycle parking and facilities for their staff. In some cases employers have their own sustainable transport agenda and therefore provide spaces, while some local authorities have developed guidelines for how many cycle spaces should be provided per employee. In some locations these guidelines have been made mandatory by the local authority and employers are required to provide a certain amount of cycle parking.

Out of the eight participating cities, a total of three have other journey planning services but these are only to complement the services already covered in the form of maps, websites and route information.

It is clear that there is little or no coordination between public transport operators and city cycling departments in order to develop intermodal understanding when planning public transport facilities in most cases. Only in London and The Hague can we see an advanced form of coordination between these two groups and this is mainly because they are part of the same organisation. It is also clear that this aspect of planning for interchanges needs to be worked on considerably in the future in order for interchanges to be developed with optimum efficiency and with less room for mistakes.

With regards to best practice, it is clear that participant cities have different opinions as to how to combine cycling and public transport trips, some cities are very accommodating and embrace the benefits that combining cycling and public transport has to offer and others are less accommodating. Maybe these cities are unclear about these benefits or how to go about implementing strategies relating to this concept. It is clear that trains generally accept bicycles onto them but buses rarely accommodate bicycles. If seating space is of primary importance on these buses, then maybe as in Malmö, cycle parking should be provided at bus stops. Overall, **cities increasingly recognise the advantages of the combination of cycles and public transport, and are making plans to maximise the possibilities, although there is still a long way to go**.

Unfortunately, there is currently little or no coordination between public transport operators and city cycling departments when planning public transport facilities in most cases. When designing interchanges, simple planning coordination can make a big difference. Participant cities have different opinions as to how to combine cycling and public transport trips, some cities embrace the benefits combining cycling and public transport, others less so. **Currently, there are no planned agendas for cities to improve intermodality in the manner discussed in the joint working group sessions and reported here.**

Space and finance are therefore considered to be the main barriers to taking cycles on public transport. Further research has the potential to unlock the potential of combining cycling with public transport and could create a powerful rival to private car use in cities and the park & ride culture being developed to protect cities from cars.

<u>Cycling recommendations</u>

The following research areas should be explored based on the analysis of collected information:

City cycle-hire schemes – There is potential for research into different hire schemes (subscription, coin operated, conventional) to be undertaken in order to explore which type of schemes are appropriate in cities of different sizes and with different existing levels of cycle use. Pilot demonstration projects could form part of this approach.

Cycle parking at interchanges – Exploring the amount of parking required when installing cycle parking could also form the basis of an interesting research project. The distance of cycle parking from interchanges could also be considered, because as the distance of cycle parking increases from the interchange the likelihood is that cyclists will be discouraged from using the facility.

Funding staffed cycling facilities – There is also an opportunity to demonstrate the potential of staffed cycling facilities and consider who should fund these installations. Pilot schemes to assess the 'preparedness to pay' of users and demand for such services would greatly assist in this debate.

Foldable bicycles – There is scope for the foldable bicycle to become an important tool in the research into their advantages and disadvantages, usability and design.

Bicycles on trains, trams and buses – There is clear potential for bicycle use on trains, trams and buses to be explored through research and demonstration projects. Malmö has already begun to trial the carriage of bicycles on public transport and there is clear potential for other cities to embrace this approach.

Incentives given to employers by Local Authorities to encourage sustainable travel – A comparative research project exploring the relative merits and effectiveness of sustainable travel incentives offered by local authorities would greatly assist local authorities seeking to identify and develop travel incentives which will work in their city.

Innovation in cycling – With such a wide variety of innovation in cycling occurring across Europe, research into the creation of a good practice guide should be implemented. A particular emphasis should be placed on transport interchanges to create a coherent good practice in the way interchanges are developed.

Cycling spending – Identifying the most productive levels of spending in cycle infrastructure, maintenance and promotion at varying levels of cycling and cycle network development in cities would be beneficial for cities with ambitions, and funds, to develop cycling as a mode of urban transport.

Intermodality recommendations

As a result of the working groups' involvement with the Behavioural and Social Issues in Public Transport working group, a valuable body of general research was initiated into intermodality issues. Both groups felt that there was potential to achieve more if the two working groups could have become more fully integrated and there could be an opportunity for this through some form of future research project.

A number of justifications, and recommendations, for further research into the topic of intermodality include:

- No aspect of transport (cycling, public transport or anything else) exists within itself and can ignore the wider view. While this could simply be considered as a truism, it is especially true for sustainable transport modes whereby, in order for cycling / walking to be both successful and achieve their potential, they have to be fully integrated with other modes.

- Stakeholders working in cycling know well from personal experience that the integration, cooperation and understanding between city cycle departments and the public transport department / operators can often be very bad. Often it is the case that cycling stakeholders wish to influence, change or at least be involved in decision-making. However these efforts are frequently blocked or the stakeholders experience difficulties in getting different parts of big city administrations to talk to each other. The perception of most of the stakeholders involved

in the working group was that the process of coordinating different local authority departments very rarely happens, and when it does it is often only in a limited manner.

- There were set aims for the joint working group meetings and a structure was defined before the groups began work in year three of the project, but there was little concept of what the evaluation of intermodality issues would offer the two groups in terms of outputs and findings. This was a positive aspect, because it demonstrated the willingness of the group's participants to work cooperatively. In addition it has served to demonstrate the potential of intermodality for cycling and other modes, highlighting what can be achieved when cooperation is initiated.

- Following the initial joint working group meeting in year two, both groups indicated a desire to have a more formal working link. While this was partly achieved during year three, the groups both felt that this is only a small indication of what could be done, and everyone wanted to do more research in this direction.

- There is not only willingness, but also an expressed interest, to investigate intermodality issues further among the participants of the two groups. Developing the approach of joint discussion and data gathering with public transport operators and cycling stakeholders is therefore important for the successful evolution of attitudes and approaches to urban transport provision.

- Several ideas were mooted for further study by the working group participants. These include;

    - Interchange facilities and the role they can play in improving the efficiency and seamlessness of urban travel.
    - Intermodality between cycling and public transport and how this can be encouraged
    - Marketing intermodal travel, including online route planners which offer cycling route options as well as public transport and car routes.

- For sustainable transport modes to reach their potential there needs to be maximum understanding of both the issues of integration and intermodality and also how they can be implemented in a practical manner. Given that the findings from the 11 cities involved in the joint working activity highlighted that not much is currently done on this issue, it is clear that there needs to be not only more research, but also the development of a method for involving and engaging with cities on this issue.

- This subject of intermodality and interchange is recognised in the mid-term reviews of the European Commission's 2001 Transport White Paper – 'Keep Europe Moving' as being important in the very recent European Commission Communication. In the conclusion, it states that 'the efficient use of different modes on their own and in combination will result in an optimal and sustainable utilisation of resources'[1]. The working group's belief is that without further study and encouragement (both also supported in the EC review), there is little chance that there will be an improvement in the efficient use of different modes. It is also a subject that could help to inform the upcoming Urban Transport Green Paper next year. The group therefore strongly urges more research in this field, drawing on the body of work already undertaken by the cities involved in the Cycling working group of the Urban Transport Benchmarking Initiative.

[1] European Commission (2006) *Keep Europe Moving – Mid term review of the 2001 Transport White Paper*, p21. Available at: http://ec.europa.eu/transport/transport_policy_review/doc/com_2006_0314_transport_policy_review_en.pdf, last accessed on 21-07-06.

1. INTRODUCTION

1.1 Project Background

The Urban Transport Benchmarking Initiative has sought to apply the concept of benchmarking to the urban transport systems present in cities across the EU, including the New Member States. This is in keeping with the European Union's policy approach which places considerable importance upon the role attractive, efficient local and regional transport systems can play in the economic development and social cohesion of the EU. In the field of urban transport the exchange and promotion of best practices is one of the main policy tools that the European Commission possesses. The Urban Transport Benchmarking Initiative has therefore compared the differences and similarities between the participating cities' transport systems in order to identify and promote effective practices in urban transport.

The benchmarking concept has great potential when applied to urban transport systems. A range of previous initiatives has provided this project with the opportunity to sharpen the focus of the benchmarking process and, by learning from previous experiences, provide more comparable results. The development of more practical data indicators has aided the learning process for the organisations involved in the project and this has greatly helped to improve the robustness of the data collected for the project.

The Urban Transport Benchmarking Initiative has adhered to the European Commission's subsidiarity principle by including as many urban transport stakeholders as possible. The process of the Urban Transport Benchmarking Initiative has been a fluid one, responding to the issues which were raised by participants in the project, rather than following a rigid, predetermined process. In this way the subsidiarity principle has been fulfilled, because the recommendations of interesting practices are coming from a network of urban transport operators, user groups, local authorities and municipalities, rather than a single centralised institution. It is therefore hoped that the project's findings will provide a useful resource for other urban transport stakeholders and help them to implement innovative solutions to commonly experienced urban transport problems.

This report covers the third and final year of the Urban Transport Benchmarking Initiative, which began in September 2005. During the first two years of the initiative a range of themes were pursued, for which data was collected by the participating cities. These themes were organised as working groups and are listed below:

- Behavioural and Social Issues in Public Transport
- City Logistics
- Cycling
- Demand Management
- Public Transport Organisation and Policy

During the third year of the Urban Transport Benchmarking Initiative the working group structure was retained, although due to insufficient interest in the City Logistics theme this group did not continue. In order to replace this topic a new group, focusing upon Urban Transport for Disabled People, was established in year three of the Urban Transport Benchmarking Initiative.

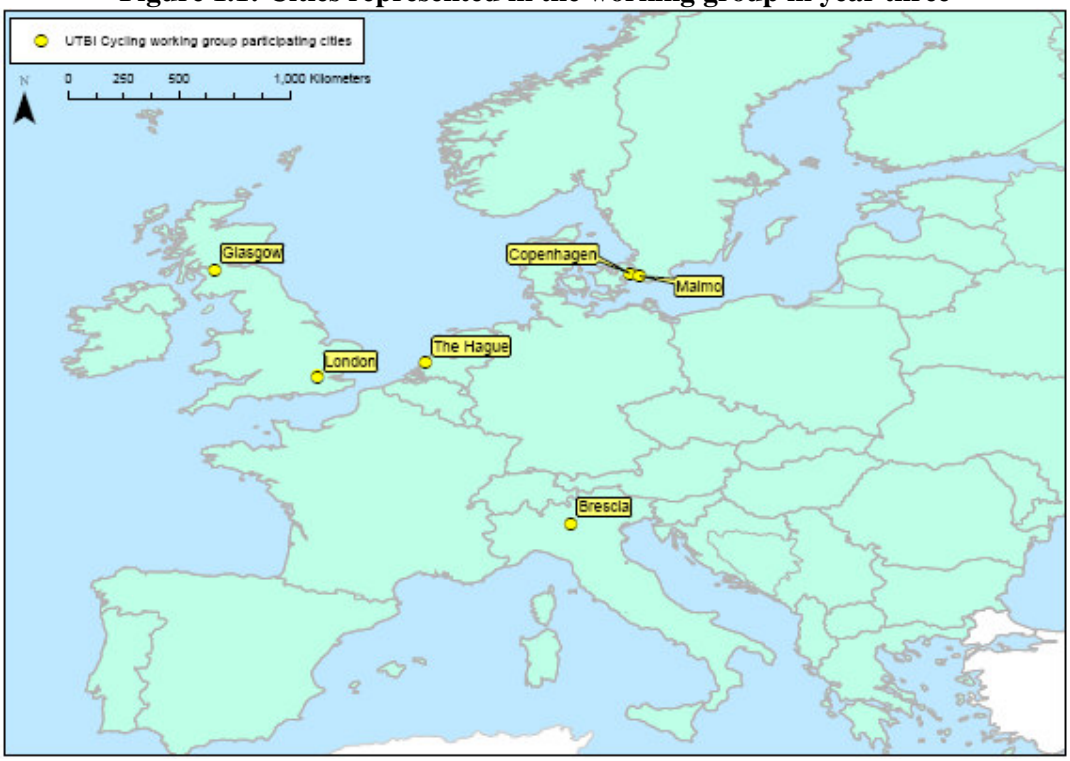
This report presents the findings of the Cycling working group, the methodology used by the working group, the data collected and analysed and the recommendations emanating from the analysis. Year three of the benchmarking initiative represents the final year of the project and, as a result, the emphasis of the reporting has shifted from previous years in order to take into account the need to disseminate the findings to a wider audience. As an additional activity the reports from each of the working groups are supported by an overarching Good Practice Case Study Handbook, which provides detailed descriptions of the good practices and urban transport solutions that cities involved in the Urban Transport Benchmarking Initiative have implemented.

1.2 Methodology of the working group

The Cycling working group has continued to develop during year three of the initiative. At the start of the third year of the project the representatives from Aalborg switched to the Urban Transport for Disabled People working group and Prague discontinued working on the project. The group gained participants from the cities of London and The Hague and, as a result of these changes, the following seven cities have constituted the Cycling working group during year three of the project (see also Figure 1.1):

- London (Transport for London - Street Management)
- The Hague (Department of Urban Development)
- Copenhagen (City of Copenhagen)
- Malmö (Malmö Gatukontor)
- Brescia (University of Brescia)
- Glasgow (Cycling Scotland and Glasgow City Council)

Figure 1.1: Cities represented in the working group in year three



The working group followed a procedure similar to previous years, starting with a kick off meeting, progressing through three site visits and ending with the final project conference (See Table 1.1). The core aim of the working group has been to try and identify good practices through the use of both quantitative and qualitative data and analysis in order that the participants in the group may learn from each other's approaches to urban transport. It was also the aim to develop a template for cycle policy monitoring and evaluation that could be used by other cities as part of the practical outcomes of the project.

In his role as expert for the working group, Oliver Hatch (Velo Mondial) was responsible for overseeing the discussions at each of the working group site visits as well as assisting the group with technical issues such as the data collection and analysis processes. The group has also been supported by Ben Smith (TTR) who, as the rapporteur for the group, has been responsible for the organisation of site visits, the preparation of reports and co-ordination of the working group.

1.3 Site Visits

As described in Table 1.1 below, the working group attended a total of three site visits over the course of Year three of the Urban Transport Benchmarking Initiative, including Santander, The Hague and Malmö.

Table 1.1: working group time-plan

Event	Date	Progress
Launch Conference: Brussels	September 22nd 2005	Review of year two themes and indicators
Site Visit 1: Santander	December 1st and 2nd 2005	Agree year three research question and ratify data indicators. Agree a plan for data collection and agree units comparable within the group.
Site Visit 2: The Hague	March 23rd and 24th 2006	Collation of data and identification of any problems at this stage. Discussion of problematic indicators.
Site Visit 3: Malmö	May 8th and 9th 2006	Interpretation and presentation of data in draft format, working towards group's findings in preparation for the final conference
Final conference: Budapest	June 16th 2006	Presentation of final results and case studies of good practice

As well as providing a very useful insight into cycling practices applied in cities from within the group, the visits were also used to structure the group discussion time and phases of progress in the initiative. Full details of these site visits have been presented as case studies of the interesting practices the group experienced and are available in Annex 3.1, which accompanies this report. A summary of these visits is also available on the project website www.transportbenchmarks.org.

The meeting in Santander represented the first occasion in Year three that the 'Cycling' and 'Behavioural and Social Issues in Public Transport' working groups jointly attended a site visit. The specific aim of the joint working between these groups was to focus upon the integration of public transport and cycling. This joint session added an interesting aspect to the site visit and the discussion between the two groups was very productive. During the session, it was decided that a number of indicators should be produced and collected by both group's participants in order to enhance discussions and quality of findings. The two groups produced a report of the session, which is available in the members' area of the project website (www.transportbenchmarks.org).

1.4 Learning from Previous Initiatives

As well as the recommendations from the first two years of the Urban Transport Benchmarking Initiative, the Cycling working group has been able to refer back to the achievements of the Citizen's Network Benchmarking Initiative, which was a forerunner project to the Urban Transport Benchmarking Initiative. This has enabled the group to try to further refine the process of benchmarking cycling and to learn from previous experiences.

The third year of the initiative has largely represented an evolution of the group's previous activities and, where possible, the recommendations from the reports produced at the end of the project's first and second years have been heeded.

Year two included indicators on:

- How mainstreamed is cycling policy and practice in the cities.
- The part that infrastructure and marketing play in achieving current cycle usage.

Cities learnt much about best practice, and discussed its transferability. They wanted to develop the indicators and focus on other areas in year two, such as public transport, marketing and health. It was at this point that links were identified between the 'Cycling' and the 'Behavioural and Social Issues in Public Transport' working groups and joint working commenced.

In year two, the group's indicators included:

- Measuring and monitoring effects of cycle policy
- Marketing for specific audiences
- Integrating cycling and public transport to mutual benefit

It was the diversity of marketing in cities that gave excellent opportunities for shared learning. Therefore, a concrete link between the 'Cycling' and 'Behavioural and Social Issues in Public Transport' groups was recommended, which led to further joint working between the two groups in year three. This joint working proved to be beneficial as not only could both groups share their expertise but there was a wider knowledge base when collecting indicators jointly.

1.5 Year Three Indicator Variations

A larger variety of methods for collecting data were available in year three of the initiative, each with their own benefits. These included:

Common indicators – These are city background indicators defined by the project's management team and collected by all participating cities in the project. There have been few alterations to these indicators between project years two and three.

Thematic indicators – These are topic-specific indicators produced and collected by individual working groups to define their chosen research topic. These indicators are a natural progression from thematic indicators from years one and two.

Joint thematic indicators – These are working group topic related indicators produced and collected between two groups (in this case, the 'Cycling' and the 'Behavioural and Social Issues in Public Transport' working groups). These indicators are a natural progression from thematic indicators from years one and two.

Integration indicators – These are data indicators which have been put forward by individual working groups for collection by all participating cities in the project. These were a new feature of year three of the project and have been included to give the working groups the opportunity to use a wider research base for collection of their indicators.

1.6 Contents and Purpose of this Report

This report is Annex A3 of the Urban Transport Benchmarking Initiative year three final report and describes the approach taken by the Cycling working group. The findings from thematic data indicators collected by the group are presented and analysed along with the recommendations of the working group.

The remainder of the report will proceed as follows:

- **Section 2** - Describes the cities that participated in the working group accompanied by relevant background statistics derived from the common indicators.
- **Section 3** - Outlines the methodology for defining the thematic indicators and the process of data collection.
- **Section 4** - Contains the analysis of the thematic indicators.
- **Section 5** - Contains analysis on the integrated indicators new to year three of the initiative.
- **Section 6** - The final section of the report contains the conclusions made by the group and the recommendations for further developing the theme of the working group.

In year three of the benchmarking initiative the consideration of interesting practice has focused on transport interchanges in participant cities. A separate report has been produced jointly by the 'Cycling' and 'Behavioural and Social Issues in Public Transport' working groups outlining case studies on transport interchanges and is contained in Annex A6 of the final benchmarking reports.

2. WORKING GROUP PARTICIPANTS

This section of the report provides an overview of the cities that have been represented in the Cycling working group during year three of the Urban Transport Benchmarking Initiative. Section 2.1 lists the participants, while Section 2.2 contains descriptions of each city that has participated in the working group. Section 2.3 provides background data from the common indicators, which provides some context about the size and situation of each of the cities represented in the working group.

Six cities and Cycling Scotland were represented in the Cycling working group. Table 2.1 outlines the participants in the group, the organisations they work for and the cities they represented in the project.

Table 2.1: Summary of working group participants

City	Organisation	Status	Country	Participant
Glasgow	Cycling Scotland	Government Organisation	Scotland	Tom Bertulis
Glasgow	Cycling Scotland	Government Organisation	Scotland	Andy Mulholland
Glasgow	Glasgow City Council	City Council	Scotland	Veronica Allen
Brescia	Brescia City Council	City Council	Italy	Valeria Ventura
Brescia	University of Brescia	University	Italy	Chiara Bresciani
London	Transport for London	Greater London Authority	England	Katharina Kroeger
The Hague	The Hague City Council	City council	Netherlands	Tristan Martin
Copenhagen	Copenhagen City Council	City Council	Denmark	Neils Jensen
Malmö	Malmö City Council	City Council	Sweden	Leif Jönsson

The cities represented in the working group cover a wide geographical area and offer a range of varying practices and experiences which were shared over the course of the project. The key interest shared by all members of the working group is a desire to encourage cycling and improve conditions for cycling in the city.

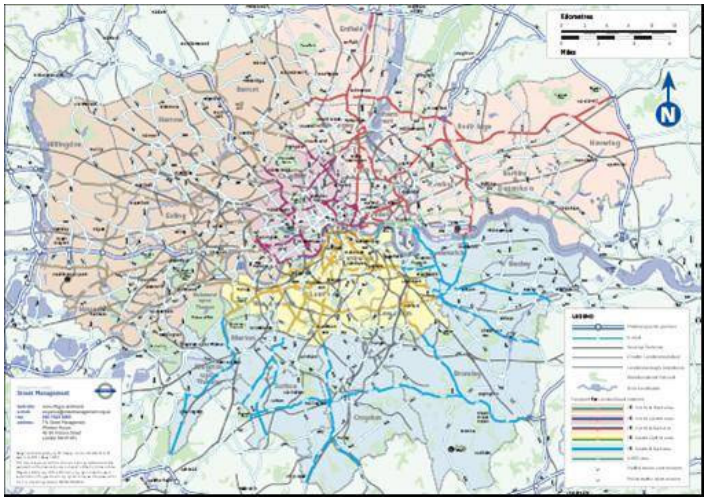
The remainder of Section 2 of this report therefore summarises the geographical and urban transport situations in each of the participating cities and utilises some background statistics from the Urban Transport Benchmarking Initiative common indicators to provide context for further comparisons.

2.1 London

London is one of the world's largest cities with over seven million inhabitants spread across 1500 km^2 including inner and greater London. Located in the South East of England, it also has one of the highest GDPs in the world at 34,127 Euros.

Transport for London (TfL) was created in 2000 as the integrated body responsible for the Capital's transport system. The primary role of TfL, which is a functional body of the Greater London Authority, is to implement the Mayor of London's Transport Strategy and manage transport services across the Capital.

Figure 2.1: Map of London



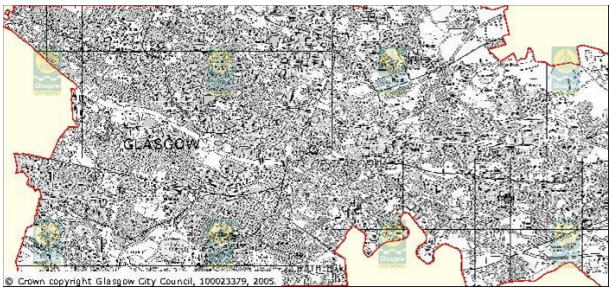
Source: Courtesy of Transport for London

2.2 Glasgow

Glasgow has a population of around 600,000 spread over approximately 176 km^2. It is Scotland's largest city and is the UK's largest retail centre after London and therefore, the commercial capital of Scotland. It is situated in the Central Belt of Scotland on the west coast it is easily accessible by road, rail and air. Glasgow is one of Europe's top 20 financial centres and is home to many of Scotland's leading businesses. Glasgow City Council has a vision for Glasgow:

'We want Glasgow to flourish as a modern, multi-cultural, metropolitan city of opportunity, achievement, culture and sporting excellence where citizens and businesses thrive and visitors are always welcomed.'

Figure 2.2: Map of Glasgow

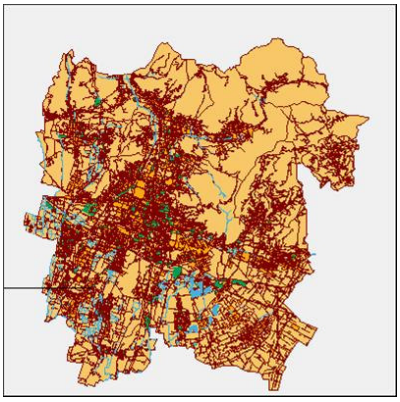


Source: Courtesy of Glasgow City Council

2.3 Brescia

The city of Brescia is located in Northern Italy approximately 100 km east of Milan. It has a population of 192,154 spread over an area of 91 km^2. With Brescia's low density of 2,112 people per km^2 and a GDP of €13,082, it is a developing city with great potential. This potential is being realised through activities such as the University of Brescia and Brescia City Council being involved in the Urban Transport Benchmarking Initiative.

Figure 2.3: Map of Brescia



Source: Courtesy of Brescia City Council

2.4 Copenhagen

Copenhagen can be found on the eastern coast of Denmark. It has a population of approximately half a million over an area of 90 km^2, which gives it a relatively high density, the highest in the Cycling working group of 5,556 people per km^2. Copenhagen also has one of the highest modal splits for cycling in Europe with approximately 1/3rd of all trips being made by bicycle.

Copenhagen City Council consists of 55 members elected for a period of four years. The council is the city's supreme political body. It is divided into seven committees with the following responsibilities:

- Education and Youth.
- Building and Construction
- Energy, Water and Environment.
- Culture, Libraries and Sport.
- Family and Labour Market.
- Finance
- Healthcare

Figure 2.4: Map of Copenhagen

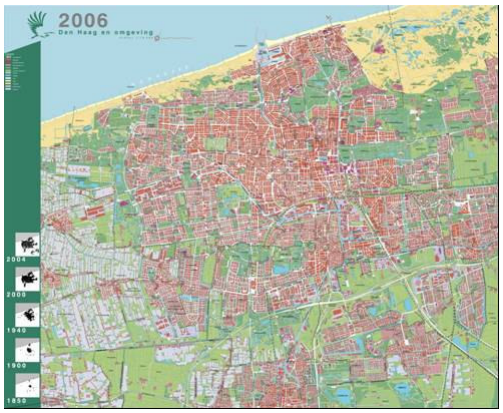
Source: Courtesy of Copenhagen City Council

2.5 The Hague

The Hague is a relatively compact city when compared to other cities in the working group. It covers an area of 85 km^2 with a population of 469,564. It is located to the west of the Netherlands on the coast.

The City Council describes The Hague as an international political crossroads, a world class tourist destination and a very liveable city. Visitors, expatriates, international businesses, political and diplomatic organisations, international media all utilise what The Hague has to offer.

Figure 2.5: Map of The Hague



Source: Courtesy of The Hague City Council

2.6 Malmö

Malmö is similar to Copenhagen in that cities have much to learn from them with regards to setting up a cycling culture in a city. It has the lowest density of the cities with only 1705

people per km^2, which is 271,137 people spread over 159 km^2. This low density has allowed for an excellent transport infrastructure to be developed including dedicated cycle routes along many roads.

Malmö City Council represents Malmö for the Cycling working group. The City Council is Malmö's top policy-making body, the municipality's own parliament, chosen in general elections. It passes the municipal budget but also develops and delineates visions of how Malmö will look in the future. By means of practical and ideological decisions, the will of the people has then been guided through the organisation in Malmö City back to the residents.

Figure 2.6: Map of Malmö

Source: Courtesy of Malmö

2.7 Background data from the common indicators

This section of the report uses data from the common indicators and background data from the group's thematic indicators in order to provide some basic information and comparisons for each of the cities and regions represented in the working group. Throughout this report the statistics for the six cities of London, Brescia, Copenhagen, Glasgow, Malmö and The Hague have been compared. Table 2.2 (below) outlines some of the key statistics for each of the cities in the working group.

Table 2.2: Background statistics for cities/regions in the working group

Statistics (2004)	London	Brescia	Copenhagen	Glasgow	Malmö	The Hague
Area of city km²	321	91	90	176	159	85
Population of city	2,905,000 Inner London	192,154	500,000	577,670	271,137	469,564
Population density (people per km²)	9050	2,112	5,556	3,282	1,705	5,524
Area of region km²	1,579	4,784	2,871	6,969	n/a	420
Population of region	7,388,000 Gtr. London	1,106,373	1,800,000	2,141,000	n/a	978,161
GDP per capita in €	34,127	13,082	36,000	31,725	32,927	30,000
Urban Employment	62	n/a	52	70	51	67

The six cities compared throughout this report display a good range of populations, geographical coverage and population densities. Two of the cities in the group are from Scandinavia and therefore provide an opportunity to draw comparisons between the dominant cycling cultures in these cities and the other developing cycling cultures in the group. The following key observations can be made in order to contextualise the comparisons drawn later in the report:

- Three of the cities (The Hague, Brescia and Copenhagen) cover an area of less then 100km^2 while Glasgow, London and Malmö are significantly larger.
- The cities demonstrate varying population sizes with little link to their area, and therefore, the population density of the cities in Table 2.2 tend to vary greatly.
- All of the cities in the working group sit within a regional framework for transport provision and in the case of Copenhagen, Brescia, London and Glasgow the regional area surrounding the city is particularly large.
- GDP per capita varies across the working group and is considered to be the most comparable indicator of local wealth which can be collected within the scope of the project. Copenhagen has a very high value (€36,000) in relation to the figures for Brescia (€13,082). The fact that Copenhagen is a location which contains concentrated business 'growth poles' can be attributed to its particularly high GDP per capita figure. Five of the cities have values which are above the 2002 EU15 average level of GDP per capita (€21,172). When considering the degree of investment in cycling facilities or the size and quality of the cycle network, it is interesting to relate the findings to the level of GDP per capita in the city.
- The levels of residential employment in the working group cities also warrant a comparison and reveal that between 51% and 70% of the urban populations of the working group cities are in employment. The unemployed are considered to be a potential target market for cycling promotion so these figures are likely to be of relevance in relation to targeting this promotional activity.

Figure 2.7: Modal Split data for all daily trips (including walking and cycling) for the cities in the working group

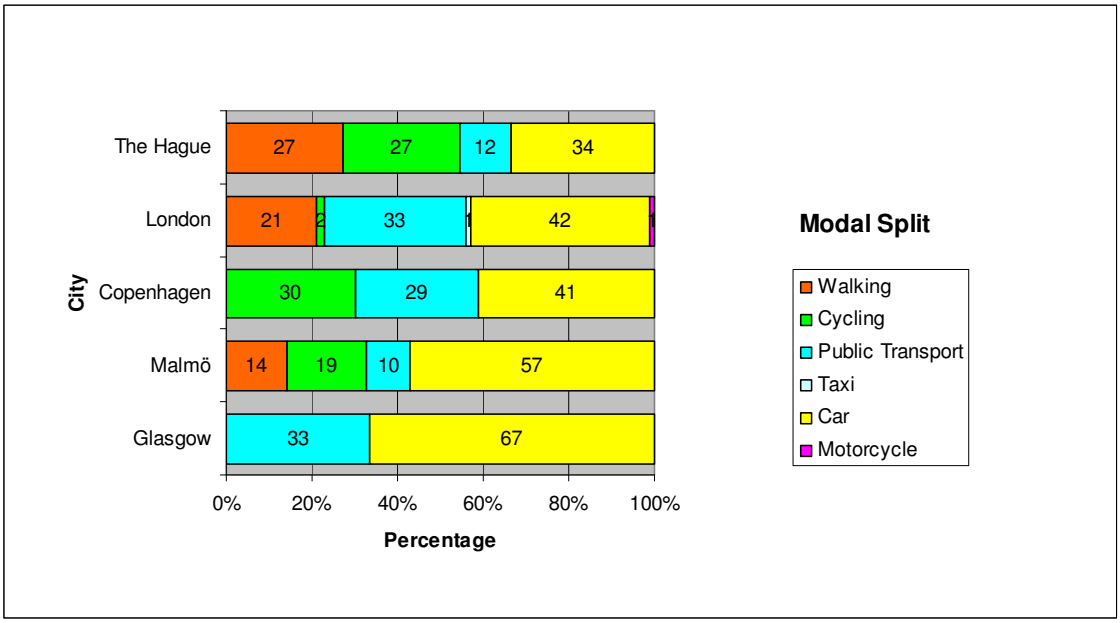


Figure 2.7 Key data note:

- No modal split data was available for the city of Brescia.

Figure 2.7, above, outlines the modal splits for the cities in the Cycling working group (although no data was available for Brescia). It is immediately apparent that Malmö Copenhagen and The Hague have a significantly higher proportion of cyclists than the other cities. In these three cities the proportion of cycling trips is greater than the proportion of public transport trips. In Malmö, the proportion of car trips is also high (57%), yet this appears not to discourage cycling as a mode of transport. Glasgow demonstrates the greatest proportion of car trips (67%), while The Hague has the smallest car modal share (34%).

3. DEFINITION OF THEMATIC INDICATORS

Section 3 of this report outlines the process of selecting research questions and focusing the data collection process upon the group's chosen theme. The remainder of this section is set out as follows:

- **Section 3.1** - Describes the research question selected by the working group.
- **Section 3.2** - Explains the methodology that was used to define and select data indicators.
- **Section 3.3** - Focuses upon the data collection and analysis of the data.
- **Section 3.4** - Outlines the definition of interesting practice which has been used by the Urban Transport Benchmarking Initiative.
- **Section 3.5** – The final section highlights the main barriers to data collection and data limitations encountered by the working group.

3.1 Year Three Research Question

The working group's research questions for the third year of the Urban Transport Benchmarking Initiative were devised during the site visit to Santander, which took place in December 2005. The working group wanted to build on the results and findings from the first two years, and consider a practical output relating to the work completed in the previous rounds of the benchmarking initiative. The group also wanted to continue and develop its joint working with the Behavioural and Social Issues in Public Transport working group.

A range of ideas for the research topic that the working group had generated during the meeting at the Year three launch workshop held in Brussels in September 2005 were discussed in more detail in Santander. As a result, four main topics were considered for study including:

1. Develop a model cycle policy monitoring and evaluation template.

2. Investigation in to the methods of justification of cycle schemes
   By Conviction, or;
   By Cost Benefit Analysis, or;
   By Cross Benefit between sectors

3. Explore how to encourage intermodality for cyclists and public transport users so that both can benefit?

4. Explore how to encourage children to cycle more and relation to school travel plans?

Due to time restraints and resource availability, it was only feasible to focus upon two of these topics. Following some discussion and based on research from years one and two, the working group agreed upon the following topics for year three of the working group analysis.

1. How can cities monitor and evaluate cycling?

2. How to encourage intermodality for cyclists and public transport users so that both can benefit?

Considering the three years of the project and the development of the Cycling working group; year one looked at the cycling situations of the participating cities, while year two developed this further and identified which cycling strategies are most successful in creating a cycling culture. In the absence of a generic method for measuring and comparing the success of cycling strategies, the group considered the approaches to monitoring and evaluation techniques of cycling strategies. The second research question was developed in order to continue the work with the Behavioural and Social Issues in Public Transport working group to develop joint indicators for both groups to collect and submit.

The Cycling working group was aware that the Behavioural and Social Issues in Public Transport working group were interested in commuting. The idea of looking at intermodality and interchanges in particular was then raised as a logical link to cycling, in particular considering cycling as a mode of commuting. Intermodality is relevant to the topics of commuting, because it can be looked at with regards to its efficiency in journeys to work, and cycling, because cycling lies very much at the heart of the intermodality debate. However, making intermodality work can be a challenge and the group wanted to look at issues such as whether cycles can be parked at a railway or bus station and whether cycles can be taken on public transport.

3.2 Methodology for Indicator Definition

The research questions described in section 3.1 represent an evolution of the topics pursued by the Cycling working group during the first two years of the Urban Transport Benchmarking Initiative. As a result the indicators successfully developed, collected and analysed for the working group's activities during years one and two could nearly all be related to the year three research topics of monitoring and evaluating cycling strategies and encouraging intermodality. Those indicators which were unsuccessful during years one and two were not pursued for further collection in the third year of the initiative, while a small number of new indicators have been added to relate specifically to the new research topics.

The group decided that the first topic was mainly relevant to the Cycling working group and that the research for this topic should therefore be carried out by the Cycling working group alone as individual thematic indicators. The second topic had particular relevance to the 'Behavioural and Social Issues in Public Transport' working group's research topics, also relating to intermodality, and, as a result, the research for this topic was collected by both working groups as joint thematic indicators. Following this, the list of thematic data indicators was redefined and augmented before the data was collected by the working groups.

For the first time in the Urban Transport Benchmarking Initiative, three indicators have been devised and submitted by each working group in the project for collection by all the participants in the project to further studies into their research topic; these were named integration indicators. Analysis of the Cycling working group's collected integrated indicators has been presented as a review of the data collected by all the participating cities that submitted integration indicator data. This data is analysed separately in Section 4 but combined with the research questions to answer them in conclusion.

Although the collection process is similar, the integration indicators are separate from the common indicators. These are collected by all cities in the project to give provide their

background data. The study year for these indicators and all other indicators collected in year three of the project was 2004.

Table 3.1: Data collected in the benchmarking initiative by the Cycling working group

Section	Topic	Year
Section A	Modal share	Year one
Section B	Background	Year one
Section C	Bicycle utilisation	Year one
Section D	Cycling infrastructure	Year one
Section E	Cycling initiatives/promotion	Year one
Section F	Recipe for success	Year two
Section G	Integration with public transport	Year two
Section H	Marketing	Year two
Section I	Monitoring and evaluation	Year three
Section J	Intermodality	Year three

When defining the data indicators for collection in relation to monitoring and evaluation, the participants were able to draw upon their experiences from participating in/using;

- Indicators from years one and two of the Urban Transport Benchmarking Initiative
- the Copenhagen Cycling Account indicators
- Cycling Scotland indicators
- Velo Info indicators.

3.3 Data Collection and Analysis

Data Collection

The bulk of the working group data was collected in the time between the first and second site visits (December 2005 and March 2006). In order to make the collection of data easier and to ensure that data were submitted in a standardised format a data entry form was created, which contained definitions of the indicators (see Annex 3.1) chosen by the working group.

During the group's activities in the first two years of the initiative some general principles were established in order to make the collection of data as straightforward as possible for the participants. The two key principles in terms of the collection of data were maintained for the third year of the working group's activities:

1. Definitions and collection methods used to obtain data inevitably vary between cities. It was therefore very important that where pre-existing definitions for data indicators were used (as opposed to those stated in the data hand). The cities defined what the figures related to.

2. The recommended study year for the project was updated to 2004, because it was assumed that very little data would be available for 2005 and, in order to attempt to develop some form of time series data, 2004 represented the next year in the sequence of

project years. It was recognised that cities have varying levels of data. Where cities did not have data for 2004 they were asked to supply data for the nearest available year. This was not a particular problem; because the participants were encouraged to explain specifically what year data referred to if it was not for the study year of 2004.

At the site visit in Santander, it was decided the majority of the data to be collected should be qualitative, because this was the most appropriate way to answer the research questions, providing some interesting and varied results.

The working group meeting in The Hague (March 2006) was used to discuss the data submitted and the approach to analysing the data. Following this meeting several indicators were refined and data was re-collected in order to try and improve comparability between the cities represented in the group.

Data Analysis

The process of analysis commenced prior to the third site visit in Malmö (May 2006) at which the data was ratified by the participants in the group and some small amendments were made. The main bulk of the data analysis was completed in readiness for the meeting in Malmö in order that the group members would be able to analyse and report the collected information. Following the meeting, a number of suggestions to furthering the analysis of the collected data were pursued and several revisions were identified by the working group members.

As with the first two years of the initiative, the main aim of the data analysis was to identify good practices and to establish reasons for variations between the data collected for the cities. The participants were involved in this process in order to ensure that the set of findings were supported by reasoned analysis rather than a collection of statistics and statements. Throughout the analysis process the limitations of the data were taken into account to avoid developing misleading recommendations. Participants also used the third meeting session to discuss recommendations and conclusions that arose from the information collected by the working group. The aim of this process was to develop a series of central statements and recommendations on the topic of how monitoring and evaluation of cycling should take place and how intermodality should be encouraged.

3.4 Definition of interesting practice

The aims of the Urban Transport Benchmarking Initiative data analysis were clearly defined at the outset of year one and these remain unchanged now:

- To look for best practices and try to establish reasons for variations between data.
- To encourage all participants to take part in this process in order to ensure a set of findings supported by reasoned analysis rather than a collection of statistics.

As a result the approach to the term ‘Best Practice’ has been retained for the third year of the Urban Transport Benchmarking Initiative. What constitutes a ‘Best Practice’ has been heavily debated over the course of previous benchmarking projects. The major problem is that there is no all-encompassing definition which clearly defines ‘Best Practice’. In the case

of this initiative the term 'Best Practice' is applied more loosely to include interesting practices that are displayed in the operations of the participant's urban transport systems.

From the outset it has not been the goal of the Urban Transport Benchmarking Initiative to create a competitive atmosphere among the participants and at the launch conference it was clearly stated that this is not a competition with 'winners' and 'losers'. Promoting interesting practices, through the use of benchmarking, so that a wide audience of cities, operators and local authorities may benefit from them is a concept with huge potential. Creating a set of 'winners' and 'losers' does not help to achieve this, because it may dishearten those perceived to have 'bad practices', whereas these groups of participants probably have the most to gain from this type of project.

The aim of the project is therefore to try to offer the participants the chance to benefit from the project by presenting a set of findings that will interest all of the participants. Disseminating a range of interesting practices is also likely to be of wider interest to those not participating in the project.

Year three has seen a slight change in the way best practices are collected. Rather than collecting random case studies of best practice such as in previous years, it was decided that some form of direction should be given to these case studies in order that they become comparable between cities. As the first two meetings of year three were held jointly between the 'Cycling' and the 'Behavioural and Social Issues in Public Transport' working groups, the topic of interchanges was chosen as it was of interest to both groups. A template created for both groups to complete with titles for the various aspects of the interchanges that we wanted to compare between participating cities. Cities were also asked to provide a short presentation on their chosen interchange at the third site visit. The results of these case studies can be found in Annex A6.

3.5 Data limitations and barriers to data collection

The lessons learned from years one and two meant that the refined data indicators were now straightforward for new group members to collect. However, having chosen to collect predominantly qualitative information year three, a new set of problems were encountered. Key limitations and barriers relating to the collection of data were:

- Data availability was not cited as a major problem, although the Cycling working group's research into the availability of cycle policy monitoring data (outlined in Section 4 of this report) identified that cycling data is often collected in a piecemeal manner and is therefore spread across many sources. As a result the participants found the collection of information for the group's benchmarking activities to be a time-consuming experience.
- The lack of readily available data also meant that in some cases the group could not obtain a sufficient depth of understanding in order to draw causal links to explain some of the trends outlined, especially with regards to the qualitative answers.
- The lack of a budget for participants to attend site visits meant that in some cases participants were not involved in discussions regarding the research questions and indicators and therefore had less of an idea of exactly what it was they were researching and why.

- The lack of time available for participants to collect the data due to other work restraints meant that some answers may have been rushed or incomplete, especially with regards to the qualitative answers.

Qualitative answers are inherently harder to collect and analyse than quantitative answers. In collecting qualitative data, there are issues relating to the depth and direction of the answers. When analysing the results, they are harder to compare as they can rarely be presented in a graph and are usually based on opinion.

4. ANALYSIS OF THEMATIC INDICATORS

The analysis of the working group indicators from year three of the Urban Transport Benchmarking Initiative has been presented as a review of the data collected by the participating cities. Where relevant, comparisons have been drawn with other indicators collected by the working group, with common indicators collected by all of the participants in the Urban Transport Benchmarking Initiative and with findings from the first two years of the project.

This analysis section of the working group report has been broken down into two key topic areas for clarity of presentation and analysis of data. These make up the remainder of this section and begin by presenting the current performance of the cities in the working group, before considering the different approaches and practices used by each of the group's participants. A summary of the key conclusions and recommendations from the working group is presented in Section 6.3 of this report.

Section 4.1 looks at how cities can monitor and evaluate cycling in order to improve cycling plans and strategies. This question's indicators were developed and researched by the Cycling working group independently of the Behavioural and Social Issues in Public Transport working group.

Section 4.2 looks at how intermodality can be encouraged in order to benefit cycling and public transport with particular attention to multimodal interchanges. The indicators to define this question were developed and researched jointly between the 'Cycling' and the 'Behavioural and Social Issues in Public Transport' working groups in order to increase the research base.

4.1 How can Cities Monitor and Evaluate Cycling?

This section provides an overview of the type of cycling policies the participants use, how they promote (if at all) new cycle use and what indicators they use to optimise a cycling plan or strategy in terms of their usefulness and difficulty.

I1) Does the city have a cycling policy? If yes:

When was it introduced?

With issues such as accessibility, sustainability, health and global warming becoming increasingly important, cycling has been more to the fore in recent years. In spite of this, cycling policies in participant cities are mostly a recent feature of their governmental agendas:

- Brescia Local Government developed their cycling policy between 2000 and 2002 with a view to increasing the use of bicycles.
- Copenhagen and Malmö are traditionally thought of as cycling cities, their most recent plans came in 2002 for Copenhagen and 1999 for the Malmö cycle programme, however, Malmö has had a cycle plan since 1976.

- For London, The Mayor's transport strategy was introduced in 2001, providing a direction for cycling policy in London; the London cycling action plan aims at implementing cycling policy objectives set out in the transport strategy.
- The Hague appears not have a specific start date for their cycle policy but all policies are basically aimed at promoting new cyclists.

What are the main components?

The development of, and priority for, different measures within a cycling policy appear to adopt different emphases in each of the cities.

- Brescia has specific upgrading projects targeted at particular areas of the city to improve mobility safety and environments favouring no motorised transport. Large areas have been reclaimed as green space and cycle and footpath networks have been connected creating a more integrated sustainable transport system. They are also creating a LAM (Linea ad Alta Mobilità) or 'high mobility line'.
- Copenhagen is focusing on transport quality and the role of the bicycle focusing on certain areas and producing targets for them. This plan is largely looking at security, traffic, safety, speed, health, comfort levels and experiencing the city.
- The Hague is clearly expanding their route network, improving the quality of existing routes and expanding parking facilities.
- London also has an emphasis with regards to developing extended cycling infrastructure focusing on completing the cycle network, creating quality routes and introducing more secure cycle parking. London also puts much effort into their promotional activities. The Mayor's transport strategy supports the promotion of cycling through a number of measures such as establishing a Centre of Excellence developing best practice and improving safety.
- Malmö is making efforts to increase cycling traffic in order to decrease car use and emissions. They have already seen some positive results in Malmö with an increase in cycle traffic of 10%, a decrease in car traffic of 2 - 3% and a larger decrease in car emissions.

On balance, it appears that two of the cities in the working group (London and Brescia) are focusing their cycling policies upon the extension and renewal of existing cycle networks. Conversely Malmö and Copenhagen are targeting quality improvements in the networks they have already established in order to meet reduced car and increased cycle traffic targets set through policy monitoring. These distinctions reflect the difference between the cities in Sweden and Denmark, which have mature cycle networks and strong cycling cultures, and London and Brescia which are seeking to emulate their success. The Hague appears to lie between these two groups of cities, having a well established cycling culture and cycle networks, which it is continuing to expand.

Are the objectives monitored?

All participating cities monitor their cycling objectives. For example, London monitors factors such as cycling levels, road safety, cycle route development and cycle parking on a regular basis. The Hague also monitors the usage of cycle routes. The Brescian government sees monitoring as critical and is taking part in a nationwide experimental project with the aim of defining a set of criteria to measure the level of sustainability of the mobility system

(OSIMOS project). This includes criteria for cycle usage, in particular, the percentage of cycle journeys in relation to the length in kilometres of the cycle/footpath network. They have also implemented surveys regarding behavioural aspects such as conflicts with other road users and technical problems on routes; this is to gauge the satisfaction levels of citizens.

How are they monitored?

Methods of monitoring in participating cities vary greatly. In Brescia, the monitoring of the cycle network is based on good communication between the technical office of the municipality and the most important cyclists association in the city. The main method of monitoring the network is to cycle the routes themselves. To gain information from the cyclist's perspective, the cyclists association goes on cycle excursions to find problems and critical situations along the routes. They then prepare a report complete with sketches, photographs and suggestions and discuss them with the municipality technical office during periodic meetings.

Copenhagen has 5 main targets that are monitored which include:

- **Modal split in commuting**: Official Danish statistics based on telephone interviews.
- **Cyclist risk**: Calculated from police accident statistics and kilometres cycled.
- **Security/feeling of safety in traffic**: Telephone interviews.
- **Cycling travelling speed**: Real life measurements assisted by Global Positioning Systems (GPS).
- **Cycling comfort**: Measured with an instrument mounted on a bicycle.

There are a variety of methods which are used to monitor Copenhagen's targets here that have been deliberately chosen in order to gain the most useful data to assess these targets.

The Hague tends to favour cordons to monitor cycle usage levels at 10 strategic locations around the city, counted 4 times per year. This method is also favoured by London which uses various monitoring techniques for different objectives but whose main indicator of cycling comes from automatic cycle counters. London uses various monitoring techniques for different objectives, including automatic cycle counters and surveys addressing scheme outcomes, attitudes, etc. Malmö sees counting cycles as an important monitoring tool too.

Why are they monitored?

The reasons for monitoring objectives are similar in each of the participating cities. Brescia monitors objectives because their mobility policy sees monitoring the impact of choices as key to the success of their transport system. Copenhagen monitors to see how close they are to meeting targets and to make adjustments in focus areas if need be. The renewed political focus on cycling in Copenhagen means that these focus areas will be revised within a year. The Hague uses monitoring to determine the effectiveness of cycling policies and the development of cycling. London has similar reasons in that monitoring allows them to assess outcomes and informs them on how future planning and funding relating to cycling should be progressed.

How frequently are they monitored?

It is clear there is be no generic time period for the frequency of monitoring amongst participating cities. In fact, each city works to a very different time period when monitoring as outlined below:

City	Monitoring frequency
Brescia	Twice/year
Copenhagen	Every second year
The Hague	Quarterly
London	Regular basis but depending on the objective
Malmö	Yearly

I2) Does the city actively promote new cycle use? If yes:

If the city has a plan for this, when was it introduced?

Action plans seem to be an essential part in making a city's cycling policy work. All but one participating city has a plan or is developing one. Brescia formed their plan in 2000; it establishes a general cycle network, which is then planned through a more specific plan called the 'Cycling plan'. Copenhagen is in the process of developing a plan in the form of an internal communication plan for cycle events. London has the London Cycling Action Plan (LCAP), which was published in 2004 with the aim of promoting cycling. Malmö has had a plan since 1976 whereas The Hague has never had a specific plan but relies on policies to encourage new cyclists.

What are the main elements of this plan?

The range and number of elements used in these cycle plans varies greatly between participating cities. This ranges from The Hague which does not have a specific plan, to London which has a comprehensive plan featuring many different elements.

Brescia's plan outlines their next priority as ensuring a continuous system of cycle route networks within each residential district outside of the city centre. These districts will then be linked together and to the centre. Existing cycle paths will also be upgraded. This is an impressive result considering that up to the '90s only 30 km of cycle paths had been built. In the city centre, it has been decided not to create dedicated cycle routes but to promote a mixture of the allowed modes of transport. The actual length of the cycle network today is 115 km. In 2004 it was about 97 km.

Similarly to Brescia, Glasgow also has aspirations to lengthen and improve the quality of their cycle network. The centrepiece for the plan is increasing the length of the cycle network. The Glasgow cycle network is currently 100 km in length and the plan is to increase this to 250 kms by 2008, with the full 375 km total to be completed by 2012. The final network will be within 500 m of every home in Glasgow. Also in Glasgow there is a big push for cycling for health, including a Fit for Life map that was produced, and a TV advert.

As the networks in Malmö and Copenhagen are more developed than other European cities with regards to network coverage, the emphasis of their plans is to improve on what already exists. The Malmö cycling plan has one main aim of building a fully comprehensive cycle network. The detailed contents of Copenhagen's plan are not yet finalised but will include:

- Opening of new infrastructure for cycling (2-3 bridges).
- Cycle parking tidying up.
- Cycling to work campaign.
- Safety campaign.
- Branding green cycle routes (optional).
- Cycling to the beach cycle map.

The London Cycling Action Plan (LCAP) is probably the most diverse cycling plan of the participating cities. It addresses the framework for cycling set out in the Mayor's transport strategy, putting forward some tangible objectives. The LCAP examines the context of cycling in London, identifies targets for cycling and sets out 10 main objectives to achieve these:

- Introduce quality conditions on the London Cycle Network plus (LCN+).
- Increase cycle access, cycle safety and cycle priority.
- Increase cycle parking provision.
- Support innovative cycling schemes.
- Promote cycling and its status.
- Incentives and support for target groups.
- Increase mutual awareness and respect between cyclists, pedestrians and other road users.
- Promote cycle links and interchange schemes.
- Optimise the contribution to cycling from other schemes.
- Improve coordination and partnership.

What other initiatives has the city taken?

London has won the bid to host the start, known as the Grand Depart, of the Tour de France in 2007. The event is going to be used to promote cycling in London through promotion and events, etc.

I3) If the city has data on indicators from the following list, how would you rate them with respect to: Actual usefulness and the difficulty in researching the indicator

Table 4.1 is the table filled in by representatives from participating cities based on how useful and how difficult they felt certain indicators identified in Year 2 were to the successful monitoring of a cycle policy. The year each of the indicators was last collected by each of the participating cities was also collected. In most cases, for indicators that had been collected by participating cities, the data had been collected within the last 2 years. All collected data was no older than 5 years old. All participating cities had collected data for at least 50% of the 18 indicators; London has data for nearly all of them. Comments on these indicators can be found in Annex A3.1.

Representatives from participating cities completed a table (as shown in Table 4.1) based on how useful and how difficult they felt certain indicators identified in year 2 were to the successful monitoring of a cycle policy. The year for which the indicators were last collected by each of the participating cities was also given. In most cases, for indicators that had been collected by participating cities, the data had been collected within the last 2 years. All collected data was no older than 5 years old. All participating cities had collected data for at least half of the 18 indicators; London has data for nearly all of them. Comments on these indicators can be found in Annex A3.1.

Table 4.1 - I3) Indicator usefulness/difficulty collection table

Cycling indicators	Last data collection		Usefulness (Please tick box)				Initial Difficulty to research on a scale of 1 - 5 with Comments
	No Data (if so, please cross)	Year of last data collection	Essential	Very Useful	Nice to have	Not useful	
Mode share (% of trips)							
Mode share (cordons)							
Risk (KSI per trip)							
Risk (KSI/trip length)							
Cycle accidents							
Network length							
Bridges/tunnels for bikes							
Signing strategy							
Cycle parking							
Use of cycle parking							
Cycle theft							
Cycle shops							
Cycle training programme							
Cycle training							
% of children received cycle training							
Behaviour surveys							
Engaging schools							
Engaging employers							

The indicators were firstly graded by usefulness as seen in Table 4.2. Any indicator that had been graded by three or more participating cities in a particular category was graded as that category. Only two indicators (KSI/trip and cycle training) did not fit into any particular category, for all other indicators, the category highlighted relates to their grade:

Table 4.2 – Indicators ranked by usefulness

Cycling indicators	Usefulness (please cross)																							
	Essential						Very Useful						Nice to have						Not useful					
	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland
Mode share (% of trips)	x	x	x	x	x	x																		
Risk (KSI/trip length)	x	x			x											x								
Cycle accidents	x	x		x	x	x			x															
Network length	x	x				x				x	x				x									
Cordon counts			x	x			x				x	x								x				
Bridges/tunnels for bikes							x				x	x				x				x				
Signing strategy							x	x	x	x	x	x												
Cycle parking							x	x	x	x	x	x												
Use of cycle parking							x	x	x	x							x	x						
Engaging schools							x	x	x	x	x	x												
Engaging employers							x	x	x	x	x	x												
% of children received cycle training								x		x		x	x		x		x							
Cycle theft								x		x			x		x		x	x						
Cycle shops													x	x	x	x	x					x		
Cycle training programme						x		x		x			x		x		x							
Behaviour surveys				x			x							x	x		x	x						
Risk (KSI per trip)					x							x				x				x				
Cycle training						x		x		x			x										x	

The indicators were also ranked by the participating cities with regards to initial difficulty to collect as seen in Table 4.3. Indicators were ranked on a scale of 1 – 5, with 1 being easy and 5 being difficult. It was then agreed that any indicator with an average ranking of 2 or below could be regarded as easy to collect (green), between 2 and 3.5 could be regarded as being moderately easy to collect (amber) and any indicator with a ranking of 3.5 or above as being difficult to collect (red).

It is clear that the easier indicators to collect are indicators that can clearly be counted or their length measured. The more difficult indicators to collect are indicators that may be more qualitative and therefore more difficult to analyse; for example behavioural surveys, or indicators with blurred or skewed data such as cycle theft where in many cases, the theft is not reported.

Table 4.3 – Indicators ranked by difficulty

Cycling indicators	**Initial Difficulty to Research on a scale od 1 - 5 (1-easy to 5-difficult)**						
	Average	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland
Cycle shops	1.50	1	1	2	3	1	1
Cycle accidents	1.83	1	1	4	1	2	2
Network length	2.00	2	3	2	3	1	1
Cycle training programme	2.20		1	2	2	4	2
Cycle parking	2.33	4	2	1	3	3	1
Bridges/tunnels for bikes	2.33	1	4	2	4	1	2
Engaging employers	2.42	2	3	4	1.5	2	2
Signing strategy	2.50	1	4	3	3	2	2
Engaging schools	2.75	3	5	3	1.5	2	2
Cycle training	2.75		3		2	4	2
Mode share (% of trips)	3.00	3	3	4	2	3	3
Cordon counts	3.17	4	3	4	1	3	4
Use of cycle parking	3.33	4	4	2	3	4	3
Behaviour surveys	3.58	4	4	4	1.5	5	3
Cycle theft	3.67	4	3	4	4	3	4
Risk (KSI per trip)	3.70	5		3	4.5	3	3
% of children received cycle training	3.70		3	3	3.5	5	4
Risk (KSI/trip length)	4.08	5	5	3	4.5	2	5

To create a definitive list ranked from the most important indicator to collect to the least important indicator to collect regarding monitoring cycling policy, the indicators were ranked by usefulness followed by difficulty as seen in Table 4.4. This ranks indicators that are easier to collect as more important to collect in each usefulness category. However, as this is a generalised list, it has to be noted that certain indicators may be useful to monitor some policy strategies but not others and therefore, care should be taken when selecting indicators to monitor and evaluate cycle policy.

Table 4.4 – Indicators ranked by usefulness then difficulty

Cycling indicators	Usefulness (please cross)																								Initial Difficulty to Research on a scale od 1 - 5 (1-easy to 5-difficult)						
	Essential						Very Useful						Nice to have						Not useful												
	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Brescia	Copenhagen	The Hague	London	Malmo	Glasgow/Cycling Scotland	Average
Cycle accidents	x	x		x	x	x			x																1	1	4	1	2	2	1.83
Network length	x	x				x				x	x				x										2	3	2	3	1	1	2.00
Mode share (% of trips)	x	x	x	x	x	x																			3	3	4	2	3	3	3.00
Risk (KSI/trip length)	x	x			x											x									5	5	3	4.5	2	5	4.08
Cycle parking							x	x	x	x	x	x													4	2	1	3	3	1	2.33
Bridges/tunnels for bikes							x				x	x				x				x					1	4	2	4	1	2	2.33
Engaging employers							x	x	x	x	x	x													2	3	4	1.5	2	2	2.42
Signing strategy							x	x	x	x	x	x													1	4	3	3	2	2	2.50
Engaging schools							x	x	x	x	x	x													3	5	3	1.5	2	2	2.75
Cordon counts			x	x			x				x	x								x					4	3	4	1	3	4	3.17
Use of cycle parking							x	x	x	x							x	x							4	4	2	3	4	3	3.33
% of children received cycle training								x		x		x	x		x		x									3	3	3.5	5	4	3.70
Cycle shops													x	x	x	x	x					x			1	1	2	3	1	1	1.50
Cycle training programme						x		x		x			x		x		x									1	2	2	4	2	2.20
Behaviour surveys				x			x							x	x		x	x							4	4	4	1.5	5	3	3.58
Cycle theft								x		x			x		x		x	x							4	3	4	4	3	4	3.67
Cycle training						x		x		x			x										x			3		2	4	2	2.75
Risk (KSI per trip)					x							x				x				x					5		3	4.5	3	3	3.70

Table 4.4 ranks the indicators to be monitored in the following order with regards to their usefulness:

1) Cycle accidents
2) Network length
3) Mode share (% of trips)
4) Risk (KSI/trip length)
5) Cycle parking
6) Bridges/tunnels for bikes
7) Engaging employers
8) Signing strategy
9) Engaging schools
10) Cordon counts
11) Use of cycle parking
12) % of children received cycle training
13) Cycle shops
14) Cycle training programme
15) Behaviour surveys
16) Cycle theft
17) Cycle training
18) Risk (KSI per trip)

From this ranking of indicators, it is clear that there is a hierarchy of indicators which should be collected when implementing a cycle monitoring programme. Safety is regarded as the most important factor to monitor along cycle routes and therefore, data on cycle accidents must be collected in order to see what areas need attention with regards to safety. Again, KSI/trip length is ranked as number 4, which indicates that risk on a cycle network is a good indicator of safety although KSI per trip length is regarded as the standard to use rather than KSI per trip. Modal share and network length are regarded as the most representative measures of progress in cycling policies. An increase in network length indicates infrastructure development and the modal share indicates how effective it is. The provision of cycling facilities is also regarded as an important indicator of cycle network development.

The indicators at the bottom of the rankings are not necessarily regarded as less important for collection than those at the top of the rank. All of the above indicators were ranked as nice to have, very useful or essential. These are indicators that should be collected only when a monitoring programme is fully developed having already collected the indicators at the top of the rank. They provide data to back up any trends shown by initially collected data. Cycle training and cycle training programmes were ranked near the bottom of the list as they only give a supplementary indication of how successful a cycling policy is. Cycle theft is also ranked near the bottom as theft is not a priority concern when implementing a monitoring programme. The ranking of behavioural surveys reflects the fact that they are difficult to implement and analyse. The number of cycling shops can be unrepresentative of a policy's success on its own, as in some cities there may be many small shops whereas in other cities there may be fewer large ones. However, these are all important indicators that should be collected at some stage in a comprehensive monitoring programme. It is the total number and combination of indicators chosen that will give the best overall picture of a city's situation. Care should be taken when selecting indicators to monitor and evaluate cycling policy.

I4) For projects where indicators in question three have been used:

Case study 4.1 - Copenhagen

Give a brief description of the projects.

Cycling infrastructure plans (cycle tracks, green cycle routes, cycle parking) and the traffic and environment plan.

What were the indicators used in the projects?

- Network lengths.
- Cyclist's opinion on cycle planning.
- Cordon counts etc.

How were the indicators used in the projects?

The indicators were used to give a background for the improvement of cycling infrastructure.

What were the difficulties in implementing the projects?

The cycle track priority plan is being implemented. The green cycle route plan is under revision and the cycle parking strategy is being worked out for the time being. The traffic and environment plan will not be implemented as such, but gives a framework for the future.

How successful were the projects?

Both the cycle track priority plan and the green cycle route plan have been quite successful. However, it is too early to say anything about the success of the cycling parking strategy. Conclusions from the traffic and environment plan are used as the background for proposals for decisions on new infrastructure.

Case study 4.2 - Brescia

Give a brief description of the projects.

In March 2004, the municipality started the first project on sustainable mobility with the aim of redeveloping an outskirt neighbourhood and transforming it into an environmental area. This involved working with stakeholders who work with decision-makers and professionals in formulating the strategy.

The design solutions proposed have the aim of solving different problems, such as excessive speed, difficulties faced by cyclists and pedestrians in crossing roads and vehicles turning left.

Some innovative solutions were proposed, especially for the most important street of the environmental area, a straight and long road with two bus stops. The plan was to put the two bus stops together and to include a cyclist and pedestrian crossing.

Another important project involves the implementation of new dedicated signals for naming or directional information, promoted by FIAB (Federation Bicycle's Friends). This was implemented along a new cycle track which joins a neighbourhood quarter to the city centre (almost 2 km in length).

What were the indicators used in the projects?

- Cycle accidents
- Network length
- Signing strategy

How were the indicators used in the projects?

- Cycle accidents have been used to identify blackspots on the road
- Network length has been used as a starting point to define the network extension.
- Signing strategy to improve safety for road users and to make the itinerary easier to understand.

What were the difficulties in implementing the projects?

During participation in the design phase, people's limited experience became clear. People, who live with traffic everyday, think that they are able to propose good solutions, without having the technical competence. This can lead to high expectations from people who expect to see their proposals realised. The solution for this problem is the presence of a charismatic technician who can lead them.

How successful were the projects?

One of the most important outcomes is the involvement of stakeholders which allowed a major understanding of the infrastructural elements and consequently a greater acceptance. This is particularly important with regard to the safety aims of traffic calming for both motorised and non-motorised road users, which leads to better use of the road and safer conditions.

Case study 4.3 - The Hague

Give a brief description of the projects.

The project includes a 4-year infrastructure programme between 2003 and 2006, removing missing links in the network and adding new routes. The total budget over 4 years is approximately €20 million.

What were the indicators used in the projects?

- Mode share (cordons).
- Actual numbers on cordon.

How were the indicators used in the projects?

The indicators were used to monitor the increase in bicycle use of 10% over 4 years (the SMART target for the programme).

What were the difficulties in implementing the projects?

The difficulties were mostly technical (trees, underground infrastructure, and urban aesthetics) and the consideration of other uses of the public areas (car - lanes and parking, footpaths, nature, tramlines, etc.)

How successful were the projects?

There are quite a few delays in projects but by and large the total number of completed projects is satisfactory.

Case study 4.4 - The Hague

Give a brief description of the projects.

Bike parking facilities using artistic guard houses. Total budget is approximately €1 million (not all bicycle related), some of it is funded from social and artistic budgets.

What were the indicators used in the projects?

Cycle parking
Use of cycle parking

How were the indicators used in the projects?

The total number of cycle parking spaces is measured against the anticipated demand leading to an increase in the number of parking facilities. Also, 2 cycle parking facilities were changed from manned into unmanned facilities due to a lack of use. This means new parking facilities can be created whilst limiting staff numbers.

What were the difficulties in implementing the projects?

The difficulties were mostly technical. The need for bicycle parking is understood by parties who otherwise might oppose the use of space for this purpose. Mainly these are shop and restaurant owners.

How successful were the projects?

A number of new cycle parking facilities were created or will be created later this year. Some replace existing facilities and some add to the total capacity of bike parking facilities in The Hague. All are located near the city centre or the beach.

Case Study 4.5 - London

Give a brief description of the projects.

Performance indicators are an important part of the development and evaluation of virtually all TfL cycling projects. The Mayor's School Cycle Parking Programme has been one of these projects. The Mayor's School Cycle Parking Programme compliments a range of measures implemented by TfL and the London boroughs to make cycling to school a more attractive and viable option for parents and young people. In response to the Mayor's target to increase cycling by 200% by 2020, this initiative was publicly launched on 19 June 2003 at Burlington Danes School in the London Borough of Hammersmith and Fulham. The initiative fulfils a main objective of the London Cycling Action Plan (LCAP) to increase cycle parking at schools and further education establishments.

What were the indicators used in the projects?

- Targets for cycling
- Demand for cycle parking facilities
- Cycle parking spaces
- Travel plans
- Research

How were the indicators used in the projects?

- The School Cycle Parking Programme aims at achieving the cycling targets identified in the LCAP.
- There was demand for cycle parking at schools. The number of cycle parking spaces enabled the progress of the programme to be measured. Travel plans and the provision of cycle training are a prerequisite for applying for funding.
- Qualitative and quantitative market research has been carried out in the first year, showing high levels of satisfaction.
- Cycle parking triggered wider action by schools, moving towards becoming hubs of cycling development / culture.
- Now, the programme is closely linked to school travel plans and this in turn linked to cycle training etc. Further research is underway on the effects of cycle training on parental attitudes.

What were the difficulties in implementing the projects?

The need for planning permission for some of the shelters caused delays in some instances (requirements for planning permissions can vary between London boroughs).

How successful were the projects?

The programme has brought to light a potential for cycling to school that, if achieved, will help to meet Mayoral objectives. Two years after the launch of the programme 5000 cycle parking spaces were installed at almost 200 schools and colleges. Research carried out with teachers and students showed that the installation of cycle parking facilities encourages students to cycle to school.

Below is a summary of the case study information gathered as part of this section.

Monitoring indicators are used to monitor a wide variety of policies and programmes including:

- Copenhagen: Cycling infrastructure and environment.
- Brescia: Sustainable mobility.
- The Hague: Infrastructure.
- The Hague: Bicycle parking.
- London: School cycle parking.

What were the indicators used in the projects?

The most frequently used indicators to monitor and evaluate these policies and programmes include:

- Network length.
- Cordon counts (modal share).
- Cycle parking spaces.
- Qualitative opinions on improving infrastructure and policy.

How were the indicators used in the projects?

In general, the indicators used have been used to give a background for improvement of the various different cycling infrastructures. They are used to predict demand for cycle parking, justify cycle network extensions, identify safety black spots and monitor cycle targets. Monitoring attitudes and satisfaction levels with regards to cycling in the participating cities are also important to progress; they reflect the status of cycling culture in the cities.

What were the difficulties in implementing the projects?

There were a variety of difficulties encountered when implementing these policies and programmes. Problems included:

- Revision of initial strategies.
- Limited experience and technical competence.
- High expectations.
- Lack of commercial understanding with regards to the need for cycle parking.
- Lack of consideration when planning for physical obstacles and other infrastructure.
- The need for planning permission, causing delays.

Some of these problems could be avoided through careful collection of appropriate indicators.

How successful were the projects?

The policies and programmes appear to have been successful. As a result of using the most appropriate indicators, greater understanding, comprehension and acceptance of policies and programmes has been achieved, new infrastructure and facilities have been implemented in appropriate locations and cycling has been encouraged.

Summary of how cities can monitor and evaluate cycling policy

Section 4.1 of this working group report has outlined a large amount of the collected information with regard to how cities can set about monitoring and evaluating cycling policies. The key observations which can be drawn from the gathered information are;

- All of the cities in the group had cycling policies. Few pre-date the year 2000, although Malmö has had a cycle plan since 1976.
- Priorities for the cycle network reflect the maturity of the cycle network and the strength of the underlying cycle culture in each of the cities.
- All cities in the working group monitor policy objectives, particularly the use of the cycle network, in order to demonstrate the utilisation of investment and assure decision makers that value for money is being delivered.
- Approaches to cycling policy monitoring ranged from informal site visits to the cycle network with cycling associations, to detailed data collection in order to measure cycling policy delivery against a series of targets. Commonly used techniques for monitoring are cordon counts (both manual and through the use of automated counters), personal surveys and travel diaries.
- All cities in the group monitor their policies in order to determine the effectives of policy delivery and influence future policymaking, and funding, decisions.
- Policy monitoring frequency varied from every quarter to every second year.
- Action plans underpin the delivery of cycling policies and only one of the cities in the working group did not already have, or was not developing, a cycling action plan. As with the cycling policies themselves, the objectives of these action plans reflected the size and maturity of the existing cycle network.
- In terms of gathering data to support cycling policy monitoring, it is clear that the easier indicators to collect are tangible items that can clearly be counted or measured (e.g. infrastructure length or cycle parking spaces). The more difficult indicators to collect are indicators that may be more qualitative and therefore more difficult to analyse such as behavioural surveys.
- Ranking the indicators by usefulness then difficulty enabled the group to develop a priority list of cycling indicators which should form the basis of cycling policy monitoring activities. Safety is regarded as the most important factor to monitor along cycle routes and therefore, data on cycle accidents must be collected in order to see what areas need attention with regards to safety. Modal share and network length are regarded as the most representative measures of progress in cycling policies. Cycling facilities are also regarded as an important indicator of cycle network development.
- These indicators were also found to be the most frequently used by cities seeking to monitor their cycling policies.

The next section of this report looks at how increasing intermodal activity can be used to encourage cycling.

4.2 How to encourage intermodality for cyclists and public transport users so that both can benefit?

The indicators used to define this question were developed and collected jointly between the 'Cycling' and the 'Behavioural and Social Issues in Public Transport' working groups. The graphs and tables presented in this section provide an overview of the ways the participating cities encourage intermodality for cyclists and public transport users to benefit both groups in their cities.

Although the 'Cycling' and the 'Behavioural and Social Issues in Public Transport' working group participants have researched the same indicators, they have used them to answer separate research questions. The Behavioural and Social Issues in Public Transport working group has used these joint indicators to supplement their own indicators in answering their research question whereas the Cycling working group has used only the joint indicators to answer their second question. After much discussion over the first two of the three site visits, the indicators were finalised and collected with the following results:

J1) Can cycles be taken with you on public transport?

If yes, on which modes and what are the conditions?

In all of the participating cities apart from Brescia, bicycles can be taken on trains although in most cases conditions are imposed such as time restrictions relating to not being able to take them on trains during peak hours or through charging the user when they travel with their bicycle on a train. In cases where light metro systems are being developed, it is likely that bicycles will be allowed to be taken on them too. Unfortunately, bicycles are not accepted by any participating cities on trams, buses and taxis, although folding bicycles usually are. This would suggest that there is much to be done to encourage intermodality between cycling and public transport. However, it is clear that there are increasing efforts in some participating cities to locate cycle parking at transport interchanges, to encourage multi-modal journeys.

If no, is there a planned agenda to improve intermodality and if so, what is on it?

Malmö is trying to make it possible to take bicycles on regional services; however, on the whole there is no planned agenda to improve intermodality. The Hague believes that there is low demand for the ability to take bicycles on buses and trams but maybe the ability to do so should be in place first before the demand can be seen. London aims at improving cycle parking facilities at transport interchanges to encourage multi-modal journeys and bicycle use more generally. There is plenty of room for improvement on this subject.

J2) Using the scoring system, state whether cycle parking at public transport interchanges is currently sufficient.

1 = No parking
2 = Limited or less than sufficient parking
3 = Sufficient Parking
4 = Sufficient parking with some spare capacity
5 = Too much parking

The representatives from Glasgow / Cycling Scotland and Santander both felt that there was no or insufficient cycle parking at their transport interchanges. The rest of the representatives from participating cities felt that there was limited or less than sufficient cycle parking at their transport interchanges. This indicates a distinct lack of cycle parking at interchanges across Europe, which in turn makes journeys to and from these interchanges difficult to cycle, decreasing the potential for sustainable journeys being made to and from them.

What security measures are used to enforce/protect cycle parking and is there a price to pay for cyclists using facilities with these measures?

- Brescia indicated that cycle parking needs to be charged for in order for it to be more secure and less crowded.
- Copenhagen has very few manned cycle parking stations. However, where it does and at smartcard-operated cycling facilities, a small fee is paid for the extra security.
- The Hague mans large cycle parking facilities and stations where there are sufficient parking facilities and stray bicycles are considered hazardous.
- Transport for London (TfL) published documents on cycle security at interchanges. The TfL cycling website provides information on lockers to secure bicycles. Generally, cycle parking is provided free of charge, however, the new bicycle station in Finsbury Park, requires a small fee (50p for 24 hours). The Immobilise initiative encourages bicycle owners to register (free of charge) their bicycles to recover them more easily when stolen. TfL has teamed up with the Metropolitan Police and City of London Police to include the registration of bicycles on the Immobile Register. Immobilise website: www.immobilise.com.
- In Glasgow there are often close circuit cameras in the vicinity of cycle parking and in some places there are cycle lockers available at a charge.
- In Malmö, Paris and Santander there are no security measures to enforce / protect cycle parking.

In general, it is regarded that if there is going to be secure parking facilities, a price needs to be paid for their use by the user. However, in order to attract more cyclists to these facilities, maybe these fees need to be waived by local governments.

J3) Is there a public and/or private cycle hire service in the city? If yes…

Case Study 4.6 - Brescia

When was it introduced?

It was introduced in 1998 and stopped in 2005. It was free of charge and limited to a summer daily service. The hire service points were located at the railway station and at specific pubs and restaurants which had an agreement with the Municipality.

It was closed because of a lack of funds.

Please describe the system and cost.

It was free of charge and limited to a summer daily service. People wanting to hire a bike had only to present their identity card.

Is there a website promoting this service and if so, what is its address?

No.

Case Study 4.7 - Copenhagen

When was it introduced?

The free City Bike was introduced some 10 years ago. The project is now run by a partly commercial / partly social company. At a few stations and in some bicycle shops, ordinary bicycles for hire have been available for many years.

The City Bikes may only be used in a limited area in the city centre. During the tourist season, it may be difficult to hire a City Bike.

Please describe the system and cost.

A coin releases the City Bike from the rack, when leaving the bicycle in another rack, the coin is returned.

Ordinary bikes may be hired from the main station, having no limitations to their use. Besides the fee, also a deposit must be paid (returned when returning the bicycle after use)

Is there a website promoting this service and if so, what is its address?

www.bycyklen.dk

Case Study 4.8 - The Hague

When was it introduced?

There are several private bicycle hire companies (mostly in addition to a bike shops). There is also a subscription type service, where a bike can be hired for a fixed (low) rate at any station in the Netherlands (OV-fiets). This scheme started several years ago and is rapidly expanding. www.OV-fiets.nl

Please describe the system and cost.

There is an annual subscription fee of 9.50 Euro (corporate discount available and free for rail users with annual pass). In addition, a rental of up to 20 hours costs 2.75 Euro. Maximum rental period is 60 hours.

Is there a website promoting this service and if so, what is its address?

www.ov-fiets.nl

Case Study 4.9 - London

When was it introduced?

There are a number of small, independent cycle hire services in London. Budgie Bikes for example started in London in 2005 - linked to youth hostels.

Please describe the system and cost.

The system and prices vary according to the service. For example, Budgie Bike are yellow cycles that are available for hire from selected Youth Hostels throughout the UK; prices start from as little as £1.50 an hour and go up to a maximum of £9.50 per day.

Is there a website promoting this service and if so, what is its address?

- The TfL website refers to a number of bike hire services: http://www.tfl.gov.uk/cycles/contacts/useful-links.shtml#hire
- Budgie Bike: http://www.yha.org.uk/Types_of_Accommodation/Activities/Budgie_Bike_Hire.html

Other Case Studies

When was it introduced?

Neither Malmö nor Santander has a cycle hire service in their cities. Glasgow has some private hire available from local cycle shops. Paris has "roue libre" (www.rouelibre.fr), a system that was set up 10 years ago by RATP. The Hague has a number of private bicycle hire services throughout the city. There is also a fixed low rate subscription service at all railway stations in the Netherlands called OV-fiets which started several years ago. In London there are a number of independent cycle hire services, Budgie Bikes, which started in London in 2005 and is linked to youth hostels. Copenhagen has City Bike which was introduced 10 years ago, they also small rental shops all over the city. Brescia had a rental service running between 1998 and 2005 which was free from railway stations and certain eateries but finished due to lack of funds.

Please describe the system and cost.

There are a large variety of methods for implementing a bicycle rental scheme. It can be done through a subscription such as in The Hague, which can be topped up on a daily or yearly basis, this system would appeal mainly to commuters and residents in the city as visitors and tourists would not have the subscription. It can also be done through a coin operated system such as City Bike in Copenhagen where a coin releases the bicycle and is then returned when the bicycle is returned. This would appeal more to the tourists and visitors to the city as no subscription needs to be made and access to a bicycle is instant, however, there is a problem with theft of the bicycles. Most bike hire services in London hire bicycles on an hourly to daily basis. Although Copenhagen's free City Bike service worked, Brescia's didn't, this was a daily summer service where only an identity card needed to be produced in order to obtain a bicycle. Clearly, success is varied when similar schemes are implemented in different cities.

Is there a website promoting this service and if so, what is its address?

Websites are a great way to carry across information to potential customers and can be a persuasive marketing tool. Our research showed that they are being increasingly used, examples include:

Copenhagen: www.bycyklen.dk
The Hague: www.ov-fiets.nl
London: www.tfl.gov.uk/cycles/contacts/useful-links.shtml#hire
Paris: www.rouelibre.fr

J4) Are employers incentivised by local authorities to encourage cycling and public transport (i.e. sustainable modes) use for commuter travel? If yes, when was it introduced?

Paris and Santander have no such incentives. London and Glasgow do have schemes but with no specific start date. Other cities have specific schemes with start dates such as The Hague (1990), Copenhagen (1998), Malmö (2000) who are working intensively with mobility management and Brescia (2004).

Please give examples with details of schemes specifying whether they are mandatory or guidelines.

The participating cities use a number of different methods, some being mandatory and others not:

Brescia – Lombardy Region Budget (2004) supporting cycling and other ecological modes for daily trips to work. The budget includes car pooling programmes, actions for boosting telework and the use of call services and group taxis, plans for optimisation of commutes, structures for promoting bicycles and mopeds, parking facilities at enterprises and bus shelters for private line stops. There are no mandatory measures.

Copenhagen – Cycling to work campaign (1998) initially provided special incentives but now encourages cycling to work in other ways. The campaign is organised by the Danish Cyclist Federation with the support of municipalities including Copenhagen. Employers can get involved in a 3 week voluntary campaign to persuade employees to cycle and have to pay a fee. This is not a mandatory measure.

The Hague – Since 1990, companies have been required to provide a mandatory cycle parking space for every 3 employees as part of planning permission in the city. There is also a national tax incentive that enables employees to purchase a tax free bicycle for commuting purposes or to deduct tax from the cost of public transport.

London - TfL encourages employers to adopt workplace travel plans, promoting sustainable travel to workplaces. Match funding for cycle facilities/showers etc and free bicycle racks is offered to employers. Travel plans are not mandatory but assist in reaching the objectives of the London Plan and Transport Strategy by reducing congestion and encouraging sustainable travel. TfL recently published a practical guide to setting up a workplace bike pool, to encourage employees to cycle to work (http://www.tfl.gov.uk/cycles/downloads/reports/Pool-bikes-for-business.pdf)

Glasgow – Cycling Scotland offer a cycle friendly employer award which forms part of Scotland's health at work award. In certain cases, in order to obtain planning permission, businesses must prepare a travel plan.

There is an interesting mix of measures here, whether they should be made mandatory or not is dependant on the Local Authority. Whether it is travel plans, cycle parking at businesses, awards, campaigns or a budget aimed at promoting sustainable transport, it is up to the Local Authority to pick and choose which methods would work best in their city.

J5) Are employers required to provide cycle parking? If yes…

How is the number of spaces required defined?

Efforts have also been made to encourage employers in cities to provide cycle parking and facilities for their staff. In some cases employers have their own sustainable transport agenda and therefore provide spaces, while some local authorities have developed guidelines for how many cycle spaces should be provided per employee. In some locations these guidelines have been made mandatory by the Local Authority and employers are required to provide a certain amount of cycle parking.

Copenhagen and London have cycle parking guidelines. Copenhagen has regulations that are about sufficient but not very clear and therefore, a new cycle parking strategy is being worked out this year which will include recommendations regarding cycle parking at workplaces. In London, TfL provides cycle parking standards for new developments which recommend, for example, 1 cycle parking space for every 600 entrants at central London train stations or 1 cycling space per 125m^2 for certain offices.

Glasgow, The Hague and Malmö all have mandatory minimum cycle parking. The Hague requires that 1 cycle space is provided per 3 employees at new business developments in the city. Malmö requires that 0.4 cycling spaces are provided per employee at new business developments in the city. Glasgow states that new developments must have cycle parking installed. The number of racks depends on the number of staff/floor space. Offices that do not currently have cycle parking that are being moved into by a new business, must construct new cycle parking for the new business and this must be in the contract.

Brescia, Paris and Santander have no guidelines and no mandatory requirements on provision of cycle parking at work places.

J6) Is there a personalised journey planning service in the city? If yes:

Is journey planning information available online (including cycling, buses and trains)?

A total of six of the eight participating cities have an online journey planner, which would indicate that journey planning online is generally regarded as a great way of providing information to the public about transportation in their city. However, most of the websites are only for planning a journey by public transport. Only London and Copenhagen have incorporated cycling into their journey planners although Copenhagen's "De gule sider", on which the journey planner has been developed, has not fully developed the cyclist route planner as yet.

If so, what is the number of hits per head in the city?

TfL's online journey planner has a yearly usage of 190,400,000 hits, indicating fantastic success. Glasgow's journey planner had 1,800,000 hits in 2004, which also represents great usage. In the future, more and more homes will have internet access and more people will be finding out what the internet has to offer with regards to journey planning, so this is a definite growth area and should be adopted by those cities not yet using it for their journey planning.

Is there a journey planning information call centre?

Out of the eight participating cities, a total of six have a call centre providing travel information, indicating that this is also an essential source of information for journey planning. Unfortunately, cycling journeys are not catered for at these call centres, just public transport.

Is there printed information available relating to public transport and cycling? If so, please send examples.

Only half of the participating cities have printed information to aid the public in their cities with planning their journeys. The cities that do use printed information produce it in the form of maps including cycle and public transport route information. They also have leaflets giving information on technicalities such as regulations for bringing bicycles onto public transport. This form of media should not be underestimated as it is a convenient source of information if displayed conveniently at interchanges, in buses and trains etc, and could save on human resources.

Are there any other forms of journey planning services in the city?

Out of the eight participating cities, a total of three have other journey planning services but these are only to complement the services already covered in the form of maps, websites and route information.

Table 4.5 – Journey planning services

City	Journey planning services			
	Website	Call Centre	Printed information	Other
Brescia	X	X	X	X
Copenhagen	√	√	√	X
The Hague	X	√	X	√
London	√	√	√	√
Malmö	√	X	X	X
Glasgow	√	√	√	√
Paris	√	√	√	X
Santander	√	√	X	X

J7) Innovative approaches:

Are there any current or future plans for innovative approaches with regards to integrating cycling and public transport trips?

Brescia's innovation for integrating cycling and public transport trips: Only new affordable public transport (metro, Lam) will represent a real opportunity on the integration strategy with cycling and walking. Public transport interchanges are still far from being optimised, most of the time interchanges are not structured under a global scheme but just as single stations one close to the other.

Copenhagen's innovation for integrating cycling and public transport trips: Lifting ban on bicycles on local trains during rush hours has already been realised.

The Hague's innovation for integrating cycling and public transport trips: The aim is to provide for the massive cycle parking demand at the large stations. Cycle lockers at public transport hubs are also being tested.

London's innovation for integrating cycling and public transport trips: Innovative approaches to integrating cycling and public transport trips in London include the following:

- In March 2006, a large, central London bicycle station opened, situated close to a major transport interchange (Finsbury Park).
- Double-decked bicycle racks were introduced at Surbiton station.
- TfL has developed a high-quality online journey planning system, including cycling and walking.
- A travel information line and mobile phone text message service has also been introduced.
- London Cycling Design Standards: This document sets out the principals, guidance and standards for designing to reduce barriers to cycling in order to support road safety targets and increased levels of cycling in London.

Malmö's innovation for integrating cycling and public transport trips: Cycle parking at all bus stops in the outskirts of the city.

Glasgow's innovation for integrating cycling and public transport trips:

- Some bicycles on buses ideas proposed but not yet implemented.
- ScotRail is considering but have not yet implemented giving discounts to purchasing.
- Brompton folding bicycles to train users that purchase monthly passes.
- Putting bicycle racks on the back of buses in Ayrshire to the south of Glasgow.
- Having a bus-bike trailer, essentially a bus that pulls a trailer that holds several bicycles, in Inverness to the North of Glasgow.

Santander's innovation for integrating cycling and public transport trips: An initiative is being implemented in a village 25 kilometres away from Santander where a new bus station is being built that offers facilities for cyclists such as a bicycle parking area and a bicycle lane.

Innovative approaches conclusion: The participating cities in the 'Cycling' and 'Behavioural and Social Issues in Public Transport' working groups are at a variety of different stages in the development of their transport systems and in many cases have very different agendas. However, almost all the cities had something to say about innovative approaches to integrating public transport and cycling trips in their cities. This would suggest that this is a great area of interest and that ideas should be shared as each of the cities have their own ideas on the subject. Knowledge needs to be accumulated on which of these ideas are successful and which are not so successful in order to make intermodality between cycling and public transport at interchanges as efficient and as popular as possible.

J8) Intermodal public transport facilities:

What coordination exists now between public transport operators and city cycling departments to develop intermodal understanding when planning public transport facilities? If none, is this envisaged in the future?

Brescia sees coordination as difficult. Their metro project is going to be realised in about 4 years and will provide a better integration between cycling and public transport, allowing cyclists to take their bicycles with them on public transport. Cycle parking will also be realised at metro stations. However, this metro line project has to re-develop the cycle network in specific areas of the city, but it has to follow the Cycle Mobility Plan which was approved in 2000. Metro technicians have to work in contact with the mobility manager office and the open spaces maintenance and requalification office, which is not easy at present.

In Copenhagen there is very little coordination between public transport operators and city cycling departments on this subject. They only tend to communicate when it comes to specific projects such as terminals. However, the local train authority does collect data on how many passengers are taking their bicycles onto local trains (only 1.6% currently).

There is good coordination in The Hague as the Dutch rail company has its own cycle department for running cycle parking facilities. The main coordination between the Dutch rail company and the cycle department is when it comes to planning the routes to parking facilities.

In London, Transport for London's (TfL) wide remit encourages coordination between transport modes. TfL's primary role is to implement the Mayor of London's Transport Strategy and manage transport services across the Capital. TfL is responsible for London's buses, the Underground, the Docklands Light Railway (DLR) and the management of Croydon Tramlink and London River Services. TfL is responsible for a 580km network of main roads and all of London's 4,600 traffic lights. In addition, we manage the central London Congestion Charging scheme and regulate the city's taxis and private hire trade. TfL also promotes a range of walking and cycling initiatives across the Capital. To ensure greater accessibility for all Londoners, TfL co-ordinates schemes for transport users with impaired mobility, as well as running the Dial-a-Ride scheme in conjunction with the London Boroughs's Taxicard.

In Glasgow there is liaison between the local roads authority and the regional transport partnership but other than this, there is little coordination. Indeed in Malmö, Paris and Santander there is none.

It is clear that there is little or no coordination between public transport operators and city cycling departments in order to develop intermodal understanding when planning public transport facilities in most cases. Only in London and The Hague can we see an advanced form of coordination between these two groups and this is mainly because they are part of the same organisation. It is clear that this aspect of planning for interchanges needs to be worked on considerably in the future in order for interchanges to be developed with optimum efficiency and with less room for mistakes.

Summary of how cities can encourage intermodality for cyclists and public transport users

- Allowing the carriage of bicycles on a wider array of public transport modes and without restrictions, or additional fares, would almost certainly encourage greater use of public transport modes as well as cycling in cities. At present bicycles are only regularly carried on trains and some metro systems in all but one of the working group cities.
- Malmö is trying to make it possible to take bicycles on regional services; however, on the whole there is no planned agenda to improve intermodality in this way.
- Given the distinct lack of cycle parking at interchanges in all of the working group cities, it appears that the most viable alternative to the carriage of bicycles in the short to medium term is to offer improved cycle storage and changing facilities at major interchanges and key transport nodes in cities.

- Security is a prime concern anywhere that bicycles are stored. It is therefore surprising to learn that only two of the cities in the group have manned cycle storage facilities, or have invested in purpose built cycle lockers to protect bicycles stored at interchanges.
- It appears that, on this topic, an impasse has been reached between public transport operators and cyclists. Public transport operators are happy to provide cycling facilities, but are eager to charge users for them, while cyclists are keen to use the facilities, but feel that their patronage on public transport entitles them to adequate, secure parking facilities equal to (if not *better than* giving the relative environmental merits of cycling and car use) those offered for car drivers at stops and stations.
- Cycle hire facilities are common to four of the six cities in the group, although these tend to be targeted primarily at tourists. Copenhagen and Brescia provide free city bike hire services, but with varying degrees of success.
- Dedicated websites to promote cycling were established in four of the larger cities involved in the joint working exercise.
- 5 cities have incentive schemes, such as awards, workplace travel plans with match funding and discretionary funding, aimed at employers in order to try to encourage commuters to cycle to their place of work.
- Six cities have minimum parking guidelines for cycling, which means that new developments have mandatory bicycle parking space requirements, or employers are required to contribute to the cost of providing cycle parking spaces.
- Personalised journey planning services were available in the larger cities and these are manly delivered through a dedicated website or mini-site on the internet. Call centres and printed information were less common.
- A number of innovative approaches were highlighted through the joint working, including;
    - The design of high volume transport nodes and interchanges in Brescia which will integrate the needs of cyclists with the public transport network.
    - Lifting the ban on bicycles on public transport in Copenhagen.
    - Introducing secure cycle storage and locker facilities at major interchanges in The Hague.
    - The Central London Bicycle Station at Finsbury Park.
    - Cycle parking at all suburban bus stops in Malmö.
    - Providing folding bicycles to monthly season ticket holders in Glasgow.

5. INTEGRATION INDICATORS

For the first time in the Urban Transport Benchmarking Initiative, three integration indicators have been devised and submitted by each working group in the project for collection by all the participants in the project to further their studies through a wider research base. Analysis of the Cycling working group's integration indicators has been presented as a review of the data collected by all the participating cities that submitted data on them.

In total, 11 of the project's participants submitted data on the Cycling working group's integration indicators for further analysis including:

- Paris
- Aalborg
- Brescia
- The Hague
- Sofia
- Preston
- Santander
- Malmö
- Belfast
- Glasgow
- London

This analysis of the integration indicators has been broken down into the three key topics devised by the Cycling working group for collection of information by the project's participants. These make up the remainder of this section and consider the different approaches and practices used by each of the project's participants.

Section 5.1 looks at cycle planning as it was felt that information on this topic could supplement the thematic research done by the Cycling working group on cycle policy.

Section 5.2 looks at cycle spending as the Cycling working group were interested to find out what proportion of the total cycling budget went on different aspects of cycling at differing levels of cycling infrastructure development.

Section 5.3 looks at cycling good practice to further the Cycling working group's research on intermodality and in particular, multimodal interchanges.

5.1 Cycle Planning

The information presented in this section provides an overview of the type of cycle planning the project's participants implement. The indicators were finalised and collected with the following results.

Is cycling an integral part of the transport system in your city? If so, what have you done and has it worked?

Out of the eleven participating cities, a total of three replied that cycling was not an integral part of their cities transport system. However, in Brescia, cycling is becoming an integral part of the

transport system. This is due to the efforts of the Local Government between 2000 and 2002. A Cycle Mobility Plan was created and a series of projects to extend the cycle network was implemented. In 2003, Brescia won the title 'bikes friendly city'. Now, continuous cycle route networks within each residential district and linking the districts together and to the centre are being created. Existing cycle paths are also being upgraded.

In Preston, consideration is given to cyclists in new schemes. Similarly, in Glasgow a growing network of cycle routes is developing within the city, backed up with promotional work. However there is a long way to go before the city's transport network favours cyclists. Other cities such as Malmö have had a cycle plan since 1976 and are still working to promote cycling today. In The Hague, all large developments incorporate facilities for cyclists. There is a network of mostly segregated cycle paths and there are cycle parking facilities near all major destinations.

In Belfast and London, cycling is part of an integrated transport strategy. In London in particular, cycling is an integral part of the transport system. TfL promote walking and cycling initiatives across the Capital. The London cycling action plan outlines the main approach to planning for cycling in London and sets out key objectives.

Overall, most of the participating cities have some form of cycle plan and are trying different initiatives and ways of making them as successful as possible. The success of these plans should be monitored in order to form some sort of best practice guideline on implementing cycle plans as for most cities, this is a relatively new area of planning and they need to be informed of what works and what does not.

What is your score on the Velo Info System?

The Velo.Info benchmarking tool is an online system that allows cities to compare their city with other cities on a set number of performance indicators. All cities are invited to assess themselves against this framework. The city is requested to answer the online questions relating to a number of progress and performance indicators of successful cycling planning set out under four headings. The headings are; preparing cycling policy, planning cycling policy, implementation of cycling policy and monitoring and evaluation of cycling policy. The system calculates the overall score and awards a grade from bronze to platinum at the top. To access the system, go to www.velo.info and go to benchmarking.

The cycling group cities were encouraged to test themselves using the Velo.Info system. Malmö, The Hague and Brescia all completed the Velo Info questions. Malmö received a platinum award, The Hague gold, and Brescia silver.

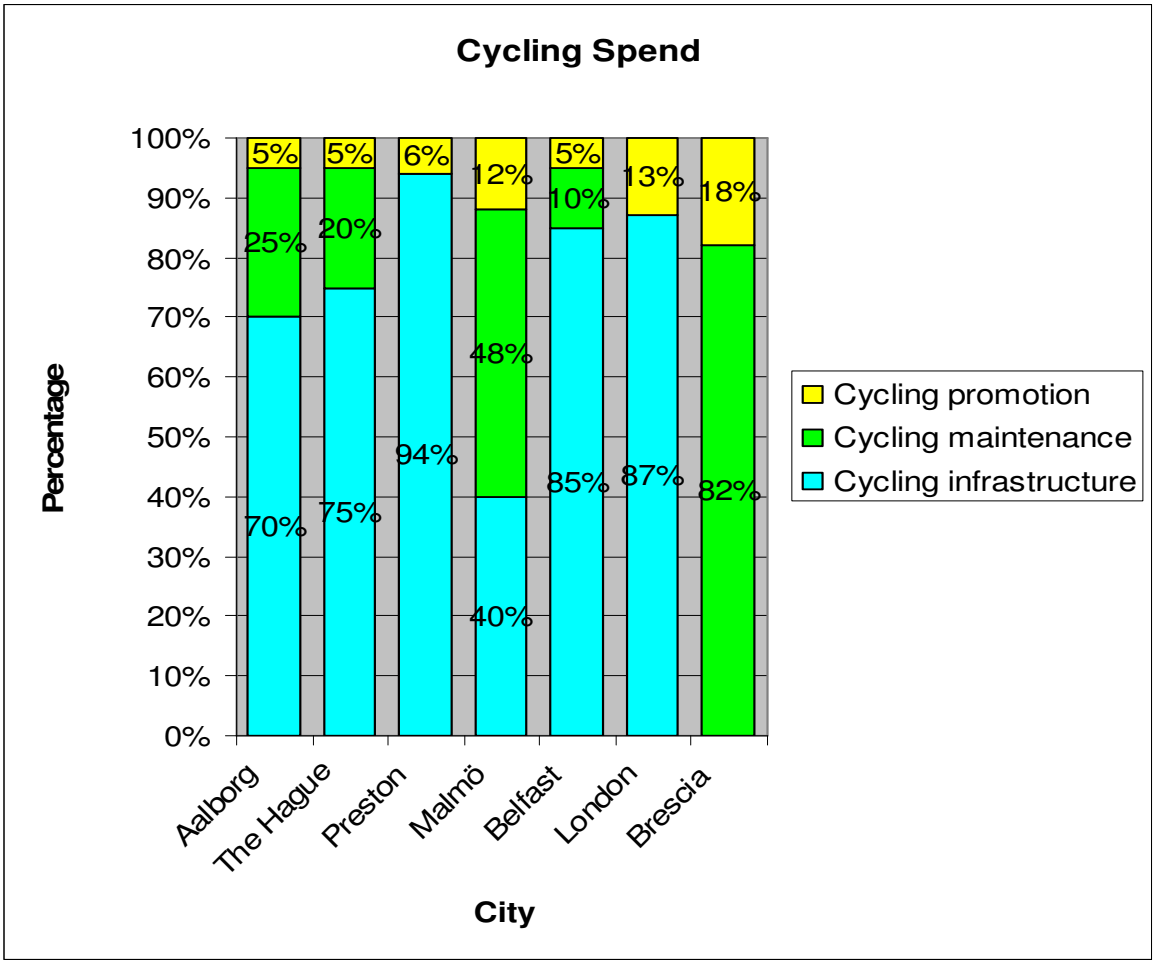
5.2 Cycle spending

The information presented in this section provides an overview of the percentage of the cycling budget spent on different cycling aspects by the project's participating cities. The indicators were finalised and collected with the following results. The fact that there is not figure for spent on maintenance in London and Preston does not mean that no money is spent on maintenance. In London, it reflects the fact that there is a dedicated budget for cycling projects (included in the table), whilst maintenance spend is included in another budget (not shown in the table).

Table 5.1 - Percentages of cycling spend on different sectors

City	What percentage of cycling spend is on infrastructure?	What percentage of cycling spend is on maintenance?	What percentage of cycling spend is on promotion?
Aalborg	70%	25%	5%
The Hague	75%	20%	5%
Preston	94%	-	6%
Malmö	40%	48%	12%
Belfast	85%	10%	5%
London	87%	-	13%
Brescia	-	82%	18%

Figure 5.1 - Percentage of cycling spend on different sectors



What percentage of cycling spend is on infrastructure?

In Brescia, the funding for cycling infrastructure is spread over a number of different sector and offices and hence the amount of spending on this was unobtainable. However, in other participating

cities, it is clear to see from Table 5.1 and Figure 5.1 that in most cases, the majority of cycle spending is currently on infrastructure. The only exception to this is Malmö who already have an extensive cycle infrastructure and whose spending goes mainly on maintenance of it. This trend illustrates that cycling is growing as a mode of transport as networks are clearly expanding in most participating cities.

What percentage of cycling spend is on maintenance?

As shown by Table 5.1 and Figure 5.1, maintenance overall takes the second biggest portion of budget on cycle spending. Existing cycle routes need to be maintained to keep them safe and desirable for the public to use. The proportion of spending on maintenance should increase when the cycle network is nearing completion, as demonstrated by Malmö.

What percentage of cycling spend is on promotion?

Table 5.1 and Figure 5.1 show that in general, the lowest percentage of cycling spend in participant cities is on cycling promotion. Again, similar to maintenance, the percentage spend in this sector should increase as the cycling network nears completion. For example, in Malmö, the percentage spent on promotion is approximately 12%. In general, the development of the cycling infrastructure in cities is of prime priority, once this is comprehensive enough, it can then be marketed to increase the public using it.

5.3 Cycling good practice

The information presented in this section provides an overview of cycling good practice in the project's participant's cities. The indicators were finalised and collected with the following results.

The following questions were asked;

What practical examples exist in your city to combine cycling and public transport trips?
If available, do they exist for the bus, train, tram and/or other?
Is there a combined journey planner for your city and, if so, how do the public access it?

In Paris there are cycle parks at RER stations and metro stations and bicycles can be used on RER and trains out of peak hours.

The Hague has large cycle parking facilities at all public transport hubs, automated bicycle rental schemes at train stations and a bicycle 'vaults' pilot project. They have no combined journey planner, however, their public transport planner accommodates walking routes to bus stops, stations and tram stops.

In Preston, there is limited cycle parking at transport interchanges. However, there is some carriage of bicycles on trains and cycle lockers at park and ride sites.

Santander offer the possibility of taking the bicycle with you by train but operators RENFE and FEVE have established limitations on the number of bicycles allowed. RENFE allows only 10 bicycles per trip; FEVE only allows 5 bicycles. For interurban buses, only some bus companies allow cycles in the buses but they also charge a fee.

In Malmö, there is cycle parking at bus stops and multimodal interchanges. The city is going to complement the existing journey planner with cycling this year.

Case Study 5.1 - Dublin

Translink very actively promotes the integration of cycling with public transport and works very closely with cycling organisations, lobby groups and the Roads Service to provide high quality facilities and infrastructure for cyclists. The policy is widely distributed by various means, including the 'Bike it with Translink' annual leaflet. Broadly speaking, the policy is to encourage cycling commuters to use bicycles to access the system but to leave bicycles at bus and rail stations to free up the limited space on vehicles for leisure users. Translink have a number of best practices including:

- Covered cycle parking is provided at all bus and train station.
- No bicycles on urban buses.
- 2 bikes per vehicles on rural express services free of charge.
- 4 bikes per train free of charge.
- Combined public transport and National Cycle Route maps are produced.
- Leaflets are produced for cycle parking and for suggested cycle trips using public transport etc.
- Translink has a Journey Planner web site.

In Glasgow, cycle carriage is free on all local trains. All stations operated by the local transport partnership have cycle parking. A new river boat service, proposed for the summer, between Glasgow and the Clyde Coast ports will carry up to ten cycles free of charge.

In London there are various initiatives to encourage combined cycling and public transport trips. For example, there are cycle parking programmes for key transport interchanges, including Finsbury Park Bike Station, to enable people to park their bicycles and continue their journey by another transport mode. The TfL Journey Planner provides information on public transport modes, cycling and walking. http://journeyplanner.tfl.gov.uk

From this indicator it is clear that participant cities have different opinions of good practice with regards to combining cycling and public transport trips, some cities are very accommodating and embrace what benefits combining cycling and public transport has to offer and others are less so. Maybe these cities are unclear about these benefits or how to go about implementing strategies relating to this concept. It is clear that trains generally accept bicycles onto them but buses rarely accommodate bicycles. If seating space is of primary importance on these buses, then maybe as in Malmö, cycle parking should be provided at bus stops. Overall, cities increasingly recognise the advantages of the combination of cycles and public transport, and are making plans to maximise the possibilities, although there is still a long way to go.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This section of the report summarises the key findings from the third year of the Cycling working group's research. Section 6.2 represents a series of conclusions drawn from the data analysis in Sections 4 and 5 of this report. These conclusions are applied, in Section 6.3, to propose a series of recommendations for cities seeking to learn from the outcomes of the working group's research.

6.2 Conclusions

The following general conclusions and observations can be drawn from the activities of the working group:

How can cities monitor and evaluate cycling?

Cycling policies in participant cities are quite a recent feature over the last decade of their governmental agendas. However, Malmö has had a cycle plan since 1976.

The development of different measures within a cycling policy framework takes a different emphasis in each of the cities. Measures employed include upgrading infrastructure and network length, reducing car emissions by promoting cycling through soft measures, producing cycle quality targets, secure cycle parking, developing best practice, improving cycling safety, encouraging cycle training and action to help cyclists. Priorities for the cycle networks covered in the working group reflected the maturity of the cycle network and the strength of the underlying cycle culture in each of the cities

Action plans are an essential component in making a city's cycling policy work. All but one participating city has one or is developing one. Most have been developed within the last 5 years, but Malmö has had an action plan since 1976. The range and number of elements used in cycle action plans varies greatly between participating cities. This ranges from The Hague which does not have a specific plan, to London which has a comprehensive plan featuring both a strategic vision for the London cycle network, as well as Borough specific objectives.

All cities in the working group monitor policy objectives, particularly the use of the cycle network, in order to demonstrate the utilisation of investment and assure decision makers that value for money is being delivered. Approaches to cycling policy monitoring ranged from informal site visits to the cycle network with cycling associations, to detailed data collection in order to measure cycling policy delivery against a series of targets. Commonly used techniques for monitoring are cordon counts (both manual and through the use of automated counters), personal surveys and travel diaries. In most cities, cycle counts are regarded as an important indicator and are collected either by people counting the bicycles or automated counters. The reasons for monitoring objectives are similar in each of the participating cities cases. They are usually to gauge success or impact of strategies, to see if targets are being met and to inform policy improvements that need to be made to improve strategies. Policy monitoring frequency varied from every quarter to every second year.

Indicators used in cycle policy monitoring were ranked as follows with regards to their value in cycle policy monitoring:

1. Cycle accidents
2. Network length
3. Mode share (% of trips)
4. Risk (KSI/trip length)
5. Cycle parking
6. Bridges/tunnels for bikes
7. Engaging employers
8. Signing strategy
9. Engaging schools
10. Cordon counts
11. Use of cycle parking
12. % of children received cycle training
13. Cycle shops
14. Cycle training programme
15. Behaviour surveys
16. Cycle theft
17. Cycle training
18. Risk (KSI per trip)

Ranking the indicators by usefulness, and then difficulty to collect, enabled the group to develop a priority list of cycling indicators which should form the basis of cycling policy monitoring activities. The indicators at the bottom of the list are not necessarily regarded as less important for collection than those at the top of the list. They are merely considered as indicators that should be collected only when a monitoring programme is fully developed having already collected the indicators at the top of the rank. They provide data to back up any trends shown by initially collected data. Safety is regarded as the most important factor to monitor along cycle routes and therefore, data on cycle accidents must be collected in order to see what areas need attention with regards to safety. Modal share and network length are regarded as the most representative measures of progress in cycling policies. Cycling facilities are also regarded as an important indicator of cycle network development.

The cycling group cities were encouraged to test themselves against the Velo.Info system. Malmö, The Hague and Brescia all completed the Velo Info questions. Malmö received a platinum award, The Hague gold, and Brescia silver.

Monitoring indicators are used to check progress on a wide variety of policies and programmes including:

1. Copenhagen: Cycling infrastructure and environment.
2. Brescia: Sustainable mobility.
3. The Hague: Infrastructure.
4. The Hague: Bicycle parking.
5. London: School cycle parking.

The most frequently used indicators to monitor and evaluate these policies and programmes include:

- Network length.
- Cordon counts (modal share).
- Cycle parking spaces.
- Qualitative opinions on improving infrastructure and policy.

In general, the indicators used have been used to give a background for improvement of the various different cycling infrastructures. They are used to predict demand for cycle parking, justify cycle network extensions, identify safety black spots and monitor cycle targets. Monitoring attitudes and satisfaction levels with regards to cycling in the participating cities is also important to progress as they reflect the status of cycling culture in the cities.

There were a variety of difficulties encountered when implementing these policies and programmes. Problems including:

- Revision of initial strategies.
- Limited experience and technical competence.
- High expectations.
- Lack of commercial understanding with regards to the need for cycle parking.
- Lack of consideration when planning for physical obstacles and other infrastructure.
- The need for planning permission, causing delays.

In general, the policies and programmes implemented for cycling in the working group cities were deemed to have been successful. The use of the most appropriate indicators has engendered greater understanding, comprehension and acceptance of policies and programmes, resulting in new infrastructure and facilities being implemented in appropriate locations in order to encourage cycling in cities.

This improved awareness can assist in the maximisation of value from investment in infrastructure, research, promotion and maintenance relating to a city's cycle network. In most cases, the majority of cycle spending is on infrastructure. The only exception to this is Malmö who already have an extensive cycle infrastructure and whose spending goes mainly on maintenance of it. This trend reflects the maturity of the Malmö cycle network and shows that, as cycling is growing as a mode of transport and networks are expanding the purpose of funding cycle networks changes.

Maintenance uses the second biggest portion of budgets on cycle spending. Existing cycle routes need to be maintained to keep them safe and desirable for the public to use. The proportion of spending on maintenance should increase when the cycle network is nearing completion, as demonstrated by Malmö. The majority of cities tend to spend approximately 5% on the promotional sector. Again, similar to maintenance, the significance of spending in this sector increases as the cycling network nears completion and maturity. For example, in Malmö, the percentage spent on promotion is approximately 12%. The development of the cycling infrastructure in cities is of prime priority, once this is comprehensive enough, it can then be marketed to increase usage.

How to encourage intermodality for cyclists and public transport users so that both can benefit?

Allowing the carriage of bicycles on a wider array of public transport modes and without restrictions, or additional fares, would almost certainly encourage greater use of public transport modes as well as cycling in cities. At present bicycles are only regularly carried on trains in and some metro systems in all but one of the working group cities. The municipal authorities in Malmö are trying to make it possible to take bicycles on regional services; although on the whole there is no planned agenda to improve intermodality. The Hague believes that there is low demand for the ability to take bicycles on buses and trams but maybe the ability to do so needs to be in place first before the demand can be seen.

Given the lack of enthusiasm for carriage of bicycles on all public transport modes and a distinct lack of cycle parking at interchanges in all of the working group cities, it appears that the most viable alternative to the carriage of bicycles in the short to medium term is to offer improved cycle storage and changing facilities at major interchanges and key transport nodes in cities. Security is a prime concern anywhere that bicycles are stored. It is therefore surprising to learn that only two of the cities in the group have manned cycle storage facilities, or have invested in purpose built cycle lockers to protect bicycles stored at interchanges.

On further investigation**, it appears that an impasse has currently been reached between public transport operators and cyclists on the topic of intermodailty**. Public transport operators are happy to provide cycling facilities and boost their modal share of passengers, but are eager to charge users for them when it comes to making significant investments in CCTV or secure cycle lockers. Cyclists are keen to use the facilities, but feel that their patronage on public transport entitles them to adequate, secure parking facilities equal to (if not *better than*, given the relative environmental merits of cycling and car use) those offered for car drivers at stops and stations.

Cycle hire facilities tend to be targeted primarily at tourists, rather than considered as an alternative to the issue of the difficulty of integrating public transport with cycling for a daily commute. Conventional cycle hire on a short term hourly to daily basis, keeps track of all the bicycles more easily and fewer are lost. However, as the examples from the working group illustrated, success can be varied when similar schemes are implemented in different cities.

Dedicated websites to promote cycling were established in four of the larger cities involved in the joint working exercise. **Websites are a great way to disseminate to potential customers and can be a persuasive marketing tool.** A total of five cities also have incentive schemes, such as awards, workplace travel plans with match funding and discretionary funding, aimed at employers in order to try to encourage commuters to cycle to their place of work.

Efforts have also been made to encourage employers in cities to provide cycle parking and facilities for their staff. In some cases employers have their own sustainable transport agenda and therefore provide spaces, while some local authorities have developed guidelines for how many cycle spaces should be provided per employee. In some locations these guidelines have been made mandatory by the Local Authority and employers are required to provide a certain amount of cycle parking.

Out of the eight participating cities, a total of three have other journey planning services but these are only to complement the services already covered in the form of maps, websites and route information.

It is clear that there is little or no coordination between public transport operators and city cycling departments in order to develop intermodal understanding when planning public transport facilities in most cases. Only in London and The Hague can we see an advanced form of coordination between these two groups and this is mainly because they are part of the same organisation. It is also clear that this aspect of planning for interchanges needs to be worked on considerably in the future in order for interchanges to be developed with optimum efficiency and with less room for mistakes.

With regards to best practice, it is clear that participant cities have different opinions as to how to combine cycling and public transport trips, some cities are very accommodating and embrace the benefits that combining cycling and public transport has to offer and others are less accommodating. Maybe these cities are unclear about these benefits or how to go about

implementing strategies relating to this concept. It is clear that trains generally accept bicycles onto them but buses rarely accommodate bicycles. If seating space is of primary importance on these buses, then maybe as in Malmö, cycle parking should be provided at bus stops. Overall, **cities increasingly recognise the advantages of the combination of cycles and public transport, and are making plans to maximise the possibilities, although there is still a long way to go**.

Unfortunately, there is currently little or no coordination between public transport operators and city cycling departments when planning public transport facilities in most cases. When designing interchanges, simple planning coordination can make a big difference. Participant cities have different opinions as to how to combine cycling and public transport trips, some cities embrace the benefits combining cycling and public transport, others less so. **Currently, there are no planned agendas for cities to improve intermodality in the manner discussed in the joint working group sessions and reported here.**

Space and finance are therefore considered to be the main barriers to taking cycles on public transport. Further research has the potential to unlock the potential of combining cycling with public transport and could create a powerful rival to private car use in cities and the park & ride culture being developed to protect cities from cars.

6.3 Recommendations

There were a number of key issues uncovered by the Urban Transport Benchmarking Initiative, and in particular, the Cycling working group that require further research due to the data and time restraints of the Cycling working group:

Cycling recommendations

The following research areas should be explored based on the analysis of collected information:

City cycle-hire schemes – There is potential for research into different hire schemes (subscription, coin operated, conventional) to be undertaken in order to explore which type of schemes are appropriate in cities of different sizes and with different existing levels of cycle use. Pilot demonstration projects could form part of this approach

Cycle parking at interchanges – Exploring the amount of parking required when installing cycle parking could also form the basis of an interesting research project. The distance of cycle parking from interchanges could also be considered, because as the distance of cycle parking increases from the interchange the likelihood is that cyclists will be discouraged from using the facility.

Funding staffed cycling facilities – There is also an opportunity to demonstrate the potential of staffed cycling facilities and consider who should fund these installations. Pilot schemes to assess the 'preparedness to pay' of users and demand for such services would greatly assist in this debate.

Foldable bicycles – There is scope for the foldable bicycle to become an important tool in the Research into their advantages and disadvantages, usability and design.

Bicycles on trains, trams and buses – There is clear potential for bicycle use on trains, trams and buses to be explored through research and demonstration projects. Malmö has already begun to trial the carriage of bicycles on public transport and there is clear potential for other cities to embrace this approach.

Incentives given to employers by Local Authorities to encourage sustainable travel – A comparative research project exploring the relative merits and effectiveness of sustainable travel incentives offered by Local Authorities would greatly assist Local Authorities seeking to identify and develop travel incentives which will work in their city.

Innovation in cycling – With such a wide variety of innovation in cycling occurring across Europe, research into the creation of a good practice guide should be implemented. A particular emphasis should be placed on transport interchanges to create a coherent good practice in the way interchanges are developed.

Cycling spending – Identifying the most productive levels of spending in cycle infrastructure, maintenance and promotion at varying levels of cycling and cycle network development in cities would be beneficial for cities with ambitions, and funds, to develop cycling as a mode of urban transport.

Intermodality recommendations

As a result of the working groups' involvement with the Behavioural and Social Issues in Public Transport working group, a valuable body of general research was initiated into intermodality issues. Both groups felt that there was potential to achieve more if the two working groups could have become more fully integrated and there could be an opportunity for this through some form of future research project.

A number of justifications, and recommendations, for further research into the topic of intermodality include:

- No aspect of transport (cycling, public transport or anything else) exists within itself and can ignore the wider view. While this could simply be considered as a truism, it is especially true for sustainable transport modes whereby, in order for cycling/walking to be both successful and achieve their potential, they have to be fully integrated with other modes.

- Stakeholders working in cycling know well from personal experience that the integration, cooperation and understanding between city cycle departments and the public transport department/operators can often be very bad. Often it is the case that cycling stakeholders wish to influence, change or at least be involved in decision-making. However these efforts are frequently blocked or the stakeholders experience difficulties in getting different parts of big city administrations to talk to each other. The perception of most of the stakeholders involved in the working group was that the process of coordinating different local authority departments very rarely happens, and when it does it is often only in a limited manner.

- There were set aims for the joint working group meetings and a structure was defined before the groups began work in year three of the project, but there was little concept of what the evaluation of intermodality issues would offer the two groups in terms of outputs and findings. This was a positive aspect, because it demonstrated the willingness of the group's participants to work cooperatively. In addition it has served to demonstrate the potential of intermodality for cycling and other modes, highlighting what can be achieved when cooperation is initiated.

- Following the initial joint working group meeting in year two, both groups indicated a desire to have a more formal working link. While this was partly achieved during year three, the group's both feel that this is only a small indication of what could be done, and everyone wanted to do more research in this direction. .

- There is not only willingness, but also an expressed interest, to investigate intermodality issues further among the participants of the two groups. Developing the approach of joint discussion and data gathering with public transport operators and cycling stakeholders is therefore important for the successful evolution of attitudes and approaches to urban transport provision.

- Several ideas were mooted for further study by the working group participants. These include;
    - Interchange facilities and the role they can play in improving the efficiency and seamlessness of urban travel.
    - Intermodality between cycling and public transport and how this can be encouraged
    - Marketing intermodal travel, including online route planners which offer cycling route options as well as public transport and car routes.

- For sustainable transport modes to reach their potential there needs to be maximum understanding of both the issues of integration and intermodality and also how they can be implemented in a practical manner. Given that the findings from the 11 cities involved in the joint working activity highlighted that not much is currently done on this issue, it is clear that there needs to be not only more research, but also the development of a method for involving and engaging with cities on this issue.

- This subject of intermodality and interchange is recognised in the mid-term reviews of the European Commission's 2001 Transport White Paper – 'Keep Europe Moving' as being important in the very recent European Commission Communication. In the conclusion, it states that "the efficient use of different modes on their own and in combination will result in an optimal and sustainable utilisation of resources"[2]. The working group's belief is that without further study and encouragement (both also supported in the EC review), there is little chance that their will be an improvement in the efficient use of different modes. It is also a subject that could help very to inform the upcoming Urban Transport green paper next year. The group therefore strongly urges more research in this field, drawing on the body of work already undertaken by the cities involved in the cycling working group of the Urban Transport Benchmarking Initiative.

[2] European Commission (2006) *Keep Europe Moving – Mid term review of the 2001 Transport White Paper*, p21. Available at: http://ec.europa.eu/transport/transport_policy_review/doc/com_2006_0314_transport_policy_review_en.pdf, last accessed on 21-07-06.