



**Transport for  
Greater Manchester**

Transport for Greater Manchester  
Cycle Hire Study

Report





## Transport for Greater Manchester Bicycle Hire Study

Report

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## Contents

1	INTRODUCTION .....	1
	Background to scheme .....	1
	Stage One Report.....	1
2	REVIEW OF EXISTING SCHEMES.....	3
	Introduction .....	3
	The OBIS project .....	4
	Dublin – dublinbikes .....	6
	London – Barclays Cycle Hire .....	14
	Munich - Call a Bike.....	25
	Lyon - vélo'v.....	30
	Barcelona - Bicing .....	36
	Community or campus bicycle hire schemes .....	42
	Southport Cycle Hire .....	42
	Leeds - Velo-campus.....	46
	Lessons learned from unsuccessful schemes.....	49
	Hire-A-Bike with Cycle Blackpool .....	49
	Bristol.....	54
	Dumfries .....	55
	Scheme Comparison Summary.....	57
	Section 2 Summary .....	60
3	CYCLING IN GREATER MANCHESTER .....	63
4	APPLICATION OF REVIEWED SCHEMES TO GREATER MANCHESTER.....	67
	Introduction .....	67
	<b>Key market groups</b> .....	68
	The Potential Hire Area .....	78
5	BUSINESS MODELS .....	86
6	CONCLUSIONS & RECOMMENDATIONS .....	89
	Conclusions .....	89
	Recommendations.....	92

## Tables and Figures

Table 2.1	dublinbike pricing structure .....	9
Table 2.2	2012 Membership .....	9
Table 2.3	BCH members / casual user data .....	15
Table 2.4	BCH user charges (prior to January 2013) .....	18
Table 2.5	Munich Call a Bike tariff .....	27

Table 2.6	vélo'v membership and prices.....	32
Table 2.7	Barcelona Bicing tariff .....	38
Table 2.8	Southport Cycle Hire Tariff.....	44
Table 2.9	The following table summarise the information provided in Sections 2. ....	57
Table 3.1	Peak Hour Cycle Flow Change 2005 - 2012.....	64
Table 3.2	HFAS Cordon Counts .....	64
Table 3.3	Cycling levels across ten boroughs of GM.....	65
Table 4.1	User type /trip type .....	67
Table 4.2	ACORN group segmentation .....	69
Table 4.3	ACORN group segment descriptions.....	70
Table 4.4	ACORN group segmentation for Greater Manchester and city centre .....	71
Table 4.5	ACORN groups / main market types.....	72
Table 4.6	Population size against propensity to cycle .....	73
Table 4.7	Comparative times in minutes.....	75
Table 4.8	Visitor Attractions in GM with 100,000 or more visitors per annum. ....	77
Table 4.9	Common factors and influences for a successful PBS .....	85
Figure 2.1	Approximate coverage of dublinbike stations .....	7
Figure 2.2	dublinbikes docking stand.....	10
Figure 2.3	JC Decaux service vehicle in Dublin.....	11
Figure 2.4	dublinbike homepage.....	13
Figure 2.5	BCH bicycles and docking station .....	15
Figure 2.6	BCH area (2012).....	16
Figure 2.7	Complementary cycling measures associated with BCH .....	22
Figure 2.8	BCH rewards on Facebook page.....	23
Figure 2.9	Munich Call a Bike operational area .....	26
Figure 2.10	Call a Bike bicycle .....	28
Figure 2.11	Call a Bike App promotion .....	29
Figure 2.12	vélo'v docking station .....	30
Figure 2.13	Approximate vélo'v coverage across Lyon .....	31
Figure 2.14	Swipe card reader .....	33
Figure 2.15	vélo'v map .....	34
Figure 2.16	Bicycle and trailer service team .....	34
Figure 2.17	Bicing docking station .....	36
Figure 2.18	Bicing Barcelona operational area .....	37
Figure 2.19	The Bicing Barcelona website.....	39
Figure 2.20	Bicing maintenance vehicle .....	40
Figure 2.21	Pashley Pronto bicycles.....	43
Figure 2.22	Southport Cycling Town project area.....	43
Figure 2.23	Leeds Velocampus map .....	47
Figure 2.24	Locations of Blackpool Hire-a-Bike hubs .....	50
Figure 2.25	Hire stations .....	51
Figure 3.1	Level of cycling across GM .....	65
Figure 3.2	Core wards.....	66
Figure 4.1	Propensity of target groups likely to cycle .....	72
Figure 4.2	Comparative speeds .....	76
Figure 4.3	Key Greater Manchester Visitor Attractions.....	78
Figure 4.4	Core boundary of anticipated demand area for PBS provision .....	79
Figure 4.5	Maximum PBS boundary to be considered as part of Stage 2.....	82
Figure 4.6	Dublin and GM operational zones .....	83
Figure 4.7	Low-hire zones.....	84

# 1 Introduction

## Background to scheme

- 1.1 JMP and Transport Initiatives, (JMP/TI) have been engaged by Transport for Greater Manchester (TfGM) to undertake a study into the potential feasibility of introducing a public bicycle sharing (PBS) scheme into the Greater Manchester (GM) area. The study has come about as part of GM's desire to gain an understanding of the role a PBS scheme could fulfil within the county's wider transport framework.
- 1.2 Over the past 15 years GM has been fulfilling a programme of sustainable transport provision which has resulted in almost 70% of commuter trips into the city centre being made by public transport, walking or cycling<sup>1</sup>. Recent census data shows a fall in the proportion of residents of Manchester district travelling to work by car, from 45.5% in 2001 to 42.9% in 2011.
- 1.3 The successful introduction of light rail in GM, multimodal investment in walking and cycling, and improvements to the urban realm are helping to create an atmosphere not unlike continental cities. The transformation of the city centre creates the opportunity to consider other travel choices, such as PBS schemes which can further contribute to a connected sustainable environment.
- 1.4 To date many cities and towns have expressed an interest in developing a PBS scheme, but in the UK few projects of any scale are actually in place.
- 1.5 PBS schemes differ from conventional bicycle hire in that the bicycle is typically used for a wide range of trip purposes and the scheme is designed to encourage 'short' trips through pricing mechanisms which deter users from daily hire.
- 1.6 PBS schemes are mainly installed in urban areas and have multiple locations at which a bicycle can generally (but not always) be hired from unattended 'hubs' or 'docking stations' requiring no direct handling by staff during the hire process.
- 1.7 PBS schemes can be aimed at residents, tourists, commuters and leisure cyclists and can offer a relatively straightforward way of promoting increased modal choice, providing greater flexibility in the origins and destinations of trips which can be made and a reduction in private car use as well as a more active and healthy population.
- 1.8 Private bicycle hire by contrast is almost exclusively used for recreational purposes, with hire provided at a limited number of locations, from private operators. Prices are normally available on a daily or half day basis rather than by hour. Brompton Dock has been a recent new entry to the private bicycle hire industry and differs from its competitors by targeting a market of commuters and business users, which is traditionally more aligned with PBS.

## Stage One Report

- 1.9 The key aim of this study is to inform TfGM as to whether a PBS is likely to be feasible and financially sustainable in GM. To address this aim, a range of issues have been reviewed.

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<sup>1</sup> TfGM Vision for Sustainability, III.

- 1.10 Firstly, a review of existing cycle hire schemes has been carried out to understand why they were established, the key markets served, operating and pricing models used and specific strengths and weaknesses. This has been assessed using a combination of traffic monitoring data (including cycle counts) and socio-demographic analysis. Use has also been made of the ACORN data for GM to identify potential market segments (developed by CACI for TfGM).
- 1.11 Based on these findings, the applicability of a PBS scheme in a GM context has been considered, taking account of geographical and socio-demographic characteristics.
- 1.12 Different business models that can be used to operate such schemes have also been reviewed, as have the costs associated with supporting a scheme. Potential funding sources have also been examined, including advertising, sponsorship or public funds as well as user charges.
- 1.13 The report summarises the following:
- Review of existing PBS schemes to identify factors that have contributed to a successful scheme, or conversely which have been responsible for a scheme failing to deliver its intended aims;
  - Examination of the key markets for bicycle hire in GM;
  - Identification of the fit between bicycle hire and the wider transport network;
  - Provision of conclusions and recommendations identifying whether a scheme is considered feasible, and if so, the next steps TfGM may wish to take.
- 1.14 The PBS schemes which have been reviewed as part of this report are:
- Dublin - dublinbike;
  - London - Barclays Cycle Hire;
  - Munich - Call a Bike;
  - Lyon – vélo'v; and
  - Barcelona – Bicing.
- 1.15 The campus, or community bicycle hire schemes reviewed are:
- Leeds – Leeds Velocampus;
  - Sefton Cycle Hire.
- 1.16 Schemes which not achieved the expected levels of use or have ceased operation have been reviewed and included in a 'lesson learned' section; these schemes are:
- Blackpool;
  - Bristol, and
  - Dumfries.

## 2 Review of existing schemes

### Introduction

- 2.1 As noted in Section 1, the concept of PBS is no longer new, and due to the large numbers of projects operating or under consideration, there is now a useful body of evidence available which can be drawn upon to assist in determining the suitability of a scheme for GM.
- 2.2 In assessing PBS schemes we have applied the following definition:
- “A user of a PBS scheme uses it for point to point journeys and does not necessarily have to return it to the location from where it was hired. This facilitates single journeys by allowing people to hire a bicycle from a particular location and to then leave it at their destination”.*
- 2.3 In contrast a scheme which offers bicycle hire at a single location, whether at a rail station or shop, generally requires the user to take a degree of ownership with regard to its safe storage during the periods when the bicycle is not in use, which is likely to be a substantial part of the day. PBS schemes tend to absolve the user of this responsibility. PBS schemes also tend to offer a ‘free’ period of use of up to 30 minutes before the user incurs any fees for that day’s hire.
- 2.4 In order to examine best practice and to inform decision making, currently operating schemes have been examined to understand their applicability within the context of GM.
- 2.5 This section provides a review of a number of existing high profile PBS schemes. Other systems have also been considered, including campus-type schemes which operate in cities as more traditional community bicycle hire facilities.
- 2.6 Elements considered as part of this review include: system operation, scale, charging policy/pricing, access and technology. Funding mechanisms are also considered, together with public subsidy, capital and operating costs. Advertising and sponsorship opportunities are included in recognition of the revenue support they can provide.
- 2.7 The review includes a UK based scheme and the recently developed Dublin scheme. These schemes have been chosen as they serve cities which have similarities to GM in terms of population size, transport networks and demographic characteristics whilst not providing ‘optimal’ cycling environments, in contrast with, for example, Copenhagen where there is a long established and mature ‘cycle culture’. Other schemes reviewed include Munich, Barcelona and Lyon, the latter being Europe’s first large scale PBS scheme.
- 2.8 The reviewed schemes also offer the opportunity to compare different hardware such as bicycles and charging technology and how they relate to the business model applied. Two non-automated schemes have also been considered as these have been successful in offering alternative transport choices and facilitating journeys for those without access to their own bicycles, such as students, the unemployed or people on low incomes.
- 2.9 The level of demand of any of the PBS schemes discussed in this report has been described as ‘critical mass’ throughout. The critical mass of a PBS scheme can be considered to be the volume of users of any scheme that can be considered as making the viability of the scheme socially and politically acceptable.

## The OBIS project

- 2.10 The OBIS project,<sup>2</sup> 'Optimising Bicycle Sharing in European Cities' is a pan-European study which carried out extensive research into a number of PBS schemes across European cities. Its project document 'handbook' highlights a number of factors and processes which need to be taken into account when PBS is being considered for a city. Our analysis has therefore assessed these success factors in order to determine the elements of a scheme that GM should seek to emulate.

### Key factors in a successful PBS scheme

- 2.11 Factors contributing to the success of a PBS scheme as identified by the OBIS project are extensive; a number of these are listed under the headings below.

#### Market and Target Groups

- Most PBS schemes focus on multiple target groups in order to reduce the imbalances of a scheme. Different groups will have different travel requirements and it is important for the scheme to be utilised throughout the day in order to raise its public profile and appeal to a wider cross section of the population. Differences in the travel patterns of user groups will also influence the scheme design;;

#### Employment and education attractors

- While not being so compact that trips could easily be made on foot, the selected areas should comprise principal employment and education destinations;

#### Significant Residential Density

- In order to support and sustain a PBS scheme the operational location must include areas of significant residential accommodation. Most urban PBS schemes cover only central areas of a city giving the potential users access to a docking station approximately every 350m;

#### Public Amenity and Vitality

- As well as including principal employment and education attractors the operating area should be one of high amenity value, offering significant retail, cultural and recreational destinations. A PBS can contribute to the public perception of a city as a vibrant, lively place to live and work;

#### Public Transport and Accessibility

- There are distinct correlations between public transport nodes and PBS scheme use. A PBS scheme should be set out to complement existing public transport provision by facilitating journeys between points that are less direct or not accessible via public transport;
- Incorporating a PBS scheme into a public transport integrated ticketing system would be desirable, and is the case in both Lyon and Barcelona;

#### Servicing and maintenance

- Docking stations should be located in areas of high visibility and natural surveillance and must be able to accommodate the vehicles and equipment required to carry out day to day servicing;
- A lack of available docking stations for replacing bicycles or empty docking stations can contribute to a high level of user frustration with a scheme;

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<sup>2</sup> Optimising Bicycle Sharing in European Cities. OBIS 2011

### Cycling Strategy

- A PBS scheme is ideally delivered as part of a city's Cycling Masterplan or Strategy which would include measures to improve infrastructure, cycle parking, marketing and communication;
- The delivery of infrastructure improvements to link key trip attractors where they are not already in place is important to make the scheme appeal to as broad a market as possible by creating direct, comfortable routes and a cohesive network;

### Registration and usage fees

- User registration is recommended as a requirement of participation in a PBS scheme as the user takes possession of the bicycle while in use. Registration should be fast and simple and only include information that is necessary for the operator/customer relationship,
- Many schemes offer 30 minutes of free use, with a progressively increasing charge after this period. A PBS scheme which has low entry barriers to participation, such as a 'casual' membership facility will be an option for people who do not currently use bicycles.

2.12 Other elements and factors which can influence and contribute toward the success of a PBS scheme in a city include:

### Cycling culture

2.13 Road user awareness campaigns targeting both drivers and newcomers to cycling, and providing high quality cycling infrastructure, developed to support the PBS scheme, will inevitably be attractive to cyclists using their own machines and will help to foster a cycling culture within a city.

### Jobs

2.14 As well as facilitating access to employment and journeys to work, the implementation of a PBS scheme will require management which will lead to the creation of maintenance and support job roles. In contrast to expectations, competing bicycle rental companies offering daily bicycle hire are likely to benefit from the implementation of a PBS scheme due to increased levels of interest and the higher profile generated for cycling that follows as a result.

### Tourism

2.15 If visitors are included in the potential market for a PBS scheme they will serve as a catalyst for further development of a cycling culture in the city.

### Health

2.16 A PBS scheme can support the promotion of public health issues and contribute towards health improvements in a city's population; a scheme will also keep the profile of these issues high.

2.17 Where appropriate the following PBS scheme reviews will make reference to the findings of the OBIS project and use them to identify the relative merits of the various schemes.

## Dublin – dublinbikes

### Objectives

- 2.18 The successful regeneration of the centre of Dublin City over the past 15 years has resulted in high levels of private car usage in the city centre as well as capacity issues on Dublin's public transport system. Dublin City Council (DCC) states that half a million people move around inside the canals of Dublin City every working day. The area is home to 125,000 residents; 235,000 people travel into the city to work, along with 40,000 students and 120,000 people who arrive for shopping and entertainment. The street network of Dublin has a finite vehicle capacity approaching a saturation point of around 65,000 vehicles. Congestion is widespread<sup>3</sup>.
- 2.19 DCC has a policy of encouraging modal shift from private car use towards increased use of more sustainable forms of transport, such as cycling, walking and public transport. DCC believes that the introduction of the dublinbikes scheme not only offers a sustainable transport alternative but also improves linkages and interchanges with other transport modes and now forms part of an integrated approach to the management of movement within Dublin City.
- 2.20 The scheme was designed to be appealing to the employment sector in the first instance, targeting those who could use it as a viable transport option as they travelled to work in the city centre. The network and scale was therefore selected with these objectives in mind. However, the scheme was also designed to be accessible to short term and irregular users such as tourists and visitors, and in line with recommendations in the OBIS report has a registration system that allows both short-term (for tourists) and annual membership options(targeted at residents).

### System

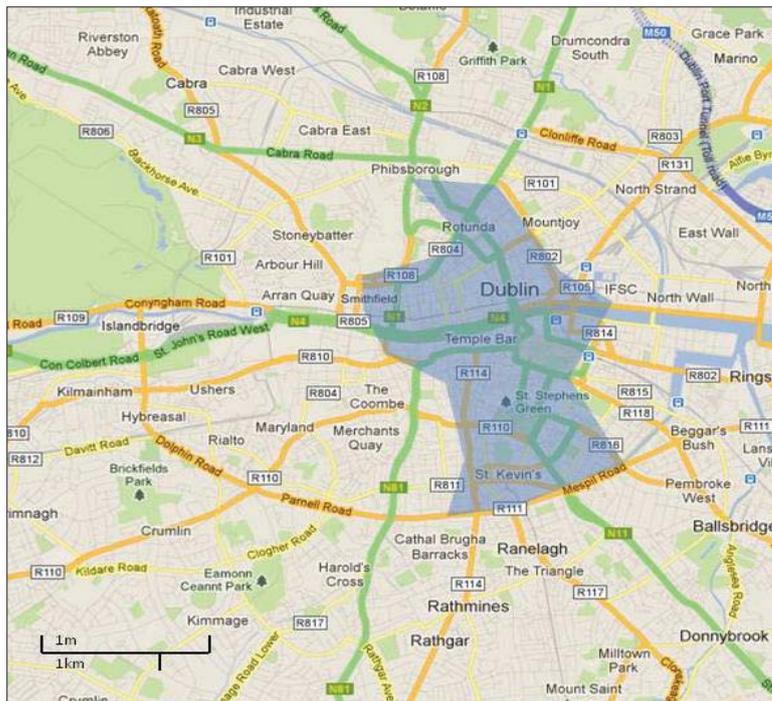
- 2.21 The dublinbike scheme was launched in 2009 and is a partnership between DCC and JC Decaux, the outdoor advertising company. The scheme and infrastructure is similar to the Paris 'Velib' scheme and is branded internally as 'Cyclocity' by JC Decaux.

### Scale

- 2.22 The scheme currently comprises of 550 bicycles located at 44 bike stations. The operational zone covers an area of 5km<sup>2</sup> in the centre of the city and is easily identifiable to residents and tourists alike. The existing network of stations extends from the Maternity Hospital in the north to Grand Canal in the south and from Smithfield in the west to the International Financial Services Centre and North Docklands in the east. Most of the bicycle stations forming the dublinbike network have been located on the highway using space taken from 147 former car parking bays. The decision was taken to utilise former car parking bays in order to minimise the loss of pedestrian space and reduce the impact of the scheme on the public realm - a policy that was well received by disability pressure groups who feared the scheme would lead to a loss of footway space.
- 2.23 Within three months of launching there were demands from the public to expand the scheme. DCC therefore worked with JC Decaux to create four more docking stations housing 100 extra bicycles at locations on the periphery of the existing scheme operational area.
- 2.24 A map showing the approximate area of Dublin served by the dublinbike scheme is shown in **Figure 2.1** below.

<sup>3</sup> dublinbikes Strategic Planning Review 2011-2016. 2.

**Figure 2.1 Approximate coverage of dublinbike stations**



### Location criteria

- 2.25 JC Decaux initially offered DCC a scheme comprising 450 bicycles, operating from 40 docking stations, in return for 150 advertising sites around the city. A multi-disciplinary team of officers then defined an area of the city that they felt included key employment trip attractors that could be serviced by this provision.
- 2.26 Issues influencing the selection of docking station locations included:
- The locations needed to be in and around employment areas and business districts;
  - The docking stations required up to 60cm of depth for service provision, therefore they tended to be located on roads which had been rebuilt within the last 20 years therefore requiring no major service relocation;
  - Locations that would contribute to a negative tidal flow effect were avoided. Tidal flow describes a one-way demand peak for a large number of bicycles which are taken from or ridden to a single location with the result that users cannot then find either an available bicycle, or an empty docking station in which to replace their bicycles. These locations include sites such as main rail stations, although docking stations were located around tram stops;
  - Dublin's canal network formed a natural barrier and influenced location selection, and
  - Within the scheme operating area it was agreed that users should not be more than 400m (approximately a five minute walk) from a docking station.
- 2.27 These factors were used to gradually filter over 200 initially selected locations down to a final core area. Officers within DCC have advised JMP/TI that a significant element in the success of that

programme has been the concentration of the scheme operational area into a tight zone of key trip attractors. This process took approximately two years to complete.

- 2.28 While not being so compact that trips could easily be made on foot, the selected area comprises principal employment and education destinations and includes the south central business district of the city. The Dublin scheme can therefore be seen to be broadly complying with the recommendations regarding project scale identified in the OBIS report.

#### **Scheme membership and tariffs**

- 2.29 All users must pay a fee which gives them access to the dublinbikes scheme; usage charges occur on top of the access fee if a user continues to use one bicycle for longer than the 30 minute free period. To access the scheme, users have two subscription options:

#### ***3 Day Ticket***

- 2.30 For occasional users or visitors to Dublin a 3 day ticket is available from 15 of the 44 terminals located at the hire stations around the city centre; these 15 terminals have credit card facilities which are a requirement for purchase of this ticket. The terminals were selected as suitable for credit card purchases as they are near to tourist locations which are considered a potential market for the 3 day tickets.
- 2.31 The 3 day ticket costs €2.00 to purchase; upon payment the user is required to input a PIN number of their choice into the terminal. The money to cover the 3 day ticket is debited from a user's account at the end of the subscription period. Users must agree to pay a €150.00 guarantee should they fail to return a bicycle within any 24 hour hire period. Users receive a temporary paper ticket which they must retain throughout the subscription period.

#### ***Long Term Hire Card***

- 2.32 The long term hire card costs €10.00 per annum and operates as an annual subscription. It requires a user to register online and agree to pay a €150.00 guarantee to cover failure to return a bicycle within any 24 hour hire period. Users can pay the annual fee by credit or direct debit. Once signed up, users receive a long term hire card in the post within 14 days; users must choose a PIN number to access hire stations. Once a user has received their long term hire card and chosen their PIN log-in number, they can make use of the bicycles.
- 2.33 For long term hire card subscribers the fee of €10 is taken directly from a user's credit card or bank account by direct debit. VISA Electron and Laser Maestro debit cards are not accepted on the dublinbikes scheme.
- 2.34 After purchasing a 3 Day Ticket or Long Term Hire Card the first half-hour of every journey is free. After the first half hour, a service charge applies. The current pricing structure is shown in **Table 2.1** below:

**Table 2.1 dublinbike pricing structure**

Subscription fees	
Long Term Card	€10
3 Day Ticket	€2
Dublinbike hire fees	
First ½ hour:	Free
1 hour :	€0.50
2 Hours	€1.50
3 hours :	€3.50
4 hours :	€6.50
Every extra ½ Hour	€2
A guarantee of €150 is required	

- 2.35 Dublin's integrated ticket card, known as Leap, cannot be used to access dublinbikes. JMP/TI has been advised that this is due to the city purchasing the proprietary JC Decaux scheme off the shelf, and JC Decaux being unable to customise the system to make it compatible with Leap cards.
- 2.36 In terms of uptake, by the winter of 2012 the scheme had over 91,000 subscribers. It has experienced over 4.7 million rentals since launch. The average duration of journeys is approx 13 minutes resulting in 95% of journeys taken being free to scheme users. The 5% of users who have incurred user rental charges have come from the short term segment of the scheme membership. Officers suggest these charges are most likely to have been incurred by casual users such as tourists.
- 2.37 Each bicycle is used on average 10-12 times a day, therefore making the scheme one of the busiest bicycle share rental schemes in the world. It is notable that there is an ongoing demand from organisations including St James Hospital requesting that dublinbike stations are installed at their locations. The long term membership and 3 day ticket user volumes are shown in **Table 2.2** below.

**Table 2.2 2012 Membership**

Membership type	Users
Long term card	53,000
3 day ticket	38,000
Total	91,000

### User data

As the scheme is commercially operated user data is limited, however officers at DCC have provided JMP/TI with some information and this includes:

- 33% of dublinbikes users are female;
- Over 75% of dublinbikes users travel 2 kilometres or less on a single trip;

- Weekday usage peaks between 08:00 – 09:00, 13:00 – 14:00 and 17:00 – 19:00;
- Users are most likely to have been cross city bus and tram users.

### Operation

- 2.38 JC Decaux manages all call centre tasks involved in the day to day operation of the scheme. The scheme operates between the hours of 5.30am - 12.30am seven days a week. Users can access a downloadable list of hire stations from the website and view a map online which can also be downloaded. The website includes a searchable map option, to assist users in locating bicycles and hire stations.
- 2.39 To access dublinbikes, users must log in at a terminal using a long term hire card or 3 day ticket. Users enter their PIN and select an available dublinbike on screen; users then have 60 seconds to press the unlocking button on the stand of the dublinbike they have chosen. Once they have pressed the button they have 5 seconds to remove the dublinbike from the stand. An example of a dublinbike in its stand is shown in **Figure 2.2** below.

**Figure 2.2 dublinbikes docking stand**



© Steve Essex, Transport Initiatives

- 2.40 When users have completed their journey, they will locate the nearest station with available stands. Users insert the bicycle into a stand, and an audio signal of 2 beeps and a green indicator light on the stand confirms that the dublinbike is locked correctly and usage is complete. If there are no available stands at the station, users can use the terminal to locate a nearby station with availability; dublinbikes will allow users an extra 15 minutes free of charge to locate that stand.
- 2.41 In contrast to other schemes, dublinbikes are equipped with temporary key locks for users to use when stopping for short periods. Officers believe this is a useful facility that adds to the bicycles general utility, allowing users to stop at shops on the way home and not have to use a docking station. DCC officers recommended this facility and indicated that they had not had more than two cases of lost keys from the temporary locks.

2.42 The bicycles used are similar to the models used in other JC Decaux operations in Paris and Lyon. They are purpose built and robust, with all cables and wiring channelled internally. JC Decaux has systematically improved the machines over time following lessons learned in other cities.

### Maintenance

2.43 JC Decaux provides the management and maintenance facilities including its equipment and staffing. The management and maintenance system provides service vehicles which visit sites, redistribute bicycles throughout the day and carry out cleaning and repairs of all associated infrastructure. A technical centre managed by JC Decaux has been established to co-ordinate the system, monitor its electronic information and provide backup assistance to users of the scheme. The bicycles have a life expectancy of five years and are replaced by JC Decaux as required during routine maintenance tasks.

2.44 Approximately 10 - 15 operatives work every day to maintain the bicycles. Service vehicles need to be able to access the areas around docking stations. Officers at DCC indicate that the level of service provided by JC Decaux is excellent.

2.45 DCC officers highlighted the logistical liability inherent in moving bicycles around to ensure bicycles and space to dock them is always available to users. Officers likened a dublinbike in use to 'a liability that the user needs to be rid of'. The failure of users to locate a free docking station near their destination will quickly lead to dissatisfaction and a loss of faith in the PBS scheme.

**Figure 2.3 JC Decaux service vehicle in Dublin**



*Infomatique / Flickr*

### Funding – Business model

2.46 The scheme is understood to have cost JC Decaux approximately €26million to establish and is operated at no direct cost to DCC (other than DCC forfeiting the opportunity to directly earn revenue from the sale of advertising space on DCC owned street furniture). JC Decaux provides the dublinbike scheme and additional services in return for the concession to erect and sell advertising space on DCC property for a period of 15 years; the advertising space has been

estimated to have a value of €54.3m<sup>4</sup>. DCC retains the fees raised via the scheme membership subscription and usage charges.

- 2.47 The cost of the dublinbike scheme expansion described at 2.24 above, which provided a further 100 bicycles and four extra docking stations was approximately €6.6m. This was funded in part from the provision of further advertising space at new locations in Dublin, as well as a payment of €300,000 annually from DCC to JC Decaux for a period of three years. The €900,000 payment is funded from dublinbike subscription fees and user revenue earned by the scheme. Officers made it clear to JMP/TI that DCC have not had to source separate funding for this expansion.
- 2.48 DCC are undertaking a phased future expansion of the dublinbike scheme from 550 bicycles and 44 docking stations to up to 5000 bicycles and 300 docking stations. This expansion is being phased across 14 separate zones around the entire existing operational area. The expansion is scheduled to commence prior to 2016 with no final date currently set for completion.
- 2.49 Locations for docking stations will be selected using the following priority criteria:
- Employment locations;
  - Residential centres;
  - Other public transport locations including Luas (tram) stations and rail stations; and
  - Cultural / tourist sites.
- 2.50 Officers at DCC have made it clear to JMP/TI that locating dublinbike hubs at rail stations will create issues around replenishing docking points, something they sought to avoid in the past. However, this issue is a result in part of the unexpected popularity of the dublinbike scheme itself, and the demand for expansion of the system by the users themselves.

#### Complementary measures and promotion

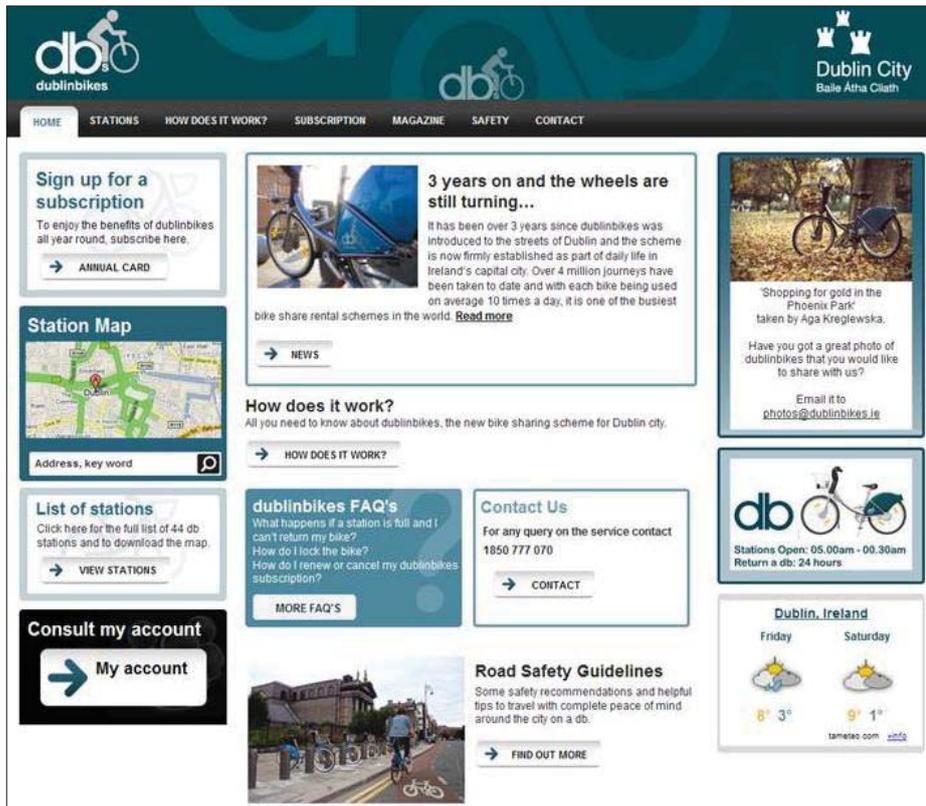
- 2.51 DCC has had long term aspirations to increase cycling over many years; this has led to an increase of over 41%<sup>5</sup> people cycling on some routes. The PBS scheme is one aspect of this work although it has inevitably become the main focus of cycling promotion in the city.
- 2.52 The OBIS report recommends investment in cycling infrastructure to support the implementation of a PBS scheme. In line with this, DCC has implemented a 30kph speed limit across a large part of the city which has helped foster a more cycle friendly environment; pedestrian crossings in the city centre now have all green pedestrian phases further reducing motor traffic speeds; and cycle priority phases are also now present on traffic lights. In addition, the segregated canal cycle route has been developed and up to 3000 cyclists each day use this route, of which around 30% of them are women.
- 2.53 The PBS scheme in Dublin is promoted via a dedicated website maintained by JC Decaux. There is also a linked website maintained by Dublin City Council promoting utility cycling in Dublin; this site promotes cycle safety, cycling routes in the city and related cycling events. The dublinbike website homepage is shown in **Figure 2.4** below. The site seeks to 'normalise' the concept of dublinbikes and integrate the system into the general culture of the city. As well as promoting the

<sup>4</sup> Making Dublin More Accessible: The dublinbikes Scheme. M Rogers C Keenan. TRICS Conference 2012

<sup>5</sup> Report on Dublin City Council's Canal Cordon Traffic Counts 2011

dublinbike scheme the website include links to a dublinbike cycle photography competition and also provides weather reports and road safety advice.

Figure 2.4 dublinbike homepage.



2.54 Dublin City Council has been operating an ongoing programme of cycle lane and cycle track infrastructure construction. Although most cycling in Dublin is currently carried out on the shared road network. Dublin City Council has also promoted secure cycle parking in the city for some time; in one example a whole floor of car parking was removed from a city centre multi-storey car park and replaced with cycle parking.

### Strengths and weaknesses

#### Strengths

- The scheme has been universally considered a success by officers and the public alike due in part to positive press coverage and the high numbers of participants joining the scheme. It is difficult to find any negative comments on the scheme. Confirming the findings of the OBIS project, the success of the scheme has been a factor in how the image of Dublin is now perceived around the world.
- The scheme was conceived during an economic highpoint when revenues from advertising space were particularly high.
- There is no requirement to wear a cycle helmet to use a dublinbike and officers consider this a major part of the success of the scheme.

- The scheme is believed to have had an influence on the number of people cycling generally in Dublin, with a 40% increase over the past three years<sup>6</sup>. This supports the findings of the OBIS report indicating that a PBS scheme can have a positive health-related influence on a city's population. In September 2011 Dublin was ranked within the top 10 cycling cities in the world.
- As noted in the OBIS report, a common theme of successful PBS schemes is their 'adoption' by residents of a city. This has been the case in Dublin; officers advise JMP/TI that there is a strong spirit of ownership of dublinbikes in the city. An example of this custodianship is evidenced in that if a dublinbike is found by a potential user to have a puncture or be unusable the user reverses the saddle of the bicycle to alert maintenance teams to the problem.

### **Weaknesses**

- The success of the scheme has led to increased pressure on Dublin City Council to enlarge the scale of the scheme as well as place demands on other councils in the Republic to launch their own schemes. While this is not a negative point in itself, it is possible that due to the current economic climate, a similarly supported advertising business model will be more difficult to implement.
- During the initial advertising site selection carried out by JC Decaux, approximately 50% of the potential advertising sites selected were considered unacceptable by (among others) officers, the civic and heritage groups. This resulted in a series of discussions between DCC and JC Decaux to filter and agree on a final selection for the advertising sites. JC Decaux were then required to apply for planning permission for each agreed site resulting in further objections to the proposed sites from members of the public concerned at the visual impact of the advertising hoardings on the streetscape.
- It has been argued that the annual subscription fee of €10 to register onto the dublinbike scheme is too low. This could have been set higher and contributed more toward the development of the scheme.

## **London – Barclays Cycle Hire**

### **Objective**

- 2.55 Transport for London (TfL) aims to achieve a 5% mode share for cycling by 2025; currently the figure is 2% across London, although the actual mode share varies considerably between London boroughs<sup>7</sup>. Data from the 2011 census shows that the proportion of travel to work trips by bicycle in Greater London is higher, at 3.5%. London has, to date, seen a 91% increase in the number of people cycling since 2000. TfL hoped that a cycle hire scheme would add further to this momentum and increase accessibility to cycling for certain groups<sup>8</sup>.

### **System**

- 2.56 In August 2009, TfL awarded delivery of the London Cycle Hire Scheme to the transport services operator Serco. Serco are responsible for the operational system and on-going management of the scheme which was launched in the summer of 2010. The bicycles themselves are a variation of a design called Bixi produced by the PBSC Company. Variations of these machines are in use in

<sup>6</sup> JMP/TI discussion with DCC officer Eoghan Madden on 23.1.2013

<sup>7</sup> TfL, Travel in London Report 5. 2012. 24.

<sup>8</sup> Feasibility for a central London cycle hire scheme. Final Report 2008, 4.

PBSs in several cities including Montreal, Boston and Washington DC. An example of the Barclays Cycle Hire (BCH) scheme bicycles is shown in **Figure 2.5** below.

**Figure 2.5 BCH bicycles and docking station**



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- 2.57 The contract signed between TfL and Serco is for a six year term with a possible further extension of two years. The system is financially supported with sponsorship from Barclays, the financial services provider. The London scheme has benefitted from being among the third generation of cycle hire schemes to be implemented in a large city and has therefore avoided some of the pitfalls of earlier schemes. In 2011, TfL expanded the scheme into parts of east and west London at an estimated cost of £50m.
- 2.58 The scheme has proved to be popular in spite of the arguable limitations of London's street environment and infrastructure for cyclists, with over 18 million cycle hires since the casual scheme launch in December 2010. The breakdown of this data between scheme members and casual users is shown below in **Error! Reference source not found.**

**Table 2.3 BCH members / casual user data**

Total cycle hires	Total cycle hires by members	Total cycle hires by casual users
18,833,680	13,113,441	5,720,239
Share %	70%	30%

<http://www.tfl.gov.uk/roadusers/cycling/20389.aspx>

- 2.59 As highlighted in the OBIS study, a common theme of successful PBS schemes is their 'adoption' by residents of a city. This is evident in the high public profile of the London scheme, which is colloquially known as 'Boris Bicycles', named after the elected London mayor; a name which has eclipsed the official name of BCH.

### Scale

- 2.60 The scheme was originally launched in 2010 and initially covered an area of approximately 44k<sup>2</sup>, roughly equivalent to TfL's central fare zone (Zone 1). The scheme was expanded in March 2012

to include some East London boroughs, the financial district of Canary Wharf and areas up toward the Olympic Park, with a total of 560 docking stations and 8000 cycles. Regarding these locations, TfL had initially intended to expand the scheme into Canary Wharf and the Olympic Park. However, funding support from individual boroughs, £2m in the case of Tower Hamlets, financed the roll-out of docking stations across the more residential parts of that borough.

2.61 To date over 18 million journeys have been made and the scheme has 130,000 signed-up members. A map of the geographic area served by the Barclays scheme is shown in **Figure 2.6** below.

**Figure 2.6 BCH area (2012)**



2.62 Plans were announced in January 2013 for a further expansion into south west London, to take place in late 2013. This will result in more than 2,000 new bicycles and around 5,000 additional docking points. TfL expect that between 250,000 and 300,000 additional cycle hire journeys will take place each month. The expansion is being funded by contributions from individual boroughs including a reported £2million each from Hammersmith & Fulham and Wandsworth.

**Docking Bay Location Criteria**

2.63 As part of the implementation process of the BCH scheme, TfL produced a site location selection criteria which was used along with a site-by-site assessment to determine suitable locations for docking stations. The criteria takes into account relevant local planning policies necessitated by working across differing local boroughs, supplementary design guidance, and TfL’s own standards and design guidance.

2.64 The key criteria include:

- No loss of trees and avoidance of grassed areas;
- Minimal relocation of existing street furniture, including existing cycle stands;
- Sufficient space to maintain clear pedestrian/vehicular paths/access;
- Safe and secure areas with good natural surveillance, street lighting and/or where appropriate, closed circuit television cameras (CCTV);
- Close proximity to where people live and work, and attractors such as tourist destinations, community and leisure facilities;
- Avoidance of areas of high pedestrian congestion and areas known to be unsuitable for cyclists; and
- A presumption against sites where the docking station would have a detrimental impact on sensitive townscapes and/or the setting of heritage assets.

2.65 TfL initially chose not to locate docking stations adjacent to major commuter rail hubs. This was a deliberate act on the part of TfL which also complied with the OBIS report findings, to mitigate the tidal flow of bicycles away from rail stations. This can be seen to be common to other bicycle schemes with railhead bicycle docking stations, such as the Barcelona PBS scheme.

2.66 TfL have since located a docking station at Waterloo rail station; the docking station accommodates 126 bicycles and has become the busiest docking station in London with up to 2,736 daily hires. At this location, demand for bicycles always exceeds supply.

2.67 Docking stations are also located near to less busy London Overground and other rail stations, as well as DLR stops in East London. Passenger flows at these are either less tidal, or sufficiently low that the docking stations are never either completely full or empty.

2.68 The OBIS report recommendations suggest that schemes should seek to integrate with local public transport ticketing provision. TfL initially expressed a desire to integrate their proposed scheme into the Oyster card smart ticket system during the programme's feasibility studies, however the integration did not happen. JMP/TI is advised that this was in part due to the difficulty in changing all of the Serco operated software supporting the BCH scheme in order to link it to the TfL Oystercard. It is understood that the Oystercard system itself is expected to be replaced in the short to medium term.

#### **Scheme membership and tariffs**

2.69 There are two ways to access the scheme – as a member of the scheme or as a 'casual user':

##### ***Membership***

2.70 After registering on the TfL website (available 24 hours), a membership key is posted out to new users to undock a bicycle. Keys cost users £3 each.

2.71 Members of the scheme have the option to purchase annual access to the scheme, this costs £45 and thereafter members only pay for the length of time they use the bicycle.

### Casual user

2.72 Casual users who are not registered onto the scheme can use a Visa or MasterCard credit/debit card or Visa Electron card to hire a bicycle on a pay-as-you-go arrangement by telephone, online or at an on-street terminal.

### Access fees

2.73 All users must pay an access fee each time they use a cycle. **Table 2.4** indicates the costs to the user of the scheme.

**Table 2.4 BCH user charges (prior to January 2013)**

Access fee	+	Usage charge
24 hours £1		Up to 30 minutes: Free
7 days £5		Up to 1.5 hours: £4
Annual £45		Up to 2 hours: £6
		Up to 2.5 hours £10
		Up to 3 hours: £15
		Up to 6 hours £35
		Up to 24 hours (maximum) £50

2.74 Each user pays a fee for using a bicycle which is a combination of the access fee option they have, plus the usage fee (the length of time they use the bicycle for). The TfL integrated ticket Oyster card cannot be used to pay for access to the BCH scheme

2.75 On December 7 2012, TfL announced that access and user fees for the BCH scheme would double in January 2013. Annual membership has therefore increased to £90, 24 hour access now costs £2 and weekly access costs £10.

### User data

2.76 As the BCH scheme is managed by TfL, some data on user types that is not available from commercial operators of other schemes is publicly accessible. Key findings released by TfL regarding overall user behaviour include;

- That BCH is considered to be quicker than other travel options is a key reason for members either making a new trip with BCH or switching to BCH from an alternative mode of transport;
- Members are more likely to be aged 35-54, casual users more likely to be aged 16-34;
- Among scheme members 39% reside in London, 23% are not residents of London, and 57% of casual users are London residents. Among casual users 18% state they are visiting as tourists;
- About half (52%) of members started cycling more than a year ago, 13% say that as a result of BCH they have increased amount they cycle and among scheme members, 6% say they have bought a bike as a result of BCH.

2.77 The following information summarises further data on scheme members and casual members:

***Scheme members:***

- 70% of BCH users are scheme members
- The majority of BCH users are white males in employment; the proportion of males to females in the full membership database is 72% to 28%;
- 46% of members use BCH most frequently for commuting, 15% use it for leisure purposes, another 9% use the scheme for employer related business and a further 9% use it for personal business.
- 14% use BCH for socialising or meeting friends, 3% use it for shopping and 3% use it for travelling to/ from a place of education;
- 46% of off peak day time users and 58% of evening users are London residents; 54% are aged between 35-54;
- Members' satisfaction with the availability of free space at docking stations is decreasing.

***Casual users:***

- 30% of BCH users are casual users;
- 62% of BCH casual users make journeys for leisure purposes, 11% are making commute trips;
- 3% are on personal business and a further 3% are on employer related business;
- 21% of weekend casual users are tourists;
- 76% are aged between 16-34.

***All users (whether member or casual user not defined)***

- 22% of BCH users have a household income between £25,000 and £50,000; 54% of BCH users have a household income of over £50,000; three-in-five users use BCH for their whole journey; train is the most likely additional transport for multi-modal journeys

2.78 This data has been taken from a TfL customer satisfaction survey accessed via a freedom of information request. The results cannot be published in full without prior permission. The report's key findings included noting that members' overall satisfaction with the scheme had fallen to 65 out of 100, a drop from 70, the previous year's score. This survey is dated September 2011 so does not necessarily reflect current user satisfactions levels with the BCH scheme<sup>9</sup>.

**Operation**

2.79 The scheme operates 24 hours a day, 365 days a year. After registration members of the scheme use their key to access the cycles.

2.80 Casual users must insert their registered credit or debit card into one of the docking station terminals, select the access period option they require and receive a printed five digit release code. The release code must be punched into a terminal at one of the bicycle docking stations and must be used within five minutes to access a bicycle from a docking stand. After this period the code expires and the release code becomes invalid. Casual users need a new release code for each journey they make. There is a five minute delay between a single user replacing a cycle and hiring a different one.

<sup>9</sup> Barclays Cycle Hire Customer satisfaction and usage. TfL, September 2011

2.81 Penalties of £150 are charged if a bicycle is not returned within 24 hours; this sum is automatically deducted from a user's credit card. TfL state that up to £300 may be charged for a bicycle that is damaged during use or for the non-return of bicycles. These terms form part of the terms and conditions users agree to when they join the scheme. To this end TfL have created a specific set of operational policy documents that are publicly available. With regard to damage, the policy document states:

*'Where TTL (TfL's trading title) and/or its agent reasonably forms a view, based on available evidence, that a Cycle has been deliberately or negligently damaged, by the User, the Member or Casual User will be liable for a Damage Charge<sup>10</sup>.'*

2.82 Hire prices are set purposely at a steeply rising level to deter long term use. Users can however take advantage of unlimited 30 minute free use periods throughout a day by repeatedly replacing cycles into docking stations after use, then hiring another bicycle.

2.83 As noted above, the bicycles used for the Barclays scheme are produced by the PBSC Company. They have been described as being 'incredibly robust' although some have suggested they are very low geared, however as each bicycle weighs around 23kg this might be considered a deliberate aspect of the design. The bicycles have no independent locking system so must be replaced in a docking station to end the use period.

2.84 The bicycle frame is a one-piece aluminium design and is of the open frame type. In common with the dublinbikes, cables are concealed within the handlebars and frame in an effort to deter vandalism and provide weather resistance. The tyres are designed to be puncture-resistant and the bicycles come equipped with a built-in lighting system. A rack, deliberately designed to deter the carrying of passengers, is fitted to the front of the bicycle.

2.85 In common with many other PBS schemes the BCH bicycles are generally fully exposed to the elements while in the docking stations. The bicycles purposely designed for these schemes are therefore more robust, heavier and better suited to remain outdoors.

2.86 Conversations with officers indicate that shelters tend to be avoided for a number of reasons including the risk of docking stations becoming impromptu weather shelters, leading to the public congregating around hubs and potentially interfering with or vandalising bicycles.

2.87 Another issue for many cities is the detrimental effect shelters can have on a sensitive streetscape, particularly where footway space is limited. There are particular locations in London where bicycles are covered, at Waterloo Station for example, but this is as a result of the docking station being located in available space under the station forecourt canopy.

### **Maintenance**

2.88 During the launch of the project Serco stated they would operate a permanent fleet of 14 electric vehicles to redistribute the bicycles; each trailer holds 20 bicycles. More recently it has emerged that another 10 cars with trailers are also used to support this fleet. In addition, ten 10 vans are also used by fitters to maintain the cycles and carry out on-street cycle repairs and redistribution.

2.89 According to TfL, maintenance staff recruited to manage the scheme include a trained and equipped team of 21 mechanical and electrical engineering staff who are responsible for the cycles

<sup>10</sup> Barclays Cycle Hire Non Return/ Damage Policy, Transport for London

and on-street infrastructure. In addition, 30 engineering apprentices undertake on-going regular maintenance.

- 2.90 Availability of free space at docking stations was highlighted as an issue in the TfL report noted above, and identified as a priority area for improvement. The issue of redistribution, ensuring there are always bicycles, and always space available at docking stations, should not be overlooked and was also highlighted by officers at DCC.

### Funding

- 2.91 The project is funded by TfL who have paid Serco a fee estimated to be approximately £140m. For this fee Serco operate and maintain the hire bicycle fleet for six years. A further £80m in additional expenditure due to the expansion of the scheme eastwards and into the south of London is expected between 2013/14 and 2015/16.
- 2.92 The scheme is sponsored by Barclays who support the scheme for approximately £50m until 2018. In return for the sponsorship fee the scheme is branded as BCH and the bicycles carry the Barclays logo. No other advertising revenue is received by TfL.

### Complementary measures and promotion

- 2.93 The BCH programme was, from the outset, one element of a strategy to increase cycling in London. Supporting the implementation of the BCH is the promotion and delivery of the Barclays Cycle Superhighways (CSH). The CSH network to date comprises both new infrastructure plus sections of the former London Cycle Network+ (LCN+), mostly branded in the Barclays pale blue colour scheme.
- 2.94 In some cases the BCH scheme has supported improvements in cycle infrastructure. An example of this is shown in the bi-directional street facility in **Figure 2.7** below. Contra-flow cycling and signage were implemented as part of the BCH scheme. Other provision has included new zebra crossings by docking stations, road narrowings and dropped kerbs (to allow access to docking stations).

**Figure 2.7 Complementary cycling measures associated with BCH**



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- 2.95 The Barclays logo is prominent but the cycle hire scheme has also been branded with TfL's own corporate 'roundel' branding and is promoted as part of the broader public transport offer in London.
- 2.96 Prior to the initial roll-out of the BCH scheme, try-out promotion road shows were held to encourage potential users to become familiar with the new bicycles.
- 2.97 A programme of innovative marketing promotions supports the scheme, including discounts in bicycle shops and sports stores for members of the BCH. An example of Facebook promotion for the scheme is shown in **Figure 2.8** below. A Twitter account has also been set up for the Barclays scheme, providing information on docking station closures, system updates etc. This has nearly 12,000 followers.

Figure 2.8 BCH rewards on Facebook page



## Strengths and weaknesses

### Strengths

- The scheme has benefitted from TfL's ongoing programme of cycle promotion including free cycle maps of all of the greater London area, increased volumes of cycle parking infrastructure and the support of strong advocacy groups such as the London Cycling Campaign.
- The scheme has contributed to the positive image of cycling in London, has helped change the public attitude to cyclists and normalise cycling as a mode of transport.
- Confirming the findings of the OBIS report on the potential health influences of PBS schemes a health related study into the BCH scheme includes the statement:

*'The health benefits of cycling are well known, and public bicycle sharing schemes are becoming a popular way of promoting cycling in urban environments. ...Women and those living in deprived areas are less likely to register to use the scheme. However after adjusting for the fact that those in deprived areas were less like to live close to a BCH (Barclays Cycle Hire) docking station, usage amongst individuals living in these areas was actually higher. This suggests the scheme may be meeting a currently unmet need for access to bicycling in deprived communities. Policy makers should consider the health benefits that could be gained from expanding the scheme into deprived areas, and from exploring measures to increase uptake among women and those on low incomes<sup>11</sup>.'*

### Weaknesses

- Different advertising contracts and attitudes to on-street advertising held by all 32 London Boroughs made an advertising supported scheme difficult to implement, therefore a sponsored business model was selected.
- The scheme was initially criticised for not locating docking stations adjacent to rail hubs; this was a deliberate act on the part of TfL, designed to mitigate the tidal effect common to other

<sup>11</sup> Ogilvie, F; Goodman, A; (2012) Inequalities in usage of a public bicycle sharing scheme: Socio-demographic predictors of uptake and usage of the London (UK) cycle hire scheme.

bicycle schemes with railhead bicycle docking stations, as highlighted by operators of the Barcelona PBS scheme. TfL have since located a docking station at Waterloo station, which has become the busiest docking station with up to 2,736 daily hires.

- The bicycles have been criticised for being heavy at 23kg. Serco appear to have initially underestimated the requirement for vehicles to redistribute and maintain the cycle fleet. Up to 40 vehicles are now in use during periods of high demand for all maintenance and redistribution of cycles.
- In spite of the large fleet of maintenance vehicles allocated to the relocation of bicycles and managing the inevitable tidal flow at peak demand times, there are still large numbers of complaints regarding docking stations being either empty or full at times of high demand.
- The costs of operating the scheme far outweigh the sponsorship fee gathered and the recent east and westward expansions programme has led to a lot of press criticism, with estimates of total costs rising up to £225m.<sup>12</sup>

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<sup>12</sup> <http://www.mayorwatch.co.uk/tfl-we-have-no-idea-when-boriss-cycle-hire-scheme-will-be-self-funding/201222480>

## Munich - Call a Bike

### Objective

- 2.98 Call a Bike describes itself as a PBS scheme operating at low cost to the user, thereby helping to reduce the number of private car trips taken in the city. Call a Bike is operated by DB Rent (DB), which is itself part of DB AG, the German state rail operator.
- 2.99 DB indicates that its strategy is to provide 'value added' services to its customers and enable door-to-door mobility for public transport passengers. The system acts as an appropriate promotional medium for the company and DB claim the system has won a new customer group onto the local public transport network.

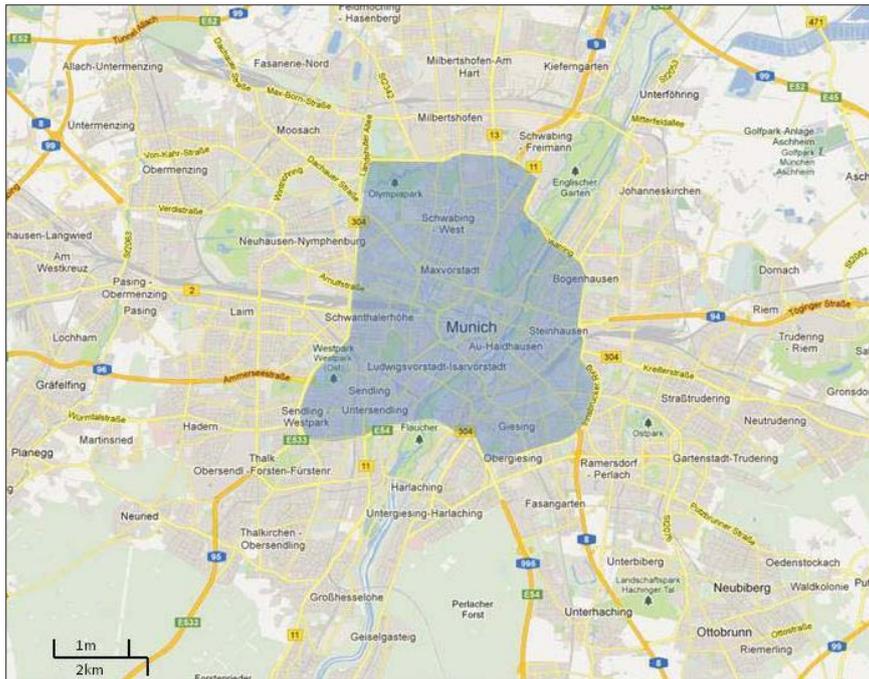
### System

- 2.100 The Call a Bike idea was originally conceived by an independent company in Munich; it started in 2000. When the company faced financial problems, DB took over the concept and formally launched the service in October 2001. DB has since extended the service into the cities of Berlin, Cologne, Frankfurt and Stuttgart, among others.

### Scale

- 2.101 Munich is the third largest city in Germany with a population of approximately 1,300,000. Public transport provision in Munich includes a comprehensive network of railways, a subway, trams and buses. The Munich PBS scheme operating zone is designed to operate in an area broadly encompassed by the city's ring road, known as the MittlerRing, an area covering approximately 9 x 6km. The scheme has 1,400 bicycles placed across this area. The most recent available data from 2008 indicates that there were approximately 42,000 users in Munich who had registered to join the scheme and the bicycles had been rented approximately 126,000 times in that year. In most cities in which Call a Bike is available, DB claim that the number of registered customers and the total rental periods are achieving annual growth of double figures. The Munich Call a Bike operational area is shown in **Figure 2.9** below.

**Figure 2.9 Munich Call a Bike operational area**



### Scheme membership and tariffs

2.102 To use Call a Bike, users must first register. Registration is carried out online or via telephone and users must pay a €12 registration fee which can be paid by credit card or deducted from a user's bank account. Once registered, to access a bicycle, users must telephone the customer service centre number printed on the bicycle; phone numbers are unique to each bicycle. The user then receives a four digit code via their telephone which needs to be typed into a keypad on the bicycle; the code operates the lock fitted to the bicycle.

2.103 Call a Bike has two basic charging systems:

#### *Long term users*

2.104 Long term users pay an annual fee and for this they receive 30 minutes of travel time; thereafter they are charged the same rate as the occasional users at 8 cents per minute.

2.105 Anyone who has registered as a Call a Bike customer can use the DB bicycles in all 60 participating towns and cities throughout Germany. The charging structure is shown in **Table 2.5** below.

#### *Occasional users*

2.106 For occasional registered users the charge is 8 cents per minute up to a maximum fee of €15 per day (€9 per day for DB BahnCard holders and students). Both options offer discounts for holders of the DB travel card and for students.

2.107 The Call a Bike system has a limited annual period of use which runs from March until October.

**Table 2.5 Munich Call a Bike tariff**

All users must pay a €12 registration fee			
Bicycle usage fees			
Long term user paying annual fee of:	Without DB BahnCard	€48 -	+ First 30 min: Free
	DB BahnCard holders	€36	+ First 30 min: Free
	Students)	€24	+ First 30 min: Free
	Further use is charged at: 31mins+ €0.08 per min (maximum €15 per day, or €9 per day for DB BahnCard holders and students)		
Occasional user paying registration fee but no annual fee	€0.08 per min (maximum €15 per day or €9 per day for DB BahnCard holders and students)		

### Operation

- 2.108 The Call a Bike system is unusual in that there are no specific docking stations for the bicycles to be locked into after use. The bicycles tend to be freestanding or are locked to street furniture.
- 2.109 To access a bicycle, users must first locate a machine on the street, telephone the customer service centre number printed on the bicycles, and use the four digit code they are given to operate the lock fitted to the bicycle.
- 2.110 When they have completed their journey, the user leaves the bicycle at a road junction and locks it to either a standard public bicycle rack or appropriate street furniture such as a road sign. A small display screen on the bicycle will ask the user if they wish to make a pause in their journey and continue using the machine in the near future or end their use and free the bicycle up for somebody else.
- 2.111 If they wish to end their journey, users press one of two marked buttons on the bicycle's keypad and the screen will give the user a receipt code which must be telephoned into the customer service centre along with the location of where the bicycle was left.
- 2.112 The only Call a Bike system which used docking stations from implementation was Stuttgart; this was a requirement of the municipality when DB proposed to implement the scheme to avoid the bicycles becoming street clutter. However, JMP/TI understands that DB are now creating docking points for an increasing number of their existing Call a Bike schemes; these are being delivered as ongoing maintenance and upgrading of the system is carried out.
- 2.113 The Call a Bike machines are aesthetically less attractive in appearance than many other hire scheme models. These machines are also relatively heavy at 23.4kg and are specifically made-for-rental models of a robust design that is expected to last for some time before being replaced. An example of a Call a Bike is shown in **Figure 2.10** below.

**Figure 2.10 Call a Bike bicycle**



*Topheer Flickr*

- 2.114 Call a Bike machines have an open style aluminium frame design. They are very well equipped with kickstand, lighting system and adjustable seat. The bicycles have a rear carrier designed to hold a bag, briefcase or shopping using an elasticated cord. Gearing on these machines is relatively sophisticated with a 7 speed transmission system. While they do stand out as rental machines and are easily identified as such, the relative sophistication of these machines may make them more vulnerable to damage or misuse than more robust hire bicycles.

#### **Maintenance**

- 2.115 All maintenance is managed by DB using either its own workshop teams or locally appointed partner businesses. The Call a Bike system in the city of Stuttgart uses a social enterprise group operated by a church organisation, called 'New Work', to maintain the bicycles. This group makes use of a skilled fitter with a vehicle and two adults on work re-training schemes to carry out all maintenance and any redistribution of machines, as required.

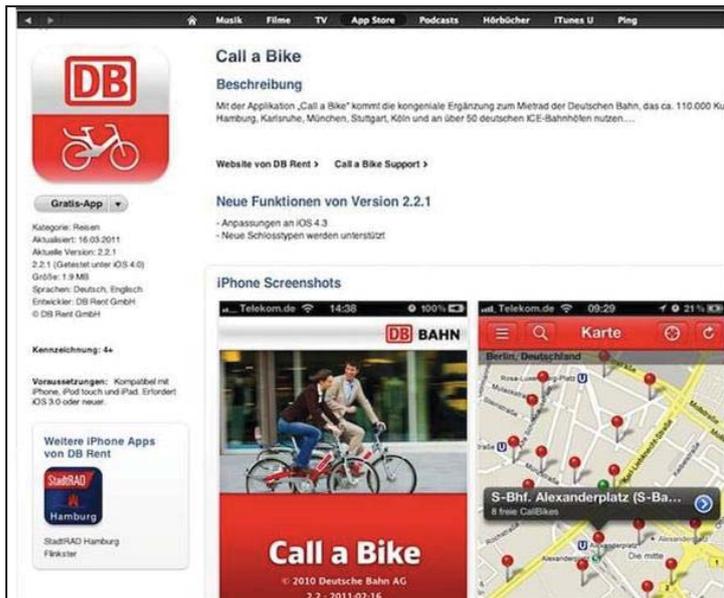
#### **Funding**

- 2.116 The system is supported and funded entirely by DB, the city of Munich is not involved in financing or operating the scheme.

#### **Complementary measures and promotion**

- 2.117 The scheme is continually updated as access technology develops. At the time of the scheme launch users were only able to access bicycles via a system based around telephone booths; the system now offers 'App' functionality to help registered users locate bicycles. An example of the App promotion is shown in **Figure 2.11** below. It is anticipated that as the bicycles are further upgraded over time they will become accessible via chip and pin type cards and not require the user to make a telephone call to access a bicycle.

Figure 2.11 Call a Bike App promotion



## Strengths and weaknesses

### Strengths

- The system is operated at no cost to the local authority.
- The bicycles are locked and left freestanding or locked to local street furniture, requiring no docking station infrastructure installation. The recent introduction of the App functionality has improved the process of locating available bicycles.
- DB claim in publicity material that the scheme has helped enhance its business profile as a public mobility supplier<sup>13</sup>.

### Weaknesses

- As there are currently no docking stations in the Munich scheme, locks are built into the bicycles so that the bicycles can be left anywhere, however this results in potential new customers having to find a bicycle when they want one rather than just heading for the nearest docking station.
- Because the bicycles are free standing there is also the potential for them to be knocked over.
- The DB scheme arguably has a lower public profile than other PBS schemes and in contrast to the recommendations set out in the OBIS report is likely to contribute less to the cycling culture of Munich than a higher profile scheme might.

<sup>13</sup> [http://www.deutschebahn.com/en/group/im\\_blickpunkt/2504892/10\\_jahre\\_callabicycle.html](http://www.deutschebahn.com/en/group/im_blickpunkt/2504892/10_jahre_callabicycle.html)

## Lyon - vélo'v

### Objective

- 2.118 The Lyon vélo'v PBS system was introduced in 2005 with the aim of contributing to the city authority's desire to reduce motor traffic levels and air pollution in the city while also promoting health through physical activity.

### System

- 2.119 The system is operated by Grand Lyon (GL), the intercommunal political structure of the city of Lyon, and some of its suburban districts in conjunction with JC Decaux. In common with the PBS scheme model in Dublin it is operated on a cost-neutral basis for the host city.
- 2.120 The Lyon scheme preceded the Paris 'Velib' scheme, being the first large scale cycle hire scheme in Europe. It provided JC Decaux with vital business experience resulting in improvements being made to its PBS schemes delivered in other cities. An example of a vélo'v docking station is shown in Figure 2.12 vélo'v **Figure 2.12** below.

**Figure 2.12 vélo'v docking station**

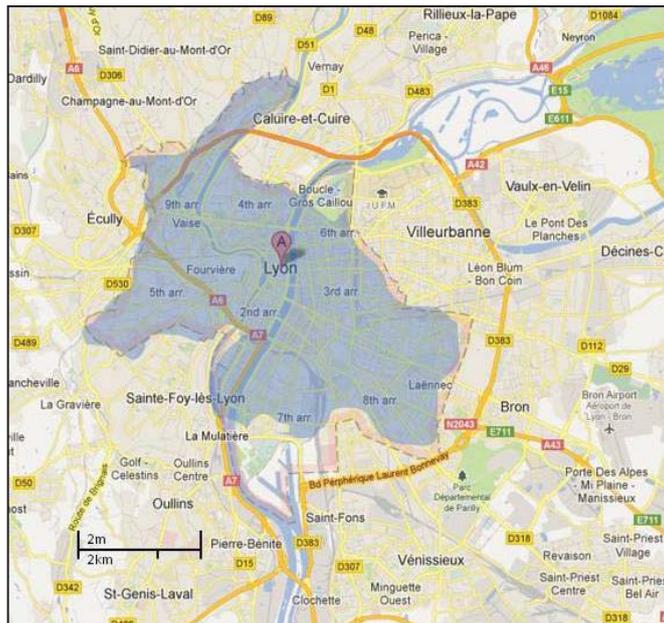


*Flickr: Anod*

### Scale

- 2.121 The Lyon vélo'v PBS scheme currently uses 4000 bicycles which are available across the city at 340 docking stations. The scheme covers all nine of the municipal arrondissements in the central area of the city of Lyon, and parts of three of the inner suburbs; overall it is broadly an area extending 6.5 by 6.5km. This area is indicated in **Figure 2.13** below.

**Figure 2.13 Approximate vélo'v coverage across Lyon**



### **Scheme membership and tariffs**

- 2.122 All users of the scheme must be over 14 years of age and hold a vélo'v membership card. There are two membership options – as an annual subscriber or as a short term ticket holder, and these membership options are further sub-divided into categories by socio-demographic profile.

#### ***Annual subscription membership***

- 2.123 Annual membership is subdivided into three options: vélo'v classic, vélo'v 14-25 for 14-25 year-olds, and vélo'v RSA for users who qualify for certain French state benefits. All membership options give the first 30 first minutes of each journey free of charge.

#### ***Short term membership***

- 2.124 There are three short term membership options: a 7-day ticket, giving access to vélo'v for seven consecutive days; a CityCard, giving access for three consecutive days; and a 1 day ticket giving 24 hours of access. The 1 and 7 day tickets give the first 30 minutes of each trip free of charge. CityCard holders receive 60 minutes of free use.

#### ***Lyon public transport pass***

- 2.125 Holders of a 'Tercely' card, the GL public transport pass, can choose to link their vélo'v subscription card to this when registering and receive the first 60 minutes of use free of charge. Holders of other transport service concession cards such as AUTOLIB, QPARK, VINCI and EEFIA can also access these benefits.
- 2.126 This compatibility between the bicycles and public transport has been achieved because the vélo'v system in Lyon makes use of the ASK brand of contactless smartcards that have been used as part of the city's public transport Tércely card operating system.

- 2.127 All options require holders to select a PIN security number to use the scheme and purchase membership with a credit card or one of the scheme's supporting partner cards.
- 2.128 The current extensive pricing structure is shown in **Table 2.6** below.

**Table 2.6 vélo'v membership and prices**

Long term subscription	Subscription cost	Free use period (mins)	1 <sup>st</sup> additional 30 minute period	2 <sup>nd</sup> additional 30 minute period and subsequent 30 minute periods
<b>vélo'v Classic subscription</b>				
vélo'v Classic Card	€25	30	€0.75	€1.50
Tércély or Ourà	€25	60	€0.75	€0.75
vélo'v advantage (LPA, AUTOLIB, QPARK, VINCI, EFFIA subscribers)	€25	60	€0.75	€0.75
<b>vélo'v 14 -25 subscription</b>				
vélo'v Classic card	€15	30	€0.75	€1.50
Tércély or Ourà	€15	60	€0.75	€1.50
vélo'v advantage (LPA, AUTOLIB, QPARK, VINCI, EFFIA subscribers)	€15	60	€0.75	€1.50
<b>vélo'v RSA subscription</b>				
vélo'v Classic card	€15	30	€0.75	€1.50
Tércély or Ourà	€15	60	€0.75	€1.50
vélo'v advantage (LPA, AUTOLIB, QPARK, VINCI, EFFIA subscribers)	€15	60	€0.75	€1.50
<b>Short term tickets</b>				
7 day ticket	€5	30	€1	€2
1 day ticket	€1.50	30	€1	€2
CityCard 3 days	€3	60	€1	€2

- 2.129 In terms of uptake, the scheme has been popular from the outset and the most recent available statistics from 2010 indicate that at that time 27.7m hires had been taken, 58m kilometres cycled and approximately 42,000 active subscribers.
- 2.130 Clear Channel claim that 40,000km are cycled on the bicycles each day with each bicycle covering 30km on average. It is claimed that each bicycle is used by 4-5 people each day<sup>14</sup>.

### Operation

- 2.131 The scheme operates 24/7. To access a bicycle, members must swipe their vélo'v card in front of the optical reader on the terminals located at a bicycle station and type in their PIN number.

<sup>14</sup> [http://www.fedarene.org/documents/projects/Climact/Best-Practices/027\\_Velov\\_.pdf](http://www.fedarene.org/documents/projects/Climact/Best-Practices/027_Velov_.pdf)

Bicycles are released by pulling on the brakes or pressing the button located on the bicycle stand. ClearChannel claim that it takes approximately four seconds to release a bicycle.

- 2.132 To return a bicycle, users roll the bicycle back into the stand and the bicycle is automatically secured into place. Users can then request a printed receipt from the terminal as evidence of replacement. The swipe card reader and keypad of a terminal is shown in **Figure 2.14** below.

**Figure 2.14** Swipe card reader



*Flickr: Nicholasnova*

- 2.133 In common with other schemes a period of 15 minutes extra free minutes of user time is provided should a user find a docking station that is full when they arrive. Users can use the terminals to locate alternative docking stations. The terminals display a map of docking stations which can be drilled down into by arrondissement or address. An example of the map display is shown in **Figure 2.15** below.
- 2.134 The docking stations map and all booking information can be found on a dedicated website which supports the scheme, this is also linked to the GL tourist website. The website provides comprehensive instructions on registration and access to the scheme, and is available in French and English.
- 2.135 The website includes conditions of use and a summary of users obligations regarding personal responsibility and liability when using the scheme.

Figure 2.15 vélo'v map



2.136 The bicycles are open framed and similar in style to the JC Decaux models used in Paris and Dublin; like those models, they are robust and stand unsheltered in the street for the duration of their operational life. The bicycles are fitted with dynamo lighting, racks, mudguards and, common on continental schemes, a large skirt guard.

### Maintenance

2.137 Each bicycle receives ongoing maintenance on-street as required, and is also given a full off-road service three times a year. Servicing and redistribution of bicycles is carried out by dedicated vehicle fleets which include bicycle and trailer service teams. Servicing is carried out in-situ and therefore teams must be able to access the bicycles in the docking stations. An example of a bicycle and trailer service team is shown in **Figure 2.16** below.

Figure 2.16 Bicycle and trailer service team.



Flickr: Nicholasnova

### **Funding business model**

- 2.138 As noted the scheme as established is designed to operate at no direct cost to the host city. JC Decaux establishes and operates the entire system in return for exclusive advertising rights on poster sites and street furniture along with a share of the revenue gathered from subscriptions and usage fees.
- 2.139 However, actual operating costs have been reported as twice the amount forecasted at more than €2000 / bicycle / year instead of €1000. To this end JMP/TI understands that GL agreed to pay JC Decaux a further 15% commission earned from subscription and use revenue over the figure that was originally agreed as part of the original contract<sup>15</sup>.

### **Complementary measures and promotion**

- 2.140 During the 2006 annual city 'Festival of Lights' a video game was produced and named vélo'v racing in Lyon. The game was projected onto 4 large outdoor screens and the public could play the game from 6pm to 1am each night of the festival. This was a novelty event inspired by the initial launch of the vélo'v in 2005.
- 2.141 A vélo'v App has also been launched which provides users with information on bicycle availability at docking stations; it also provides a facility to tell users where the nearest docking station is at any time.

### **Strengths and weaknesses**

#### ***Strengths***

- The scheme has been popular from the outset and like the Dublin scheme has received few negative comments.
- The scheme membership can be linked to other public transport service cards and concessions.
- The scheme is credited with generally improving the environment for utility cycling in the city.

#### ***Weaknesses***

- As one of the earlier schemes to be launched, the scheme cost more to operate than anticipated, resulting in JC Decaux seeking further financial support from GL.

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<sup>15</sup> [http://www.fedarene.org/documents/projects/Climact/Best-Practices/027\\_Velov\\_.pdf](http://www.fedarene.org/documents/projects/Climact/Best-Practices/027_Velov_.pdf)

## Barcelona - Bicing

### Objective

- 2.142 Bicing was launched in Barcelona in May 2007 following a nine month tender process and three month public consultation. The object of the scheme was to reduce the negative impact of motor traffic in the city by encouraging an increase in people cycling. This aimed to build upon the increasing numbers of people already cycling, achieved following the creation of a nascent network of cycle routes in the city.
- 2.143 Barcelona is similar to London with respect to municipal governance and has a mayor and city authority working together with a number of separate city districts; this has given the city authorities a high level of influence in how the system is run. From the outset the project has been set within a context of complementary existing public transport modes. The city's population is between 4.1 and 4.7m.
- 2.144 From the outset the scheme has been positively 'adopted' by the mayor of Barcelona and the city itself, and supporting the findings of the OBIS project Barcelona has subsequently used the Bicing scheme to develop a nascent cycling culture in Barcelona. Politicians and planners are identified as the first of the four main stakeholder groups responsible for defining the successful outcome of a PBS scheme, the others being; operators, users, and technology providers. A Bicing docking station is shown in **Figure 2.17** below.

**Figure 2.17 Bicing docking station**



*Flickr: Carlos@Inglolube*

### System

- 2.145 The scheme is operated and maintained by Clear Channel's street furniture division and BS:M, the public transport management company wholly owned by Barcelona City Council.
- 2.146 A fee is paid annually to Clear Channel to manage the Bicing scheme. The scheme is funded by subscription fees, usage charges and also by income generated through on-street parking controls in the inner city area. JMP/TI understand that Clear Channel has a contract with the city to operate the system for ten years.

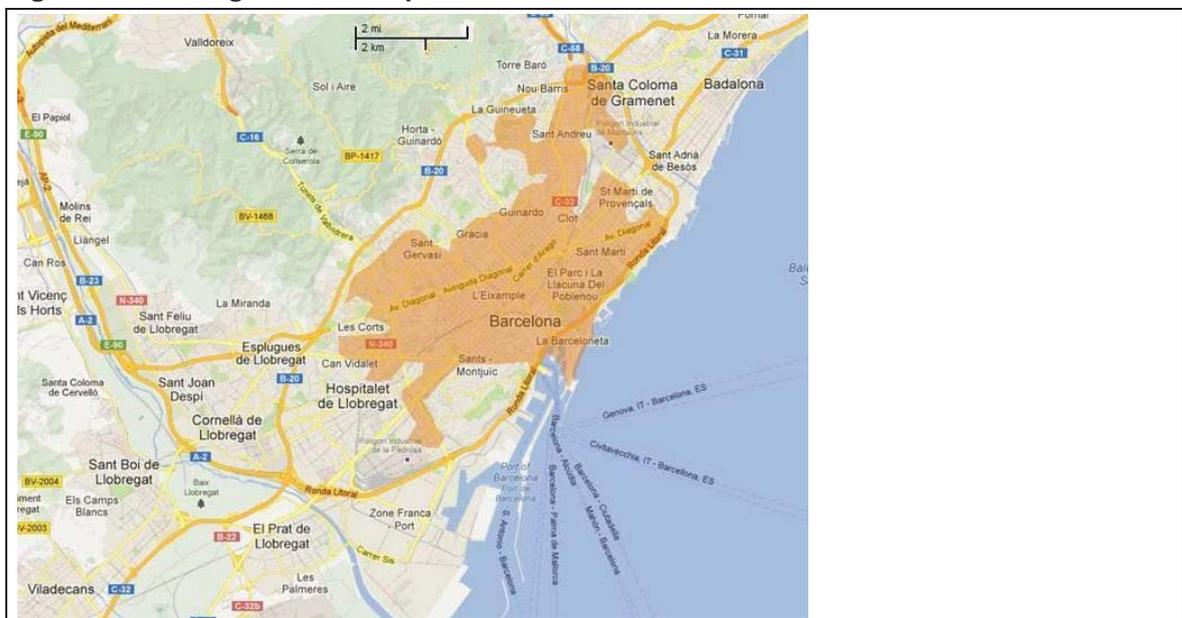
2.147 Overall, 182,000 people had subscribed to the scheme by September 2008 – 11% of the city’s population<sup>16</sup>. Unusually for a PBS scheme, Bicing is only open to residents of the city of Barcelona and therefore excludes tourists; advice to tourists is to use the existing commercial hire bike operators<sup>17</sup>.

### Scale

2.148 The scheme began with 1,500 bicycles and 100 stations and has now been increased to 6,000 bicycles and 425 docking stations. Each docking station can hold between 15 - 30 bicycles. The scheme initially allowed non-residents of the city to participate in the scheme, the popularity of the scheme however led to this service being withdrawn, along with the English version of the scheme website.

2.149 The Barcelona scheme covers the northern two thirds of the city, an area approximately 6.5 x 4km in size. An approximation of this area is shown in **Figure 2.18** below.

**Figure 2.18 Bicing Barcelona operational area**



2.150 Available data suggests that 68% of daily trips are for commuting and 37% of all trips are combined with another mode of travel. The average trip length tends to be 3km or 14 minutes duration..The Bicing system is available to users 24/7 on Friday and Saturdays only. Between Sundays and Thursdays the scheme closes from 00:00 – 05:00 for maintenance and cleaning.

### Scheme membership and tariffs

2.151 All users must pay an access fee to register as a user of the scheme. The scheme tariff is designed to encourage short periods of use and incorporates a clear penalty system. Users incur a penalty charge if they exceed the maximum loan period of two hours. If users exceed this period on three

<sup>16</sup> Bicing in Barcelona, Spain: A description and estimated health impacts; D Rojas Rueda et al, 2011.

<sup>17</sup> Mayra Nieto, Mobility Division of B:SM, the Barcelona Municipal Service; <http://www.treehugger.com/culture/the-th-interview-bicing-barcelonaatms-bike-sharing-system-part-1-city-council.html>

separate occasions and therefore accumulate three separate penalty charges that user's account will be closed.

- 2.152 With no requirement for casual users or tourist provision the scale of charges is straightforward. This is shown in **Table 2.7** below. However, price rises are planned to be introduced in February 2013.

**Table 2.7 Barcelona Bicing tariff**

Annual registration fee	€45.11 €46.46 (from February 2013)
Bicycle use fees	First 30 min: Free
	Additional 30 min periods €0.71 (Up to a maximum of 2 hours).
Penalty fee for +2 hour use	€4.30 per hour

#### User data

- 2.153 Available user and usage data includes:

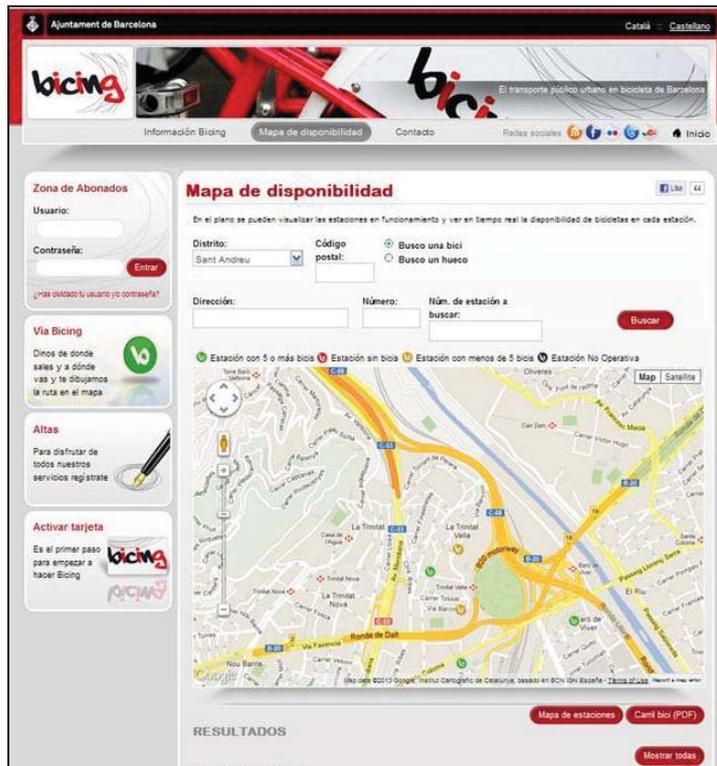
- 70% of Bicing trips are exclusive, meaning those users do not make use of any other transport mode for that trip;
- 68% of trips are for commuting to work or education;
- Only 10% of Bicing users have shifted from using a private vehicle<sup>18</sup>.

#### Operation

- 2.154 Registered users of the Bicing scheme receive a smartcard through the post or collect one directly from the Bicing operating office in Barcelona operated by Clear Channel.
- 2.155 Users can locate available bicycles from the Bicing website which can be accessed from a smartphone. The website gives comprehensive information on bicycle availability across the scheme operating area; neighbourhood areas can be independently selected as can postcodes and numbers of bicycles available. A screenshot of a Bicing webpage is shown in **Figure 2.19** below.

<sup>18</sup> Bicing in Barcelona, Spain: A description and estimated health impacts; D Rojas Rueda et al, 2011.

Figure 2.19 The Bicing Barcelona website



- 2.156 When a bicycle is selected, the smartcard unlocks it and the operating system registers this; when the bicycle is returned to a docking station the system notes this and records the duration of use. In line with Bicing agenda of supporting the city's public transport system, the smartcard used to access Bicing is compatible with the public transport smart ticket.
- 2.157 Other information on bicycle availability at docking stations which is also available on the Bicing website includes:
- Stations which have no bicycles available for hire;
  - Stations with more than 5 bicycles available for hire;
  - Stations with less than 5 bicycles available, and
  - Stations that are not operating.
- 2.158 The bicycles are supported when not in use via a slot in the on-street racks into which they are locked. The racks are simple steel frames, each holding three machines. The frames can be stacked together to increase bicycle availability as needs require, and need one power source to operate. Experience has meant they have been modified over time to be resistant to misuse.
- 2.159 Occasionally users cannot locate a bicycle station with empty spaces into which to replace the bicycle once used. In this case, and in common with other systems, the system software gives the user an additional 15 minute window in which to locate a station with available space.

2.160 The bicycles themselves are unusual in appearance looking a little like children's bicycles. The frames are bright red and the bicycles have high-rise handlebars and a lot more chrome details than bicycles used in other PBS schemes. The bicycles have three gears, front mudguards, front rack and the rear wheel is comprehensively covered with a flexible plastic skirt guard.

### Maintenance

2.161 The scheme has a maintenance system operating as a franchise with teams of operators working in shifts. JMP/TI understand there are approximately 24 vans used in total. Bicycles are cleaned and checked every day with operators working from a van likely to be based at the home of one of the operators. The vans use trailers which transport the bicycles around the city to redistribute machines where required. Available data indicates that approximately 17,000 visits are made to docking stations each month. A suggested maintenance team to attend a 200 bicycle scheme operating 24 hours would be one van and six staff. A maintenance vehicle and trailer is shown in **Figure 2.20** below.

**Figure 2.20 Bicing maintenance vehicle**



*Flickr: Hairyegg*

2.162 During discussions with JMP/TI, Clear Channel staff highlighted the operational problems caused by the tidal flow of machines away from public transport hubs. This was a serious operational issue which required Clear Channel to increase their support fleet of vehicles on standby at railheads during peak times exclusively to replenish docking stations. The extra cost of operating an enlarged fleet of vehicles to re-supply docking stations needs to be considered when selecting locations.

2.163 This issue of redistribution resulted in the necessity to establish a protocol between operators and the city, ensuring conditions of access to docking stations by maintenance vehicles was maintained. This issue was not anticipated at the time the docking station locations were selected.

2.164 Clear Channel estimates that 2-3 hours' installation time is required for each rack assuming a power source is available locally.

### Funding

- 2.165 The scheme is operated and maintained by the City of Barcelona and Clear Channel. JMP/TI understands the approximate scheme start-up cost was €15.9m and the 2008 annual operating cost was €10.2m<sup>19</sup>. This is paid annually to Clear Channel to manage the Bicing scheme. The scheme is funded by subscription fees, usage charges and also by income generated through on-street parking controls in the inner city area.
- 2.166 Clear Channel offer a choice of business models. These options include part - or entirely funded by advertising and user subscription fees, or via a leasing system in which an annual charge is levied to the operating city and users pay their subscriptions directly to the host city.
- 2.167 In October 2012 it was announced that the cost of a Bicing subscription would rise by 3% to €46.46, to be implemented in February 2013. The announcement also included a proposal to include discrete advertising space on Bicing machines free for non-profit organisations who work with the city council.

### Complementary measures and promotion

- 2.168 Without the solid commitment of the city to the scheme other revenue sources might be required, for example, advertising on the machines.

#### *Strengths*

- Funded from car parking revenues, therefore there is no impact on the cityscape from an increase in advertising signage.
- The bicycles are very low weight compared to other PBS schemes at 16.5kg; the city council feels they better reflect the nature of Barcelona compared to other models.
- The system is not open to tourists, this helps avoid disputes with commercial hire operators from the outset.

#### *Weaknesses*

- The system's lack of access to tourists in a very 'tourist orientated' city appears to be an anomaly.

<sup>19</sup> Bicing in Barcelona, Spain: A description and estimated health impacts; D Rojas Rueda et al, 2011.

## Community or campus bicycle hire schemes

- 2.169 Community or campus bicycle hire schemes operate as more traditional hire schemes. They loan bicycles for short or long term hire and require manually staffed locations from which to loan and maintain the bicycles.

## Southport Cycle Hire

- 2.170 Southport Cycle Hire was launched in May 2009 by Sefton Council, using funding made available from the Southport Cycling Town project which ran from 2008 - 2011. The town was awarded Cycling Town status by the (now defunct) body Cycling England in 2008.
- 2.171 Ongoing funding via the Local Sustainable Transport Fund now contributes toward supporting the bicycle hire scheme.

### Objective

- 2.172 The overall Southport Cycle Town Project had three key themes, these were:
- To encourage cycling for tourists, leisure users and residents through the development of a high quality bicycle network around the seafront area, provision of access to the Sefton coast and the development of bicycle links to the town centre.
  - Promoting regeneration: there are two key areas of regeneration within the town, the Marine Park area on the seafront and the area to the east of the town known as Kew. It was proposed that a number of high quality bicycle routes should serve this area. A programme of targeted marketing and promotion would support the development of these routes.
  - Promoting cycling at and to schools: the aim was to have 15% of secondary school children cycling to school by 2011, with particular emphasis on encouraging teenage girls to bicycle as they are a core group known to participate less in physical activity.

### System

- 2.173 Approximately 100 adult bicycles have been purchased from the UK manufacturer Pashley, these are specially branded bespoke machines and are similar to sturdy postman's bicycles costing approximately £350 each. An example is shown in **Figure 2.21** below. In order to attract family groups a number of Tag-a-longs (a children's trailer which hitches to an adult's bicycle), solo children's bicycles and child seats are also available for hire. The scheme was originally operated by Sefton Council and is now managed by a contractor.

**Figure 2.21 Pashley Pronto bicycles**



### Scale

**2.174** The Southport scheme is a manually operated bicycle hire scheme run from three sites: the town 'Eco Centre' on the esplanade, Southport Cycle Centre at Southport Railway Station and Crosby Lakeside Adventure Centre at Crosby Coastal Park. A map of the original project area is shown in

**2.175** **Figure 2.22** below.

**Figure 2.22 Southport Cycling Town project area**



### Maintenance

**2.176** Operation of the hire centre and maintenance of bicycles is carried out by two members of staff who are specially trained and employed for the purpose.

### Tariffs

- 2.177 Use of helmets, security locks, lights and other accessories are also included in the cost of hiring a bicycle. The bicycles must be returned to the centre at the end of the day.

**Table 2.8 Southport Cycle Hire Tariff**

Standard tariff	Up to 4 hours	Full Day
Bicycle	£6.00	£8.00
Bicycle with trailer	£12.00	£16.00
<b>Discounts</b>		
2 adults + 2 children	£20.00	£28.00
2 adults + 3 children	£26.00	£36.00

- 2.178 Further discounts apply to groups, with groups of 6 to 9 qualifying for 10% off standard prices and groups of 10 or more qualifying for 20% off standard prices.

### Funding

- 2.179 A total of £40,000 was originally used to develop a section of the Eco Centre for the bicycle hire scheme and equipment purchase. Annual running costs for the project are approximately £80,000 with the majority of the revenue costs being spent on staff; the principal funding for the scheme came from Cycling England.

### Operation

- 2.180 Hire sites have different operating hours; these generally follow the standard working day of 9am to 5.30pm; the Cycle Centre site operates from 8am. At all sites bicycles can be hired for a maximum of one day and cannot be kept overnight. The Eco Centre and Southport Cycle Centre sites both close for one hour at lunchtimes. Southport Cycle Centre is not open at all on Sundays.
- 2.181 The bicycles used in the Southport project are not specifically designed as public hire bicycles. The machines are built by Pashley of Stratford upon Avon using the 'Pronto' work bicycle design. The machines use a solid open frame design with 3 speed gearing; the gears, along with the brakes, are built into the hubs. The front and back wheels are 24" and 26" sizes respectively, which would require the maintenance and repair team to carry two sizes of tyre for these machines; the tyres themselves are heavy duty. The machines are fully equipped for public use with chain guards and mudguards although no racks or luggage carriers are fitted.

### Complementary measures

- 2.182 Several of Southport's hotels are involved in the bicycle hire scheme and residing guests are able to hire bicycles direct from hotels.
- 2.183 The Southport Station Cycle Centre offers secure bicycle storage to rail commuters and bicycle maintenance facilities as well as bicycle hire. To use the secure bicycle storage at the station users must register with Merseyrail at a dedicated website and apply to become a user of the secure bicycle parking scheme. The scheme is free to use following registration, Merseyrail manage the bicycle parking and bicycle maintenance section of the Station Cycle Centre.

- 2.184 Low-cost bicycle training is available to anybody 16 and over, and costs £10 per session for 1.5 hours' tuition. Sessions are divided into two levels of competence.
- 2.185 Southport has successfully attracted a stage of the televised 'Tour' series of professional bicycle racing which took place in June 2010 and have also had a stage of the 'Tour of Britain' race pass through the town.

### **Strengths and weaknesses**

#### ***Strengths***

- Purchasing robust 'Pashley' bicycles has meant that the machines are fit for purpose and stand up to the wear and tear of a variety of users.

#### ***Weaknesses***

- It is unlikely that the hire scheme or any of the complementary measures would have taken place without Southport winning Cycling Town status and funding, due to the high level of capital funding required to launch the scheme.
- In common with other non-automatic schemes the project is labour intensive, requiring counter staff to manage collection and distribution of bicycles. It should be noted that counter staff also maintain the bicycles.

## Leeds - Velo-campus

### Objective

- 2.186 Velocampus Leeds was established to provide the option of bicycle transport for staff and students at the universities and teaching hospitals in Leeds. This includes supported, low cost short & long term bicycle hire, bicycle maintenance facilities, advice and classes, bicycle training, bicycle buddying, safety and route advice/information. Velocampus, as a concept, first started in Nantes, France in 1997, where students provided low cost hire bicycles and maintenance facilities for their fellow students.

### System

- 2.187 Leeds Velocampus supplies good quality bicycles which are available to hire for periods of one week to up to 12 months over an academic year. Hirers must usually be students or staff at the University of Leeds (UoL), Leeds Metropolitan University or Leeds Trinity University.

### Scale

- 2.188 A single officer was appointed at the University to help initiate and run the scheme. The scheme operates from a site called the Bicycle Hub on the UoL campus. Following initial consultation and subsequent tendering, 200 bicycles were purchased from a local bicycle shop and a service level agreement drawn up. The bicycles used are sensible utility bicycles equipped with mudguards and racks, normally retailing at £330. The University negotiated a special rate for the bicycles which included locks and lights.

### Operation

- 2.189 All students and staff members can hire a bicycle for up to one academic year. Hirers must sign a hire contract which includes a hire fee, deposit and agree to take out insurance. Part of the agreement is that hirers must maintain the bicycle in good condition. Hirers are advised to arrange insurance for bicycles they hire.

### Maintenance

- 2.190 Maintenance staff operate at a dedicated workshop within the Bicycle Hub on Tuesdays, Wednesdays and Thursdays. Hirers can have their bicycles repaired at the hub for a fee or carry out their own repairs using equipment at the Hub. Hirers are responsible for the appropriate maintenance of the bicycles and will lose some or all of their deposit if the bicycle is returned after loan in an unsafe or unsuitable state. All Velocampus bicycles are eligible for a free maintenance check after 4 weeks and a free service after 6 months via a deal with the local shop which provided the bicycles. There is also a thorough check at the end of the hire period. Checks are free but students are charged for any parts which are required e.g. new brake blocks. The Bicycle Hub is also open for special promotional events.

### Fees

- 2.191 There is a single fee rate of £35 per semester / £50 per year to hire a bicycle. A returnable deposit of £100 must be paid.

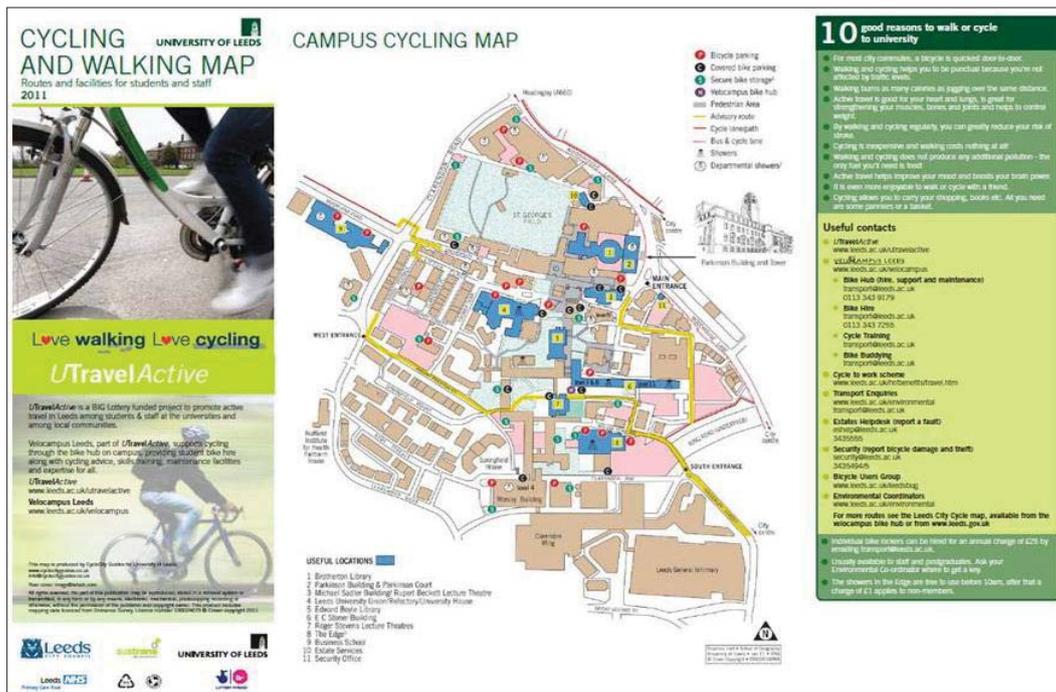
### Funding

- 2.192 The overall project was part funded by The Big Lottery in partnership with Sustrans, Leeds City Council and Leeds Teaching Hospital and NHS Leeds.

## Complementary measures

- 2.193 The maintenance shop is also represented at key bicycle promotional events on campus. The project was launched at fresher's week in September 2008. A good website provides information on how the scheme works; the website also contains links to supporting resources including local area bicycle guides and maps. An example of one of the local area bicycle maps is shown in **Figure 2.23** below.

**Figure 2.23 Leeds Velocampus map**



- 2.194 Both Leeds and Leeds Metropolitan Universities were active within the scheme upon its commencement, giving a total combined student population of 60,000, helping ensure the scheme take up was likely to be high.

## Strengths and weaknesses

### Strengths

- The scheme is relatively cheap to access and open to all new students.

### Weaknesses

- The location for the scheme and the space from which to loan the bicycles, to service them and to store between hires was an initial problem at the start of the project as space on campus is at a premium.
- Of all the students who registered at fresher's week, 30% did not return to collect a bicycle; as no deposit had been secured at the fresher's event, there was no obligation on the student to participate at that point and this added to administration difficulties.



- The administration in letting out the bicycles for loan is very labour intensive, and this coupled with the insurance issues are working against the principle of the scheme being 'affordable, attractive and easy'.

## Lessons learned from unsuccessful schemes

- 2.195 A review of PBS schemes should consider a number of schemes which have ceased operation, or are experiencing volumes of use well below those anticipated. This may help highlight potential pitfalls in any proposed scheme in GM. These schemes include the well publicised scheme which operated in Blackpool but is currently suspended, and another project in Bristol which folded in 2010 after 18 months of operation.

### Hire-A-Bike with Cycle Blackpool

#### Objectives

- 2.196 Blackpool Council is a unitary authority with a population of 142,000. Blackpool has become one of the pioneering cities in the UK regarding bicycle hire. Hire-a-Bike with Cycle Blackpool was launched in Blackpool in July 2009 following a tender process and consultation which began in April of the same year. The city was awarded Cycling Town status by the (now defunct) body Cycling England in 2008.
- 2.197 From the outset the scheme was aimed at attracting users from among the 10-13m annual leisure visitors that go to Blackpool, as well as from within the local community which currently experiences some of the lowest levels of exercise in the UK. The scheme formed part of a suite of measures to encourage bicycle use in the town which included the provision of bicycle training, infrastructure development, marketing and promotional material.

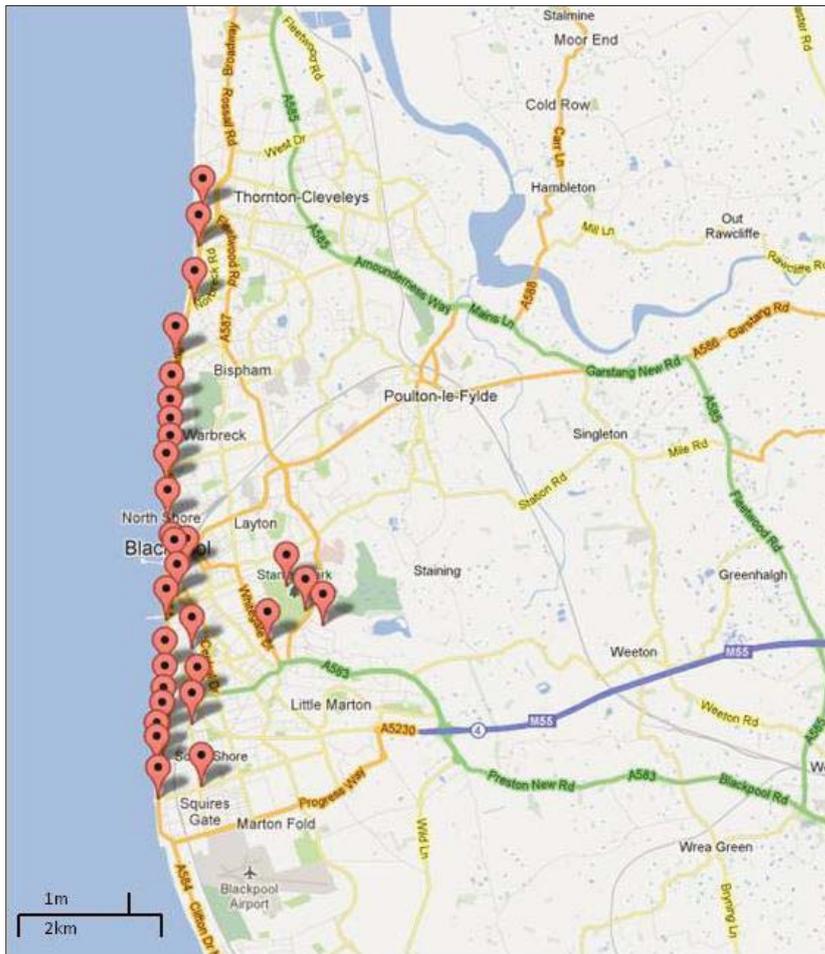
#### System

- 2.198 The system was operated by Hourbike Ltd. Blackpool chose Hourbike due to the value for money their scheme offered and the willingness of Hourbike to be flexible regarding development and implementation of the project.

#### Scale

- 2.199 The scheme operated in an area of approximately 6.8 square miles which forms a triangular shape pointing east from the Pleasure Beach area. The scheme began with a trial phase of 50 bicycles located in nine separate hubs located along the South Promenade (near the Pleasure Beach) and Stanley Park to the east of the seafront. This gave Blackpool the opportunity to gather early feedback from users, put in place modifications before the summer 2010 season and increase the scale of the project.
- 2.200 According to information provided by Hourbike, at its peak period in summer 2010 the project operated 300 bicycles out of 60 docking stations, each docking station holding up to five bicycles with a further 100 bicycles kept in store. A map indicating the docking station sites clustered along the seafront and Stanley Park is shown in **Figure 2.24** below.

**Figure 2.24 Locations of Blackpool Hire-a-Bike hubs**



[www.blackpool.gov.uk](http://www.blackpool.gov.uk)

### Docking Station Location Criteria

- 2.201 Initially Blackpool Council required that docking stations were located along the Pleasure Beach area to support the city's existing tourism offer. Other locations away from the seafront were identified by using data from the MOSAIC socio-demographic classification tool held by the council to help inform the development of suitable locations.
- 2.202 Subject to the successful roll-out of the project, plans were in place to site docking stations at large employment sites around the town with corporate memberships established for major local employers such as Blackpool Council, Blackpool NHS Trust and the National Savings and Investment Bank. However, due to a number of factors including the lower than expected take up of the scheme these plans never materialised.

### Scheme membership and tariffs

- 2.203 The registration process and pricing structure for this system was amended from the scaled pricing system that was originally in place when the scheme launched in 2009. Users were able to access the scheme in two ways:

### *Temporary membership*

- 2.204 Day visitors or tourists to Blackpool could purchase temporary membership of the scheme by either calling a standard charge telephone number or completing an online form in advance. In the first instance callers could reach an interactive voice response system. They were then given information about the scheme and asked to enter a contact telephone number. In response users received a text message with a PIN code number which they typed into the keypad at the bike hub. This allowed the bike to be unlocked from the hub.
- 2.205 Users were required to use a credit card to pay in advance for use of the bicycles. A minimum payment of £7.00 was required for new temporary subscribers providing seven hours of bicycle use, which could be used over several separate hire periods. After this period of use, cyclists were charged £1.00 per hour.

**Figure 2.25 Hire stations**



*Tim Caswell*

- 2.206 The temporary membership number lasted for 30 days, and could be topped up during that time either by calling the hire-a-bicycle number or logging into the Hourbike site using the membership card number and PIN and selecting the Top Up feature.

### *Full membership*

- 2.207 This option was suitable for longer term visitors or residents and a minimum registration fee of £10.00 was charged. Full membership required users to fill in an online form and supply credit card details. Users then paid £1.00 per hour to use the bicycles. In comparison, an adult one-day saver public transport ticket costs £3.50. All registered users agreed to a £50.00 security deposit as part of the hire agreement. If a bicycle was not returned to a hub by midnight on the day of hire, a fine of £30 per bicycle was taken from the deposit. If a bicycle was not returned within 48 hours of the start of rental the full deposit amount was taken.

## Operation

- 2.208 The system was designed to operate for 24 hours each day, and this was the case since its launch. However in December 2012 the system closed for the winter period, with Blackpool Council announcing that it was hopeful that the scheme will re-open in time for Easter 2013.
- 2.209 As bicycles were removed from or replaced into the hubs their use was recorded automatically at a central management centre so that bicycle availability at each hub was known and always up to date. This information was available to the Hourbike system operator and recorded on the Hourbike website, making the public aware of where available bicycles were located.
- 2.210 The public could access a live map on the Hourbike website showing locations of bicycle hubs, the number of bicycles available for hire at each hub, and the number of free racks for replacing bicycles. There was minimal time delay between a machine being replaced into a hub and the site being updated, Hourbike have suggested that this delay was similar to that of a text message being sent and received.
- 2.211 Originally all of the customer service centre business was handled by Hourbike but as the scheme membership and use grew this proved impractical and uneconomical. Therefore customer service queries that were more suited to locally based officers were routed to a Blackpool call centre with Hourbike handling only membership questions.
- 2.212 The scheme operating costs were funded from the ongoing fees paid in support of the scheme by Blackpool Council. To date this figure has amounted to £700,000 over a three year operating period, with a further £400,000 supplied by NHS Blackpool. The highest annual revenue received from members of the public hiring bicycles has been recorded as £17,200 during 2012 - 13.
- 2.213 When originally promoting their scheme, Hourbike made much of the Dawes branding of the bicycles and the familiarity of their machines to potential users. By using off the shelf machines it was hoped that newcomers to the scheme would not be deterred by the appearance of unfamiliar equipment.
- 2.214 Following their initial season of use, lessons learned were incorporated into the next tranche of bicycles purchased for the scheme. Revisions included moving luggage baskets from the rear of the machines to the front as the original baskets over the rear wheels resulted in them being used as impromptu spare seats by vandals, as well as child carrying seats by parents. The earlier baskets also became litter bins while the bicycles were in their docking stations on the seafront.
- 2.215 In Blackpool the weather damage from its maritime location has been a bigger problem than expected, resulting in corrosion damage to many of the bicycles. This was taken into account when new machines were purchased and all later models were designed to be more weather resistant. An indication of the high specification of equipment provision on the new bicycles is demonstrated by the fact that all of the bicycles are equipped with a full dynamo lighting system.
- 2.216 Initially all of the docking stations were unsheltered leaving the bicycles fully exposed to the weather; during the scheme's operating life some docking stations were later protected by retro-fitted shelters.

### Maintenance

- 2.217 Bicycle and storage rack maintenance was carried out by appointed locally-based staff employed on a sub-contract basis from Hourbike. 'Future Jobs Fund' money was initially available and has contributed towards the training and employment of some of the staff.
- 2.218 Each machine's approximate level of use could be monitored from the Hourbike central office so regular routine maintenance sessions could be predicted. Blackpool Council has stated that every bicycle was visited for a routine check once a week and every bicycle required servicing twice a month.

### Funding

- 2.219 Originally Blackpool Council had jointly funded the scheme with input from Cycling England and Blackpool NHS Primary Care Trust. Between them a total of £1m was made available over three years as a combination of revenue and capital funding. Blackpool Council purchased the entire product including on-street infrastructure from Hourbike, and paid Hourbike a fee to manage their part of the membership operation and promote the system. Blackpool kept all revenue income and paid Hourbike a bonus if revenue exceeded an agreed figure.
- 2.220 The assumed three year lifetime costs for the bicycles (excluding the bike docking hubs and customer service centre support), was expected to be approximately £1,000 per machine over the three year period. This figure included ongoing maintenance costs, but JMP/TI understands that this did not cover the cost of replacement bicycles.

### Complementary measures and promotion

- 2.221 Blackpool Council Travel and Road Safety Team offered cycle training for everyone aged nine upwards. Cycle training was offered to all year 5 and 6 children in Blackpool's primary schools through the Bikeability scheme. Adult cycle training sessions were also offered through the Cycle for Health programme. One-to-one or group sessions could be provided free of charge to anybody aged nine or over (people under this age are trained via school schemes); bikes were also provided for training if required.
- 2.222 Initially a representative was employed to stand near the hubs and promote the bike hire project to the public by encouraging people to try using the machines as it had been noted that people were initially reluctant to try the bikes. JMP/TI is not aware of any other membership fee reduction or promotion that was offered to incentivise trialling the bikes.
- 2.223 The regeneration of the south promenade to create cycle routes adjacent to some of Blackpool's famous visitor attractions along with the creation of a number of other new routes has helped make the most of Blackpool's flat topography. Blackpool has also successfully attracted high profile public cycle events such as a stage of the Tour of Britain and the Rapha Nocturne series of evening races.
- 2.224 A series of 'explorer' cycle routes were developed as part of the wider programme involving infrastructure work, to create cycle friendly networks on existing streets between the seafront, Stanley Park and routes leading eastward. Officers have informed JMP/TI that only two of these routes have led to any significant increase in cycle use.

## Strengths and weaknesses

### Strengths

- Catering for tourists is more straightforward than providing hire bikes for residents. Anticipating tourists' routes, origin and destination points and likely scheme usage was relatively easy. Officers have advised JMP/TI that the scheme operated most successfully as part of the tourist offer. Following the completion of redevelopment work on Blackpool Promenade the scheme delivered the highest usage figures to date with 1,927 rents during the month of August 2012.
- The hubs are available in a number of styles, as the docking stations are freestanding units requiring no underground hardwiring, therefore they can be run on wind or solar power but in Blackpool operated with batteries. All of the hubs made use of wireless technology, reducing the cost of infrastructure installation. Each hub could accommodate up to eight bicycles and hubs could be grouped together in blocks of eight.
- As noted above, lessons learned following the installation of the first bicycles meant that the baskets on the front of the newer bicycles were designed to deter vandals from sitting in them; the new baskets also allowed users to keep an eye on their belongings in the basket. This is in common with the Barcelona and London models.

### Weaknesses

- Anticipating residential patterns of use for the scheme proved far more difficult and officers have advised JMP/TI that the residential uptake was not high. Predicting locations for residential bicycle hubs was difficult with some locations away from the seafront recording low or no levels of use.
- Most vandalism damage was to the wire baskets fitted to the bicycles. They were a funding condition by the NHS in order to make the bicycles appealing as a practical transport option, however the baskets had often been crushed by people misusing the bicycles.
- It has been noted that damage has occurred at one hub which was located close to a casino and night club. Lessons learned by officers included seeking to anticipate potential sites where vandalism may occur when selecting sites for docking stations.

2.225 JMP/TI has been advised by officers that to date the Primary Care Trust support had sustained the project.

2.226 When it was in operation a JMP/TI staff member who attempted to register themselves with the Hourbike system found that this could not be done from a landline phone. Telephone enquiries made to Hourbike were unable to resolve the issue. JMP/TI staff also found the explanation regarding the registration process at the Hourbike stations unclear. For example, do potential users need to carry a pen and paper to record a PIN number provided to them over the telephone? This process is likely to deter casual users, a core target market.

## Bristol

2.227 Bristol City Council had originally worked with the University of the West of England (UWE) and First Great Western to install 18 bicycles in eight docking stations located around the city. These locations included four sites in the city centre as well as sites at Bristol Parkway rail station and three campuses of the UWE which are based around the outskirts of the city. Within the first year of

operation there was an expectation that the scheme would increase in size to 60 bicycles at nine docking stations.

- 2.228 The scheme was implemented during a time when Bristol held 'Cycle City' status, awarded by the now defunct Cycling England in 2008 as part of its 'Cycling Demonstration Towns' programme. It was considered to be a pilot project. A council spokesperson commenting in a press release on the closure of the project stated:

*'As an experimental scheme, the Bristol pilot was never large enough to be workable in the long-term, but it provided the council and the operators with useful data on how to develop a similar scheme for a wider roll out in the future.'*

*'The council took the view that it would be wiser to study a small scheme at a low investment than invest in a large scheme at this stage – particularly given that there is evidence of problems in some other European cities with more ambitious and expensive projects'.<sup>20</sup>*

- 2.229 Staff at Bristol City Council indicated to JMP/TI that the scale of the project was not large enough to provide anything like comprehensive coverage of the city for users and therefore encourage the volume of users required to join the scheme.
- 2.230 Several of the docking stations were located at university campus sites where a lot of students already owned their own bicycles, and this group were considered a potential target market for the scheme.
- 2.231 The scheme officially launched in January 2009 and by November 2010 only 240 people had registered as members of the project<sup>21</sup>. The participating bodies involved in the development of the scheme influenced the location of the docking stations and funding was ultimately not available to increase the number of bicycles and stations.
- 2.232 Local officers also made JMP/TI aware of the failure by the council to set up a dedicated team to oversee the development and launch of the project. The project was operated by officers within the existing council transport department.

## Dumfries

- 2.233 A similar scheme has been installed in Dumfries, a market town in the west of Scotland with a population of 31,000. The scheme is called Bike2Go, and uses equipment and infrastructure supplied by Hourbike. It has been reported that the scheme has very low usage numbers.
- 2.234 The Dumfries scheme was launched with funding from the Scottish Government's 'Smarter Choices – Smarter Places' programme and was one of a number of projects delivered to promote sustainable travel in the town under the umbrella branding of 'GoSmart Dumfries'.
- 2.235 In common with the aims of the other Smarter Choices – Smarter Places initiatives the Dumfries PBS scheme has a stated aim of contributing to an overall reduction in CO<sub>2</sub> emissions across the town. The target market is not clear, but the scheme was implemented during the period

<sup>20</sup> <http://www.thisisbristol.co.uk/Experimental-bicycle-rental-scheme-folds/story-11245245-detail/story.html>

<sup>21</sup> Ibid



immediately following the very high profile launch of the Paris scheme and the delivery of the London scheme.

- 2.236 In contrast to the London and Paris schemes, the Dumfries scheme reported usage of less than 20 rentals a week across the entire scheme at times. In contrast to Bristol, the Dumfries project is continuing to receive council support and the backing of elected members.<sup>22</sup>

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<sup>22</sup> <http://www.bbc.co.uk/news/uk-scotland-south-scotland-19660397>

## Scheme Comparison Summary

Table 2.9 The following table summarise the information provided in Sections 2.

PBS Name	dublinbicycles	Barclays Cycle Hire	Call a Bicycle	véloV	Bicing	Southport Cycle Hire	Leeds Velocampus
City	Dublin	London	Munich	Lyon	Barcelona		
Population	1.04m	8.1m	1.3m	722,000	4.1m	90k	799k
Operator	JC Decaux	Sercro	DB rent	JC Decaux	Clear Channel	Hourbike	U Travel Active partnership
Objectives	Reducing private car use in the city, supporting and improving the public transport provision	Increasing the already high level of cycling in the city	Promoting and supporting the public transport offer	To reduce motor traffic and air pollution levels in the city and promoting physical activity.	Reduce the negative impact of motor traffic in the city by encouraging short trips by bike,	Promote tourism, regeneration and encouraging children to cycle to school	Enabling students and staff to travel about the city cheaply and easily
Funding							
Public /private	Private: JC Decaux	Public/private: Transport for London - Barclays	Public: DB rent	Public / private Grande Lyon - JC Decaux	Public	Public: Southport Council –Cycling England	Public: Uni of Leeds Sustrans, Leeds CC, NHS Leeds
Advertising revenue	Yes	Sponsorship	No	Yes	No (Proposed free ad space for social ent).	No	No
Subsidy (estimated)	€0 (€300k annual paid to operator from scheme revenues over 3 years to support expansion)	£24m (annual)	No municipal support	15% of annual revenue = €650k (2007 figure) <sup>23</sup>	€10.2m (annual)	Yes	Yes
Implementation costs if known Cost per machine (p.a.)	Implementation: €26m Cost per bike N/A	Implementation: £140m Cost per bike: Approximately £4000 on implementation and operation over 5 years excluding revenue	Not known	Implementation / operational costs per bike €2-3000 (estimated) <sup>24</sup>	Implementation:€15.9m Operating cost per bike €1750-3000 (estimated) <sup>25</sup> Excluding revenue	£400 implementation £800 operation Excluding revenue	Not known

<sup>23</sup> [http://www.fedarene.org/documents/projects/Climact/Best-Practices/027\\_Velov\\_.pdf](http://www.fedarene.org/documents/projects/Climact/Best-Practices/027_Velov_.pdf)

<sup>24</sup> [http://www.mobiped.com/wa\\_files/Mobiped-4\\_years\\_down\\_the\\_path-what\\_is\\_the\\_mobility\\_impact\\_of\\_Velo\\_v.pdf](http://www.mobiped.com/wa_files/Mobiped-4_years_down_the_path-what_is_the_mobility_impact_of_Velo_v.pdf)

<sup>25</sup> Cost – benefit evaluation of Bicing: E Anaya, M Bea. ECOMM Conference 2009, San Sebastian, Spain. 2009

Demand characteristics	dublinbicycles	Barclays Cycle Hire	Call a Bicycle	véloV	Bicing	Southport Cycle Hire	Leeds Velocampus
<b>Number of bicycles</b>	550	8000	1400	4000	6000	100	200
<b>Number of docking points</b>	44	570	None (freestanding)	340	425	N/A	N/A
<b>Registered users (including casual users)</b>	84,000	175,000	42,000 (2008)	42,000 (2010)	182,000		
<b>Long term / short term or casual membership %</b>	58 Long term 42 Casual	70 Long term 30 Casual	N/A	60 Long term 40 casual	No casual use provision	N/A	N/A
<b>Hires per bike/day</b>	10 - 12	N/A	0.24 (7day week) 0.34 (5 day week)	8	8 (2008)	N/A	N/A
<b>Av journey time</b>	13 mins	18 mins	44 mins	15 mins	14 mins	N/A	N/A
<b>Annual trip numbers (estimated)</b>	1.8m <sup>26</sup>	9m	N/A	5.5m <sup>27</sup>	11m		
<b>Op characteristics</b>							
<b>Access</b>	05.30 – 00.30	24/7	24/7	24/7	24/7 Fri – Sat 05.00 – 00.00	Varies by site but approximately 09.00 – 17.30 7 days	N/A
<b>Membership / Registration fee?</b>	Annual €10 3 Day - €2	Annual - £90 24 Hrs - £2 7 day - £10 (from Jan 2013)	Annual €48 DB BahnCard - €36 Students - €24 Casual use €0.08 per min	Annual €25 Students €15 7 day €5 1 day €1.50 CityCard 3 day €3	Annual €45.11 (€46.46 Feb 2013)	No	Annual £50
<b>Credit card required</b>	Yes	Yes	Yes	Yes (or other scheme card)	Yes	No cash only	No
<b>Free period</b>	30 mins	30 mins	30 mins (Ann. members)	30-60 mins	30 mins	No	No

<sup>26</sup> Making Dublin More Accessible: The dublinbikes Scheme. M Rogers C Keenan. TRICS Conference 2012

<sup>27</sup> Vélo'v in Lyon: A key Cyclocity Benchmark, JS Decaux



	dublinbicycles	Barclays Cycle Hire	Call a Bicycle	vélòv	Bicing	Southport Cycle Hire	Leeds Velocampus
<b>Links with ITS/PT cards</b>	No	No	Yes	Yes	Yes	No	No
<b>Technology</b>							
<b>Local power required</b>	Yes, system draws from grid	Yes (TfL requested the system draw from the grid)	No	Yes, system draws from grid	Yes, system draws from grid	N/A	N/A
<b>Technology type</b>	Membership swipe card, credit card	Membership key, credit cards, online, telephone	Pin, online, telephone	Membership / partner swipe card, credit card	Membership swipe card	Manual	Manual
<b>Security deposit</b>	€150 Guarantee	£300 Guarantee	No	€150 Guarantee	€150 Guarantee	No	£100 deposit
<b>SWOT</b>							
<b>Strengths</b>	Delivered at no financial risk to local authority, popular with users	Extensive coverage, low cost for short journeys and competitive with other modes in terms of journey time	No risk or cost to local authority, flexible. Social enterprise contributes to maintenance	The scheme membership can be linked to other public transport service cards and concessions.	Funded from car parking revenues, therefore there is no impact on the cityscape from an increase in advertising signage.	No other commercial scheme in area. Flat local geography. Very robust bicycles	Cheap to access for users. Contributes to the promotion of urban cycling
<b>Weaknesses</b>	City has handed over advertising revenue to operator. A large number of objections were lodged to operator's advertising site applications. Subscription fee considered too low	A large amount of risk placed on local authority. Scheme is proving expensive to maintain. TfL has just doubled access charges	Telephone call required at start and finish of hire period. Bicycles only currently locked to street furniture or freestanding	As one of the earlier schemes to be launched, the scheme cost more to operate than anticipated, resulting in JC Decaux seeking further financial support from GL.	The system is not open to tourists, this helps avoid disputes with commercial hire operators from the outset	Tourist scheme only, no commuter offer, only available during shop hours	Internal scheme limited to students and staff
<b>Opportunities</b>	Provides genuine transport links for less well served sections of the city centre. Contributes towards Dublin's 'continental' image	Capitalises on London's post Olympic cycling image. Supports TfL's contribution toward developing cycling as urban transport	Call a Bicycle is the scheme with the most fluid links with public transport via Bahn card.	The scheme is credited with generally improving the environment for utility cycling in the city.		Development of other hire outlets in different parts of town, including cooperation with local hoteliers. Supports tourist offer	The scheme has grown to take in both Leeds and Leeds Metropolitan Universities and Trinity University
<b>Threats</b>	Dublin is unlikely to secure a similarly advantageous advertising deal in the future	On-going revenue costs are high and sponsorship is relatively low	On-going support from Rail operator required		The recent economic downturn led to a doubling of the annual subscription.	On-going revenue support required	On-going revenue support required

## Section 2 Summary

2.237 Section 2 has reported on a number of different types of PBS schemes operating in the UK and overseas. A number of factors are evident elements in the success of the schemes, and are apparent even across schemes with different pricing structures and operating systems. These factors are summarised below:

### Users - Market and target groups

- Users come from a range of different markets, with the key market being local travel to work or business travel.
- In order to support and sustain a PBS scheme the operational area should include areas of significant residential accommodation. It was noted that in the proposed expansion of the dublinbike scheme, the first two of four target market groups include employment related trips and residential centres.
- Analysis of data available from TfL indicates that 46% of the scheme members' journeys were for commuting, while a further 9% were travelling on employer-related business.
- Other markets include city centre recreational use and evening/weekend use to access other leisure activities (e.g. cinema, restaurants).

### Operational area

- The operational area should cover a core section of a city and include employment areas, residential areas and major trip attractors with the primary focus being on facilitating short employment-related trips. The area, while not being so compact that trips could easily be made on foot, should comprise principal employment and education destinations, A multi-disciplinary team should be gathered to develop and filter potential docking station sites;
- An off the shelf scheme which has proved successful in other cities can be implemented relatively quickly once the operating area and location of docking stations has been defined; in Dublin this selection process took two years.
- Most schemes give users access to a docking station approximately every 300-400m. Docking stations need to be located where there is a degree of surveillance and away from locations where they may be targets for misuse or vandalism.

### Payment structures and methods

- Subscription levels vary and a relatively high annual fee is not automatically a disincentive to membership.
- Credit card access for casual membership is commonplace and increases accessibility to the scheme for infrequent users. Availability of telephone membership is desirable but not crucial to a scheme's success and is excluded from recently introduced schemes.
- Clear mapping and information showing location of docking stations (online & on stations) helps simplify the registration process for users who are unfamiliar with a scheme.
- A free period of approximately 30 minutes is offered by most schemes, and most bicycle use occurs in this free period. In some cases this period can be extended by 15 minute segments, to allow users to locate a free docking station in the event of their selected one being full.

- A PBS scheme should incorporate a pricing structure which discourages users from taking the bicycles for long continuous periods.
- Integrated ticketing with the rest of the public transport network is desirable but not necessary for success. Neither the dublinbike nor BCH scheme offer integration with their respective city's public transport smartcard systems.
- There can be an overlap between trips which can be made by public transport modes and PBS schemes. The dublinbike scheme set out to complement existing public transport provision by facilitating journeys between points that are less direct or not directly accessible via public transport.

### **Servicing and Maintenance**

- Fixed docking stations with distinctive high quality infrastructure are desirable. As a large amount of servicing takes place in-situ, docking station location selection must provide for access by operators and service vehicles.
- Redistribution of bicycles is part of the daily operating requirements, this task is compounded when docking stations are located at major transport hubs, the effect of negative tidal flow can be reduced by implementing a 'buffer' zone around transport hubs of 300 - 350m.
- Failure to ensure availability of bicycles at a docking station and space to replace a bicycle will quickly lead to a loss of faith in the scheme by users.

### **Business model**

- Advertising revenue funded business models provide a low financial risk solution for the local authority, but there may be issues around the loss of public amenity due to the creation of extra advertising space within the urban environment.
- Other business models include private sponsorship or municipal funding from existing revenue streams such as car parking controls.

### **Public Amenity and Vitality**

- A popular scheme can have a very large influence, well beyond the scope of a PBS scheme on how a city is generally perceived, For cities such as Paris, Dublin, Barcelona and London the implementation of successful PBS schemes have been a factor in how those cities are perceived around the world.
- An annual membership system with a deposit element can help create a sense of civic ownership of a scheme. A common theme of successful PBS schemes is their 'adoption' by residents of a city. This issue has been highlighted by TfL<sup>28</sup> and is also evident in the high public profile of the London scheme, colloquially known as 'Boris Bike' after the name of the elected London mayor.

### **Management**

- Marketing and awareness raising programmes, as well as complementary measures such as information at/near docking stations are as important as physical management of the scheme.

<sup>28</sup> Feasibility study for a central London cycle hire scheme. TfL 2008

## Infrastructure

- The delivery of wider capacity infrastructure improvements to enhance access to key trip attractors will increase the attractiveness of PBC schemes, thereby appealing to as broad a market as possible. In London this has included a range of complementary measures, such as making one-way streets two-way for cycling, providing zebra and signalled pedestrian crossings, and clear signing and mapping, as well the well publicised Cycle Super Highways. In Dublin the development of the Grand Canal Cycle Route, an 8.5km segregated route, has seen over 3,000 trips each day with around 30% of the users being women.

### 3 Cycling in Greater Manchester

#### Scope of data analysis

- 3.1 Before considering the application of a cycle hire scheme to GM as described in Section 4, it is beneficial to examine recent data relating to the current cycling market in GM.
- 3.2 This helps to provide the context for the development of cycle hire, as cycling in European cities such as Barcelona and Lyon already had a positive image, an upward trend in usage and increasing investment in cycle infrastructure before any PBS scheme was introduced.
- 3.3 To assist in this process, a range of general traffic and cycle count data has been analysed; including:
- Cycle counts for GM and Manchester key centre to understand concentrations of activity;
  - Cycle network mapping information to identify existing routes and networks and hence which might offer an attractive basis for PBS usage ;

#### Cycling data

- 3.4 The analysis has been based on existing TfGM data<sup>29</sup>, collected by the Highways Forecasting & Analytical Services (HFAS) unit of TfGM, comprising:
- 12-hour (07:00-19:00) manual classified counts on 182 A roads, 103 B roads and 123 minor roads in GM sourced from the DfT's National Road Traffic Census and HFAS's annual monitoring programme;
  - 54 Automatic Traffic Counters on A and B Roads conducted by TFGM's UTC team;
  - Key centres – annualised flows crossing cordons on key town/city centres (Bolton, Bury, Manchester, Oldham, Rochdale, Eccles, Stockport, Ashton, Altrincham and Wigan).
- 3.5 This data, shown in **Table 3.1** below, indicates a significant rise in the number of peak period cycling trips between 2005 and 2012. The cycle count data shows an increase in trips to a number of key centres, notably Manchester, Oldham, Eccles, Ashton and Wigan where cycling increased by over 100% between 2005 and 2012. It should be noted that the flow into Manchester is greater than that into all the other centres combined.

<sup>29</sup> HFAS Report 1694 Transport Statistics 2011 and supporting documents.

**Table 3.1 Peak Hour Cycle Trip Change 2005 - 2012**

Centre	2005 Cycle trips (0730-0930)	2012 Cycle trips (0730-0930)
Bolton	58 (2004)	104
Bury	43	63
Manchester	562	1,476
Oldham	27 (2004)	61
Rochdale	24	22 (2011)
Eccles	23 (2004)	60
Stockport	198	265
Ashton	35 (2004)	82 (2011)
Altrincham	79	81 (2011)
Wigan	25 (2006)	53

- 3.6 More detailed cordon count data from HFAS, averaged over the period 2010-11, shows 1,167 bicycles entering the Manchester city centre cordon during the AM peak period (0730 – 0930), a mode share increase of nearly 50% from the 2005-09 period. In absolute terms cycling has increased mode share by 0.4 percentage points, compared to 1.4 for walk trips, 3.1 for rail, and 0.4 for Metrolink trips. This is shown in **Table 3.2** below.

**Table 3.2 HFAS Cordon Counts**

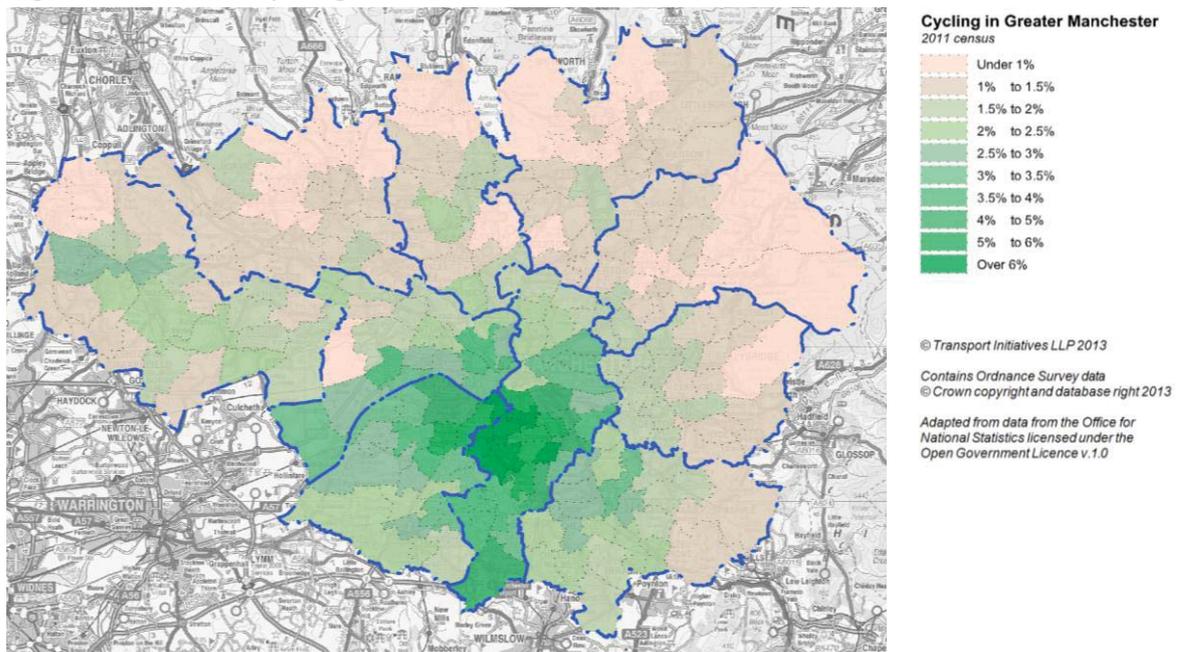
Mode	Count (Ave 2005-2009)	Mode share (2005-2009)	Count (Ave 2010-2011)	Mode share (2010-2011)
Car	29,262	33.0%	27,102	30.2%
Bus	24,904	28.1%	22,928	25.6%
Rail	19,473	22.0%	22,484	25.1%
Metrolink	6,163	7.0%	6,640	7.4%
Cycle	783	0.9%	1,167	1.3%
Walk	8,059	9.1%	9,403	10.5%
Total	88,644	100%	89,723	100%

- 3.7 The data demonstrates that demand for cycling is on an upward trend. It supports the view that the culture, particularly in Manchester, is conducive to this mode of transport. This is a key factor in determining whether related schemes such as cycle hire scheme are likely to be positively received.

#### 2011 census

- 3.8 **Figure 3.1** below shows the levels of cycling across GM for journeys to work.

**Figure 3.1 Level of cycling across GM**



3.9 **Table 3.3** below shows cycling levels across the ten boroughs of GM. It is clear that cycling to work is highest in Manchester, with a rate almost twice that of the GM average of 2.2%. Over a third of all cycle trips to work are made by residents of Manchester. Other boroughs with higher cycling levels than the average are Salford and Trafford, while Stockport has a level similar to the GM average.

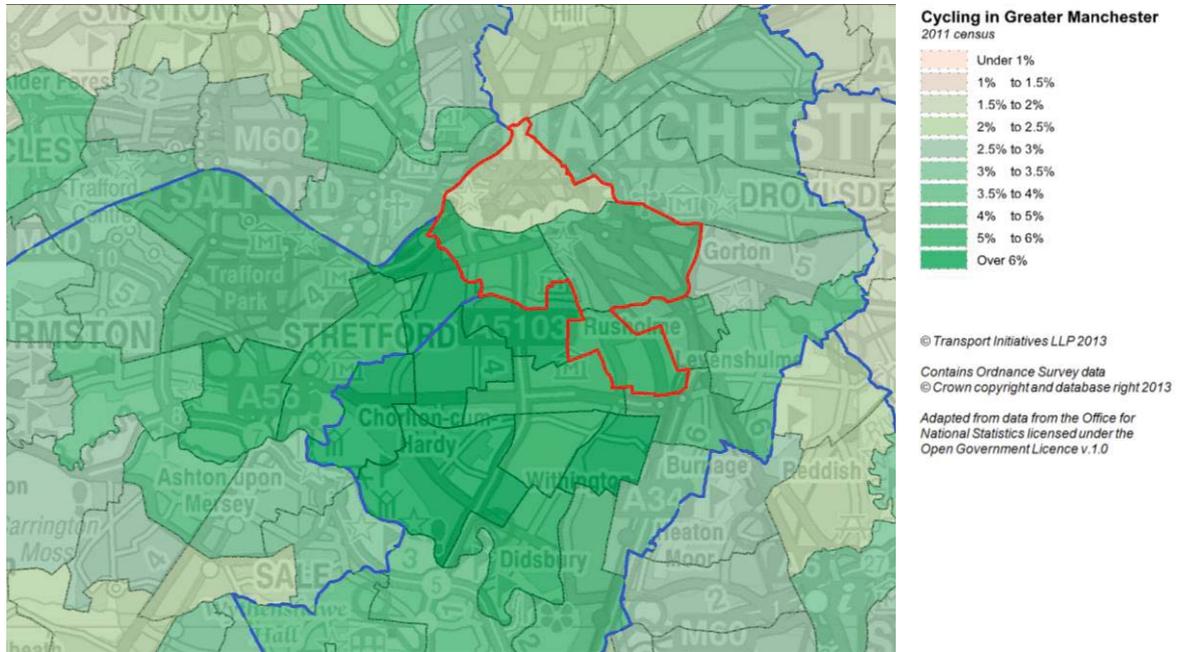
**Table 3.3 Cycling levels across ten boroughs of GM**

Borough	No. of bicycle trips	% of trips by bicycle
Bolton	1287	1.08%
Bury	1195	1.42%
Manchester	8708	4.22%
Oldham	1015	1.09%
Rochdale	923	1.05%
Salford	2527	2.45%
Stockport	2802	2.16%
Tameside	1426	1.45%
Trafford	3484	3.32%
Wigan	2402	1.65%
<b>Total/average</b>	<b>25769</b>	<b>2.20%</b>

3.10 The area highlighted in **Figure 3.2** below in red shows the core wards in Manchester city centre which as Section 4 will describe could form the basis of a future PBS scheme. Apart from City Centre ward they all have higher than average cycling rates. It should be noted however that City Centre ward has very high levels of walking to work, with exactly half of all trips to work on foot, and so this ward has the highest level of active travel trips in the whole of GM. It is likely based on evidence from other schemes, (such as the customer satisfaction surveys from BCH in London

where 52% of trips which were made by BCH would have otherwise been made on foot) that some of these trips would transfer to PBS.

**Figure 3.2 Core wards**



## 4 Application of reviewed schemes to Greater Manchester

### Introduction

- 4.1 The OBIS report identifies that successful PBS schemes focus on multiple target groups to ensure that bikes are utilised throughout the day and in order to appeal to a wide cross section of the population. This section examines whether Greater Manchester exhibits some of the same success factors as comparable schemes such as Dublin, Barcelona, Lyon and London in order to gauge the likely demand for a scheme.
- 4.2 It should be noted that some of the most comprehensive monitoring of a PBS scheme has been undertaken in London which whilst not being comparable to Manchester in size does offer a useful insight into likely user groups and hence demand for a scheme. This section has therefore to some extent been shaped by the availability of data.
- 4.3 By reviewing the information gathered in the earlier part of this section it is possible to refine and redefine users of a potential market for a PBS scheme in GM into four types, these are:
- Resident utility: people (including students) living in central Manchester making trips for non-leisure purposes (mainly commuting / business / shopping trips) who will overwhelmingly take out membership as cited in Dublin (90%+) and London(70%+);
  - Visiting business: people coming to central Manchester either from the rest of GM or further afield, making trips for non-leisure purposes (mainly business trips) likely to be a combination of members and casual users;
  - Tourism/recreation: people living or visiting central Manchester making trips either to access leisure activities (e.g. cinema, restaurant, museum, leisure centre) or for recreation purposes itself (i.e. bike ride along canal) who will predominantly be casual users.
- 4.4 These groups have been scored in **Table 4.1** below against their likely trip type and is based on the profile of users from the London BCH customer satisfaction scheme. Given that resident students will exhibit slightly different travel behaviours from resident utility they have been separated.

**Table 4.1 User type /trip type**

Cycle hire market type	Resident utility	Resident student	Visiting business	Tourism/recreation
Commuting	✓✓✓	✓	✓	
Business	✓✓✓		✓✓✓	
Education		✓✓✓		
Shopping	✓✓	✓	✓	✓✓
Personal business	✓✓	✓✓		✓
Escort		✓✓		
Visiting friends		✓✓		✓
Sport & entertainment		✓✓		✓✓✓
Holidays & day trips		✓✓	✓	✓✓✓

## Key market groups

### Resident / Utility

- 4.5 Experience from Barcelona, Dublin and London suggests that the largest group of users for a PBS scheme in Manchester will be this group. In Liverpool which is considering a PBS scheme it has been estimated the majority of these hires will be by this group, for journeys less than 30 minutes in length.
- 4.6 The following sections set out how we believe demographic factors affect the attitude to cycling for residents. This in turn will have an effect on the relative take up of cycling by different sectors of residents in Manchester. It is firmly based on the approach taken by TfL to the development of cycling, where the near market (i.e. groups more likely to take up cycling) are targeted first, as these produce the highest rates of return. Specific interventions are also designed to address harder-to-reach groups where these are deemed necessary to meet other policy goals, such as social inclusion or community cohesion.
- 4.7 While the demographic information relates to cycling as a whole, rather than to the use of PBS, the evidence from London and other schemes appears to support the view that it is those segments with a higher propensity to cycle which are also more likely to use PBS.

### ACORN analysis

- 4.8 An ACORN analysis is often the best way to understand potential markets. Indeed TfGM commissioned the consultancy CACI to develop an ACORN analysis of attitudes to cycling in GM in order to provide supporting evidence for their LSTF bid. The analysis made use of a sample of just under 12,000 cyclists who had participated either in the 2011 Manchester City Centre Skyride (a mass ride for cyclists on roads in the centre closed to motor traffic) or smaller local events also during 2011. These events were managed by British Cycling.
- 4.9 The data collected was used to profile postcodes of individuals and groups who registered with British Cycling for the events throughout 2011. Although this is to some extent self-selected, it gives a reasonable basis for developing an understanding of which groups are more likely to cycle in GM, and hence which geographic areas are likely to have the highest potential for cycling.
- 4.10 A range of socio-demographic data (residential location, income, employment status, age, family status etc) was collected which enabled the individuals to be assigned to one of the 17 ACORN groups ("segment"). Combined with the 2001 census data on cycling, this was used to develop an index of cycling propensity in GM, i.e. whether a segment is more or less likely to cycle than the average.
- 4.11 Data was already available from the 2001 census regarding the level of cycling to work in all wards in England. This was used by CACI in conjunction with the broad socio-demographic profile of the wards to develop a national index of cycling propensity. Finally this index could be compared with the GM data to determine whether a segment had a greater or lesser propensity to cycle compared to the rest of the country.
- 4.12 TfGM used the segmentation to identify six initial profile groups (from a total of 17) with a higher than average cycling propensity. This output was then combined with results from specific TfGM surveys of cyclists and accessibility information to identify groups with either a high commute cycle propensity or leisure cycle propensity.

4.13 These groups are shown in **Table 4.2** below, and include:

- Prosperous Professionals;
- Educated Urbanites;
- Starting Out;
- Aspiring Singles;
- Wealthy Executives;
- Secure Families; and
- Flourishing Families.

4.14 Following a review against the broader aims of the LSTF (to increase access to employment), Struggling Families and Blue Collar Roots were also added to the target list. The key factor supporting the addition of these groups were:

- High population size of these segments within GM (18% Struggling Families and 14% Blue Collar Roots);
- Difference between the level of cycling in these groups in GM compared to national cycling levels (-69% Struggling Families, -30% Blue Collar Roots);
- Poor access to public transport; and
- Low levels of car ownership.

4.15 Although not one of the main target groups, Wealthy Professionals have been kept in the analysis due to their high propensity to cycle, as supported by the relatively high take up of PBS in London by this group.

**Table 4.2 ACORN group segmentation**

ACORN Group	Index – Propensity to Cycle in GM	Main type of cycling
Prosperous Professionals	271	Commuting
Starting Out	187	Commuting
Educated Urbanites	169	Commuting
Flourishing Families	151	Leisure
Wealthy Executives	130	Leisure
Secure Families	121	Leisure
Blue collar roots	85	Commuting
Aspiring singles	83	Commuting
Struggling families	57	Leisure / Commuting

4.16 In these groups, the output from the ACORN analysis identified Prosperous Professionals, Starting Out, Educated Urbanites, Blue Collar Roots and Aspiring Singles as potential commuter cycling groups.

4.17 Flourishing Families, Wealthy Executives, Secure Families and Struggling Families were groups identified as being primarily leisure cyclists, but with a proportion of trips being for commute journeys. The segment groups are described in more detail in **Table 4.3** below, which is broken down in order of its position relative to the proportion of the population in GM.

**Table 4.3 ACORN group segment descriptions**

Prosperous Professionals (2% of GM population)	Well educated and living within the M60, this group has the highest propensity to cycle for commuter purposes, and as part of leisure / family activity. Along with Educated Urbanites this group represents the core set of commuter cyclists in GM. Higher than average use of both Metrolink and rail services, this group has been identified as having potential to increase bus use but only if experience can be significantly improved.
Aspiring Singles (2% of GM population)	This group comprises students and young people who have recently finished their studies and started working. Dependent upon bus for transport around the region, there is a propensity to cycle, but given the proximity to the city centre, there is further potential for encouraging walking and cycling with a view to maintaining this travel behaviour later in life.
Starting Out (4% of GM population)	Living outside of the M60, this group has higher than average levels of car ownership, and is predominantly employed in lower managerial and clerical occupations. Public transport use is relatively high especially on Metrolink and rail services. The proximity of this group to cycle infrastructure already in place suggests that there is potential for encouraging this group to cycle (more) for commuter purposes.
Educated Urbanites (5% of GM population)	As per Aspiring Singles, this group comprises younger highly qualified individuals living close to the city. Many use public transport for commuting purposes, and this group has a high propensity to cycle to work. Barriers to cycling include the lack of segregated cycle lanes, and the lack of secure storage facilities.
Wealthy Executives (6% of GM population)	The most affluent group living in wealthy high status suburban, rural and semi-rural areas, properties are large with 4 or more bedrooms and car ownership is high with two cars (or more) per household being the norm. Whilst unwilling to reduce their reliance on cars, this group does have a high propensity to travel by train. Cycling tends to be more of a leisure activity.
Flourishing Families (7% of GM population)	This group comprises wealthy families living in suburbs and commuter towns. Car ownership is high with many families having access to two or more cars. The use of public transport is low, with little potential for increase. Cycling and walking form part of leisure / family activities and although there is potential for increased leisure use, there is low potential to encourage this group to cycle to work or school.
Blue Collar Roots (14% of GM population)	Families, young singles and single parents. Employment tends to be in factory and manual occupations. Educational qualifications tend to be low as well as car ownership being low
Struggling Families (16% of GM population)	Low income families renting from the council or housing associations. Homes tend to be terraced or semi-detached two bedroom properties. There is a lack of educational qualifications with occupations being in factory or manual work. Low levels of car ownership.
Secure Families (18% of GM population)	Home owning families living in suburban and semi-rural locations, generally working in middle-management and clerical occupations. Cycling as part of leisure / family activity is prevalent among this group, and of those who do cycle, there is a high percentage who would like to cycle more often & for commuting purposes. The distance between home and workplace, the lack of segregated cycle lanes and the lack of workplace facilities are key barriers to cycling for this group.

4.18 The figures indicated in **Table 4.3** above show the population proportions for the whole of GM. An assessment of the four wards in Manchester city centre (Ardwick, City Centre, Hulme and Rusholme) are shown in **Table 4.4** below, and indicate the following proportions:

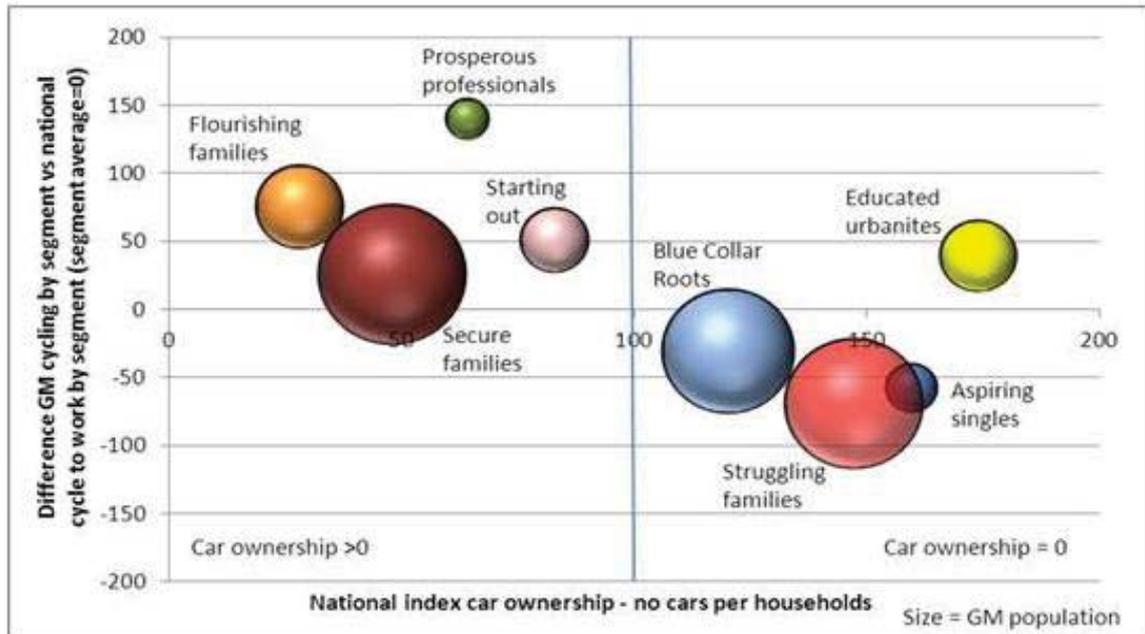
**Table 4.4 ACORN group segmentation for Greater Manchester and city centre**

	% of GM population	Approx % of wider Manchester city centre population	Approx % of city centre ward population
Prosperous Professionals	2%	0.3%	N/A
Aspiring Singles	2%	14.0%	N/A
Starting Out	4%	2.9%	0.2%
Educated Urbanites	5%	45.6%	96.3%
Wealthy Executives	6%	0%	N/A
Flourishing Families	7%	0%	N/A
Blue Collar Roots	14%	0.3%	N/A
Struggling Families	16%	4.7%	N/A
Secure Families	18%	3.5%	N/A

*\* Figures do not add up to 100% due to omission of 7 non-target segments*

- 4.19 It can be seen that by far the largest group in the proposed scheme area are Educated Urbanites, followed by Aspiring Singles. Secure Families, Struggling Families and Starting Out were the only other groups with any sizeable representation but all under 5%.
- 4.20 However in the core city centre ward the overwhelming majority of the population falls into the Educated Urbanites group, having the third highest propensity to cycle of the target groups. Further comparisons have been made to compare the target groups against the national averages, and to assess whether they have access to a household car.
- 4.21 The information in **Figure 4.1** below shows the relative propensity of the target groups compared to the national average, plotted against their relative size (of the GM population) and proportion owning at least one car.

Figure 4.1 Propensity of target groups likely to cycle



- 4.22 The graph is somewhat complex, but can be summarised as follows: the vertical axis measures whether a population segment in GM is more or less likely to cycle than its national equivalent. As noted above most segments are more likely (mainly since the national average includes rural areas with little cycling). However the Blue Collar Roots and Struggling Families segments show lower cycling levels than across the country. Hence there is potential for more cycling in these groups.
- 4.23 The horizontal axis shows the likelihood of household access to a private car. Those groups to the left are more likely to have access to a car with those on the right being less likely. Those groups having less access to a car are likely to derive higher benefit from improved take up of cycling.
- 4.24 This redefined user market has then been scored against the ACORN group segmentation types and their propensity to cycle. This is shown in **Table 4.5** below. These groups are then given a score in regard to their propensity to use a PBS scheme.

Table 4.5 ACORN groups / main market types

Acorn Group	Main type of market types	Index - Cycle in GM
Prosperous Professionals	Resident utility, Visiting business, Tourism/recreation	271
Starting Out	Resident utility	187
Educated Urbanites	Resident utility, Resident Student, Visiting/Business	169
Flourishing Families	Tourism/recreation	151
Wealthy Executives	Visiting business, Tourism/recreation	130
Secure Families	Tourism/recreation	121
Blue collar roots	Resident utility	85
Aspiring singles	Resident utility, Tourism/recreation	83

- 4.25 By combining the cyclist segmentation with a similar approach to profiling public transport users, TfGM categorised each segment into high/medium/low cycle growth potential categories for cycling in general and not solely for PBS schemes. These segments may be persuaded through targeted interventions and encouragement to adopt more active or sustainable modes to reach places of education, training or employment.
- 4.26 Factoring the population size against the propensity to cycle gives a way of ranking the target groups. This is shown in **Table 4.6** below.

**Table 4.6 Population size against propensity to cycle**

	Approx % of scheme area population	Propensity	Index
Educated Urbanites	45.6%	169	7706.4
Aspiring Singles	14.0%	83	1162
Starting Out	2.9%	187	542.3
Secure Families	3.5%	121	423.5
Struggling Families	4.7%	57	267.9
Prosperous Professionals	0.3%	271	81.3
Blue Collar Roots	0.3%	85	25.5
Flourishing Families	0%	151	-

- 4.27 The main target markets for residents of the initial bicycle scheme are therefore identified as: Educated Urbanites, Aspiring Singles, Starting Out, Secure Families and Struggling Families. Wealthy Executives may also form a target market, since although there is no resident population they may be likely to participate in a PBS scheme as a visitor (on business or leisure). These groups are supported by evidence from the London scheme (reported in Local Transport Today, Nov 2012).
- 4.28 In summary the results for the resident / utility market indicate the following:
- There is a strong market (Educated Urbanites) for the use of a PBS scheme in city centre and adjacent wards, based on the ACORN data. This group are generally younger (under 35) and hence are a good match to the profile of users in Dublin and London, for example;
  - Educated Urbanites only form 5% of the population in Greater Manchester and hence the demand for a scheme outside the city centre from this group is likely to be low, and
  - In the city centre ward, the predominant form of tenure is in flats where personal bike storage is limited, hence encouraging the uptake of PBS.

#### Resident Student

- 4.29 Manchester and Salford have a large student population with multiple campus' close to the city centre. All three Universities are large enough to generate internal journeys. For example, Salford University runs some courses from the Media City area and students are expected to travel between the two sites. The journey should take around 15 minutes by bike, about half the time it takes by public transport, and so is an ideal candidate for PBS.

4.30 This market whilst being a subset of the main resident / utility could also assist in generating demand for a PBS scheme in GM.

#### **Visiting Business**

4.31 The Visiting Business market is a key market but is secondary to resident/utility. As reported in section 2, we know that the peak periods of PBS use in Dublin are 7am to 9am, 1pm to 2pm and 5pm to 7pm.

4.32 Visiting business users can be described as those on business and / or those commuting into Manchester city centre for the last leg of their trip (but not normally residents of the city centre)

4.33 The BCH surveys indicated that journey time was a key factor in encouraging this group to use the scheme. In both London and Dublin, the evidence is that many of these trips have been abstracted from bus, rail and tram/underground movements. For example some of the busiest PBS desire lines in Dublin and Barcelona are also extremely well served by public transport in the form of frequent bus and tram/underground services.

4.34 It is therefore likely that a successful PBS scheme in Manchester would abstract trips from these modes especially in the city centre and from Metrolink. In order for PBS in Manchester City Centre to be successful at capturing these movements, the journey times between key destinations must be comparable or better by PBS than by other modes.

4.35 To understand the potential for such an occurrence in Manchester city centre, a comparative journey time analysis has been made between a number of key destinations in the city centre and the surrounding area. These were:

- Albert Square
- Market Street
- Piccadilly Rail Station
- Victoria Rail Station
- Spinningfields
- Manchester Metropolitan University
- Manchester Royal Infirmary
- Old Trafford (Council Offices)
- The Lowry
- Salford University (main building)
- Sportcity

4.36 Public transport times were taken from the Traveline website and were increased by half the journey frequency to account for waiting time.

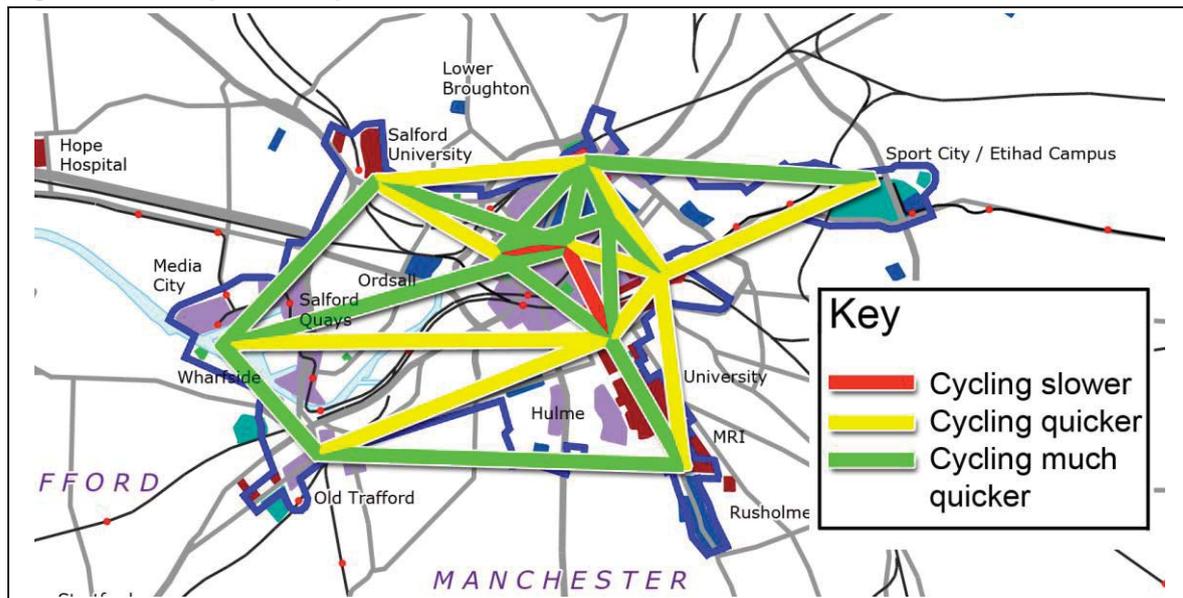
4.37 Cycle journey times were taken as 10mph by the shortest quiet route or cycle route, with an additional time of 30 seconds for small signalled junctions. One minute was added for large signalled junctions, plus one minute at each end for retrieving and depositing the bike.

- 4.38 We were unable to get information on the proposed Metrolink times between Piccadilly and Sportcity, but the opening of the new line would significantly improve the public transport times between the two places.
- 4.39 The times, in minutes, are shown in **Table 4.7** below and shown graphically in **Figure 4.2** below. Where the bike is slower than public transport it is highlighted in red, where it is slightly quicker than public transport it is highlighted in yellow, and where it is significantly quicker in green. The percentage figure is the cycling time as a proportion of public transport time.

**Table 4.7 Comparative times in minutes**

From/To	Albert Square	Market St	Piccadilly Station	Victoria Station	Spinning-fields	MMU	MRI	Old Trafford	The Lowry	Salford Uni	Sportcity
Albert Square		5 bike 10 PT 50%	12 bike 15 PT 80%	5 Bike 15P T 33%	6 bike 5PT 120%	12 bike 11PT 110%			24bike 30PT 60%	16bike 26PT 64%	
Market St	5 bike 10 PT 50%		7 bike 20PT 35%	6 bike 10P T 60%	8 bike 11PT 73%	12 bike 19PT 63%					
Piccadilly Station	12 bike 15 PT 80%	7 bike 20PT 35%		12 bike 12P T 0		9 bike 11PT 82%	17bike 20PT 85%				17bike 18PT 94%
Victoria Station	5 Bike 15PT 33%	6 bike 10PT 60%	12 bike 12PT 0		10bike 14PT 71%					15bike 18PT 83%	23bike 30PT 77%
Spinning-fields	6 bike 5PT 120%	8 bike 11PT 73%		10 bike 14P T 71%						12bike 13PT 92%	
MMU	12 bike 11PT 110%	12 bike 19PT 63%	9 bike 11PT 82%				10bike 16PT 63%	20bike 22PT 95%	30bike 36PT 83%		
MRI			17bike 20PT 85%					25bike 32PT 78%			
Old Trafford						20bike 22PT 95%	25bike 32PT 78%		12bike 29PT 41%		
The Lowry	24bike 30PT 60%					30bike 36PT 83%		12bike 29PT 41%		13bike 25PT 52%	
Salford University	16bike 26PT 64%			15bike 18P T 83%	12bike 13PT 92%						
Sportcity			17bike 18PT 94%	23bike 30P T 77%							

**Figure 4.2 Comparative speeds**



4.40 **Figure 4.2** above indicates that PBS will be quicker to a number of key destinations in and around the city centre with the exception of routes between Albert Square and MMU and between Albert Square and Spinningfields. These two routes have parallel corridors with frequent bus services.

4.41 Hence PBS is likely to be attractive for visitor / on business trips although experience from other cities suggests that docking stations should not be provided at stations because of the cost of redistributing bikes and potential adverse publicity impacts of not being able to find a bike at the station.

#### **Tourism / Recreational**

4.42 Whilst the tourism and recreational market can be included in the potential market for a PBS scheme and can be a catalyst for further development of a cycling culture in the city they are unlikely to be a highly significant part of the user market. For example, in London only 15% of members use PBS for leisure (or leisure-related) cycle trips. The figure is higher for casual hires at 62% but casual hires only make up 30% of the market.

4.43 With fewer 'sights' than London the potential for Manchester to tap into this market is likely to be more limited. The Dublin scheme places cultural / tourist sites lower down its priority scale than either employment or residential use. Interestingly, despite a strong tourist economy, the Barcelona scheme operates with no casual facility.

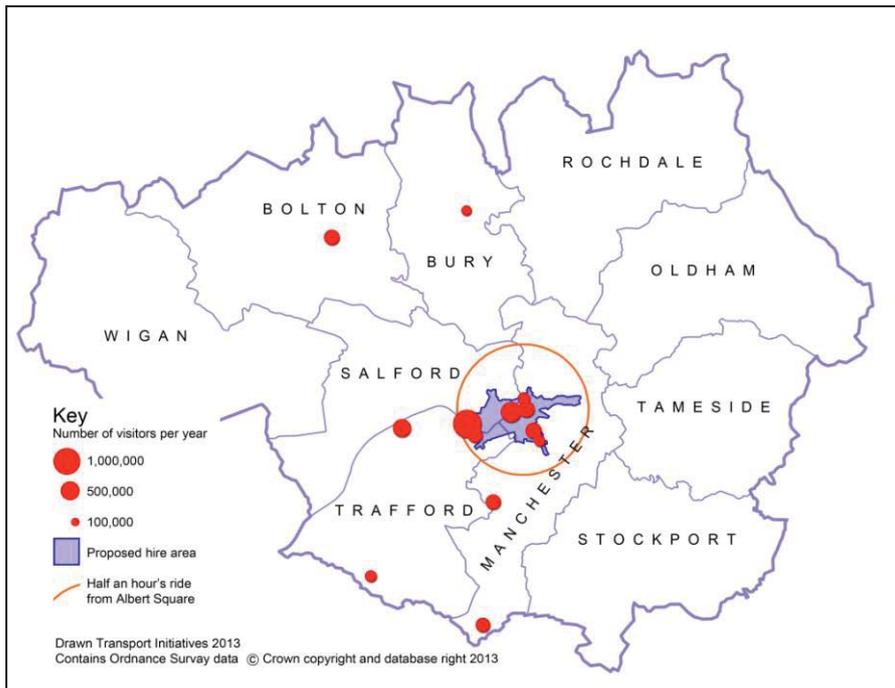
4.44 Manchester is currently the third most popular visitor destination in Britain. Its key selling points are shopping and sport. While there is a scattering of important tourist attractions across the county a significant proportion of the main tourist attractions are clustered in the centre of the conurbation. Of the 14 tourist attractions which receive more than 100,000 visitors in 2011, eight of them (and 64% of the visitors) are within a 30 minute cycle from the city centre and hence would qualify for the 30 minute free period which has been used in Dublin, London and other cities. The attractions are listed in the **Table 4.8** below and their locations indicated on **Figure 4.3**.

**Table 4.8 Visitor Attractions in GM with 100,000 or more visitors per annum.**

Locations	Visitors (2011)	Cyclable from city centre within 30 minute 'free period'
Lowry Centre Salford Quays	872,641	YES
Museum of Science and Industry Castlefield	601,106	Yes
The Chill Factor near Trafford Centre	450,000	No
Manchester Art Gallery city centre	378,650	Yes
Manchester Museum University	346,148	Yes
Manchester United Museum and Tour Old Trafford	322,096	Yes
Bolton Museum Bolton	321,713	No
Chorlton Water Park Chorlton	315,000	No
Runway Visitor Park Manchester Airport	300,000	No
Imperial War Museum North Trafford Wharfside	245,726	Yes
Manchester Cathedral City Centre	209,250	Yes
Dunham Massey Altrincham	195,839	No
Whitworth Art Galley South of University	178,996	Yes
East Lancashire Railway Bury	144,325	No

- 4.45 In July 2013 the National Football Museum is to open in the Urbis Centre in Manchester City Centre. It is expected to attract 315,000 visitors a year. This will add an additional important tourist destination to the proposed hire area.

**Figure 4.3 Key Greater Manchester Visitor Attractions**



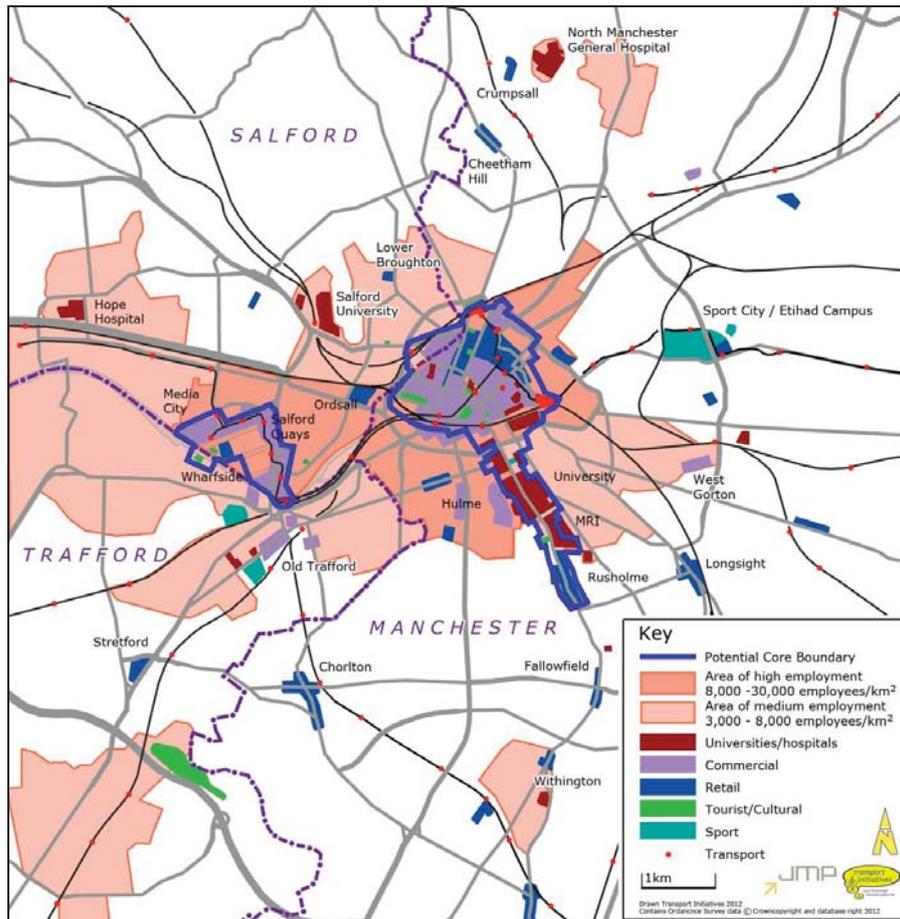
- 4.46 It is therefore concluded that if the hire area incorporates these eight sites then there is a high possibility that visits to these locations could be made by PBS.

### The Potential Hire Area

- 4.47 As the preceding sections have illustrated, it is important to choose the correct boundary for the proposed operational area. The initial area will need to be large enough to support a sufficient critical mass of use to enable the hire scheme to be viable. It should contain the key origins and destinations for short trips in the city centre area. For example, 75% of Dublin bike hires are under 2km in length. Key origins and destinations will be places such as railway stations, universities, commercial areas, tourist attractions and hospitals. These points should be linked by areas with a population or business density high enough to support docking stations located, as previously noted, approximately 300-400 metres apart.
- 4.48 There is a core area where these conditions are clearly met. This corresponds roughly to the Metrolink City Zone with an extension south along Oxford Road to Manchester Royal Infirmary and Rusholme; Salford Quays and Media City also fit these criteria. This core area is shown in **Figure 4.4** below.



Figure 4.4 Core boundary of anticipated demand area for PBS provision



- 4.49 The boundary has been set by considering a number of factors. The first was the level of street activity as a measure of the vitality of the surrounding area and propensity for short trips. Street activity in Manchester falls off very quickly from the core of the city centre and Oxford/Wilmslow Road with, perhaps, one exception of Hulme. MediaCity is also a very active area but street activity also declines quickly.
- 4.50 The next factor was whether the road network was suitable for our target market to feel comfortable cycling on. The core area includes some roads such as the A56 at White City which has high volumes of traffic with large and complex junctions. Roads such as these do not provide an attractive environment for cycling.
- 4.51 The last factor was whether the potential destinations were geared up to sustainable transport or based on car access.
- 4.52 However, this core area as shown above, while fulfilling several of the criteria required, could be challenging from an operational point of view. This is due to the area being split between the central area and Salford and hence the inability to provide a contiguous hire zone with the attendant problems of redistributing bikes. Outside the core area are other potential destinations including Salford University, the Old Trafford area and Sportcity - locations which may be

considered important to include in the scheme for both political and marketing reasons. These desire points and key trip attractors are discussed in further detail below:

#### **Sportcity / Etihad campus**

- 4.53 This is separated from the core zone by an area undergoing regeneration. Currently there is a cycle route to Sportcity via the Ashton Canal. The City Council are also converting a pedestrian crossing over Great Ancoats Street to toucan use and making a route to the city centre via Port Street. This will provide an on-highway alternative to the canal more suitable for use after dark.
- 4.54 There are two intermediate tram stops which may provide sites for docking stations. Although it has been noted above that docking stations are not recommended near to rail stations with major commuter flows, this does not apply to smaller public transport stops or stations (for example, a number of BCH docking stations are located at DLR stops in East London and at smaller London Overground rail stations). At these locations there is a much smaller flow than at a main line terminus, which is also likely to be less focused on peak hours. This will result in a more even distribution of cycle hire use during the day.

#### **New housing area north of Victoria Station**

- 4.55 This area has a large number of flats but does not appear to be designed to encourage bicycle use or offer storage. However, it may well provide a source of users. The road alterations for the new Co-op headquarters have created a good quiet road to the city centre. We believe the opportunity exists to create a cycle link to join the two parts of Corporation Street.

#### **Salford University**

- 4.56 This is a busy area and includes Salford Crescent Station, with the entry planned to be rebuilt to improve access. The university halls of residence to the north-west of the campus should not be included in the initial operating area due to the likely issues caused by tidal flow of bicycles away from the residences in the morning peak period. Chapel Street, which connects the University to the northern part of the city centre, is being improved with a 20mph zone and cycle facilities. Currently it does not yet have sufficient volume of cycle use to generate many PBS scheme trips along its length.

#### **Salford Quays / Media City / Wharfside**

- 4.57 There is a large volume of actively used cycle parking in the MediaCity area and Salford City Council intends to invest in cycle routes radiating from this area. While the internal road layout in Salford Quays is motor traffic orientated, the development is sufficiently large to have potential for internal cycle trips.
- 4.58 Further, access to Wharfside and the Imperial War Museum is via footbridges rather than by road or public transport provision, giving cyclists an advantage over other modes. There are also tourist / cultural / retail attractions in the Lowry Centre area. To tie this area into the core of the scheme there should be routes to Salford University and to the city centre. Salford City Council have stated they intend to improve the northern bank of the Ship Canal and River Irwell between Exchange Quay and Cornbrook, however, a more direct cycle route is required through Ordsall if this area is to be successfully linked to the city centre.

### Old Trafford Football and Cricket Grounds

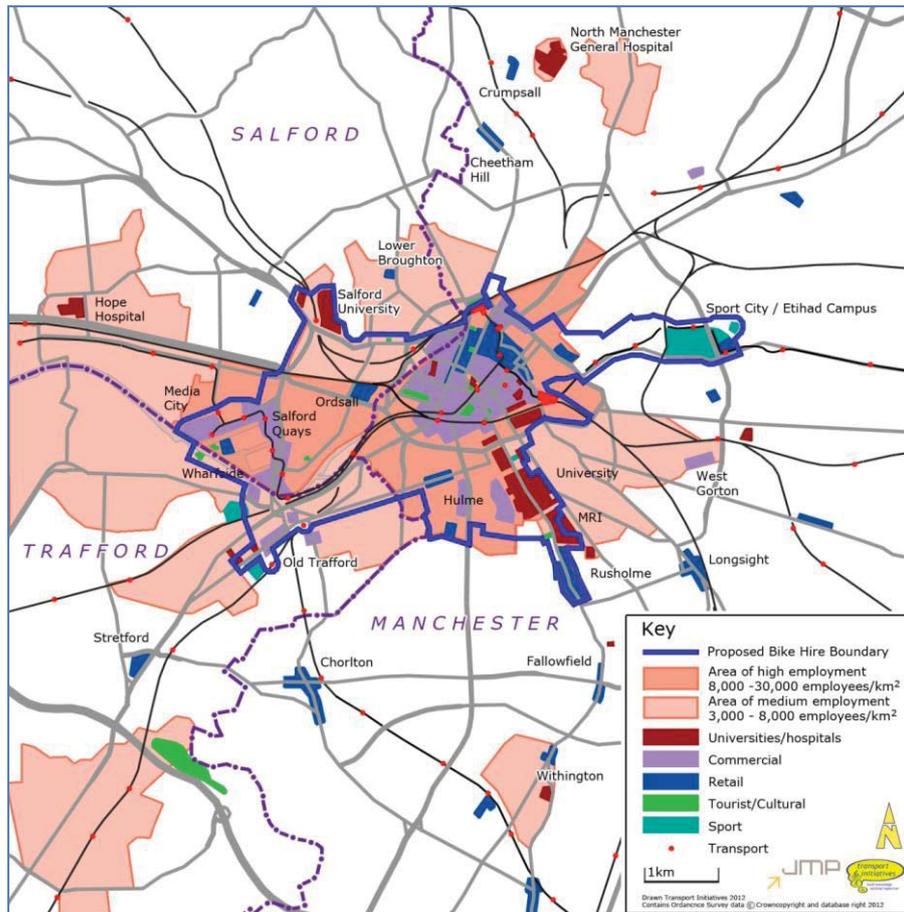
- 4.59 The two locations are separated from the core by main roads. Old Trafford Football Ground also houses the United Museum and Stadium Tours. Sport venues are large trip generators but raise the issue of tidal flow of bicycles coinciding with the events. Discussions with TfL have raised the issue of large numbers of users arriving within a short time frame (i.e. for the start of a match) and hence finding that there are no spaces available docking stations. This would have to be addressed if Old Trafford Football Ground was included in the PBS scheme area. Options would be either a major over-provision of docking stations (which would be empty most of the time) or the installation of temporary docking points for matches and other events (which might create operational problems).
- 4.60 The Trafford Cycle Map shows NCN Route 55 passing by both locations; experience suggests this route can be difficult to follow for those unfamiliar with the area therefore signing would need to be improved. Trafford Council also intends to improve links from the Old Trafford area towards the city centre. Stretford Road has cycle lanes leading towards the Manchester boundary at Hulme.

### Hulme

- 4.61 Hulme is largely residential but has two retail centres along with business areas. It lies between the bulge in the potential hire area leading towards Old Trafford and the one leading towards Rusholme. It would be expected that some hire use would run through the area. It is one of the few inner city areas with an obvious pedestrian presence on the streets.
- 4.62 Taking these points into account, the maximum extent of the boundary which should be considered as part of Stage 2 of this study is shown in **Figure 4.5** below. The actual boundary would be slightly different as detailed surveys for locating docking stations will indicate areas with no potential sites but also areas just outside the boundary where a good site sits close to a potential source of hires.

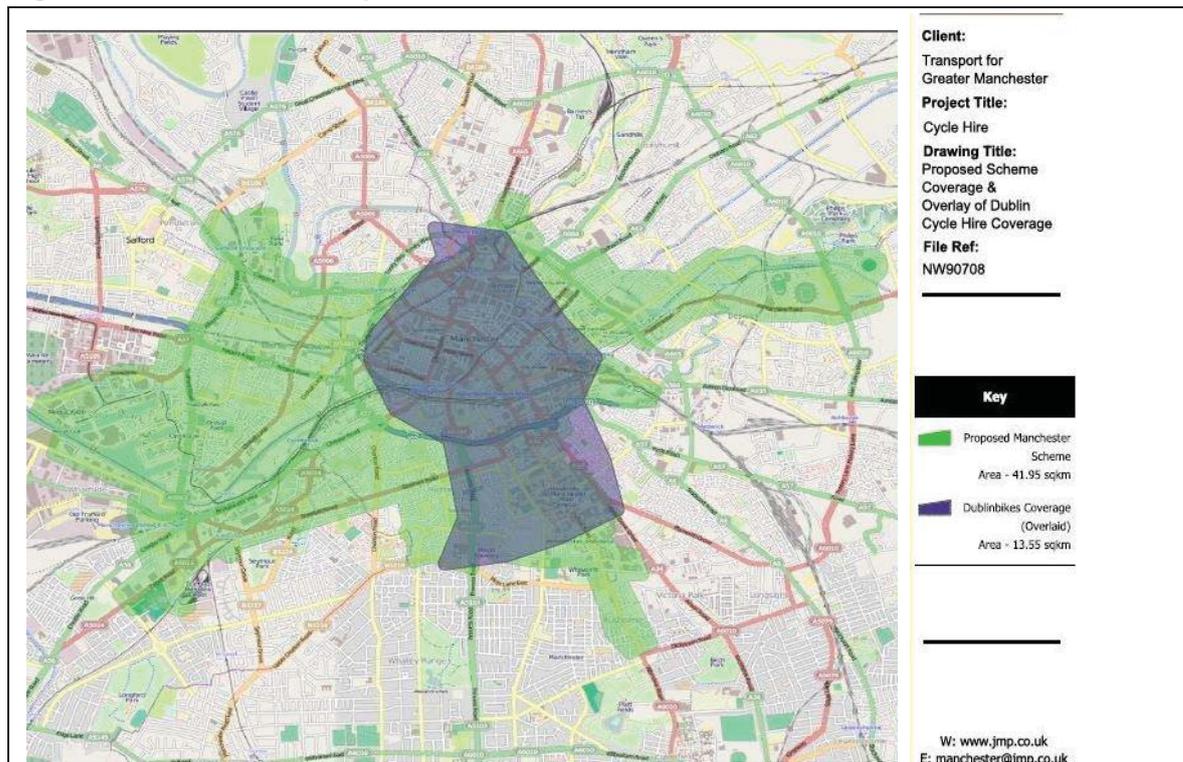


**Figure 4.5 Maximum PBS boundary to be considered as part of Stage 2**



- 4.63 In order to provide a context with regard to the scope of the proposed operational zone area, we have overlaid the existing operational zone of the Dublin scheme onto the proposed operational area in GM. This is shown in **Figure 4.6** below.
- 4.64 The purpose of this exercise is to demonstrate that while the proposed operational area for GM excludes a large part of the greater county, it is significantly larger than what is considered one of Europe's most successful PBS schemes. Given that earlier sections have identified most trips by users of existing schemes are well under 30 minutes in duration, the proposed operational area is likely to be at the limit of journeys of this length commencing in the centre of the city.
- 4.65 The start up costs and hence the risks would also be significantly higher than Dublin and hence should be considered in more detail as part of the Stage 2 assessment.

**Figure 4.6 Dublin and GM operational zones**



4.66 **Figure 4.6** indicates the difference in scale of the two operational zones: around 14km<sup>2</sup> in Dublin compared to a proposed zone of 42km<sup>2</sup> for the GM scheme. The larger size of the projected area for the GM scheme (three times that in Dublin) is due in part to the recent developments around Salford Quays and MediaCity, and is a reflection of the potential market for a PBS scheme among groups based in those areas.

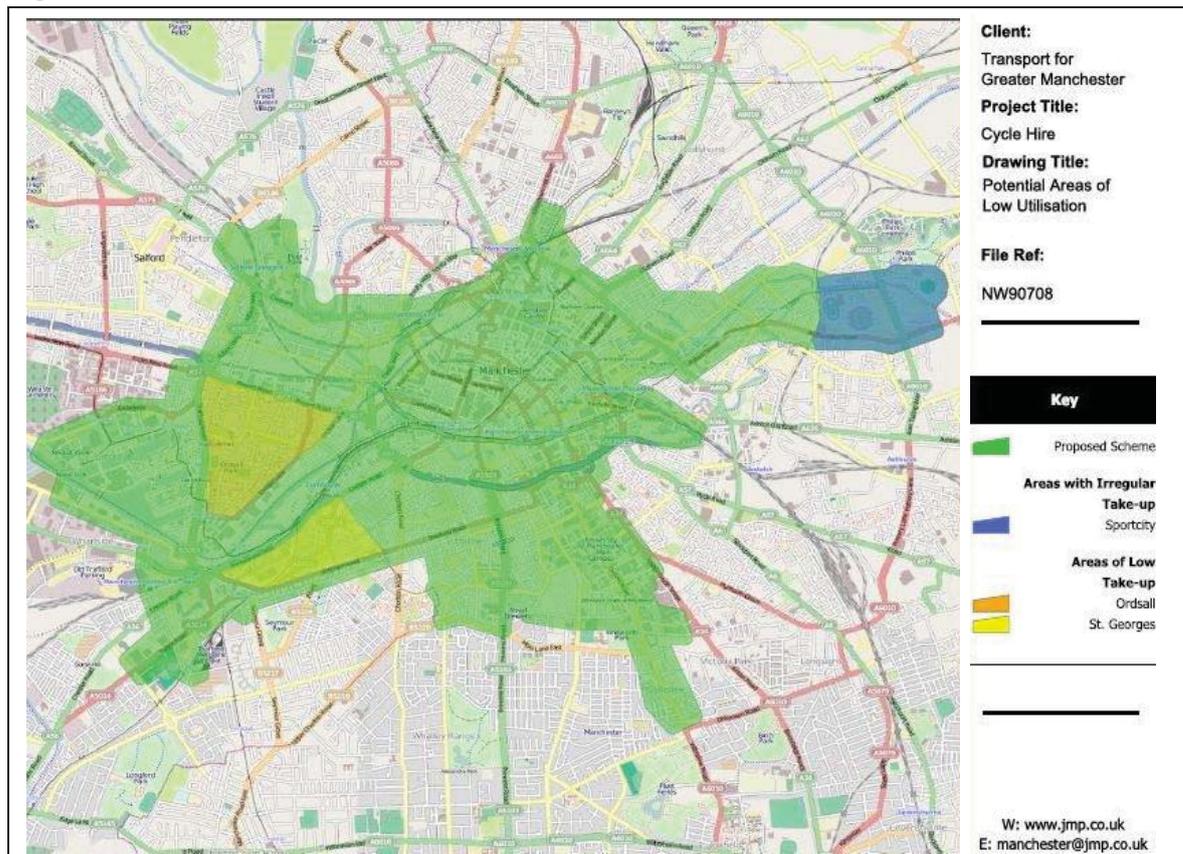
4.67 The Dublin scheme itself is now the subject of a proposed phased expansion to increase the dublinbike operational area.

**Potential ‘Low-hire’ zones**

4.68 There are two significant potential ‘low-hire’ zones where take up of cycle hire is likely to be very restricted. These are the low density, cul-de-sac street pattern Ordsall area and the area from the north-west of Hulme known as St Georges leading towards Old Trafford. Currently Chapel Street in Salford is also unlikely to generate much PBS scheme use. These areas are indicated in **Figure 4.7** below. In the longer term these areas may see an increase in the number of residents, following the urban population growth pattern seen in other areas.

4.69 While these areas described as ‘low-hire’ zones do represent genuine risks to the potential continuity and cohesiveness of the network there may be opportunities to mitigate the loss of network continuity within these zones. These will need to be considered further as part of the Stage 2 assessment.

**Figure 4.7 Low-hire zones**



### Summary

- 4.70 Based on the above a core scheme in the regional centre would appear to be feasible but not in Greater Manchester as a whole (as summarised in **Table 4.9** below)
- 4.71 BCH satellite schemes have been proposed in a number of outer London town centres (dubbed “Cycle Hire Light”). However, to date TfL has not commented publicly on whether they believe this to be feasible. Their policy for expansion, as noted above, has concentrated on expanding the current scheme into neighbouring areas rather than “leap-frogging” into more distant but higher populated town centres.
- 4.72 TfL concerns about expansion to town centres are based on the significantly lower density of attractors in these locations (including the main rail station and other public transport nodes). This is likely to give rise to a much more tidal flow of users, based predominantly on commuting. The effect of this would be to create major organisational problems (e.g. restocking) combined with a much worse user experience.

**Table 4.9 Common factors and influences for a successful PBS**

	Currently present	
	Whole of GM	Regional Centre
Significant Residential Density		✓
Employment and Education Clusters		✓
Public Amenity and Vitality – Significant retail, cultural and recreational destinations		✓
Public Transport Interchange	✓	✓
Tourism		✓

- 4.73 While these factors are not exhaustive, they provide an indication of the scope and project boundary that will form the core of a successful PBS scheme.
- 4.74 From the review, and information gathered during research into other schemes, it must be concluded that a GM-wide PBS scheme is unlikely to be successful due to the requirement to have a baseline demand made up of a significant residential catchment. It is likely that the best opportunity for success is the implementation of a scheme in the central core zone of Manchester. Broadening the scheme to include outlying suburbs or town centres is likely to have the effect of diluting any successful elements of the scheme.
- 4.75 The evidence from existing cycle usage supports this, with both TfGM and census data indicating that cycle flows into the Regional Centre are greater than in all the other centres combined. In brief:
- Central Manchester has the highest level of cycle use & growth in the County so cyclists are more likely to be expected on the streets and people are more likely to consider cycling;
  - A high proportion of non-resident visitor trips to the city centre are by public transport;
  - Central Manchester has the area's greatest concentration of non-car-reliant businesses;
  - Central Manchester and Salford Quays have the bulk of the area's top visitor attractions (eight out of twelve of the top visitor attractions are within a 30 minute cycle of the centre);
  - MediaCity is the focus of transport investment by Salford City Council and employs people from groups characterised by a high propensity to cycle;;
  - The regional centre is too big to comfortably walk across.
- 4.76 Subject to the successful implementation of a core scheme the phased enlarging of the operational area could be considered, with support from local boroughs and key attractors. This model has been the basis for expansion of the BCH scheme in London. More detail will be provided in Stage 2 of the study.

## 5 Business Models

5.1 Of the schemes reviewed, and in common with many other PBS schemes in operation, there are a finite number of distinct business models in use, but with a large number of variations among these which are subject to local conditions and the prevalent economic climates. The schemes reviewed include:

- Public / Private scheme – Advertising supported;
- Public / Private scheme – Sponsorship supported;
- Public / Private scheme – Privately supported; and
- Local authority scheme – Privately operated.

5.2 Liverpool City Council is in the process of developing a PBS scheme as part of their LSTF programme. They have already identified funding and are moving on the next stage of detailed assessment of business models. In order to assist this, the council is using a spreadsheet developed by the Capital Bikeshare scheme in Washington DC. This takes a range of variables and assumptions (e.g. capital cost of each bicycle) to produce a financial model of a PBS scheme, showing estimates of factors such as break-even point, capital and revenue costs, and income levels. Capital Bikeshare have made all their data available through their dashboard at <http://cabidashboard.ddot.dc.gov/CaBiDashboard/#Home>.

### Public / Private Scheme – Advertising Supported

5.3 This is the model in use in the JC Decaux operated scheme in Dublin and is similar but not the same as the PBS schemes operated by that company in Paris, Nancy, Brussels and elsewhere.

5.4 In this case the city authority enters a Public / Private Partnership with a PBS scheme operator. The operator installs, implements and manages the entire PBS scheme operation for a fixed term. There is likely to be a service level agreement between the operator and city guaranteeing that a minimum number of bicycles and docking stations will always be in operation.

5.5 In return the operator gains exclusive advertising rights and collects all or a portion of the revenue from the membership or subscription and hire fees. Revenue is then used by the operator to fund the ongoing management of the operation. In the case of the Parisian ‘Velib’ scheme, JC Decaux also pay the city authority a percentage of the revenue gained from subscriptions.

5.6 In this scenario all risk is carried by the scheme operator. In the case of Dublin, the city also granted rights to JC Decaux to apply for planning permission to erect extra advertising hoardings around the city; this prompted a series of objections from the general public to the planning requests for the proposed hoardings.

5.7 Of note is that the Dublin scheme was purchased from JC Decaux during a period of economic growth when advertising space was likely to be highly valued, or even overvalued. It is unlikely that DCC would be able to negotiate the same deal for that city given the current economic climate as the valuation put upon the advertising revenue is likely to be much lower.

### Public / Private Scheme – Sponsorship Supported

5.8 This model is used in London to finance the BCH. In this scenario the local authority, TfL, has put out to tender and purchased a PBS system and then hired a management company to operate the

scheme. A further tender was offered for businesses to sponsor the scheme. In common with other schemes TfL also charge users access or subscription fee as well as usage fees. Sponsorship of a scheme could be considered as an alternative form of advertising.

- 5.9 This process was in part due to the London scheme being operated across four different municipal authorities, each authority having their own advertising arrangements in place and each having different attitudes to advertising in the public realm.
- 5.10 In this scenario, the sponsor, Barclays, gains naming rights of the scheme and has a discrete logo on each bicycle. The scheme infrastructure and docking stations are also branded in the sponsor's corporate colour scheme. In the London case Barclays has sponsored the programme at a cost of £50m payable over five years. This may be considered as a good business deal for the sponsor when the scheme is reported to have cost £140m to implement.
- 5.11 Revenue raised from subscriptions is kept by TfL who pay Serco, the company running the day to day operation for a management fee.
- 5.12 In this situation the revenue risk is passed back to the local authority that, having agreed an operating fee and sponsorship deal, must make up any shortfall from the public purse. In the case of the city of Barcelona which also operates this type of business model, the revenue shortfall is mitigated by the hypothecation of on-street car parking charges which are used to fund any shortfall.
- 5.13 In June 2011 TfL were required to issue Serco, who were in breach of their service level agreement with a 'Critical Improvement Plan' due to the high number of complaints by users experiencing problems when hiring the bicycles. This situation has now been remedied. In December 2012 TfL announced that fees for access and use of the BCH scheme were to double in 2013.

#### **Public / Private Scheme – Privately Supported**

- 5.14 This business model is used to operate the Call a Bike scheme in Munich, Frankfurt and Berlin, among other cities. In this scenario the operation of the PBS scheme is carried out by DB, who are the national rail operator, as an extension to their existing business.
- 5.15 This business model relies on private companies taking on the entire responsibility and revenue risk for the operation of the scheme. The model is financed solely through revenue generated from the subscription and usage fees of the scheme. The operator must therefore make up any revenue shortfall.
- 5.16 In this scenario it would be possible for the operator to source revenue from a third party who may either sell or take advertising on the bicycles and supporting infrastructure. However, as has been noted, DB considers the scheme a 'driver' of business onto their railway network. Of note among the business models discussed is that the Call a Bicycle scheme is a more 'low-tech' operation than the card and subscription schemes operating in London and Dublin.

#### **Local Authority Scheme – Privately Operated**

- 5.17 This business model is that used for the operation of the Blackpool Hourbike scheme where initial start-up costs were supported through grants from the NHS and other agencies.

5.18 In this case the scheme is purchased from the operator who is paid a fee to operate and maintain the scheme for a period of time and to an agreed service level. Revenue is then collected from user fees and passed to the local authority. As in the process above it would be possible for this business model to be supported by funding from advertising revenue sourced directly or via a third party. All of the revenue risk in this case is carried by the local authority.

## 6 CONCLUSIONS & RECOMMENDATIONS

### Conclusions

6.1 This report has examined the feasibility of introducing a PBS scheme for GM and has addressed the following key questions:

- Is there likely to be a demand for a PBS scheme in GM?
- If so, which parts of the city should an initial roll-out target?
- What factors need to be considered in scoping a scheme for GM?

6.2 These are discussed further below.

#### Is there demand for a PBS scheme in Greater Manchester?

6.3 There is now a strong body of evidence from other PBS schemes in the UK and continental Europe as to whom would be willing to use a scheme. Our analysis suggests the following:

- Users come from a range of different markets, but the most significant are local travel to work or business travel by those without (or unwilling to use) their own bicycles.
- The key group of scheme users will be 'Educated Urbanities' living in the city centre perhaps with low or poor access to cycle storage facilities, and also commuters travelling into the city to complete the 'last leg' of their journey. This is borne out by evidence from other cities, particularly Dublin and London, where the majority of users are young white middle class males.
- There is some evidence to suggest that lower income groups might be persuaded to use the scheme, however these groups are unlikely to be the main initial market for a scheme in Manchester. Targeting of these user groups is possible but requires addressing access issues such as the ability of a scheme to be accessed without using a credit card. A wide range of different marketing, promotional and financial incentive tools will also be required if the scheme is to appeal to a broader cross-section of user groups.
- Other markets include recreational/tourist use (especially where there are good cycle routes located off main roads) and evening/weekend use to access other leisure activities (e.g. cinema, restaurants). Tourist use will be dependent on ensuring that the scheme is marketed in locations outside Manchester in order to raise awareness of the scheme. However this market will be much smaller than the commuter / business travel market and is likely to be focused on key attractions in the city centre.
- Initially, the scheme area needs to be focussed on population groups with a high propensity to cycle. Evidence suggests that those who have the highest propensity to cycle are in employment, and young to middle aged.
- The demographic of those who will benefit from the introduction of a PBS scheme (e.g. Wealthy Professionals) is likely to be different from those who will benefit from the roll-out of LSTF measures (e.g. Struggling Families) due to the locations being travelled to and from. However, LSTF measures will also benefit those groups (or may be explicitly targeted at them), especially where the LSTF projects are linked to improving cycling to work trips.

- Based on the above analysis, it is our opinion that there are areas of GM which could be suited to a PBS scheme if an appropriate business model can be found.

**Which areas of Greater Manchester would initially be covered by a PBS?**

6.4 The area of the city that is most likely to meet/match the criteria above is the regional centre, including the outlying areas of Salford Quays, the Oxford Road corridor and Hulme. It is recommended that these areas are considered in more detail in Stage 2 in order to provide a more definitive boundary. These areas have been selected because they include:

- The user groups who are most likely to use the scheme;
- They contain a critical mass of key employment, and retail and leisure destinations;
- The hubs could be located at intervals of 300 - 400m thereby providing a 'cyclable' network;
- Manchester city centre in particular contains high levels of pedestrian footfall, which is a good indication of the likely success of a scheme;
- The proposed scheme boundary has a good match with the pattern of trips made by existing cyclists. In particular the origins of most trips ending in the city centre lie within the proposed boundary of the PBS scheme. This suggests that there is already a higher propensity to cycle in these areas than elsewhere, and
- Trips made by PBS between these destinations would offer journey times that are highly competitive with other modes of transport and hence attractive particularly if a free period of ½ hour is granted

6.5 There may also be merit in including Sportcity because of its links with British Cycling and its development as a sporting hub for the city. However there is an absence of other nearby attractions to create a critical mass and flows could be quite tidal focused on events.

6.6 Within the wider boundary shown in Chapter 4 there are also a couple of areas where demand is likely to be low, such as St Georges and Ordsall. However without their inclusion the scheme would not be contiguous. Hence, the adoption of complementary cycle measures and / or other targeted interventions such as cycle training should be considered to increase the uptake in these areas. This could be used as a test case as to whether there is merit in expanding future phases of the scheme should it be deemed to be successful and viable.

6.7 The district centres of Manchester and the remainder of the city would not be suited to PBS because of a combination of factors which include:

- There is a lower propensity for inhabitants in other areas to use a PBS scheme. i.e. The user profile of GM as a whole does not provide a good fit with the types of users who are using successful schemes in Dublin, Barcelona and London;
- Central Manchester has the area's greatest concentration of non-car-based businesses. Car ownership is also generally higher than in the city centre which makes a PBS less attractive;
- Central Manchester and Salford Quays have the bulk of the area's top visitor attractions. Only 4 out of the top 12 Greater Manchester visitor attractions lie outside this area;
- Hubs could not be located at sufficiently close intervals to integrate the city centre area with the outlying district centre areas;

- With a lower uptake of PBS in these areas, there is a risk that the inclusion of the district centres could undermine the viability of the scheme in the long term. Adverse publicity could damage overall public confidence and dilute the impact of the scheme. There is also evidence to suggest that once the novelty of the PBS scheme has worn off, satisfaction levels drop and hence the scheme needs to start off on the ‘right foot’, and
- There is not a critical mass of key attractions and footfall in other centres to warrant their inclusion at this stage.

#### What factors need to be considered in scoping a scheme for Greater Manchester?

6.8 Our analysis has suggested that there a number of key factors that a Manchester scheme would need to consider. These can be categorised into four main areas: system, access, management and complementary measures.

#### System

- The operational area must cover a relatively small core section of a city with a dense residential population, and include areas of dense employment and major trip attractors. Manchester city centre and Salford Quays have these success factors and a user market who are likely to respond positively to a PBS. It is important to resist the temptation of ‘bolting’ on areas to the core scheme as confidence in a PBS scheme needs to be developed over a period of time. Once confidence has been established it is much easier to grow the scheme organically when favourable PR has been established, as has been the case in Dublin and London. Contrast this with the effects of negative PR in Bristol, for example.
- Fixed docking stations are essential, provide for easy access by operators and assist the public in the use of the scheme. They are also important in establishing brand identity/awareness and can also convey important wayfinding information for the city thereby improving its legibility.
- Docking stations should not be located immediately adjacent to railway stations such as Manchester Piccadilly, and it is common to implement a ‘buffer’ zone around transport hubs of 300-350m. This is because of the effect that the uneven distribution of bicycles can have on the management costs of the scheme and ease of accessing bicycles at other locations. It is also not particularly desirable to substitute short walking trips to bicycle hire.
- Docking stations need to be located where there is a degree of surveillance so that they are less likely to be subject to vandalism. Highly visible hubs also broaden the appeal of the scheme and increase public confidence in the scheme. We would not recommend locating bicycle hubs adjacent to busy bars and clubs because of the increased risk of vandalism.
- An ‘off the shelf’ scheme which is tried and tested can be implemented very quickly, such as was the case for the London scheme which was modelled on the Montreal Bixi Scheme. However the control system and card reader are two areas which could be modified in order to suit Manchester’s intended charging mechanism.

#### Access

- Integrated ticketing with the rest of the public transport network is desirable but not necessary for success. If the scheme is to be integrated with the overall transport offer for GM then this needs to be built into the specification for both the PBS and the smartcard scheme at an early stage. The costs of adapting PBS schemes to include smartcards at a later date are technically challenging and costly.

- An annual membership system with a deposit element will increase ownership and security. A relatively high annual fee, for example £45 (£90 from 2013) for BCH membership compared to €10 - 48 for other comparable schemes, suggests price is not automatically a disincentive to membership.
- Credit card access increases the value of the scheme to non-commuter markets.
- Some schemes make provision for access by those without a credit card. However this can increase theft levels and is not favoured by PBS operators.
- Online or telephone membership registration is desirable.
- A free period of approximately 30 minutes is offered by most schemes in order to encourage short trips and in some cases this period can be extended by 15 minute segments.
- Clear mapping showing location of docking stations (online & on stations) helps to reassure users and should be incorporated within any existing legibility programs.

### Management

- The task of managing and replenishment of docking stations should not be underestimated. The operator should be aware that the costs of this are likely to be considerable during the initial 'settling in period' when it is sometimes difficult to predict key movement corridors. A Manchester scheme would need to be flexible enough to accommodate disparities in demand between different docking stations. Failure to manage distribution of bicycles will quickly lead to a loss of faith in the scheme by the users.
- Marketing and awareness raising programmes are as important as physical management of the scheme.
- A reasonable degree of responsibility should be placed on users who choose to use the scheme, such as personal safety and ensuring they are healthy enough to be able to ride a bicycle.

### Complementary Measures

- Successful schemes have often incorporated complementary measures from the outset in order to reduce the barriers to the uptake of PBS schemes. These have ranged from cycling training measures to permitting bi-directional cycling on one-way streets. It is recommended that the routes to and from cycle hubs are examined carefully before decisions are made as to their location.
- Complementary measures that TfGM may wish to consider in the Manchester context are reducing the severance effect of the Inner Relief Road, measures to improve the permeability of streets in the city centre for cyclists, and cycle training for those who are not regular cyclists, targeted on residential areas such as Hulme.

## Recommendations

6.9 On the basis of the above we would recommend that further work is undertaken to:-

- Discuss and potentially refine the proposed hire boundary taking into account the:
  - Issues raised regarding the potential low uptake at Ordsall and St Georges;

- Potential irregular uptake of PBS on the Sportcity corridor.
- Potential upfront capital costs
- To determine the potential business model to be followed but with an emphasis towards the two most likely source of incomes, advertising and sponsorship in order to determine viability. This is likely to require potential dialogue with operators.
- To determine the operating system for the scheme, including system type, user charges, subscription / registration of scheme, etc.
- Scope out the potential locations of bicycle hire hubs focusing on those within the Inner Relief Road first.
- Develop an implementation programme including scheme set-up, complementary cycle measures, roll-out, delivery and ongoing operation of the scheme, along with future plans for the scheme.
- Identify key risks and mitigation options.