

Brighton & Hove Bike
Share Business Case and
Business Plan

Report
December 2014

Brighton & Hove City Council

Our ref: 22745301
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Executive Summary

Project Description

Brighton & Hove City Council (BHCC) and the Brighton & Hove Clinical Commissioning Group (CCG) have commissioned this study to develop a business case and plan for a Bike Share system in Brighton & Hove.

There has been a long standing interest in developing a Public Bike Share system in Brighton & Hove. In 2010 a study was undertaken considering the feasibility of introducing Public Bike Share to Brighton & Hove, this was followed by a 'soft market test' with potential Bike Share providers in 2011. In recent years there has been considerable activity, growth and innovation in the Bike Share market with new schemes launching and existing schemes expanding in the UK and worldwide.

The proposed scheme area (shown in the map to the right) covers from Hove Station in the west, to Brighton Marina Village in the east and along the A270 corridor to Falmer and the University of Sussex to the north.

We recommend a scheme including 50 docking station locations spread across the scheme area with 430 bikes.

The scheme is designed for use by residents, rail commuters, employees and tourists, with tariffs designed to encourage journeys of up to 30 minutes in length and maximise the utilisation of each bike.

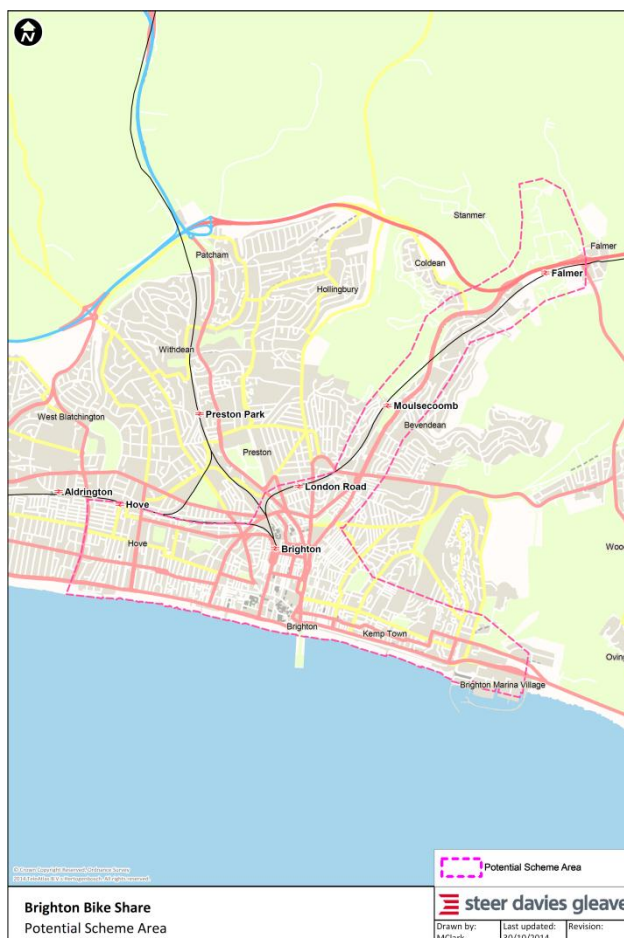
The total capital cost of the scheme is estimated to be £1.45m in 2014 prices.

Project Business Case and Benefits

The purpose of this document is to provide supporting analysis and evidence for the funding bid submission to the Coast to Capital (C2C) LEP. The case presented in this document underpins the summary information that will be provided to the LEP in the scheme pro-forma.

A detailed assessment of the demand and benefits of the scheme has been undertaken. This shows that forecast usage is estimated to be 884,000 trips per annum, and forecast revenues will be £921,000 per annum in 2014 prices. Our analysis suggests that scheme revenues will exceed operating costs, and that the scheme will therefore be financially sustainable.

An economic appraisal of the scheme has been undertaken, and this suggests that the project will deliver a benefit to cost ratio of over 7 : 1, suggesting the project will deliver very high value for money.



We have also assessed the contribution of the project to the wider objectives of the Coast to Capital LEP, around employment, housing and delivery of development. The case presented shows that the scheme is fully supportive of, and will assist in the delivery of these wider objectives.

In addition, the project will support the delivery of local objectives. The integration of transport policy and health, and specifically the role that the promotion of active travel can play in promoting better health outcomes is a fundamental element of the scheme. A related benefit is the role Bike Share will play in reducing emissions within a designated Air Quality Management Area.

Funding Bid

The compelling business case for Bike Share presented in this document supports BHCC and its partners funding bid for Bike Share, with funding sought from the £3.7m Coast to Capital LEP Growth Deal allocation for Sustainable Transport Packages for 2015/16.

BHCC and its partners are seeking £1.16m (2014 prices) of funding from the LEP, which would support the implementation of the scheme starting in the financial year 2015/16 and completing in the financial year 2016/17. The promoters will contribute £0.29m, equivalent to 20% of the scheme costs, through local contributions.

Stakeholder Support

Stakeholder support for a scheme of this kind is important to developing and successfully launching the scheme. BHCC have worked closely with the local Clinical Commissioning Group (CCG) and local stakeholders to garner support for the proposed scheme. Details of stakeholders who have noted their support for the proposed scheme are included in Appendix A.

1 Introduction

- 1.1 Brighton & Hove City Council (BHCC) and the Brighton & Hove Clinical Commissioning Group (CCG) have commissioned this study to develop a business case and plan for a Bike Share system in Brighton & Hove.
- 1.2 There has been a long standing interest in developing a Public Bike Share system in Brighton & Hove. In 2010 a study was undertaken considering the feasibility of introducing public Bike Share to Brighton & Hove, this was followed by a 'soft market test' with potential Bike Share providers in 2011. In recent years there has been considerable activity, growth and innovation in the Bike Share market with new schemes launching and existing schemes expanding in the UK and worldwide.
- 1.3 The project covers Central Brighton extending to Hove in the west and Brighton Marina to the east, and also includes the A270 corridor to Falmer / University of Sussex to the north. The scheme comprises 50 docking station locations spread across the scheme area with 430 bikes.
- 1.4 This document presents the business case and business plan for the proposed Bike Share scheme, and is the basis for a funding submission to the Coast to Capital LEP.

Structure of Document

- 1.5 This document includes the following chapters:
 - Chapter 2 - Policy Context and Rationale
 - Chapter 3 - Scheme Development and Description
 - Chapter 4 - Scheme Costs
 - Chapter 5 - Scheme Demand and Revenues
 - Chapter 6 - Strategic and Economic Case
 - Chapter 7 - Financial Case
 - Chapter 8 - Management Case - Delivery Plan
 - Chapter 9 - System Procurement – Commercial Case

2 Policy Context and Rationale

- 2.1 This chapter sets out local and national policies which relate to the Brighton & Hove Bike Share scheme. An assessment of the contribution of the Bike Share scheme in supporting these objectives is provided in Chapter 6.

National Cycle Policy

- 2.2 Cycling is a priority for Central Government. The Prime Minister's vision is for a nation where cycling levels compete with those in Denmark, the Netherlands and Germany, where people want to live and work and where international organisations are confident the infrastructure is in place for them to do business.
- 2.3 In October 2014 the DfT published their (draft) Cycling Delivery Plan¹, which supports Government's ambition for cycling to become an everyday choice for short distance journeys among the population as a whole.

"The government is committed to giving people a realistic choice to cycle so that anyone, of any age, gender, fitness level and income can make the choice to get on a bike. The case for cycling as the natural choice for shorter journeys is strong, and the resulting benefits are wide reaching - to the economy, to the environment, to the health of individuals and communities." Cycling Delivery Plan (Consultation draft), DfT, October 2014

- 2.4 The Plan is a ten year strategy for delivering the desired step change in cycling. It calls for leadership, commitment and long term planning from a wide range of stakeholders including local and national government, businesses, interest groups and individuals.
- 2.5 The ambition is to double cycling, where cycling activity is measured as the estimated total number of bicycle stages made each year, from 0.8 billion stages in 2013 to 1.6 billion stages. To achieve this the Government is calling for local authorities and LEPs to affirm their commitment to increasing local levels of cycling and to set out local visions and ways to increase and support cycling. In exchange Government will provide access to a range of tools and incentives to help realise local ambitions, including access to new funding streams, support from the DfT's Active Travel Consortium and support in implementing cycling plans.

¹<https://www.gov.uk/government/consultations/cycling-delivery-plan-informal-consultation>

- 2.6 To ensure the uptake of cycling across the population as a whole, infrastructure needs to be put in place to ‘cycle proof’ the network, including providing improvements to infrastructure, allowing access to cycling facilities, storage and parking. Additionally the DfT is developing a programme of work to address the issue of safety with the view of reducing the rate of cyclists being killed or seriously injured on the roads and to address the perception that cycling is not a safe mode of transport.
- 2.7 In August 2014, the DfT published a report detailing the outcomes of a value for money assessment of the 12 large Local Sustainable Transport Fund projects which received more than £5 million DfT contribution². Funding for these projects was awarded between 2011 and 2012. The report finds the 12 projects represent a combined return on investment of 5:1, demonstrating that investment in local sustainable transport, including walking and cycling, represents very high value for money.

Coast to Capital LEP Strategic Economic Plan

Policy Objectives

- 2.8 The Coast to Capital (C2C) Strategic Economic Plan (SEP) sets out the LEP’s strategy to encourage growth across the region by investing in infrastructure and innovation and supporting the economy. The SEP aims to create:
- 60,000 new jobs;
 - 26,000 additional homes; and
 - 970,000 m² of new employment space.
- 2.9 The SEP acknowledges that transport, quality of life in its communities and its skilled workforce give the region a competitive advantage in achieving the desired level of growth. In order to maintain this competitive advantage, the SEP strives to deliver several objectives including:
- To provide residents of the C2C region with access to opportunities to improve their skills and progress in their careers; and
 - That public transport will enable people to gain access to education, learning and a wider range of jobs.
- 2.10 The SEP aims to deliver economic and residential growth alongside its vision for sustainability: maximising wellbeing and protecting the environment, without impacting on the ability of future generations to do the same.
- 2.11 In order to realise this vision, the SEP identifies six strategic priorities:
- i. Successful growth locations, including transport investment;
 - ii. Support business investment in growth and create the conditions for enterprise to flourish;
 - iii. Build competitive advantage – back investment and development where we can lead nationally and internationally;
 - iv. Skills and workforce – encouraging employers to invest more and making the most of our talent;

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/347894/vfm-assessment-of-lstf.pdf

- v. Ensure digital infrastructure is fit to drive growth; and
- vi. Develop sustainable communities and invest in strategic infrastructure to unlock growth.

- 2.12 Within the *successful growth locations and transport infrastructure* priority the SEP commits to reducing car journeys through sustainable transport improvements, thereby contributing to national requirements to reduce carbon emissions, tackling congestion and improving journey quality and reliability.

Transport Objectives

- 2.13 Performance of the Coast to Capital region is good but further investment in infrastructure is integral to sustaining and building on its economic success.
- 2.14 The relative wealth of the area has meant that the car is the most dominant mode of travel, with a very high level of car ownership compared with the national average. Several road and rail links are over capacity in the region, which causes frequent congestion. This is aggravated because the network does not have spare capacity to cope with incidents such as vehicle collisions or adverse weather.
- 2.15 The SEP identifies transport as key to supporting the delivery of its wider objectives. Five overarching transport objectives have been developed enable successful delivery of the SEP objectives:
- i. Connectivity: 'Can I get where I want to go'
 - ii. Reliability: 'Will I arrive when I expect'
 - iii. Capacity: 'Will I get a seat, a parking space, a clear road'
 - iv. Quality: 'Will my journey be healthy, safe, clean, sustainable and enjoyable'
 - v. Resilience: 'Will transport be there when I need it – 24/7'

Spatial Objectives

- 2.16 The SEP recognises Brighton & Hove as a '*city with an international reputation for creativity and entrepreneurship*' and the foundation of C2C's economy, with its successful creative and IT based industries.
- 2.17 Brighton & Hove has excellent connections with the Gatwick Diamond and beyond into Croydon and London. As a result of its connections, Brighton & Hove serves markets throughout London, the South East and overseas.
- 2.18 As well as its successful digital economy, Brighton & Hove is a key centre for tourism, something the C2C SEP intends to build over the coming years.

C2C Growth Deal

- 2.19 The Growth Deal brings together the local, national and private funding for the Coast to Capital's growth priorities identified in the LEP's SEP.
- 2.20 The C2C LEP has secured £202.4 million from the Central Government's Local Growth Fund to support growth in the area. This investment from Government will result in at least £240 million of additional investment from local partners and the private sector, making the combined total new investment package worth £442.4 million for the C2C LEP. Further to this, £237 million will be invested in the new housing which will be enabled by the Growth Deal investment.

Table 2-1: Coast to Capital Local Enterprise Partnership Local Growth Fund Breakdown (£m)

	2015/16	2016 onwards	Total
Local Growth Fund Award	38	124.2	162.2
Previously Committed Funding	6.1	18.1	24.2
Provisional Allocations to Projects Starting in 2016/17 and Beyond	-	16.0	16.0
Total	44.1	158.3	202.4

- 2.21 Coast to Capital and Central Government have agreed to co-invest in a number of jointly agreed priorities including:
- *Sustainable Transport Packages* – £31.7 million Government and £10 million LEP funding to tackle congestion and improve sustainable transport, with £3.7 million to come forward in 2015/16;
 - Brighton Valley Gardens Phase 3 – £6 million Government funding for transport network improvements to allow new businesses and innovation space, regeneration of existing area and new housing development;
 - Central Brighton and Preston Barracks Central Research Laboratory – £7.7 million Government and £3.5 million LEP funding for a city centre mixed land use regeneration project to deliver new homes, office building, student accommodation, a library and academic buildings;
 - City College Brighton & Hove – £21 million Government and £46 million LEP funding for the refurbishment of dilapidated buildings and facilities;
 - Circus Street and Edward Street Quarter – £2.7 million Government and £35 million LEP funding for the redevelopment of a brownfield site including office, housing and retail space; and
 - Resilience Schemes – £35.9 million investment for Intelligent Transport System traffic management, strategic road maintenance and flood and critical incident alleviation.
- 2.22 BHCC and its partners are seeking funding for the Bike Share Scheme from the £3.7m Growth Deal allocation for Sustainable Transport Packages for 2015/16.

City Plan

- 2.23 Brighton & Hove's City Plan sets out the Council's role in '*working with partners, stakeholders and communities to provide an integrated, safe and sustainable transport system that is able to accommodate new development; support the city's role as a sub-regional service and employment hub; and improve accessibility*'.
- 2.24 The Council support measures to encourage the uptake of sustainable modes of transport in order to reduce traffic congestion, increase physical activity and improve the health of the local population, as well as their safety and quality of life.
- 2.25 The top priorities of the Transport Strategy includes improving access to significant land uses, facilities and services by supporting or providing sustainable transport measures, better public realm and improved safety. In terms of encouraging and enabling the uptake of walking and cycling the Transport Strategy commits to improving the public realm in key areas and their access routes, including:
- Valley Gardens;
 - Station Gateway;
 - Lewes Road;

- London Road;
- Edward Street and Eastern Road;
- Old Shoreham Road;
- A259 Seafront;
- Seven Dials;
- Hove Station;
- Pool Valley; and at
- Local shopping areas.

- 2.26 Additionally the City Plan commits to implementing an integrated cycle network by 2030, promoting cycling and walking as ‘active travel’ by providing advice and information to residents, workers and visitors to the city and improving Rights of Way and access to open spaces and the National Park, including wheelchair friendly provision.

Local Transport Plan

Encouraging Use of Sustainable Transport

- 2.27 The Local Transport Plan envisages Brighton & Hove as a *City of Opportunity*, in which residents, employees and visitors can lead healthy and active lifestyles. It recognises the role transport can have in enabling this vision, by providing and promoting use of healthier modes of transport where possible and reducing the impacts of traffic.
- 2.28 Between 2005 and 2011, Brighton & Hove was designated as a cycling town and considerable investment has been focussed on delivering new cycling infrastructure and promoting cycling as a mode of transport. Brighton & Hove now have a cycle network with over 20km of designated cycle routes. The Local Transport Plan commits to further improving cycling facilities, routes and networks with the aim of continuing to increase the proportion of cycling as a mode share in the area, particularly for commuting trips.

Promoting Equality and Opportunity

- 2.29 The Local Transport Plan aims to promote greater equality in Brighton & Hove and highlights the role transport can have in achieving this. The Plan sets out objectives for creating sustainable and fairer neighbourhoods, including:
- Help create communities that work well – with good local facilities, open space and community facilities;
 - Increase the availability of jobs and training;
 - Encourage healthier lifestyles;
 - Improve accessibility and make roads in residential areas safer; and
 - Encourage environmental sustainability.
- 2.30 Consultation with local people highlighted additional issues of importance including:
- Reducing traffic congestion in central Brighton;
 - Reducing traffic fumes and improving air quality;
 - Improving the safety, security and attractiveness of streets;
 - Promoting the health benefits of walking and cycling, including more priority areas; and
 - Better transport links to jobs, leisure facilities, healthcare, education and food stores.

Air Quality

- 2.31 It is estimated that Brighton & Hove is responsible for approximately 1.3 million tonnes of CO₂ emissions per year and recent research suggests that emissions per person is higher than the national average.
- 2.32 Brighton & Hove's Review and Assessment report for air quality identifies road traffic as the primary contributing factor to Nitrogen Dioxide emissions in the city. They have produced an Air Quality Action Plan (AQAP), to help reduce the levels of NO₂. The measures identified focus on improving the flow of road traffic and encourage greater use of sustainable transport, including walking and cycling, as an alternative for some journeys. Brighton & Hove intend to persuade all road users, individuals and companies, of the benefits of walking and cycling in order to reduce vehicle traffic while accommodating increasing numbers of people and their transport requirements.
- 2.33 An Air Quality Management Area (AQMA) has been designated that encompasses much of central Brighton & Hove, see Figure 2-1. This is an area identified by BHCC as requiring measures to reduce air pollution to acceptable levels.

Figure 2-1: Brighton & Hove AQMA



Transport and Health

Overview

- 2.34 There has been increasing recognition of the importance of physical activity in reducing the risk of illness, and of the role that the transport environment in general, and promotion of active modes in particular, can play in promoting physical activity.
- 2.35 BHCC and the Clinical Commissioning Group (CCG) are working in partnership to address health issues and health inequality.

- 2.36 The proposed Bike Share scheme has the potential to deliver significant health benefits, and these can be maximised by the integration of transport and health policy. The geographical scope of the scheme definition has been developed to include areas where high levels of deprivation and poor health are prevalent (related to low levels of physical activity), and there is the potential opportunity for GPs to facilitate active travel and improved health by prescribing Bike Share access (e.g. free access at the point of use for individual patients).

Physical Inactivity and Illness

- 2.37 Physical inactivity is a major health risk and the fourth leading risk factor for global mortality³. It is associated with increased risk of many diseases and conditions, including coronary heart disease, obesity, type 2 diabetes, cancer, depression and dementia.
- 2.38 It is estimated that 44% of adults in the UK do not meet the recommended amount of physical exercise a week (150 minutes of moderate intensity activity)⁴ and the direct cost of physical inactivity to the NHS across the UK is thought to be £1.1 billion per annum⁵. In Brighton & Hove, the impact on the health service has been estimated at £3.1 million per annum⁶.
- 2.39 Physical inactivity also creates costs for the wider economy through absenteeism. In England, the costs of lost productivity have been estimated at £5.5 billion per year from sickness absence and £1.0 billion per year from the premature death of people of working age⁷.

Transport and Air Quality

- 2.40 The Committee on the medical effects of air pollution (COMEAP) estimates that around 29,000 deaths a year are related to air pollution. The Environmental Audit Committee state that *'Transport causes the most exposure to harmful air pollutants and air quality targets would never be met without a significant shift in transport policy'*⁸.
- 2.41 NICE note that short journeys play a significant part in the pollution from motor vehicles. 20% of all car related CO₂ emissions are from journeys under 5 miles, so encouraging people to walk or cycle short distance trips is important for reducing air pollution.

The Role of Active Travel

- 2.42 Moderate activity such as walking and cycling is effective in achieving good health, providing predictable and inexpensive forms of transport for short trips and can easily fit into people's daily routines. In November 2012, the National Institute for Health and Care Excellence (NICE)

³ *Start Active, Stay Active: A Report on Physical Activity for Health from the Four Home Counties* (2011), Department of Health, UK.

⁴ Active People Survey January 2013–January 2014, available at www.phoutcomes.info/

⁵ *Start Active, Stay Active: A Report on Physical Activity for Health from the Four Home Counties* (2011), Department of Health, UK.

⁶ A Partnership for Active Living in Brighton & Hove, available at http://www.healthycities.org.uk/uploads/files/001_a_partnership_for_active_living_in_brighton_and_hove_brighton_hove.pdf.

⁷ *Start Active, Stay Active: A Report on Physical Activity for Health from the Four Home Counties* (2011), Department of Health, UK.

⁸ *NICE Local Government Briefings: Walking and Cycling* (2013) NICE, UK.

published recommendations for local authorities and partner organisations on encouraging walking and cycling in their areas⁹. NICE recommends that local authorities employ a wide-range of initiatives to help individuals to walk and cycle more, address the main barriers to active travel and provide people with new opportunities to travel in these ways.

- 2.43 Recent research commissioned by Transport for London¹⁰ highlighted that physical activity reduced the risk of developing a number of health conditions (Table 2-2) including coronary heart disease (20-35%), colon cancer (30-50%) and Alzheimer's (40-45%).

Table 2-2: Reduced Health Risk Through Physical Activity

Health Condition	Reduced Risk from Being Physically Active
Death	20-35%
Coronary Heart Disease and Strokes	20-35%
Type 2 Diabetes	35-50%
Colon Cancer	30-50%
Breast Cancer	20%
Hip Fracture	36-68%
Depression	20-30%
Alzheimer's Disease	40-45%

- 2.44 The report also revealed that the health benefits of physical activity from walking and cycling outweighed the harms of exposure to air pollution and road traffic injuries. It is estimated that the average life expectancy of people who swap from using a car to riding a bicycle on a regular basis will increase by 3–14 months due to the physical activity benefits. This outweighs any reductions to their life expectancy from road traffic injuries (5–9 days lost) or inhaling air pollution (0.8–4 days lost).
- 2.45 Further research conducted by the Greater London Authority showed that switching short journeys from inactive modes e.g. car or bus, to active modes – walking and cycling – can deliver enormous health benefits¹¹. In London, the net benefits (in terms of Disability Adjusted Life Years¹²) of a scenario in which all switchable trips were made by active modes delivered a 10-fold increase (~55,000 DALYs) on a projection based solely upon a broad demographic of individuals taking up cycling by 2031¹³. Whilst there was a very small impact on the overall health of the population due to lives lost to injuries as a result of increased time spent walking and cycling, this dis-benefit was equivalent to just 1.5% of the total benefit from increased

⁹ NICE Guidelines: Walking and cycling: local measures to promote walking and cycling as forms of travel or recreation, available at <http://www.nice.org.uk/guidance/ph41>.

¹⁰ *Improving the Health of Londoners: Transport Action Plan* (2014), Transport for London, UK.

¹¹ Switchable trips include those where people are not carrying heavy or burdensome objects, are between 2km (walking) and 8km (cycling) in length and are made at certain times of day.

¹² The disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death. One DALY is equal to one year of healthy life lost.

¹³ *Transport and Health in London: The Main Impacts of London Road Transport on Health* (2014) Greater London Authority, UK.

physical activity and serves to highlight the potential health benefits locked in short motorised trips.

Policy Implications

Promoting Active Travel

- 2.46 It has been demonstrated across the UK and Europe that integrating a range of hard measures (coherent high quality networks linking everyday destinations, bike sharing schemes, reducing urban speed limits to 20mph) and soft measures (personalised travel marketing, school and workplace travel plans) increases cycling. Once these measures are in place there is the potential to facilitate the switching of trips from motorised vehicles to active modes.
- 2.47 Whilst public health guidance from NICE found insufficient evidence to recommend the use of cycling schemes to promote physical activity¹⁴ it recommended that professionals should continue to promote cycling, along with other forms of physical activity like walking, gardening and household activities, as a means of incorporating regular physical activity into people's daily lives.
- 2.48 A new program unveiled by the city of Boston, Massachusetts, in March 2014 allows doctors to prescribe their patients membership for the city's Bike Share program, Hubway. The idea is that doctors can provide their low-income patients a healthy, affordable transport alternative. With a prescription, annual membership for Hubway costs only \$5. Without the prescription, fees are \$85. Obesity is a significant and growing health concern for Boston, particularly among low-income residents. Regular exercise is seen as key to combating this trend, and Prescribe-a-Bike is one way that caregivers can help patients get the exercise they need to improve their health.

Valuation of Health Benefits

- 2.49 The Health Economic Assessment Tool (HEAT) is an online resource made available by the World Health Organisation to estimate the economic savings resulting from reductions in mortality as a consequence of regular cycling and/or walking. It is based on best available evidence, with parameters that can be adapted to fit specific situations. Default parameters are correct for Europe but the tool has been adapted for use in other parts of the world too. HEAT calculates the answer to the following question: "If X people cycle or walk Y distance on most days, what is the economic value of mortality rate improvements?"
- 2.50 The HEAT method is employed by the Department for Transport in its transport appraisal guidelines (webTAG). HEAT can be used to evaluate many scenarios, such as the consequences of infrastructural or other changes that result in either more or less cycling. We have valued the health benefits from Bike Share in accordance with HEAT guidance.
- 2.51 European research into the health benefits of an adult switching to cycling for regular commuting (based on a valuation of a year of human life) showed €1,300 per year of health benefits from physical activity compared with a €20 loss from the additional exposure to air

¹⁴ Other than as part of research studies where effectiveness can be evaluated.

pollution. It also estimated that there would be a €30 gain for the general public from reduced pollution¹⁵.

Strategy for the Visitor Economy

Tourism Strategy

- 2.52 In 2013, an estimated 4.8 million visitor nights and 9.5 million tourism day trips were spent in Brighton & Hove. Tourism activity and expenditure on second homes and goods was worth over £1.1 billion¹⁶. In 2013, Brighton & Hove's tourism economy supported 15,123 FTE jobs (20,622 actual jobs), which represented 17% of the workforce.
- 2.53 In order to continue the success of the tourism industry, the City of Brighton & Hove has developed a refreshed strategy for the visitor economy¹⁷. The focus is on improving visitor experience, in particular the city's overall environment and infrastructure and visitors' first and lasting impressions. To encourage visitors to return to Brighton & Hove, the city should be clean, safe and welcoming. To achieve this vision, the following measures have been identified:
- Management of the public spaces;
 - Promote sustainable transport options;
 - Improve gateways to the city;
 - Improve and enhance the environment;
 - Ensure parking provision and operating policies reflect the need of the visitor economy; and
 - Develop new facilities.
- 2.54 The city promotes sustainable and responsible tourism, including the choices made by visitors with regard to modes of transport.
- 2.55 In order to remain competitive with other destinations nationally and internationally, Brighton & Hove identify the need to continually improve the quality of its offer and raise the standards of the physical environment at all stages of the 'visitor journey'. There is a focus on the arrival and departure of visitors and how they travel around during their visit.

Biosphere

- 2.56 The Brighton & Lewes Downs Biosphere aims to serve as a world-class demonstration area of how we might live better in the future, in greater harmony with our local environment by bringing people and nature closer together. The Biosphere's aim is:
- Together we will create a world-class environment that is economically successful and enjoyed by all.
- 2.57 Their supporting objectives are:
- Nature conservation
 - Sustainable socio-economic development

¹⁵ Rabl & de Nazelle (2012) Benefits of Shift from Car to Active Transport, *Transport Policy* 19,121–131.

¹⁶ Tourism South East 'The Economic Impact of Brighton & Hove 2013'

¹⁷ <http://www.visitbrighton.com/xsdbimgs/Tourism%20strategy%5B1%5D.pdf>

- Knowledge, learning and awareness

2.58 In achieving this aim Biosphere intends to improve residents and visitors' quality of life by creating a healthier environment; strengthen the economy by making the city a more attractive place to visit; achieve stronger community awareness and pride in the local environment; and achieve greater coordination between conservation and development, among other benefits.

One Planet Living

2.59 In 2013, Brighton & Hove was accredited as the world's first One Planet City based on its Sustainability Action Plan. The One Planet approach breaks down sustainability into ten principles:

1. **Zero carbon:** making buildings more energy efficient and delivering all energy with renewable technologies.
2. **Zero waste:** reducing waste, reusing where possible, and ultimately sending zero to landfill.
3. **Sustainable transport:** encouraging low carbon modes of transport to reduce emissions, reducing the need to travel.
4. **Sustainable materials:** using sustainable products that have low embodied energy.
5. **Sustainable water:** using water more efficiently in buildings and in the products we buy; tackling local flooding and water course pollution.
6. **Land use and wildlife:** protecting and expanding old habitats and creating new space for wildlife.
7. **Culture and community:** reviving local identity and wisdom; support for, and participation in, the arts.
8. **Equity and local economy:** inclusive , empowering workplaces with equitable pay; support for local communities and fair trade.
9. **Health and happiness:** encouraging active, sociable, meaningful lives to promote good health and well-being.

2.60 The One Planet Living vision for sustainable transport seeks to enable people to travel more sustainably by supporting active and healthy travel; to increase the use of low emission forms of transport and avoid travel with technology; and to minimise the impacts of transport related air and noise pollution on people, and the natural and built environment.

3 Scheme Description and Development

Scheme Description

Overview

- 3.1 The proposed scheme area, suggested and agreed with BHCC extends from Hove Station in the west, to Brighton Marina Village in the east and along the A270 corridor to Falmer and the University of Sussex to the north.
- 3.2 The proposed scheme includes 430 bikes and 50 docking stations, across the defined scheme area.
- 3.3 The scheme is designed to be used by residents, rail users, employees and tourists. To facilitate use of the scheme users should be offered a tariff with options for both regular (annual subscription) and occasional use.
- 3.4 The proposed locations for docking stations provide a good density of locations providing a consistent coverage across the scheme area, which facilitates one way trips. The proposed locations take into account the following factors, which affect potential demand for cycle trips:
 - Residential population (weighted by propensity to cycle);
 - Employment;
 - Index of Multiple Deprivation – overall rank;
 - Index of Multiple Deprivation – health rank;
 - Priority sites – new developments and railway stations; and
 - Previously identified sites.
- 3.5 This chapter provides more detail about analysis undertaken to inform the development of the scheme in the market analysis section which follows on page 16.

Recommendations

- 3.6 We have detailed a series of recommendations for a bike sharing scheme in Brighton & Hove based on our experience and analysis of existing schemes. The research and analysis which has informed these recommendations are included in Appendix B.

Ease of Use and Durability

- Operated using a standard static docking system, with potential to use solar power to reduce costs of maintenance and installation.
- Using 'slow' bicycles that are durable, long lasting and expose few moving parts.
- Using an intelligent urban Bike Share system, that also tracks the bicycles through GPS.

Payments/Tariffs

- A simple two tier tariff system designed for:
 - Regular users and residents; and
 - Infrequent users and tourists.
- Tariff to incentivise regular users and encourage continued use of the Bike Share scheme.
- Tariff to include a 'free 30 minutes' for the Bike Share to encourage use for short trips.
- Integration with public transport smart ticketing.

Financial Sustainability

- A scheme sponsor (or sponsors) to ensure the financial sustainability of the scheme.
- Monitoring of the scheme, in order to understand what parts of the network perform most successfully and actively managing any issues with redistribution of bikes.

Complementary Measures

- Ensure that the wayfinding for the Bike Share scheme is integrated into Brighton & Hove's existing wayfinding system.
- Integrated into Brighton & Hove's journey planner to ensure Bike Share is seen as an integrated transport mode in the city.
- Create a strong brand, possibly linked to a sponsor, and leverage users through a robust social media presence.

Market Analysis

Benchmarking Compared to Existing Schemes

- 3.7 To provide a context for Brighton & Hove we have compared the city to locations where existing schemes are operating, comparing population levels, employment levels, rail usage and visitor numbers.
- 3.8 The table which follows shows how Brighton & Hove compares to other existing Bike Share locations. The table shows that compared to other locations the proposed scheme area in Brighton & Hove has:
- A greater population than the Glasgow, Bath and Dublin scheme; and
 - A greater number of tourists than Glasgow and Bath.

Table 3-1: Benchmarking Brighton & Hove to Other Bike Share Locations

	Glasgow	Bath	London	Dublin	Brighton & Hove
Operator	Nextbike	Nextbike	TfL/Serco	JCDecaux	-
Number of Bikes	400	100	10,000	1,500	-
Number of Docking Locations	31	9	700	101	-
Population ¹⁸	70,000	14,400	1,100,000	78,600	135,700
Employment ¹⁹	117,000	27,300	1,900,000	n/a	83,300
Rail Usage (m) ²⁰	52.7	5.7	628.6	n/a	20.7
Visitor Numbers ²¹	515,000	283,000	16,784,000	3,998,000	1,482,000

Detailed Analysis of Brighton & Hove

- 3.9 To provide a context for developing Bike Share in Brighton & Hove we have analysed the following data, across the proposed scheme area:
- Population density;
 - Population demographics;
 - Weighted population;
 - Car ownership;
 - Cycle to work mode share;
 - Indices of Multiple Deprivation;
 - Key developments and Spatial Priority Areas; and
 - Key trip attractors.
- 3.10 Where possible we have analysed data using coverage of hexagons 500m in size across the defined study area (79 in total). For a scheme to function effectively a suitable density of docking stations is required. Effective existing schemes have docking stations located approximately every 500m, or closer, within the study area.
- 3.11 Taking into account the range of factors detailed, we have mapped the potential Bike Share locations across the proposed scheme area, which is shown on page 30.

¹⁸ 2013 Mid-Year Estimates (Office for National Statistics), 2011 Census (Central Statistics Office Ireland) – population within scheme area/proposed scheme area

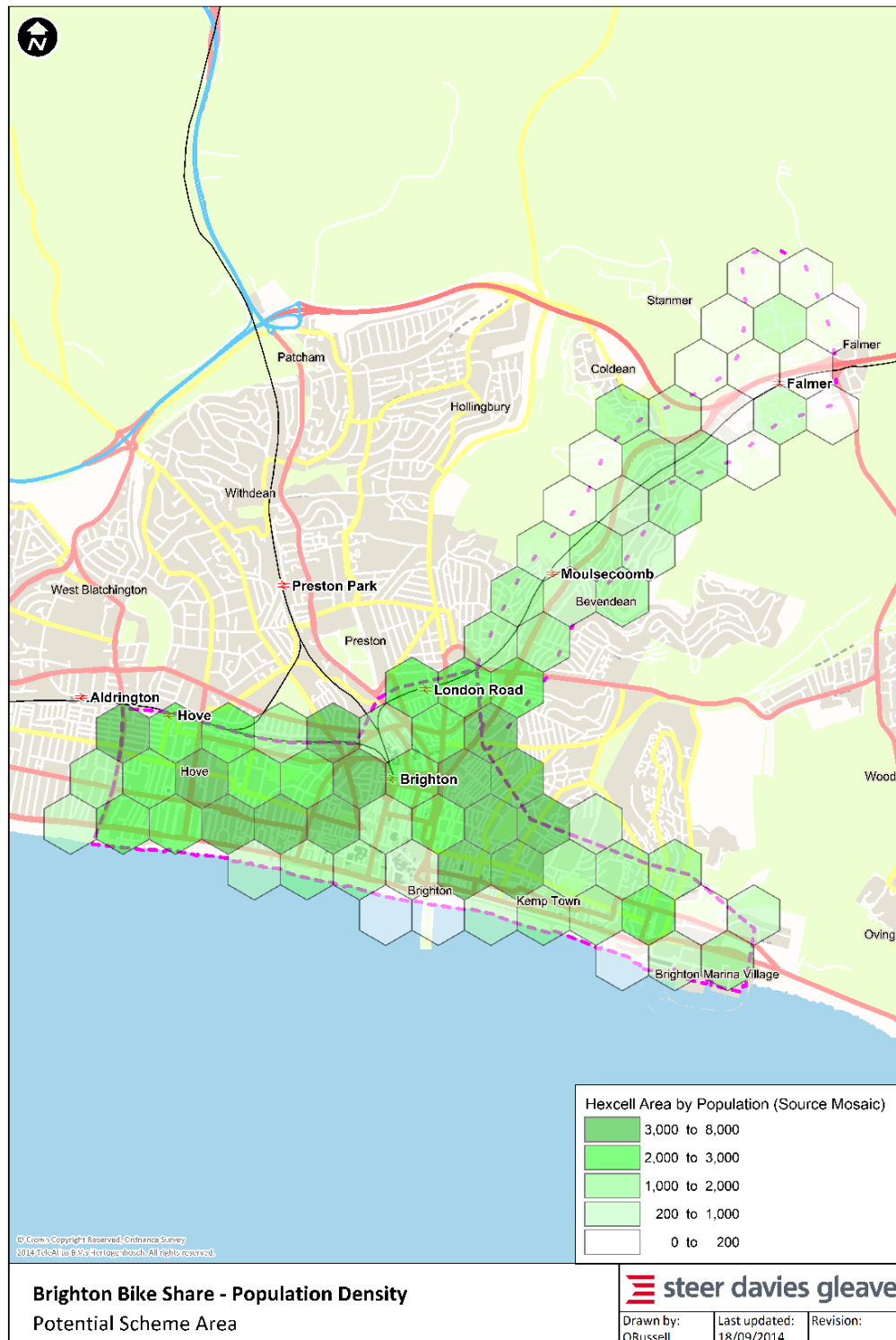
¹⁹ 2011 Census workplace population (Office for National Statistics) – employment within scheme area, except Glasgow which is for the larger Council Area.

²⁰ Estimates of Station Usage 2012/13 (ORR) - rail stations within scheme area/proposed scheme area

²¹ Staying visits 2013 (VisitBritain), Regional tourism performance in 2013 (Failte Ireland), The Economic Impact of Tourism Brighton & Hove 2013 (Tourism South East)

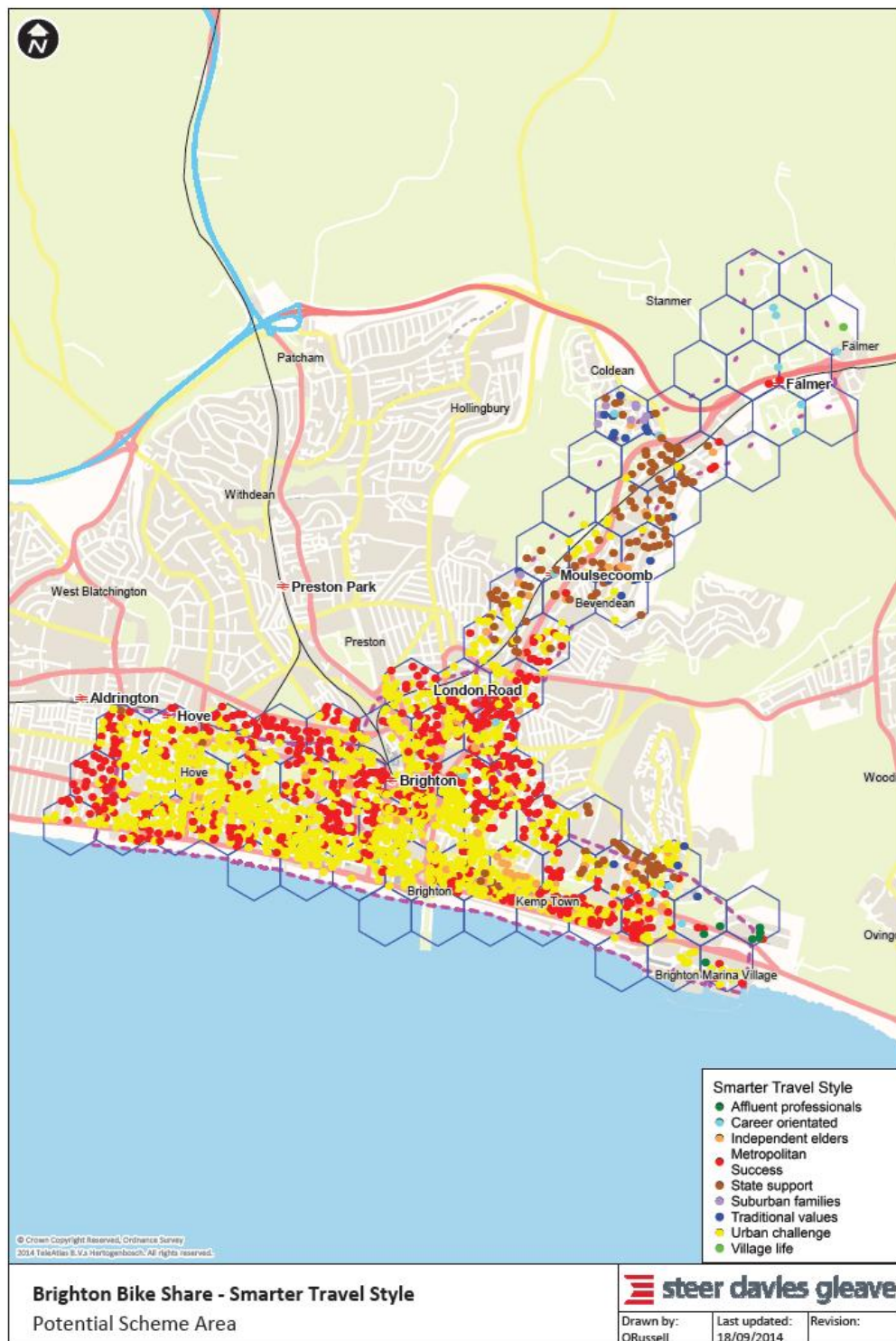
Population Density

- 3.12 Good densities of residential population are important to provide sufficient residential demand for use of a Bike Share scheme. The map which follows shows good levels of residential population density across much of the scheme area, particularly from Hove to Kemp Town, albeit with lower levels of population density around Brighton Marina Village and to the north on London Road station in the A270 corridor to Moulsecoomb and Falmer.



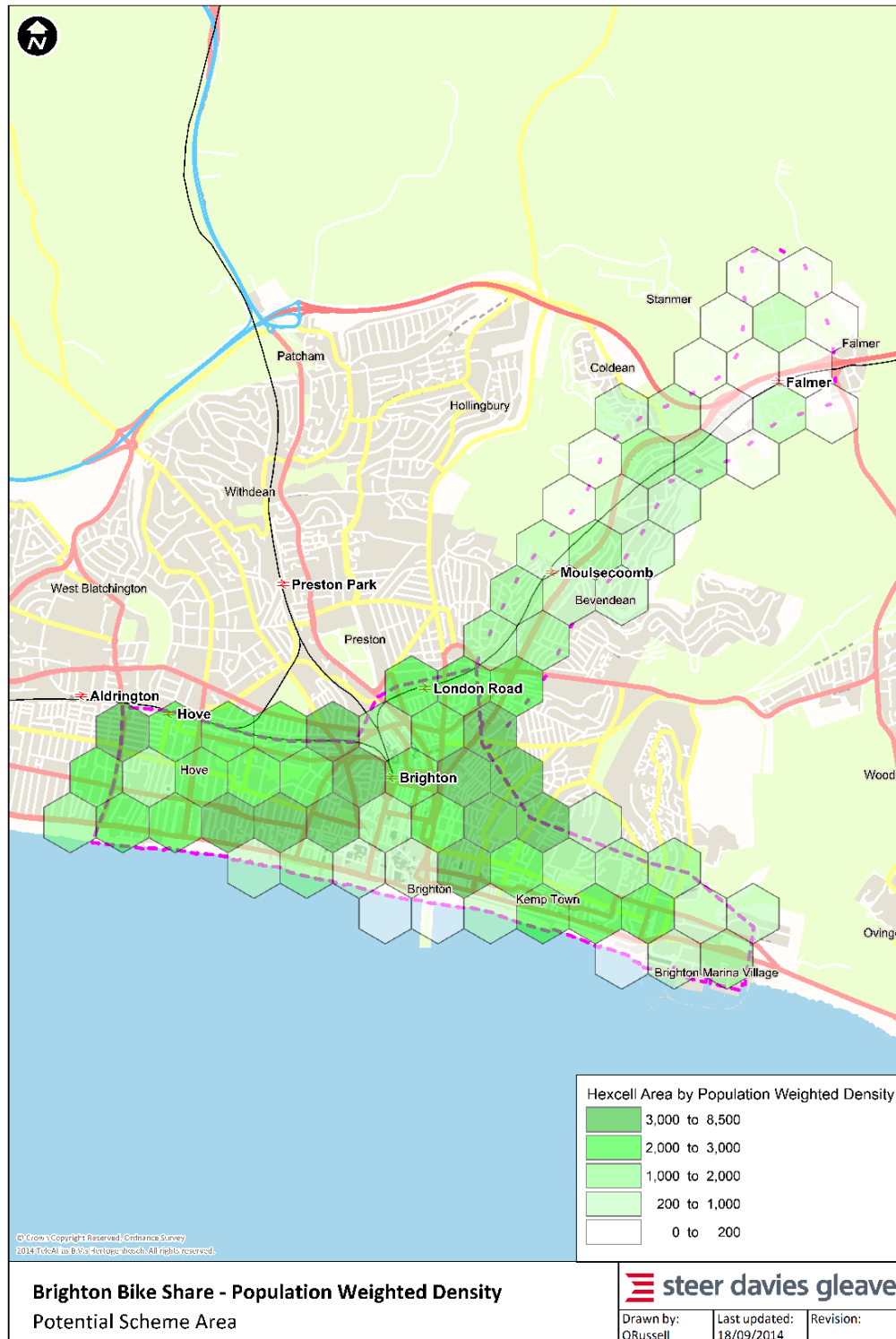
Population Demographics

- 3.13 The map which follows shows the residential population profile using our Smarter TravelStyle population profiling data. Each postcode is classified into one of nine Smarter TravelStyle groups. Each group has a different propensity to cycle (more information can be found in Appendix C). The Smarter TravelStyle groups with the greatest propensity to cycle are Metropolitan Success, Career Orientated and Affluent Professionals. There are a high proportion of Metropolitan Success across the proposed scheme area, from Hove to Brighton Marina and north to London Road.



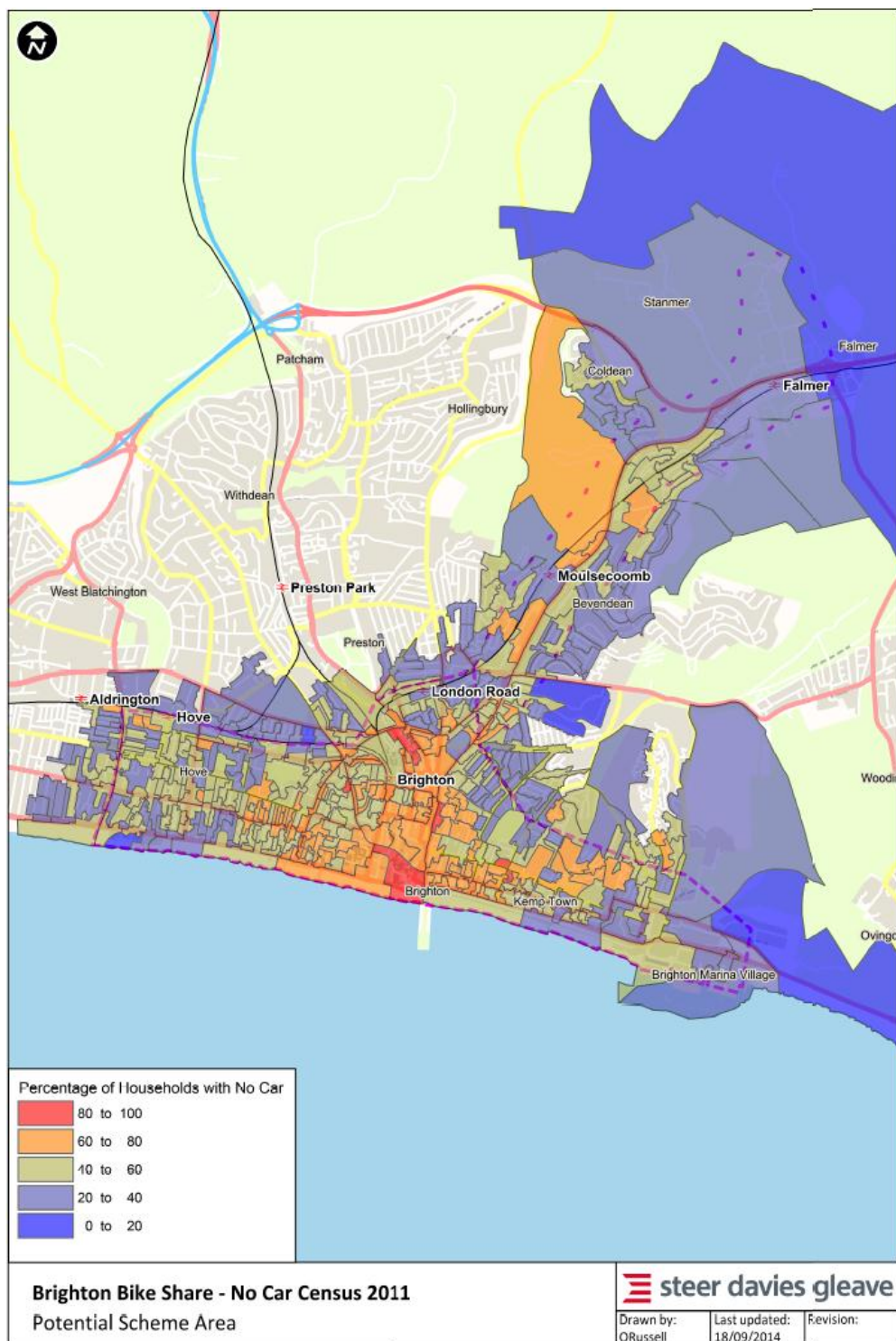
Weighted Population

- 3.14 By taking into account the population profile using Smarter TravelStyle we have weighted the population, to reflect the potential underlying demand for Bike Share (using the propensity to cycle scores detailed in Appendix C). The map below shows this underlying demand, with strong demand from the population, particularly across the south of the scheme area.



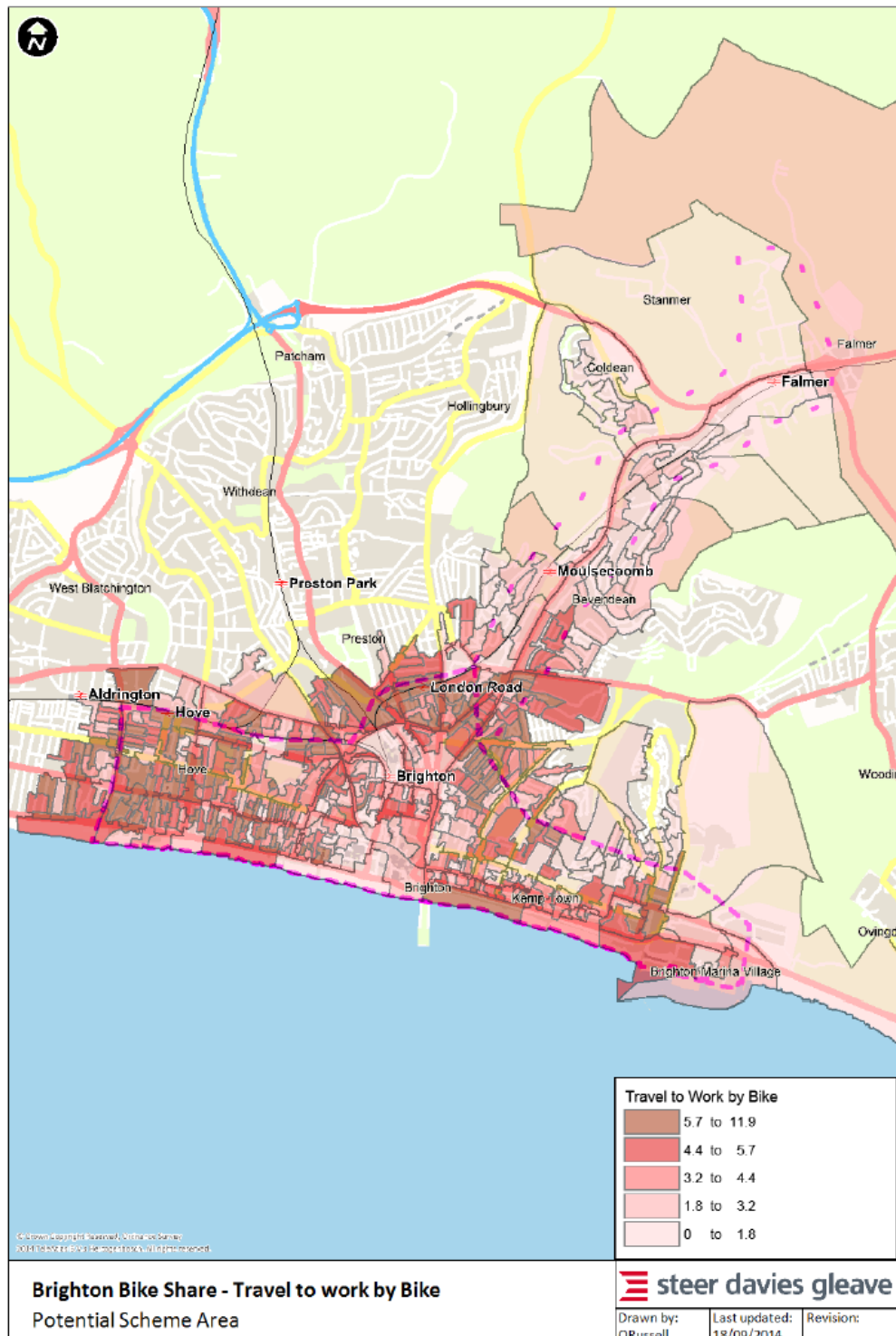
Car Ownership

- 3.15 The map below shows that, in the proposed scheme area, car ownership levels are low in the centre of Brighton with fewer than 40% of households owning a car in many areas. Towards the edges of the proposed scheme area car ownership levels are much higher. Bike Share can provide an alternative for travel by car, for those people who own a car (reducing the need to travel by car in the city), or facilitate more convenient cycle and multi-modal journeys for those who do not have access to a car.



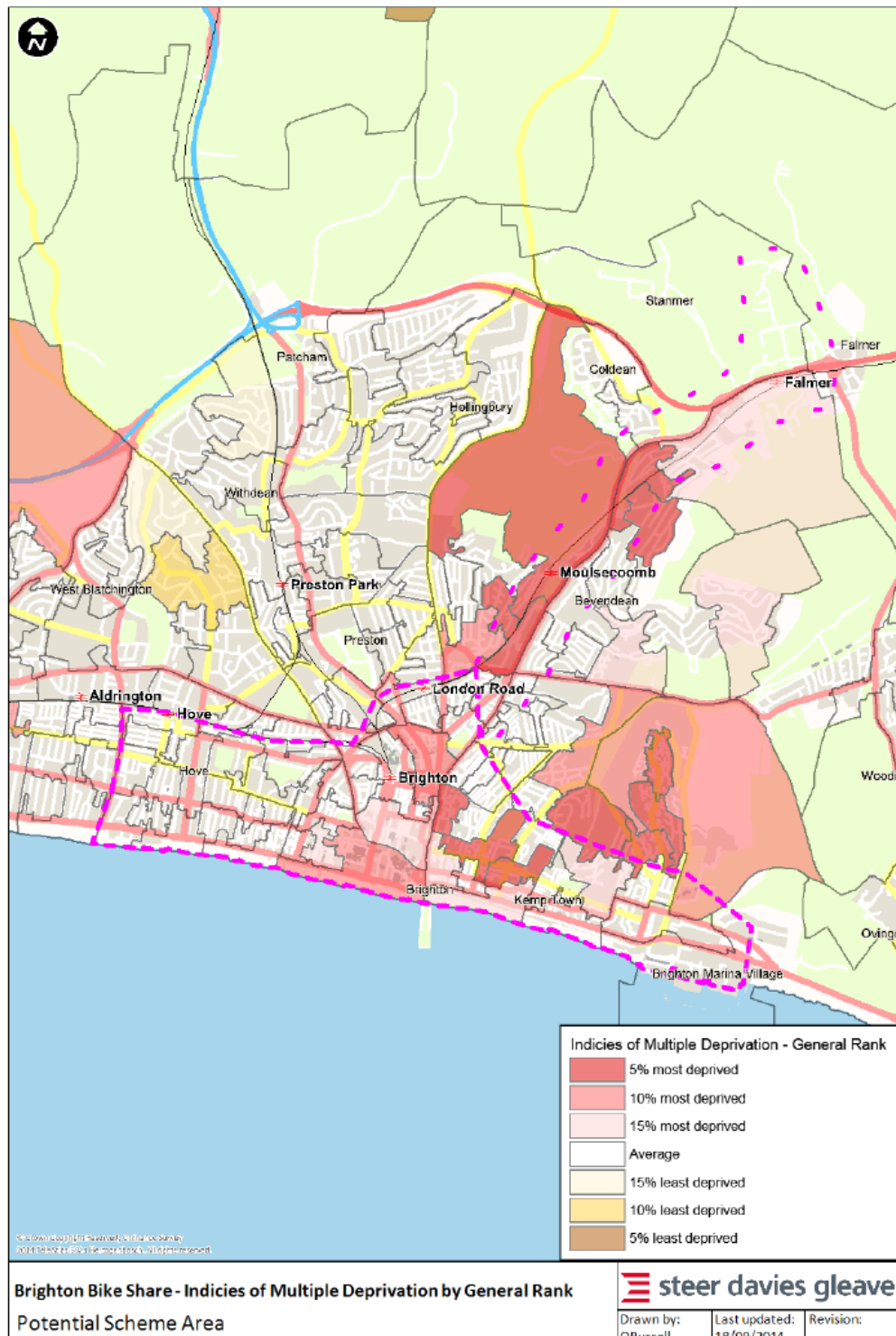
Cycle to Work Mode Share

- 3.16 Across the scheme area the average cycle to work mode share is 3.4%, based on data from the 2011 Census. The map below shows that cycle to work mode share varies across Brighton & Hove, with some areas with a cycle to work mode share of as high as 11.9%. The areas with the highest share of people cycling to work include much of Hove, around London Road railway station and along the seafront in Kemp Town.



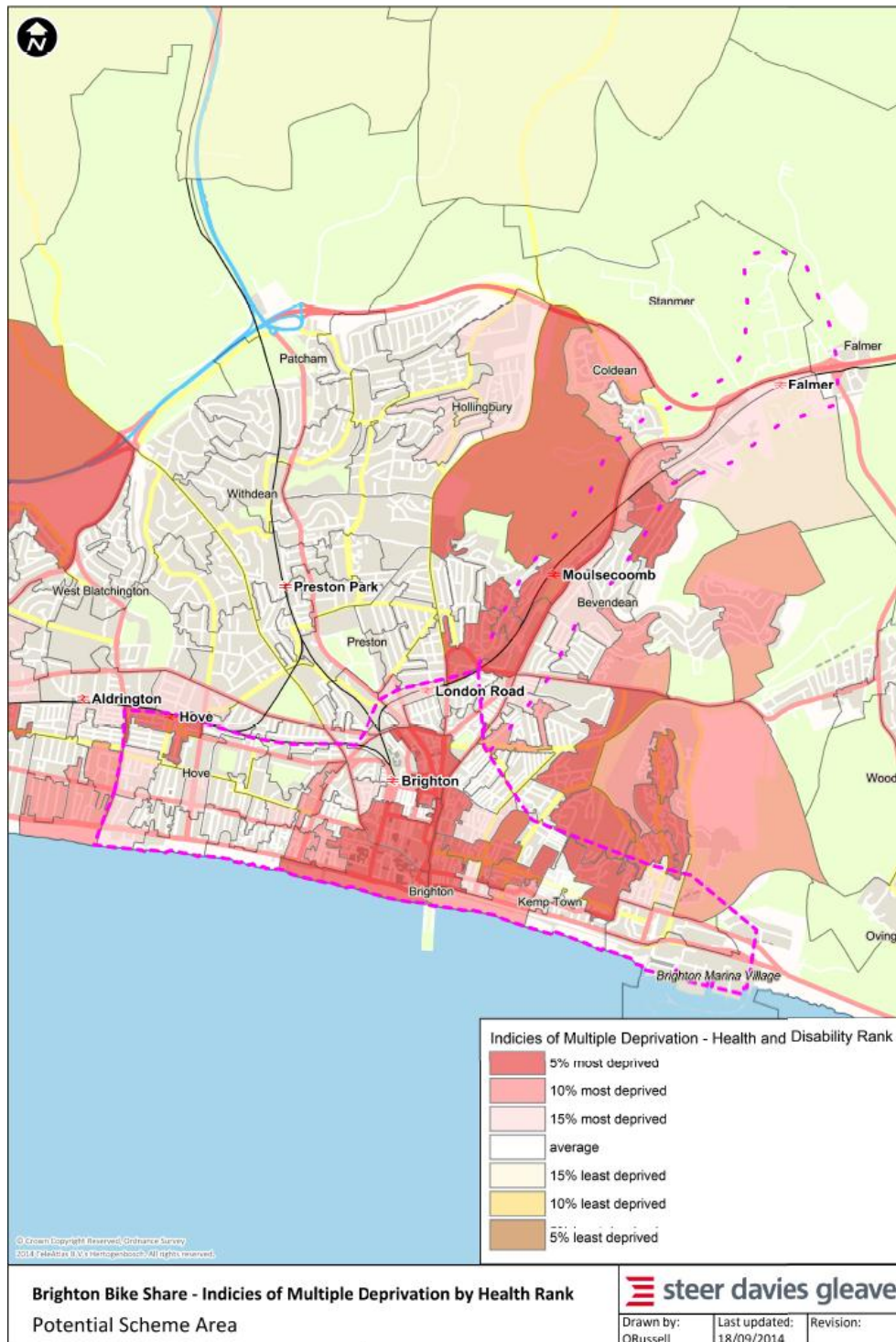
Indices of Multiple Deprivation – General Rank

- 3.17 One aim of a Bike Share scheme is to provide access to a bicycle for more deprived communities, people who either cannot afford to purchase a bicycle, or have limited space to store a bicycle. The map below shows that the proposed scheme covers locations in the city which are amongst the 5% most deprived areas of the country, including parts of Kempdown and Moulsecoomb.



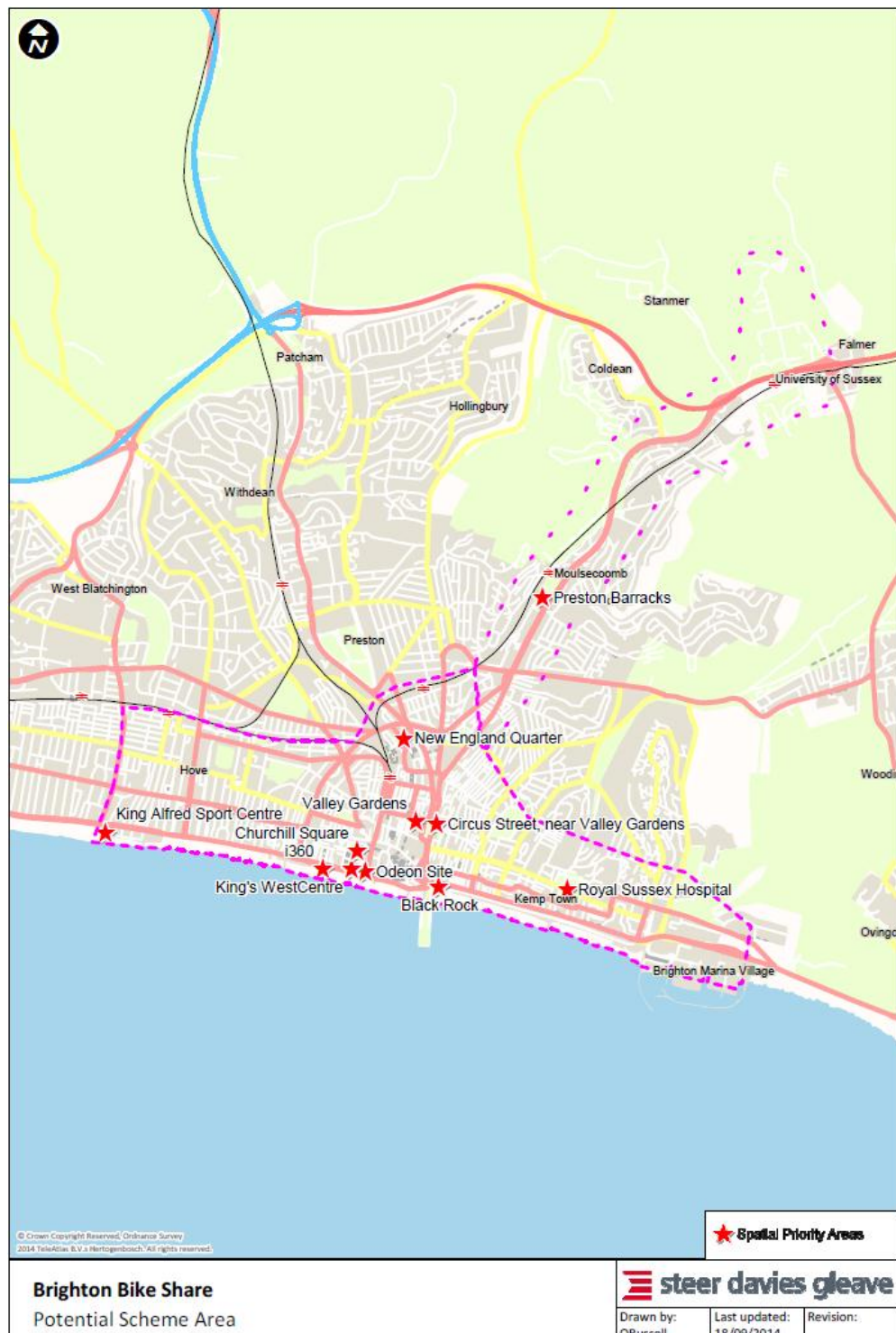
Indices of Multiple Deprivation – Health and Disability Rank

- 3.18 The Indices of Multiple Deprivation include indicators about the general health and disability levels. The health domain measures premature death and the impairment of quality of life by poor health. It considers both physical and mental health. Across the potential scheme area there are locations which are in the 5% most deprived in the country, based on these measures. These areas include central Brighton, parts of Kemp Town and Moulsecoomb. Providing Bike Share at these locations is a way to promote healthier and more active travel.



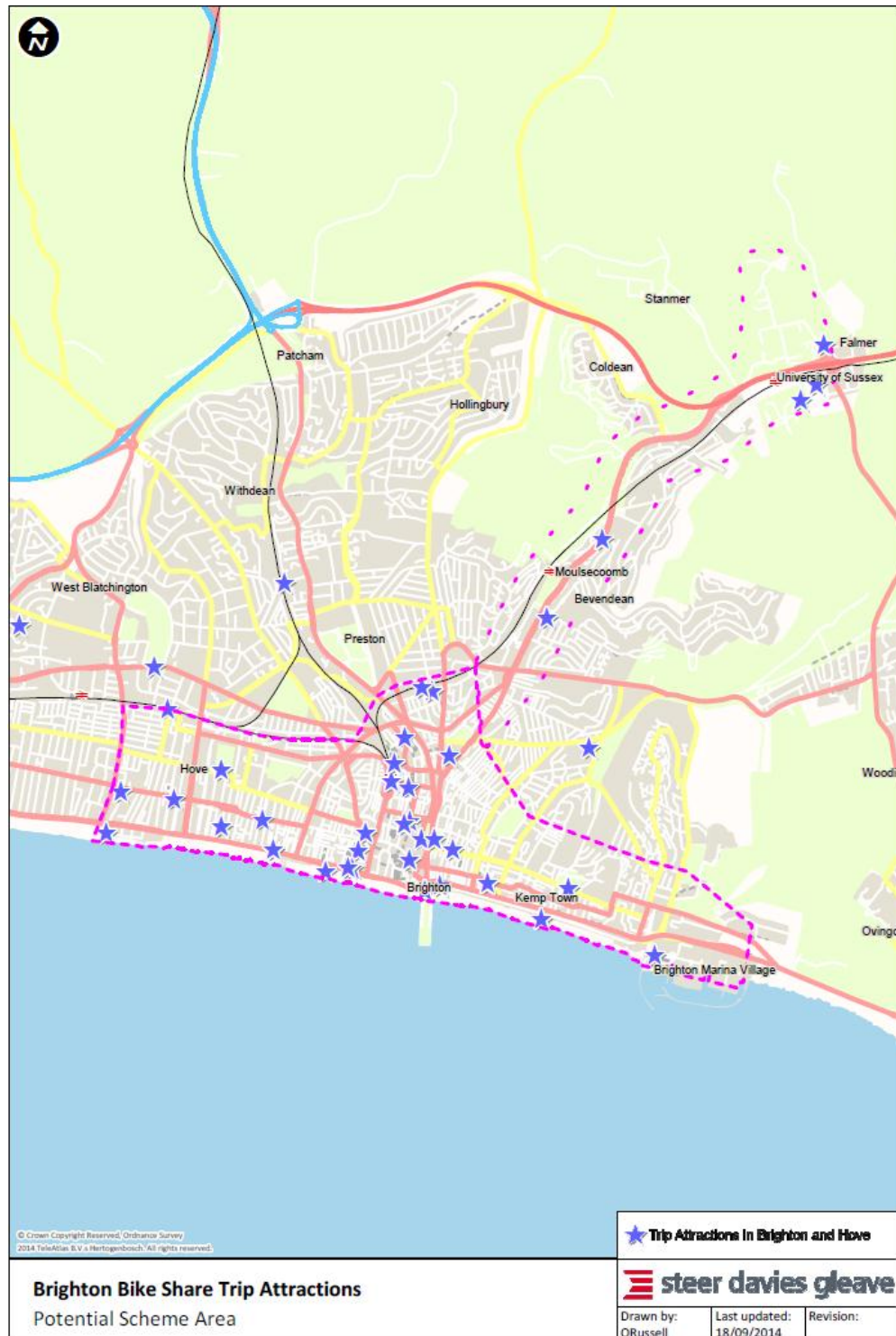
Key Developments and Spatial Priority Areas

- 3.19 The map below shows a number of key development and spatial priority areas, which will be important to be served by the proposed Bike Share scheme. These key developments include residential, leisure, commercial and mix use schemes. Providing Bike Share at each of these locations will enable a greater proportion of trips to each location to be made by non-car modes, reducing congestion and demand for car parking.



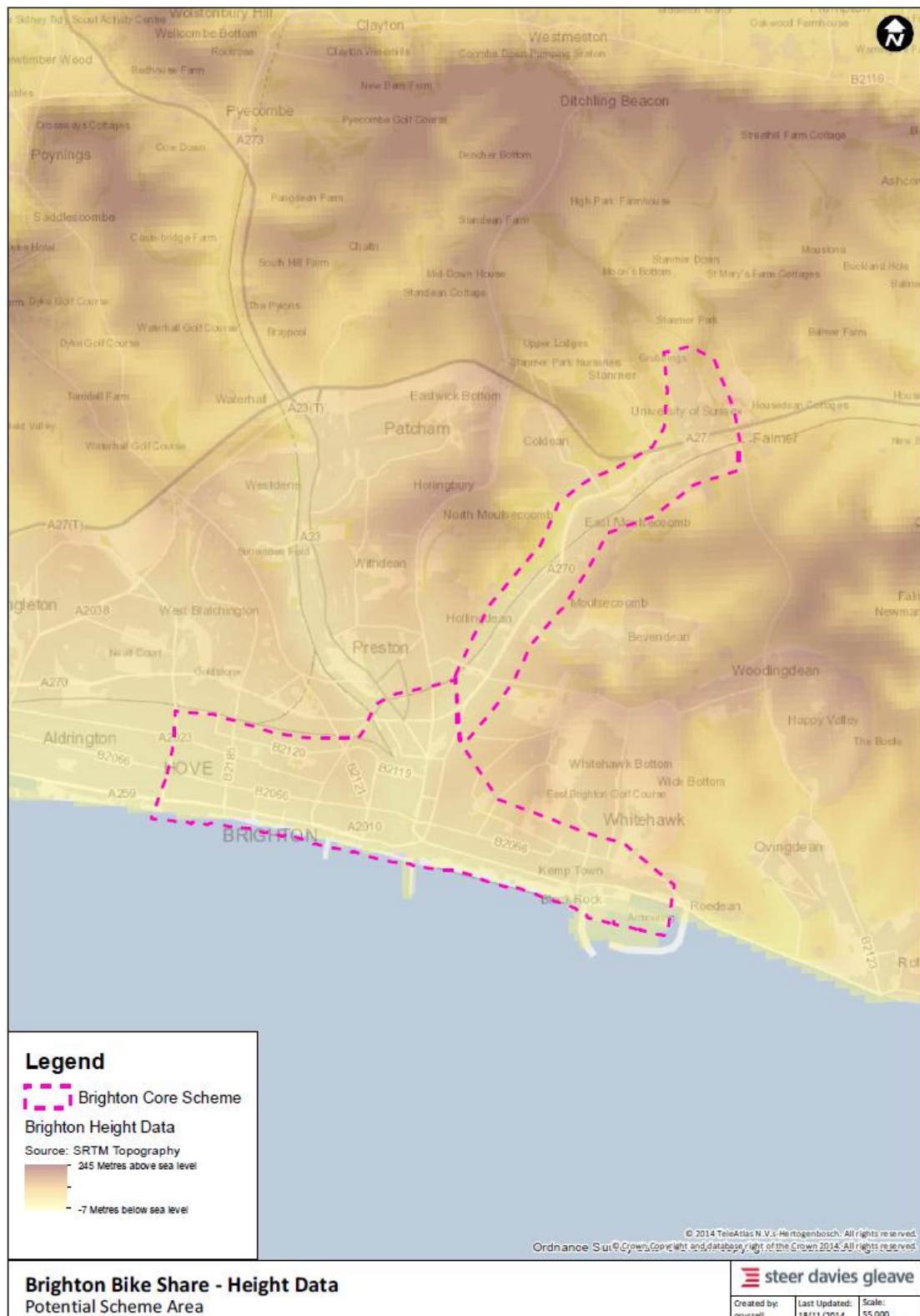
Key Trip Attractors

- 3.20 The map below shows key trip attractors, as identified within the previous feasibility study work. The previous study highlighted a range of key trip attractors. Within the proposed scheme area it will be important to serve a wide range of key trip attractors, to ensure that the scheme can be used for as wide a range of trips as possible.



Topography

- 3.21 The map shown below illustrates the topography of Brighton & Hove and the proposed scheme area. As the map shows, the scheme is focused on areas which have the least hilly terrain.



Potential Bike Share Locations

3.22 Using a coverage of hexagons 500m in size across the defined study area (79 in total) we have analysed the following data to inform the recommended scheme coverage and size:

- Residential population (weighted by propensity to cycle);
- Employment;
- Index of Multiple Deprivation – overall rank;
- Index of Multiple Deprivation – health rank;
- Priority sites – new developments and railway stations; and
- Previously identified sites.

3.23 A coverage of 500m hexcells was used to provide a suitable density of geography for docking station locations.

3.24 For each hexcell we have assessed each of the criteria to determine relative expected demand for the Bike Share scheme. Each hexcell is scored either good potential, or not good potential, based on the following criteria:

Table 3-2: Criteria for Assessing Potential for Bike Sharing Location by Hexcell

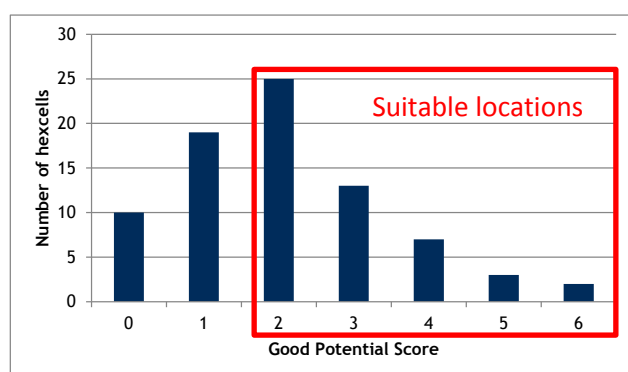
Data	Criteria for good potential	Number of hexcells with good potential
Residential Population (weighted by propensity to cycle)	Over 1,000 population	46 out of 79
Employment	Over 2,000 employees	10 out of 79
Index of Multiple Deprivation – overall rank	15% or higher most deprived	30 out of 79
Index of Multiple Deprivation – health rank	15% or higher most deprived	42 out of 79
Priority Sites – new developments and railway stations	Includes priority site and/or railway station	15 out of 79
Previously Identified Sites	Includes previously identified site	19 out of 79

3.25 Each hexcell was then scored from

- Zero (none of the data met the criteria for good potential); to
- Six (all of the data met the criteria for good potential).

3.26 We consider that hexcells with a good potential score of two or greater are suitable locations for a Bike Share docking station.

Figure 3-1: Number of Hexcells by Good Potential Score



- 3.27 Based on the analysis described, we have identified 50 hexcells with a score of two or higher. These 50 hexcells are the locations recommended for Bike Share, with this number of locations taken forward as a basis for the costs of the scheme (as detailed in Chapter 4).
- 3.28 The potential score of each hexcell is shown in the map on the following page, with those hexcells coloured pink or red identified as suitable locations for a docking station.
- 3.29 Note that for the scheme to function in an optimum way, there may need to be some adjustment of locations, for example moving a site to provide suitable scheme coverage where there are two or more hexcells with no recommended locations.

Benchmarking

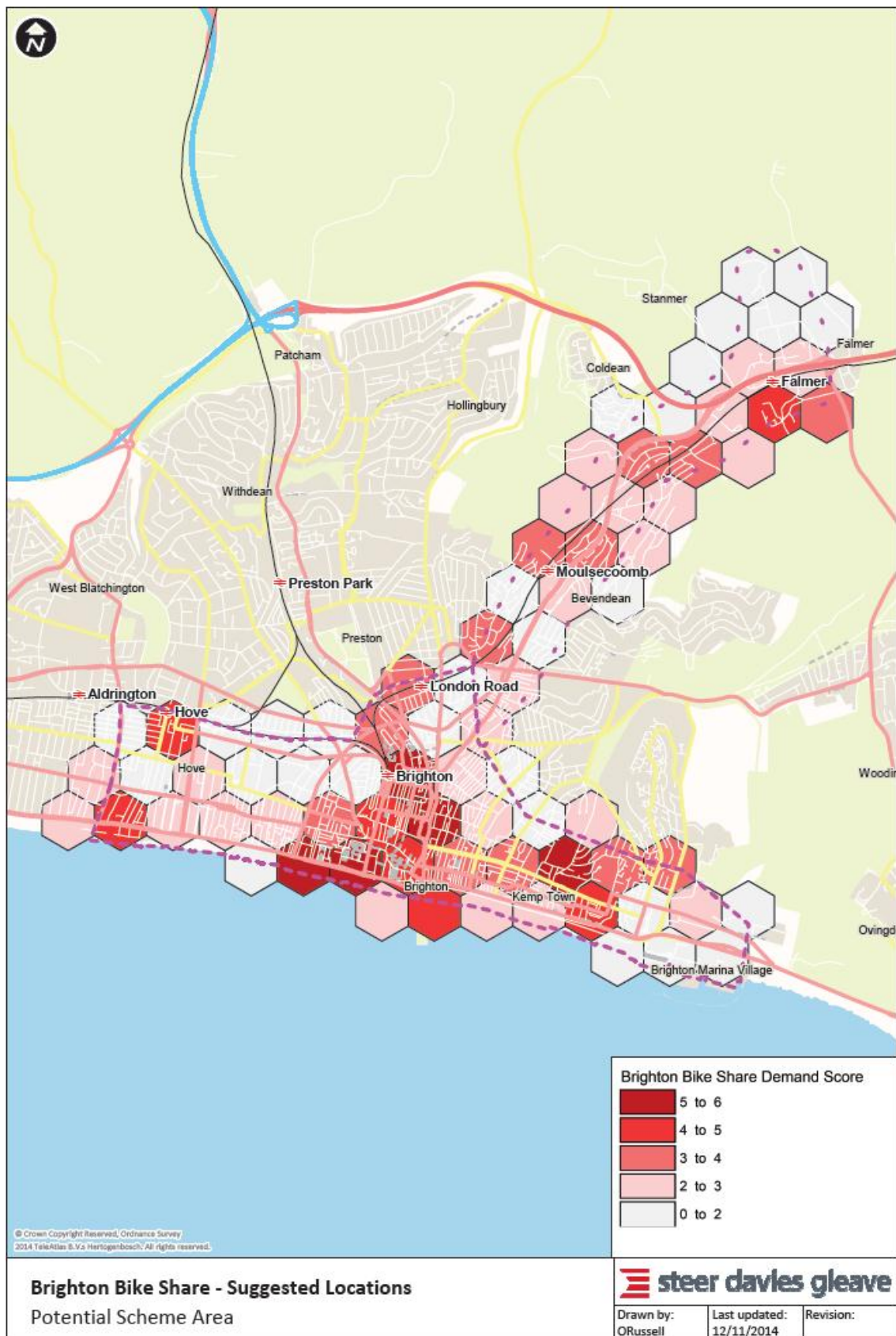
- 3.30 The Institute for Transportation & Development Policy's (ITDP's) 'The Bike Share planning guide' suggests a minimum coverage area of 10 km². The size of the proposed Brighton & Hove scheme is 12 km².
- 3.31 The guide also suggests 10-30 bicycles for every 1,000 residents. The planned Brighton & Hove scheme of 430 bikes would initially provide three bikes per 1,000 residents, and would require 1,370 bikes to reach the level of 10 bicycles per 1,000 resident (it would be possible to get closer to this number, given an expanded/intensified scheme in future years).
- 3.32 For reference the table below shows the ratio of bicycles to hire per 1,000 population in existing schemes. Based on these numbers, the proposed provision in Brighton & Hove is comparable to many existing schemes and higher than in Paris and London.

Table 3-3: Bicycles to Hire per 1,000 Population in Existing Schemes

City	Bicycles to hire per 1,000 population
Lyon	8.0
Barcelona	3.7
Brighton & Hove	3.2
Montreal	3.0
Paris	2.0
London	1.2
Vienna	0.5 ²²
Cardiff	0.4 ²³
Reading	0.1 ²³

²² Note that this figure will have increased following the recent expansion of the scheme.

²³ Scheme no longer in operation.



4 Scheme Costs

Capital Costs

- 4.1 To determine capital costs for implementing a Bike Share scheme in Brighton & Hove we have collated information from the best available evidence. This includes:
- Benchmarking from other schemes; and
 - Data from previous Brighton & Hove soft market test.
- 4.2 Capital costs are based on the following assumptions about the scheme:
- 50 Bike Share docking locations (based on analysis detailed in Chapter 3);
 - 39 locations with 15 docking points
 - 11 locations (with highest expected demand) with 25 docking points
 - 430 bikes (based on one bike for every two docking points)
- 4.3 Capital costs include:
- Bike stations (docking spaces and terminals);
 - Bikes;
 - IT Systems costs;
 - Control Centre; and
 - Installation.
- 4.4 We have reviewed capital costs per bike for existing schemes currently in operation in the UK, Europe, US and Canada, for which capital costs are available. Table 4-1 provides a summary of these costs. As can be seen in the table, smaller schemes typically have higher capital costs per bike.

Table 4-1: Capital Costs per Bike Share Bike

City	Country	Number of Bikes	Capital Costs per Bike
London	UK	7,000	£2,400
Barcelona	Spain	4,100	£1,900
Montreal	Canada	3,800	£2,400
New York City	USA	4,200	£2,900
Denver	USA	450	£2,600
Minneapolis	USA	1,380	£2,700
Madison	USA	230	£3,000
Average	-	-	£2,440
Average (small schemes)	-	-	£2,700

Source: *Bike-share Planning Guide, ITDP*

4.5 Using the capital costs per Bike Share bike, for a scheme of 430 bikes the range of capital costs for a scheme in Brighton & Hove are between:

- £817,000 (based on costs in Barcelona); and
- £1,290,000 (based on costs in Madison).

4.6 Given the relatively small size of the proposed scheme, we have estimated costs based on the higher average per bike (for small schemes) or £2,700 per bike. On this basis **capital costs for a scheme in Brighton & Hove are estimated at £1,161,000.**

4.7 We have allowed for promoter costs of £100,000 and a contingency allowance of 15%, to reflect the level of uncertainty implicit in the cost ranges above. **The overall capital cost of the scheme is estimated at £1,450,150** as set out in Table 4-2.

Table 4-2: Scheme Capital Cost Estimate

Cost Element	Value (£m, 2013 prices)
Bikes (a)	430
System Cost - Cost per Bike (b)	2,700
System Cost (a * b)	1,161,000
Promoter Costs	100,000
<i>Subtotal</i>	<i>1,261,000</i>
Contingency Allowance	15%
Total Infrastructure Cost	1,450,150

4.8 Within the economic appraisal an additional risk allowance of 20% for 'Optimism Bias' has been included, in line with DfT webTAG guidance.

Requirement for Premises

4.9 While much of the maintenance activity will be undertaken on-street, there will be a requirement for some premises to support the following activities

- Maintenance Centre – it is expected that space would be found within an existing facility within the city.
- Administration and Management Functions – The expectation is that these would also be provided by staff employed at existing offices.

- System User Support - this would probably be provided through an existing call centre facility and would not require a bespoke facility for this scheme.

4.10 We have not made explicit provision for the cost of these within the bid. Some of the costs will be represented, implicitly, within the unit rate benchmarks used for the system operating and maintenance costs. It is not envisaged that there would be any acquisition of premises as part of the scheme.

Operating and Maintenance Costs

4.11 Once a Bike Share scheme has been launched there will be annual ongoing operating and maintenance costs. These costs include:

- Management and overheads, incl. marketing;
- System maintenance;
- Bike maintenance;
- Redistribution;
- Electricity and internet connections; and
- Insurance.

4.12 Data on scheme costs is difficult to obtain, with commercial operators sensitive about these costs. We have reviewed costs for ongoing operating and maintenance, based on information from:

- Benchmarking from other schemes; and
- Data from previous Brighton & Hove soft market test.

4.13 Based on this data and the proposed scheme size we have estimated annual operating and maintenance costs for a scheme in Brighton & Hove are between:

- £600,000 (based on low average costs); and
- £750,000 (based on high average costs).

4.14 Given the proposed community interest company operation for the scheme we have estimated costs based on a mid-point between the low average costs and high average costs, given that a provision for profit will not be included in these figures. On this basis **the annual operating and maintenance cost for a scheme in Brighton & Hove is estimated at £700,000.**

Bike Renewals

4.15 In addition to annual operating and maintenance costs, over time the Bike Share bikes will need to be replaced. The frequency of replacement will depend on the quality of the bikes used in the scheme.

4.16 We have assumed that the scheme would use high quality bikes, which have a higher replacement cost, but require replacing less frequently. We have assumed that the fleet of bikes will be replaced every 10 years, at a cost of £750 per bike meaning replacement costs of £322,500 every 10 years, based on replacing 430 bikes.

4.17 The economic appraisal includes a conservative renewals estimate equivalent to 10% of the annual operating and maintenance costs for replacements. These allow for renewals of other scheme elements. The renewals costs have been applied on an annual basis and these ongoing costs are modelled to begin in 2016/17.

5 Scheme Demand and Revenues

5.1 This chapter outlines our approach and assumptions in our analysis of demand and revenue for a potential Brighton & Hove Bike Share scheme.

Demand Forecasts

5.2 The demand forecasts detailed in this chapter are based on best evidence from existing schemes, taking into account differences in the local market and informed by market analysis detailed in Chapter 3.

5.3 We have analysed potential demand for a Bike Share scheme by considering potential scheme use by the following type of users:

- Residents of the scheme area;
- Rail users (Brighton, Hove, London Road, Moulsecoomb and Falmer stations);
- Employees working in the scheme area; and
- Tourists visiting/staying in the scheme area.

Our analysis has calculated the in-scope population and total daily trips by all modes; shown in Table 5-1.

Table 5-1: In Scope Population and Daily Trips by User Type

User Type	Daily population	Daily trips	Trip assumptions
Residents	135,700	271,400	2 trips per day
Rail users	28,400	56,800	2 trips per day
Employees	83,300	41,650	0.5 trips per day ²⁴
Tourists	39,200	78,400	2 trips per day
Total	286,600	448,250	

5.4 We have calculated potential Bike Share trips, considering the current cycle mode share of each user type and a low assumption of the potential share of daily trips which could be switched to Bike Sharing; shown in Table 5-2.

²⁴ This number is low to reflect potential double counting from residents and rail users who are also employees in the proposed scheme area.

Table 5-2: Current Cycle Mode Share, Potential Bike Share Mode Share and Daily Trips by User Type

User Type	Current cycle mode share	Potential Bike Share mode share	Daily Bike Share trips	% of daily Bike Share trips
Residents	5.3%	0.4%	1,100	45%
Rail users	1.8%	0.4%	200	9%
Employees	5.3%	0.4%	150	7%
Tourists	0%	1.2%	950	39%
Total	4.1%	0.5%	2,400	100%

5.5 This demand estimate equates to an average usage of each Bike Share bike of 5.6 trips per day. This is lower than comparable scheme usage in Paris (6.7 trips per bike per day, but higher than in London; 3.1 trips per bike per day).

5.6 To place this in context the ITDP's 'The Bike Share planning guide' suggests that each bike should be used around 4 to 8 times per day.

Revenue Forecasts

5.7 We have calculated user revenue forecasts based on the best information available and prudent assumptions.

5.8 We have calculated revenue estimates for the scheme based on the following pricing scenarios and the daily demand estimate detailed above. The two pricing scenarios are as follows:

- £1 charge per trip; or
- £2 daily charge, or £70 annual subscription, with no additional charge for first 30 minutes.

5.9 Table 5-3 shows scheme tariffs in other locations with existing Bike Share schemes, for comparison. All schemes considered offer a free journey of up to 30 minutes, once an initial daily or annual access fee has been paid. Rental for a full day is discouraged in London and Dublin, through a prohibitive daily rental tariff.

Table 5-3: Tariffs for Existing Bike Share Schemes

	Glasgow	Bath	London	Dublin
Per ride (30 min max)	£1	£1	n/a	n/a
Daily access charge	n/a	n/a	£2	€5 (3 days)
Daily rental (up to 24hrs)	£10	£10	£50 (plus access charge)	€84.50
Annual access charge	£60	£60	£90	€20
Notes	After paying access charges the first 30 minutes of each trip is free, with charges applying over 30 minutes.			

5.10 Table 5-4 shows the potential annual revenue for this pricing scenario based on the daily demand estimate.

Table 5-4: Revenue Estimates, Based on 2,400 trips per Day

	£1 per trip	£2 daily charge/£70 annual subscription
Daily trips	2,400	2,400
Share of trips by members	0%	44%
Share of trips by casual	100%	56%
Daily revenue members	-	-
Daily revenue casual	£2,400	£1,350
Annual members	-	3,250 (2.4% of population)
Annual membership charge	-	£70
Annual trips per annual membership	-	120
Annual trip revenue	£880,000	£494,000
Annual subscription revenue	-	£227,000
Total annual revenue	£880,000	£721,000

- 5.11 **We recommend that the daily charge/annual subscription tariff is used**, to encourage frequent use of the scheme for residents, commuters and employees, while allowing easy and good value access to the scheme for visitors.
- 5.12 We have not included additional revenue for trips over 30 minutes in length, as this typically comprises a very small proportion of revenue for existing schemes, with most trips lasting under 30 minutes.

6 Strategic and Economic Case

Strategic Case – Fit with Policy Objectives

- 6.1 The Bike Share scheme is well aligned to the objectives and priorities of the Coast to Capital SEP.

Jobs

Direct Job Creation

- 6.2 The scheme will be run as a social enterprise, ensuring benefits to the local workforce through direct employment, and training. We estimate that the Bike Share scheme would support the following:

- 1-2 FTE employees in the management and administration of the system; and
- Around 4 FTE employees in the redistribution and maintenance of bikes.

- 6.3 We would expect other related jobs (e.g. call centre support) may not be local so have not been included within the analysis.

- 6.4 Our best estimate is therefore that the scheme will directly support around 6 FTE jobs.

- 6.5 In addition, the objective as a social enterprise operator would be to generate social capital through, for example, skills training and apprenticeships to local people. The scheme would therefore have a role in supporting additional jobs through providing people with the skills and experience that enable them to enter the workforce and / or get better jobs.

Access to Employment

- 6.6 Bike Share will provide affordable access to employment, particularly for those without a car. The area covered by the scheme has an unemployment rate of 1.8%, and 46.6% of households do not own a car. Bike Share will help overcome mobility issues for non-car owners and the issue of limited cycling parking in the city centre, providing residents with access to bikes and a guaranteed parking space at both ends of the journey.

- 6.7 The Bike Share area contains over 83,000 jobs. The scheme will enable residents to directly access these jobs and wider opportunities (via rail stations in the scheme area, for example). The aim is to work closely with employment services so that 'free' bike access can be offered to assist unemployed residents into work who would otherwise not be able to access specific job opportunities due to transport costs (e.g. bike purchase) or difficulties storing a bike either at home or work.

Supporting Major Developments

- 6.8 The scheme development has involved identifying other major existing employers and major planned developments. The Bike Share scheme will support several projects, including Valley Gardens, Circus Street, Preston Barracks Central Research Laboratory and City College Brighton (Pelham Street Campus), integral to the Coast to Capital Growth Deal. In addition, the scheme will support the success of major developments including I360 and the Brighton waterfront area and over 20 other projects, the majority of which are within Bike Share area.

Productivity Gains

- 6.9 There is evidence that people who are more active (i.e. walk or cycle to work) are generally healthier and have fewer days off sick than less active workers. DfT guidance suggests this is equivalent, on average, to 0.4 days per worker per year. This is a direct productivity benefit to the employer and the local economy and we have valued this 'reduced absenteeism' benefit at £33,000 per annum (in 2016/17, 2010 prices), based on DfT guidance.

Tourism Economy

- 6.10 In 2013, an estimated 4.8 million visitor nights and 9.5 million tourism day trips were spent in Brighton & Hove and tourism activity was worth over £1.1 billion. The Bike Share scheme will encourage tourists to visit more places and attractions such as Brighton Marina. Providing easier and quicker access to / from railway stations in Brighton & Hove may also effectively increase the length of time visitors spend in Brighton & Hove (by reducing travel times to / from the station), which would result in increased expenditure per visitor.
- 6.11 The Bike Share scheme will be linked to and promoted alongside Brighton's eco-tourism initiatives and in time it could expand to cover Greater Brighton and provide cycle access to the South Downs National Park.

Employment Floor Space

Supporting Higher Density, Higher Value Development

- 6.12 Brighton & Hove is an area of high density employment characterised by a congested road network and high demand for parking. Providing Bike Share will reduce the need for car journeys in central Brighton and subsequently reduce the demand for parking. Reducing local parking requirements means that premium city centre land, previously been considered for parking, will be freed up for more valuable redevelopment opportunities, including high density employment floorspace. This, in turn, would result in capacity for more jobs and increase the overall value of specific development.

Supporting Major Employment Sites

- 6.13 The scheme integrates with the specific plans to redevelop Valley Gardens, where 131,195m² of employment floor space and 724.5 FTE jobs are planned. The Valley Gardens scheme will improve the public realm and enhance infrastructure for pedestrians and cyclists. The Bike Share scheme will provide 40 spaces in the direct vicinity of Valley Gardens, Circus Street, Preston Barracks Central Research Laboratory and City College Brighton & Hove, and by promoting better and more sustainable access will enhance the overall viability of any related commercial developments.

Housing

Supporting Sustainable Housing Growth

- 6.14 The scheme will support planned housing and employment growth in a more sustainable manner. The scheme is forecast to remove 283,000 car trips per annum, which increases the effective capacity of the transport system to support future housing and employment growth.

Supporting Residential Developments

- 6.15 There will be docking stations serving planned residential developments including at Circus Street and Preston Barracks. The presence of Bike Share docks are attractive to potential occupants and therefore will increase the overall attractiveness and viability of residential development.

Encouraging Travel by Sustainable Modes

- 6.16 Shorter car trips in urban areas contribute considerably to exacerbating congestion and local emissions in sensitive (highly populated) areas. The Bike Share scheme will encourage transfer of a number of shorter trips. Our forecasts estimate that 32% of Bike Share trips will transfer from former car users. We have valued the overall 'externality' benefit of £153,000 per annum (in 2016/17, 2010 prices)²⁵, based on DfT guidance.
- 6.17 In addition, the Bike Share scheme will help promote cycle use in general, improve transport choice and provide an alternative to car ownership, which will ensure increased use of existing and planned cycle infrastructure. Bike Share will also provide easier access to bikes particularly for those who have difficulties with bike storage at home or their workplace and concerns with cycle theft. The presence of cycle hire bikes in the city will raise the profile of cycling, normalising cycling as a mode of transport and encouraging greater levels of cycle trips, both by Bike Share and personal bicycles.

Transport and Health

- 6.18 Physical activity can significantly reduce the risk of developing a number of health conditions including coronary heart disease and stroke, Type 2 diabetes and cancer²⁶. The Bike Share scheme will contribute to an increase in the levels of physical activity in the local population. Our forecasts estimate that the scheme will generate in excess of 570,000 new active travel trips per year²⁷ and that there will be approximately 400 regular users per day.
- 6.19 The overall health benefits equal £147,000 per annum (in 2016/17, 2010 prices), based on DfT guidance. This is equivalent to £370 per cyclist per year (in 2016/17, 2010 prices). It should be noted that recent research by Rabl and de Nazelle (2012), which estimated the health benefits of an adult switching from driving to cycling for regular commuting to be €1,300 per annum, is

²⁵ This includes benefits from reduced congestion, accidents, carbon and improved air quality. The breakdown, over the 15-year appraisal period, is presented in Table 6-1.

²⁶ *Start Active, Stay Active: A Report on Physical Activity for Health from the Four Home Counties* (2011), Department of Health, UK.

²⁷ Those that were not previously made by bicycle or on foot.

based upon higher levels of cycling; both in terms of distance and frequency, than assumed here²⁸.

- 6.20 The health benefits are based on a direct application of guidance and therefore do not take account of better coordination of transport and health policies at a local level – e.g. GPs able to encourage inactive patients to use bike sharing through ‘prescribing’ free (to the user) Bike Share usage.

Improving Resilience

Bike Share Resilience

- 6.21 The Bike Share scheme is not primarily a resilience scheme. However, the scheme will offer an additional transport option that supports the overall resilience of the network. In particular, the central area where the scheme would operate is characterised by high levels of congestion in general, and severe congestion during the summer peaks. At these times travel by car, bus or taxi will be long and highly unreliable. Bike share provides an attractive, faster and more reliable alternative.

Wider Network Resilience

- 6.22 The transfer of car trips to Bike Share reduces the number of cars on the road network and will improve the overall ‘baseline’ resilience of the network.

Economic Case – Value for Money

Cost Benefit Appraisal

- 6.23 We have undertaken an appraisal of the proposed Bike Share scheme, in line with DfT’s Transport Appraisal Guidance (TAG).
- 6.24 The inputs to the appraisal include capital and ongoing costs, sponsorship, demand, revenue, mode share, trip distance, user and non-user benefits, health and absenteeism benefits.
- 6.25 Key assumptions employed in the economic appraisal are:
- Central case appraisal period – 15 years
 - Price base and discount year of 2010
 - Discount rate of 3.5% per annum
 - Value of Time of £6.20 per hour based on assumption of 100% non-working purpose (80% ‘other’, 20% ‘commute’)
 - Growth in value of time in line with DfT guidance
 - Demand growth of 1% per annum over the period
 - Real increase in both operating costs and revenues of 1% per annum
 - An average trip distance of 2.5km for those transferring to bike-share
 - User benefits based on an average user benefit per trip, estimated at 5.0 minutes per trip
 - Externality benefits estimated in line with DfT’s Marginal External Costs guidance
- 6.26 The economic appraisal of Bike Share is presented in Table 6-1. We have prepared the economic appraisal over several different appraisal periods, to show the sensitivity of the appraisal to the selection of the appraisal period. All appraisals include renewals costs as a

²⁸ Rabl & de Nazelle (2012) Benefits of Shift from Car to Active Transport, *Transport Policy* 19,121–131

proportion of annual operating costs, so include the ongoing replacement of bikes and other key capital elements of the scheme.

- 6.27 Our central case for the appraisal is based on a 15-year appraisal period, and this shows that **the scheme delivers a cost-benefit ratio of over 7 : 1, indicating that the scheme offers very high value for money.** The assessment shows that the scheme delivers a positive benefit-cost ratio at each of the appraisal lengths considered (5, 10, 15 and 30-years).

Interpretation of Cost Benefit

- 6.28 The appraisal shows that:

- The scheme revenues are forecast to exceed ongoing scheme costs, suggesting that the scheme is financially viable and affordable through the period of operation.
- Bus fare revenue impacts are treated as a transfer payment within the economic appraisal. The financial 'loss' to the bus operator is equivalent to the 'gain' to the person transferring.
- The main benefits to users are:
 - Time savings, where we have prudently assumed each user benefits by an equivalent of 5 generalised minutes – in practice many trips will be much faster than this. The use of the 5 minutes generalised minute benefit per trip captures both the time and financial elements of the journey²⁹.
 - Health benefits – based on increased physical activity levels.
 - Absenteeism benefits – based on regular cycling having, on average, fewer days off sick.
- The largest benefits to non-users (externality benefits) are from decongestion benefits, whereby transfer from car results in fewer vehicles on the road network, and a corresponding reduction in congestion, emissions and accidents.

²⁹ Economic theory tells us that people only change behaviour (i.e. use Bike Share) because they perceive a benefit in going so. This benefit will be a balance of time, cost and other preferences. The relative balance may vary depending on the prior mode, so the 5 minute benefit is a representation of the average overall benefit per trips.

Table 6-1: Economic Appraisal of Bike Share

All values are in £000s, 2010 prices, discounted to 2010	30-year	15-year (Central Case)	10-year	5-year
Scheme Costs				
<i>a) Programme Costs</i>	1,630	1,630	1,630	1,630
Provider Impacts - Bikeshare				
Ongoing Costs	(14,801)	(8,857)	(6,258)	(3,320)
Bike Share Revenues	19,385	11,166	7,747	4,034
<i>b) Sub Total</i>	4,584	2,308	1,489	714
Provider Impacts - Other Modes				
<i>c) Bus Revenue</i>	(14,329)	(7,772)	(5,240)	(2,650)
User Impacts				
User Benefits (Time)	10,748	5,651	3,813	1,930
User Charge Savings (Bus)	14,329	7,772	5,240	2,650
Health Benefits	2,935	1,626	1,124	583
Absenteeism Benefits	667	370	255	132
<i>d) Sub Total</i>	28,679	15,419	10,433	5,295
Externality Benefits/ Impacts				
Congestion - Value in Use	4,500	2,274	1,465	684
Infrastructure	14	7	4	2
Accident	403	221	151	77
Local Air Quality	-	-	-	-
Noise	28	16	11	5
Greenhouse Gases	83	51	36	20
Indirect Taxation	(454)	(289)	(213)	(119)
<i>e) Sub Total</i>	4,575	2,280	1,455	669
Economic Appraisal Summary				
Total Costs (a)	1,630	1,630	1,630	1,630
Total Benefits (b + c + d + e)	23,509	12,235	8,136	4,028
NPV	21,879	10,605	6,506	2,398
BCR	14.42	7.51	4.99	2.47

- 6.29 We have also undertaken a range of sensitivity tests around the central case, to assess the robustness of the scheme under a range of scenarios. These are presented in Table 6-2. In all cases, the BCR remains at or above 4.0, meaning the Bike Share scheme remains high value for money under the sensitivity tests carried out.

Table 6-2: Sensitivity Tests (2016/2017, £000s, 2010 prices)

Sensitivity Test (15 Year Appraisal Period)	Annual Demand	Annual Revenue (£)	Operating Ratio	BCR
Central Case	884	854	1.20	7.5 : 1
Demand Decreased by 30%	619	654	0.92	4.0 : 1
Demand Increased by 30%	1,149	1,055	1.48	11.0 : 1
Cost – Central Capital Cost +50%	884	854	1.20	5.0 : 1
Cost – Central Operating Cost +20%	884	854	1.00	6.4 : 1
No Decongestion Benefits Assumed	884	854	1.20	6.1 : 1
No User Benefits Assumed	884	854	1.20	4.0 : 1
No Health/Absenteeism Benefits Assumed	884	854	1.20	6.3 : 1
Sponsorship Reduced by 50%	884	761	1.07	6.8 : 1

Summary of Economic Benefits (Transport)

6.30 The demand forecasting and economic analysis has informed our summary assessment of the economic benefits of the scheme, in line with the criteria set out in the Coast to Capital LEP scheme pro-forma. These are presented in Table 6-3.

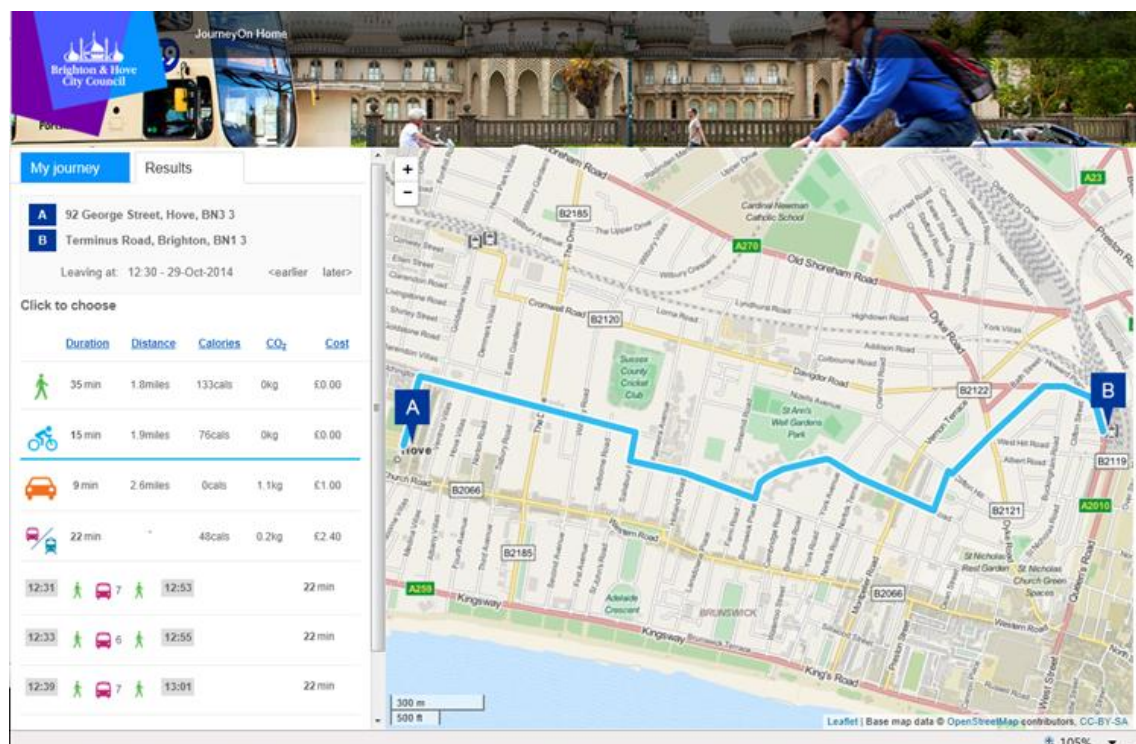
Table 6-3: Assessment of Economic Benefits Relating to Transport

Benefit	Assessment	Score
Value for money	Scheme BCR of 7.5 : 1 over 15 years demonstrates high value for money.	✓✓✓
Expected impact on journey times, reliability and resilience	A 2.5km cycle journey is typically 18 minutes faster than walking and 5 minutes faster than the bus. The removal of cars from the network (from modal transfer) results in reduced journey times for remaining highway users. Bike journeys offer a new and reliable travel option. Mode transfer from car will improve the overall resilience of the road network.	✓✓
Encouraging sustainable travel	The scheme encourages cycle journeys, and supports the sustainable growth of housing and employment in Brighton & Hove.	✓✓✓
Expected impact on road safety casualties	£19,000 per annum (2016/17, 2010 prices), £221,000 over 15-year appraisal period (present value £, 2010 discounted prices).	✓✓
Valuing public realm	Not quantified. Proximity to Bike Share stations may increase property values and provision at new residential developments could enhance value and reduce land required for parking.	✓
Health benefits	£147,000 per annum (2016/2017, 2010 prices), £1,626,000 over 15-year appraisal period (present value £, 2010 discounted prices)	✓✓✓
Absenteeism benefits	£33,000 per annum (2016/17, 2010 prices), £370,000 over 15-year appraisal period (present value £, 2010 discounted prices).	✓✓
User Benefits	£477,000 per annum (2016/2017, 2010 prices), £5,651,000 over 15-year appraisal period (present value £, 2010 discounted prices). [Note – users of Bike Share do so, by definition, because they perceive a benefit in doing so, in the form of a faster journey, cheaper journey, more enjoyable journey etc.]	✓✓✓

User Benefits – Applied to People Using Bike Share

- 6.31 Introducing Bike Share in Brighton & Hove will bring numerous economic benefits as a result of mode shift from car to bike, journeys time savings and improved accessibility. Furthermore, Bike Share will bring health benefits to the local communities, resulting in a healthier workforce with reduced absenteeism.
- 6.32 We have used Brighton & Hove's JourneyOn web-based journey planning tool to assess the relative journey time and cost of a sample of trips within the Bike Share area (the journey planner gives times and costs for walk, cycle, car and public transport).
- 6.33 Figure 6-1 shows an example trip, from Hove to Brighton Train Station.

Figure 6-1: User Benefit Calculation: Example JourneyOn Trip



- 6.34 The example above shows that the trip by bike would take 15 minutes, compared to 35 minutes on foot and 22 minutes by public transport (which would also cost £2.40). The trip by car would be 9 minutes, but there would be costs associated with fuel, parking search time and parking cost.
- 6.35 Our assessment based on a sample of trips (average distance c. 2.5km) suggests that a potential Bike Share trip is, on average:
- 5 minutes quicker than travelling by bus and cheaper
 - 18 minutes quicker than travelling on foot
 - 4 minutes slower than travelling by car, but this ignores parking search time and the potential cost of parking.
- 6.36 This suggests the benefits to people transferring to Bike Share could be sizeable, and that the use of an average benefit per trip of 5 minutes within the appraisal can be considered prudent.

Economic Benefits (Economic Growth)

6.37 The scheme will support economic growth in Brighton & Hove in a number of ways. Bike Share will provide enhanced access to existing major employers, supporting staff recruitment and retention. It will encourage sustainable and higher density development in central Brighton & Hove. Productivity gains from reduced absenteeism and reduced congestion represent direct productivity gains for local businesses.

6.38 Table 6-4 outlines the scheme benefits in terms of economic growth.

Table 6-4: Assessment of Economic Benefits Relating to Economic Growth

Benefit	Assessment	Score
Retention of existing jobs or creation of new jobs	Scheme designed to provide enhanced access to exiting major employers (e.g. Brighton and Sussex University Hospitals NHS Trust, City College Brighton & Hove, the University of Brighton, American Express, Lloyds TSB, BAE Systems and the Sussex Innovation Centre) and city centre, supporting staff recruitment and retention. The scheme will directly support around 6 FTE jobs. The scheme will operate as a Social Enterprise partnership, which will ensure social capital benefits including provision of training, skills development and apprenticeships.	✓✓✓
Unlocking or improving access to new dwellings	The siting of docking stations will be specifically designed to provide access to major new residential developments.	✓✓
Encouragement of new businesses, or protection of existing businesses	The scheme encourages sustainable and higher density development in an area identified as a spatial priority by the C2C LEP.	✓✓✓
Access to jobs	Bike share will provide affordable access to employment and study, particularly for those without a car. The area covered by the scheme has an unemployment rate of 1.8%, and two thirds of households do not own a car. Bike Share will help overcome mobility issues for non-car owners and the issue of limited cycling parking in the city centre, providing residents with access to bikes and a guaranteed parking space at both ends of the journey. The area contains over 83,000 jobs and 30,000 pupils and students. The Bike Share scheme will enable these residents to directly access these jobs and wider opportunities (via Brighton & Hove rail stations for example). The aim is to work closely with employment services so that 'free' bike access can be offered to unemployed residents who would otherwise not be able to access specific job opportunities.	✓✓✓
Productivity gains	Productivity gains from reduced absenteeism and reduced congestion (with the BCR) represent direct productivity gains for local businesses.	✓✓
Identity and sense of place	Bike Share supports the overall cultural and aesthetic image of Brighton & Hove that is central to its identity and overall attractiveness to residents, employers and visitors. Brighton & Hove already has a good reputation for a positive cycling environment.	✓✓✓

Social and Distributional Impact

6.39 The Bike Share scheme will work in synergy with several major developments in Brighton & Hove, supporting regeneration and targeting areas to reduce deprivation in the city. It will have a positive impact on the health of users of the scheme, who will benefit as a result of increased physical activity.

6.40 Table 6-5 looks at the social and distributional impact of the scheme.

Table 6-5: Assessment of Social Distributional Impact

Benefit	Assessment	Score
Expected regeneration & deprivation impact	<p>The scheme has been developed to serve, and hence fully support, wider development and regeneration projects in Brighton & Hove. Key examples include the major public realm and regeneration of Valley Gardens, Circus Street and Preston Barracks.</p> <p>The geographic scope of the scheme has been developed to include specific areas of high unemployment and deprivation. This includes areas where the IoMD (general rank) and IoMD (health rank) are all in the 5% most deprived nationally, and among the worst in the C2C area.</p>	✓✓✓
Expected impact on severance, physical activity, accessibility	<p>Severance – the scheme will have a neutral impact on severance in Brighton & Hove. Public realm improvements will be made to help people access hub locations more easily.</p> <p>Physical activity – The scheme will have a major benefit in terms of physical activity. The scheme is forecast to attract 2,400 Bike Share trips per day. Some of these will be transfer from non-active modes such as car or bus. The scheme will also create new journey opportunities, e.g. to the seafront and local parks, and therefore generate wholly new trips where people take the opportunity to cycle.</p> <p>Accessibility – In conversations with PTP Travel Advisors, residents of Brighton & Hove noted their most significant barrier to cycling is not owning a bike (up to 51% of residents did not own a bicycle in some parts of Brighton & Hove in 2012). The scheme will significantly enhance accessibility to cycling to residents across the area covered by the scheme. This area contains numerous employment, cultural, leisure and retail services that people can benefit from improved access to. Bike Share will, in most cases, also represent a more affordable alternative to travel by car or public transport.</p>	✓✓✓

Environmental

- 6.41 The scheme will have a positive impact on the environment. It will encourage cycling in place of short car trips so will reduce car trips, reduce carbon emissions and improve air quality. There will be minor impacts at docking station locations however these are likely to be minimal.

Table 6-6: Assessment of Environmental Impact

Benefit	Assessment	Score
Expected impact on carbon emissions	The scheme will result in 283,000 fewer car trips per annum and a reduction of 589,000 car km per annum (we assume the average trip length is 2.5km and average car occupancy is 1.2 passengers). This results in a reduction of 111 tonnes of carbon per annum ³⁰ .	✓✓✓
Expected impact on air quality	The reduction in car trips also reduces local traffic emissions in a sensitive and populated area.	✓✓
Expected impact on noise/natural and urban environment	The reduction in car trips also reduces traffic noise in a sensitive and populated area. In terms of impact on the natural and urban environment, there will be localised impacts where docking stations are located, but this will be minor (docks won't be located in places with unacceptable impacts). Docking stations will also be located at sustainable transport 'hubs' i.e. car club, bus stops, Bike Share. There is also potential for 'park and ride' with hubs located close to city car parks.	✓✓

Contribution to the Strategic Economic Plan

Core SEP Objectives

- 6.42 The Bike Share scheme will contribute to the objective of the SEP by supporting the delivery of jobs, economic growth and housing, whilst promoting sustainable travel and network resilience. Table 6-7 assesses the scheme's impact on jobs in Brighton & Hove.

Table 6-7: Assessment of Impact on Jobs

Benefit	Assessment	Score
Access to Employment	Bike share will provide affordable access to employment. 1.8% of residents in the scheme area are unemployed and 46.6% of households do not own a car. Bike Share will enable residents' access to 83,000 jobs within the scheme area.	✓✓✓
Supporting major developments	The scheme will support Brighton & Hove's major developments, offering sustainable access to developments such as Valley Gardens, Circus Street, Preston Barracks Central Research Laboratory and City College Brighton & Hove. Additionally, the scheme will support the success of major developments including the Brighton Marina Development Area and over 20 other projects, the majority of which are within Bike Share area.	✓✓✓
Productivity gains	Productivity benefits resulting from a healthier and more active workforce is another benefit of the scheme. Reduced absenteeism for the scheme has been valued at £33,000 per annum (2016/17, 2010 prices), based on DfT guidance.	✓✓
Tourist Economy	Bike share will provide quicker journey times from visitors' points of arrival (e.g. train stations) to places of interest, increasing the amount of time they have to spend in the city and resulting in increased spend per visitor. It will encourage and enable visitors to visit more places and attractions during their time in Brighton & Hove including Brighton Marina.	✓✓✓
Direct job creation	The scheme will directly support around 6 FTE jobs. The scheme will be run as a social enterprise, ensuring benefits to the local workforce through direct employment, and training.	✓✓

³⁰ Based on 0.18826 kgCO₂ per km; the carbon dioxide emissions of an average car of unknown fuel type (DEFRA, <http://www.ukconversionfactorscarbonsmart.co.uk/>)

6.43 Table 6-8 provides an assessment of the scheme's impact on employment floorspace.

Table 6-8: Assessment of Impact on Employment Floorspace

Benefit	Assessment	Score
Supporting higher density, higher value development	Brighton & Hove is an area of high density employment characterised by a congested road network and high demand for parking. Providing bike hire will reduce the need for car journeys in central Brighton & Hove and subsequently reduce the demand for parking. Reducing local parking requirements means that premium city centre land, previously been considered for parking, will be freed up for more valuable redevelopment opportunities, including high density employment floorspace. This, in turn, would result in capacity for more jobs and increase the overall value of specific development.	✓✓
Supporting major employment sites	The scheme integrates with the specific plans to redevelop Valley Gardens, Circus Street, Preston Barracks Central Research Laboratory and City College Brighton & Hove across which 131,195m ² of employment floorspace and 724.5 FTE jobs are planned. These schemes will improve the public realm and enhance infrastructure for pedestrians and cyclists.	✓✓✓

6.44 Table 6-9 outlines the impact the scheme will have on housing in Brighton & Hove.

Table 6-9: Assessment of Impact on Housing

Benefit	Assessment	Score
Supporting Sustainable Housing Growth	The scheme is forecast to remove 283,000 car trips per annum, which increases the effective capacity of the transport system to support future housing and employment growth.	✓✓
Supporting Residential Developments	There will be docking stations serving planned residential developments including at Circus Street and Preston Barracks. The presence of Bike Share docks are attractive to potential occupants and therefore can increase the overall attractiveness and viability of residential development.	✓✓✓

6.45 Table 6-10 explores the impact of the scheme on sustainable transport and the resilience of the network.

Table 6-10: Assessment of Impact on Sustainable Transport and Network Resilience

Benefit	Assessment	Score
Connectivity: 'Can I get where I want to go'	The scheme will significantly enhance accessibility across the area covered by the scheme. This area contains numerous employment, cultural, leisure and retail services which people can benefit from improved access to. Bike Share will, in most cases, also represent a more affordable alternative to travel by car or public transport.	✓✓✓
Reliability: 'Will I arrive when I expect'	Bike journeys offer a new and reliable travel option. Mode transfer from car improves the overall resilience of the road network.	✓✓✓
Capacity: 'Will I get a seat, a parking space, a clear road'	Bike Share will provide an alternative mode for making short to medium distance journeys, thereby reducing pressure on the road network. By encouraging people to cycle instead of drive short trips, capacity will be freed up on the existing road network and at facilities such as car parks. The Bike Share scheme will provide 430 bikes for members of the public to use and docking stations in 50 locations.	✓✓✓

Benefit	Assessment	Score
Quality: 'Will my journey be healthy, safe, clean, sustainable and enjoyable'	<p>The Bike Share scheme will result in less road traffic and a reduction in carbon emissions resulting in better air quality. This will improve the user experience of cycling in Brighton & Hove and improve the safety of using this mode.</p> <p>The scheme will also offer the local population and visitors to Brighton & Hove the opportunity for physical activity which will have positive health benefits.</p> <p>Bike Share supports the overall cultural and aesthetic image of Brighton & Hove that is central to its identity and overall attractiveness to residents, employers and visitors. The scheme fits well with other major developments including Valley Gardens and will further increase the sense of place in the centre of Brighton.</p>	✓✓✓
Resilience: 'Will transport be there when I need it – 24/7'	<p>The Bike Share scheme is not primarily a resilience scheme. However, it will offer an additional transport option that supports the overall resilience of the network. In particular, the central area where the scheme would operate is characterised by high levels of congestion in general, and severe congestion during the summer peaks. At these times travel by car, bus or taxi will be long and highly unreliable. Bike Share provides an attractive, faster and more reliable alternative.</p> <p>The transfer of car trips to Bike Share reduces the number of cars on the road network and will improve the overall 'baseline' resilience of the network.</p>	✓✓

Local Policy

- 6.46 The Bike Share scheme is in keeping with the aims and objectives of local policy in Brighton & Hove. This section provides an assessment of the scheme against the following policy documents:

- City Plan;
- Local Transport Plan
- Strategy for the Visitor Economy;
- Biosphere; and
- One Planet Living.

City Plan

- 6.47 The City Plan aims to provide an integrated, safe and sustainable transport system that is able to accommodate new development; support the city's role as a sub-regional service and employment hub; and improve accessibility. Brighton & Hove City Council wish to encourage the uptake of sustainable modes of transport in order to reduce traffic congestion, increase physical activity and improve the health of the local population, as well as their safety and quality of life.
- 6.48 Bike Share will help to realise this vision by providing local communities, as well as visitors to Brighton & Hove, access to jobs, shops and services in a sustainable, healthy and inclusive way. The scheme will also include provision for those without access to a bank card for charging for bikes and insuring the operator against any costs associated with bike loss. This could be managed through Health sector membership for people who don't have a credit card but are being prescribed Bike Share access.

Local Transport Plan

- 6.49 Previously designated one of the UK's Cycling Towns, Brighton & Hove set out to build on the successes of previous investment into cycling by further improving cycling facilities, routes and networks. The LTP envisages Brighton & Hove as a City of Opportunity and recognises the role of transport in realising this. Promotion of equality is key to the LTP and consultation with local communities identified the following goals:
- Reduction in traffic congestion and fumes;
 - Improving the safety and attractiveness of streets;
 - Promoting walking and cycling as healthy modes; and
 - Providing better links to jobs, and local amenities.
- 6.50 Bike Share in Brighton & Hove will help deliver these, by producing an alternative to the car, working in synergy with major development schemes to improve public realm and make the city centre a more attractive place to spend time, walk and cycle in. Bike Share will promote active modes of travel and enable people without access to a private bicycle to cycle in the area. It will also address accessibility issues, providing access to a range of destinations for those making short to medium distance trips.

Strategy for the Visitor Economy

- 6.51 Brighton & Hove's strategy for the visitor economy aims to improve visitor experience, in particular the city's overall environment and infrastructure and visitors' first and lasting impressions. To achieve this vision, measures have been identified, including:
- Promote sustainable transport options;
 - Improve gateways to the city;
 - Improve and enhance the environment; and
 - Develop new facilities.
- 6.52 The Bike Share scheme will provide access to a sustainable mode of transport for all. Brighton and London Road (Brighton), Hove and Moulsecoomb train stations are within the scheme area so the visitor experience can begin as soon as they arrive with a cheap, easy and enjoyable way to reach the city centre and other tourist attractions.
- 6.53 The Bike Share scheme will be delivered along with major developments that will improve public realm, including Valley Gardens, with the aim of making walking and cycling in central Brighton & Hove a more pleasant experience.

Biosphere

- 6.54 The Brighton & Hove and Lewes Downs Partnership has attained Biosphere status. The aim of Biosphere is to create a world-class environment that is economically successful and enjoyed by all by promoting:
- Conservation;
 - Economic and social development; and
 - Knowledge, learning and awareness.
- 6.55 The Bike Share scheme will support and promote these goals.

One Planet Living

- 6.56 In 2013, Brighton & Hove was accredited as the world's first One Planet Living City based on its Sustainability Action Plan.
- 6.57 The One Planet Living vision for sustainable transport seeks to enable people to travel more sustainably by supporting active and healthy travel; to increase the use of low emission forms of transport and avoid travel with technology; and to minimise the impacts of transport related air and noise pollution on people, and the natural and built environment.
- 6.58 Bike Share will support this vision by enabling people to access an active and sustainable mode of transport and reducing the need to travel by car thereby reducing emissions and improving air quality in Brighton & Hove.

7 Financial Case

Cost and Funding Profile

- 7.1 We estimate that the total capital cost for the proposed Bike Share scheme will be £1,450,150.
- 7.2 The assumed funding breakdown is presented in Table 7-1.

Table 7-1: Funding Breakdown

	2014/15	2015/16	Total
Local Contribution	170,030	120,000	290,030
LEP Funding Sought	680,120	480,000	1,160,120
Total	850,150	600,000	1,450,150

Financial Sustainability

- 7.3 The funding is based on there being a local contribution of £290,000, equivalent to 20% of the overall capital cost of the scheme.
- 7.4 The local contribution could come from a range of sources, for example:
- Developer contributions e.g. new developments where Bike Share docks would be provided.
 - Contributions from Brighton and Sussex Universities. Bike Share would serve the University corridor and offer the potential to attract students, and potentially enable the University to re-allocate valuable space from car parking to more productive uses.
 - Contributions from the Health Sector, in recognition of the role Bike Share could play in delivering better health outcomes.

- 7.5 **The funding contribution sought from the LEP is £1.16m**

Affordability and Financial Sustainability

- 7.6 Our analysis shows that there would be a forecast financial surplus from the scheme, as revenues are forecast to exceed operating costs.

The annual revenues, operating costs, operating surplus and operating ratio over the first ten years of operation are presented in Table 7-2.

Table 7-2: Annual Operating Costs and Revenues (£000s, 2010 prices)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Passenger Revenue	669	682	696	710	724	739	754	769	784	800
Sponsorship Revenue	185	187	189	191	193	195	197	199	201	203
Total Revenues	854	869	885	901	917	934	950	968	985	1,003
Operating, Maintenance & Renewals Cost	714	721	728	735	743	750	758	765	773	781
Operating Surplus	140	149	157	165	174	183	193	202	212	222
Operating Ratio	1.20	1.21	1.22	1.23	1.23	1.24	1.25	1.26	1.27	1.28

- 7.7 This shows that the scheme is forecast to make a surplus of between £140k and £220k over the first ten years. Both operating costs and revenues are forecast to increase by 1% per annum, in real terms (i.e. above inflation). In addition, demand growth of 1% per annum is assumed, which affects the passenger revenue line only.
- 7.8 There is a degree of uncertainty about both the revenues and operating costs, reflecting the limited number of comparable schemes upon which to benchmark our central estimates. We have therefore undertaken sensitivity analysis looking at scenario in which the revenues are 25% lower and / or the operating costs are 25% higher. These are presented in Table 7-3.

Table 7-3: Financial Sustainability Sensitivity Tests (£000s, 2010 prices)

	Total Revenues	Operating, Maintenance & Renewals Cost	Operating Surplus/ Deficit	Operating Ratio
Central Case	854	714	140	1.20
Revenues 25% Lower	641	714	-73	0.90
Opex 25% Higher	854	892	-38	0.96
Revenue 25% Lower and Opex 25% Higher	641	892	-252	0.72

- 7.9 The tests show that the operating ratio would fall below 1 in the case that revenues decrease or operating costs increased by 25%. A 'break even' position (where revenues equal operating costs) is broadly reached in the event that either revenue falls by around 15% or operating costs increase by around 10%.
- 7.10 In the 'cumulative downside' case that both revenues are lower and operating costs higher, there would be an annual shortfall (an operating deficit) of £252,000.
- 7.11 In the event that there was an operating deficit there would be the scope for potential mitigation through, for example:
- Trying to maximise usage – marketing & branding.
 - Looking at changes to the tariff structure to increase overall revenue.
 - Looking at ways to improve the efficiency of operations.
 - Seeking additional contributions from public and private partners that benefit from the scheme, on an on-going basis.

8 Management Case - Delivery Plan

Promoter / Sponsor

- 8.1 The scheme promoter is BHCC. The lead officer is Abby Hone, Principal Transport Planner. The partner in the LEP application is the Brighton & Hove NHS Clinical Commissioning Group.

Planning Consents and TROs

- 8.2 Traffic Regulation Orders (TROs) and public consultation will be required for each site. These are typically led by the council.
- 8.3 TROs are required for all changes to the public highway which impact on traffic restrictions or waiting/loading restrictions, and are therefore expected to be required for all Bike Share stations located on the public highway.
- 8.4 TROs require a document to be drafted detailing the proposed parking restrictions, which are advertised to the public for comment. Typically the local authority would prepare and advertise the TRO and charge a fee for this service. The standard timescale for TROs comprises a four week advertisement period, 2-3 weeks for objections and two weeks to finalise and seal the order.

Stakeholder Engagement

- 8.5 Engagement and support from local stakeholders holds the key to successful launch and implementation of a Bike Share scheme. We recommend early, meaningful and continued engagement throughout development and delivery to keep stakeholders involved and informed.
- 8.6 As part of this process we recommend an early identification of key stakeholder groups and then an agreed approach to engagement. Key local stakeholders are likely to include:
- Local Cycling Campaigns;
 - Brighton & Hove Buses;
 - Southern Railway;
 - Brighton & Hove CCG;
 - University of Sussex;
 - University of Brighton;
 - South Downs National Park; and
 - Visit Brighton.
- 8.7 At the start of the process we recommend clearly setting out to stakeholders the programme and the opportunities for their input to the scheme. In our experience it is important to tell stakeholders where and when they can help to influence the scheme, which assists in focusing

the timing and amount of input at the times in the project where it is needed and thereby controlling and managing the process efficiently.

Implementation Programme

- 8.8 The implementation programme detailed below is based on the requirement to commit funds within the 2015/16 and 2016/17 financial years.

Figure 8-1: Suggested Implementation Programme

Month/Activity	2014		2015												2016						
	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July
Funding application to C2C LEP																					
Setting up of CIC											◆										
Preparation of Procurement brief																					
Procurement of Bike Share Provider - PQQ																					
Procurement of Bike Share Provider - ITT																					
Selection of Preferred Bike Share Provider							◆														
Detailed planning of docking station locations																					
Public consultation																					
Implementation of docking stations																					
Launch of Bike Share																					◆

9 System Procurement – Commercial Case

Social Enterprise Approach

What is a Community Interest Company?

- 9.1 A Community Interest Company is one that operates as a regular limited company but which initially has access to public funding. The primary objective of a CIC is social enterprise and any profits are reinvested back into the business or into the community. If a CIC folds, their assets are reinvested into the community.
- 9.2 The process of setting up a CIC is relatively uncomplicated and similar to that of setting up any limited company. The Board of the planned CIC are required to fill in a Community Benefit form outlining the companies social objectives, submit a memorandum and articles of association, along with a CIC36 form signed by all of the directors.
- 9.3 Typically, where a CIC has assets, they are 'locked in' with an external organisation which ensures that if the organisation fails the assets are not lost.

Examples of Social Enterprises

- 9.4 To provide an illustration of existing social enterprises we have included the following two case studies:
 - Spare Wheels Community Interest Company, Car Club, Dunbar, Scotland
 - B-Cycle, Cycle Sharing, Denver, USA

Spare Wheels

- 9.5 Spare Wheels is a Community Interest Company (CIC) which was set up in Dunbar, Scotland, in 2011.
- 9.6 Sustaining Dunbar is a local Development Trust and Charity which helps to get local projects up and running. It supports projects that create local jobs and help people reduce their fuel consumption. Anyone living in the Dunbar and East Linton Council Ward can sign up for free Sustaining Dunbar membership. Sustaining Dunbar receives funding from the Scottish Government and Edinburgh and Lothians Health Foundation, which pays for part-time members of staff to deliver various projects. As part of Spare Wheels' CIC status, their assets are locked in with Sustaining Dunbar, therefore if the organisation failed the assets would become property of Sustaining Dunbar.

- 9.7 Before deciding on becoming a CIC, the Board of Directors looked into the possibility of becoming a charity or an Industrial and Providence Society (IPS). They found it would be more straightforward to set up as a CIC, as they didn't have the resources to run a charity.
- 9.8 Funding for the company included an initial grant from Carplus in 2011, which bought two cars for Spare Wheels and covered their insurance for a year and the installation of their telematics. This funding also covered franchise fees for the first year. The franchise was awarded to Co-Wheels, who provide 24 hour on-call support for members and operate the membership and billing systems. Further funding was provided by Sustaining Dunbar, who supported the development of Spare Wheels website and promotional materials. The Board of Directors at Spare Wheels all work on a voluntary basis.
- 9.9 In 2012, Carplus awarded Spare Wheels another car, an automatic, to attract new members, as feedback had been received from some people who prefer to drive automatic cars. The model of car, a Mini, was also selected to create a more modern company image.
- 9.10 In 2013, Spare Wheels was given an electric vehicle to add to its fleet, with the aim of promoting the technology and providing the ~70 members the opportunity to experience driving an electric vehicle³¹.
- 9.11 In 2014, Spare Wheels merged with Easy Wheels in Haddon, another local CIC. This happened as a result of Easy Wheels folding and their assets being transferred to Spare Wheels, instead of back into the community. This allowed the company to continue and made Spare Wheels more profitable, with a fleet of nine vehicles.
- 9.12 The funding from Sustaining Dunbar (for on-going website maintenance, promotion and EV charging infrastructure) came to an end in September 2014. Spare Wheels are now looking into the possibility of employing a full time member of staff to take over the running of these aspects of the company.

B-Cycle

- 9.13 Denver B-Cycle is a citywide Bike Share scheme in Denver, Colorado. It opened in 2010 and is run by Denver Bike Sharing, a non-profit corporation governed by a board of directors³² which is made up of civic and business leaders. The organisation qualifies as a 501(C)(3)³³ which means it operates exclusively for charitable purposes and none of its earnings are used to benefit any private stakeholder or individual. 501(C)(3) organisations are commonly referred to as charities and are eligible to receive tax-deductible contributions. B-Cycle receives no funds through tax dollars, it instead relies on grants, sponsorships, membership fees and transaction fees.
- 9.14 Bike sharing in Denver was set up by Mayor Hickenlooper in 2007 ahead of the 2008 National Convention, which was held in Denver. The Mayor wanted to make the National Convention

³¹ Sustaining Dunbar provided capital to develop the EV charging technology. Despite being an opportunity to promote green technology, the EV has been difficult to manage. This is partly because the number of members is not great enough to warrant a fourth car and so it dilutes the profits made by the other cars, and partly because providing a public EV charging point has been problematic and to date has not been completely resolved. Spare Wheels are debating whether to keep the EV next year.

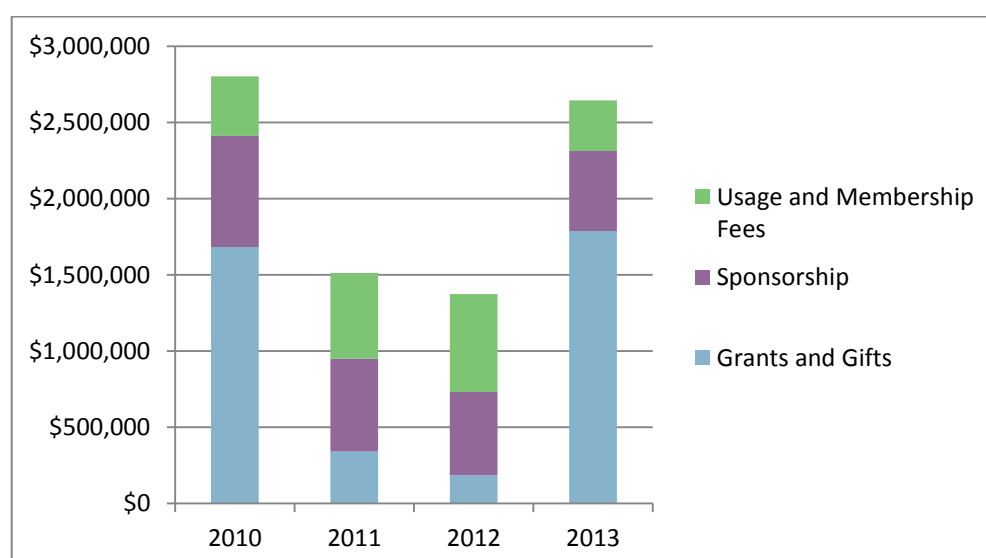
³² http://denverbikesharing.org/Denver_Bike_Sharing/Board_of_Directors.html

³³ [http://www.irs.gov/Charities-&-Non-Profits/Charitable-Organizations/Exemption-Requirements-Section-501\(c\)\(3\)-Organizations](http://www.irs.gov/Charities-&-Non-Profits/Charitable-Organizations/Exemption-Requirements-Section-501(c)(3)-Organizations)

the greenest ever so set up a short-term bike sharing scheme to allow guests to get around in a sustainable way. The mayor worked with partner organisations to obtain 1,000 free Bike Share bicycles, which became Denver's original Bike Share scheme, Freewheelin'. It was a great success and after the National Convention a legacy programme was created using the \$1,000,000 surplus from the convention to set up Denver Bike Share. The objectives of Denver Bike Sharing were to own and manage Denver's Bike Share program, and to support the goals of the City's Strategic Transportation Plan³⁴.

- 9.15 Denver B-Cycle, which started operations in 2010 as Denver's Bike Share scheme, supersedes Freewheelin'. Denver B-Cycle started with 50 stations and 500 bicycles, and has since grown to 82 stations and 709 bicycles.
- 9.16 B-Cycle LLC designed the bike sharing system for Denver B-Cycle, and supplied the technology and hardware required to implement the Bike Share system. Each bicycle is tracked using technology such as GPS and RFID to help hone the B-Cycle system and model.
- 9.17 The Bike Share is operated by Denver Bike Sharing, which is filed in the state of Colorado as "Doing business as Denver B-Cycle", essentially making them the same organisation. Users of the scheme ride and use Denver B-Cycle bicycles and docks, and all the hardware is owned by Denver Bike Sharing/ Denver B-Cycle.
- 9.18 Denver B-Cycle have historically relied on grants and gifts to ensure the operation of the system. In 2010, 60% of Denver B-Cycle's \$2,800,000 income came from grants and gifts, 24% from sponsorship and 14% from usage and membership fees. The proportion of income from grants and gifts reduced over the subsequent two years (23% in 2011 and 14% in 2012) and the proportion of income from usage and membership fees increased (27% in 2011 and 47% in 2012), however this period correlates with low total income levels (\$1,511,974 in 2011 and \$1,372,866 in 2012), and a negative net income in 2012. The proportion of grants and gift received increased again in 2013 and as a result the total income, and net income, was more healthy. See Figure 9-1 for a snapshot of Denver B-Cycle's total profits from 2010 to 2013.

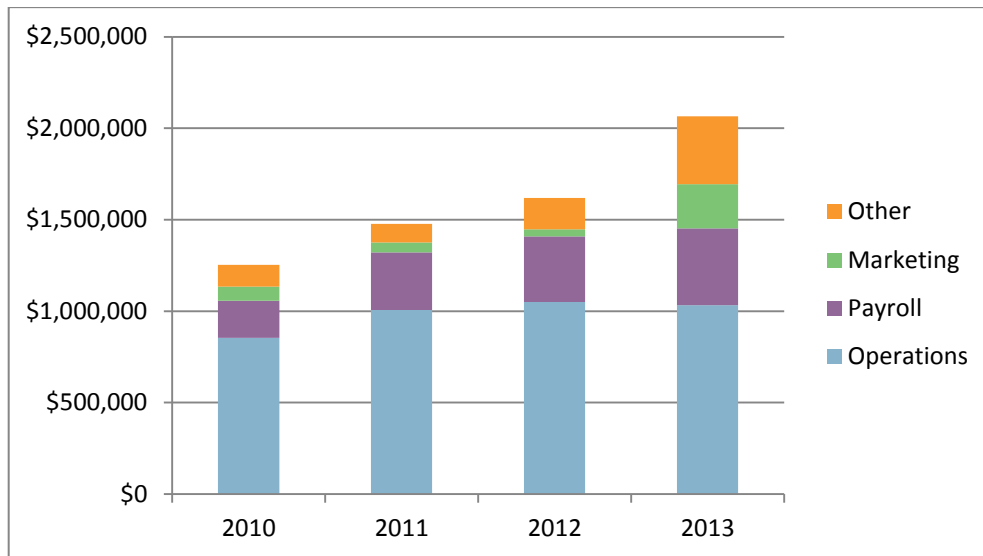
Figure 9-1: Breakdown of Total Income by Source



³⁴ Retrieved from: www.denvergov.org/stp

- 9.19 Over half of Denver B-Cycle's expenses are operations (over 60% between 2010 and 2012 and 53% in 2013), pay roll makes up around 20% of expenses, marketing varies from 2% to 12% of expenses and other expenses account for between 7% and 19%. See Figure 9-2 for a breakdown of Denver B-Cycle's expenses by from 2010 to 2013.

Figure 9-2: Breakdown of Total Expenses by Type



- 9.20 There is a strategy in place for further expansion, ensuring appropriate densities of bicycles and stations throughout Denver.

Organisational Model

- 9.21 We recommend seeking legal advice as to the organisational model which will work best for a Bike Share scheme in Brighton & Hove. The organisational model is likely to follow these principles:

- Procured by BHCC
- Supported by the Clinical Commissioning Group
- Managed, maintained and supported by a Community Interest Company (CIC)/Social Enterprise
- Bike Sharing hardware procured from an established Bike Sharing provider
- Ongoing running costs funded by:
 - Public usage
 - Commercial usage (local businesses)
 - An advertising contract/s
- Potential expansion/intensification funded by:
 - Developers
 - Grant funding

Protecting Assets

- 9.22 Should a CIC scheme fail, the scheme assets can be protected through an agreement set up at the time the CIC is formed. We would recommend that the scheme assets, e.g. the docking stations, terminals, bicycles etc. are secured with BHCC, therefore if the scheme were to fail the assets would remain property of the Council.

- 9.23 We would also recommend exploring whether there is a method to ensure that the scheme remains operational for a defined period, should the CIC come into financial difficulties, to ensure a consistent level of service for users.

Monitoring and Evaluation

- 9.24 To provide an evidence base of the benefits of Bike Share to Brighton & Hove we recommend a monitoring and evaluation programme.
- 9.25 A recommended approach would be to undertake periodic surveys of users to understand:
- Who uses Bike Share;
 - What trips Bike Share are used for;
 - What modes Bike Share trips replace;
 - Satisfaction with the service; and
 - Areas where the service can be improved.
- 9.26 A cost effective monitoring approach would be to partner with other existing Bike Share schemes across the UK and undertake a combined monitoring and evaluation programme.
- 9.27 A similar monitoring and evaluation programme has been established for car clubs (including City Car Club in Brighton & Hove) across the UK by Carplus. This programme which includes an annual survey is supported and funded by DfT, TfL and Transport Scotland.

A Scheme Supporters

A.1 The following organisations and stakeholders have noted their support for the Bike Sharing scheme in Brighton & Hove:

- Brighton & Hove City Council
- Brighton & Hove Public Health
- Brighton & Hove NHS Clinical Commissioning Group
- Velo Café/ Small Batch
- Brighton & Hove Buses
- Southern Railway
- City Car Club
- BioRegional
- Kindle Research
- Brilliant Noise
- Spire Healthcare
- Regency GP Surgery
- Brighton & Sussex University Hospital Trust
- University of Sussex
- Cathedral Group

A.2 Informal interest has also been indicated from other organisations in the city including representatives from University of Sussex, University of Brighton.

B Informing the Scheme Specification

Introduction

- B.1 For a Bike Share scheme to be successful, it needs to address a number of discrete attributes, that can be amended and honed to the particular requirements and characteristics of residents and visitors alike.
- B.2 The key attributes to consider include:
- Ease of Use and Durability
 - Docking stations
 - Bicycles
 - Payment/tariff type flexibility
 - Distribution and Location
 - Ensuring critical mass is reached (both in terms of density of stations and visitor numbers to sustain the system)
 - Ensuring actual origins and destinations are serviced, or system coverage
 - Ensuring balanced redistribution systems
 - Financially sustainable
 - Sponsorship
 - Flexibility
 - Attracting critical mass of users
 - Complementing existing Bike Share
 - Complementary measures
 - Finding a dock
 - Marketing
 - Journey Planners and Digital Tools
 - Travelling around by Bike Share and technology
 - Branding and Sponsorship
- B.3 The following sections investigate each of these attributes in more detail, and provide recommendations for the Brighton & Hove Bike Share scheme.

Ease of Use and Durability

Docking Stations

- B.4 Docking stations should be durable and include anti-theft systems. Some docking systems can be easier to move about if a location is not as popular as anticipated. The mechanisms for docking and removing bicycle should be simple for the user.
- B.5 Many docking systems allow the user to 'tag' whether the bicycle is damaged or is malfunctioning. This will lock the bike and the maintenance crew will be notified.

- B.6 Docks that are solar powered significantly reduce the cost of both installation and maintenance.

Figure B.1: Citibike – New York’s Bike Share Scheme Shows When a Bicycle is Not Working



Figure B.2: B-Cycle – Denver, Colorado, USA Uses Solar Panels to Power the Docks



Figure B.3: OYbike – Cheltenham, UK Used Current Cycle Racks fitted with Automated Locks that Could be Unlocked Using Mobile Phone Technology

“A self-service bicycle rental system, activated by mobile phone”



Bicycles

B.7 The bicycles used should relate to their anticipated use:

- For urban travel: Heavy, durable and utilitarian bicycles are commonly used.
- For rural or leisure travel: Mountain bikes, electric bikes or lighter bikes (to navigate different surfaces/gradients) should be used.

Figure B.4: Barclays Cycle Hire – London, UK



Figure B.5: Electric Bicycle Network – UK wide



Figure A.6: HourBike – Blackpool, UK

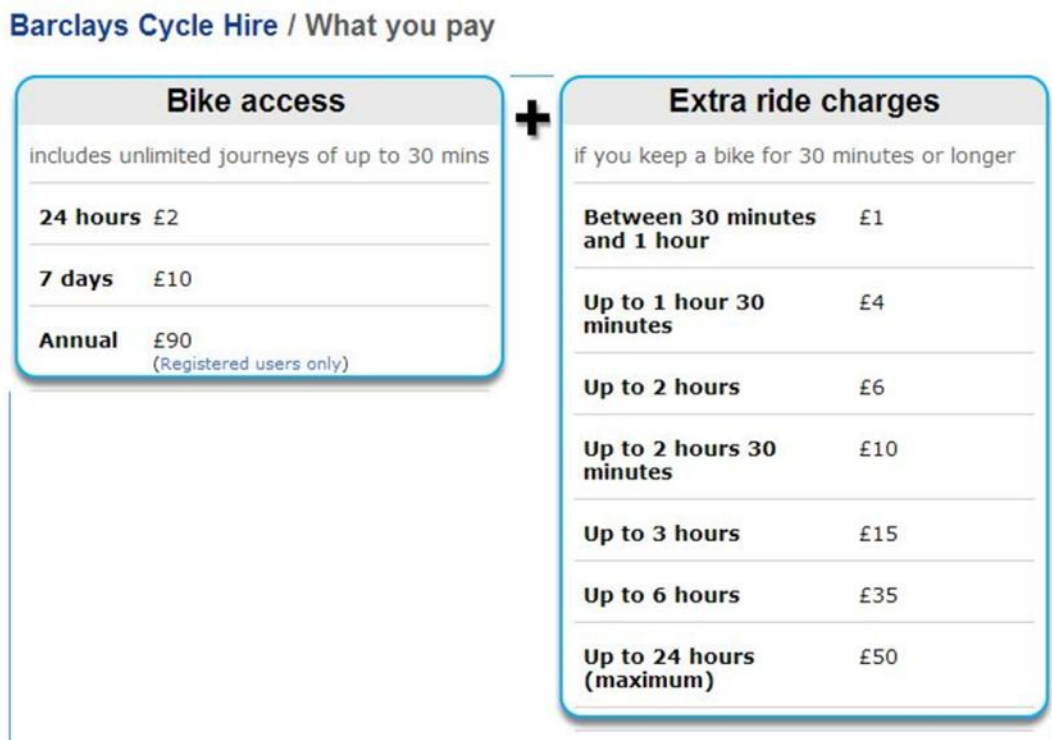


- B.8 Urban Bike Share bicycles are commonly designed to reduce the incidence of malfunctioning, by covering the moving parts (e.g. gear cables, chain, breaks)

Payment/Tariff Types

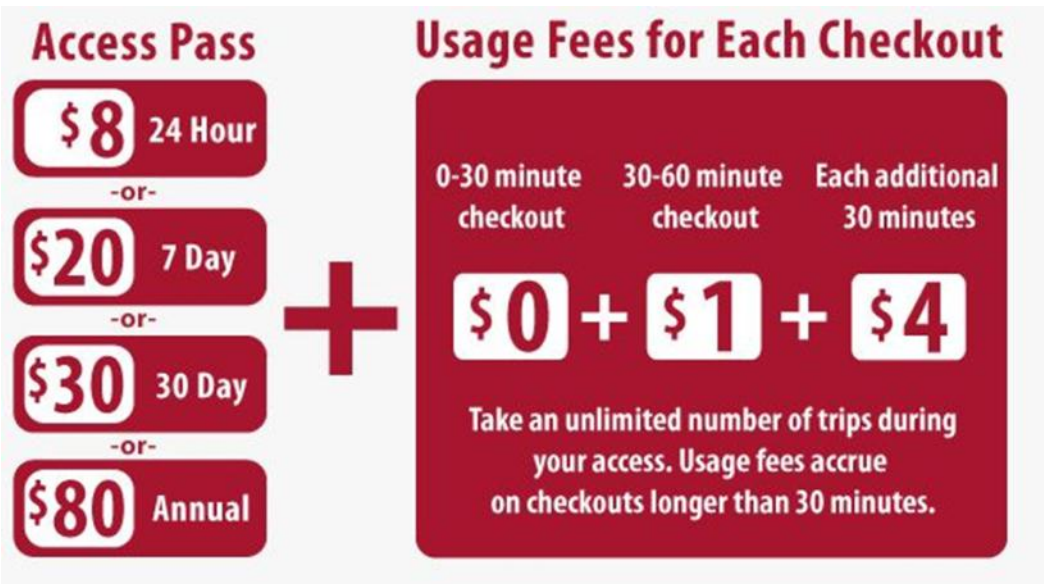
- B.9 Successful tariff systems are clear and unambiguous. Creating overly complex tariff systems can significantly deter use of the system.
- B.10 Many systems offer a range of tariffs to suit both the regular, and occasional users e.g.:
- For regular users, annual memberships provide ease of use. Often through providing a membership swipe card that is connected to a bank account.
 - Some systems (e.g. Miami Bike Share - Decobike) provide a separate tariff for residents at a discount rate, to encourage use.
 - For visitors and occasional users, walk up and pay methods should be available and simple to use for people with credit or debit cards.
 - Many systems do not allow cash transactions, as safety deposits are required to ensure the bicycles are not stolen.

Figure B.7: Example Tariff Structure – Barclays Cycle Hire, London, UK



B.11 The Barclays Bike Share scheme charges casual users £2 a day (or £10 a week) to use the scheme, with no additional expense if journeys are 30 minutes or less, with tariffs increasing for longer journeys. This tariff incentivises journeys of 30 minutes or less.

Figure B.8: Example Tariff Structure – B-Cycle, Denver, Colorado, USA



B.12 The B-Cycle scheme in Denver operates a similar tariff scheme to London, with an \$8 (£5) daily access pass, annual pass for regular users, and supplementary charges for journeys of over 30 minutes.

B.13 In order to maximise use of a Bike Share scheme it needs to be easy to understand and accessible to all. Brighton & Hove is a city that attracts thousands of visitors every year, so its

Bike Share scheme must be easy to use for people who don't know the area, as well as local residents. For this reason, we recommend two ways to use the scheme – pay as you go, for infrequent Bike Share users and tourists who are unlikely to want to sign up for membership, and member accounts, for frequent users of the scheme.

Types of Bike Share System

- B.14 There are a variety of types of Bike Share scheme, which we have detailed in this section. Recently introduced successful schemes tend to be based on the *Intelligent urban Bike Share system*, which is what we recommend for Brighton & Hove.

Intelligent urban Bike Share system (dummy bikes, smart docks)

- Take bicycle from a docking station, return to same, or different docking station in the system (e.g. Decobike, Barclays Bike Share, Citibike, B-cycle).
- Tend to operate in urban areas, with a tariff model centred on encouraging short and commuting trips.
- 24 hour operation.

Retrofitted Bike Share system (smart bikes, dummy docks)

- Uses the current infrastructure, retrofitting intelligent Bike Share locks at cycle stands.
- Tend to operate in urban areas, with a tariff model centred on encouraging short and commuting trips.
- 24 hour operation.

Mobile Bike Share (Smart Locks/Bikes)

- Use mobile device to unlock bicycle using code. Bicycle is GPS enabled and so can be tracked. Lock bicycle anywhere within cordoned area.
- Tend to operate in urban areas, with a tariff model centred on encouraging short and commuting trips.
- 24 hour operation.

Traditional Bike Share (Similar to that Run at Brighton Rail Station)

- Bike Shared from a shop, store or hotel. Bicycles typically hired for ½ day to a full day.
- Bicycles are typically required to be returned in working hours.
- Traditional Bike Share tend to operate in rural areas or towns and cities with some tourism

Distribution and Location

- B.15 A critical mass of stations and bicycles are needed to ensure the system works. Many systems fail where not enough docking stations are placed from the onset, if the critical mass is not reached it will deter potential users from the Bike Share system.

Failure to achieve critical mass – OYbike, UK

- B.16 Back in 2008, OYbike attempted to bring Bike Share to a number of locations in the UK (Cheltenham, Reading, Farnborough and others).
- B.17 OYbike (and consequently each of the Bike Share schemes it operated) has since gone out of business. Much of the failure of the scheme can be attributed to issues with distribution and location.

- B.18 Some schemes (e.g. Cheltenham) operated from few locations, with only a couple of bikes at each location, resulting in a low density of stations and a small number of bikes per resident.
- B.19 Secondly, the scheme used mobile devices to access the bicycles, and each location was limited to two docking ports for the hire bicycles. Consequently, if one location was very popular it would very quickly get filled and the whole system would become unusable.
- B.20 For any Bike Share scheme to be successful, it is imperative that the docking stations are located where people actually want to go, and where they originate from.

Ensuring Balanced Redistribution Systems

- B.21 Larger systems work against the ‘tides’ of Bike Share. For example, in urban areas, many people will use the bicycles to places of employment in the morning, and then less may use the same bicycles to get back home. Over time this creates a system imbalance which needs to be remedied. Locations with high numbers of rail commuters can also create high levels of demand from railway stations in the mornings and to railway stations in the evenings, which require careful management.
- B.22 Towns and cities with high visitor numbers can suffer the same ‘tidal’ nature of Bike Share. Bike Share docks key visitor attractions may quickly become saturated, resulting in overflow to other docking stations.
- B.23 Major Bike Share schemes employ a team of bicycle redistributors to ensure these imbalances are addressed, and that bicycles are as available as possible at as many stations as possible. Complex algorithms have been developed by Bike Share providers to plan redistribution to optimise cycle and docking station availability.

Figure B.9: Redistribution Example – Bicing, Barcelona, Spain



Financial Sustainability

- B.24 To support the business model of Bike Share systems, many cities use the power of advertising, selling space and importantly the name of Bike Share schemes to businesses.
- B.25 Sponsorship such as this works well where the bicycles are highly visible to a large audience. The more prominent and dense the city, the larger the sponsorship deal. To ameliorate the

need for planning approval many Bike Share schemes in the UK sell advertising space on the bicycles, rather than the docking stations.

- B.26 Barclays paid £25m for sponsorship of the London Cycle Hire scheme (Barclays recently stated they would not be extending their sponsorship past 2015). The sponsorship deal paid for around 1/6 of the cost of running the program.
- B.27 Although, few Bike Share schemes meet cost without subsidy there are examples where the combination of revenue and advertising cover costs, such as the Dublinbikes scheme.

Figure B.10: Example of Sponsorship – NextBike, Germany and Poland



Figure B.11: Example of Sponsorship – Onroll, Spain



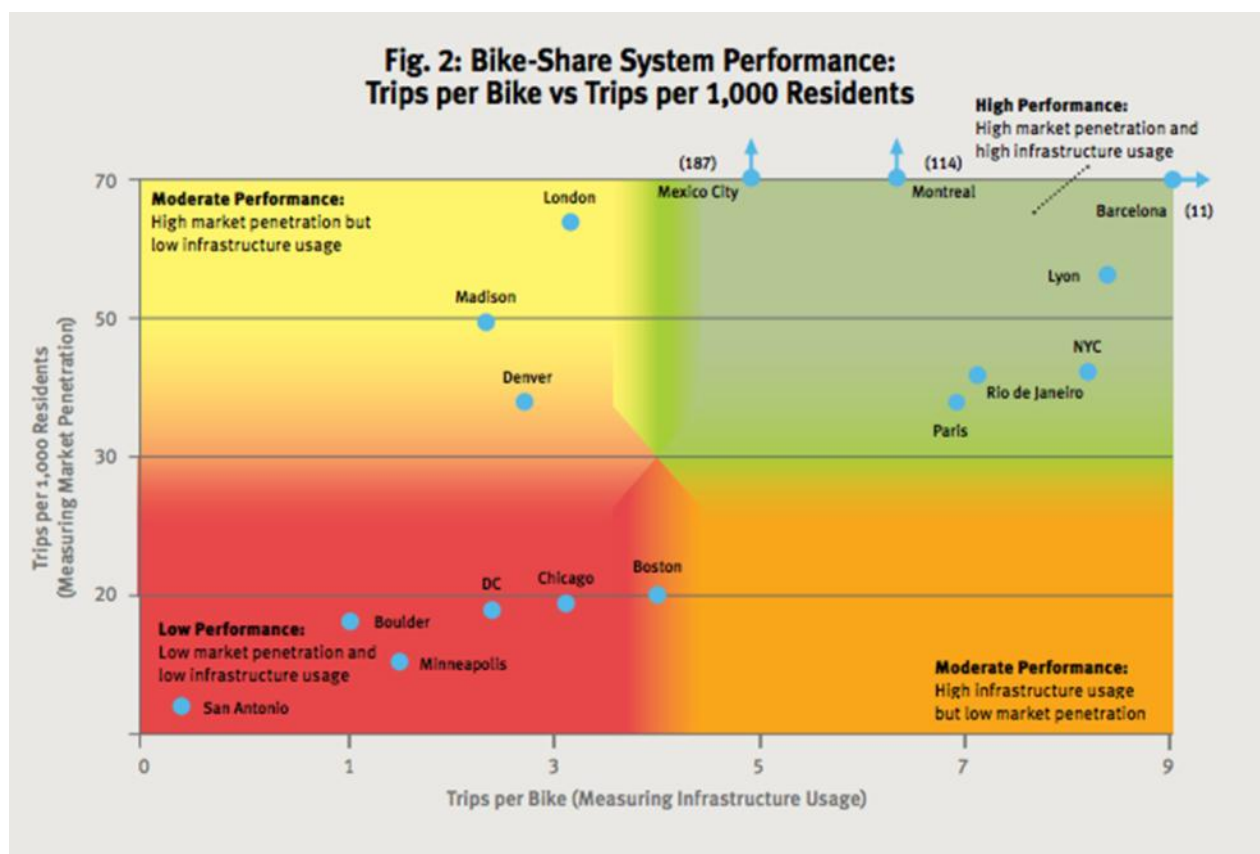
Flexibility

- B.28 Many Bike Share schemes shut down or reduce capacity over winter, where the inclement weather means the number of Bike Share users drop significantly. This is the case for examples such as Bike Share in Blackpool, UK and Denver, USA. Other systems shut part of their network down, but leave popular areas open. Where visitor numbers are seasonal it may make financial sense to close down the program until peak season.
- B.29 Given the relatively mild climate of Brighton & Hove and the expected balance of use between residents, rail users, employees and visitors we don't anticipate the need to reduce capacity of the scheme in the winter months.

Attracting Critical Mass

- B.30 For any Bike Share scheme to be financially successful it requires people willing to pay to use it. However more than that, there needs to be a critical mass of users that compensate for the costs associated with running a Bike Share scheme.
- B.31 The ITDP's 'The Bike Share planning guide' suggests that each bike should be used around 4 to 8 times per day, and that the average trips per resident should be around 1 trip per 20 to 40 residents.

Figure B.12: Bike-Share System Performance: Trips per Bike vs Trips per 1,000 residents



Source: ITDP's (Institute for Transportation & Development Policy) 'The Bike Share planning guide'

Complementing Existing Bike Share

- B.32 Ensuring the cost of Bike Share is acceptable to most people is essential to a successful scheme. A person's willingness to pay depends on a variety of scheme attributes.
- Many systems allow 30 minutes of free bicycle use, as long as the bike is returned to a docking station.
 - For small trips (30 mins to 1 hour) most systems charge around £1.
 - For 6 hours most systems charge around £5 - £35 depending on the nature of the system (e.g. if it is to encourage shorter trips).
 - For 1 day rental, most systems charge between £5 - £50.

There are currently three existing Bike Share operators in Brighton & Hove, Amsterdammers, Brighton Beach Bikes and The Re:Cycle Society which are described in more detail in the

following paragraphs. The proposed Bike Share scheme should be designed to complement these existing schemes, where possible.

Amsterdammers

- B.33 The cycle hire scheme, run by ‘Amsterdammers’ operates close to Brighton Rail Station. It is a standard cycle shop where the bicycle can be hired for a few hours to a few days. The bicycle has to be returned to the shop before closure, unless the user agrees to use the scheme’s ‘key-drop’ facility.
- B.34 The Brighton cycle hire opening hours:
- Monday–Friday: 9–18:00
 - Saturday: 9:30–17:00
 - Sunday & bank holidays: 10–16:00

Table B.1: Brighton Cycle Hire (run by ‘Amsterdammers’)

Hire time	Cost	Bike Type
3 hours	£7.00	4 speed adult
24 hours	£10.00	4 speed adult
48 hours	£18.00	4 speed adult
Any day thereafter	£5.00 per 24H	4 speed adult
3 hours	£9.00	7 speed adult
24 hours	£14.00	7 speed adult
48 hours	£26.00	7 speed adult
Any day thereafter	£7.00 per 24H	7 speed adult
3 hours	£11.00	‘Mother’ bike (space for two child seats)
24 hours	£15.00	‘Mother’ bike (space for two child seats)
48 hours	£28.00	‘Mother’ bike (space for two child seats)
Any day thereafter	£7.50 per 24H	‘Mother’ bike (space for two child seats)
3 hours	£24.00	Adult tandem
24 hours	£35.00	Adult tandem
48 hours	£68.00	Adult tandem
Any day thereafter	£17.50 per 24H	Adult tandem

Brighton Beach Bikes

- B.35 Brighton Beach Bikes is another company which offers cycle hire in Brighton & Hove. Owned by the Brighton Sports Company, they are based at the Kings Road Arches on the seafront and rent out single speed, Californian beach cruiser bikes for adults and children. Children’s seats and trailers are also available. Helmets and bike locks are included in the prices (shown in Table B.2).
- B.36 Brighton Beach Bikes is open on weekends and during school holidays outside the summer months. From June onwards it is open daily. Opening hours:
- Monday–Friday: 11:00 – 17:30

- Saturday & Sunday: 10:00 – 18:00

Appendix B.1: Brighton Beach Bikes (run by Brighton Sports Company)

Hire time	Cost	Bike Type
1 hour	£6.00	Adult beach cruiser
2 hours	£9.00	Adult beach cruiser
3 hours	£12.00	Adult beach cruiser
4+ hours	£16.00	Adult beach cruiser
Per hour	£6	Child beach cruiser
Duration	£6 (if hired with 1+ adult bike)	Child beach cruiser
Per hour	£6	Child trailer
Duration	£6 (if hired with 1+ adult bike)	Child trailer
Duration	£4 (if hired with 1+ adult bike)	Child tag along
Duration	£4 (if hired with 1+ adult bike)	Child seat

The Re:Cycle Society

- B.37 The Re:Cycle Society is a volunteer run cycle hire scheme which operates on campus at the University of Sussex. Working in conjunction with Sussex Central YMCA, Re:Cycle fix abandoned bicycles and rent them out to staff and students. All bikes include a set of lights and a bike lock.

Appendix B.2: Re:Cycle (run by students at the University of Sussex)

Hire time	Cost	Bike Type
Spring term membership	£20	Recycled bike
Summer term membership	£10	Recycled bike
Refundable deposit	£65	

Appendix B.3: Summary of Cycle Hire Prices

Name	Free 30 mins?	½ day (6 hours) hire	1 day (over 6 hours) hire
London Barclays Cycle Hire	Yes	£35	£50
Blackpool's Hourbikes	No (£1 per hour)	£6	£24
Electric Bicycle network	No	£10-12	£20-35
B-Cycle Denver	Yes	£30	£60
Dublinbikes	Yes	£12	£33

Complementary Measures

- B.39 In order to increase the usage of Bike Share schemes, a number of complimentary measures can be employed. This section considers a variety of complimentary measures which could help ensure the success of Brighton’s Bike Share scheme.

Finding a Docking Station

- B.40 It is imperative to the scheme’s success that the Bike Share docking stations are easy to find. There are several ways to increase awareness of docking station locations. Maps indicating the location of docking stations should be made available at destinations such as Brighton train station and tourist attractions such as Brighton Pier, the Sea Life Centre and the Pavilion. Maps should also be made available online, via a smartphone app and on screens at docking stations to enable people to plan their journey on the move. Additionally, docking stations should be legible so people can find them easily as they walk through the city. Figure B.13 shows an example from of mapping at docking stations for London’s Cycle Hire scheme in same style as ‘Legible London’ maps to ensure consistent branding of wayfinding system.

Figure B.13: London’s Barclays Cycle Hire – Mapping at docking station



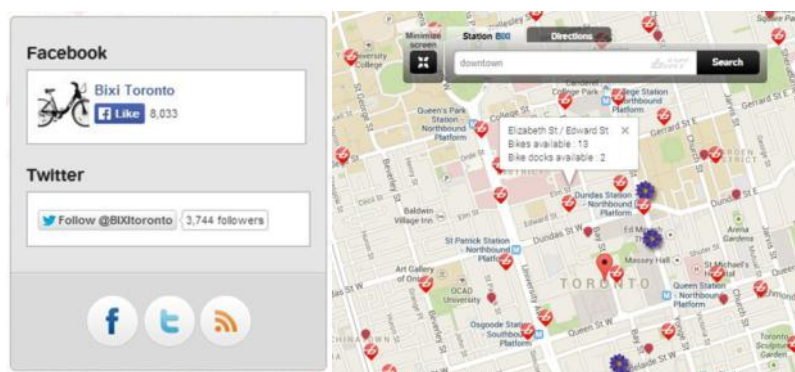
- B.41 Most maps use a ‘time/distance’ buffer around each station, showing the user how far they could get within 30 minutes (the typical amount of free cycle time available to users). Making sure information is available to both users and potential users is critical to ease of using the system, and therefore take up.
- B.42 Information is also very important at station locations, providing a means of navigation around the area, and also to adjacent docking stations.

Journey Planners and Digital Tools

- B.43 Brighton & Hove has an existing multimodal journey planner, available on the Brighton & Hove City Council website, which the Bike Share scheme could be integrated with, offering bike sharing as an additional journey option for trips within the scheme area. The journey planner would provide walking directions to their nearest docking station, plan the cycling route, find the docking station closest to their destination and finally provide directions from the docking station to the final destination.

- B.44 A capability could also be added using live data from the docking stations to show users the nearest docking station to their origin with bikes available and the nearest docking station to their destination with docks available. This information should also be made available on the terminal at the docking station so people without smartphones, or who are unaware of the app, can access the information they need to make their Bike Share journey.
- B.45 A dedicated webpage should also be developed on the Brighton & Hove City Council website to provide users with information about the scheme – how it works, what it costs, where docking stations are located and a dedicated journey planner, etc.
- B.46 In order to increase usability of the Bike Share, an app should be developed to provide an alternative way to access information about the Bike Share scheme. This could be developed by a third party, given access to data about the scheme, though an API.
- B.47 Almost all Bike Share schemes now come with an online map showing real time locations of stations and how many bicycles are currently available. Successful schemes combine online (including on mobile devices) and on the ground information and make it as easy as possible for the user to access.
- B.48 Social media plays a significant role in successful Bike Share schemes, both for marketing and information purposes. Figure B.14 shows an example from the Bike Share scheme in Toronto, Canada. Their real time mapping of docks, including information such as number of docking spaces available, and number of bicycles available, complement the scheme.

Figure B.14: Examples of Bike Share Information – Bixi, Toronto, Canada



Travelling Around by Bike Share and Technology

- B.49 Since many users of Brighton & Hove's Bike Share are likely to be tourists, issues with navigation should be taken into account. Features can be incorporated on the Bike Share bicycles to aid the user's navigation, such as a smartphone dock to allow the user to follow their journey planner route on their phone as they cycle.
- B.50 Different technology systems can help run Bike Share systems. Many now use GPS devices within the bicycles to track where the bicycles are going. Models of the network can be developed using this data and calibrated. This allows the system to predict usage, and to optimize where bicycles may need to be redistributed.

Marketing

- B.51 In order to reach its potential, the scheme must be marketed to its target audience. Bike Share schemes put significant effort into ensuring the correct image is being portrayed and to make the system attractive to users.

- B.52 Bike Share marketing can generally be split into two categories:
- Vogue – Using a Bike Share bicycle to get around is considered trendy, and improves both the image of the user, and the city.
 - Novelty – The Bike Share system is a novelty, this is especially true for visitors. Using electric bicycles for hire enhances this novelty.
- B.53 For Brighton & Hove, marketing the system as ‘vogue’ to residents will be the key to a successful marketing campaign, whilst marketing the ‘novelty’ of the system to visitors.
- B.54 Marketing is key to ensuring the Bike Share scheme is well used. The main marketing drive would occur before and during the scheme’s launch. This could include promotional material including advertisement in newspapers/local magazines, local advertising e.g. on billboards and a postcarding campaign to raise awareness of the scheme among the local population and businesses. Additionally, events could be held to coincide with the launch of the scheme at locations with high footfall and potentially high demand, e.g. Brighton rail station. Promotional information about how the scheme works, what it costs, etc., should be made available at such events and staff should be on hand to answer questions and provide help to people at the docking stations.
- B.55 Information leaflets should also be distributed to tourist attractions and local businesses so people can continue to access information about the scheme after its initial launch. Places such as rail stations, the tourist information office and hotels should be provided with copies to raise awareness of the scheme among visitors to Brighton. Engaging with businesses to promote the scheme for employee trips such as business travel and commuting is an opportunity that could also be explored.
- B.56 The use of social media could be an effective way of boosting the scheme’s popularity. Other Bike Share schemes have made use of Facebook and Twitter accounts as a quick and cost effective way to maintain contact with the Bike Share users. Social media provides a platform to communicate with other local businesses so by following or becoming ‘friends’ with other local organisations the Bike Share’s brand can become integrated into the local community and the conversation about the scheme is kept active. As well as a promotional tool, social media also creates a useful link between users of the scheme and the scheme operators – providing a quick and informal way of dealing with localised issues, for example people could tweet feedback to the operators.
- B.57 Another use of social media could be promoting an element of competition between scheme users. The Bike Share app could feature a journey tracker, whereby users can record information about their journeys, such as distance travelled or calories burnt, and share this information with friends. Studies have shown that people are more likely to get involved, and stay motivated, in active travel if there is a social element to the activity.

Sponsorship and Branding

- B.58 The scheme’s brand will be its unique identity and building a strong brand is essential for the scheme’s success. The nature of the brand will depend on whether the scheme has a sponsor, as it is very likely that a sponsor will want their own brand identity to be represented in the Bike Share’s branding. An example of this the synergy between Barclays bank’s branding and the branding of London’s Barclays Cycle Hire. See Figure B.15 for a visual comparison of the Barclays bank logo and Barclays Cycle Hire logo.

Figure B.15: Comparison of Barclays Bank Logo and Barclays Cycle Hire Logo



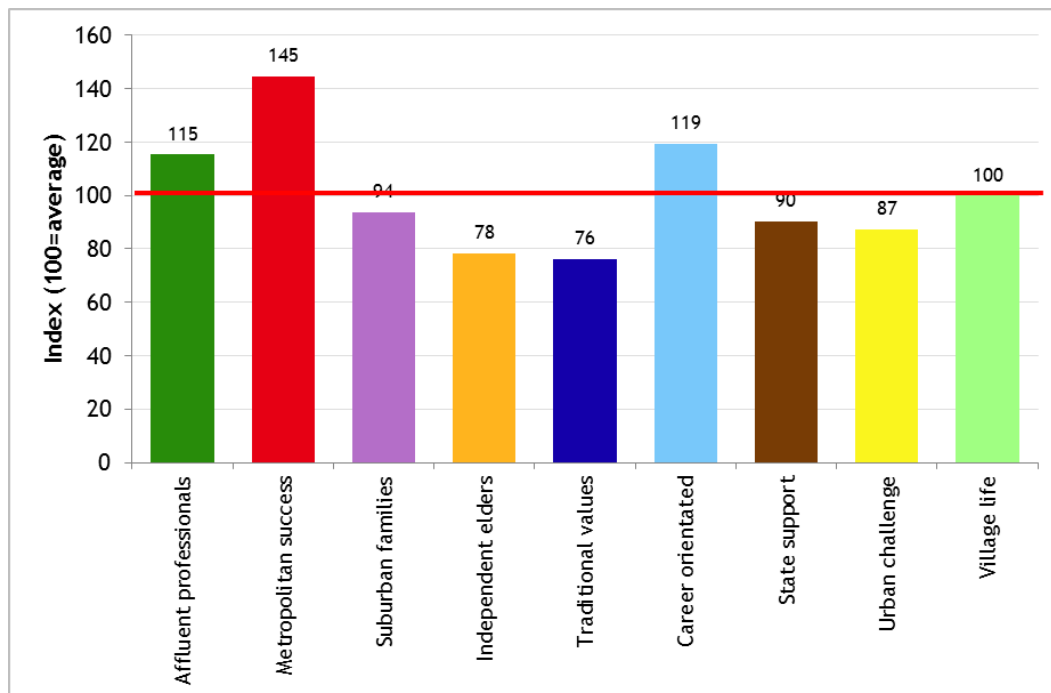
- B.59 The branding will affect the look and feel of the scheme, and will be visible in all elements of the Bike Share, from the bikes and infrastructure to the promotional material, websites and apps.

C Smarter TravelStyle

An Introduction

- C.1 Smarter TravelStyle is a bespoke geodemographic classification tool developed by Steer Davies Gleave to help plan and implement sustainable travel or travel behaviour change projects. Smarter TravelStyle is based on the Mosaic system which classifies postcodes into 67 types. Mosaic has been developed by Experian, the UK's largest owner of consumer data. Over 400 variables were used to build the classification, around half from the Census.
- C.2 There are nine segments within Smarter TravelStyle, each with its own characteristics. The segments categorise individuals according to, amongst other things, their attitudes, and propensity to respond to different measures and policies. The graph in Figure 1.7 shows the relative likelihood of each segment to cycle, given suitable facilities are available (e.g. access to bicycles, cycle-friendly infrastructure).
- C.3 An index value in excess of 100 shows an above average propensity to cycle. Based on this analysis Affluent Professionals, Metropolitan Success and Career Orientated segments have the highest propensity to cycle if suitable facilities are available.

Appendix C1: Smarter TravelStyle – Propensity to Cycle



Control Sheet

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Document Type

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10 reasons to work with us

1 Global

Our clients say they value our distinctive global experience. With offices on three continents, we are able to learn from our global best practice.

2 Local

Local teams in all our markets bring our global expertise to your neighbourhood.

3 Quality

With the industry's most experienced transport consultants, strategic advice, expert opinion and technical excellence are the foundations of our company.

4 Trusted

We value our long-running relationships with clients. Our clients keep coming back to us; it tells us that we are doing the right thing.

5 Strategic

Big businesses, public sector, new technologies and changing markets. We believe in long-term solutions. We help our clients plan for the future.

6 Building partnerships

We believe in relationships. Building a culture of shared knowledge benefits us all.

7 The bigger picture

Our services go beyond transport to meet the wider needs of our economy, our environment and society.

8 Independent

Being an employee-owned business means we offer our clients unbiased and objective advice. We have no corporate affiliations and no obligation to downstream construction resources.

9 Innovative

Pioneer in the application of stated preference in transport research. Pioneer of techniques to measure economic impacts of transport investment. Pioneer in the use of mobile phone data in transport modelling. We always look to the future.

10 Personal

We love being in the transport business. Talk to us.