

Development of bike share business case and plan



Brighton & Hove City Council
Our ref: 23921501
Client ref:

steer

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Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

Brighton & Hove City Council
Wellington House, Wellington Street
Brighton BN2 3AX

Client ref:
Our ref: 23921501

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Contents

Executive Summary	i
Overview.....	i
Option 1: Expanded Brighton & Hove Scheme	i
Option 2: Joint City Region Scheme	ii
Funding	iii
Management case	v
Commercial case	v
1 Introduction.....	1
Background.....	1
Structure of the document.....	2
2 Review of existing BTN BikeShare scheme	3
Overview.....	3
Characteristics of existing BTN BikeShare scheme.....	3
Analysis of existing BTN BikeShare scheme costs and revenue	6
Impact of COVID-19 on BTN BikeShare scheme performance	8
Bike rental scheme in Adur and Worthing	9
3 BTN BikeShare – new scheme description by option	10
Overview.....	10
Geographic coverage.....	10
Fleet assumptions.....	16
Scheme size	16
Tariff structure.....	18
4 New scheme costs by option	21
Overview.....	21
Capital costs.....	21
Operating costs.....	26
Renewal costs	27
5 New scheme demand and revenue by option	29
Overview.....	29

	Potential demand	29
	Scheme revenue	31
6	Strategic case.....	33
	Overview.....	33
	Policy review.....	33
	Evidence base	39
	Need for intervention.....	43
	Options	43
7	Economic case.....	48
	Overview.....	48
	Scheme costs	48
	Scheme demand and revenue.....	50
	Financial summary.....	51
	Scheme benefits	52
	Economic appraisal assumptions and outputs.....	55
8	Financial case.....	60
	Overview.....	60
	Scheme investment costs	60
	Potential funding options – Capital funding.....	60
	Capital borrowing	62
	Affordability analysis	65
9	Management case – delivery plan.....	67
	Overview.....	67
	Stage 1 – Planning	67
	Stage 2 – Initiation.....	68
	Stage 3 – Mobilisation	69
	Stage 4 – Operations	70
10	Commercial case – system procurement and operations	72
	Overview.....	72
	Bike share operating models.....	72
	Social enterprise approach.....	75

Governance arrangements.....	82
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Figures

Figure 2.1: Seasonality of trips per bike per day (2018/19 Year 2 and 2019/20 Year 3).....	5
Figure 2.2: Breakdown of BTN BikeShare scheme annual operating costs.....	6
Figure 2.3: Breakdown of Year 3 (Feb 2019-Jan 2020) direct operating costs.....	7
Figure 2.4: Breakdown of BTN BikeShare scheme usage revenue (Year 3 of operation, Feb 2019-Jan 2020)	8
Figure 2.5: Seasonality of BTN BikeShare scheme usage revenue	8
Figure 2.6: 2020 BTN BikeShare scheme monthly costs/expenses	9
Figure 2.7: Donkey Republic Worthing bike rentals	9
Figure 3.1: Relative potential demand for bike share in the Joint City Region	12
Figure 3.2: Recommended Joint City Region Scheme operating area.....	15
Figure 4.1: CoMoUK recommendation on funding range	26
Figure 6.1: Percentage of households without access to a vehicle (Census, 2011)	40
Figure 6.2: IMD (DCLG, 2019)	41
Figure 6.3: Existing extent of the BTN BikeShare	42
Figure 8.1: Comparison of Santander Bank logo and Santander Cycle Hire logo.....	62
Figure 8.2: Capital borrowing cumulative funding surplus/shortfall, 2021/22 – 2026/27.....	65
Figure 9.1: Stages of launching and operating a bike share scheme.....	67
Figure 10.1: Co-Bikes station and bikes by the Exeter’s County Hall (left) and Central station (right)	76

Tables

Table 2.1: BTN BikeShare pricing model (from August 2019)	4
Table 2.2: Breakdown of BTN BikeShare scheme annual revenue.....	7
Table 3.1: Underlying potential demand for bike share - data sources	11
Table 3.2: Benefits and limitations of e-bikes	16
Table 3.3: Recommended scheme size – Option 1: Expanded Brighton & Hove Scheme	17
Table 3.4: Recommended scheme size – Option 2: Joint City Region Scheme	17
Table 3.5: Benefits and challenges of differentiated pricing.....	19

Table 3.6: Benchmarking bike share scheme tariffs.....	19
Table 3.7: Assumed tariff structure.....	20
Table 4.1: Cost of new bikes – Option 1: Expanded Brighton & Hove Scheme.....	22
Table 4.2: Cost of new bikes – Option 2: Joint City Region Scheme.....	22
Table 4.3: New hubs cost – Option 1: Expanded Brighton & Hove Scheme.....	23
Table 4.4: New hubs cost – Option 2: Joint City Region Scheme.....	23
Table 4.5: Redistribution vehicle costs – Option 1: Expanded Brighton & Hove Scheme.....	24
Table 4.6: Redistribution vehicle costs – Option 2: Joint City Region Scheme.....	24
Table 4.7: E-cargo bikes for battery swapping.....	25
Table 4.8: Total estimated capital costs – Option 1: Expanded Brighton & Hove Scheme.....	26
Table 4.9: Total estimated capital costs – Option 2: Joint City Region Scheme.....	26
Table 4.10: Annual ongoing operating and maintenance costs – Option 1: Expanded Brighton & Hove Scheme.....	27
Table 4.11: Annual ongoing operating and maintenance costs – Option 2: Joint City Region Scheme.....	27
Table 4.12: Renewal costs of bikes (first cycle) – Option 1: Expanded Brighton & Hove Scheme.....	28
Table 4.13: Renewal costs of bikes (first cycle 1 – 2026/27) – Adur and Worthing and Lewes.....	28
Table 4.14: Renewal costs of redistribution vehicles (first cycle 1 – 2031/32) – Brighton & Hove, Adur and Worthing and Lewes.....	28
Table 5.1: Benchmarking trips per bike per day.....	30
Table 5.2: Bike share demand estimates – Option 1: Expanded Brighton & Hove Scheme.....	31
Table 5.3: Bike share demand estimates – Option 2: Joint City Region Scheme.....	31
Table 5.4: Bike share user revenue summary – Option 1: Expanded Brighton & Hove Scheme.....	32
Table 5.5: Bike share user revenue summary – Option 2: Joint City Region Scheme.....	32
Table 6.1: Policy and Strategy documents included in the policy review.....	33
Table 6.2: Description and strategic assessment – Option 1: Expanded Brighton & Hove Scheme.....	45
Table 6.3: Joint City Region Option - Description and Strategic Assessment.....	46
Table 7.1: Capital costs (2020 prices) – Do Something.....	49
Table 7.2: Renewals costs for first cycle (2020 prices) – Do Minimum.....	50
Table 7.3: Renewals costs for first cycle (2020 prices) – Do Something.....	50
Table 7.4: Annual operations and maintenance costs (2020 prices) – Do Minimum.....	50
Table 7.5: Annual operations and maintenance costs (2020 prices) – Do Something.....	50

Table 7.6: Annual revenue summary (2019 prices) - Do Minimum.....	51
Table 7.7: Annual revenue summary (2019 prices) - Do Something.....	51
Table 7.8: Annual financial summary (2019 prices) – Do Minimum	52
Table 7.9: Annual financial summary (2019 prices) – Do Something 1.....	52
Table 7.10: Annual financial summary (2019 prices) – Do Something 2.....	52
Table 7.11: Journey time benefits (2010 discounted prices) - whole appraisal period	53
Table 7.12: Bike share mode shift	54
Table 7.13: Health and absenteeism benefits (2010 discounted prices) - whole appraisal period	54
Table 7.14: Non-user benefits (2010 discounted prices) - whole appraisal period	55
Table 7.15: Value for Money appraisal results - Central case	55
Table 7.16: Value for Money appraisal results - Central case. Lewes and Adur and Worthing .	56
Table 7.17: Value for Money appraisal results - Sensitivity Tests. Option 1: Expanded Brighton & Hove Scheme.....	57
Table 7.18: Value for Money appraisal results - Sensitivity Tests. Option 2: Joint City Region Scheme	57
Table 7.19: Value for Money appraisal results – ST6 (Option 1: Expanded Brighton and Hove Scheme)	59
Table 8.1: Capital borrowing annual repayment plan.....	65
Table 8.2: Annual and cumulative Revenue, O&M Costs and Renewals. Do Minimum (Existing system).....	66
Table 8.3: Annual Revenue, O&M Costs and Renewals. Expanded Brighton and Hove Scheme	66
Table 8.4: Annual Revenue, O&M Costs and Renewals. Joint City Region scheme	66
Table 9.1: Measuring success of the scheme	70
Table 10.1: Overview of bike share operating models	72
Table 10.2: Potential benefits, risks to Council and deliverability of operating models	74
Table 10.3: Co-Bike case study	76
Table 10.4: CIC approach advantages and disadvantages.....	78
Table 10.5: Potential for capital costs to vary and risks for CIC delivery options – Option 1: Expanded Brighton & Hove Scheme.....	80
Table 10.6: Operating and maintenance costs and associated opportunity and risks for CIC delivery options – Option 1: Expanded Brighton & Hove Scheme	81

Executive Summary

Overview

Brighton & Hove City Council (BHCC) in collaboration with Adur and Worthing Councils and Lewes District Council have commissioned this study to develop a business case and plan for the improvement and extension of the existing Brighton bike share scheme (BTN BikeShare) including an option to expand the scheme across the Joint City Region.

The existing BTN BikeShare scheme was launched in 2017 with 450 standard bikes. The scheme has since expanded to include 600 standard bikes and 73 hubs, covering Central Brighton extending to Hove Station in the west, to Brighton Marina Village in the east, and also including the A270 corridor to Falmer / University of Sussex to the north.

The current operating contract with Hourbike is up for renewal on 31 August 2021. In this context, the study evaluates the potential to update the BTN BikeShare scheme for the next operating cycle in terms of:

- Introducing a mixed fleet of 50% standard bikes and 50% e-bikes; and
- Expanding the scheme to deliver either:
 - Option 1: **Expanded Brighton & Hove Scheme**; or
 - Option 2: **Joint City Region Scheme**.

Option 1: Expanded Brighton & Hove Scheme

The proposed city only scheme would be expanded to cover whole of Brighton & Hove local authority (an area of 104 sq. kms.), as compared to the existing BTN BikeShare scheme covering 41 sq. km. only. The wider geographic coverage of the scheme would require additional bikes and hubs to be introduced in addition to the current provision.

We recommend the Expanded Brighton & Hove scheme to include 86 hub locations spread across the scheme area with 780 bikes including 390 standard bikes and the addition of 390 e-bikes to attract a wider range of users and longer trips.

Scheme costs and revenue

The scheme is designed for use by residents, rail commuters, employees and tourists, with tariffs designed to encourage one-way journeys and to maximise the utilisation of each bike.

The total capital costs of the Expanded Brighton & Hove Scheme are estimated to be £645,000 at 2020 prices in Year 1 (2021/22) of scheme relaunch. This includes purchase of additional 180 ebikes, installation of 13 new hubs, procurement of redistribution vehicles, set up of a new workshop and other mobilisation costs. As the existing 450 standard bikes would reach end of lifecycle in the Year 2 of operations, they are required to be replaced with 210 ebikes and 240 standard bikes which would cost an additional £704,000 in Year 2(2022/23) of operation.

Annual operating costs is expected to be approximately ██████████, and the scheme is estimated to generate a revenue of almost ██████████ achieving an operating ratio of 1.29.

Business case and benefits

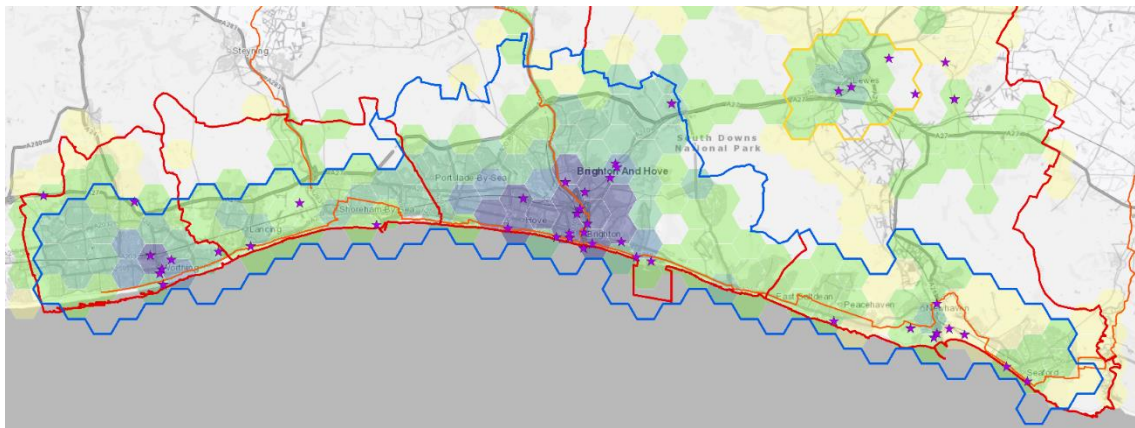
Our analysis suggests that, at a local authority level, the **Expanded Brighton & Hove Scheme** would operate at a surplus under our 'central' assumption of £160,000 from year 2(2022/23) of operation when 50% of fleet would be e-bikes, this surplus is largely due to the higher trips

per bike per day assumed for the ebikes. This analysis is based on the assumption that there would be no sponsorship for the scheme, therefore, there is potential for generating more revenue if the scheme acquires sponsorship or advertisement revenue.

An economic appraisal of the scheme suggests that the scheme will deliver a benefit to cost ratio of **3.64: 1** (High), suggesting the scheme will deliver high value for money.

Option 2: Joint City Region Scheme

The proposed Joint City Region Scheme area (highlighted in blue in the map below) covers the whole of Brighton & Hove, extending further in the east including Peacehaven, Newhaven and Seaford; and areas south of the A27 in Adur and Worthing along the National Cycle Route including Worthing, Lancing, Shoreham-by-Sea.



We recommend a scheme including 124 hub locations spread across the Joint City Region scheme area with 1,226 bikes including 613 standard bikes and 613 e-bikes to attract a wider range of users and longer trips. The recommended fleet size and number of hubs for each local authority region are as below:

	Standard bikes	E-bikes	Total bikes	Hubs
Brighton & Hove	390	390	780	86
Adur and Worthing scheme area	161	161	322	43
Lewes scheme area	62	62	124	17
Joint City Region	613	613	1,226	146

The total capital cost of the Joint City Region Scheme is estimated to be £2m in 2020 prices. Incremental capital cost for Brighton & Hove is estimated to be £645,000 (same as Option 1), and capital costs for Adur and Worthing and Lewes are estimated at £910,000 and £464,000 respectively. As for Option 1 in Brighton & Hove the existing 450 standard bikes would reach end of lifecycle in the Year 2(2022/23) of operations and they would need to be replaced with 210 ebikes and 240 standard bikes which would cost an additional £704,000 in Year 2(2022/23) of operation.

Under the joint city region scheme, each local Council would be responsible for the operating costs for their share of the scheme in their area. The operating costs and revenue for Brighton & Hove would be same as Option 1: Expanded Brighton & Hove Scheme.

Annual operating costs for Adur and Worthing would be £[REDACTED] and the scheme is likely to generate a revenue of [REDACTED], this would require an annual subsidy of [REDACTED] to break even.

For Lewes, annual operating costs is expected to be [REDACTED] and the scheme would likely generate a revenue of [REDACTED]. This means the scheme in Lewes would require an annual subsidy of [REDACTED].

Business case and benefits

Our analysis suggests that, at a local authority level, the **Expanded Brighton & Hove** Scheme would operate at a surplus under our 'central' assumption, whereas both the Adur and Worthing and Lewes elements of the **Joint City Region** scheme would operate at a deficit. This analysis is based on the assumption that the scheme would not have any sponsorship. Sponsorships and/or advertisement revenue, as previously obtained for the BTN BikeShare scheme could assist with the deficit amount to some extent. We understand that BHCC are currently exploring the potential for sponsorship for the **Expanded Brighton & Hove** Scheme.

An economic appraisal of the scheme has also been undertaken, and this suggests that the Joint City Region Scheme will deliver a benefit to cost ratio of **2.23: 1**, suggesting the scheme will succeed in delivering high value for money.

The reason why the BCR for the Joint City Region is lower than for the Brighton & Hove-only option is that both Lewes and Adur and Worthing have lower individual BCRs than Brighton & Hove. In disaggregated terms, the BCR would be 1.84: 1 (Medium VfM) for Adur and Worthing and 0.67: 1 (Poor VfM) for the Lewes expansion and if assessed individually.

The Joint City Region Scheme 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 bikes share will play in reducing emissions within a designated Air Quality Management Area.

Funding

There are several potential funding sources that could be explored. These include:

- Devolved funding allocations via the Coast to Capital Local Enterprise Partnership. The status of current LEP devolved funding allocations are:
 - The Local Growth Fund (LGF) funding provided the capital investment for the existing scheme. There were three LGF rounds, which is fully allocated and there are no further rounds planned.
 - Shared Prosperity Fund. This is a Post Brexit fund, but detail of fund amount / eligibility etc. has yet to be announced.
 - We recommend Brighton & Hove should speak to C2C to see if C2C has any further insight on the Shared Prosperity Fund.
- Funding via Future City Deal arrangements.
 - Additional funds have been made available to City Deal delivery agencies where a track record of successful delivery has been demonstrated.
- National Government Funding via Bidding 'funds' such as:
 - Transforming Cities Fund (which has now ended in terms of applications), but there could be successor funds or similar funds.
 - Competitive 'Cycle Investment Funds, on the back of the announcement of a £2bn package for walking and cycling, announced in May 2020.

- Single Housing Infrastructure Fund. £10bn announced in the March 2020 budget, but no details of the programme or bidding process. Cycle hire could potentially form part of a wider HIF package bid.
- Local Contributions:
 - Most devolved of national grant funding requires a proportion of the costs to be borne by locally. This could either be through direct contribution, benefit ‘in-kind’ (e.g. offer time, land transfer), or through securing local developer funding.
- Developer funding:
 - To fund specific infrastructure elements (e.g. docks / hubs) on land owned by or adjacent to potential hubs.
 - Developer funding could be sourced via S106 funding (infrastructure related to specific developments) and / or Community Infrastructure Levy (pooled developer ‘roof tax’ that can be used for infrastructure across the Brighton, or relevant authority).

Of these, it is likely that the LEP would be the most likely source of capital funding based on both precedent (having funded the original scheme, which has proved to be successful) and as it is not certain that Bike-Share would be an eligible scheme for any National funding sources at present (competitive bid funds are usually prescriptive about the types of investment that is eligible).

The economic and strategic case set out in this report demonstrates that the bike share expansion (whether within Brighton & Hove or across the city region) has the potential to deliver a strong value for money case, which is a fundamental requirement for any scheme (along with deliverability). While the economic case (and hence value for money case) is stronger for a BHCC only expanded scheme, the strategic rationale is stronger for a scheme across an extended geography (i.e. a Joint City Region Scheme).

As an alternative to the potential funding sources detailed above and at the request of Brighton & Hove, we have also explored the option to fund the initial costs of purchasing the bikes and redistribution vehicles and subsequent renewals through capital borrowing for the Expanded Brighton & Hove Scheme only.

Our analysis suggests that based on this option, during the appraisal period (2021/22 – 2040/41), the total borrowing amount would be £5.26m, against which total repayment costs would be approximately £5m, with average repayments of £251,000 per year. The repayment for these loans would continue in the subsequent years, with the last loan taken out in 2039/40 which would be fully repaid by 2044/45.

During the same period, total revenue surplus is expected to be approximately £3.2m which could potentially fund 65% of the repayments. The council would still need to fund £1.85m themselves, approximately £93,000 per year.

Based on our assumptions, the repayment costs in the first three years (2022/23 – 2024/25) can be fully funded using scheme operational surplus, following which, annual funding shortfall would be £112,500 in 2025/26 and approximately £116,000 per year for all the subsequent years during the appraisal period.

Management case

Stakeholder Support

Stakeholder support for a scheme of this kind is important to developing and successfully launching the scheme. The Joint City Region Councils are expected to work closely with the local stakeholders such as City Councils, Highway authorities, etc. to garner support for the proposed scheme.

Joint governance arrangements

For Option 1: Expanded Brighton & Hove scheme the owner/promoter of the bike share scheme would remain Brighton & Hove City Council.

For Option 2: Joint City Region scheme, the governance arrangement could be that Brighton & Hove remain the primary promoter of the scheme, developing a single supplier framework agreement which would be available to other local authorities (Adur and Worthing and Lewes) based on which the scheme could be expanded into their area at any point within the time period of the framework. Each local authority should seek advice from their procurement team before pursuing this option to ensure it is appropriate for their circumstances.

Commercial case

The operating model suitable for the bike share scheme depends on the ownership and level of control by the public sector and/or the operator. Four distinct options for the operating model are as following:

- Model 1: Council owned, managed in-house;
- Model 2: Council owned, managed by an arm's length external company structure;
- Model 3: Council owned, externally managed via a concession contract; and
- Model 4: Externally owned and operated with a 'light touch' concession contract between the Council/s and operator.

The appropriate operating model depends on the objectives, and appetite for risk of the scheme owner/s.

If the objectives of the scheme are to maximise ridership and financial sustainability we recommend Model 3 which allows the Council to set policy based objectives and benefit from wider industry experience from operating bike share schemes in other locations.

If the objectives of the scheme are to maximise community interests, we recommend Model 2 Council owned, managed by an arm's length external company structure, such as a Community Interest Company (CIC). We note that this option is unlikely to benefit from wider industry experience which maximise both ridership and financial sustainability.

Whilst this report will help you to assess the most appropriate operating model we recommend seeking further legal advice as to the model which will work best for the future scheme.

1 Introduction

Background

- 1.1 Brighton & Hove City Council (BHCC) in collaboration with Adur and Worthing Borough Councils and Lewes District Council have commissioned this study to develop a business case and plan for improvement and extension of the existing BTN Bike Share scheme within the city boundary and to consider the option of extending across the wider joint City Region.
- 1.2 The existing Brighton bike share scheme (BTN BikeShare) was launched in 2017 with 450 standard bikes. The scheme has since expanded to include 600 standard bikes and 73 hubs, covering Central Brighton extending to Hove Station in the west, to Brighton Marina Village in the east, and also includes the A270 corridor to Falmer / University of Sussex to the north.
- 1.3 The original contract for the existing BTN BikeScheme expired on 31 August 2020. The contract has been extended to 31 August 2021 and there is a further option to extend the contract. On 23rd June 2020 Brighton & Hove City Council's Environment, Transport and Sustainability Committee granted delegated authority to the Executive Director to prepare an updated case for the BTN bikeshare scheme in the city from March 2022. The committee requires a report detailing the financial model and business case underpinning the in-house and alternative delivery vehicle options.
- 1.4 In this context, this report evaluates the potential to update the existing BTN Scheme for the next operating cycle in terms of:
 - Introducing a mixed fleet of 50% standard bikes and 50% e-bikes;
 - Either:
 - Option 1: expanding the scheme to an area of 104sq.km. within Brighton & Hove (**Expanded Brighton & Hove Scheme**); or
 - Option 2: additionally expanding the scheme to adjoining local authority regions to deliver a Joint City Region Scheme (**Joint City Region Scheme**); and
 - Potential delivery options for the scheme.
- 1.5 This document covers a detailed analysis of underlying demand across the whole of Brighton & Hove, Adur and Worthing and Lewes District. The findings of the potential demand analysis is used to inform the suggested operating area for the Joint City Region Scheme. This suggested operating area includes whole of Brighton & Hove, and coastal parts of Adur and Worthing, and Lewes District (not the town) as covered in Chapter 3.
- 1.6 This document presents the business case and business plan for both the expanded Brighton & Hove Scheme and the Joint City Region Scheme, which could form the basis for a funding submission to the Coast to Capital LEP. This document also examines the costs associated with funding the capital and renewal costs through capital borrowing for the expanded Brighton & Hove Scheme only (in Chapter 8), the impact of a possible e-scooter share on demand for bike share for the expanded Brighton & Hove Scheme only (in Chapter 7) and the alternative delivery options for both the scheme options (Chapter 10).

- 1.7 It should be noted that the bike share and micromobility market is a fast-moving sector (particularly considering the Covid-19 pandemic) and all assumptions are based on data available and industry intelligence at the time the report was prepared (October 2020).

Structure of the document

- 1.8 This document includes the following chapters:

- Chapter 2 – Review of existing BTN BikeShare scheme
- Chapter 3 – BTN BikeShare – scheme description by option
- Chapter 4 – Scheme costs by option
- Chapter 5 – Scheme demand and revenues by option
- Chapter 6 – Strategic case – policy context and rationale
- Chapter 7 – Economic case
- Chapter 8 – Financial case
- Chapter 9 – Management case – delivery plan
- Chapter 10 – Commercial case – system procurement and operations

2 Review of existing BTN BikeShare scheme

Overview

- 2.1 The existing BTN BikeShare scheme was launched in 2017 and has been in operation for three years, since September 2017. The current operating contract will expire on 31 August 2021. As part of planning for updating the scheme (e.g. the possible expansion of the scheme area and introduction of e-bikes), this review of the current BTN BikeShare scheme performance will inform the key assumptions for the new business case. The review also considers the Donkey Bike rental scheme in Worthing, which uses 30 bikes.
- 2.2 This chapter reviews the following:
- Characteristics of existing BTN BikeShare scheme;
 - Analysis of existing BTN BikeShare scheme costs and revenue;
 - Impact on COVID – 19 on scheme performance; and
 - Donkey Bike rental scheme in Worthing.

Characteristics of existing BTN BikeShare scheme

- 2.3 We have reviewed the characteristics of the existing BTN BikeShare scheme in terms of scheme size, the operating system, pricing model, trips and usage, operational structure and funding and sponsorship.

Scheme size

- 2.4 The existing BTN BikeShare scheme started with 450 bikes and has grown since its launch. The expansion includes 120 bikes being added in April 2019 and a recent addition of 30 reconditioned bikes, which brings the total fleet to 600 bikes. There are 73 hubs across the system area, including virtual hubs: public stands geo-fenced in the BTN app, useable by BTN users and private cycle owners. There are additional hubs which are planned, but not yet installed.
- 2.5 The scheme extends from Victoria Road, Portslade 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 covering an area of 44 sq. km. There is also a standalone hub located in Rottingdean to the east of the main scheme area.

Operating System

- 2.6 The existing BTN Scheme has been operated by Hourbike since 2017 and uses smart bikes. The system operates with designated hubs. It is possible to end bike trips at non-hub locations in the geofenced operating zone for a small fee (covered in the pricing model section). When returned to a hub or parked outside the hub, bikes are locked using a U-lock, this is important

for security of the scheme as it minimises vandalism and theft. The operator is responsible for managing and maintaining the service.

- 2.7 The back-end system including the app is provided by Mobility Cloud, formerly known as Social Bicycle or Sobi. If the back-end operating system were to change in the future, there is a need to ensure the chosen new system is compatible with the existing hardware currently used in the existing BTN Scheme.

Pricing model

- 2.8 Table 2.1 shows BTN BikeShare’s current pricing model. The pricing structure was amended slightly in August 2019, with a £1 unlock fee introduced for PAYG or ‘Easy Rider’ trips, and the daily free period for annual riders reduced from 60 to 30 minutes a day.

Table 2.1: BTN BikeShare pricing model (from August 2019)

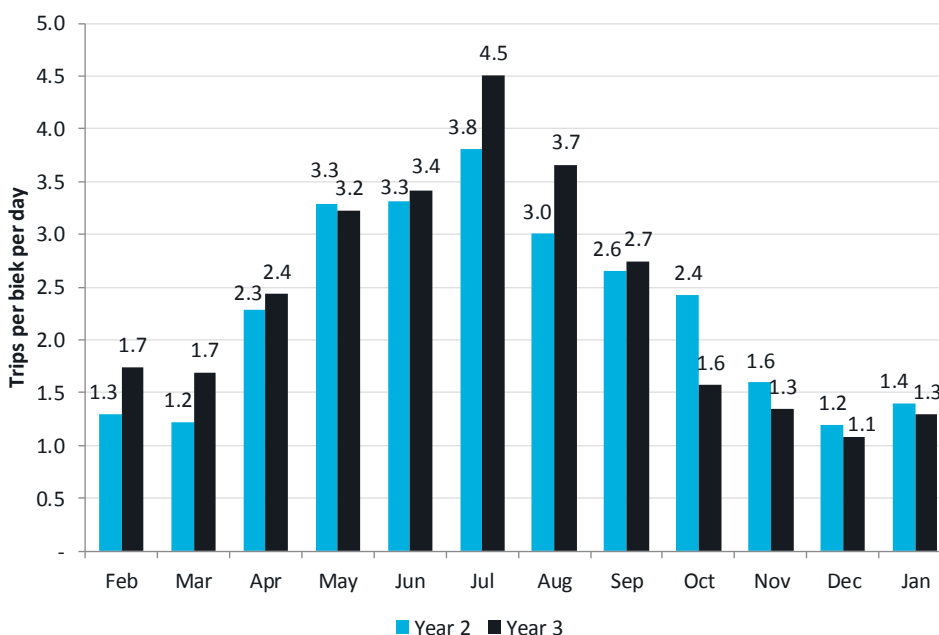
User Type	Subscription price	Time period	Usage fee	Free period
Annual member	£72	Annual	3p per minute (£1.80 per hour)	30 mins per day
PAYG	N/A	N/A	£1 unlock fee + 3p per minute (£1.80 per hour)	None

- 2.9 BTN BikeShare scheme operates with designated hubs. Whilst it is preferred to end your ride in one of these designated hubs, it is possible to end the ride outside a hub, although this incurs an additional fee.
- Fee to end a trip outside of a hub, but still within the system area: **£2**
 - Fee to end a trip outside of a hub and outside the system area: **£10**
 - Reward for renting a bike that is outside a hub and returning to a hub: **£1**
- 2.10 There is scope to increase revenues through additional tariffs such as offering employee memberships and longer rentals for tourists. These potential additional revenue streams have not been explored as part of this report.

Trips and usage

- 2.11 Key statistics on trips and usage of the scheme from scheme launch in September 2017 up to May 2020 include:
- 118,180 subscribers
 - Total rentals of 981,526 (hit 1 million rentals in June 2020)
 - Total distance cycled on bikes of 2,089,299 miles
 - Average rental length of 23 minutes
- 2.12 In 2018 BTN BikeShare bikes averaged at **2.3 trips per bike per day** (1,030 average daily trips spread across 450 bikes). In 2019, with the fleet increasing in size from 450 bikes to 570 bikes midway through the year, usage per bike reduced slightly to **2.1 trips per bike per day**.
- 2.13 As Figure 2.1 shows, the trips per bike are much higher than the annual average in the summer months, with trips per bike per day reaching a high of 4.5 in July of Year 3. As can be expected the opposite is true for the winter months, with less than 2 trips per bike per day from November to March in either year 2 or year 3 of operation.

Figure 2.1: Seasonality of trips per bike per day (2018/19 Year 2 and 2019/20 Year 3)



Operational structure

- 2.14 Since launching in 2017, there have been several changes to the operational structure of the current scheme. One instance of change is the fleet size; BTN initially launched with 450 bikes, however mid-year 2019, 120 bikes were added to the fleet.
- 2.15 Around 90 e-bikes have also been acquired, but these e-bikes are not in general use in the public BTN BikeShare scheme as they require collection and charging at a base point each night¹. However, they are being used in a trial by Cityclean and Cityparks, who will allow staff to use them to travel to and from work sites.
- 2.16 The past few months have also brought changes to the operational structure, with the introduction Covid-19 responsive measures. These include free annual membership being available for NHS workers, home care contractors, school and nursery staff, along with plans to add hubs near schools in anticipation of their opening in September and an increased reluctance to travel on public transport, especially in the peak school rush.
- 2.17 BTN BikeShare scheme have added more hubs over the three years of operation, starting with 51 hubs and now having 73, and still have a list of 26 potential sites for additional hubs. Two of the existing 73 hubs are virtual hubs, meaning they are public bike stands without branding that have been geo-fenced into the BTN app.
- 2.18 In 2018, the operator Hourbike and the Council agreed an open book business model, meaning Hourbike was obliged to share all operational costs and revenue income figures with the Council. The result is that the Council can monitor the financial performance of the scheme, and there is transparency regarding Hourbike’s operations relative to various scheme KPIs.

¹ Recent developments in ebike batteries provide a range of up to 50 miles. Given typical trip lengths and trips per bike per day, batteries would need to be charged or swapped every two or three days.

Funding and sponsorship/s

- 2.19 Start-up scheme costs were part funded by Coast to Capital Local Enterprise Partnership (£1.16 million), which also funded the additional 150 bikes that were added to the scheme later. BHCC also contributed to the start-up funding of the scheme (£290,000) and have committed to investing 100% of their revenue share from profits back into the scheme.
- 2.20 The scheme was sponsored by American Express (Amex) with revenue support during the deployment and initial expansion of the scheme using an agreed fixed sum per bike per year model. This support proved crucial to the development of the scheme. Amex made the decision to end their sponsorship in March 2020.
- 2.21 Life Water provided in kind support with graphic design. This arrangement came to an end on 31 August 2020.
- 2.22 A further contract variation approved by the 24 March 2020 Environment, Transport and Sustainability Committee now involves the Council as a stakeholder in a three-way sponsorship relationship between operator, sponsor and the Council. It has been agreed that sponsorship sums will be shared equally between revenue and capital costs for the scheme. There are continued efforts to secure a new sponsor, with efforts to date having secured several promising leads. A more flexible financial formula for sponsorship is being proposed which takes account of the difficult economic climate post Covid-19.

Analysis of existing BTN BikeShare scheme costs and revenue

- 2.23 From a review of the current business plan, and reporting of business operations provided by the client, we have analysed scheme costs and revenue. As Figure 2.2 shows, annual operating costs fell by [REDACTED], from the 2018-2019 operating year (year 2) to the 2019-2020 operating year (year 3).

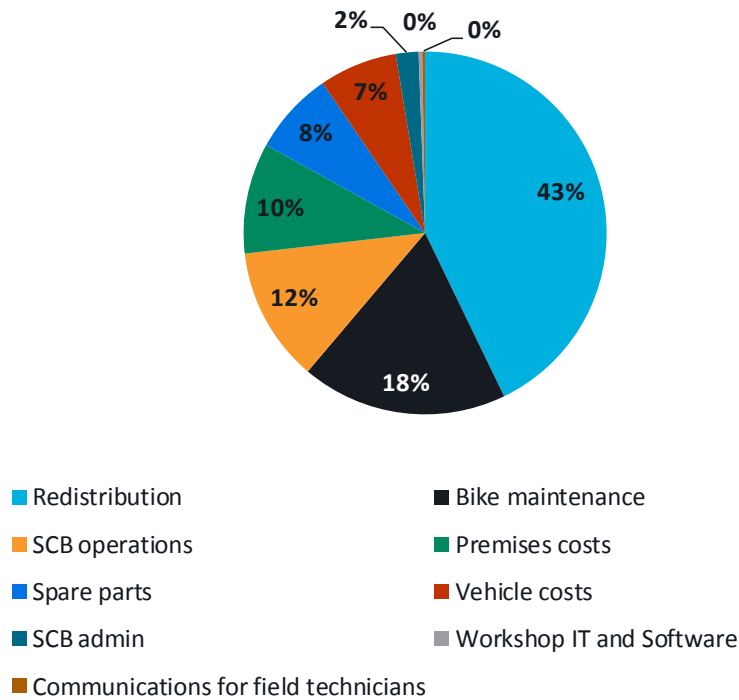
- 2.24 This decrease in costs is driven by decrease in all costs but direct operating costs, with spending on admin and management, marketing and PR (carried out by Fugu) and system maintenance and support all falling in year 3 compared to year 2. It is also important to note [REDACTED]

Figure 2.2: Breakdown of BTN BikeShare scheme annual operating costs

REDACTED

- 2.25 The breakdown of [direct] operating costs in BTN BikeShare’s third year of operation (Feb 2019-Jan 2020), is displayed in Figure 2.3. Nearly half of all direct operating costs (43%) come from the costs of bike redistribution.
- 2.26 The business plan developed by Steer in 2014 assumed a bike asset life of 10 years without a specific bike model in mind. The bikes implemented are expected to have a shorter lifespan of 5 years due in part to Brighton & Hove’s maritime climate.

Figure 2.3: Breakdown of Year 3 (Feb 2019-Jan 2020) direct operating costs



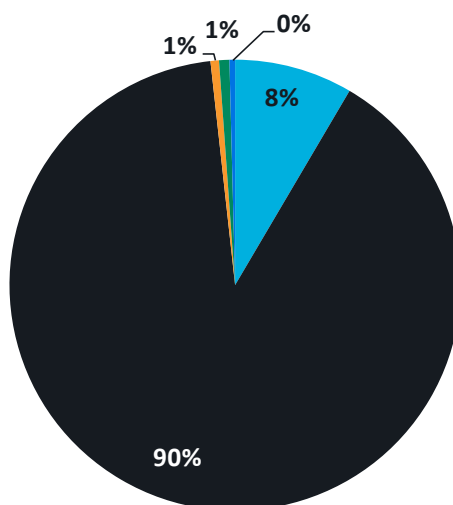
2.27 Table 2.2 shows the breakdown of annual revenue for year 2 and year 3 of scheme operation. Total revenue grew by 10% from operating year 2 to operating year 3. Their revenue is made up of the income they receive from cycle hires/memberships, along with the income from sponsorships.

Table 2.2: Breakdown of BTN BikeShare scheme annual revenue

Redacted

2.28 Figure 2.4 shows the breakdown of the scheme usage revenue of the scheme in its third year of operation (Feb 2019-Jan 2020). It clearly shows that the majority of revenue (90%) comes from casual riders. The group bringing in the second largest proportion of cycling income are the annual members, representing 8% of total cycling income. Students, Amex members and BHCC members all bring in an insignificant level of revenue to the scheme comparatively.

Figure 2.4: Breakdown of BTN BikeShare scheme usage revenue (Year 3 of operation, Feb 2019-Jan 2020)



■ Annual Members ■ Casual Riders ■ Amex members ■ Students ■ BHCC members

2.29 Figure 2.5 shows the seasonality of scheme usage revenue for 2019 and 2020. Looking at 2019, as can be expected, the summer months bring considerably more revenue than other seasons, with July standing at nearly double the annual monthly average. Revenue brought in from scheme usage from November to January is particularly low, all at less than half of the annual monthly average. The annual monthly average scheme usage revenue is [REDACTED]. Factors contributing to this include a greater preference for cycling in the warmer weather and more tourism in the area generating greater demand for bikes. Note that the revenue levels in Figure 2.5 are in thousands.

Figure 2.5: Seasonality of BTN BikeShare scheme usage revenue

Redacted

2.30 As noted earlier in this report, there is scope to increase revenues through additional tariffs such as offering employee memberships and longer rentals for tourists. These potential additional revenue streams have not been explored as part of this report.

Impact of COVID-19 on BTN BikeShare scheme performance

2.31 Figure 2.5 shows that while the existing BTN Bike Share Scheme started 2020 with similar revenues to 2019 (from January to March), revenues have since increased significantly from April to June, suggesting that despite the Covid-19 pandemic, bike share ridership is following and indeed outperforming the seasonality trend common to previous years of operation. While these higher levels of revenue are positive, we have taken a more conservative view on future revenues (see [Chapter 5](#)).

2.32 Brighton & Hove City Council funded 842 free memberships for NHS workers (equivalent to 10% of the NHS workforce in the city), and by the end of June 2020, all of these passes had been allocated. 35 of 100 free memberships have been up taken by care workers. A private donor has also provided funding for free membership for nursery, primary and secondary school workers (covering just under 6% of the workforce in the city). However, the

introduction of this initiative was delayed to September to coincide with the return of these staff to work as schools open.

- 2.33 Figure 2.6 shows the 2020 monthly breakdown of BTN BikeShare's (Hourbike's) costs and expenses to June. This time period (March to June), covers the Covid-19 pandemic. It is interesting to note that from March to May, the primary months of the lockdown, the existing BTN BikeShare scheme's costs remained fairly consistent, however in June, when lockdown eased and general activity started to pick up again, operating costs rose (averaged at [REDACTED] a month across March to May, rose to [REDACTED] a month in June).

Figure 2.6: 2020 BTN BikeShare scheme monthly costs/expenses

Redacted

Bike rental scheme in Adur and Worthing

- 2.34 Our analysis which follows in Chapter 3 includes the possible expansion of the bike share scheme into the neighbouring boroughs of Adur and Worthing. As there is a small existing scheme in operation in Worthing, Donkey Republic, we have reviewed the scheme's current operation. The Worthing scheme launched in 2017 and is relatively small, with a fleet of around 30 bikes. It has experienced significant rental growth from 2019 to 2020, albeit from a low base. This is shown in Figure 2.7, with [REDACTED] rentals in March to July of 2019 comparative to [REDACTED] rentals in March to July of 2020, an increase of 110%.
- 2.35 Assuming the average trip length is between 15 minutes and half an hour (trip would be priced at £1.50 without membership), March to July revenue generated by the Worthing Scheme would have been between [REDACTED] in 2018 and 2019, and approximately [REDACTED]. The Worthing Scheme is supported by £5,000 of annual funding from Worthing Council. On the operational side, there is no redistribution of the bikes.

Figure 2.7: Donkey Republic Worthing bike rentals

Redacted

- 2.36 Considering the March to July time period, bikes in the Worthing Scheme averaged 0.26 trips per bike per day in 2018 and 2019, which more than doubled in 2020 to an average of 0.54 trips per bike per day. This is considerably lower than the 2.1 trips per bike per day seen in Brighton, which can be expected given the limited scale of the Worthing Scheme and trip making opportunities (for example one-way trips are not possible).

3 BTN BikeShare – new scheme description by option

Overview

- 3.1 The existing BTN BikeShare scheme operates with 600 standard bikes and 73 hubs strategically located to serve demand across Brighton & Hove. A Joint City scheme covering the entire Brighton & Hove local authority area as well as neighbouring areas of Lewes, Adur and Worthing has the potential to increase the attractiveness of the scheme. This may assist in meeting policy objectives of the local councils and the business case reflects the potential changes to the scheme.
- 3.2 This chapter explains the ‘core’ definition of the two options for expanding the existing scheme including:
- Option 1: **Expanded Brighton & Hove Scheme;**
 - Option 2: **Joint City Region Scheme**
- 3.3 For both options we have considered the following:
- Geographic coverage;
 - Fleet assumptions;
 - Scheme size; and
 - Tariff structure.

Geographic coverage

Potential demand for bike share

- 3.4 Bike share works best in areas of higher population density and a mix of trip destinations including employment, retail and leisure.
- 3.5 A spatial analysis has been undertaken to identify the underlying relative demand for a bike share scheme both in Brighton & Hove and across the Joint City region. The purpose of this analysis is to define the potential operating area for the Joint City Region Scheme and to provide a set of scheme assumptions and inputs to test in the future business case.
- 3.6 The data presented in Table 3.1 has been mapped and analysed into a hexcell layer of 1,150 metres in diameter, which helps to standardise the various data to provide a consistent geographic analysis.

Table 3.1: Underlying potential demand for bike share - data sources

Data	Source	Justification
Population density	Experian Mosaic – 2019 Mid-Year Population Estimates	Higher residential population density increases potential demand for bike share
Employment/ Workplace density	2011 Census	Higher employment/workplace density increases potential demand for bike share ²
Mode of commute to work (cycling and public transport)	2011 Census	Higher percentage of population already commuting to work by cycling and/or public transport increases potential demand for bike share
Mosaic³ classification of population with propensity to cycle	Experian Mosaic – 2019 Mid-Year Population Estimates Based on CoMoUK Bikeshare survey (2016 and 2017)	The data helps to identify areas where users are most likely to utilise bike share. The analysis uses Mosaic types, providing the most precise segmentation available. There is the evidence available from CoMoUK on the Mosaic profiles of users of bike share. Using the data from CoMoUK’s survey, Mosaic types with the highest propensity to use bike share were extracted.
Points of interest (employment sites/ shopping centres/ high streets/ tourist attractions)	Google maps	Higher potential demand for bike share around points of interest (we have also used these points of interest to represent potential visitor demand)

3.7 A map showing the relative potential demand for bike share in the region is presented in Figure 3.1:

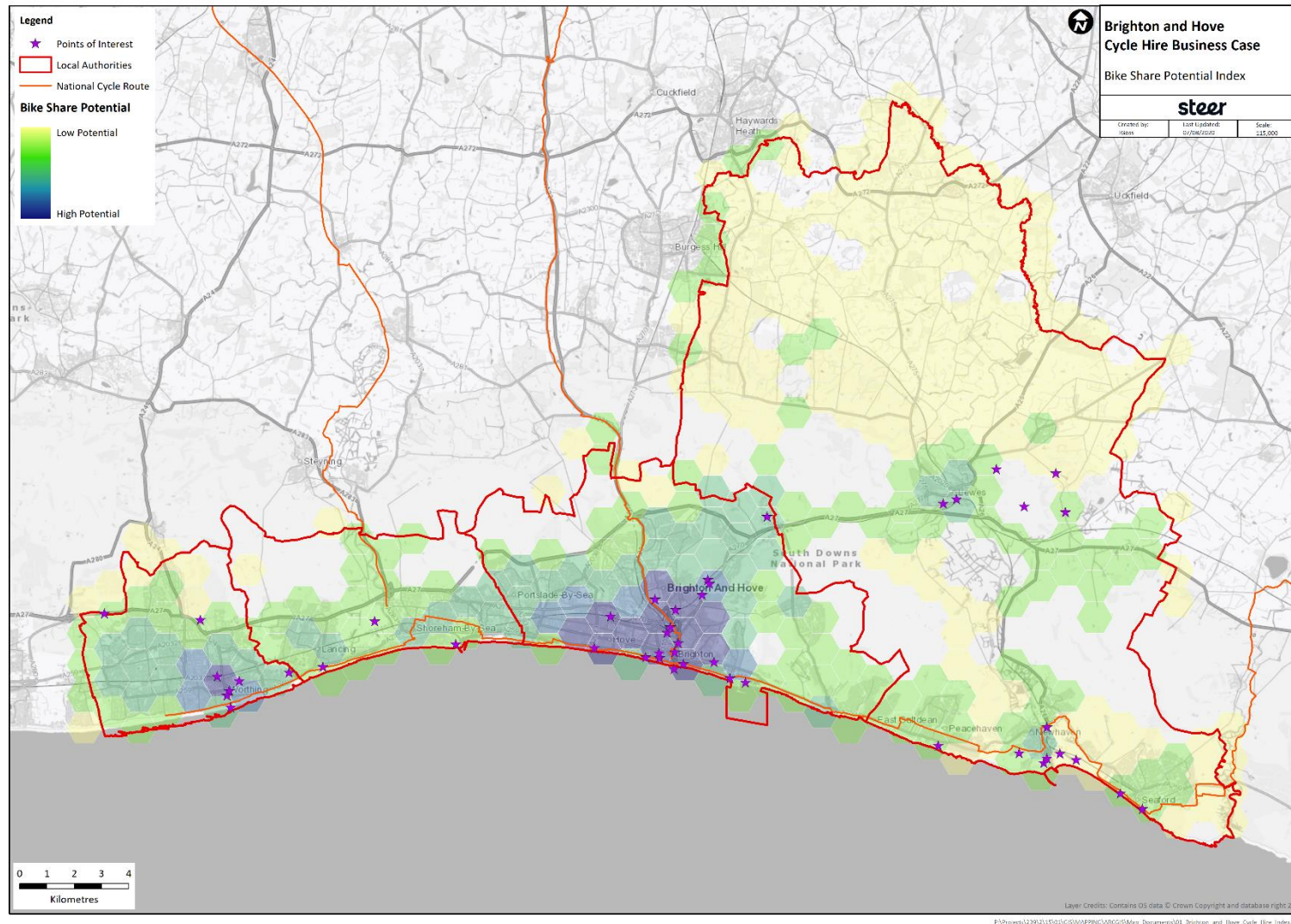
- areas with the **highest potential** are marked in **blue**; and
- areas with the **lowest potential** are in **yellow**.

3.8 Areas (hexcells) with no population has been removed from the analysis. Existing national cycle infrastructure has been overlaid on the map to show potential cycle desire lines.

² While employment levels are likely to have changed since 2011, concentrations of employment are expected to remain similar.

³ Mosaic is a postcode level customer segmentation product produced by Experian. It splits the UK population into 15 groups and 66 types, all of which have unique motives and needs for different services.

Figure 3.1: Relative potential demand for bike share in the Joint City Region



318

Defining the scheme area – Option 1: Expanded Brighton & Hove Scheme

- 3.9 The geographic coverage of the expanded Brighton & Hove Scheme includes the entire Brighton & Hove local authority area as defined by Brighton & Hove City Council. As can be seen in Figure 3.1 while relative demand is greatest in the centre of Brighton & Hove good relative levels of demand extends the majority of the local authority area.

Defining the scheme area – Option 2: Joint City Region Scheme

- 3.10 In the local authorities adjoining Brighton & Hove, due to lower population densities, rural areas and greater distances between settlements there is a need to define a distinct scheme operating area (within each local authority) which is defined to maximise trips and revenues to minimise the need for ongoing revenue support.
- 3.11 It is important to note that bike share requires both origins and destinations to be covered to work effectively, with a scheme with a single continuous zone more able to draw subscribers from a wider catchment and generate more journey opportunities, than a scheme with multiple zones.
- 3.12 In the context of the City region we would therefore recommend extending the existing Brighton bike share zone in a continuous zone to the west and east. Figure 3.2 presents our recommended scheme area for the Joint City Region Scheme outlined in blue. We have based our costs, demand, revenue and business case detailed later in this report on these defined areas.
- 3.13 Our recommended scheme area for the Joint City Region Scheme includes:
- Brighton & Hove local authority area (see Option 1 above);
 - The coastal areas of Lewes District Council’s area including Peacehaven, Newhaven and Seaford; and
 - Areas south of the A27 in Adur and Worthing along the National Cycle Route including Worthing, Lancing, Shoreham-by-Sea.

Why has Lewes town been excluded?

- 3.14 Lewes town is a small urban area, largely surrounded by countryside. The edge of the urban area is approximately one mile from the centre of the town. Due to the size of the town and its rural setting demand there would be expected to be limited demand for bike share within the town itself. Trips to Brighton City Centre are expected to be too far for a bike share scheme (approximately a 45 minute bike ride from Lewes, this compares to the current average BTN Bike Share trip of 23 minutes, although this can be expected to increase with the addition of ebikes).
- 3.15 In addition to potential demand for bike share within Lewes we have also considered potential additional demand from Lewes to the University campuses at Falmer and Newhaven via planned new cycle infrastructure through the South Downs National Park.
- 3.16 We have considered current demand from the four BTN Bike Share hubs at the Universities in the Falmer area. Based on BTN Bike Share trips, the four hubs at the University represent less than 1% of all trips. The four hubs average only 2.2 bike rentals starting each hub per day. This compares with an average of 12.8 trips per day across all hubs in Brighton and demonstrates a low level of current demand for bike share at the Universities in Falmer. Further exploration of data from University of Sussex and University of Brighton Falmer campuses is recommended to explore potential demand from students and staff living in Lewes.

- 3.17 We have also considered potential demand between Lewes and Newhaven, noting that planned cycle infrastructure improvements will encourage a greater number of leisure cycle trips between the two destinations which could help support bike share in Lewes. Lewes has the joint highest proportion of overnight visitors of all locations in the South Downs National Park (a key potential user group)⁴. Unfortunately, we do not have access to data on visitor numbers to further assess demand and our judgement is that an estimated cycle time of between 40 and 50 minutes will limit the demand for bike share (current Brighton average trip time is 23 minutes).

⁴ South Downs National Park Authority Visitor Survey 2018

Figure 3.2: Recommended Joint City Region Scheme operating area



Fleet assumptions

- 3.18 The operating contract for the existing BTN BikeShare scheme is due for renewal in September 2021. Brighton & Hove Council is exploring different options to update the scheme such that the potential demand, benefits and financial performance of the scheme are optimised.
- 3.19 The proposed changes in the new scheme would include a mixed fleet of standard bikes and e-bikes. The same fleet mix for both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** is recommended to provide a consistent offer for users.

Introduction of e-bikes

- 3.20 Existing evidence on other bike share schemes shows that e-bikes have the potential to increase the attractiveness of a scheme in terms of increased usage, longer trip duration, and higher revenue potential (through a higher tariff). Given the ease of use, e-bikes are also likely to be used by a wider range of users compared to standard bikes.
- 3.21 However, there is a trade-off between higher demand and the associated costs of launching and operating e-bikes. Table 3.2 summarizes the key benefits and limitations of launching and operating e-bikes.

Table 3.2: Benefits and limitations of e-bikes

Benefits	Limitations
<ul style="list-style-type: none"> Higher utilization – in locations with both e-bikes and mechanical bikes, e-bikes make around 50% more trips per day Potentially makes the scheme more attractive to sponsors Encourages higher uptake Encourages longer journeys Ease of use Encourages greater use by females and older people 	<ul style="list-style-type: none"> Feasible if higher demand: <ul style="list-style-type: none"> Higher unit price of e-bikes Need for charging infrastructure/ battery swapping Higher costs of charging and maintenance Heavier than mechanical bikes- difficult to use if bikes not charged At least 20% of fleet needs to be electric to drive higher utilisation of e-bikes Differentiated systems, difficult to manage/ track User dissatisfactions if e-bikes unavailable

Fleet Distribution

- 3.22 In order to secure the potential benefits of introducing e-bikes, CoMoUK recommends at least 30% of total fleet to be e-bikes. However, given some areas of hilly terrain and that Brighton & Hove and the entire joint city region has the potential for longer distance trips, we would suggest introducing more e-bikes in the fleet.
- 3.23 We propose a 50 – 50 splits between standard and e-bikes. This is particularly relevant for the joint city region scheme, to encourage more people to use bike share and generate demand for longer trips, beyond the immediate local authority area. In our analysis, we have therefore considered a mixed fleet of 50% standard bikes and 50% e-bikes for both options, including Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme**.
- 3.24 The potential impacts of e-bikes on scheme costs, demand and revenue is discussed in detail in [Chapter 4](#) and [Chapter 5](#).

Scheme size

- 3.25 The existing BTN BikeShare scheme has a fleet of 600 standard bikes and 73 hubs located in higher demand areas covering 41 sq. km. but catering to almost 80% of the total population in

the area (224,000 persons). This gives approximately 2.7 bikes per 1,000 population. We assume the fleet provision in the expanded Brighton & Hove scheme would be proportionate to current provision, which requires approximately 780 bikes.

- 3.26 We have assumed that the provision of bikes in the Joint City Region Scheme area would be proportionate to the initial provision in Brighton & Hove at scheme launch in 2017 of 2 bikes per 1,000 population, a total of 1,223 bikes would be required across the Joint City Region Scheme. This would include 780 bikes in Brighton & Hove (at current level of 2.7 bikes per 1,000 population), 320 in Adur and Worthing and 124 in Lewes.
- 3.27 The number of hubs across both Option 1 and Option 2 is calculated based on analysis of bikes per hub, total area and population served by the scheme. New hubs should be distributed across the scheme area to provide a coverage across each area. To best serve potential demand it is important that key origins and destinations such as retail areas, transport hubs and locations with high densities of employment are served by hubs located in visible accessible locations. Hubs should also be readily accessible by vehicles redistributing the bikes.
- 3.28 Table 3.3 and Table 3.4 presents our recommendations on potential future scheme size for Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** respectively.

Table 3.3: Recommended scheme size – Option 1: Expanded Brighton & Hove Scheme

	Expanded Brighton & Hove Scheme
In-scope Population	287,876
In-scope Employment	133,693
In-scope Sq. km	104
Bikes per 1,000 population	2.7
Total bikes	780
Standard bikes (50%)	390
e-bikes (50%)	390
Total hubs	86
Bikes per sq. km.	7.5
% population with access to bike share	100%
% employment with access to bike share	100%

Table 3.4: Recommended scheme size – Option 2: Joint City Region Scheme

	Expanded Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area	Joint City Region Scheme area
In-scope Population	287,876	160,619	62,218	510,713
In-scope Employment	133,693	64,011	16,601	214,305
In-scope Sq. km	104	47	42	193
Bikes per 1,000 population	2.7	2.0	2.0	2.4
Total bikes	780	322	124	1,226
Standard bikes (50%)	390	161	62	856
e-bikes (50%)	390	161	62	367
Total hubs	86	43	17	146
Bikes per sq. km.	7.5	6.8	3	6.3
% Local Authority	100%	89%	52%	87%

population with access to bike share				
% Local Authority employment with access to bike share	100%	88%	37%	85%

Tariff structure

3.29 User uptake is largely driven by the ease of hiring a bike as well as usage costs. The tariff for a bike share scheme typically includes the following:

- Annual subscriptions; and
- Pay by trip.

3.30 Subscriptions to the scheme including usage or offering usage at a discounted rate per trip encourages regular usage, but has the potential to adversely impact the financial position of the scheme. Subscriptions can be offered on an annual, monthly or weekly basis.

3.31 Alternatively, a pay by trip tariff offers ease of hire to users without long-term commitment, and encourages leisure/ tourist trips. This allows the scheme to generate higher revenue per trip, which enhances financial position of the scheme.

3.32 The pay per trip model is typically able to generate higher revenues, and are therefore preferred by operators. However, having only a pay per trip model may discourage regular usage due to higher costs per trip to users. Therefore, the appropriate mix of tariffs for a scheme depend on the objectives of the local authorities, whether to encourage more bike share trips or to drive the financial positioning of the scheme.

Differentiated pricing

3.33 Standard pricing implies a standard tariff for each type of subscriber, irrespective of the type of fleet used or time of the year. Alternatively, with a differentiated pricing structure the council can introduce different tariff based on variations such as:

- Types of fleet used (e.g. mechanical bikes or ebikes): access to ebikes can be charged at a higher price compared to mechanical bikes which can potentially cover the additional expenses for operating ebikes such as charging, redistribution;
- Demand (e.g. off-peak pricing, winter pricing, etc.): tariff for hiring a bike can be set based on the potential demand during a particular time of day or month. For example, higher prices can be charged during peak hours when the demand is high, or a discounted rate can be offered during winter months when the demand is low to encourage uptake by users; and
- User type (e.g. key workers, job seekers): to encourage uptake in low income or underprivileged groups, discounted pricing or memberships can be offered. Business accounts including discounts can also be offered, where multiple users of a same organisation (or community) can access bikes at a discounted annual subscription fee paid for by the employer.

3.34 Table 3.5 presents the key benefits and challenges associated with differentiated pricing as compared to standard pricing.

Table 3.5: Benefits and challenges of differentiated pricing

	Benefits	Limitations
Standard Fare (current scheme)	<ul style="list-style-type: none"> • Easy to manage • Makes scheme attractive to users 	<ul style="list-style-type: none"> • May impact financial viability of the scheme
Differentiated Fare	<ul style="list-style-type: none"> • Self-sustainable/ revenue is maximised • Additional revenue to facilitate scheme expansion and modernisation • Potential to maximise scheme viability 	<ul style="list-style-type: none"> • More complicated to manage • Higher need for operations staff to manage demand during peak hours • May increase consumer complaints around pricing structure and/or if e-bikes unavailable

Assumed tariff

3.35 Review of existing schemes with a mixed fleet of standard bikes and e-bikes show that higher tariff is charged for e-bikes, compared to standard bikes. This does not have any significant impact on demand, but helps in meeting the increase in operational and maintenance costs. Table 3.6 presents current tariff for public bike share schemes in UK including those with mixed fleets.

Table 3.6: Benchmarking bike share scheme tariffs

London	Milton Keynes	Bournemouth	Glasgow	Lime (private operator)	BTN BikeShare
Annual Membership					
£90 – first 30 mins free per ride	£60 – first 30 mins free rides per ride	No annual membership Minute bundles available: - 100 mins: £5 - 200 mins: £10 - 300 mins: £15 - 400 mins: £20 Day Pass - £12 for unlimited rides in 24 hrs	Only available for standard bikes: £60 - first 30 mins free per ride	No subscriptions	Standard bikes: £72 + 3p per min beyond first 30 free minutes per day
Casual hires					
£2 access fee (30 mins free) + Additional £2 for every 30 mins	£1 access fee (30 mins free) + Additional £1 for every 30 mins	£1 access fee, 5p per minute	E-bikes: £2 access, every 20 mins £2 more Standard bikes: £1 access, every 30 mins £1 more	E-bikes only: £1 access fee, and 15p per min	£1 access fee, 3p per min

PAYG cost per trip ⁵					
£4	£2	£2.15	Standard bikes: £2 e-bikes: £6	e-bikes: £4.45	Standard bikes: £1.69

- 3.36 Based on above we recommend approximately **40% higher tariff for e-bikes in the scheme**, compared to standard bikes. As per the new tariff, an average PAYG trip using e-bikes would cost £2.42⁵. This average fee would be slightly higher than the Brighton & Hove Buses single ticket fare of £2.20⁶ (CentreFare).
- 3.37 Standard bikes would be charged as per the current scheme tariff introduced in 2019. There is also a scope to increase the base prices for the future scheme in medium term, which may result in higher revenue.
- 3.38 A restructuring of the tariff could generate more income, but our conservative assumptions are based on the existing tariff. In summary, the tariff for the future scheme is presented in Table 3.7. This tariff applies to both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme**.

Table 3.7: Assumed tariff structure

User Type		Subscription price	Usage fee
Annual member	Standard bikes	£72	3p per minute (£1.80 per hour)
	e-bikes		4p per minute (£2.40 per hour)
PAYG	Standard bikes	-	3p per minute + £1 unlock fee
	e-bikes	-	4p per minute + £1.50 unlock fee

⁵ Assuming average trip to be 23 minutes long as per current BTN BikeShare scheme usage data

⁶ <https://www.buses.co.uk/cash-contactless-fares>

4 New scheme costs by option

Overview

- 4.1 To determine the costs for implementing a bike share scheme we have collated information from a range of relevant available evidence. This includes:
- Data from current BTN BikeShare scheme cost shared by the Brighton & Hove City Council; and
 - Benchmarking from other schemes and CoMoUK recommendations.
- 4.2 We have considered costs for both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** including the Brighton & Hove, Adur and Worthing scheme area and Lewes scheme area.
- 4.3 The scheme costs discussed in this chapter have been broadly divided into three sections:
- Capital costs;
 - Operating costs; and
 - Renewal costs

Capital costs

- 4.4 The capital cost estimates for the two scheme options consider the following:
- Cost of bikes – both standard and e-bikes;
 - Bike station cost – hubs;
 - Cost of redistribution vehicles (procured by the local authorities);
 - Workshops/ spare and parts; and
 - Mobilisation costs.

Capital cost estimates

Cost of bikes

- 4.5 The capital costs for standard bikes are based on review of current costs and is calculated for each scheme option based on the assumed number of bikes required (see Table 3.3 and Table 3.4).
- 4.6 Costs of e-bikes used in a bike share scheme depend on bike specifications, battery capacity, as well as technology used in the bikes. Cost for e-bikes are assumed to be about 20% higher than the cost of standard high-quality shared bike, as currently provided in the BTN BikeShare scheme. The capital costs may vary if e-bikes procured are priced significantly higher. Given the evolving nature of e-bike technology and commercial pricing models we recommend market testing of these costs.
- 4.7 For Brighton & Hove, capital cost includes cost of additional/ new bikes only. Please note, while we have recommended a 50-50 split between standard and e-bikes, this split would not

be achieved in year 1 (2021/22) of the contract. We have assumed 180 e-bikes are introduced in 2021/22 to provide the required total number of bikes. We have assumed when the existing 450 standard bikes reach end of lifecycle in 2022/23, they will be replaced with 210 e-bikes and 240 standard bikes and the 50/50 share of bikes and e-bikes will be achieved (**costs for replacement bikes are included later in this chapter**).

4.8 We have also accounted for overhead costs of £22 per bike (as per current BTN BikeShare data), which includes transport, warehousing and other acquisitions costs of new bikes.

4.9 Table 4.1 and Table 4.2 presents the cost of procuring new bikes, including both standard bikes and e-bikes, for Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** respectively.

Table 4.1: Cost of new bikes – Option 1: Expanded Brighton & Hove Scheme

Components	Brighton & Hove
Number of new standard bikes*	0
Cost per standard bike	£1,410
Number of new e-bikes*	180
Cost per e-bike (including battery costs)	£1,692
System Cost	£304,646
Overheads per bike	£22
Overheads	£3,900
Total new bikes cost	£308,568

*For Brighton & Hove, additional e-bikes costs for Year 1 only (Year 2 costs are included in renewal costs)

Table 4.2: Cost of new bikes – Option 2: Joint City Region Scheme

Components	Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area	Joint city region
Number of new standard bikes*	0	161	62	223
Cost per standard bike	£1,410	£1,410	£1,410	£1,410
Number of new e-bikes*	180	161	62	403
Cost per e-bike	£1,692	£1,692	£1,692	£1,692
System Cost	£304,646	£499,564	£192,379	£996,589
Overheads per bike	£ 22	£ 22	£ 22	£ 22
Overheads	£3,900	£6,977	£2,687	£13,563
Total new bikes cost	£308,568	£506,562	£ 195,087	£1,010,217

*For Brighton & Hove, additional e-bikes costs for Year 1 only (Year 2 costs are included in renewal costs)

Cost of hubs

4.10 We have based the unit cost of hubs on the existing BTN Bike Share scheme data. The cost of each hub including supply and installation costs is £[REDACTED].

4.11 New technologies for docking stations or hubs such as smart hubs with solar powered charging points for e-bikes, multimodal docking points (for bikes, e-bikes, e-cargo bikes, e-scooters, etc), are being introduced and trialled in the market. It is recommended that

Brighton & Hove explore the potential of these options. Initial set up and installation of these hubs would, however, be higher compared to the existing lightweight hubs, due to high cost of ground power feed, solar panel installations, additional planning permission for each hubs, etc.

4.12 Also, we recommend testing these hubs before updating as some of these new technologies may not work well with maritime climate in the region.

4.13 The total hubs costs for Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** are presented in Table 4.3 and Table 4.4 respectively.

Table 4.3: New hubs cost – Option 1: Expanded Brighton & Hove Scheme

Redacted

*For Brighton & Hove, additional hubs only

Table 4.4: New hubs cost – Option 2: Joint City Region Scheme

Redacted

* For Brighton & Hove, additional hubs only

Cost of redistribution vehicles

4.14 Appropriate vehicles are required to redistribute bikes in the system, move bikes to be maintained at the maintenance depot/warehouse, service bikes and in the case of e-bikes to swap batteries.

4.15 Currently the redistribution vehicles used in the Brighton & Hove scheme include diesel vans. Going forward, it is recommended that electric vehicles should be used, given suitable vehicle availability.

4.16 We have assumed unit costs of a redistribution vehicle, service vehicle and e-cargo bikes for battery swapping to be £65,000, £38,000 and £3,500 respectively. The estimates for these unit costs are based on current prices of electric vehicles available in the market. The council/s have the option to procure electric vehicles using the Local Government Vehicle Procurement Framework which may provide cost savings. On initial investigation, Brighton & Hove was informed that a Bradshaw G5 electric vehicle (typically the service vehicles) can be obtained for [REDACTED]. Please note that the EV market is evolving quickly and a detailed review of the capabilities/suitability of specific vehicles regarding load carrying capacities, range and appropriate size to access narrow streets is recommended.

4.17 The total costs of redistribution vehicles for Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** are presented in Table 4.5 and Table 4.6 respectively.

Table 4.5: Redistribution vehicle costs – Option 1: Expanded Brighton & Hove Scheme

	Brighton & Hove
Number of EV redistribution vehicles	1
Cost of EV redistribution vehicle	£65,000
Number of service EV vehicles	2
Cost of service EV vehicles	£76,000
Number of e-cargo bikes for e-bike battery swapping	5
Cost of e-cargo bikes for e-bike battery swapping	£17,500
Total costs of redistribution vehicles	£158,500

Table 4.6: Redistribution vehicle costs – Option 2: Joint City Region Scheme

	Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area	Joint City Region
Number of EV redistribution vehicles	1	1	1	3
Cost of EV redistribution vehicles	£65,000	£65,000	£65,000	£195,000
Number of service EV vehicles	2	1	1	4
Cost of service EV vehicles	£76,000	£38,000	£38,000	£152,000
Number of e-cargo bikes for e-bike battery swapping	5	2	1	8
Cost of e-cargo bikes for e-bike battery swapping	£17,500	£7,000	£3,500	£28,000
Total costs of redistribution vehicles	£158,500	£110,000	£106,500	£375,000

- 4.18 The number of e-cargo bikes required is estimated based on the number of e-bike batteries needs replacement/ swapping each day which depends on the potential size and usage of the scheme (described in Chapter 5). We have assumed approximately five batteries can be replaced in an hour per e-cargo bike, by taking into consideration the size of batteries, capacity of the e-cargo bike, and time to travel from/to the workshops to bike locations.
- 4.19 Table 4.7 summarises the findings on e-cargo bike requirements by each local authority region.

Table 4.7: E-cargo bikes for battery swapping

	Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area
Number of e-bikes	390 ⁷	161	62
Total daily miles by a shared e-bike	13	10	7
Frequency of battery replacement (assumed range of 30 miles)	2.3 days	3 days	4 days
Number of batteries replaced per day	171	53	14
Number of e-cargo bikes required (rounded)	5	2	1

Workshop set-up/ spare and parts and other mobilisation costs

- 4.20 A bike share scheme needs to set up a workshop or a maintenance depot to store servicing and repair equipment, charge e-bike batteries, to facilitate seamless operations of the bikes. These workshops should be located within the borough boundaries with easy access to the hubs and parking locations such that operation costs are minimised.
- 4.21 The current size of the BTN Bike Share workshop is about 4,000 sq. feet, which is used to service a fleet of 600 bikes.
- 4.22 We have assumed that Brighton & Hove would need to set up another workshop in addition to the current workshop to operate the expanded scheme, with additional workshops for Adur and Worthing and Lewes also set up: one workshop to the east of the existing scheme and one to the west of the existing scheme.
- 4.23 Workshop set up costs include purchase of service equipment and other set up costs, which is assumed to be approximately [REDACTED] based on the existing scheme data. This does not include rental costs of the property, which would form part of the operating costs.
- 4.24 The other mobilisation costs include promotional costs, setting up of management and contact centre and network designs. These costs depend on whether the local authorities have these functions already which could be used for the expanded scheme. If so, there could be a saving when the scheme is delivered in-house or through a separate 'arm's length' holding company by the local authorities compared to a concession contract. If not, the costs are estimated to remain the same or increase due to a lack of cost savings with other schemes.
- 4.25 We have also allowed for a contingency allowance of 15%, to reflect the level of uncertainty implicit in the cost ranges above.
- 4.26 The overall capital cost estimates for Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** are as set out in Table 4.8 and Table 4.9 respectively.

⁷ We have assumed 50% fleet to be e-bikes which will be achieved from Year 2 (2022) onwards

Table 4.8: Total estimated capital costs – Option 1: Expanded Brighton & Hove Scheme

Part redacted

Total Capital cost	£645,487
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* For Brighton & Hove, additional costs only

Table 4.9: Total estimated capital costs – Option 2: Joint City Region Scheme

Part redacted

Components	Brighton & Hove*	Adur and Worthing scheme area	Lewes scheme area	Joint City Region
Total Capital cost	£645,487	£911,046	£464,138	£2,020,671

* For Brighton & Hove, additional costs only

4.27 The calculated capital cost for both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** are in the capital funding range highlighted in the study “*Success Factors for Sustainable Bike Share: A CoMoUK review focusing on hub-based systems for UK cities*”, including taking into account the existing Brighton & Hove scheme.

Figure 4.1: CoMoUK recommendation on funding range

Capital funding ranges

30% Electric bikes

	A city with a population of around 250,000	A city with a population of around 300,000	A city with a population of around 750,000
Bike numbers	350 - 800	500 - 1000	1000 - 2500
Lower range of prices for mixed fleet Ratio 70:30	£0.7 - 1.5m	£1 - 1.7m	£2 - 4.8m
Higher range of prices for mixed fleet Ratio 70:30	£1 - 2.5m	£1.5 - 3m	£1.1 - 4.7m

Operating costs

4.28 The annual ongoing operating and maintenance (O&M) costs include:

- Direct operating costs – bike maintenance, redistribution and other direct operational costs
- System maintenance costs;
- Marketing and PR; and
- Admin and management costs

Operating cost for standard bikes

4.29 The annual O&M cost per standard bike is assumed to be [redacted] based on the current BTN BikeShare scheme cost data.

Operating cost for e-bikes

- 4.30 The annual ongoing operating and maintenance costs per bike for e-bikes is estimated to be [REDACTED]. The model assumes **50% higher redistribution costs for e-bikes** as the bike batteries need to be swapped on a regular basis. As per the study The Bikeshare Planning Guide 2018 by ITDP “e-bikes present additional charging costs (hardwired stations or off-site charging)”. The study also highlights without stations, e-bike batteries must be swapped out and charged, or bikes need to be taken off the streets to be charged which leads to higher operating cost⁸.
- 4.31 The total annual ongoing operating and maintenance costs estimate for the scheme⁹ by each option are as set out in Table 4.10 and Table 4.11 respectively.

Table 4.10: Annual ongoing operating and maintenance costs – Option 1: Expanded Brighton & Hove Scheme

[REDACTED]

* For Brighton & Hove, these costs are incurred from Year 2 (2022/23) of operations when the fleet is 50 – 50 e-bikes and standard bikes

Table 4.11: Annual ongoing operating and maintenance costs – Option 2: Joint City Region Scheme

[REDACTED]

* For Brighton & Hove, these costs are incurred from Year 2 of operations when the fleet is 50 – 50 e-bikes and standard bikes

Renewal costs

- 4.32 The bike renewal costs are calculated based on the assumption that lifespan of the bikes in maritime climate is five years, lower than average seven to ten years, owing to the maritime climate of the region and associated challenges with rust.
- 4.33 The current Brighton & Hove fleet of 600 bikes include 450 standard bikes, which were introduced in 2017 and hence need to be replaced in 2022/23. The remaining 150 bikes were added to the fleet in 2019/20 and should be replaced in 2024/25. We have also assumed that the current e-bikes which are being tested are not able to be brought into the existing BTN scheme due to challenges with charging the integrated batteries.
- 4.34 For Brighton & Hove, we have accounted for purchase of 180 e-bikes in 2021/22 (based on increase in recommended fleet size for the expanded scheme). Therefore, the old 450 standard bikes in Brighton & Hove are required to be replaced in 2022/23, with 210 e-bikes and 240 standard bikes to have a mixed fleet of standard bikes (50%) and e-bikes (50%).
- 4.35 The renewal cost of each bike includes unit cost of the bike and overhead costs (such as transportation) as explained in Table 4.1 and Table 4.2.
- 4.36 The renewal costs of bikes (including e-cargo bikes) for the first cycle of renewals for the **Option 1 – Expanded Brighton & Hove scheme** is set out in Table 4.12.

⁸ <https://www.transformative-mobility.org/assets/publications/The-Bikeshare-Planning-Guide-ITDP-Datei.pdf>

⁹ The operating costs in Year 1 (2021/22) for Brighton and Hove will be lower given that not all 390 e-bikes have been procured. These costs are realised from Year 2 (2022/23) when 50% of fleet consists of e-bikes.

Table 4.12: Renewal costs of bikes (first cycle) – Option 1: Expanded Brighton & Hove Scheme

	2022/23	2023/24	2024/25	2025/26	2026/27
Brighton & Hove					
Number of e-bikes	210				180
Total cost of e-bikes	£359,971				£308,546
Number of standard bikes	240		150		
Total cost of standard bikes	£343,696		£214,810		
Number of e-cargo bikes (for battery swapping)					5
Total cost of e-cargo bikes					£17,500
Total renewal costs	£703,667		£214,810		£326,046

- 4.37 For the other local authorities in the Joint City Region scheme, it is assumed that all standard bikes, e-bikes and e-cargo bikes are replaced every five years. Assuming initial purchase in 2021/22, replacement would take place in 2026/27, 2031/32, 2036/37 etc. The renewal costs for Adur and Worthing and Lewes are presented in Table 4.13.

Table 4.13: Renewal costs of bikes (first cycle 1 – 2026/27) – Adur and Worthing and Lewes

	Adur and Worthing scheme area	Lewes scheme area
Number of e-bikes	161	62
Total cost of e-bikes	£276,031	£106,298
Number of standard bikes	161	62
Total cost of standard bikes	£230,616	£88,809
Number of e-cargo bikes (for battery swapping)	2	1
Total cost of e-cargo bikes	£7,000	£3,500
Total renewal costs	£513,648	£198,607

- 4.38 The life span of the redistribution and service electric vehicles is assumed to be ten years, and therefore, need to be replaced in 2031/32 (assuming purchase in 2021/22).
- 4.39 The renewal costs of redistribution vehicles for the first cycle of renewals for each of the local authorities are presented in Table 4.14.

Table 4.14: Renewal costs of redistribution vehicles (first cycle 1 – 2031/32) – Brighton & Hove, Adur and Worthing and Lewes

	Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area
Number of EV redistribution vehicles	1	1	1
Cost of EV redistribution vehicles	£65,000	£65,000	£65,000
Number of service EV vehicles	2	1	1
Cost of service EV vehicles	£76,000	£38,000	£38,000
Total costs of redistribution vehicles	£ 141,000	£ 103,000	£ 103,000

- 4.40 The renewal costs set out above are in 2020 prices. A detailed breakdown of the renewal costs is included in [Chapter 7](#).

5 New scheme demand and revenue by option

Overview

- 5.1 In order to inform development of the business case for the two future scheme options, this chapter focusses on the estimating the following:
- Potential demand, for both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme**; and
 - Scheme revenue, for both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme**.

Potential demand

- 5.2 We have developed demand estimate for both expansion options considering the following factors as following:
- Demand for standard bikes; and
 - Demand for e-bikes.
- 5.3 This also presents variations in potential demand between Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme**.

Demand for standard bikes

- 5.4 The demand for standard bikes is evaluated based on evidence from the existing BTN BikeShare scheme usage. A large variation in trips is witnessed between peak summer months and winter months. About 2.6 trips were made per bike per day during the months of April – September, 2019, with peak demand reaching to 3.4 trips per bike per day in July 2019. This lowers to an average 1.2 trips per day per bike in between October 2019 – March 2020.
- 5.5 On average, about 2.1 trips per bike per day were made in Year 3 of the existing BTN BikeShare scheme (Feb 2019 – Jan 2020) using standard bikes. This in the range of demand seen in Transport for London’s Santander Cycles scheme (2.6 trips per bike per day) and Glasgow’s Nextbike scheme (1.9 – 2.7 trips per bike per day, in peak months) and higher than smaller schemes such as Milton Keynes or Bournemouth (<1 trip per bike per day).
- 5.6 Table 5.1 presents current level of use of bike share schemes in comparable cities to Brighton & Hove.

Table 5.1: Benchmarking trips per bike per day

	Milton Keynes	Watford	Bournemouth	Glasgow
Fleet Size	Standard bikes: 300	Standard bikes: 200 e-bikes: 25	Standard bikes: 1,000	Standard bikes: 710 e-bikes: 63
Annual number of Trips	50,000	60,000	~225,000 ¹⁰	
Average Daily Trips	140	165	830	
Trips per bike per day	0.5 trips	0.7 trips	0.83 trips (April - September)	1.9-2.7 trips (peak months)

- 5.7 In this analysis, we assume demand for standard bikes in the Brighton & Hove area to be similar to current levels of 2.1 trips per bike per day¹¹.
- 5.8 However, the level of bike usage in the adjoining local authority regions (Adur and Worthing and Lewes) for the Option 2: **Joint City Region scheme** is expected to be comparatively lower than current demand observed in Brighton & Hove, owing to lower potential demand in areas of relatively low population density, employment sites and/or key attractors. For our analysis we have assumed that demand in Lewes would be 50% lower as compared to Brighton & Hove, and 25% lower in Adur and Worthing (due to the better connectivity to the main scheme in Brighton & Hove).
- 5.9 It is important to note that the Joint City Region Scheme may not generate the expected demand from day 1 of the scheme – our demand assumptions are based on an established scheme.

Demand for e-bikes

- 5.10 E-bikes have the potential to generate more trips per bike as compared to standard bikes. While there is limited data from schemes in the UK, e-bikes in Barcelona are hired 50% more frequently than standard bikes in 2019. Given that the future scheme would have a mixed fleet of standard bikes (50%) and e-bikes (50%), the demand for e-bikes is likely to be higher than standard bikes.
- 5.11 We have made a conservative assumption on demand for e-bikes in our analysis – that number of **trips per e-bike per day would be 25% higher** compared to standard bikes for both scheme Options (i.e. 2.6 trips per e-bike per day compared to 2.1 trips per standard bike per day in Brighton & Hove).

¹⁰ Calculated as April – Sept has had 15,000 trips, using typical seasonality trends (Warmer half of the year, double as popular as colder half of the year), whole year calculated

¹¹ Review of scheme performance during COVID 19 (Feb 2020 – June 2020) suggests that while trips per day per bike has declined marginally, bikes are hired for a longer period keeping the revenue levels at par with same period last year. Moreover, demand has increased steadily during the summer months of 2020, following the seasonality trends as observed in previous years.

5.12 Table 5.2 and Table 5.3 present the assumption on trips per bike per day and demand estimates for the Option 1: **Expanded Brighton & Hove Scheme**¹² and Option 2: **Joint City Region Scheme** respectively.

Table 5.2: Bike share demand estimates – Option 1: Expanded Brighton & Hove Scheme

	Brighton & Hove
Trips per day per standard bike	2.1
Number of standard bikes	390
Annual number of trips by standard bikes	298,935
Trips per day per e-bike	2.6
Number of e-bikes	390
Annual number of trips by e-bikes	373,669
Total annual number of trips	672,604

Table 5.3: Bike share demand estimates – Option 2: Joint City Region Scheme

	Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area	Joint City Region
Trips per day per standard bike	2.1	1.2	1.1	1.9
Number of standard bikes	390	161	62	856
Annual number of trips by standard bikes	298,935	92,555	23,762	415,252
Trips per day per e-bike	2.6	2.0	1.3	2.4
Number of e-bikes	390	161	62	367
Annual number of trips by e-bikes	373,669	115,694	29,702	519,065
Total annual number of trips	672,604	208,248	53,463	934,315

Scheme revenue

5.13 Similar to the demand estimates, user revenue for the two new scheme options considers two factors as following:

- Revenue from standard bikes; and
- Revenue from e-bikes.

Revenue from standard bikes

5.14 Annual revenue estimate from standard bikes is based on the review of existing BTN BikeShare scheme. Total user revenue in Year 3 of the existing BTN BikeShare scheme was

¹² The annual number of trips in Year 1 (2021/22) for Brighton and Hove will be lower given that not all 390 e-bikes have been procured (there are 600 standard bikes, and 180 e-bikes only). These number of trips are realised from Year 2 (2022/23) when 50% of fleet consists of e-bikes.

██████████ from approximately ██████████ trips. This gives the average yield per trip to be about ██████████

5.15 In this analysis, we assume average yield per trip by standard bikes to be ██████████ for Brighton & Hove as well as adjoining local authority areas, based on the assumption that the share in number of trips by annual users and casual users in total trips would remain the same.

Revenue from e-bikes

5.16 Based on the review of existing tariffs across other schemes and our recommendations on the tariff for the future scheme for both Option 1: **Expanded Brighton & Hove Scheme**¹³ and Option 2: **Joint City Region Scheme**, the analysis assumes that average yield per e-bike trip would be approximately 40% higher than standard bikes (as per assumed tariff in [Chapter 3](#)), i.e. ██████████ trip for e-bikes.

5.17 Table 5.4 and Table 5.5 summarises our estimates on total user revenue generated from Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** respectively.

Table 5.4: Bike share user revenue summary – Option 1: Expanded Brighton & Hove Scheme

Part redacted

	Brighton & Hove
Total annual user revenue	£728,701

Table 5.5: Bike share user revenue summary – Option 2: Joint City Region Scheme

Part redacted

	Brighton & Hove	Adur and Worthing scheme area	Lewes scheme area	Joint City Region
Total annual user revenue	£728,701	£225,617	£57,922	£1,012,241

5.18 It is important to note that additional revenue could be generated from scheme sponsorships. It is however, not considered in this section and potential for additional revenue through sponsorship/s and or adverts is explored in [Chapter 8 – Financial Case](#).

¹³ The annual revenue in Year 1 (2021/22) for Brighton and Hove will be lower given that not all 390 e-bikes have been procured (there are 600 standard bikes, and 180 e-bikes only). These revenue numbers are realised from Year 2 (2022/23) when 50% of fleet consists of e-bikes.

6 Strategic case

Overview

- 6.1 This section on strategic case presents the case for the re-contracting of the existing BTN BikeShare scheme for expansion to include Option 1: **Expanded Brighton & Hove Scheme**, or Option 2: **Joint City Region Scheme**.
- 6.2 The Strategic case structure is as follows:
- **Policy review:** this sets out the national, regional and local context which frames the need for the scheme;
 - **Evidence base:** this draws insights from social, environmental, economic and transport datasets to show that there is a case for changes;
 - **Need for intervention:** this summarises how the policy review and evidence demonstrate that there is sufficient demand and a policy context that would support intervention; and
 - **Option assessment:** this sets out the different options for addressing the need for intervention and assesses it against the objectives of intervention.

Policy review

- 6.3 This section sets out the policies which directly relate to the Brighton & Hove bike share scheme. There are several pertinent policy and strategy documents that could be reviewed to demonstrate support for bike share systems and increasing cycling's mode share. To ensure the review remains focussed on the BTN BikeShare scheme specifically, the policy review is structured around five key objectives:
- Zero Carbon;
 - Health and Wellbeing;
 - Equality and Inclusion;
 - Sustainable travel; and
 - Covid-19 Response / Resilience.
- 6.4 Our review of each of the five objectives includes a national overview, regional overview (which includes the wider objectives relevant in Option 2: Joint City Region Scheme) and local overview (which includes the local objectives relevant in Option 1: Expanded Brighton & Hove Scheme).
- 6.5 Table 6.1 below details all documents which have been included in the review, though some are more relevant than others, and the relevance of each varies between the five objectives. Whilst the local policy documents are limited to only Brighton & Hove, policy of neighbouring authorities is in alignment with the City Council's key messages.

Table 6.1: Policy and Strategy documents included in the policy review

National
<ul style="list-style-type: none"> Decarbonising Transport: Setting the Challenge (Department for Transport, 2020) Net Zero: The UK's contribution to stopping global warming (Committee on Climate Change, 2019) Clean Air Strategy (Department for Environment, Food and Rural Affairs, 2019) Future of Mobility: Urban Strategy (Department for Transport, 2019) The Road to Zero Strategy (HM Government, 2018) A Green Future: Our 25 Year Plan to Improve the Environment (HM Government, 2018) Transport Investment Strategy (Department for Transport, 2017) Cycling and Walking Investment Strategy (Department for Transport, 2017)
Regional
<ul style="list-style-type: none"> Transport Strategy (Transport for the South East, 2020) Local Industrial Strategy (Coast to Capital Local Enterprise Partnership, emerging 2020) Gatwick 360 Strategic Economic Plan (Coast to Capital Local Enterprise Partnership, 2018)
Local
<ul style="list-style-type: none"> Brighton & Hove Corporate Plan (Brighton & Hove City Council, 2020) Brighton & Hove Local Transport Plan 5 (Brighton & Hove City Council, emerging 2020) Urgent Response Transport Action Plan and Policy Framework (Brighton & Hove City Council, 2020) Interim Covid-19 Response Local Cycling and Walking Infrastructure Plan (Brighton & Hove City Council, 2020) 2030 Carbon Neutral Programme (Brighton & Hove City Council, 2019) Brighton & Hove Joint Health and Wellbeing Strategy 2019-2030 (Brighton & Hove City Council, 2019) Brighton & Hove City Plan, Part One (2016) and Part Two (emerging 2020, Brighton & Hove City Council) Brighton & Hove Local Transport Plan 4 (Brighton & Hove City Council, 2015)

Zero Carbon

National

- 6.6 Achieving net-zero carbon by 2050 has emerged as a target across several national policy documents. It was by the Committee on Climate Change in 2019 in their **Net Zero: The UK's contribution to stopping global warming**. It is believed the goal sets a precedent for other developed nations, whilst being suitably ambitious to identify the UK as a global. Transport based emissions are one of the recognised sources and the report recommends shifting from car to cycling, particularly for short journeys, as just one of the near-term actions for individuals to contribute to achieving net-zero ambitions. This action is reiterated as a principle in the Department for Transport's **Future of Mobility: Urban Strategy**.
- 6.7 More recently, the Department for Transport's (DfT's) **Decarbonising Transport: Setting the Challenge** report stated that policies are required to ensure that carbon emissions are reduced and outlined six strategic priorities to support this. The first of these priorities, concerned with accelerating modal shift to public transport and active modes, supports the extension of schemes such as bike share. Providing the infrastructure and therefore some ease in shifting modes will play a significant part in achieving a meaningful modal shift.
- 6.8 Other strategic priorities relate to decarbonising road vehicles and freight, and this is something recognised in the **Clean Air Strategy, Road to Zero Strategy** and **Transport Investment Strategy**. The first of these strategies contains identified action areas which include protecting the environment and reducing emissions from transport. The former two

both outline the aim for 50-70% of new car sales to be ultra-low emission vehicles (ULEVs) by 2030 and are supportive of Clean Air Zones (CAZs). All three of the documents support a modal shift from private cars to sustainable and active modes. Further, one of the ten identified goals in the Government's **A Green Future: A 25 Year Plan to Improve the Environment** is 'clean air' and there is a commitment to encouraging greater use of cleaner transport options, cycling included, in efforts to achieve net-zero ambitions.

Regional

- 6.9 In line with national policy, the net-zero carbon target of 2050 is also present at the regional level. As well as the priority to achieve net-zero emissions by 2050, the **Transport Strategy for the South East** includes priorities covering improved connectivity, more reliable journeys, promoting active travel, reducing the need to travel by car and improved air quality supported by reduced congestion and modal shift. An extension to the BTN BikeShare scheme would support the achievement of these priorities by encouraging cycling as a mode, and in turn contribute to the 2050 target.
- 6.10 The Coast to Capital Local Enterprise Partnership (LEP) has not yet published its Local Industrial Strategy (LIS). However, it is in development and the Draft Economic Profile that is supporting the production recognises that transport accounts for the majority of carbon emissions. The LEP's existing Strategic Economic Plan (SEP) includes a priority to promote better transport and mobility. Whilst there is a focus on large scale rail projects and regional connectivity, there is also mention of the importance and ambition of low carbon. In response to the recent net-zero targets, it is expected that the low carbon ambition will be advanced to net-zero carbon and integrated in the emerging LIS.

Local

- 6.11 Brighton & Hove City Council have a more ambitious target, with a goal to achieve net-zero carbon emissions by 2030. The recently adopted **Corporate Plan** as well as the emerging **Fifth Local Transport Plan (LTP5)** are supportive of this target, and recognise that a modal shift from private car use (and carbon emitting public transport modes) to walking and cycling is necessary if the target is to be met. In recognition of this, the core objective of the **2030 Carbon Neutral Programme** is to develop a coordinated programme of projects to enable the city to transition and become carbon neutral by 2030. Though the **City Plan Part One** pre-dates net-zero carbon ambitions, it is supportive of low carbon city and it is anticipated that the emerging **City Plan Part Two** will align with the 2030 targets.

Health and Wellbeing

National

- 6.12 National policy recognises that increasing the number of the journeys individuals make by active modes is not only beneficial to the environment, but also to their own physical and mental health. As an example, one of the identified action areas within the **Clean Air Strategy** is to protect the nation's health, in recognition that poor air quality is an issue which needs to be tackled for public health, as well as for the environment. This is also recognised in the **Road to Zero Strategy**.
- 6.13 **A Green Future: Our 25 Year Plan to Improve the Environment** acknowledges the benefits that can emerge from connecting people with green space; encouraging greater use of active modes and hence, more time in the natural environment is a method to do this. **Net-Zero: The UK's contribution to stopping global warming** and the **Future Mobility: Urban Strategy** also

recognise the health benefits that can emerge from cycling. They are listed in the latter to include the prevention of life-threatening conditions, significantly lower levels of air pollution exposure and lower risks of developing both cancer and heart disease compared to commuting by car or public transport when travelling the same urban routes. The latter also supports the use of well-managed bike schemes to widen access to the health and wellbeing benefits cycling has to offer; BTN BikeShare is an example of one of these schemes.

- 6.14 The **Cycling and Walking Investment Strategy** also points to the substantial health and wellbeing benefits that cycling can enable for individuals both physically and mentally, and the secondary benefits for businesses through increased productivity and reduced absenteeism, and for society and the environment, enabling improved air quality. The Strategy is also supportive of the various health campaigns across England such as Public Health England's Everybody Active, Every Day, the Department for Health's Childhood Obesity: A Plan for Action and NHS: Healthy New Towns.

Regional

- 6.15 There are three strategic goals contained within the **Transport Strategy for the South East**. Of relevance here is the social goal: improve health, safety, wellbeing, quality of life, and access of opportunities for everyone. To achieve the goal, several priorities are set out and importantly this includes measures to promote active travel and lifestyles, improve air quality and promote a transport network that is safe for all with no fatalities or serious injuries.

Local

- 6.16 At the local level, the importance of the health and wellbeing of the city is evident throughout their policy documents. One of the City Council's **City Plan Part One** vision points is to have healthy and balanced communities. The associated CP18 Healthy City policy promotes healthier lifestyles and active living for all. The emerging **LTP5** contains a policy measure to raise awareness of the health benefits of active travel to encourage greater uptake. The Council also has a dedicated **Health and Wellbeing Strategy**. It states that Brighton & Hove will be a place which helps people to be healthy. One measure to ensure this is prioritising walking and cycling to get more people travelling actively, benefitting physical and mental health.
- 6.17 The City Council's **Action Plan** in response to Covid-19 and its impacts also acknowledges the health benefits and in response includes a priority measure being for a programme for School Streets in the city, to support safe reopening of all primary and nursery schools, subject to feasibility in highway terms.

Equity and Inclusion

National

- 6.18 The importance of equity and inclusion is highlighted across national policy documents. The **Cycling and Walking Investment Strategy** promotes better links to schools, workplaces and communities, cycle training opportunities for all children and better integrated routes for those with disabilities or health conditions. Further, one of the principles in the **Future of Mobility Urban Strategy** which promotes an inclusive transport strategy is that the benefits of innovation in mobility must be available to all parts of the UK and all segments of society and is therefore supportive of extending the BTN BikeShare scheme. The **Transport Investment Strategy** also supports improving access to cycling for all.

Regional

- 6.19 As mentioned, there are three strategic goals contained within **Transport Strategy for the South East**. Of relevance here is again the social goal: improve health, safety, wellbeing, quality of life, and access of opportunities for everyone. To achieve the goal, several priorities are set out including forming an affordable and accessible transport network for all that promotes social inclusion and reduces barriers.

Local

- 6.20 Again, the **City Plan Part One healthy and balanced communities** vision point is relevant here. It recognises that healthier lifestyles should be attainable for all and promotes the use of physically active modes for all age groups.
- 6.21 One of the policy measures contained in the emerging **LTP5** is the extension of the bike share scheme in Brighton, both in geographical coverage and the number of bikes in circulation. It is noted that doing so will provide more individuals with the opportunity to cycle for their journeys. Importantly, this also includes the provision of e-bikes which will enable some of those who currently feel excluded, to participate in travelling by active modes. This will support in achieving the Plan's objective to remove barriers to active modes and enable people of all ages and abilities to travel easily and independently.

Sustainable transport

National

- 6.22 In line with the aim to achieve net-zero carbon by 2050, the national policy documents discussed above support a modal shift from the private car to sustainable travel modes. In them, sustainable transport is considered to be low-emission private transport, such as ULEVs, public transport and also active modes and support and encouragement for increasing their usage is demonstrated in various ways.
- 6.23 Whilst **A Green Future: Our 25 Year Plan to Improve the Environment** supports the development of new homes in areas where active modes can be encouraged, the **Transport Investment Strategy** supports the promotion and funding of schemes that encourage cycling to support reductions in congestion. The **Future of Mobility: Urban Strategy** and **Net Zero: The UK's contribution to stopping global warming** support the use of active modes for short journeys and the **Cycling and Walking Investment Strategy** identified £1.2b available for investment in cycling and walking between 2016 and 2021 in an effort to double the level of cycling by 2025 and achieve their ambition to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey.

Regional

- 6.24 As mentioned previously, the **Transport Strategy for the South East** promotes active travel, reducing the need to travel by car and sets out actions to improve air quality, for example through reduced congestion brought about by modal shift. The LEP's existing **SEP** does recognise the requirement for sustainable growth and allocating investment accordingly. Though there is some general acknowledgment of increasing use of sustainable modes, in terms of transport sustainable growth is largely focused on low emission vehicles, and as mentioned, regional connectivity.

Local

- 6.25 At the local level, the importance of providing a sustainable transport network is evident. The **City Plan Part One** has four vision points, one of which is to be a sustainable city. The vision statement of the **Corporate Plan** is ‘a fairer city, a sustainable future’. Both plans demonstrate that the City Council is in favour of increasing the use of sustainable modes and policies include.
- 6.26 **LTP4** and the emerging **LTP5** also encourage the use of sustainable and active modes. Whilst measures do cover public transport modes, there are specific cycling policy measures in response to desires to ensure walking or cycling is the natural choice for short journeys or part of a longer journey and to build on the success of BTN Bikeshare. These cover cycle lane improvements, implementing new cycling facilities and extending the BTN BikeShare scheme, both geographically and increasing the number of bikes available.

Covid-19 Response / Resilience

National

- 6.27 Throughout the lockdown period and still whilst we are emerging from the countrywide lockdown, the government’s message has been to walk or cycle for our journeys whenever possible. Whilst a specific Covid-19 strategy has not emerged at the national level, the government has fast-tracked some strategies and funding opportunities which seek to address and support the modal shift and new preferences that have emerged in response to Covid-19.

Regional

- 6.28 In keeping with its long-term outlook, the sub-national transport body is continuing to operate as expected pre-Covid-19 and no new strategies or policies have emerged in response to the pandemic. Several documents have been published at the local level, in keeping with shorter term outlook of the Local Authority; these are discussed below.
- 6.29 In recent months, the Coast to Capital LEP has been allocated £19.2 million through the government’s Getting Building Fund. The fund is intended to support the delivery of jobs, skills and infrastructure across the country and is being targeted in areas facing the biggest economic challenges as a result of the pandemic. Whilst this does not provide any direct funding to the bike share scheme, the inclusion of cycle lane improvements demonstrates that the LEP recognises the need to lock-in the increasing desires to cycle that have emerged as a result of the pandemic.

Local

- 6.30 Much of the policy in response to Covid-19 has emerged at the local level, and Brighton & Hove City Council have been active in updating and producing necessary plans and documents.
- 6.31 In May 2020 Brighton & Hove City Council published its **Urgent Response Transport Action Plan** (the ‘Action Plan’) and policy framework in response to Covid-19 and its impacts. This seeks to mitigate the negative impacts of the public health crisis, as well as providing safer means for people to travel and to support economic recovery. This is principally through plans to re-allocate road space for active travel (e.g. walking and cycling), which will not only help the city to respond to the next phase of the pandemic but will also promote healthy and active living to enable the city become more resilient for the future. The Action Plan was updated in June 2020 to report on progress and incorporate recommended measures set out in the

Interim Covid-19 Response Local Cycling and Walking Infrastructure Plan (the ‘**Interim LCWIP**’).

- 6.32 The Action Plan set out a number of measures related to cycling, including:
- the changing of Madeira Drive to one-way eastbound traffic from Aquarium Roundabout, to provide more outdoor space for active modes and reduce the safety risk during lockdown;
 - improvements to cycling facilities (e.g. between Stanford Avenue and the A23, the cycle lane north of Preston Park and from west of the Shelter Hall);
 - implementing new facilities (e.g. a protected cycle facility between the A23 and Cheapside, on the A270 – Shoreham Road with lining, signage and light segregation and on A259 Marina Parade);
 - signage improvements;
 - increased cycle parking hubs.
- 6.33 Of specific relevance to BTN BikeShare, the Action Plan also set out measures to provide six new bike share hubs across the city and to make the scheme free to NHS staff and council-contracted care staff during the pandemic.
- 6.34 The development of **LTP5** began pre Covid-19 and has been adapted to ensure alignment with the City Council’s Action Plan. Both recognise the increasing preference to travel by ‘private’ modes of transport during the lockdown period and seek to lock-in this trend for walking and cycling, whilst at the same time, discouraging use of private cars and encouraging the use of sustainable public transport (under safe, Covid-19 precautions). Two of the key cycling related policy measures include locking in the freed-up highway capacity from Covid-19 and re-allocating road space for cycling and walking and, importantly, the extension of bike share / e-bike hire, both in geographical coverage and the number of bikes in circulation.

Evidence base

Zero Carbon

- 6.35 Cycling offers a zero-emission travel alternative with relatively competitive journey times in an urban context when compared to both private cars and public transport, both of which contribute to the UK’s transport emissions.
- 6.36 The latest CoMoUK annual bike share user survey results revealed that 17% of users in the survey had used bike share to replace car trips. Further, 27% of bike share commuters had previously commuted by car. Such mode shifts contribute to reductions in carbon emissions and support the net-zero emissions target.

Health and Wellbeing

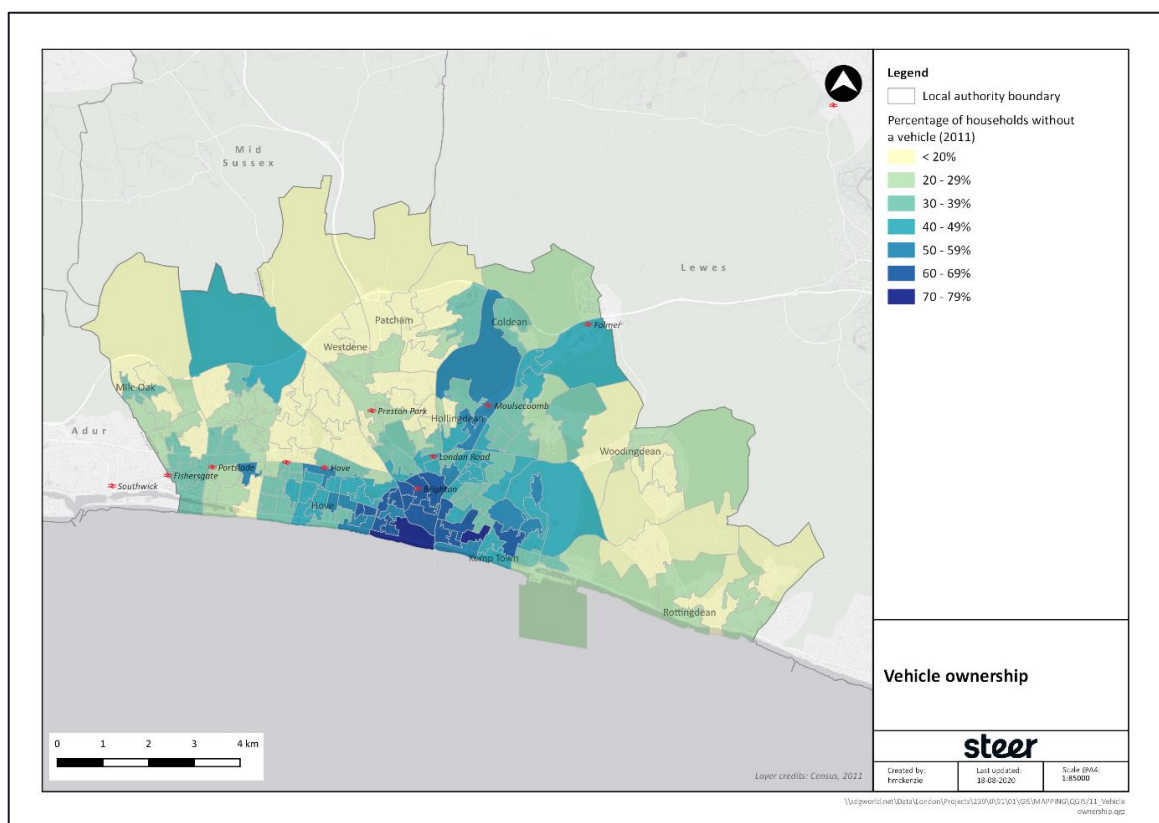
- 6.37 An active lifestyle is considered one of the key determinants of health (among other factors). Positively, in Brighton almost three-quarters (74%) of adults do achieve 150+ minutes of physical activity per week (based on 2017-18 data), higher than percentages achieved in both the South East (67%) and England (63%).
- 6.38 However, for over one in six residents (16%), their day to day activities are limited due to a long-term health problem or disability, in line with figures for the South East and England. Further, whilst now dated, the results from the 2012 Active People survey suggested that around half (49%) of the population are overweight or obese. Though significantly lower than England (64%), projections suggest that if action is not taken, 60% of men and 50% of women

will be obese by 2050. Encouraging the incorporation of active travel, making walking and cycling a normal daily activity for either leisure or commuting purposes, has the potential to change this trajectory.

Equality and Inclusion

- 6.39 Over one-third (38%) of households in the city do not own a car, significantly higher than the South East at 17% and England at 26%). Figure 6.1 below illustrates at a Lower Super Output Area (LSOA) level the geographical distribution of the percentage of households which do not have access to a private car. It shows that a percentage city centre generally over 60% of households do not have access. This is understandable given the limited residential car parking availability and the proximity to public transport options and the employment and leisure locations in Brighton City Centre which can be reached using active modes residents, including the existing BTN BikeShare.
- 6.40 It shows that there are also households in the suburbs of the district which do not own a private car. This includes areas to the west and north-east. Whilst Brighton’s population is served by a good public transport network and has high public transport usage (16% for travelling to work compared with 11% nationally), it can be an expensive mode of transport to some residents.

Figure 6.1: Percentage of households without access to a vehicle (Census, 2011)

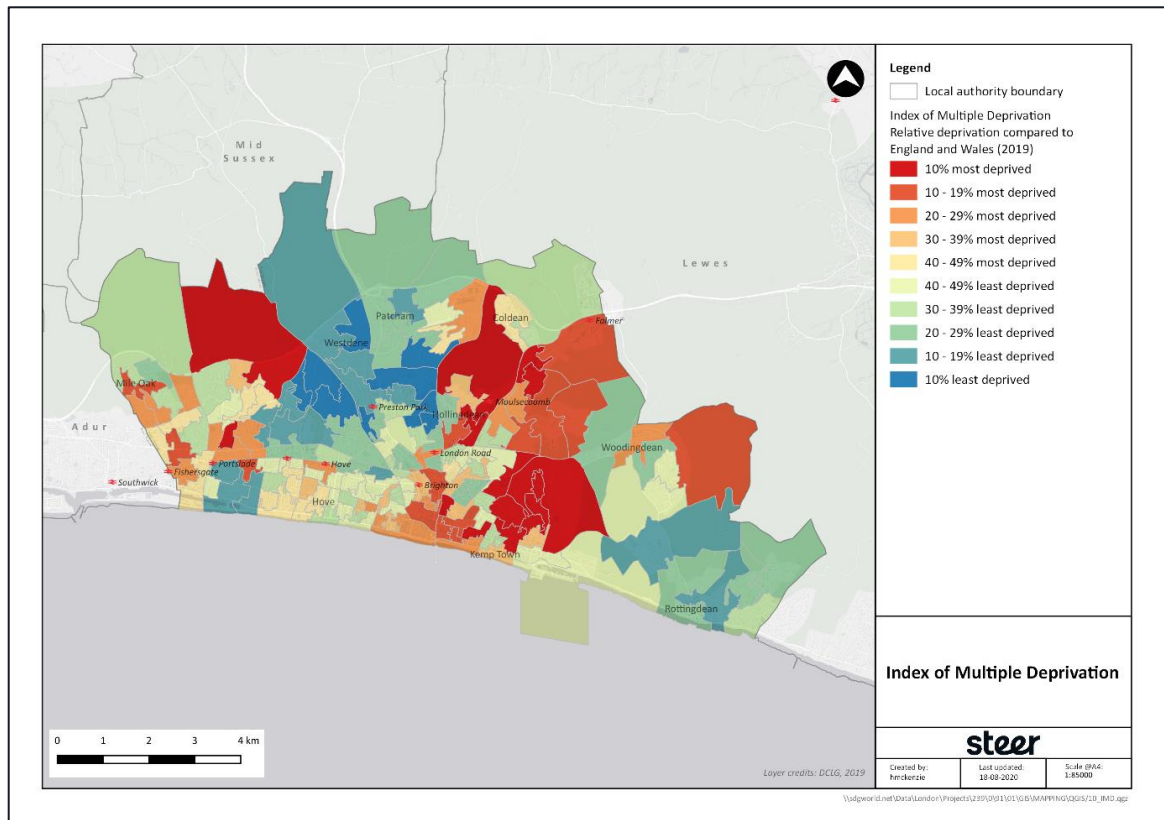


- 6.41 The Indices of Multiple Deprivation (IMD) provide a useful insight into the socioeconomic characteristics of the community. The IMD are a set of relative measures of deprivation for small areas in England, based on seven domains of deprivation, weighted to produce the overall index. The domains are income deprivation, employment deprivation, education, skills and training deprivation, health and disability deprivation, crime, barriers to housing and services and living environment deprivation.

6.42 Figure 6.2 below illustrates the 2019 data at LSOA level and demonstrates that the level of deprivation experienced in Brighton & Hove varies significantly across the district. It shows that:

- There is a correlation between the level of deprivation and car ownership (the affluent areas generally have a lower percentage of households without access and vice-versa).
- Some of the most deprived areas are outside the city centre in places where residents rely on modes alternative to the private car and whilst travelling on foot is an option for most, it is not always the case for cycling as there are some associated costs.

Figure 6.2: IMD (DCLG, 2019)



6.43 Figure 6.3 illustrates the geographical coverage of the Existing BTN Scheme and the location of hubs. Whilst the scheme covers some of the most deprived areas with lower vehicle ownership, the geographical spread of the hubs is concentrated in the city centre, with clusters both east and west running parallel with the seafront. This limits the existing attraction and accessibility of the scheme to these more deprived sections of the population.

Figure 6.3: Existing extent of the BTN BikeShare¹⁴



Sustainable transport

- 6.44 Brighton & Hove has good public transport accessibility and high usage, with 16% commuting by public transport, compared to the national average of 11%. The district has the highest bus usage per population of any city in England outside London according to DfT statistics. Further, 2011 Census data shows that the percentage of Brighton & Hove's population commuting on foot (14%) is double the national average and those travelling by car represents only 27% compared to 40% nationally. This demonstrates there is some desire to travel via sustainable modes.
- 6.45 However, in 2011 only 3% of residents commuted by bike. This is despite the 38 km of designated cycle routes and the fact that over one-third (38%) of households in the city do not own a car. Policies at all levels of government demonstrate support for increasing sustainable transport's modal share and increasing the opportunities to access sustainable modes is crucial if targets are to be met.

Covid-19 Response / Resilience

- 6.46 Although analysis by the Office of National Statistics has demonstrated that headline labour market indicators show that positively, employment increased slightly in the three months to April 2020, some indicators are beginning to show the impacts of the pandemic. The number of vacancies and average actual hours worked fell sharply in different industries and though the job retention schemes appear to have shielded the labour market from rising unemployment and increasing redundancies, based on the data available to date, and such schemes coming to an end, this is unlikely to continue.
- 6.47 As the impacts of the nationwide lockdown continue to materialise, an increase in unemployment is expected, bringing about difficult financial situations to those impacted.

¹⁴ <https://www.btnbikeshare.com/>

Therefore, more than ever, it is important for the city planning to respond to the challenges, ensuring there is an accessible and affordable option of travel for all.

Need for intervention

- 6.48 The Existing BTN Scheme is a successful scheme in Brighton & Hove, but it is limited by both its geographical coverage and size. Together, the policy review and evidence base indicate the need for intervention.
- 6.49 The key message highlighted throughout policy is the ambition to achieve net-zero carbon emissions. As Brighton & Hove has set itself a stricter target than the rest of the UK – to achieve net-zero carbon by 2030 – action is necessary to ensure the goal is achieved. Doing so will be heavily reliant on individuals adopting the use of zero-emission modes for their business, commuting and leisure journeys.
- 6.50 Increased adoption of active and sustainable travel modes will support the achievement of not only the zero-carbon objective, but also, health and wellbeing and equality and inclusion. Along with walking, low-emission public transport and ULEVs, cycling is one of the most sustainable modes of transport offered in urban areas. Arguably, walking and cycling offer greater sustainability as they do not contribute to carbon emissions or congestion on the road network. Getting more residents taking more of their everyday journeys by active modes will increase the likelihood of the 2030 target being achieved.
- 6.51 Further, among all modes of transport available, cycling is arguably one of the most inclusive options, perhaps second to walking. Though it is recognised that cycling is not an option for all, for example the elderly or individuals with a disability, it does offer an option for those not old enough to obtain a driver's license and is relatively low cost compared to public transport and driving, especially when the costs of insurance, MOTs and repairs are factored in. Extending the scheme will put a higher proportion of the district's population within an accessible distance of a hub, enabling greater travel by bicycle whilst withdrawing the need to own a bike.
- 6.52 This will enable a higher proportion of the city's residents, and potentially residents of neighbouring local authorities dependent on the scope of the scheme, to receive the health benefits. As an active mode, the benefits of cycling for physical health are widely known, and in recent years, the benefits to an individual's mental wellbeing have become increasingly prominent.
- 6.53 Given Brighton & Hove's young population (21% aged 20 – 29 compared to 13% nationally), the district is likely to have a higher proportion of its residents able to, and with a desire to, travel by bicycle and make use of an extended bike share system. The younger population makes it more adaptable to change and climate related initiatives, specifically the bike share system, as cycling is generally more accessible to them.

Options

- 6.54 A number of options have been developed to address the need for intervention and scheme objectives. In Table 6.2, Option 1: **Expanded Brighton & Hove Scheme** has been described along with an assessment of the strategic fit with scheme objectives. The option is an extension of the existing BTN BikeShare scheme across Brighton & Hove. Table 6.3 presents the alternative Option 2: **Joint City Region Scheme** which includes the option presented in Table 6.2, plus extension to the coastal and western and eastern areas of Lewes district and Adur and Worthing district, respectively. The benefits for each of the options are largely the

same in type, but differ in scope depending on the extent of their coverage, and number of new bikes proposed per 1,000 of the population, as explained in assessment below. The economic assessment of the options is provided in [Chapter 7: Economic case](#).

Table 6.2: Description and strategic assessment – Option 1: Expanded Brighton & Hove Scheme

Brighton & Hove	
Description	Increasing the existing fleet from 600 standard bikes across 73 hubs to 780 bikes across 78 hubs. This will include 50% new e-bikes and an increase in the geographical coverage from 41 sq. km to 104 sq. km. Number of bikes per 1,000 population would be 2.7 (as is the case of the existing BTN BikeShare scheme).
Fit with scheme objectives	
<i>Zero Carbon</i>	Minor positive. Increasing the scope of the existing scheme increases accessibility of Brighton & Hove's population to a zero carbon mode, supporting net zero carbon ambitions through modal shift.
<i>Health and Wellbeing</i>	Minor positive. The extension of the existing scheme increases the percentage of the population within a reasonable distance to access the scheme and benefit from the active mode.
<i>Equality and Inclusion</i>	Material positive. The extension of the existing scheme [to 104 sq.km.?] will increase the percentage of the population within a reasonable distance to access the scheme, increasing the equality of access to one of the most inclusive transport modes. The addition of e-bikes also increases inclusivity associated with the existing scheme.
<i>Sustainable transport</i>	Minor positive. Increasing the scope of the existing scheme increases accessibility of Brighton & Hove's population to sustainable modes, supporting zero-carbon ambitions through modal shift.
<i>Covid-19 Response / Resilience</i>	Minor positive. The scheme will enable residents to travel by a 'private' transport mode, whilst avoiding use of the private car and enabling the reduced car use and resultant congestion which has emerged in response to the Covid-19 lockdown to be 'locked in'.

351

Table 6.3: Joint City Region Option - Description and Strategic Assessment

Option	Brighton & Hove	Adur and Worthing	Lewes	Joint City Region
Description	Increasing the existing fleet from 600 standard bikes across 73 hubs to 780 bikes across 78 hubs. This will include 390 new e-bikes and an increase in the geographical coverage from 41 sq. km to 104 sq. km. Number of bikes per 1,000 population would be 2.7 (as is the case of the existing BTN BikeShare scheme).	Extending the Existing BTN Scheme to eastern and coastal areas of Adur and Worthing district. The scheme would cover 47 sq. km. with 321 bikes available across 32 hubs. Number of bikes per 1,000 population would be 2.0.	Extending the existing BTN BikeShare scheme to western and coastal areas of Lewes district. The scheme would cover 42 sq. km. with 124 bikes available across 13 hubs. Number of bikes per 1,000 population would be 2.0.	Extending the Existing BTN Scheme across the three districts. The scheme would cover 193 sq. km. with 1,223 bikes available across 123 hubs. Number of bikes per 1,000 population would be 2.4.
Fit with scheme objectives				
<i>Zero Carbon</i>	Minor positive. Increasing the scope of the existing scheme increases accessibility of Brighton & Hove's population to a zero carbon mode, supporting net zero carbon ambitions through modal shift.	Material positive. A new scheme for the district which provides the population with a zero carbon mode, supporting net zero carbon ambitions through modal shift.	Material positive. A new scheme for the district which provides the population with a zero carbon mode, supporting net zero carbon ambitions through modal shift.	Material positive. A scheme which encompasses the Joint City Region enables more residents across the three districts to have increased accessibility to zero carbon modes, supporting zero-carbon ambitions through modal shift.
<i>Health and Wellbeing</i>	Minor positive. The extension of the existing scheme increases the percentage of the population within a reasonable distance to access the scheme and benefit from the active mode.	Material positive. A new scheme for the district which provides the population with an active mode of travel, providing health benefits to users.	Material positive. A new scheme for the district which provides the population with an active mode of travel, providing health benefits to users.	Material positive. A scheme which encompasses the Joint City Region enables more people to travel by active modes, increasing the level of health benefits delivered by the scheme.
<i>Equality and Inclusion</i>	Material positive. The extension of the existing scheme beyond Brighton & Hove to include adjoining local authority areas will increase the percentage of the population within a reasonable distance to access the	Material positive. The increased geographical scope and size of fleet, including e-bikes increases accessibility to, and inclusivity of, sustainable modes.	Material positive. The increased geographical scope and size of fleet, including e-bikes increases accessibility to, and inclusivity of, sustainable modes.	Material positive. A scheme which encompasses the Joint City Region enables more people to have access to the scheme, no matter their geographical location across the three districts.

352

Option	Brighton & Hove	Adur and Worthing	Lewes	Joint City Region
	scheme, increasing the equality of access to one of the most inclusive transport modes. The addition of e-bikes also increases inclusivity associated with the existing scheme.			
<i>Sustainable transport</i>	Minor positive. Increasing the scope of the existing scheme increases accessibility of Brighton & Hove's population to sustainable modes, supporting zero-carbon ambitions through modal shift.	Material positive. The increased geographical scope and size of fleet, including e-bikes increases accessibility to, and encourages use of, a sustainable transport mode.	Material positive. The increased geographical scope and size of fleet, including e-bikes increases accessibility to, and encourages use of, a sustainable transport mode.	Material positive. A scheme which encompasses the Joint City Region enables more people to travel by sustainable modes, increasing the level of health benefits delivered by the scheme.
<i>Covid-19 Response / Resilience</i>	Material positive. The scheme will enable residents to travel by a 'private' transport mode, whilst avoiding use of the private car (including cross-city work/ leisure trips) and enabling the reduced car use and resultant congestion which has emerged in response to the Covid-19 lockdown to be 'locked in'.	Material positive. The scheme will enable residents to travel by a 'private' transport mode, whilst avoiding use of the private car (including cross-city work/ leisure trips) and enabling the reduced car use and resultant congestion which has emerged in response to the Covid-19 lockdown to be 'locked in'.	Material positive. The scheme will enable residents to travel by a 'private' transport mode, whilst avoiding use of the private car (including cross-city work/ leisure trips) and enabling the reduced car use and resultant congestion which has emerged in response to the Covid-19 lockdown to be 'locked in'.	Material positive. The scheme will enable residents across the three districts to travel by a 'private' transport mode, whilst avoiding use of the private car (including cross-city work/ leisure trips) and enabling the reduced car use and resultant congestion which has emerged in response to the Covid-19 lockdown to be 'locked in'.

7 Economic case

Overview

- 7.1 This chapter discusses the Economic Case for the new scheme, for both Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme**, including Adur and Worthing and Lewes, summarises the economic performance of the options through estimating the benefit – cost ratio (BCR). The costs and benefits that have been considered and quantified for the appraisal are outlined, including an explanation of the rationale behind their inclusion in the appraisal, the methodology followed for their quantification and the assumptions made for the process.
- 7.2 In addition to the economic assessment of the Central case, multiple sensitivity tests have been undertaken to understand the robustness of the Value for Money of the scheme and its sensitivity to changes to the appraisal assumptions.
- 7.3 The assessment approach is a proportionate application of Department for Transport’s modelling and appraisal guidance as set out in TAG.
- 7.4 The assumed appraisal period is 20-years, with 2021/22 as the start year.

Do Minimum and Do Something scenarios

- 7.5 For the purposes of the Economic Case for Brighton & Hove, the Do Minimum scenario has been assumed to be the re-letting of the current contract. The two Do Something (DS) option scenarios have been defined, as per below:
- Do Something Option 1: **Expanded Brighton & Hove Scheme**; and
 - Do Something Option 2: **Joint City Region scheme**. This includes the DS1 scenario above and the expansion of the bike share system to Adur and Worthing and Lewes.
- 7.6 The performance of scheme options has also been assessed at the level of each local authority with results disaggregated by LA area. The results are presented in this section for each of the Do Something Option scenarios above.
- 7.7 The Do Minimum, or counterfactual scenario, which the scheme has been assessed against, is equivalent to the existing service in Brighton & Hove and a Do Nothing for Adur and Worthing and Lewes.

Scheme costs

Capital costs

- 7.8 Capital costs considered in the economic assessment of the scheme include the cost of purchasing the required bikes for the system expansion in 2021/22 and the costs of new bike hubs, spares and parts and mobilisation costs.
- 7.9 Table 7.1 shows the estimated capital costs for each Do Something scenario (detailed breakdown presented in Table 4.8 and Table 4.9).

7.10 Figures are in 2020 prices and are exclusive of contingency and optimism bias allowances, and of market price adjustments.

Table 7.1: Capital costs (2020 prices) – Do Something

Part redacted

	DS1 – Expanded Brighton & Hove	DS2 – Joint City Region
Total capital costs	£561,293	£1,757,105

7.11 These costs have been estimated using client data and are in 2020 prices. However, as the capital costs will be a ‘one-off’ expenditure that will take place in 2021/22, the start year of the scheme, an assumption for inflation has been made, using RPI, as defined in the TAG Databook (v1.13.1, July 2020), to reflect the nominal cost growth from 2020.

7.12 Within the appraisal it is assumed that capital costs would be funded by the public sector – whether national, devolved (e.g. LEP, City Deal) or local authority. TAG guidance indicates that these costs must be recorded as positive values in the calculation of the Present Value of Costs (PVC).

7.13 As outlined in Chapter 4, a 15% allowance for contingency has been included within the base estimated capital costs of the scheme. Capital costs have been adjusted to account for the optimism bias, the tendency of appraisers to be overly optimistic, as defined by TAG. In this case, the optimism bias adjustment applied to the base capital cost is 20%.

7.14 Finally, a ‘market prices’ adjustment to capital costs have applied to convert to the market price unit of account with a factor of 1.19, to ensure consistency with the benefits – this a standard appraisal assumption in the treatment of costs.

Renewals costs

7.15 Bikes in the bikeshare system are assumed to be replaced every five years. For both Do Something Option scenarios, new bikes are assumed to be introduced in 2021/22, including all the standard and e-bikes needed for Adur and Worthing and Lewes in DS Option 2. For Brighton & Hove, in both DS Option 1 and DS Option 2, the situation is different, as there is currently a 600-bike fleet in operation, introduced in two batches, in 2017/18 and 2019/20.

7.16 In the opening year (2021/22), 180 new e-bikes will be added to the fleet, to reach a total of 780 bikes for Brighton & Hove. The first renewal cycle for these bikes will take place 5 years later, in 2026/27. For the current fleet, the next renewal will happen in 2022/23 and 2024/25, taking place every 5 years thereafter.

7.17 In addition, the redistribution vehicles purchased in 2021/22 by all Local Authorities are assumed to be replaced after 10 years, i.e. in 2031/32.

7.18 Table 7.2 and Table 7.3 show the indicative costs of a renewal cycle for each option in the Do Minimum and the Do Something scenarios, respectively. Figures are in 2020 prices and are exclusive of contingency and optimism bias allowances, and of market price adjustments.

Table 7.2: Renewals costs for first cycle (2020 prices) – Do Minimum

Part redacted

	Brighton & Hove
Total Renewals Cost	£859,240

Table 7.3: Renewals costs for first cycle (2020 prices) – Do Something

Part redacted

	DS1 – Expanded Brighton & Hove	DS2 – Joint City Region
Total Renewals Cost	£1,385,523	£2,303,629

- 7.19 Renewals costs are assumed to grow in line with the RPI, as defined in the TAG Databook (v1.13.1, July 2020).
- 7.20 In terms of contingency and optimism bias, renewals have also been treated like capital costs, therefore including 15% and 20% allowances, respectively.
- 7.21 Finally, renewals costs have been converted to the market price unit of account with a factor of 1.19.

Operating costs

- 7.22 The operating and maintenance costs (O&M) of the scheme have been set out in [Chapter 4](#) and define a fixed annual cost per bike, with different costs for standard bikes and e-bikes. Table 7.4 and Table 7.5 summarise these costs for a single year, for the Do Minimum and Do Something scenarios, respectively. Figures are in 2020 prices and are exclusive of market price adjustments.

Table 7.4: Annual operations and maintenance costs (2020 prices) – Do Minimum

Redacted

Table 7.5: Annual operations and maintenance costs (2020 prices) – Do Something

Part Redacted PT wants B&H only total removed as per earlier redaction.

	DS1 – Expanded Brighton & Hove	DS2 – Joint City Region
Total O&M costs	██████████	£888,731

- 7.23 Operations and maintenance costs, like capital and renewals costs are assumed to grow in line with the RPI, as defined in the TAG Databook (v1.13.1, July 2020).
- 7.24 Operations and maintenance costs are incurred by a private sector provider operating the Bike Share contract and therefore must be considered as a negative benefit in the economic appraisal, counting towards the calculation of the Present Value of Benefits (PVB).
- 7.25 Finally, maintenance costs have been converted to the market price unit of account with a factor of 1.19.

Scheme demand and revenue

Demand

- 7.26 Demand for the Do Minimum and both Do Something scenarios assumed for the economic assessment is as described in **Chapter 5** of this report, including fleet size and daily rates of trips per bike for each bike type and local authority.
- 7.27 It has been assumed that demand does not grow from these estimations during the entire length of the appraisal period, neither in terms of fleet size nor daily trip rates per bike. This is a conservative assumption and adds robustness to the assessment.

Revenue

- 7.28 Annual revenue from standard and e-bikes has been used in the economic appraisal of the scheme as calculated and shown in **Chapter 5** of this report.
- 7.29 As explained above, demand has been assumed constant during the entirety of the appraisal period, with constant fleet sizes and daily trip rates per bike. The yield per trip is assumed to be constant in real terms for the first five years of the appraisal period (2021/22-2025/26), with the remaining appraisal period assuming inflation as per the RPI, for consistency with capital, renewals and operating costs.
- 7.30 Table 7.6 and Redacted
- 7.31 Table 7.7 below show the annual number of trips, yield per trip and total annual revenue, for the Do Minimum and both Do Something scenarios, respectively. The yield values and total annual user revenue estimates shown here use 2019 prices from the review of the current Brighton & Hove scheme and are exclusive of market price adjustments.

Table 7.6: Annual revenue summary (2019 prices) - Do Minimum

Redacted

Table 7.7: Annual revenue summary (2019 prices) - Do Something

Part redacted

	DS1 – Expanded Brighton & Hove	DS2 – Joint City Region
Total annual user revenue	£728,701	£1,012,241

- 7.32 The assumption for revenue in the economic assessment is that the yields per trip will remain constant in real terms for the first five years of the scheme (2021/22-2025/26) and will then increase over time in line with the RPI, to keep consistency with the capital, renewals and maintenance costs.
- 7.33 Revenue is collected by a private sector provider operating the Bike Share contract and therefore must be considered as a positive benefit in the economic appraisal, counting towards the calculation of the Present Value of Benefits (PVB).
- 7.34 Finally, revenue values have been converted to the market price unit of account with a factor of 1.19.

Financial summary

Table 7.8, Redacted

- 7.35 Table 7.9 and Table 7.10 below present a summary of annual operating costs, annual revenue, operating ratio and surplus/subsidy requirements for both Do Minimum and Do something

options. The operating ratio gives a sense of how close the scheme is to financial break-even, an operation ratio of under one will require an annual subsidy.

7.36 Under the Do Something scenarios, the expanded Brighton & Hove scheme is likely to generate an annual operating surplus of approximately [REDACTED] while both Adur and Worthing and Lewes schemes are likely to incur annual losses of about £ [REDACTED] and [REDACTED] respectively.

Table 7.8: Annual financial summary (2019 prices) – Do Minimum

Redacted

Table 7.9: Annual financial summary (2019 prices) – Do Something 1

Part redacted

	Expanded Brighton & Hove
Operating ratio	1.29

Table 7.10: Annual financial summary (2019 prices) – Do Something 2

Part redacted

	Expanded Brighton & Hove	Adur and Worthing Scheme area	Lewes Scheme Area	Joint City Region
Operating ratio	1.29	0.98	0.64	1.14

Scheme benefits

7.37 The expected benefits from the scheme which have been assessed and quantified as part of the economic assessment can be grouped in three categories:

- Time benefits
- Health and Absenteeism benefits
- Externality/Non-user benefits

Time benefits

7.38 Time benefits are expected for the additional users of the bike share system in both Do Something scenarios, compared to the Do Minimum. Economic theory suggests that transport users only change behaviour (i.e. use bike share) when they perceive a benefit in doing so.

7.39 The calculation of this benefit is based on the consumer surplus theory, which includes changes in travel time, user charges and vehicle operating costs. While the consumer surplus and the benefit will be different for each user and will depend on multiple factors, including the prior mode, an assumption on a generalised time saving for all new users of bike share has been made.

7.40 This time saving has been assumed at five minutes per trip, with combines both the time and financial surplus elements of the user behaviour change. This is regarded as a prudent assumption, as most users are expected to come from slower modes (e.g. walking and bus), with journey time differences likely being higher than five minutes, considering the average

¹⁵ This is realised from year 2 (2022/23) of operation, when the scheme has 390 standard bikes and 390 e-bikes.

trip length on bike share of approximately 3.5km. This follows the same approach as in the Bike Share Business Plan prepared by Steer in 2014.

- 7.41 Time savings have been monetised using Values of Time (VoT) provided by the TAG Databook, which also defines the growth of these values over time. These VoT differ depending on the trip purpose, with business and commuting trips having higher values than other purposes, such as leisure or personal business.
- 7.42 The assumed purpose split of bike share used for this appraisal is 10%/21%/69% for Business/Commuting/Other, respectively. These figures are based on the results from the Public Bike Share Users Survey¹⁶, and are estimated from the responses of users of the Brighton scheme.
- 7.43 Table 7.11 shows the monetised time benefits for the 20-year appraisal period, in discounted 2010 prices. The benefits represent the incremental benefits of the Do Something options, over the above the Do Minimum (existing BTN BikeShare Scheme).

Table 7.11: Journey time benefits (2010 discounted prices) - whole appraisal period

(£m, discounted 2010 prices)	Option 1: Expanded Brighton & Hove	Option 2: Joint City Region
Business users	0.231	0.516
Commuting users	0.482	1.076
Other users	0.723	1.613
Total time benefits	1.437	3.205

Health and Absenteeism benefits

- 7.44 Transport schemes that involve active modes, as it is the case for this scheme, can have impacts on overall physical activity and health due to changes in numbers of walkers and cyclists as a result of the scheme. Following TAG guidance, this impact is generally quantified by monetising the change in mortality risk as a result of improved health conditions, as increased physical activity helps prevent chronic diseases, obesity and improves mental health. This approach is supported by a strong evidence base, including assessment tools developed by the World Health Organisation (WHO) and the Department for Transport.
- 7.45 There is also evidence that this increased physical activity generated as a result of greater active modes share contributes towards reducing short term absence from work, which therefore increases overall economic activity.
- 7.46 Following guidance from TAG Unit A5.1, the Active Modes Appraisal Toolkit (AMAT) developed by DfT has been used to quantify the health and absenteeism benefits expected from the scheme. The inputs required for the AMAT are the number of active mode users (walkers and cyclists) with and without the implementation of the scheme. While the bike share demand figures for Do Minimum and both Do Somethings have been previously estimated, it is necessary to subtract from the DS demand those users that will come from active modes (i.e. otherwise using own bikes or walking), as these are not new active mode users as a result of the scheme.

¹⁶ Bike Share Users Survey, CoMoUK (2019)

7.47 Table 7.12 lists the assumed previous mode used by bike share users. These figures are based on the results from the Public Bike Share Users Survey and are estimated from the responses of users of the Brighton scheme.

Table 7.12: Bike share mode shift

Mode of origin	% of Bike Hire trips
Car/taxi	18.09%
Bus	27.94%
Rail	2.22%
Walk	31.75%
Cycle	7.62%
Other	0.63%
Did not travel	11.75%
Total	100%

7.48 The following assumptions have been used for the AMAT appraisal:

- Average length of trip of 3.43km. This has been calculated from the bike share’s total mileage and rentals data provided by the client and is a more conservative assumption than the default in the AMAT, which is 4.84km.
- 0% background growth rate in trips. This has been defined to keep consistency with the assumed growth in demand (0%) during the appraisal period and is a conservative assumption compared with the default rate of 0.75% per annum.
- 2021/22 appraisal start year and 20-year appraisal period. Assumptions in line with the overall economic appraisal.

7.49 Table 7.13 shows the Health and Absenteeism benefits as calculated used the AMAT. These benefits are in discounted 2010 prices and for the whole appraisal period.

Table 7.13: Health and absenteeism benefits (2010 discounted prices) - whole appraisal period

(£m, discounted 2010 prices)	Option 1: Expanded Brighton & Hove	Option 2: Joint City Region
Health benefits	1.984	4.428
Absenteeism benefits	0.257	0.575
Total	2.241	5.003

Non-user benefits

7.50 Apart from benefits to users of the bike share scheme, such as the described time, health and absenteeism benefits, transport interventions can have impacts on non-users, or externalities. These are mainly derived from a change in the total number of car kilometres travelled, and include impacts to accidents, congestion, infrastructure, noise, air quality, greenhouse gas emissions and indirect taxation.

7.51 The estimation of the number of car kilometres saved as a result of the scheme has been done using the percentage of bike share trips assumed to transfer from car, the average trip length, the car occupancy rates, as defined in the National Travel Survey results, and the increment on the number of annual bike trips expected as a result of the scheme.

- 7.52 A monetised value has then been applied to the car kilometres change figure to quantify the benefits related to accidents, congestion and the other categories listed above. These values are marginal external costs (MECs) and are provided by the TAG Databook.
- 7.53 Table 7.14 shows the non-user benefits as calculated used the methodology explained above. These benefits are in discounted 2010 prices and for the whole appraisal period.

Table 7.14: Non-user benefits (2010 discounted prices) - whole appraisal period

(£m, discounted 2010 prices)	Option 1 - Brighton & Hove	Option 2 - Joint City Region
Congestion	0.148	0.331
Infrastructure	0.001	0.002
Accident	0.033	0.073
Local Air Quality	0.005	0.011
Noise	0.002	0.005
Greenhouse Gases	0.008	0.018
Indirect Taxation	(0.025)	(0.055)
Total	0.172	0.384

Economic appraisal assumptions and outputs

Key assumptions

- 7.54 The standard appraisal period defined by TAG for transport schemes is 60 years, although this is mostly referred to infrastructure investments in road and rail schemes, with long asset lives and which therefore need longer appraisal periods to completely assess the full economic impact of the infrastructure.
- 7.55 Active modes schemes tend to have more uncertainty around the longevity of their impacts and therefore shorter appraisal periods tend to be used. For this case, an appraisal period length of 20 years has been defined for the central case.
- 7.56 As the length of the appraisal period can have relevant impacts on the appraisal results, sensitivity testing has undertaken to understand these impacts in more detail.
- 7.57 2021/22 has been defined as the appraisal start year, as it is assumed to coincide with the renewal of the bike share's operating contracts. 2040/41 is therefore the last appraisal year.
- 7.58 The price base year and discount year used for this appraisal are both 2010, as the default DfT's reference year, as set out as well in TAG guidance. All figures provided as a result of the economic appraisal of the whole appraisal period are presented in re-based and discounted prices to 2010.
- 7.59 The re-basing process, to convert prices to real 2010 prices, has been done using GDP Deflator, while the discount rate used is 3.5% (per annum), as defined by TAG.

Economic Appraisal

- 7.60 Table 7.15 shows the economic appraisal results for the Central case, for each option scenario. The economic case considers the incremental costs and benefits of each expansion option against the Do Minimum (which is the existing system).

Table 7.15: Value for Money appraisal results - Central case

Part redacted

(£m, discounted 2010 prices)	Option 1 – Brighton and Hove	Option 2 – Joint City Region
PVB	5.64	9.86
PVC	1.55	4.43
NPV	4.09	5.44
BCR	3.64	2.23

- 7.61 The overall Benefit Cost Ratio (BCR) of the scheme is 3.64 when assessing the Brighton and Hove expansion on its own and goes down to 2.23 when considering the whole Joint City Region. The BCR falls under the High Value for Money (BCR between 2:1 and 4:1) for both schemes.
- 7.62 The reason why the BCR for the Joint City Region is lower than for the expanded Brighton and Hove-only option is that both Adur and Worthing and Lewes have lower individual BCRs than Brighton and Hove. Table 7.16 shows the disaggregation of the Value for Money appraisal for these two local authorities.

Table 7.16: Value for Money appraisal results - Central case. Lewes and Adur and Worthing

Part redacted

(£m, discounted 2010 prices)	Adur and Worthing Scheme Area	Lewes Scheme Area
PVB	3.63	0.60
PVC	1.98	0.90
NPV	1.65	-0.30
BCR	1.84	0.67

- 7.63 In disaggregated terms, the BCR would be 1.84 (Medium VfM) for Adur and Worthing and 0.67 (Poor VfM) for the Lewes expansion if assessed individually.
- 7.64 The BCR is based on comparisons of costs to potential benefits of the scheme. It is not, technically, affected by how the scheme is funded. Therefore, if Brighton & Hove chooses to fund the capital and renewal costs using council funds or capital borrowing, which needs to be repaid, this will not affect the BCR.
- 7.65 Funding and affordability considerations, including the likelihood of funding the renewal costs with the operational surplus from the difference between revenues and operating costs and the potential to fund the remaining costs through capital borrowing by the council is discussed in detail in the [Chapter 8: Financial Case](#).

Appraisal Sensitivities

- 7.66 The Value for Money assessment is based on the best estimates currently available of the costs and benefits of the scheme. However, these employ a range of input assumptions and therefore it is appropriate to assess the sensitivity of the appraisal results to changes in key inputs.
- 7.67 The sensitivity tests that have been undertaken as part of the economic appraisal of the scheme are listed below:

- ST1: Low Demand. Demand, measured as daily trip rates per bike, is 30% lower than in the Central case.
- ST2: High Demand. Demand is 30% higher than in the Central case.
- ST3: Longer appraisal period. Appraisal length is 30 years, as opposed to 20 years in the Central Case.
- ST4: Higher Operating Costs. Operating Costs 20% higher than in the Central case.
- ST5: Higher Time Savings. Assumed an average 10-minute time saving instead of the 5-minute saving in the Central case.
- ST6: Introduction of 300 e-scooters. 9% reduction in demand for Bike Share.

7.68 The Value for Money Assessment results for sensitivity tests 1 to 5 are listed in Table 7.17 (Expanded Brighton & Hove Scheme) and Table 7.18 (Joint City Region), as well as the Central case results.

Table 7.17: Value for Money appraisal results - Sensitivity Tests. Option 1: Expanded Brighton & Hove Scheme

Part redacted

(£m, discounted 2010 prices)	C. Case	ST1	ST2	ST3	ST4	ST5
PVB	5.64	3.43	7.84	1.37	5.29	7.07
PVC	1.55	1.55	1.55	2.02	1.55	1.55
NPV	4.09	1.88	6.29	5.84	3.74	5.52
BCR	3.64	2.21	5.06	3.90	3.41	4.56

Table 7.18: Value for Money appraisal results - Sensitivity Tests. Option 2: Joint City Region Scheme

Part redacted

(£m, discounted 2010 prices)	C. Case	ST1	ST2	ST3	ST4	ST5
PVB	9.86	5.33	14.40	13.92	8.81	13.07
PVC	4.43	4.43	4.43	5.72	4.43	4.43
NPV	5.43	0.90	9.97	8.20	4.38	8.64
BCR	2.23	1.20	3.25	2.43	1.99	2.95

7.69 The results of the sensitivity tests show that the BCR ranges between 2.21 (ST1) and 5.06 (ST2) for the Brighton and Hove-only scenario and between 1.20 (ST1) and 3.25 (ST2) for the Joint City Region option. The BCR is quite sensitive to demand assumptions, as they drive the revenue and user benefits, the largest elements of the VfM calculation. As capital costs, renewals and operating costs are based on a fixed cost per bike, they would not be affected by changes to the demand (i.e. daily trip rates per bike).

7.70 A longer appraisal period (ST3) would have a positive impact on the assessment, as benefits increase more than costs in relative terms due to capital costs remaining at the same value as in the central case. The scheme would still deliver High VfM for Brighton & Hove and the Joint City Region scenarios with a 20% increase in operating costs (ST4), assuming no changes to other elements of the appraisal.

7.71 A greater time saving assumption of 10 minutes per trip (ST5), compared with the 5 minutes assumed for the Central case, would have a significant impact on the Value for Money of the scheme, with the BCR increasing to 4.6:1 and 2.95:1 in each of the scenarios, respectively.

Impact of e-scooters

- 7.72 E-scooters are currently illegal on public roads in the UK. The UK government announced trials of e-scooter rentals for a year in mid-2020. The objective of the trials which will run in selected UK locations for 12 months from Summer 2020 is to test and evaluate the feasibility as well as safety standards and regulations for e-scooters in UK, if made legal.
- 7.73 E-scooters have not been considered as part of the expanded scheme options in the business plan because the outcome of current UK trials is not known. We have considered a separate council awarded concession contract.
- 7.74 Introduction of e-scooters has the potential to alter the competitive landscape and options to travel and are likely to have material impact on the demand for bike share. A review of e-scooter user behaviour in the city of Paris (where 10,000 e-scooters were available against roughly 20,000 bike share fleet) shows that approximately 9% of bike share trips were replaced by e-scooters. There is not enough evidence globally to support impact of e-scooters on bike share usage given the novelty of the product. However, we made an attempt to show what likely impacts e-scooters might have on bike share demand in Brighton and Hove based on the evidence from the Paris experience.
- 7.75 ST6 considers the potential impact of a fleet of 300 e-scooters, if procured by the Brighton and Hove council (a separate concession) and allowed to operate within Brighton & Hove but on a basis agreed with the Council, such as docked systems only or tightly controlled designated parking, along with limits on the operational area and speed of e-scooters
- 7.76 Table 7.19 shows the result of the sensitivity test ST6, which assesses the impacts of the introduction of a fleet of 300 e-scooters in Brighton and Hove. This has been modelled as a reduction in bike share demand (9%) and is compared with the Brighton and Hove appraisal only.
- 7.77 A shortfall in revenue owing to reduced demand could be offset by parking revenue from e-scooter providers using a docked or geofenced parking model. A shared charging arrangements around removable battery swapping for both e-bikes and e-scooters could potentially help offset some of the operating costs.

Table 7.19: Value for Money appraisal results – ST6 (Option 1: Expanded Brighton and Hove Scheme)

(£m, discounted 2010 prices)	Central Case	ST6
Revenue	3.50	3.18
Time benefits	1.44	1.31
Health and Absenteeism benefits	2.24	2.04
Non-user benefits	0.17	0.16
Operating costs	(1.71)	(1.71)
PVB	5.64	4.97
Capital costs	0.53	0.53
Renewals	1.01	1.01
PVC	1.55	1.55
NPV	4.09	3.42
BCR	3.64	3.21

7.78 If e-scooters enter the market competitively with no or limited control of the council on the potential number of vehicles, the impact on bikeshare demand is likely to increase thereby reducing the Value for Money proposition of the bike share scheme.

8 Financial case

Overview

- 8.1 This chapter discusses the Financial Case for the proposed Bike Share scheme options, both a Brighton & Hove-only scheme and a Joint City Region option, with respect to how the scheme could be funded, and its ongoing affordability.

Scheme investment costs

- 8.2 The estimated capital costs for the proposed Bike Share scheme would be £645,000 for a Brighton & Hove-only scheme in year 1 (2021/22) and a further £704,000 in year 2(2022/23) for replacing the standard bikes with new standard and e-bikes. For a Joint City region scheme, the estimated capital costs for the additional local councils Adur and Worthing and Lewes would be £911,000 and £464,000 respectively.
- 8.3 These figures include new bikes and hubs, spares and parts, mobilisation costs and a 15% contingency and would be incurred at the start of the scheme (2021/22). The figures are in 2020 current prices and are exclusive of market price conversion and optimism bias.
- 8.4 There are several potential funding sources that could be considered to provide a significant contribution to the up-front capital costs. These are described under 'Funding Options'.

Potential funding options – Capital funding

- 8.5 There are several potential funding sources that could be explored. These include:
- Devolved funding allocations via the Coast to Capital Local Enterprise Partnership. The status of current LEP devolved funding allocations are:
 - The Local Growth Fund (LGF) funding provided the capital investment for the existing scheme. There were three LGF rounds, which is fully allocated and there are no further rounds planned.
 - Shared Prosperity Fund. This is a Post Brexit fund, but detail of the fund amount / eligibility etc. has yet to be announced.
 - We recommend Brighton & Hove should speak to C2C to see if C2C has any further insight on the Shared Prosperity Fund.
 - Funding via Future City Deal arrangements
 - Additional funds have been made available to City Deal delivery agencies where a track record of successful delivery has been demonstrated.
 - National Government Funding via Bidding 'funds' such as:
 - Transforming Cities Fund (which has now ended in terms of applications), but there could be successor funds or similar funds.

- Competitive ‘Cycle Investment Funds, on the back of the announcement of a £2bn package for walking and cycling¹⁷, announced in May 2020.
- Single Housing Infrastructure Fund. £10bn announced in the March 2020 budget, but no details of the programme or bidding process. Cycle hire could potentially form part of a wider HIF package bid.
- Local Contributions
 - Most devolved of national grant funding required a proportion of the costs to be borne by locally. This could wither be through direct contribution, benefit ‘in-kind’ (e.g. offer time, land transfer), or through securing local developer funding.
- Developer funding
 - To fund specific infrastructure elements (e.g. docks / hubs) on land owned by or adjacent to potential hubs.
 - Developer funding could be sourced via S106 funding (infrastructure related to specific developments) and / or Community Infrastructure Levy (pooled developer ‘roof tax’ that can be used for infrastructure across the Brighton, or relevant authority).

8.6 Of these, it is likely that the LEP would be the most likely source of capital funding based on both precedent (having funded the original scheme, which has proved to be successful) and as it is not certain that Bike-Share would be an eligible scheme for any National funding sources at present (competitive bid funds are usually prescriptive about the types of investment that is eligible).

8.7 Critically, the economic and strategic case set out in this report does demonstrate that the Bikeshare expansion (whether within Brighton & Hove or across the city region) has the potential to deliver a strong value for money case, which is a fundamental requirement for any scheme (along with deliverability). While the economic case (and hence value for money case) is stronger for a BHCC only expanded scheme, the strategic rationale would be strong for a scheme across an extended geography (i.e. a Joint City Region Scheme).

Funding of Renewals

8.8 In addition, there is an ongoing capital requirement to cover the renewals (bike replacement) costs which would be incurred every five years. The sources of potential funding for initial investment costs would not be available to cover renewals costs. Indeed, it is likely that a commitment to fund the renewals could be a funding condition associated with any capital grant funding – on the basis that the renewals are required to deliver the benefits stream upon which any capital funding bid was justified upon.

8.9 Renewal costs would need to be funded from locally, either through an ongoing revenue surplus or, if this is insufficient, but general funding from the Local Authority.

Sponsor acquisition

8.10 Sponsorship—sharing the system’s image and brand with a sponsoring entity can help provide funding to cover investment costs. Sponsorship agreements may vary substantially.

8.11 Sponsorship usually includes some degree of branding or naming rights such as with the Santander’s Cycles in London. The branding is usually visible on different elements including

¹⁷ <https://www.gov.uk/government/news/2-billion-package-to-create-new-era-for-cycling-and-walking>

the bikes, hubs, digital and social media materials. See Figure 8.1 for a visual comparison of the Santander bank logo and Cycle Hire scheme logo.

Figure 8.1: Comparison of Santander Bank logo and Santander Cycle Hire logo



- 8.12 In most bike share systems, there is a single sponsor. However, there are some examples with multiple sponsors such as San Antonio, Texas where the scheme is sponsored by multiple local businesses¹⁸. Sponsorship partnership should consider the future expansion of the scheme and the long-term vision. Expansion phase could represent an occasion to build new sponsorship package.
- 8.13 The expected recession in the UK economy due to Covid- 19 may make it difficult to acquire long term sponsorship agreements. However, given relatively high BCR, the council should consider launching the scheme through LEP funding.

Capital borrowing

- 8.14 As requested by Brighton & Hove we have also considered the option for funding the capital as well as the renewal costs for Option 1 – Expanded Brighton & Hove Scheme only through capital borrowing or financing.
- 8.15 Interest payments would be payable on finance with the interest rate depending on the arrangement and source of the borrowing. Potential sources include public finance from the Public Works Loan Board (PWLB) which provides debt financing options to public bodies from the central government National Loans Fund. Alternative private finance could be sourced such as commercial debt or bonds. For example, the Greater London Authority raised £200m through a bond to support the Northern Line Extension which was effectively backed by the UK Guarantee scheme, lowering borrowing costs. Servicing finance through interest costs ultimately reduces the capital costs that revenue and funding streams could support.

Financing Options

- 8.16 There are several different lenders who are able to finance transport infrastructure improvements against different forms of security (i.e. the collateral against which a loan is provided by the borrower to the lender).

Public Works Loan Board

- 8.17 The Public Works Loan Board is an example of on-balance sheet financing. It is part of the UK Debt Management Office, which is an Executive Agency of HM Treasury and it currently provides 75% of lending to local authorities. It is the principal financing source for statutory entities under the Local Government Act 2003. The loans that the Public Works Loan Board issues are very flexible. Tenors range from 1 to 50 years for fixed interest rates, and 1 to 10 years for variable interest rates.
- 8.18 The credit process is light as it is underpinned by the Prudential Borrowing Code, which means it is relatively easy to access financing through the Public Works Loan Board. The major

¹⁸ <https://sanantonio.bcycle.com/partners/partners>

disadvantage of the Public Works Loan Board is that any borrowing is on-balance sheet, so it is constrained by the authority's borrowing capacity.

Commercial Lending

- 8.19 Commercial lending can be used to finance projects when other forms of financing such as the Public Works Loan Board is unavailable. It generally offers shorter tenor variable rate lending, with a higher level of due diligence required before the loan is approved. There is a risk of high cost of negative carry (whereby loans are often committed and fixed but drawdown of the loan may not be until much further in the future), although there are examples of innovation through forward-starting interest rate loans, for example the £20 million loan arranged by pbb Deutsche Pfandbriefbank for Midlothian Council. pbb Deutsche Pfandbriefbank is a leading European specialist bank for real estate financing and public investment finance. Midlothian Council will use the loan to repay existing debt used to finance investment in services including new schools, social housing, utilities, health and care. Commercial lending can also be used as a useful treasury management tool for refinancing projects that they have funded with cash expenditure. Again, commercial lending is on-balance sheet borrowing, which is constrained by borrowing capacity.

UK Municipal Bonds Agency

- 8.20 The UK Municipal Bonds Agency was created in 2014 to provide access for local authorities to capital markets and try to diversify beyond the Public Works Loan Board. The aim of the agency was to offer long-term, low-cost bond financing against the prudential borrowing framework and it has been rated investment grade (Aa3) by Moody's. It is owned wholly by local authorities and the Local Government Association.
- 8.21 Recently the UK Municipal Bonds Agency has appointed a company for the provision of management services, including marketing services, execution and management of debt issuance activities, execution and management of local authority lending activities and support the agency's governance activities¹⁹. The UK Municipal Bonds Agency has recently issued its first two bonds and could be a source of potential finance.

Corporate Finance

- 8.22 Corporate finance is typically used in developer-led infrastructure improvements, for example the Liverpool 1 shopping centre (which included significant contributions to transport infrastructure) was mostly financed by corporate finance. In comparison to financing from the Public Works Loan Board it is typically expensive with short-term tenors. Transport infrastructure improvements typically have payback periods that are too long to justify corporate financing as the asset does not match the liability. Corporate finance is an option of off-balance sheet financing.

Cost of financing

- 8.23 For the purpose of this analysis we have assumed that the expanded Brighton & Hove Scheme would seek financing from PWLB for the following costs:
- Purchase of bikes and redistribution vehicles in Year 1 of operation (2021/22); and
 - Renewal of bikes and redistribution vehicles from Year 2 (2022/23) onwards.

¹⁹Provision of management services, which will include operational and marketing services', <https://www.delta-esourcing.com/respond/CBVA233364>, Delta eSourcing, Accessed August 2019

- 8.24 We have assumed that the initial set up costs included in the capital costs such as cost of hubs, workshop set up/ spare parts, and mobilisation costs will be funded through council money.
- 8.25 We have also assumed that the typical repayment term for the loans taken to purchase the bikes (including e-cargo bikes) would be 5 years, consistent with the life-cycle of the bikes being purchased or renewed. The repayment term for loans taken to purchase redistribution and service EVs is assumed to be ten years, based on assumed life-cycle of these vehicles.
- 8.26 Based on the current PWLB fixed interest rates for new loans (as of 22 October 2020)²⁰, the annual interest rate is assumed to be 1.95%.
- 8.27 Two separate loans are considered for 2021/22 – first, to fund purchase of bikes (including e-cargo bikes) of £326,000 for a term of five years and second, to purchase the redistribution and service EVs of £141,000 for a term of ten years. Additional borrowing would be required to fund:
- renewals of existing 600 bikes in Brighton & Hove in 2022/23 (£704,000) and in 2024/25 (£215,000);
 - renewal of bikes (e-cargo bikes) in 2026/27 (£326,000);
 - redistribution vehicle renewal in 2031/32 (£141,000);
 - renewals of bikes (including e-cargo bikes) would continue every five years during the appraisal period (2021/22 -2040/41) and would be funded through subsequent five-year repayment loans; and
 - Redistribution and service EV vehicles would be replaced only once in 2031/32 during the appraisal period, and the repayment term for the loan to fund these would be ten years.
- 8.28 The repayments are calculated on annuity basis (as agreed with BHCC finance team), hence, repayment for a loan starts from the following year.
- 8.29 During the appraisal period (2021/22 – 2040/41), the loan amount would be £5.26 million, against which total repayment costs would be approximately £5 million, with average repayments of £251,000 per year. The repayment for these loans would continue in the subsequent years, with the last loan taken out in 2039/40 which would be fully repaid by 2044/45.
- 8.30 During the same period, total revenue surplus is expected to be approximately £3.2 million which could potentially fund 65% of the repayments. The council would still need to fund £1.85 million themselves, approximately £93,000 per year.
- 8.31 Based on our assumptions, the repayment costs in the first three years (2022/23 – 2024/25) can be fully funded using scheme operational surplus, following which, annual funding shortfall would be £112,500 in 2025 and approximately £116,000 per year for all the subsequent years during the appraisal period.
- 8.32 Table 8.1 presents the annual borrowing amount (to fund the capital costs, and renewals), repayments, scheme operating profits and funding shortfall for the first six years.

²⁰ <https://www.dmo.gov.uk/data/pdfdatareport?reportCode=D7A.2>

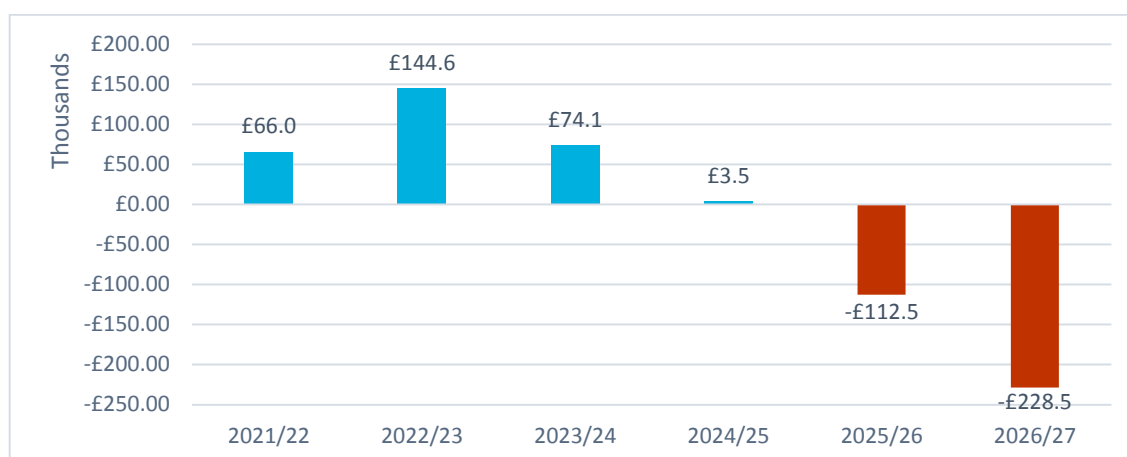
Table 8.1: Capital borrowing annual repayment plan

Part redacted

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27..
Annual interest rate	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%
Loan amount	£467,068	£703,667	-	£214,810	-	£326,046
Annual repayment costs	-	£84,734	£233,806	£233,806	£279,314	£279,314
Cumulative repayment costs	-	£84,734	£318,540	£552,346	£831,659	£1,110,973
Cumulative funding shortfall	None	None	None	None	£112,504	£228,540

Figure 8.2 presents the cumulative repayment costs and cumulative funding surplus/shortfall for the appraisal period.

Figure 8.2: Capital borrowing cumulative funding surplus/shortfall, 2021/22 – 2026/27



Affordability analysis

- 8.33 There would be no national or devolved ‘revenue’ funding that would be available to support the ongoing operations of a bike share scheme, in the event that it is ran at a loss (i.e. on-going costs exceed revenues).
- 8.34 Our affordability analysis considers the level of ongoing surplus / deficit, based on:
- A ‘core’ case based on our central estimate of revenues and costs.
 - Sensitivity analysis, which includes a downside demand / revenue sensitivity of 30%.
- 8.35 Our analysis suggests that, at a local authority level, the expanded Brighton & Hove scheme would operate at a surplus under our ‘central’ assumption, whereas both the Worthing and Adur and Lewes schemes would operate at a deficit. The Joint City Region option would also operate a surplus, although smaller than that of the Brighton & Hove-only option.
- 8.36 Table 8.2 to Table 8.4 show the annual and cumulative profiles of Revenue, O&M costs and Renewals for the Do Minimum, the Brighton & Hove-only expanded scheme and the Joint City Region Scheme, respectively. Values shown are 2020 undiscounted prices, exclusive of Optimism Bias and Market Price Adjustment.

Table 8.2: Annual and cumulative Revenue, O&M Costs and Renewals. Do Minimum (Existing system)

Redacted

Table 8.3: Annual Revenue, O&M Costs and Renewals. Expanded Brighton and Hove Scheme

Redacted

Table 8.4: Annual Revenue, O&M Costs and Renewals. Joint City Region scheme

Redacted

Interpretation

8.37 The key points from the above are:

- Under the Do Minimum scenario (Table 8.2), annual revenues and annual operating costs are similar, at around [REDACTED] per annum – the analysis presents suggests are small cumulative operating deficit of [REDACTED]
- [REDACTED] over ten years. However, renewals costs over the 10-year period would total over £2m, including the need for £760,000 renewal investment (replacement of much of existing fleet) in 2022/23.
 - On the basis of the numbers above, there would be no ongoing revenue surplus to fund the £2.08m renewals costs (over ten years).
- The Option for an Expanded Brighton & Hove Scheme performs better in ongoing affordability terms, due to there being an annual operating surplus of over [REDACTED] equivalent to [REDACTED] over ten years. This reflects the higher revenues associated with e-bikes, which are greater in proportional terms than the increase in costs.
 - The [REDACTED] operating surplus would not be sufficient to fully fund the renewals costs (over ten years) of £2.59m – though the shortfall of around [REDACTED] needed to cover renewals is half that of the Do Minimum.
- The Joint City Region scheme would deliver an operating surplus of around [REDACTED] equivalent to [REDACTED] over ten years. However, the renewals costs for this option are £3.3m over ten years, resulting in a shortfall of [REDACTED].

8.38 The implication of the above is that, under each option, consideration would need to be given to how to fund the renewals costs. However, from a Brighton & Hove perspective the renewals costs would be around half the level under the expanded scheme option (£1m over 10 years) compared the to the Do Minimum option of expanding the existing system.

8.39 Operating surplus could not be used to fund renewal costs in the Do Minimum scenario, as explained above, but it could in both Do Something options. The annual profiles shown in the above tables indicate that the Brighton & Hove-only scheme could fund over 50% of the renewal costs with the operating surplus, while this would go down to under a third for the Joint City Region option.

8.40 Both options would require additional funding to close the gap between operating surplus and the total cost of bike renewals.

9 Management case – delivery plan

Overview

- 9.1 This Management Case presents the different stages of launching and operating a bike share scheme, and how the new scheme should be planned and delivered, including scoping and governance arrangements, implementation, and operations.
- 9.2 The following different stages are required to implement a bike share scheme:

Figure 9.1: Stages of launching and operating a bike share scheme

Stage 1: Planning	Stage 2: Initiation	Stage 3: Implementation	Stage 4: Operations
<ul style="list-style-type: none"> • Scoping and business case development • Joint governance arrangements 	<ul style="list-style-type: none"> • Planning and design • Stakeholder engagements • Funding bid 	<ul style="list-style-type: none"> • Acquire physical assets/ procurement • Construction and installation works • Marketing and outreach 	<ul style="list-style-type: none"> • Operation of bikes • Monitoring and evaluation

Stage 1 – Planning

- 9.3 In the feasibility stage, the goal for the scheme owner/s is to identify the key purpose and objectives of the scheme, for example, encouraging more people to cycle, improving access to employment/ education, providing an alternative to car travel or improving health and wellbeing.

Scoping and business case development

- 9.4 The next step is to define the scheme characteristics, size and geographic coverage as well as conducting a business case analysis. This includes a breakdown of estimated costs and potential revenue opportunities, and help evaluate the financial positioning of the scheme. This analysis also supports application for capital funding. This document covers the scoping and business case development element of Stage 1.

Joint governance arrangements

- 9.5 The owner/promoter of the existing BTN BikeShare scheme is Brighton & Hove City Council. It would remain the owner if the council decides to expand the scheme as per Option 1:
Expanded Brighton & Hove scheme.
- 9.6 For Option 2: **Joint City Region scheme**, the governance arrangement could be that Brighton & Hove remain the primary promoter of the scheme, developing a single supplier framework agreement which would be available to other local authorities (Adur and Worthing and Lewes) based on which the scheme could be expanded into their area at any point within the time

period of the framework. Each local authority should seek advice from their procurement team before pursuing this option to ensure it is appropriate for their circumstances.

- 9.7 All the involved local councils would be the promoter/owner of the scheme in their respective local authority area region. We recommend setting up a Joint Governance Board between the local councils to plan, engage and deliver the scheme successfully.
- 9.8 At this stage, key planning parameters could also be defined, as well as the policies that would guide the implementation and operations of the scheme.

Stage 2 – Initiation

- 9.9 This stage includes detailed planning and design of the scheme, engagements with key stakeholders, and ultimately secure capital funding.

Planning and design

- 9.10 Detailed design is required to identify the specific location to locate hubs for the bike share to operate and the precise boundaries of the scheme area. Traffic Regulation Orders (TROs) and public consultation might be required for each site. These are typically led by the council.
- 9.11 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.
- 9.12 TROs require a document to be drafted detailing the proposed parking restrictions, which are advertised to the public for comment. Typically the local highway 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. In the case Option 1: **Expanded Brighton & Hove scheme** the highway authority is Brighton & Hove City Council. In the case of Option 2: **Joint City Region scheme** the highway authorities include Brighton & Hove City Council, West Sussex and East Sussex.

Stakeholder engagements

- 9.13 Stakeholder engagement is paramount to the success of a scheme over time. We recommend early, meaningful and continued engagement throughout planning and delivery to keep stakeholders involved and informed.
- 9.14 Key stakeholders of the current BTN BikeShare scheme include:
- Local Cycling Campaigns;
 - Brighton & Hove Buses;
 - Train Operating Companies (Govia Thameslink Railway, Southern, Great Western Railway, Network Rail);
 - Brighton & Hove CCG;
 - University of Sussex;
 - University of Brighton;
 - South Downs National Park; and
 - Visit Brighton.
- 9.15 We recommend establishing an effective stakeholder engagement framework setting the programme expansion and the opportunities for their inputs to the scheme. It is also important to report back regularly and use the feedback to inform the planning process.

9.16 Support from local stakeholders for the scheme would also assist in acquiring the necessary capital funding.

9.17 Additional stakeholders from Adur and Worthing and Lewes for the Joint City Region scheme could include:

- Newhaven Town Council;
- Seaford Town Council;
- Peacehaven Town Council;
- Telscombe Town Council;
- Brighton City Airport;
- West Sussex CCG;
- East Sussex CCG;
- Lancing Parish Council;
- Sompting Parish Council;
- Adur & Worthing Walking & Cycling Action Group;
- West Sussex County Council; and
- Metro bus.

Funding Bid

9.18 At this stage, the owner/s of the scheme (Joint Governance Board, if option 2: Joint City Region scheme) should submit the funding bid, with the detailed business case including an implementation plan with key timelines.

9.19 In addition, preliminary marketing and outreach campaigns could be started at this stage in order to evaluate user sentiments; as well as attract sponsorships for the expanded Brighton & Hove Scheme or the Joint City Scheme (as appropriate).

Stage 3 – Mobilisation

9.20 At this stage, the owner/s of the scheme (Joint Governance Board, if option 2: Joint City Region scheme) will be in charge of procuring and contracting with potential operator/s in order to acquire physical assets and the back-end systems. If the owner/s decide to leverage the Local Government Vehicle Procurement Framework to procure service electric vehicles used for bike redistribution and battery swapping (service EVs, e-cargo bikes, etc.), they should also be procured at this stage.

9.21 The ownership of the assets—primarily the stations, hubs, bikes, and IT system—as well as the permanency of the assets in the streetscape, is usually determined by the owners of the scheme. Decisions about asset ownership and provision of the initial investment should be guided by the lifetime of the asset.

Procurement

9.22 The existing BTN BikeShare scheme is managed and operated by Hourbike. The back-end system is licenced from Social bicycles (Sobi).

9.23 There is an increasing interest amongst local authorities globally to own and manage the operations in-house through a separate arm's-length holding organisation. This allows the Council(s) to maintain full control over scheme performance and operating standards as well as make decisions on scheme expansion. The different options for the expanded scheme procurement and operating model, their key benefits and limitations in terms of deliverability are discussed in details in [Chapter 10 – Commercial Case](#).

- 9.24 Next, construction and installation of hubs and workshops should be carried out. This generally takes between one to three months depending on the size and nature of work requirements.
- 9.25 Success of a bike share scheme largely depends on the visibility of the scheme. Alongside installing the hubs in key locations, the scheme owner/s, in the months leading to scheme launch, should engage in wide-scale marketing and targeted campaign activities to attract new users once the scheme is launched.

Stage 4 – Operations

- 9.26 Once the system has been procured and launched, the owner of the scheme will also need to monitor it and evaluate the performance according to the defined service levels or regulatory requirement.
- 9.27 The scheme owners should commit to integrating consistent public outreach and proactive community and stakeholder engagement, as well as plans for equitable access to, and use of, the system, into all major decisions and all along the project lifetime.

Monitoring and Evaluation

- 9.28 Scheme performance should be periodically evaluated by the Joint Governance Board or a third-party organization to ensure that the operation is effectively meeting Council’s established goals. The UK Bike Share Users Survey published by CoMoUK since 2016²¹ identify key evidence of the social and environmental impacts of public bike share within the Country. The survey is produced in conjunction with private operators and local authority representatives and reviewed by independent analysts.
- 9.29 A recommended approach would be to undertake real-time monitoring of station occupancy rates as well as other key performance metrics, including:

Table 9.1: Measuring success of the scheme

Metric	How to track	Value for the Council
Engagement		
New User	New registrations	Validate expansion strategy and brings new revenue
Active riders	Trip data on users	Critical to build long-term stable revenue
Trips	Trip data on use	Impact and revenue
Trips per bike per day	All trips/ number of bikes in circulation	Assess efficiency of the system and capacity management
Financial		
System generated revenue	Sales data and trips data	Cost effective monitoring, can be combined with other existing bike share schemes across the UK
Non-system generated revenue	Sponsor/partners	Critical to build long-term stable revenue
Expenses	Financial data	Assess efficient use of resources
Operations		

²¹ <https://como.org.uk/shared-mobility/shared-bikes/why/>

Metric	How to track	Value for the Council
Customer Satisfaction	Surveys; Focus groups; Qualitative interviews; maintenance tickets	Assess people's level of interest for the scheme. Surveys may help to assess: <ul style="list-style-type: none"> • Who uses Bike Share; • What trips Bike Share are used for; • What modes Bike Share trips replace (especially car trips); • Satisfaction with the service; and • Areas where the service can be improved.
Technology Improvement	Annual report; technology upgrades	Adaptability of the scheme

10 Commercial case – system procurement and operations

Overview

10.1 The Commercial case presents how Option 1: **Expanded Brighton & Hove Scheme** and Option 2: **Joint City Region Scheme** can be procured and operated.

10.2 In this chapter we cover the following sections:

- Bike share operating models;
- Social enterprise approach; and
- Governance arrangements.

Bike share operating models

10.3 This section presents the different operating models for a bike share scheme. The operating models depend on the ownership and level of control by the public sector (the council(s)) or the private operator. Four distinct operating models are as following:

- Council owned, managed in-house;
- Council owned, managed by an arm’s length external company structure;
- Council owned, externally managed via a concession contract; and
- Externally owned and operated with a Concession (operator owns assets) contract arrangement between the Council/s and operator.

10.4 The key features of each operating model are presented in Table 10.1.

Table 10.1: Overview of bike share operating models

Models	Key Features
1. Council owned, managed in-house	<ul style="list-style-type: none"> • Bikes, hubs and terminals (if required) owned by the Council(s) • Back-end software developed in-house or licenced • Operations & Maintenance managed by council/ council representative²² • Council has full authority over scheme characteristics including pricing and tariffs
2. Council owned, managed by an arm’s length external company structure	<ul style="list-style-type: none"> • Bikes, hubs and terminals (if required) owned by the Council(s) • Back-end software developed in-house or licenced • Operations & Maintenance managed by arm’s length company structure in which council has a controlling stake via nominations to a board made up of members or officers • Council would manage scheme characteristics including pricing and tariffs

²² Transfer of Undertakings Protection of Employment regulations (TUPE) need to be considered

Models	Key Features
	via a contract with a CIC/ Co-op
3. Council Owned, externally managed via a concession contract (current arrangement)	<ul style="list-style-type: none"> • Bikes, hubs and terminals (if required) owned by the Council(s) • Back-end software licenced from external operator (managed by operator) • Operating contract given through open tendering to a single operator (or a consortium of operators managed by a single entity) • Council has some control over scheme characteristics, which may include pricing and tariffs
4. Externally owned and operated with a Concession (operator owns assets) contract between the Council/s and operator	<ul style="list-style-type: none"> • Bikes, hubs and terminals (if required) owned by the operator • Back-end software licenced from external operator (managed by operator) • 'Light touch' concession contract between the Council/s and operator • Council has very limited control over scheme characteristics (depending on the agreement), which typically does not include pricing and tariffs

Potential benefits, risks and deliverability of different operating models

10.5 Table 10.2 provides a qualitative evaluation of the potential benefits and risks associated with each operating model and aims to highlight the most desirable model for the Joint Governance Board in terms of deliverability.

Table 10.2: Potential benefits, risks to Council and deliverability of operating models

Models	Potential Benefits	Risks to Council	Deliverability
1. Council owned, managed in-house	<ul style="list-style-type: none"> • Potential to be cost-efficient (eliminating the operator's cost mark-ups) • Full control on scheme operations • Profits will be re-invested into the scheme 	<ul style="list-style-type: none"> • Revenue risk • Lack of previous bike share experience and public transport operations 	Medium , High associated risks in terms of liability, financial and operating risk exposure.
2. Council owned, managed by an arm's length external company structure	<ul style="list-style-type: none"> • Potential to be cost-efficient (eliminating the operator's cost mark-ups) • Full control on scheme operations • Profits will be re-invested into the scheme 	<ul style="list-style-type: none"> • Revenue risk, however, is lower compared to Model 1 because it is limited to the external company's assets • Lack of previous bike share experience and public transport operations • The level of liability risk may be lower for Model 2 than Model 1 	Medium , High associated risks in terms of liability, financial and operating risk exposure.
3. Council Owned, externally managed via a concession contract	<ul style="list-style-type: none"> • Operator brings in experience, flexibility as well as agility to the scheme • Potential to change operator on non-delivery • Operational efficiency (based on set KPIs) • Experience from operator valuable to grow usage • Profits could be re-invested into the scheme 	<ul style="list-style-type: none"> • Potentially higher OPEX compared to Model 1 and Model 2 due to operator mark-up • Expansions and variations to be agreed with the operator 	High , Balance between council support and private operator experience.
4. Externally owned and operated with a Concession (operator owns assets)contract between the Council/s and operator	<ul style="list-style-type: none"> • Efficient operations, at least in short term • Limited upfront investment from the Council • Cater to high demand areas 	<ul style="list-style-type: none"> • Profits will not be re-invested into the scheme • Threats to long term viability and sustainability owing to high private sector involvement (profit maximizing objective) • Limited control over the pricing • Limited control over locations and operations 	Low , existing scheme assets are publicly owned, increased private sector control affects policy objectives

380

- 10.6 Model 3: a council owned but externally managed scheme has, in theory at least, the lowest level of associated risks for the council related to operation, revenue and sustainability which minimises the financial risks to the council through the expertise of an experienced external operator. This may therefore be preferable for a newly launched scheme, where the council has no/little experience with bike share. The existing BTN Bike Share Scheme is run on these lines.
- 10.7 The appropriate operating model depends on the objectives, and appetite for risk of the scheme owner/s.
- 10.8 If the objectives of the scheme are to **maximise ridership and financial sustainability** we recommend Model 3 which allows the Council to set policy based objectives and benefit from wider industry experience from operating bike share schemes in other locations.
- 10.9 If the objectives of the scheme are to **maximise community interests**, we recommend Model 2 Council owned, managed by an arm's length external company structure. We note that this model is unlikely to benefit from wider industry experience which maximise both ridership and financial sustainability.
- 10.10 Whilst the above section will help you to assess the most appropriate operating model we recommend seeking further legal advice as to the model which will work best for the future scheme.
- 10.11 If the objective of the council is to cater to community interests, it can be prioritised to different extents in all four operating models as long as the council maintains some involvement in the scheme through, for instance, setting objectives, operating areas and KPIs.

Social enterprise approach

- 10.12 As requested by Brighton & Hove's Environment, Transport and Sustainability Committee, this report sets out below a consideration of using an arm's length Community Interest Company (CIC) to operate the bike share scheme. In this section we include the following:
- What is a Community Interest Company;
 - Example of a Community Interest Companies;
 - Advantages and limitations of Community Interest Companies for local authorities;
 - Legal requirements to set up a Community Interest Company;
 - Deliverability of the future scheme through a Community Interest Company;

What is Community Interest Company?

- 10.13 A Community Interest Company (CIC) is a type of limited company for people wishing to establish businesses which trade with a social purpose²³. The primary objective of a CIC is social enterprise, using its assets, income and profit for the benefit of a specific community, rather than for the benefit of private shareholders. On dissolution, its surplus assets must be transferred to another asset-locked body and reinvested into the community they are formed to serve.
- 10.14 To provide an illustration of an existing CIC, we have included a case study on Co-Bikes, Exeter's bike share scheme operated by Co-Cars.

²³ www.socialenterprise.org.uk

Co-Bikes, Exeter, UK

- 10.15 The Exeter Co-Bikes project is a car club (Co-Cars Limited) which has added e-bikes to create a multi-modal offer. It launched in 2016 as the first city-wide electric shared bike scheme in the UK.

Figure 10.1: Co-Bikes station and bikes by the Exeter’s County Hall (left) and Central station (right)



Source: <https://www.devonlive.com/news/devon-news/exeter-co-bikes-scheme-expands-3528851>

- 10.16 Table 10.3 describes the scheme main characteristics and funding approach:

Table 10.3: Co-Bike case study

Co-Bike case study	
Operator	<ul style="list-style-type: none"> • Co-Cars Limited is a multi-stakeholder co-operative registered as a Community Benefit Society under the Co-operatives and Community Benefit Societies Act 2014 • Co Cars Limited runs a number of services under the ‘Co’ brand which share management, operations and resources. Services include: a car club (Co Cars); a bike share service (Co Bikes), and more recently, a e-cargo delivery service (Co Delivery). In total, the Go-cars network provides on-demand 30 cars and 95 electric bikes and a few e-cargo bikes to 1,200 active members. • The Board of Directors meets monthly to monitor the business and make strategic decisions.
E-bike scheme	<ul style="list-style-type: none"> • The e-bikes are supplied by German company Next Bike, powered by Good Energy and operated by Co-Cars. • The network expands from 3 docking stations in 2016 to 14 in 2019 with a total of 95 e-bikes. • Co-Bikes have currently a monopoly in Exeter with no competition from other micromobility operators.
Pricing structure	<ul style="list-style-type: none"> • Two offers: <ul style="list-style-type: none"> – Casual rider: £1 per 20 mins; – Membership (“BikeRider programme”) which provides offers for daily/weekly and monthly use (from £3.50 to £30). Co-Bikes’ annual membership tariff cost £60 with £0.75 charge for every 30 minutes of use
Funding & Business Model	<ul style="list-style-type: none"> • Initial funding of £65,000 was awarded by the Department for Transport (DfT) via CoMoUK (formerly BikePlus) to the Devon Country Council acting as a partner to Co-Bikes. • Co-Cars earns the core of its income through fees for membership of the car club and pay as you go hire of cars and bikes. • The table below summarized Co-Cars recent financial performance:

Co-Bike case study

Co Cars Limited: financial summary (2018-20)

Co Cars, year ending 31 March		2018 A	2019 A	2020 E
Revenue / total income	£000	263	274	401
Operating profit (loss) before depreciation, interest on capital and corporation tax (EBITDA)	£000	11	(1)	22
Net profit (loss) after depreciation, interest on capital and tax	£000	(24)	(73)	(76)
Fixed assets		228	471	487
Member share capital		5	5	5
Accumulated reserves (or losses)	£000	198	126	50
Long term liabilities (loans)		(13)	(31)	0
Net assets	£000	230	473	566

Source: unaudited annual accounts to 31 March 2018 & 2019, management accounts to Sept 2019, financial forecasts.

- In February 2020, Co-Cars launched a £600,000 community share offer (with a minimum investment of £250)²⁴ in order to increase its electric cars and bikes fleet as well as to improve the infrastructure and the service offer (including the software development). Two weeks prior to the closing of the share offer £325,000 of investment had been attracted. Co-Cars have also been approached by a social institution who is interested in investing in the business through participation in our Community Share offer, if successful, this would raise very close to their original £600,000 target.

Advantages and limitations of Community Interest Companies for local authorities

- 10.17 Under the Community Interest Company model, the Council can maintain full control over setting performance and operating standards as well as making decisions on programme expansion. However, this could lead to a certain number of risks in terms of higher liability, financial and operating risk exposure to the Council. Additionally for Option 2: **Joint City Region scheme** arrangements regarding control over the Community Interest Company would need to be negotiated between the participating local authorities.
- 10.18 One way of mitigating risks, particularly the liability risks, is for the scheme to be operated through a limited company and, in particular, a Community Interest Company (CIC). It should be noted, however, that this apparent mitigation can sometimes prove to be an illusion since:
- third parties dealing with a CIC often require a parent company (i.e. the Council(s)) guarantee; and
 - if a CIC is in danger of insolvency, there are usually significant political pressures not to allow the CIC to fail.
- 10.19 Potential advantages and limitations of CICs as a vehicle for delivering the future scheme are presented in Table 10.4.

²⁴ <https://www.co-cars.co.uk/wp-content/uploads/2020/02/Co-Cars-Community-Share-Offer-2020.pdf>

Table 10.4: CIC approach advantages and disadvantages

	Potential Benefits	Risk to Council
Financing	<ul style="list-style-type: none"> • Sometimes better placed to access grant funding • Limited company status: legal liabilities will, technically, be the CIC's own liabilities rather than those of its members (this can be an illusion, however – see fourth and fifth bullet points opposite) 	<ul style="list-style-type: none"> • High start-up cost to set up the structure in terms of assets, IT investment, staff • Funding uncertainty • Restriction on returns to outside investors • Restriction on using any profits for other Council needs • Third parties may require a parent company (i.e. Council) guarantee when doing business with the CIC • If a CIC delivering a Council service is in danger of insolvency, there may be significant political pressures not to allow the CIC to fail
Coordination with the Council	<ul style="list-style-type: none"> • Transparency • The assurance of community benefit and inclusivity going beyond the local authority's own direct involvement in the company 	<ul style="list-style-type: none"> • Micromobility is a fast-moving market which requires constant evolution of the offer requiring close collaboration between the CIC and the local authority (this is likely to be beyond the capabilities of a CIC) • Significant time resources required from officers and, potentially, councillors in management and decision making • Administrative burden of accounting, corporate governance and Companies House filing • Additional regulatory burdens compared to an ordinary company
Service delivery	<ul style="list-style-type: none"> • Prioritise the utility of the bike-share system to the user 	<ul style="list-style-type: none"> • Potentially less adaptable to private sector competition • Lack of resiliency over years: a few major schemes managed as a CIC or similar have shut down or been changed because of financial constraints (e.g. Bycycklen in Copenhagen or Nice Ride in Minneapolis)

Legal requirements to set up a Community Interest Company

10.20 The basic structure for CICs is the limited company, which implies that the liability for the company's debts is limited²⁵. They can either be expressly created or be converted from an existing company. It is important to note that:

- Once registered, a CIC cannot be converted into an ordinary company, a CIC can only be dissolved altogether or converted into a charity, which is subject to complicated charity law;
- CICs do not have automatic rights to receive grants or funding; and
- CICs have no special tax status (in comparison with charities that do).

²⁵https://www.sthelenschamber.com/assets/0002/1398/A_Guide_to_setting_up_a_Community_interest_company.pdf

- 10.21 The process of setting up a new CIC is relatively similar to that of setting up any limited company. Under the Companies Act 2006, it works by a simple process of registration for which the Board of the planned CIC are required to deliver:
- Memorandum of Association;
 - A printed copy of the Articles that complies with the requirements of section 18 of the Companies Act 2006 and related CIC legislation (a CIC cannot rely on default articles under section 20 of the Companies Act 2006);
 - Form IN01 requires details of the CICs proposed name, first directors and secretary, the intended situation of the registered office, a statement of compliance, amongst other details;
 - Form CIC36 which is the community interest statement to confirm that the CIC will provide benefit to the community (by describing intended activities, who they will help and how); and
 - A cheque for £35 made payable to “Companies House”.
- 10.22 The required forms (IN01, CIC36, a model memorandum and articles of association, with explanatory notes), can be obtained free of charge from the Regulator’s website, or law stationers and company registration agents.
- 10.23 A CIC can be registered online through this [link](#) (registering online costs £27).
- 10.24 Registration is not all that is required to set up a CIC, the Registrar of Companies cannot incorporate a company as a CIC itself, it must wait for the Regulator to decide that the company is eligible to be a CIC. Official guidance on [setting up a CIC](#) is also provided by the CIC regulator.
- 10.25 In short summary, the following is needed to set up a CIC:
- a ‘community interest statement’, explaining what the business plans to do;
 - an ‘asset lock’ - a legal promise stating that the company’s assets will only be used for its social objectives, and setting limits to the money it can pay to shareholders; and
 - a constitution - you can use the CIC regulator’s model constitutions²⁶.
- 10.26 A CIC needs an approval from the CIC regulator to start operations. There is no additional paperwork to get a company approved by the [community interest company regulator](#) – the application will automatically be sent to them.
- 10.27 CICs in which local authorities are involved are subject to the same rules and limitations as other companies without local authority participation.
- 10.28 There are organisations that provide support to CICs, and even with particular focus on the challenges faced by local authorities, such as Social Enterprise UK. They have experience working with local authorities to deliver excellence in social enterprise, and offer step by step support, guidance and best practice to local authorities looking to transform their social value policies. They work with authorities through tailored, bespoke programmes through which they provide expertise, support and training to the local authority on how to deliver a high quality service with greater social impact.
- 10.29 There are also various legal and accounting firms that offer expert advice on forming CICs. For the purposes of this study, we engaged with three independent legal/accounting consultants

²⁶ <https://www.gov.uk/government/publications/community-interest-companies-constitutions>

who suggested it takes around two to three months to set up and register a CIC in the UK. The legal costs (application and registration) ranges from £1,500 to £2,000. There will also be additional ongoing legal costs associated with administering the board and complying with the regulatory regime.

Deliverability of the future scheme through a Community Interest Company

- 10.30 Delivering the scheme through a CIC would, in theory at least, significantly lower the liability risks of the member councils. There are, however, other risks in terms of operation and scheme performance that should be addressed.
- 10.31 It would, for example, require the member councils to generate operating expertise from scratch, which could affect important scheme decisions, initial levels of services and asset management. When a business changes owner, its employees may be protected under the Transfer of Undertakings Protection of Employment regulations (TUPE). We understand that TUPE (moving existing employees to a new employer) may be a lengthy process.
- 10.32 The member councils might also need to increase their organizational capacity to take on responsibility for the bike share program. This would likely require additional staff (bike share planning expert, asset management expert, public outreach, etc.) as well as strong cross-departments and stakeholder collaboration from the early stage of the project. More generally, it would require for the member councils to build cross-party political will to facilitate successful design, coordination, implementation and management in the long term.
- 10.33 We have identified in Table 10.5 and Table 10.6 the elements of capital costs and operating costs which have potential to vary for Option 1: Expanded Brighton & Hove Scheme (as discussed in [Chapter 4](#)) based on delivery through a CIC. The components where there are opportunities to lower costs and the associated risks for the Councils are likely to be similar for the Joint City Region Scheme.
- 10.34 The ability to realise the opportunity to lower costs require detailed conversations with appropriate Council departments such as IT, Legal, HR, Maintenance and Communications.

Table 10.5: Potential for capital costs to vary and risks for CIC delivery options – Option 1: Expanded Brighton & Hove Scheme

Components	Opportunity (to lower costs)	Associated risks (to costs and timescales)
CIC set-up costs		
Council support (preparation of documents, staff recruitment)		<ul style="list-style-type: none"> • Additional costs for the council
Legal fees		
Application and registration fees		
Procurement costs		
Bikes	<ul style="list-style-type: none"> • Costs likely to remain the same 	<ul style="list-style-type: none"> • Timeline to procure might increase due to higher legal structures within local authority framework • Risks to deliver service on time impacting continuity of the scheme
Hubs	<ul style="list-style-type: none"> • Costs likely to remain the same 	

Components	Opportunity (to lower costs)	Associated risks (to costs and timescales)
Redistribution vehicles	<ul style="list-style-type: none"> Potential to procure the vehicles using the Local Government Vehicle Procurement Framework at a lower costs compared to market prices (this is also possible under other operating models) 	
Workshop set-up and spare parts	<ul style="list-style-type: none"> Costs likely to remain the same 	
Mobilisation costs		
Promotional cost	<ul style="list-style-type: none"> Potential to leverage local council resources to promote the scheme 	<ul style="list-style-type: none"> Lack of previous experience might lower the expected level of public outreach
Testing		<ul style="list-style-type: none"> Additional staff training costs also to be incurred

Table 10.6: Operating and maintenance costs and associated opportunity and risks for CIC delivery options – Option 1: Expanded Brighton & Hove Scheme

Components	Opportunity (to lower costs)	Associated risks (to costs and timescales)
Operating staff wages		
Operations Manager	<ul style="list-style-type: none"> Costs likely to remain the same 	<ul style="list-style-type: none"> Lack of experience to recruit suitable staff
Service and maintenance	<ul style="list-style-type: none"> Costs likely to remain the same Requirement of 2 FTE 	<ul style="list-style-type: none"> Lack of experience to recruit suitable staff
Redistribution	<ul style="list-style-type: none"> Costs likely to remain the same Requirement of 5 FTE based on demand and need for redistribution and charging 	<ul style="list-style-type: none"> Lack of experience to recruit suitable staff
Other direct operational costs	<ul style="list-style-type: none"> Potential to leverage local council resources (such as property holdings) to reduce costs 	<ul style="list-style-type: none"> Lack of experience may incur extra costs
Overheads		
System maintenance and support	<ul style="list-style-type: none"> Costs likely to remain the same 	
Marketing and PR	<ul style="list-style-type: none"> Potential to leverage local council resources to reduce costs 	
Admin and Management	<ul style="list-style-type: none"> Opportunity to lower rental costs by leveraging council-owned properties for workshop locations 	<ul style="list-style-type: none"> Council owned properties typically leased at market rates

10.35 This analysis focuses on costs, in addition a scheme run as a CIC may alter revenues, compared to the current operation. Depending on the success of the CIC there is both:

- An opportunity to increase revenue (by increasing demand, through a well promoted and locally optimised operation); and
- A risk that revenue decreases (through lower demand in the case of a poorly managed scheme with limited promotion).

Governance arrangements

10.36 For Option 1: **Expanded Brighton & Hove Scheme**, the existing governance arrangements should be reviewed to ensure that they are fit for purpose.

10.37 For the Option 2: **Joint City Region scheme**, the organisational model is likely to follow these principles:

Management Board and Joint Governance Board

- A “Management Board” would act as a restricted body deliberating on matters relating to the operation and day-to-day management of the scheme (staff, premises, etc.), which require rapid decision-making without waiting for the “Joint Governance Board” to meet.
- A “Joint Governance Board”, formed by all the representatives of the member local authorities and public institutions, it could meet every one or two months to decide on all major issues: budget, membership, extension of the scope (e.g. technology choices), approval of agreements (e.g. vendor contracting), etc. The board would be composed of representatives of the member local authorities and public institutions.
- An additional “Bike Share User Group” could be formed with representative of users of the service and other local stakeholders, it could convene once a quarter to discuss all issues relating to the operation of the service.

Regional administrative and operating coordination

- Creation of a master contract for Local Authorities to agree on:
 - Common operating standards (interoperability²⁷, fee structure, appearance);
 - Consideration regarding providing exclusivity for one operator across the region to maintain the interoperability and coherence of the service
 - Operator procurement process: The Master Contract would allow jurisdictions to be added and/or negotiate their own contract separately with the operator within the common operating standards
 - Mobilisation period and option to stagger these according to needs of each authority.
- KPI requirements to ensure operator’s performance, especially related to the redistribution of the fleet across the region and maintain a certain level of fleet in popular areas.

²⁷ the ability to harmonise back-end software, operational KPIs and data collection and reporting across the three authority regions

Control Information

Prepared by

Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
www.steergroup.com

Prepared for

Brighton & Hove City Council
Wellington House, Wellington Street
Brighton BN2 3AX

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Client contract/project number**Author/originator**

Susmita Das

Reviewer/approver

Matthew Clark, Tom Higbee

Other contributors

Aashni Patel, Shipra Bhatia, Daniel Almazan Becerra, Edmund Cassidy, Hannah Thompson, Alia Verloes

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