

Belfast Public Hire Bike Scheme

Addendum to Outline Business Case

1 May 2012



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1 Introduction and Assessment of Need

Background

- 1.1 An Outline Business Case for a Public Hire Bike scheme was submitted in April 2011 (the 2011 OBC) to the Council, the Department for Regional Development (DRD) and the Strategic Investment Board (SIB). In January 2012, DRD invited applications from Councils in Northern Ireland to bid for capital funding to implement Active Travel Demonstration Projects, with a budget of approximately £3 million available over three years to 2015, to fund between 3 and 6 projects. The Council are now considering the submission of a bid to cover capital infrastructure for the proposed bike hire scheme in Belfast.
- 1.2 The 2011 OBC contained an estimation of infrastructure costs for a scheme in the City and based on this figure the Council now intend to draw up a potential bid of up to £1 million for submission to DRD. The capital infrastructure bid process needs to be linked to an exercise to identify how an operator could be sought to run the scheme and cover on-going revenue costs.
- 1.3 The 2011 OBC was predicated on a set of options which assumed there was no capital or revenue funding likely to be made available to support the delivery of the scheme. In this context, a preferred commercial option was identified which was predicated on an advertising company (or similar), developing and operating the system, with payment most likely made in the form of access to advertising assets in the City.
- 1.4 The Council now wish to review the most appropriate commercial and contractual options given the possible availability of a significant amount of capital funding, through the development of this Addendum to the 2011 OBC, in line with the Terms of Reference set out at Appendix A.

Assessment of Need

- 1.5 In order to assess the potential size and scale of a scheme appropriate for Belfast, a detailed comparative study was undertaken in the 2011 OBC, based on comparisons with schemes in cities similar to Belfast and other successful schemes. This exercise specifically included:
 - a detailed study of physical and performance metrics and experience from a list of **Most Similar Cities**, including consultation with scheme operators or public authorities, where possible; and
 - case studies of **best practice & experience elsewhere** from identified landmark schemes.
- 1.6 This exercise indicated that there is potential for an appropriate level of demand for a public bike hire scheme in Belfast if one were to be provided. The following table summarises the projected range of **Uptake, Infrastructure** and **Utilisation** identified in the 2011 OBC as potentially achievable in Belfast, on the basis of these studies. This was also informed by consultation with operators of schemes elsewhere based on the indicative geographic, demographic and socio economic characteristics of Belfast.

Range	Low	High
Registration Uptake (% of city population)	2%	4%
Registration Uptake (no.)	c. 5,500	c. 11,000
Bikes (no.)	c. 300	c. 500
Stations (no.)	c. 30	c. 50
Trips per Day (no.)	c. 900 – 1,500	c. 1,500 – 2,500

- 1.7 As can be seen from the table above, the OBC indicated a conservative level of infrastructure provision may be in the range of **300 to 500 bikes**. In terms of bikes to stations ratio, a metric of approximately 10:1 to 15:1 would require between **20 to 50 bike stations**. The bike stations

would have a docking point to bike ratio of in the region of **2:1**. The bike stations should be located no more than 300-400 meters apart at key strategic locations. The key cities examined indicate a conservative registration or uptake range of between **2% to 4%** of the population could be achieved. Based on a population of 268,300 in Belfast this would imply the potential for a registration or uptake of between circa 5,500 and 11,000.

Update to 2011 OBC and Confirmation of Findings

- 1.8 A number of reports on the development of bike sharing schemes in European cities have emerged since the finalisation of the 2011 OBC. These have been reviewed to ensure the findings of these reports are consistent with the findings of the 2011 OBC, particularly in terms of the scope and scale of a potential scheme in Belfast.
- 1.9 The OBIS Project (a European sponsored programme established to encourage the development of public bike hire schemes) published its final Report in June 2011, and set out the results of detailed analysis of bike sharing schemes across Europe. It concluded that there was a wide variation in the size and density of schemes sampled, and noted an average number of bikes and stations for a city similar in size to Belfast. The average metric stated by OBIS was 14.4 bikes and 1.3 stations per 10,000 inhabitants, which would equate to 385 bikes and 35 stations based on a population of 268,000. Alternatively, 300 bikes in Belfast would equate to circa 11 bikes per 10,000 inhabitants and 500 bikes would equate to almost 19 bikes per 10,000 inhabitants. OBIS did note however that this average was of limited value given the variation within the sample studied¹.
- 1.10 Studies also undertaken for National Transport Authority in Ireland examined the introduction of schemes in regional cities in Ireland, and in particular Cork and Galway. These indicated that these cities could support schemes of circa 300 bikes (Cork - 150,000 residents), and 200 bikes (Galway - 100,000 residents). This equates to a metric of 20 bikes per 10,000 residents, which would indicate that the level of provision indicated for Belfast remains reasonable².
- 1.11 Therefore, the research carried out under the Most Similar Cities study, review of experience elsewhere, the consultation with operators, and the additional metrics set out in this Addendum above, would continue to indicate that the potential level of infrastructure set out in the OBC remains reasonable.

Confirmation of Options

- 1.12 The two scale options were identified in the 2011 OBC and confirmed in this addendum are therefore:
 - Option 3 – Mid sized 3rd Generation Scheme – 300 bikes and 30 stations; and
 - Option 4 – Full sized 3rd Generation Scheme – 500 bikes and 50 stations.
- 1.13 The monetary costs of these options have been reviewed and updated in the following section.

¹ Optimising Bike Sharing in European Cities - A Handbook

² <http://nationaltransport.ie/downloads/Bike-Scheme-Technical-Report.pdf>

2 Review of Scheme Costs

Cost Categories

- 2.1 The 2011 OBC set out the key capital and operating cost estimates for a public hire bike scheme in Belfast. The following paragraphs set out the benchmark estimates derived from publically available information on similar schemes utilised in the 2011 OBC, and these have been updated where appropriate to reflect any revised assumptions, costs or recently published research or scheme documentation.

Opportunity Costs

- 2.2 The 2011 OBC anticipated that docking stations will be primarily located by the roadside on wide payments or existing on street car parking spaces. This assumption remains valid. The opportunity cost of parking revenues foregone therefore continue to be included as an opportunity cost of the scheme. The key change in assumptions since the 2011 OBC is the increase in the on street parking tariff from £1.00 to £1.20 per hour. The effect of this adjustment is shown in the table below.

Description	Assumption	Comment
Number of Days (Mon – Sat)	6	DRD Roads Service Website
Weeks in Year	52	-
Number of Parking Days p.a	312	-
Number of Chargeable Hours per day	8	Based on average chargeable period
Assumed Parking Space Utilisation	80%	-
Number of Chargeable Hours p.a	1,997	
Updated Revenue per Hour	£1.20	DRD Roads Service Website
Percentage of Docks in parking spaces	50%	-
Number of Docking Stations per Parking Space	2	-
Opportunity Cost p.a – Option 3	£71,885 p.a.	30 Spaces foregone x £2,396
Opportunity Cost p.a – Option 4	£119,808 p.a.	50 Spaces foregone x £2,396
2011 OBC		
Opportunity Cost p.a Option 3	£59,904 p.a.	30 Spaces foregone x £1,997
Opportunity Cost p.a – Option 4	£99,840 p.a.	50 Spaces foregone x £1,997

- 2.3 The revenue foregone from parking bays has therefore increased from £59,904 and £99,840 per annum for 30 stations (Option 3) and 50 stations (Option 4) in the 2011 OBC, to £71,885 and £119,808 per annum.

Start-Up Costs

- 2.4 In addition to the capital costs for bikes and docking stations, provision was made for a number of 'Start-Up' Costs in the 2011 OBC. These one off costs are incurred in year 1 in order to launch the scheme and are considered to remain reasonable. These costs have therefore not been adjusted from the 2011 OBC.

Cost Classification	Option 3 £	Option 4 £	Comment
Pre-Launch Promotional Expenditure	30,000	45,000	Raise publicity of scheme and methods of participation.
Detailed Docking Station Location & Traffic Flow Study	20,000	30,000	Study ensures that bikes are located in optimal city locations.
Pre-Launch Office & Admin	10,000	15,000	-
Total Start Up Costs	60,000	90,000	

Infrastructure Costs

- 2.5 Infrastructure Costs include the cost of purchasing and installing bikes and docking stations, service and distribution vehicles and the cost of management information systems. The 2011 OBC researched a range of cost metrics from other schemes in order to estimate the capital cost of a scheme in Belfast, and established an average cost per bike metric of £2,095 for infrastructure costs.

Update to Infrastructure Costs

- 2.6 The cost of implementing a scheme can vary greatly depending on the choice of system installed. The largest element of cost, up to 70%, relates to the physical infrastructure installed to support the scheme (including terminals, docking stations, ground works, cabling technology and software), with the cost of the actual bikes often representing less than 20% of total costs.
- 2.7 Therefore, due to the significant cost impact of individual systems, associated excavation and groundwork on the cost of implementation, further research on capital cost metrics has been carried out as part of the Addendum process. This exercise has involved the following tasks:
- update cost data in 2011 OBC to current prices;
 - review and incorporation of new, published data in relation to scheme costs; and
 - review literature to attempt to establish average cost metrics for 3rd generation schemes which required minimal ground works to install, and those which are known to have required a much greater level of excavation and ground works.
- 2.8 The table below sets out capital cost metrics per bike for a number of schemes which required minimal ground works to install. These schemes have typically been described as being bolted to the ground, 'lift and shift' in nature, with no significant excavation required.

City	Scheme (Minimal Ground works)	Capital Cost (£ per Bike)	Base Year	Capital Cost (£ 2012 Prices ³)
Barcelona	Bicing estimate	1,208	2007	1,367
n/a	Hourbike generic estimate	1,500	2011	1,538
Minneapolis	Niceride (Bixi) estimate	2,000	2009	2,154
	Average	1,569		1,686

- 2.9 On the basis of the analysis set out above, the average cost per bike for stations with limited ground works is circa £1,686 per bike (Barcelona (1,500 bikes), Minneapolis (1,000 bikes), Hourbike generic Belfast scheme estimate).
- 2.10 The table below sets out capital cost metrics per bike for a number of 3rd generation schemes which required a more significant level of ground works to install.

³ Indexation of 2.5% per annum from base year figures has been applied in order to calculate 2012 pricing estimates.

City	Complex Scheme (Significant Ground works)	Capital Cost (£ per Bike)	Base Year	Capital Cost (£ 2012 Prices)
Washington DC	Clear Channel Adshel estimate	2,250	2008	2,484
n/a	Clear Channel - Generic Scheme	2,250	2010	2,364
n/a	OBIS average – Generic Scheme	2,292	2012	2,292
Montreal	Bixi estimate	2,500	2008	2,760
Paris	Velib estimate	2,750	2009	2,961
	Average	2,408		2,572

- 2.11 As can be seen from the table above, for more complex installations, the capital cost is circa £2,572 per bike (Washington (1,200 bikes), Paris (20,000 bikes), Montreal (2,400 bikes) and Generic Scheme estimates).
- 2.12 It is important to note when considering the tables above that there is no evidence on whether the larger schemes have managed to achieve significant economies of scale due to their size.

Updated Summary of Capital Costs

- 2.13 The following table sets out the updated capital cost estimates for Option 3 (300 bikes) and Option 4 (500 bikes). In particular, the table demonstrates the potential range of costs which can arise for each Option, as a result of the choice the scheme and level of ground works required. The cost estimates contained in the 2011 OBC are also presented as a comparative.

Cost Classification	Option 3 – 300 Bikes £			Option 4 – 500 Bikes £		
<i>Cost Level / Groundworks</i>	<i>Low</i>	<i>High</i>	<i>Midpoint</i>	<i>Low</i>	<i>High</i>	<i>Midpoint</i>
Cost Per Bike	1,686	2,572	2,129	1,686	2,572	2,129
Infrastructure Capital Cost	505,800	771,600	638,700	843,000	1,286,000	1,064,500
Start Up Costs	60,000	60,000	60,000	90,000	90,000	90,000
Total Capital Costs - Addendum	565,800	831,600	698,700	933,000	1,376,000	1,154,500
Total Capital Costs – Original OBC	£688,500 (based on £2,095 per bike)			£1,137,500 (based on £2,095 per bike)		

- 2.14 Based on these above, it is clear that a scheme with minimal ground works required can be implemented for considerably less than those which require significant excavation and cabling.
- **300 Bikes** - The analysis shows that a scheme of 300 bikes could be deliverable in Belfast within a capital budget of £1m, subject to the degree of complexity and specification ultimately decided upon.
 - **500 Bikes** - The analysis above would indicate that a system which required significant groundworks may exceed the £1m capital budget. For a scheme of this size, a system requiring a more straightforward installation may be required to fall within the budget.
- 2.15 For the purposes of affordability statement contained subsequently in this report, the midpoint costs for options 3 and 4 have been assumed.

Operating Costs

- 2.16 Operating costs include inter alia, maintenance, redistribution of bikes, replacement due to theft, systems and administration costs. A range of operating cost metrics from other schemes were researched in the 2011 OBC to estimate the annual cost of running a scheme in Belfast, and an average cost per bike metric of £880 was established.

Update to Operating Costs

- 2.17 Operating costs can also vary widely based on factors including the level of scheme complexity, technology adopted and importantly, the level of usage (wear and tear costs). Therefore, further research has been undertaken as part of this Addendum to update the cost estimates set out in the 2011 OBC. This has involved the following tasks:
- update cost data in 2011 OBC to current prices;
 - review and incorporation of new, published data in relation to scheme costs; and
 - review literature to attempt to establish average cost metrics for 3rd generation schemes which required minimal ground works to install, and those which are known to have required a much greater level of excavation and ground works.

- 2.18 The results of this exercise are set out below.

City	Scheme	Opex Cost (£ per Bike)	Base Year	Opex Cost (2012 Prices)	Complexity
Barcelona	Bicing estimate	1,250	2007	1,414	Simple
n/a	Hourbike generic estimate	666	2011	683	Simple
Minneapolis	Niceride (Bixi) estimate	1,000	2009	1,077	Simple
Washington DC	Clear Channel Adshel estimate	1,000	2008	1,104	Complex
n/a	Clear Channel - Generic Scheme	1,000	2010	1,051	Complex
n/a	OBIS average – Generic Scheme	1,667	2012	1,667	Complex
Montreal	Bixi estimate	750	2008	828	Complex
Paris	Velib estimate	1,416	2009	1,525	Complex
	Average	1,094		1,168	
Adjustment for Theft		(52)		(52)	
Average Opex (ex Theft Replacement) per Bike		1,042		1,116	
Original OBC Opex per Bike				880	

- 2.19 As can be seen from the table above, the average operating cost per bike has been revised upwards from £880 per bike to £1,116 per bike, primarily as a result of price inflation and the inclusion of new data sources.
- 2.20 It should be noted that the average annual operating cost per bike for the schemes with simpler stations was c. £1,100 per bike (Barcelona, Minneapolis, Hourbike generic estimate). For more complex installations, this rose to c. £1,200 per bike (Washington, Paris, Montreal and Generic Scheme estimates). Based on the sample above, there does not appear to be any significant

variance in costs between the schemes which require greater capital investment to install and those which adopt a more straightforward installation system

- 2.21 It should also be noted that the most expensive schemes ranged from c. £1,500 per annum per bike (Paris – although this scheme is known to suffer from high maintenance and theft rates) to £2,000 per annum per bike (OBIS projected a cost range of £1,250 - £2,000 per annum per bike for large scale schemes). In contrast, the lowest noted cost was provided by Hourbike Limited who estimated an annual operating cost of c £700 per annum per bike for a basic scheme. Again, there is no evidence available to assess whether the larger schemes noted above have been able to achieve significant economies of scale.

Other Cost Items

- 2.22 The original OBC also identified a further £20,000 per annum of contract management costs and this estimate has not been revised. Theft & replacement assumptions have not changed from the April 2011 OBC and are presented separately from operating costs.

Summary of Operating Costs

- 2.23 On the basis of the operating cost figures set out at 2.18 above, the revised total operating cost estimates for Option 3 and Option 4 are set out below.

Cost Classification	Option 3 £ p. a.	Option 4 £ p.a.	Comment
Operating Cost	334,800	-	300 bikes x £1,168
Operating Cost	-	558,000	500 bikes x £1,168
Bike Replacement Cost	15,600	-	Based on 300 bikes * 10% * £520
Bike Replacement Cost	-	26,000	Based on 500 bikes * 10% * £520
Contract Management	20,000	20,000	-
Total Per Annum	370,400	604,000	
Original OBC	299,600	486,000	

- 2.24 As can be seen from the table above, Option 3 is projected to have an annual operating cost including replacement for theft and vandalism, of circa £370k. Option 4 is expected to have an annual cost of circa £600k.
- 2.25 It is important to note that the operating costs set out above do not include any income which may be generated by the scheme (e.g. membership charges, rental costs, third party advertising) so as to present a prudent view on the level of likely scheme costs. This approach is consistent with that adopted in the 2011 OBC.

Summary of Updated Option Costs

- 2.26 The following table sets out updated total cost project costs for Option 3 and Option 4 over a 5 year period (being the typical length of a standalone operating contract). Please refer to Appendix B for detailed presentation of cost inputs and assumptions and Appendix C for detailed net present cost calculations.

Cost Classification	Option 3 £	Option 4 £	Comment
Opportunity Costs	431,310	718,848	6 yrs construction and operations
Capital Costs	698,700	1,154,500	Year 1 only
Operating Costs	1,852,000	3,020,000	5 year operational period
Total Costs	2,982,010	4,893,348	
Net Present Cost	2,673,937	4,388,733	@ 3.5% real per annum

Affordability Implications of Grant Contribution

- 2.27 The following tables set out the capital and revenue affordability implications for Option 3 (300 bikes) and Option 4 (500 bikes). These calculations assume upfront payment for the capital infrastructure, a five year operating contract and that the capital component of the scheme is depreciated on a straight line basis during the term of the contract. As stated previously, in order to present a conservative level of costs, and in line with the approach adopted in the original OBC, no revenue has been assumed in the affordability analysis.

Affordability Requirements -Option 3 (300 Bikes)

Option 3 – 300 Bikes	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	TOTAL
<i>Cash Requirement:</i>	£	£	£	£	£	£	£
Capital	698,700						698,700
Revenue		370,400	370,400	370,400	370,400	370,400	1,852,000
Total Cash Requirement	698,700	370,400	370,400	370,400	370,400	370,400	2,550,700
<i>Funded by:</i>							
Capital Budget	698,700						698,700
Revenue Budget		370,400	370,400	370,400	370,400	370,400	1,852,000
Total Budget	698,700	370,400	370,400	370,400	370,400	370,400	2,550,700

<i>Non Cash Requirement:</i>							
Depreciation	-	139,740	139,740	139,740	139,740	139,740	698,700
<i>Funded by:</i>							
Non Cash Budget	-	139,740	139,740	139,740	139,740	139,740	698,700

2.28 The figures set out in the table above assume that capital assets will be owned by the Council and will be financed by available grant funding.

Affordability Requirements -Option 4 (500 Bikes)

Option 4 – 500 Bikes	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	TOTAL
<i>Cash Requirement:</i>	£	£	£	£	£	£	£
Capital	1,154,500						1,154,500
Revenue		604,000	604,000	604,000	604,000	604,000	3,020,000
Total Cash Requirement	1,154,500	604,000	604,000	604,000	604,000	604,000	4,174,500
<i>Funded by:</i>							
Capital Budget	1,154,500						1,154,500
Revenue Budget		604,000	604,000	604,000	604,000	604,000	3,020,000
Total Budget	1,154,500	604,000	604,000	604,000	604,000	604,000	4,174,500

<i>Non Cash Requirement:</i>							
Depreciation	-	230,900	230,900	230,900	230,900	230,900	1,154,500
<i>Funded by:</i>							
Non Cash Budget	-	230,900	230,900	230,900	230,900	230,900	1,154,500

2.29 The figures set out in the table assume that capital assets will be owned by the Council and will be financed by available grant funding.

2.30 As can be seen from the table above, the mid point cost estimate for a scheme of 500 bikes is greater than £1m, although the research set out in paragraph 2.12 indicates that a scheme of 500 bikes could be deliverable for less than £1m, subject to the choice of system and degree of ground works required by the chosen system.

3 Contractual and Procurement Approaches

Ownership, Operations and Financing Structures

- 3.1 As set out in the 2011 OBC, bike sharing schemes are diverse in not only their size and scale, but also in terms of the ownership, operating and financing models which exist. The majority of large, successful schemes are currently operated by the private sector in partnership with the public sector and are often funded through an associated contract for advertising or street furniture. The table below summarises a broad range of structures in terms of ownership (being who finances and carries the assets on their balances sheet), operation and financing of a public hire bike scheme, as established in the 2011 OBC.

	Owner	Operator	Revenue/Finance	Examples
Public ↓ Private	Public Authority / Public Transport Co	Public Authority / Public Transport Co	Public Funding Member/User Fees Ads on bikes/stations	Orebro, Montpellier, Rome
	Public Authority	Assoc/Co-op	Public Funding / Value in Kind Member/User Fees Ads on bikes/stations	Aarhus, Rimini, Modena
	Public Authority	Private Operator	Public Funding / Value in Kind Member/User Fees Ads on bikes/stations	Barcelona, Lyon, London
	Advertising Co Contract (or similar)	Advertising Co Contract (or similar)	Low/No Public Funding Member/User Fees Ads on bikes/stations	Dublin, Stockholm, Paris
	Private Transport Co	Private Transport Co	Public Funding / Value in Kind Member/User Fees Ads on bikes/stations	Dresden, Dusseldorf, Krakow

- 3.2 Each of these approaches was described in detail in the 2011 OBC, including advantages and disadvantages, and for reference this analysis has been set out at Appendix D.

Filtering of Ownership, Operations and Financing Structures

- 3.3 The original OBC identified two key constraints in relation to the scheme, specifically, that it was to have minimal public funding requirements; and that the Council and DRD did not intend to own or operate the scheme as it considered that this is best delivered by the private sector who have significant experience in this area. Issues in relation to the vires of the Council to own and operate the scheme were also raised. Based on this, the OBC concluded that the most appropriate commercial structure was one where an advertising company (or similar) both owned and operated the scheme, as this approach also offered the ability to minimise conventional funding by leveraging the value in kind of assets such as advertising space.

Update to Filtering of Structures

- 3.4 The availability of circa £1m in potential grant funding for the purchase and installation of the infrastructure clearly has an impact on this previous analysis and the previous selection of the advertising model, owned and operated by the private sector partner.
- 3.5 The provision of up to £1m in grant funding to purchase the scheme infrastructure would result in the Council retaining ownership of the assets under this scenario, therefore the **first three approaches** in the table above would appear the most likely for Belfast. In this context, a number of key advantages and disadvantages of the Council taking ownership of the assets via the upfront grant funding of the infrastructure are set out in the table below.

Advantages	Disadvantages
<ul style="list-style-type: none"> - No requirement to allocate existing capital budget or advertising assets to fund capital costs - Reduce on-going public sector payments (i.e. meet revenue costs only) - No cost of private finance incurred under arrangements which spread cost of scheme over the life of the contract - Ability to procure a short operating contract with greater flexibility - Can secure fixed price for design & build of scheme, and competitively tender the capital works to ensure best VfM contractor is selected - Potentially shorter procurement timeframe 	<ul style="list-style-type: none"> - Reduction in ability to transfer risk to the scheme operator and incentivise future performance - Important to ensure operator is involved in design and specification of infrastructure to ensure effective transfer of operating risks - Remedies for poor quality / performance limited to those provided in warranties in construction contract or performance regime in operating contract - Assets will require to be recognised on balance sheet and depreciation charged

- 3.6 As set out above, the key risk from funding the upfront purchase of the assets relates to the impact this will have on the ability to transfer risk for the design, performance and function of the assets to the scheme provider, particularly where the design and build aspects of the scheme will have a direct influence on the operations and maintenance of the scheme. The Council will have paid for the major capital investment and therefore the scheme operator does not have a significant capital outlay that is at risk against future performance. The operator would have had capital at risk under the advertising model set out in the 2011 OBC.
- 3.7 However, the use of grant funding to pay for the upfront capital investment will clearly reduce the level of on-going payments to be made to the scheme operator to solely the net revenue costs, and the Council will retain full flexibility in terms of its preferred choice of operator unless a combined design, build, operate and maintain approach is adopted. The Council can aim to operate the scheme within the wider public sector, consider the use of a social enterprise or co-operative model, or employ a private sector operator. A further key advantage of the upfront funding of the asset is that the term of operating contract can be set at a length to provide the Council with greatest flexibility, as it will not need to balance flexibility with the need to spread capital repayments over the lifespan of the assets.
- 3.8 The Council will therefore need to consider each of the following operator options identified within the context of its strategic aims for the scheme.

Owner	Operator	Revenue/Finance	Examples
Public Authority / Public Transport Co	Public Authority / Public Transport Co	Public Funding Member/User Fees Ads on bikes/stations	Orebro, Montpellier, Rome
Public Authority	Assoc/Co-op	Public Funding / Value in Kind Member/User Fees Ads on bikes/stations	Aarhus, Rimini, Modena
Public Authority	Private Operator	Public Funding / Value in Kind Member/User Fees Ads on bikes/stations	Barcelona, Lyon, London

- 3.9 The Council will also need to clearly understand and review its ability to own and /or operate a scheme (including its vires) before concluding on the preferred commercial operating structure.

- 3.10 Assuming that the only change in views from the 2011 OBC relates to the availability of capital funding, we would anticipate that a Council owned / funded scheme, operated by a private operator that is contractually responsible (and therefore carries risk in relation to) scheme design, operation and performance is most likely to be the most attractive approach to the Council in terms of value for money and risk transfer. This structure is considered further below.

Contracting Approaches for Belfast City Council

- 3.11 Once the Council has concluded on the preferred operating structure, it will need to consider the contract strategy, should it wish to implement a scheme in the City.

Scope of Services to be Delivered

- 3.12 There are three broad areas of work required to deliver a scheme; the design of the scheme for the City, the installation of the actual infrastructure, and the on-going operation and maintenance of the system. Key tasks typically undertaken in each of these areas include:
- 1 **Scheme Design** - determination of scheme size and appropriate sites for docking stations and terminals across the City. Surveying of traffic flows, site suitability, public utilities and planning issues. Specification of bikes, docks and information systems in terms of functionality. Design and provision of management information systems.
 - 2 **Scheme Implementation** – site preparation, surveying and installation of infrastructure, equipment and bikes across the city.
 - 3 **Operations and Maintenance** – operation and maintenance of the scheme and all its assets, redistribution of bikes to meet demand, customer services support, revenue collection, marketing and communications. This can also extend to the administration of wider commercial activities intended to support the scheme, such as the operation of an advertising concession on the scheme infrastructure, or the provision of scheme sponsorship.
- 3.13 The design and implementation of the scheme is most commonly delivered under a Design & Build contract arrangement. The Operations and Maintenance services can either be contracted for separately or bundled together with the Design & Build aspects to create a single contract approach.
- 3.14 The table below summarises the basic contracting options available for delivering and operating a scheme in Belfast:

Option	Infrastructure (Design & Build)	Operation (Operate & Maintain)
Option 1	Contractor (DBOM) / (DOM with tendered build contract)	
Option 2	Contractor 1	Contractor 2
Option 3	Contractor	Public Authority or Similar
Option 4	Public Authority or Similar	Contractor

- 3.15 The choice of which procurement and contracting approach the Council should adopt will depend on a range of factors, including:
- the appetite or ability to own and/or operate the scheme;
 - required risk allocation (design risk, demand risk and revenue risk in particular);
 - bike scheme objectives;
 - the flexibility sought and afforded by each option; and
 - degree of control required.

- 3.16 Each of these broad options is discussed below in the context of the Council being in a position to fund the capital purchase and installation of the scheme infrastructure.

Option 1

- 3.17 Option 1 involves the scheme operator in all aspects of the design, installation, operation and maintenance (DBOM) of the bike hire scheme, with the Council meeting the upfront capital cost of the scheme. The build sub-contract for capital works may be tendered/arranged by the scheme operator or alternatively may be tendered by the Council based on a scheme design and specification prepared by the operator and approved by the Council. This would ensure best value for money for the capital grant. This contracting approach is a common approach for delivering schemes, although it is more common within this contracting model for the private sector to also deliver and fund the upfront scheme infrastructure. Key advantages and disadvantages of procuring a single DBOM contract with a milestone payment for capital infrastructure works include:

Advantages	Disadvantages
<ul style="list-style-type: none"> - Single procurement exercise for design, operation and maintenance, possibly supplemented by a separate tendering process of infrastructure works, with the works contract managed by the operator - Likely to attract key, experienced private sector operators - Council can access scheme design expertise of private sector operators - May deliver greater value for money as no / limited interface risk between separate D&B stage and O&M stage - Single contract to administer and monitor - Greater ability to potentially transfer demand or revenue risk to private sector - Upfront payment of infrastructure can allow for shorter operating contract term, providing good flexibility - Certainty of operating costs to the Council 	<ul style="list-style-type: none"> - Relatively inflexible contractual arrangement to achieve robust risk transfer - Control over scheme design largely rests with operator, with agreement of Council - More difficult for SMEs to participate, particularly those from a social economy background

Option 2

- 3.18 Under this approach, the Council would procure two separate contracts – one for the design and build of the scheme, and one for the subsequent operation and maintenance. Key advantages and disadvantages of this approach are set out below.

Advantages	Disadvantages
<ul style="list-style-type: none"> - Possible efficiency from appointing specialists for each element of implementation and operation - Flexibility for Council to appoint an operator for an initial term - Ability for the SMEs and social enterprises to participate - Potential to procure 2 lots under single procurement process - Upfront payment of infrastructure can allow for shorter operating contract term, providing good flexibility 	<ul style="list-style-type: none"> - Two procurement processes and extended procurement period - Experience of scheme operator (e.g. maximising uptake) may not feed into design - O&M contractor may include 'risk pricing' as not involved in the design and development of the scheme - Interface risk when enforcing any performance regime on the operator – 'grey areas' of responsibility - Greater difficulty in achieving any revenue

- Certainty of operating costs to the Council, subject to interface risk	or demand risk transfer - Two contracts to administer and monitor
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Option 3

- 3.19 Option 3 involves the Council procuring a D&B contract for the infrastructure, and then operating and maintaining the scheme either within the Council, or the wider public sector. Key advantages and disadvantages of this approach include:

Advantages	Disadvantages
<ul style="list-style-type: none"> - Retain D&B expertise of private sector providers - Council gains flexibility of contractual operation and financing of revenue costs - Scheme will be focused on public sector outcomes and goals - Flexibility to procure an extension / variation to the infrastructure as required - Ability to potentially link in with public transport provider 	<ul style="list-style-type: none"> - Lack of scheme operational experience within public sector - Larger providers may not tender if there is no operational contract required - No ability to achieve demand, revenue or operational/maintenance risk transfer - Uncertainty of operating costs to Council - Potential vires issues

Option 4

- 3.20 Finally, Option 4 involves the Council undertaking the design and build of the scheme in-house and subsequently procuring a scheme operator. Summary advantages and disadvantages of this approach include:

Advantages	Disadvantages
<ul style="list-style-type: none"> - Council gains maximum flexibility of scheme design - Greater flexibility to deliver an extension / variation to the infrastructure as required - Ability to potentially link in with public transport provider - Utilise experience of private sector or specialist operators 	<ul style="list-style-type: none"> - Lack of scheme design and development experience within public sector - Uncertainty of operating costs at time scheme is designed - O&M contractor may include 'risk pricing' as not involved in the design and development of the scheme - Greater difficulty in achieving any revenue or demand risk transfer - Potential vires issues

Summary of Contracting Approaches

- 3.21 The Council have the ability to broadly procure either one or two contracts for the provision of the scheme. This decision as to which approach to adopt will need to be assessed by the Council in view of the relative advantages and disadvantages of each approach, and the Council's main objectives in delivering the scheme.
- 3.22 Adopting a DBOM/DOM contract approach is the most common form of delivery used in the last number of years, and is likely to deliver the greatest level of risk transfer, the greatest level of interest across experienced scheme operators and providers, and deliver greatest value for money. The fact that the capital costs of the scheme are to be funded upfront and not recovered through a form of unitary payment also means that the operating contract period can be relatively short (circa 5 years), which will provide the Council with a good degree of flexibility for future variations to the scheme (in terms of both size and service provision). In contrast,

the scheme in Dublin has suffered from a lack of flexibility, in part due to the long term contract through which the operator recovers the capital cost of the assets.

- 3.23 Should the Council wish to consider two separate private sector contracts, this would most likely involve two procurement processes, however, it may be possible to utilise a single procurement process and invite tenders against two lots – with contractors invited to bid for either or both of a design and build lot and an operations and maintenance lot. This was the approach adopted by Transport for London.
- 3.24 Private sector interest may be diminished under a contracting approach where only the operations or the design and build is to be contracted out. The undertaking of either of these function by the public sector will also clearly restrict the ability to transfer risk and the extent to which the expertise of private sector operators and providers can be utilised.
- 3.25 Based on our discussions with the Council and the analysis presented in the 2011 OBC and this Addendum, we believe that the DBOM/DOM approach (Option 1) is likely to provide the best fit with the Council objectives in terms of value for money and risk transfer.

A - Terms of Reference

Background

The Outline Business Case (OBC) for the Public Hire Bike scheme was submitted in April 2011 to the Council, the Department for Regional Development (DRD) and the Strategic Investment Board (SIB). In January 2012, DRD invited applications from Councils in Northern Ireland to bid for capital funding to implement Active Travel Demonstration Projects, with a budget of approximately £3 million available over three years to 2015, to fund between 3 and 6 projects. The Public Bike hire scheme for Belfast is included in the Council's Draft Investment Programme

The Council are seeking to submit a bid to cover capital infrastructure for the proposed bike hire scheme in Belfast. The Outline Business Case contains an estimation of infrastructure costs for the scheme and based on this figure the Council intend to draw up a potential bid of up to £1 million for submission to DRD. The capital infrastructure bid process would need to be linked to an exercise to identify how an operator could be sought to run the scheme and cover on-going revenue costs.

The original OBC was predicated on a set of options which assumed there was no capital or revenue funding likely to be made available to support the delivery of the scheme. In this context, a preferred commercial option was identified which was predicated on an advertising company (or similar) owning and operating the system, with payment most likely made in the form of access to advertising assets in the City.

However, the Council now wish to reassess the most appropriate commercial option given the possible availability of a significant amount of capital funding, through the development of an addendum to the original OBC

Remit of Contractor

To develop a short addendum to the OBC which undertakes the following tasks:

1. Confirm Assessment of Need set out in OBC;
2. Review OBC Section 8 (Identification of Monetary Costs) and either confirm (or update as appropriate) capital and operating costs only for Options 3 and 4 (300 and 500 bikes, 3rd Generation Scheme). Reconfirm Net Present Costs of Options 3 and 4 with a clear outline of the projected annual operating costs.
3. Based on Stage 3 and 4 above, conclude on the potential for a grant of approximately £1m to allow the Council to fund the upfront purchase and installation of the proposed level of infrastructure. In undertaking this task, consultation with up to 3 providers of bikes and infrastructure is needed;
4. Following Stage 4, set out the revenue affordability implications for operating the scheme, assuming a £1m grant contribution towards capital infrastructure (both cash and non-cash terms);
5. Update Section 12 (Commercial and Financial Case) to assess the most appropriate ownership, operational and procurement options in view of the available capital grant.

Limitations to Scope of Work

1. The work set out above will not constitute a full economic appraisal / OBC;
2. The addendum will not revisit work undertaken in relation to Assessment of Need, infrastructure based options, objectives, risks or nonmonetary benefits, although it can include minor updates where more recent information is available from the Council;
3. The addendum will primarily focus on updating the Economic Case and Commercial and Financial Case to take account of the potential change in funding approach with clear articulation of the annual operating costs.
4. A draft report should be provided and allow for one set of comments from the Council before providing the final report; and
5. The fee does not provide for engagement with or comments from DRD or DFP;

Contract period & Timetable

The contract shall be for the period will be from the 4th April to the 17th May 2012. Draft findings are required by 11th April 2012 with the final Addendum to be provided by 20th April 2012.

Copyright

The copyright of all text and other materials produced by the Contractor shall remain with the Council.

B Cost Inputs and Metrics

[illegible]

C Net Present Cost Calculations

D Summary of Commercial Approaches from 2011 OBC

Public Authority/Transport Co Owned and Public Authority/Transport Co Operated

This structure is where the public authority owns and operates the bike sharing scheme, and is the model which has been implemented in Montreal in Canada, and also a number of small towns and cities throughout Europe. Ultimately this model will provide the public authority with the greatest degree of control over the scheme, the ability implement change to the scope and operations of the scheme at its own discretion and remove the risk of under performance by a private sector partner. As an alternative, the role of the public authority as owner and / or operator of the scheme may be assumed by the local public transport company. As set out in detail in Section 5 of this OBC, this is the model which is operated in Montpellier, where the Velomagg scheme is operated by the Transports de l'Agglomération de Montpellier (TAM). A significant number of schemes in Germany are also operated by Deutsche Bahn under the Nextbike name. A key advantage of this model would be the ability to integrate the proposed bike sharing scheme with the existing public transport infrastructure and the ability to benefit from the expertise of the public transport company directly, particularly from an operational perspective. Under both variations of the public owned/operated model the upfront cost of the scheme and the revenue funding predominantly financed through public subvention, although user revenues may make up a small proportion of the revenue streams. This model will also involve the public authority assuming all the risks associated with the scheme. In particular, the public authority would be responsible for the service and maintenance of the scheme, for the cost of replacement parts and bikes, the promotion of the scheme, the management of the infrastructure and the customer servicing arrangements. The public authority would also be responsible for all upfront capital costs associated with the scheme and be liable for all recurring operating costs. Issues of public liability in relation to the provision of the bike service may also be assumed.

Summary advantages and disadvantages of this structure include:

- + Greatest degree of control over design, implementation and operation
- + Ability to access public funding (where available)
- + Ability to closely integrate with public transport models
- + Retention of valuable advertising assets
- Lack of experience in implementing and operating
- Upfront capital and operating cost responsibility
- Full assumption of operating and maintenance cost risks
- No ability to access skills of experienced operators
- On-going governance and accountability issues

Public Authority Owned and Association/Co-operative Operated

This structure is very similar to the previous structure, with the key difference being the utilisation of an association / co-operative or not for profit organisation being utilised to operate and service the scheme. This structure may involve the establishment of a new organisation to operate the scheme or the utilisation of an existing organisation. This structure would again provide a high degree of control to the public sector with regard to the operation

and performance of the scheme, subject to any arm's length or governance restrictions inherent in the operator body. This structure is employed in Denmark; with the scheme in Aarhus operated in conjunction with the local employment centre, and in Copenhagen where the scheme is operated by City Bike Foundation of Copenhagen. These quasi-public sector bodies are likely to be single purpose entities therefore dedicated to the success of the scheme, and may present opportunities to remove any public liability issues from the local authority and indeed may present opportunities to utilise tax savings afforded to charities and leisure trusts. However, such bodies are likely to be heavily reliant on public subvention and support to operate and will have limited experience in the development and operation of a scheme.

Summary advantages and disadvantages of this structure include:

- + High degree of control over design, implementation and operation
- + Strong focus on social outcomes
- + Ability to access public funding (where available)
- + Potential to remove public liability
- + Retention of valuable advertising assets
- + Potential tax benefits

- Lack of experience in implementing and operating
- Upfront capital and operating cost responsibility
- Full assumption of operating and maintenance cost risks
- No ability to access skills of experienced operators
- Cost associated with set up, ongoing governance and accountability issues

Public Authority Owned and Privately Operated

The next step in the evolution of the public authority owned structure is where the scheme is operated by a private sector operator (for example Serco, JC Decaux or Clear Channel). This structure will, similar to the previous models, involve significant upfront investment as the ownership of the assets is required to reside with the public authority therefore the cost of the assets needs to be met by upfront by the authority. In this scenario, the need to subvent the scheme through advertising is not necessary, although alternative means of payment to the operator have been explored by cities such as Barcelona. In Barcelona, the scheme is owned by the authority but operated by Clear Channel. The City makes significant annual payments to the operator - in 2007 Barcelona paid Clear Channel €4.5 million to operate and maintain a scheme with 3,000 bikes, in addition to revenue generated through roadside parking within a defined 'Green Area'⁴. This is also the model which is operated in London where the Barclay's Cycle Hire Scheme is owned by TfL but operated by Serco as an independently appointed operator. Clearly this structure does not rely on the financing of the scheme through the use of advertising assets but is required to be funded through public finances, user tariffs and sponsorship revenues. Key advantages are the ability to retain a good degree of control over the design and implementation of the scheme through a robust performance mechanism (it may be less straightforward to penalise poor performance where payment is made through the provision of advertising space) and the retention of valuable advertising assets for alternative use. There may also be the ability to transfer operating and maintenance risk to the operator under this structure. However, there is clearly the requirement for significant upfront capital investment in the implementation of the scheme and it would be most likely to require ongoing revenue funding to support operations.

Summary advantages and disadvantages of this structure include:

⁴ Bike Share, Opportunities in New York City, NYC Department of City Planning

- + May attract experienced operators
- + Good degree of control over design, implementation and operation
- + Retention of valuable advertising assets
- + Potential to remove public liability
- + Potential to transfer operations and maintenance risk
- High upfront investment costs
- Market soundings indicated other revenue sources (e.g. advertising assets) would be required
- Ongoing governance and accountability issues

Advertising Company Owned and Advertising Company Operated (or similar)

There are also a number of structures to consider whereby ownership of the assets resides with the private sector, in this case, usually an advertising company. This is perhaps the most highly publicised approach and has been implemented on numerous schemes across Europe, including forming the basis for the schemes in Dublin and Paris. Under this structure, the provision of the bike scheme infrastructure is tied to a contract for on-street furniture, usually advertising, with the provider and operator receiving rights to utilise certain (primarily new) sites for the sale of advertising space over a defined contract period in exchange for the provision and operation of the scheme. In terms of financing, the operator will typically cover the upfront capital costs associated with the scheme and can assume varying degrees of risk in relation to the operations and maintenance element. Consultation with the market has indicated a degree of public sector underwriting (e.g. through risk sharing or a contribution towards capital or operating costs) may be sought by some bidders rather than the scheme relying 100% on advertising revenue as payment in kind. Revenue share agreements are often in place between the public and private sectors, although the level of revenue generated through the scheme may not be large. This form of scheme can be time consuming to implement as there is significant planning and environmental heritage implications in relation to proposed locations of advertising assets. However, the owner / operator is typically very experienced in the development and operation of bike share schemes and can bring this experience to bear in designing a scheme, although the public stakeholders will need to closely monitor and engage in the development phase to ensure the objectives of the advertising company align with the objectives of the public authority in terms of the outcomes of the scheme. A further issue is that the creation of new advertising assets for the private sector can cause negative publicity for the authority, particularly during the development phase, as was the experience in Dublin.

An variant on this option would be to wrap the provision of a bike sharing scheme into a wider contract for either street furniture or the existing bus shelter contract in Northern Ireland. The current contract is with Clear Channel Adshel who installed and maintain a large network of modern bus shelters across Northern Ireland in exchange for the rights to locate and advertise on a defined number of these shelters. The contract is due for renewal in 2016 and there would be an opportunity to procure a bike scheme alongside re-procuring the bus shelter contract.

There could also be further alternative sources of payment in kind, and the procurement process would allow the market and potential operators to come forward with innovative proposals.

Summary advantages and disadvantages of this structure include:

- + Limited or no upfront capital cost or operating subsidy
- + May attract experienced operators
- + Potential to remove public liability

- + Potential to transfer operations and maintenance risk
- + Ability to tie into re-procurement of existing bus shelter contract
- Less control over design, implementation and operation
- Relatively long lead time and planning complexities
- Potential for negative publicity associated with advertising space

Private Transport Company Owned and Private Transport Company Operated

A structure in which a private company both provides and operates a bike sharing scheme which is not related to the provision of advertising rights is relatively uncommon. The public authority responsible for procuring such an arrangement would typically be required to meet significant upfront capital costs associated with the provision of the infrastructure. Recurring costs are unlikely to be covered to a significant extent by the charging of user tariffs, therefore an annual subsidy or operating charge would be required from the public authority. Indeed, experience set out previously in this OBC has indicated that the most successful tariff structures in terms of attracting users involve initial periods of free use, which mean the vast majority of journeys are free. However, this approach would allow for the public authority to potentially transfer elements of both the development and operation and maintenance risks to the private sector, and exercise a significant degree of control over the design and implementation of the system. This would be particularly so where an off the shelf solution, such as offered by private companies such as Hourbike, is used.

Summary advantages and disadvantages of this structure include:

- + Good degree of control over design, implementation and operation
- + Retention of valuable advertising assets
- + Potential to remove public liability
- + Potential to transfer operations and maintenance risk
- High upfront investment costs
- Significant on-going revenue subsidy likely to be required
- Absence of advertising element may preclude some experienced operators bidding