



Belfast City Council

Report to:	Development Committee
Subject:	Economic Appraisal of the Proposed Lagan Canal Navigation Project
Date:	16 September 2009
Reporting Officer:	Marie-Thérèse McGivern, Director of Development, ext 3470
Contact Officer:	Shirley McCay, Head of Economic Initiatives, ext 3459

Relevant Background Information

Lagan Canal Navigation Project

Members will be aware of the renewed interest in Belfast's marine and river heritage generated from The Tall Ships Atlantic Challenge 2009. The Lagan Boat Rally held over the same weekend, organised by the Lagan Branch of the IWAI and Belfast City Council, also animated the river and raised both the potential of the river and canal as a tourist and recreation attraction and as a potential economic generator for the city.

Members are reminded that funding of £1million has been made available by Ulster Garden Villages Limited towards the reopening of the Lagan Gateway Project Lock 1 at Stranmillis. An action plan which outlined the proposed activities to be developed in relation to the project was approved at the Development Committee meeting held on 12 September 2007 and as a result of the action plan, the Lagan Gateway Project Scoping Study and Economic Appraisals were undertaken.

The Scoping Report, noted at the Development meeting on 13 August 2008, identified a number of restoration and development works that would facilitate the re-opening of the first phase of 9 km of the Lagan river and canal from Belfast Harbour upstream to Lock 3 Shaw's Bridge. These key development sites included Queens Quay (site of the Lagan Weir), Stranmillis (the 'Lagan Gateway'), site of Lock 2 at Moreland's Meadow, river channel works, weir and canoe slalom upstream from Lock 3.

Key Issues

Economic Appraisal

The Economic Appraisal has been completed by FGS McClure Watters Consultants, and an Executive Summary is included in Appendix 1.

The Report states that the project is congruent with key national, regional and local government strategies, relating to economic, social and environmental development and has identified the benefits of opening the Lagan Navigation in terms of;

- Tourism – it will enhance the reputation of Belfast City as a tourism destination.
- Economic Development - arising from the creation and development of a unique tourism and recreational product offering; and the investment and spending that this will generate. It is envisaged that the common links between the Lagan and Belfast City's other tourist amenities, and in particular, the Titanic Signature Project, will represent the development of a significant maritime and industrial heritage themed tourism product for Belfast.
- Economic and Social - the restoration of inland waterways can potentially generate many economic and social benefits such as an increase in direct visitor spend and the creation of full time jobs.
- Heritage – the restored Lagan will provide the community with a connection with the past and will bring a sense of identity and belonging to the area.
- Recreation - the proposed infrastructural development will encourage a higher rate of participation in local water sports activities.
- Public Realm -the works will greatly enhance the public realm of this lower section of the Lagan and will see increased pressure for the improvement of the water quality due to an increased interest in the river and canal for recreation.
- Complementarities with other waterway developments - a fully restored Lagan and the restoration of the Ulster Canal would see the significant creation of an integrated east-west waterway system, create an all island waterway network and the development of a key source of economic activity for the island.
- Local Investment –the project would serve to increase the attractiveness of the recent and current developments in Belfast City as well as existing properties in the lower Lagan Corridor and will help encourage investment upstream, particularly in recreation/leisure related infrastructure and service.

The report states that the restoration of the Lagan will represent an investment which will drive the City's tourism and recreational and hospitality industries. It will result in increased visitor numbers to Belfast, increased visitor spend and the creation of jobs. It will stimulate further development of water-side properties, particularly in the tourism, recreation, hospitality and leisure sectors. The real economic impact of proposals to restore the Lagan navigation will be realised by Belfast's wider tourism, health and wellbeing activities and its recreational and hospitality industries in terms of increased visitor spend, job creation, increased tourism expenditure and the associated multiplier effects. An example of similar investment is the Huddersfield Narrow Canal which brings in £2.5m from visitors annually and in turn has led to £100m worth of investment and the creation of 800 jobs.

The Economic Appraisal recommended that in terms of the combined risk analysis, a phased full delivery of all proposed restoration works including those at Queens Quay, Lock 1, Lock 2, and river channel works up stream of Lock 3 (Shaw's Bridge) is the "preferred option" with an estimated total cost of £8,660,949. As a 'next best' option and in the event where Belfast City Council fails to secure (or at least provisionally secure) funding for the phased delivery option, they should proceed with Option 4 which are the works to Lock 1 Stranmillis Gateway with an estimated cost of £3,261,860.

Consultation

Members are reminded that discussions and meetings have been held with a number of Lagan corridor stakeholders including the DCAL, IWAI, DSD, DETI, TQL and local developers, Northern Ireland Planning Service, UWG, WI, NITB, LVRP and SBPB. Further consultation is required with the potential new key stakeholders to gain support and funding for the proposed project.

Resource Implications

The estimated total cost for the proposed Lagan Canal Navigation Project from the Lagan Weir to upstream from Lock 3 (Shaw's Bridge) is £8,660,949.

Recommendations

It is recommended that Members:

- Note the content of the Economic Appraisal of the proposed Lagan Navigation Project. (A copy of the full report is available in the Members Library).
- Agree the development of further work including the assembly of a funding package from a range of sources.

Decision Tracking

An update report on potential financing options will be brought to Committee at a later point.

Timeframe: April 2010

Reporting Officer: Shirley McCay

Key to Abbreviations

IWAI - Inland Waterways Association of Ireland
DCAL - Department of Culture Arts and Leisure
DSD - Department of Social Development
UWG - Ulster Waterways Group
WI - Waterways Ireland
NITB - Northern Ireland Tourist Board
LVRP - Lagan Valley Regional Park
SBPB - South Belfast Partnership Board
DETI - Department of Enterprise Trade and Industry
TQ - Titanic Quarter Ltd

Documents Attached

Appendix 1 - Executive Summary of Economic Appraisal of the proposed Lagan Navigation Project.

BLANK PAGE

APPENDIX 1

EXECUTIVE SUMMARY

1.1 Introduction and Background

Belfast City Council has appointed FGS McClure Watters to undertake an Economic Appraisal of the proposed Lagan navigation project.

The Lagan navigation extends from Ellis's Gut at Lough Neagh to Belfast Lough, and traverses Craigavon, Lisburn, Castlereagh and Belfast City Local Government Districts on its path. The Lagan River runs right through the heart of Belfast City. The 42 kilometres (km) of navigation is comprised of 10 km of river and 32 km of canal. The canal sections were originally constructed in 1756 to facilitate a navigable link with Belfast and coal mines in County Tyrone and to avoid obstacles in the natural river channel. The canal was formally abandoned in 1958 due to a steady decline in its traffic owing to the development of the Ulster railway and roads. (The history and profile of the Lagan is described further in section 2.2.2 of this report).

A number of feasibility and investigative studies into the reopening of the Lagan navigation Canal and the potential of the River Lagan Valley Corridor have been undertaken in earlier years. These studies confirmed that the introduction of recreational boat traffic on to the River Lagan and the re-opening of the Lagan navigation Canal is entirely feasible and would encourage recreation, tourism and regeneration of the Lagan Corridor.

Following on from these earlier feasibility studies, Lisburn City Council (then Lisburn Borough Council) made a number of applications for grant aid to support the re-opening of the Lagan navigation Canal, including an application to the Northern Ireland Tourist Board for European Funding, the Millennium Commission (1996) and the Heritage Lottery Fund (1997). The two latter funding applications were formulated as partnership projects between Lisburn City Council, Castlereagh Borough Council, Belfast City Council, Laganside Corporation and Rivers Agency. A subsequent application to the Heritage Lottery Fund was made by DCAL (2001/2002) which sought funding towards the re-opening of the Lagan navigation between Stranmillis and Union Bridge Lisburn.

It has become apparent from earlier funding applications put forward by stakeholders that the restoration of the Lagan navigation will be undertaken on an incremental / staged approach. Belfast City Council and the other major stakeholders are very mindful of this fact and have already implemented a number of initiatives (details are provided in section 2.2.4.2 of this report) including the restoration of the lock 12 and restoration of the lock keepers cottage at Newforge etc. The stakeholders in the restoration of the Lagan will continue to work collaboratively in order to progress the restoration works on a phased basis.

A number of funding opportunities have been identified going forward. In particular, the Investment Strategy for Northern Ireland (ISNI) has outlined a indicative baseline fund of £18.93m for Canal Restoration of the Ulster Canal and/or the Lagan Canal over the period 2011/12 – 2017/18. This represents

potential funding which DCAL may bid for to progress the reopening of the Lagan navigation.

1.2 Belfast City Council's Proposed Project

Belfast City Council's Scoping Report undertakes a number of restoration and development works that would facilitate the re-opening of 9 km of the Lagan from Belfast Harbour to Lock 3 (Shaw's Bridge). The key development sites include:

- Queens Quay (site of the Lagan Weir);
- Stranmillis (the 'Lagan Gateway');
- Site of lock 2 at Moreland's Meadow; and
- River channel works, weir and canoe slalom upstream from Lock 3.

These sites are illustrated in Figure 1.1

Figure 1.1
Lagan Navigation from Belfast Harbour – Lock 3 (Shaw's Bridge)



Proposed works are illustrated below:

Delivery of works at **Stranmillis (Lock 1)**. This project proposes the following works:

- Removal of the pen weir and its replacement by a crescent cascade weir;
- Construction of a new lock;
- A new slipway and moorings;
- Channel and dredging works;
- Construction of an iconic foot bridge linking the end of Lockview Road and the Annadale Embankment;

- Development of a pedestrian area, ancillary works and soft landscaping;
- The provision of a commercial use building (it is proposed that this building may be used for hospitality/visitor services i.e. public toilets, café/restaurant, interpretative facilities, conference centre etc.); and
- Development of an access route.

Provision of New Lock at Queen's Quay (site adjacent to the Lagan Weir)

Belfast City Council's Scoping Report proposes the following works:

- Development of a Lock;
- Channel and dredging works;
- Surface Treatment work at the Lock; and
- Development of a pedestrian area.

At present boats have limited windows of opportunity to pass the Lagan Weir and upstream, dependent on the gates being lowered and certain tide conditions. (The layout of the East abutment of the Lagan Weir would allow this to be controlled as indicated in the outline in Appendix 1).

An update on other activities aimed at developing this site is outlined in section 2.5 of this report.

Restoration of Lock 2 at Moreland's Meadow

DCAL has statutory title for Lock 2, which is located within the local authority area of Belfast City Council.

The original pen weir at Corbie Wood has been removed and the lock chamber (Lock No 2) is heavily overgrown and partially infilled with a concrete weir. The works required to re-open this section of the navigation are as follows:

- Construction of a new control weir across the river immediately upstream of the original weir. This weir would also serve as a new gauging station site for the DARD Hydrometric Unit and a fish counting facility;
- Restoration of the lock and provision of upstream and downstream moorings; and
- Clearance of the canal channel from overhanging trees and growths and remove silt to provide adequate depth.

A Progress update on works to this Lock is detailed in section 2.3 of this report.

River channel works. weir and canoe slalom upstream from Lock 3

The river channel upstream of Lock 3 has been partially infilled and is heavily overgrown. A new weir at a lower level has replaced the original pen weir and forms the upstream step of a canoe slalom. The work required at this site is as follows:

- Demolition of the existing structure and construction of a new weir downstream of the canal cut and the construction of a side overflow weir upstream of Lock 3;
- Construct new canoe slalom downstream of the current slalom ;
- Clearance of trees and growths from the channel and excavate infill material as necessary;
- Dredging of the river where necessary; and
- Ancillary works and soft landscaping.

Further details of the restoration of Lock 3 are provided at Appendix 2.

1.3 Business Case Terms of Reference

The Lagan navigation project is the first phase of a Belfast City Council's wider ambition for the restoration of the Lagan navigation which would see the navigation restored as far as the limit of the Belfast Council Boundary. This project would require work at Stranmillis (the 'Lagan Gateway'), Queens Quay (site of the Lagan Weir), site of lock 2 (at Moreland's Meadow); and the river channel works, weir and canoe slalom upstream of Lock 3.

Belfast City Council requires that the Lagan navigation project should be examined by means of an Economic Appraisal which will explore various sustainable options to:

- Determine what is most appropriate level of development in order to meet social and economic need;
- Determine the most appropriate facilities which should be constructed; and
- Confirm that value for money is being achieved.

The Terms of Reference for the appraisal also state that a detailed examination of the content and conclusions of the scoping report prepared by Scott Wilson is required and in particular the following will be addressed:

- Assessment of the full financial implications of the proposal and provide confirmation of the financial viability of the project;
- Confirmation of the validity or other wise of the underlying assumptions and conclusions of the report; and
- Review of the qualitative benefits produced by the report in line with the proposed wider programme of restoration.

1.4 Strategic Context

We are satisfied that this project is congruent with key national, regional and local government strategies, relating to economic, social and environmental development. In particular this project will make a significant contribution to

the development of Belfast City's tourism industry and hence will support the economic regeneration of Belfast City.

The proposed Lagan navigation project represents a unique opportunity to restore an important part of Belfast's local heritage, whilst at the same time developing a key tourism product for Belfast. The development of significant cultural and maritime heritage tourism product will result in improved visitor services which will help attract greater visitor numbers to the City.

Furthermore, the development of linkages between a restored Lagan navigation and other tourism services, amenities and events/festivals will ensure that the benefits from the local tourism industry are fully exploited. The commonality of the water based/maritime history and industrial heritage theme of the Lagan and the Titanic Signature Project projects will ensure that both initiatives will work well together in promoting a strong 'water based /maritime heritage' tourism industry for the City of Belfast. The development of interpretation of this maritime/heritage tourism infrastructure will help to further bolster the City's tourism performance and will ensure a quality visitor experience. The proposal to restore the Lagan will also compliment the wider development of the City's waterside attractions, including: the Laganside Arts Trails, the Lagan Valley Regional Park, sports tourism activities e.g. kayaking, cycling, fishing etc.

A wide variety of sports and activities are already undertaken on the Lagan as well as along its banks on a daily basis. It is envisaged that a navigable Lagan would be a significant attraction for sporting enthusiasts everywhere and would represent an important project in the development of Belfast as an 'activities' holiday destination.

The restoration of the Lagan navigation to the limit of Shaw's Bridge also represents an important first step in the creation of an East-West waterway, a key tourism initiative for the whole island of Ireland. It is further proposed Belfast could be realised as a key marine gateway to this integrated waterway.

In conclusion it is envisaged that the restoration of the Lagan will represent an investment which will drive the City's tourism /recreational and hospitality industries, and will result in increased visitor numbers to Belfast, increased visitor spend and the creation of jobs. It is further proposed that the development of the Lagan will stimulate further development of water-side properties, particularly in the tourism, recreation, hospitality and leisure sectors. The real economic impact of proposals to restore the Lagan navigation will not be captured solely by projected lock receipts and mooring income, but will be realised by Belfast's wider tourism, health and wellbeing activities, recreational and hospitality industries in terms of increased visitor spend, job creation, increased tourism expenditure/associated multiplier effects etc. Belfast City Council expects that the reopened Lagan navigation would have a number of economic benefits, and according to the Scoping Study (2008) the impact of visitor expenditure on the opening of the entire Lagan Navigation (Lagan Weir to Lough Neagh) could be £2.1m per annum which would support approximately 60 full time equivalent jobs. (For information on the potential benefits of canal restoration see 4.5.1.3.)

1.5 Assessment of Need and Potential Benefits of Development

It is envisaged that the delivery of the Lagan navigation project will meet the following identified needs:

- *Tourism Need* - A significant number of Europe's major cities are built around a river/navigation and in most cases the navigation is the hive of activity, the heart of the city. In comparison Belfast's river Lagan is relatively dormant. Belfast City Council's proposals represents a unique opportunity to develop the undeveloped Lagan and its associated amenities as a major visitor attraction in Belfast City;
- *Socio-Economic Need* - According to the Northern Ireland Index of Multiple Deprivation statistics Belfast LGD is the second most deprived LGD out of the 26 LGDs after Strabane. On the Income Scale measure Belfast LGD is ranked the most deprived LGD. There are 82,986 people in Belfast LGD experiencing Income Deprivation;
- *Physical Infrastructural need* – the weir proposed as part of the works for Stranmillis will solve the erosion problem of the bed downstream of the weir; it will eliminate operational and maintenance requirements for the existing pen weir, and will reduce upstream flood levels between Stranmillis and Lagan Meadows;
- *Navigational Need* - The absence of operating lock chambers at Queen's Quay, Stranmillis (Lock 1) and Moreland's Meadow (Lock 2) represents a major infrastructural deficit, one which needs to be addressed if the Lagan is to be re-opened to boats again. At present boats from Belfast Lough can access the lower reaches of the Lagan navigation as far as Stranmillis weir, however passage past the Lagan Weir in the Harbour is subject to favourable tides;
- *Displacement*- The delivery of this project will create an enhanced visitor experience, while also ensuring that the tourism benefits from the Titanic Quarter developments are fully exploited. It is anticipated that it will support /compliment other visitor facilities / attractions rather than displace them. It should be noted that the project includes plans for the development of a commercial use facility at Stranmillis. It is proposed that this building will have a wide range of functions, some of which may include café/restaurant, interpretative facilities, conference centre.
- *Additionality* – It is not expected that this canal development initiative will be facilitated by a private developer. This therefore highlights the need for public funding and grant aid support to ensure that this key project goes ahead. An example of Belfast City's commitment can be witnessed through projects like the development of the city's Gasworks site.

It is envisaged that the delivery of the Lagan navigation project will bestow many benefits on the City of Belfast and the surrounding areas. These benefits can be categorised as follows:

- *Tourism* - A restored and fully operational Lagan navigation would also help to enhance the reputation of Belfast City as a tourism destination. The public realm impact of the proposed works would greatly boost the image of the Laganside area of the City, and in particular the nature of the heritage themed infrastructure proposed. This would boost the attractiveness of Belfast as a tourism and event destination;
- *Heritage Impact* - Belfast City Council's Proposals represents an important step in ensuring that this important part of Belfast history and maritime and industrial heritage is not lost. It is proposed that restored Lagan will provide the community with a connection with the past and will bring a sense of identify and belonging to the area;
- *Recreational Impact* - This Lagan corridor and LVRP supports a wide range of recreational activities, including angling, canoeing/kayaking, rowing, walking cycling. A profile of the popular activities is included at appendix 8. The enhanced public realm and the structural and aesthetic improvements along the Lagan will evoke a renewed sense of interest in this section of the Lagan among the local community leading to people choosing to visit more often and engage in physical activity. It is also proposed that the infrastructural development proposed by the Lagan navigation project will encourage a higher rate of participation in these local water sports activities;
- *Public Realm Benefits* -The delivery of a number of key restoration and development works will greatly enhance the public realm of this lower section of the Lagan. It is also proposed that the development of the Lagan navigation will see increased pressure for the improvement of the water quality in the waterway due to an increased interest in the river and canal for recreation;
- *Complementarity with other waterway developments* - A fully restored Lagan and the restoration of the Ulster Canal would see the significant creation of an integrated east-west waterway system, presenting boat enthusiasts with the opportunity to sail North-South and East West. It is proposed that the creation of all island waterway network, would represent a unique tourism attraction for boating enthusiasts, both domestic and foreign leading to a significant growth in the boating tourism industry in Ireland, North and South, and the development of a key source of economic activity for the island; and
- *Economic and Social Benefits* - The "*Socio Economic Study of the Ulster Canal*" (PricewaterhouseCoopers, 2006) includes a literature review of a range of research reports on the impacts of waterway restoration. The findings from the PricewaterhouseCoopers report confirm that the

restoration of inland waterways can potentially generate many economic and social benefits for example, an increase in direct visitor spend as a result of the proposed works at Stranmillis would create 5-6 full time equivalent jobs. (Further details are included in section 4.5.1 of this report).

- *Economic Development* arising from the creation and development of a unique tourism/recreational product offering, and the investment and spending and that this will generate. It is envisaged that the common links between the Lagan and Belfast City's other tourist amenities and in particular, the Titanic Signature Project, will represent the development of a significant maritime/industrial heritage themed tourism product for Belfast. The synergy created by these unique products will help to strengthen Belfast appeal as a 'must see' visitor/tourist destination at both home and abroad. It is anticipated that the improved navigability of this lower section of the Lagan will also attract boating enthusiasts from Belfast Lough to visit and spend time in the City. For example the Rochdale Canal receives around 3.8m visits a year which in turn generates approximately £4m in the city; (Further details are included in section 4.5.1 of this report).
- *Local Investment* - It is proposed that a restored Lagan navigation would serve to increase the attractiveness of the recent/current developments in Belfast City as well as existing properties in the lower Lagan Corridor. It is further proposed that the programme of restoration and development works proposed by the Lagan navigation project will help to encourage investment upstream of the Laganside area of the City, particularly in recreation/leisure related infrastructure and service. An example of investment is the Huddersfield Narrow Canal which brings in £2.5m from visitors annually, and in turn has led to £100m worth of investment and 800 jobs; (Further details are included in section 4.5.1 of this report).

1.6 Objectives and Constraints

1.6.1 Project Aim

Belfast City Council's main aim is:

"To re-open for navigation the Lagan from the harbour area to Lock 3- a project of national and regional significance forming a key part of the development of a Gateway into an all island waterway network".

The project's secondary aims are:

- To develop a major "natural" tourist attraction.
- To enhance the natural environment along the river corridor
- To maximise tourism and recreation activity on and alongside the Lagan;

- To promote urban regeneration along the waterside; and
- To develop and promote the Lagan navigation as a cultural and historical facility and a heritage asset.

1.6.2 Project Objectives

The SMART objectives¹ emanating from the above aims are:

- To facilitate the re-opening of 9 km of the Lagan from Belfast Harbour to upstream from Lock 3 by end of 2013;
- To generate a capital investment of at least £8.7 million in Belfast's water based tourism/recreational offering by end of 2013; and
- To ensure the conservation of Lock 2 – a scheduled monument, by end of 2013.
- To measure the Return on Investment including the broader Economic Impacts of the project.

1.6.3 Possible Project Constraints

A number of factors may potentially act as constraints on the project in achieving its objectives:

- Availability of capital funding;
- Physical considerations of the navigation; and
- Planning considerations linked to the environment

Further details on potential constraints are included at Section 5.4 of this report.

1.7 Identification of Options

Section 6 of this report identifies that a long list of options were produced by considering the works at different locations of the navigation and potential phasing of works. The long list was then refined to produce the following short list of options:

- **Option 1:** Do Nothing, included as a base case against which all other options will be assessed as per HM Treasury guidance;
- **Option 2:** Works to Queen's Quay & Lock 1;
- **Option 3:** Works to Queen's Quay, Lock 1 & Lock 2;

¹ SMART Objectives are Specific, Measurable, Achievable, Realistic and Time bound

- **Option 4:** Works to Lock 1 only;
- **Option 5:** Works to Lock 1 and Lock 2;
- **Option 6:** Works to Lock 1, Lock 2 and river channel works, canoe slalom and weir upstream of Lock 3;
- **Option 7:** Full delivery of all proposed restoration works including those at:
 - Queens Quay
 - Lock 1
 - Lock 2 (inclusive of associated building and bridge works); and
 - River channel works, canoe slalom and weir up stream of Lock 3.
- **Option 8:** Phased full delivery of all proposed restoration works. Scott Wilson (Consulting Engineers) has advised that sequence of works to be delivered as part of this phasing approach, should follow be undertaken in the following order:
 1. Queen's Quay.
 2. Lock 1;
 3. Lock 2;
 4. River channel works, canoe slalom and weir up stream from Lock 3; and

1.8 Monetary Costs and Benefits

1.8.1 Capital Costs

Capital costs are comprised of the construction costs, necessary fittings and equipment and associated professional fees. The capital costs for proposed works at the four sites have been provided by Scott Wilson.

Optimism bias is the demonstrated systematic tendency for people to be over-optimistic about the outcome of planned actions. This includes over-estimating the likelihood of positive events and under-estimating the likelihood of negative events. Appraisers are therefore required to make explicit adjustments to cost estimates, projected benefits and timescales (over which the costs and benefits are assumed to be accrued), so as to address a systematic tendency for project appraisers to be overly optimistic.

Capital Expenditure related Optimism Bias has been calculated at 12%. Appendix 12 provides an overview of how the capital expenditure optimism bias figure was generated for the proposed project. This figure was

developed in consultation with Scott Wilson and is in addition to the identified contingencies.

In addition to OB, contingencies of 8% have been included by Scott Wilson. These contingencies account for the requirement of an Environmental Impact Study, additional legal fees, the requirement of a site investigation and the site characteristics relating to archaeological findings. The combined contingency and Optimism Bias figure is 20%.

Table 1.3 illustrates the impact of Optimism Bias on each of the short listed options:

Table 1.3
Optimism Bias Adjustments Capital Costs

Costs	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Capital Costs	-	4,674,38 9.08	6,352,28 9.49	2,718,21 6.68	4,396,11 7.10	5,261,28 5.43	7,217,45 7.83	7,217,45 7.83
Combined Optimism Bias 20%	-	934,877. 82	1,270,45 7.90	543,643. 34	879,223. 42	1,052,25 7.09	1,44,349 1.57	1,44,349 1.57
Adjusted Capital Cost	-	5,609,26 6.90	7,622,74 7.39	3,261,86 0.02	5,275,34 0.52	6,313,54 2.52	8,660,94 9.40	8,660,94 9.40

Works duration Optimism Bias of 8% has been calculated for each of the project elements which allows for an additional 2.88 months to the timescale for each project element

1.8.2 Opportunity Costs

This relates to “the value of the most valuable of alternative uses” (HMT Green Book). The majority of the access facilities to the development sites at Stranmillis, Moreland’s Meadow, and the river channel are owned by DCAL. These facilities serve the Lagan Valley Regional Park towpath and are for recreational use.

Lagan Lands East (situated on the east of the Lagan across from Lockview Road at Stranmillis) has been earmarked to facilitate a commercial use building and associated access route. Lagan Land’s East is owned by Belfast City Council’s Asset and a £1 community value in accordance with CIPFA Regulations.

1.8.3 Capital Replacement Requirements and Residual Values

Scott Wilson advised that gates, penstocks and ladders within each lock will need to be replaced every 25 years, estimated at approximately £150,000 per lock. Dredging will also need to take place at each of the sites every ten years.

Residual values for each option are based on the 'usable life' of each component of the capital works at the end of year 25. Capital works with a residual value at year 25 includes the lock structures, weirs, slipways and moorings, channel, pedestrian areas, the canoe slalom at Shaw's Bridge and the access route, building and bridge at Stranmillis. Scott Wilson has indicated that these capital works all have a useable life of 50 years and residual values have been calculated on this basis.

1.8.4 Recurrent Costs and Revenue Generation

The projected annual operating costs and income for each of the short listed options in their first year of operation are detailed in the table below: (Full assumptions employed in the calculation of the running cost and income projections are included at Appendices 13 and 14 respectively).

Table 1.4
Summary of Annual Revenue and Costs (Year 1)

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8
Mooring/Lock Receipts	-	3,293	6,104	1,985	2,740	2,740	6,104	1,985
Lease of Building at Stranmillis	-	7,000	7,000	7,000	7,000	7,000	7,000	7,000
Overall Revenue		10,293	13,104	8,985	9,740	9,740	13,104	8,985
Staff Cost	-	20,000 (plus £7,000 once off)	20,000 (plus £7,000 once off)	12,500 (plus £7,000 once off)	20,000 (plus £7,000 once off)	20,000 (plus £7,000 once off)	20,000 (plus £7,000 once off)	12,500 (plus £7,000 once off)
Overhead Cost ²	2,000	36,000	52,000	27,000	36,000	45,000	61,000	27,000
YEAR 1 TOTAL OPERATING COST	2,000	63,000	79,000	46,500	63,000	72,000	88,000	46,500
YEAR 1 OPERATING SURPLUS / (DEFICIT)	(2,000)	(52,707)	(65,896)	(37,515)	(53,260)	(62,260)	(74,896)	(37,515)

The above table highlights that each 'do something' option produces a deficit for the first years of operation. However the project's financial projections indicate that these deficits decrease following the first three years of operation, as the number of visitors to the Lagan rise. Marketing will play a significant role in increasing the profile of the Lagan as a tourist destination.

N.B As highlighted in section 4 of this report, the real economic impact of proposals to restore the Lagan navigation will not be captured solely by projected lock receipts and mooring income, but will be realised by Belfast's wider tourism / recreational and hospitality industries in terms of increased visitor spend..

1.9 Calculation of Net Present Costs

The Net Present Cost (NPC) calculations have been undertaken over a 25 year period. In line with the appraisal guidance a discount factor of 3.5% has

² Marketing and promotion costs are expected to fall following year 1

been used in the NPC calculations. Inflation has not been included in the analysis.

Table 1.5
Net Present Cost / Value Calculations

Net Present Cost/Value Calculations		
	NPC £	Ranking
Option 1: Maintain 'status quo'	£8,079	1
Option 2: Works to Lock 1 and Queen's Quay	£4,832,417	5
Option 3: Works to Lock 1, Queen's Quay and Lock 2	£6,595,342	7
Option 4: Works to Lock 1	£2,803,455	2
Option 5: Works to Lock 1 and Lock 2	£4,657,299	4
Option 6: Works to Lock 1, Lock 2 and river channel works upstream from Lock 3	£5,636,008	6
Option 7: Delivery of the full restoration of the Lagan navigation from Belfast Harbour to the village of Lock 3	£7,574,052	8
Option 8: Phased Delivery of the full restoration of the Lagan navigation from Belfast Harbour to upstream from Lock 3	£4,457,287	3

From a quantitative perspective Option 4 emerges as the highest ranked 'Do Something' option having the lowest NPC. A detailed breakdown of the NPC calculations is shown in Appendix 15.

1.10 Non Monetary Costs and Benefits

A qualitative assessment of the identified options has been carried out through a weighted scoring method using the criteria and weightings identified in Table 1.6 below.

Table 1.6
Non Monetary/Qualitative Assessment Criteria and Weightings

Criteria	Weighting
Tourism Development / Regeneration Potential	30
Heritage Impact	25
Leisure/recreational impact	20
Complementarity with the campaign to re-open the entire Lagan Navigation and linkages with other waterways	15
Environmental /Aesthetic Impact	10
Total	100

The scores allocated to the short listed options are identified in Table 1.7 below

Table 1.7
Non-Monetary Criteria Scores by Option

Criteria	Weight	Option 1 Score	Option 2 Score	Option 3 Score	Option 4 Score	Option 5 Score	Option 6 Score	Option 7 Score	Option 8 Score
Tourism Development / Regeneration Potential	30	0	8 (240)	10 (300)	5 (150)	6 (180)	7 (210)	10 (300)	10 (300)
Heritage Impact	25	0	7 (175)	9 (225)	6 (150)	7 (175)	7 (175)	10 (250)	10 (250)
Leisure/recreational impact	20	0	7 (140)	10 (200)	5 (100)	7 (140)	7 (140)	10 (200)	10 (200)
Future Complementarity	15	0	6 (90)	9 (135)	5 (75)	6 (90)	7 (105)	10 (150)	10 (150)
Environmental /Aesthetic Impact	10	0	8 (80)	9 (90)	5 (50)	6 (60)	7 (70)	10 (100)	10 (100)
Total Weighted Score	100	N/A	725	950	525	645	700	1,000	1,000
Ranking		8	4	3	7	6	5	1	1

The rationale behind the scoring of each option is explained in Section 9.4.1 of this report. From a qualitative perspective Options 7 and 8 emerge as the joint highest ranked options having the highest non-monetary score.

1.11 Risk Assessment and Uncertainty

1.11.1 Non monetary Risks

Key areas of risk and uncertainty identified include:

- Availability of Funding;
- A potential overrun in project cost and/or delivery timescale;
- Planning Permission;
- The potential impact of the proposed project on sensitive landscapes;
- The impact of the proposed project on fauna;
- Potential impact of the proposed works on the spread of invasive species;

- Inability to agree an access road route for the site at Stranmillis due to land ownership; issues;
- Inability to facilitate new pedestrian links at Stranmillis due to land ownership issues;
- The inability to manage an increase in visitor numbers and increased boat traffic; and
- Boats restricted from accessing the Lagan due to safety restriction on the movement of visiting pleasure craft in Belfast Harbour.

Further details on the probability and impact for these risks for each of the options considered are included in section 10.2 of this report

1.11.2 Monetary Risk / Sensitised NPC's

The issue of project risk is assessed by the application of a sensitivity analysis to each of the project options. The sensitivity analysis has been applied by introducing the following variations:

- An increase in the operating expenditure by 25%;
- A decrease in revenue by 10%; and
- A combination of both i.e. an increase in the operating expenditure by 25% and a decrease in revenue by 10%.

Results of the sensitivity analysis are detailed in section 10.3.1 of this report.

1.12 Identification of the Preferred Option

The following table summarises the results of our monetary and non-monetary analysis.

Table 1.8
Monetary and Non Monetary Results

	NPC (£000s)	Rank	Non- Monetary Score	Ran k	NPC/ Non- Monetary Score	Rank
Option 1: Maintain 'status quo'	£8,079	1	N/A	N/A	N/A	N/A
Option 2: Works to Lock 1 and Queen's Quay	£4,832,417	5	725	3	6,665	3
Option 3: Works to Lock 1, Queen's Quay and Lock 2	£6,595,342	7	950	2	6,942	4
Option 4: Works to Lock 1	£2,803,455	2	525	6	5,340	2
Option 5: Works to Lock 1 and Lock 2	£4,657,299	4	645	5	7,221	5
Option 6: Works to Lock 1, Lock 2 and river channel works upstream from Lock 3	£5,636,008	6	700	4	8,051	7
Option 7: Delivery of the full restoration of the Lagan navigation from Belfast Harbour to the village of Lock 3	£7,574,052	8	1,000	1	7,574	6
Option 8: Phased Delivery of the full restoration of the Lagan navigation from Belfast Harbour to upstream from Lock 3	£4,457,287	3	1,000	1	4,457	1

1.12.1 Conclusions and Recommendations

Table 1.8 identifies that Option 1 achieves the highest rank in quantitative terms (as measured by Net Present Cost) and the lowest in qualitative terms (as measured by non monetary scores). Of the 'do something' options, Option 7 ranks lowest in quantitative terms and joint highest (with Option 8) in the qualitative assessment.

When the quantitative and qualitative analysis are considered together (as reflected in terms of Net Present Cost per weighted score), Option 8 scores the highest of the 'do something' options, followed closely by Option 4. Option 8 proposes the phased delivery of the programme of restoration and

development works as proposed by Belfast City Council. Option 4 proposes the delivery of works at Lock 1 only.

As discussed in section 10.2 of this report, Option 8, the phased delivery of Belfast City Council’s proposals, is open to a greater level of risk compared to Option 4, the delivery of works at Lock 1. In particular the funding risk is significantly higher for Option 8 given its larger capital cost (Option 8 - £8,660,949 vs. Option 4 - £3,261,860) and running cost projections.

We would conclude that in terms of combined qualitative and quantitative analysis (as measured by NPC per non monetary score) as well as the risk analysis, **Option 8: Phased Delivery of the full restoration of the Lagan navigation from Belfast Harbour to the village of Lock 3 is the “preferred option” for delivery subject to all the identified risks being satisfactorily addressed. We would recommend that Option 4 represents a ‘next best’ option. In the event where Belfast City Council fails to secure (or at least provisionally secure) funding for the phased delivery option, they should proceed with Option 4.**

1.13 Financing, Management, Marketing, Monitoring and Evaluation

1.13.1 Project Financing

The cost of the preferred option is as follows:

Table 1.9
Preferred Option Cost

Cost	£ (excluding VAT)
Option 8	7,217,458
Optimism Bias	1,44,3491
Total Cost (excluding VAT)	8,660,949

The table below outlines the funding secured to date:

Table 1.10
Funding secured toward the restoration of the Lagan navigation from Belfast Harbour to upstream from Lock 3

Funding Source	£ (excluding VAT)	Primary Use
Ulster Garden Villages	1,000,000	Lock 1 at Stranmillis
Landfill Communities Fund distribution programme, Better Belfast	50,000	Provision of one set of Lock doors for Lock2 at Moreland’s Meadows
Ulster Waterway Group	8,750	Provision of one set of Lock doors for Lock2 at Moreland’s Meadows
Northern Ireland Co-op	1,300	Restoration of Lock 2
Total Funding Secured to	£1,060,050	

date		
------	--	--

There is a short fall of £7,600,899 between the cost of the preferred option and the funding secured. It should be noted that phase one will be the delivery of the works at Lock 1, costed at £3,261,860 (inclusive of Optimism Bias/Contingencies of 20%). There is a shortfall of £2,261,860 for this first phase. It should also be noted that a commitment to the funding of ongoing capital replacement and maintenance costs is required.

Lagan Valley Regional Park secured funding through the Department of Culture Arts and Leisure and Heritage Lottery Fund for the refurbishment of Lock 3, which lies within the Castlereagh local authority boundary. Castlereagh Borough Council and Heritage Lottery have funded the refurbishment of the Lock Keepers Cottage and the Lock Keepers Visitors Centre has been funded through Castlereagh Borough Council and DETI (Building Sustainable Prosperity programme). Development of the canal link from Lock 3, upstream through to the river, is required for the Lagan navigation project to be realised.

A number of potential sources of public and private funding have been identified, the details of which are included in Section 12.2 of this report.

1.13.1 *Project Management*

Section 12 of this report provides proposed arrangements for the management, marketing and monitoring/evaluation of the proposed development.