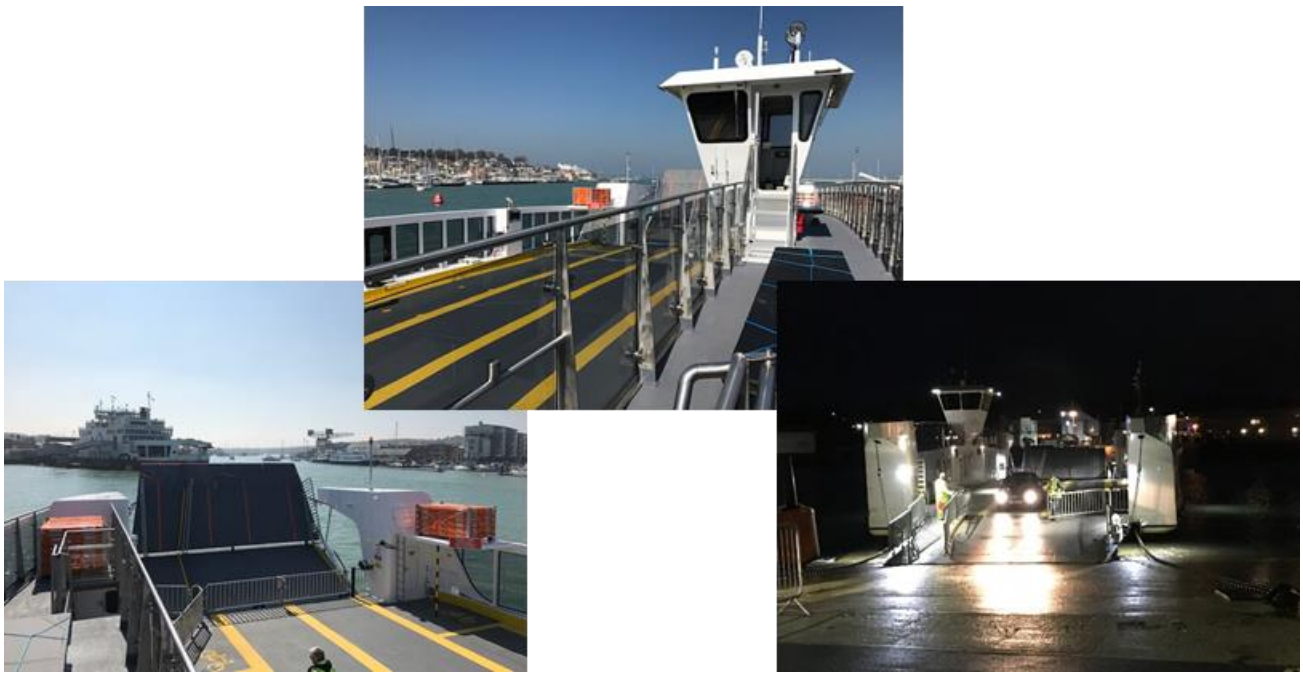
Isle of Wight Council

21/09/2018

COWES FLOATING BRIDGE

Revised Business Case

(Final Revised Business Case)



ISLE OF WIGHT COUNCIL

COWES FLOATING BRIDGE

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1. SUMMARY

1.1 Introduction

This business case has been prepared on behalf of the Isle of Wight Council (IWC or the Council) under the provision of DfT WebTAG guidance. The document provides an ex-ante appraisal submission following established business case processes, but as Floating Bridge 6 (FB6) is in operation, the appraisal is able to draw on a number of ex-post indicators, including delivery costs.

The objectives of the Floating Bridge scheme are to:

- Provide direct pedestrian access between the two town centres of East Cowes and Cowes, to ensure their future vitality and competitiveness in a global tourism market.
- Allow for continued river access upstream for commercial and private vessels.
- Provide continuity of river crossings during the delivery period.
- Improve reliability in operation, which has become more critical since the reserve ferry was decommissioned in 1982.
- Minimise congestion on the local road network, particularly where this negatively impacts the economic potential of town centres.
- Ensure affordable fares for a population that experiences high levels of deprivation.
- Safeguard and enhance the value for money of the substantial delivery of the East Cowes Masterplan and subsequent planning permissions and developments
- Enhance environmental sustainability, through reduced vehicle use, operational energy requirements and carbon emissions.

The Strategic Case demonstrates a close fit with the policy frameworks adopted by the Council and those of the Solent Local Enterprise Partnership (SLEP). A key objective of the 2011 Isle of Wight's Local Transport Plan (called the Island Transport Plan) and its Core Strategy of 2012 is to reduce the need to travel, to improve accessibility across the Island and maintain functional transport links with the mainland.

The Transport Infrastructure Task Force in their report of July 2017 recognised that Island gateways create valuable first impressions of the Island for visitors, and many of those attending the hearings expressed concern about the quality of the current gateways. In addition, they provide for the opportunity to improve connectivity and integrated transport options for those travelling both within and to/from the Island. This includes the transport links to and from the gateways of which the floating bridge is one element for the gateways of Cowes and East Cowes.

Newport, which is the hub of the Islands road network, is identified in the Island Transport Plan as one of the Islands congestion hot spots; 80% of private car journeys entering Newport are single occupancy. Connectivity options between Newport and Cowes include the A3020, the main road corridor which carried 5.1m car movements in 2014 and a dedicated traffic free cycling and walking route, which

hosts 110,000 cycle trips. Bus passenger journeys along the A3020 corridor are between 1m and 1.5m per year.

The Council has secured grant funding of £9.6m to implement Newport junction improvements identified in the Island Plan Core Strategy. Work is ongoing to programme these works and complete the necessary assessment and design work with a view to delivery over the next four years with the first element of the scheme at St Mary's roundabout programmed to begin in 2019/20.

The replacement and modernisation of the earlier Floating Bridge 5 was seen as critical to the delivery of improved transport links and the policy framework of the Council. It is one of only two vehicle access/egress points for East Cowes that will come to the end of its economic life within the next two years. The rationale for the investment is to address market failures through addressing a recognised transport infrastructure deficit and thereby providing a platform of economic growth.

The earlier business case for investment in Floating Bridge 6 led to a significant funding contribution from SLEP for the delivery of the new bridge. The challenging commissioning period and first year of operation for the Floating Bridge has been well documented and reported externally. However, driven in part by remedial works on the vessel and an increasing longevity of operations, reliability has improved significantly during 2018 to well over 90%, including extended operating hours from 0500 to 0030. Some residual issues remain with operations during low ebb times, but work is in hand to target further reliability improvements.

This revised business case provides an assessment of the impacts of the early year and any possible on-going disruption to the case for investment. Ordinarily, an economic appraisal is undertaken before scheme implementation, but here the business case uses a hybrid approach based on the established ex-ante appraisal approaches, but taking on board some of the ex-post or out-turn elements to inform the appraisal. It is assumed that the appraisal pivots from a theoretical base of providing a passenger-only launch; this does not provide an appraisal of removing the new Floating Bridge and replacing it with a passenger-only launch, although the impacts of doing so can be inferred from the appraisal shown here.

The economic case has assessed the scheme as offering a high level of value for money. The modelling shows a benefit cost ratio (BCR) of 5.40 for the full service specification for Floating Bridge 6 against the passenger-only launch.

The financial case sets out the total costs of the project, plus the additional costs that have arisen since operating the new vessel.

The commercial case sets out the Council's approach to contracting and ensuring value for money for the scheme.

The management case describes the overarching governance through a number of phases of the project.

In addition, further information has been provided to set the context of the current operating position.

This new section of the business case also includes information on the current improved service reliability and details of the further works commissioned to address the earlier operational challenges of Floating Bridge 6.

2. STRATEGIC CASE

2.1 Introduction

The strategic case sets out the context and rationale for the project, including the strategic fit with policy objectives, as well as the specific problems and issues the project aims to address. Details are also provided as to how the project has developed over time, including the change to options that have now been modelled.

The specification for the floating bridge was outcome based and set out a series of outcomes and improvements that the vessel should deliver:

1. Reduced queuing times
2. Increased crossings per day
3. Shorter crossing times
4. Greater capacity for vehicles
5. Reduced running costs
6. Improved passenger accommodation
7. Reduced carbon emissions
8. Improved energy efficiency
9. Less congestion in and around Newport
10. Increased financial and operational security
11. Separation of vehicles and pedestrians
12. Introduce opportunities to advertise local business and attractions
13. Supporting the economic well-being of the towns
14. Introduce new technologies for payment – smart/proximity cards, mobile phones.

2.2 Business Strategy

The project concerns the Floating Bridge (also known as the Chain Ferry) connecting Cowes and East Cowes across the River Medina by chains connected to both shores replaced.

In 2016 Floating Bridge 5 (FB5) was 40 years old and at the end of its asset life span. It was already the oldest vessel of its kind in the country and needed replacement to ensure that a service could be retained rather than lost due to FB5 having to be taken out of service permanently. If the service had to be permanently withdrawn it would have significantly impacted upon the 1.8 million annual passengers (and vehicles) as this is the only crossing point over the Medina until you reach Coppins Bridge, which is 5 miles to the south, at Newport.

It was agreed by the SLEP that the project could be treated as a stand-alone project and that it no longer sat as part of the wider comprehensive scheme known as the Solent Gateways Project.

However, whilst no longer formally part of the wider scheme, it remains the case that there is significant transport and enabling infrastructure works ongoing in East Cowes associated with the much longer term East Cowes Regeneration Project. This

includes development proposals on a number of sites and more recently private investment from Red Funnel (totalling some £40 million, including new vessels and changes to the onshore infrastructure at East Cowes), which will deliver improved capacity and resilience of services connecting Southampton and the Isle of Wight, including critical freight services. This will enhance the arrival and interchange experience for both domestic and international users of this gateway to the Island.

The wider investment aims to increase the number of visits to the Island, especially those staying overnight; encouraging visitors to spend more, stay longer and come back more often. Investment in the new FB6 needs to be seen in this wider context.

Since the original funding was approved, other opportunities and proposals have been identified and FB6 will retain a transport option to support movement of people and vehicles from these new opportunities which include:

- Medina Yard, Cowes has a resolution to approve subject to a s106 agreement. A proposal to provide up to 535 residential units and up to 18,630 sq.m of non-residential floor space and associated new public realm works, landscaping, re-construction of sea wall and new public slipway, delivering an estimated 430-460 jobs on site and circa 600 indirect jobs within the local area.
- Kingston Wharf and Cowes Harbour Commission (CHC) land at Kingston. Given the local demand for marine related employment land, CHC are keen to ensure that their own sites enable maximum opportunity for this type of use.
- Cycling and walking investment. The Council has allocated capital to complete the Newport – East Cowes cycle route, providing for the delivery of the remaining section between Island Harbour, at Newport, and East Cowes. Completion of this would enable cycle access to the new IW College site at Whippingham, and would create a new circular route in the Medina Valley area, utilising FB6 as a key part of the circular route. In addition, Natural England are commencing work on the on-Island sections of the English Coastal Path, which include works at Cowes and East Cowes and potentially the Medina Valley, improving the accessibility of the area for local residents and visitors to the Island.

The modelling accompanying this business case has used revised figures based on the change in circumstances outlined above.

Of the wider objectives for the scheme FB6 specifically includes the following key aims:

- Provide direct pedestrian access and reduce vehicular journey times between the two town centres of East Cowes and Cowes, to ensure the future vitality and competitiveness in a global tourism market.
- Address the physical and visual barriers east-west between East Cowes and Cowes towns and waterfronts.
- Minimise congestion on local road networks, by providing a direct east-west link.

FB6 is an IWC project. It is no longer a joint scheme with Southampton City Council and Red Funnel. This business case relates only to the provision of FB6, which is a

stand-alone project and no longer forms part of any wider gateway project, although many of the earlier objectives remain valid for both FB6 and further developments in East Cowes and the wider Gateways area.

This Revised Business Case provides an update to the earlier business case that addressed the Floating Bridge component of the wider Solent Gateways scheme. When originally submitted it was prepared in line with Department for Transport (DfT) transport appraisal guidance (WebTAG) and was consistent with the Assurance Framework agreed between the Local Transport Board (LTB) and DfT. The earlier business case has been reviewed, fully updated and remains compliant with relevant guidance (

2.3 Problems Identified

The Isle of Wight is located off the south coast of England and covers an area of 147 square miles, with a coastline that runs for 57 miles. Whilst the overriding character of the Island is rural, about 60% of the Island's population live within the main towns of Newport, Cowes, East Cowes, Ryde, Sandown and Shanklin. Newport is the County Town of the Island and is the main employment centre. Outside of these settlements there are around 30 villages and hamlets. The local population is approximately 140,000 but can double in the busy summer months.

The Island is linked to the Solent conurbations of Southampton, Portsmouth and Lymington via a number of services operated by Wightlink, Red Funnel and Hovertravel.

The distinctive geography of the Isle of Wight is therefore a defining factor in the area's transport network and economy, characterised by a number of economic challenges.

The SLEP Strategic Economic Plan (SEP) acknowledges the size, value and potential for growth of the visitor economy in the area – a sector overwhelmingly characterised by small and medium sized enterprises (SMEs). The quality of the journey experience and ease of access to and on the Island is therefore critical to the overall visitor experience.

The Isle of Wight has a fragile economy that faces many unique challenges. Its underlying rate of unemployment is increasing, many employment opportunities are seasonal and there is an over reliance on the public sector as a key supplier of job opportunities. Average earnings for individuals working on the Island are low at a level that is 80 % of those across the South East and crossing the Solent is perceived as a barrier to the economic growth and regeneration of the Island. Perhaps most crucially Gross Value Added, measured in £ per capita, is between 66% and 72% of the Island's near neighbours in Southampton and Portsmouth.

The Island's employment base has grown over recent years, increasing at a similar rate to the South East. Employment growth has been driven by a variety of sectors including those that the Island has traditionally been strong in (e.g. accommodation and food services) and others which it is less known for (e.g. real estate). Overall workforce productivity is lower in comparison to the mainland and could be improved in the future.

The Island does also have a number of opportunities that it can look to exploit in improving its overall economy. It is home to some world class businesses such as Gurit, MHI Vestas, BAE Systems and GKN, which have all contributed to the Island's reputation as a centre of excellence for composite technologies and advanced manufacturing, especially in the marine and maritime sectors. The opening of Centre of Excellence for Composites, Advanced Manufacturing and Marine (CECAMM) in September 2017 allows young Islanders to develop the relevant skills and educational qualifications to grow the skills base required by these world class organisations.

The Isle of Wight has an abundance of natural resources that can be harnessed to its use, and also benefits from a stable and committed workforce that has shown itself to be adaptable to any opportunities presented to it.

While there is a strong legacy of maritime engineering, there are a number of other key sectors that support the economic engine of the Island. Tourism and all its associated industries account for 20% of the GVA, and with an ever aging population, the care industry is growing rapidly and needs supporting to ensure the right levels of care are offered to the most vulnerable residents.

The Island is unique within the UK in having all of its mainland links provided by private sector companies, with no public service obligation and/or no community-based service level agreement. The Island is linked to the mainland by six cross-Solent routes, three of which carry both vehicles and foot passengers and three operate only for foot passengers.

In 2016, approximately 2.4m passengers used ferry services to access the Island, generating an estimated £296m contribution to the local economy. 5.5% of Island residents in employment rely on ferries for daily commuting to the mainland to jobs in London, Portsmouth, Southampton and the surrounds. Conversely only an estimated 3.7% of Island jobs are filled by mainland residents who commute to the Island.

A number of wards on the Island, including Cowes, have been awarded Assisted Area "C" Status. Area "C" assisted areas are recognised in European state aid rules as being less economically advantaged places that would benefit from additional support for development and regional aid for SME's.

While there are a number of economic challenges, there is significant potential for growth and regeneration on the Isle of Wight, particularly in the tourism, marine, aerospace, renewable energy and advanced manufacturing sectors.

The delivery of any growth strategy linked to this will be dependent on a number of factors including high quality transport infrastructure. Car ownership on the Isle of Wight remains slightly higher than the national average with 75.3% of households owning at least one car compared to 73.2% nationally.

The road network on the Isle of Wight radiates out from Newport at its centre to the other main settlements, including Cowes and East Cowes, which are generally located on the coast. The result of this layout is that traffic can become congested particularly at peak times in and around Newport, in particular Coppins Bridge gyratory, St Mary's roundabout to the north and other approach roads. Congestion

can be exacerbated during the summer season when the Island's population almost doubles. This can have a detrimental impact on journey time reliability, accessibility to services including the major employers, the Island's hospital, primary retail centre and impact on the local environment including noise and air pollution.

Transport modelling work undertaken over a number of years on behalf of the Council has helped quantify local traffic flows, how these have increased as a result of development and economic activity and how pressure could increase in the future as a result of further planned development in the area. The reports have identified that even with improvements to travel by sustainable means; traffic congestion in Newport will get worse unless measures are taken to increase capacity in the road network around Newport. The Island Plan Core Strategy recognises this in policy SP7.

The Core Strategy recognised that highway infrastructure improvements are needed at the following locations by 2020 to facilitate planned growth:

- Coppins bridge gyratory – including approach roads
- St Mary's roundabout north of Coppins Bridge
- Hunnyhill/Hunnycross and Riverway junction
- Medina Way – from the junction with Riverway to Coppins Bridge.

Work has progressed on designing a £6 million scheme for St Mary's roundabout two was considered by cabinet at their meeting on 13th September. Cabinet approved the project and associated spend; the following links provide the cabinet report https://www.iow.gov.uk/Meetings/committees/cabinet/13-9-18/PAPER%20C.pdf and minutes of that meeting https://www.iow.gov.uk/Meetings/committees/cabinet/13-9-18/minutes.pdf.

If the east-west route provided by the Floating Bridge did not exist, car traffic would be diverted to the congested road network, which would introduce new delays and compound existing congestion problems. The alternative routeings via Newport are illustrated in the following figure.

Floating Bridge Closure alternative vehicle route via Newport and location of congestion pinchpoints

2.4 Wider Improvement Schemes

The project sits alongside a number of wider improvement schemes including packages of infrastructure improvements aimed at removing existing connectivity and capacity constraints on the visitor economy.

These schemes are all separately funded and provide for significant private investment in both East Cowes and Cowes:

- Completion of the East Cowes masterplan will see further investment in housing and employment in East Cowes
- Red Funnel Terminal Improvements will also provide highway infrastructure changes that aim to improve the flow of traffic through East Cowes and prevent congestion from queuing ferry traffic. These improvements also provide the opportunity to consider local network improvements around the terminal and links to the Floating Bridge
- Medina Yard, Cowes - A large scale redevelopment proposal in Cowes, on the waterfront that will provide a significant number of new houses and improved employment site, as well as investment in flood defence improvements, cycling and walking infrastructure and public realm in and around the site
- Newport – East Cowes cycleway – the route currently runs from Newport to Island Harbour before diverting onto the main highway. Improvements planned for investment through the council's capital programme, s106 contributions and other funding opportunities will deliver improvements to the route, continuing the cycletrack through to Beatrice Avenue and into East Cowes. This will provide good and direct links with the newly completed IW College campus at Whippingham.

In addition, Natural England have confirmed that routes both side of the river connecting Cowes – Newport – East Cowes are part of the coastal path and they are currently working on plans for additional investment in this area.

2.5 Impact of Not Changing

The Do Minimum scenario which was modelled as part of the original business case would replace the car, cyclist and pedestrian Floating Bridge with a pedestrian and cyclist only river taxi similar to the replacement service that operates when the Floating Bridge is out of service. Whilst this would retain a vital pedestrian/cycle link between Cowes and East Cowes there would be an associated cost to decommission the Floating Bridge and infrastructure. Furthermore, the impact of the scheme not going ahead would result in an additional 10-mile (28 minute) car journey, for the majority of vehicles currently using the service, via the Medina Way and Coppins Bridge. As previously highlighted, this would lead to increased journey times and delay, as well as added traffic pressure on the key network pinch points in and around Newport.

In addition, unless a specifically accessible passenger launch and associated jetty/slipways are provided, then accessibility for the mobility and cyclists will be compromised compared to the current fully accessible boarding arrangements for the Floating Bridge.

The removal of this important transport link would have significant implications for local connectivity between Cowes and East Cowes. Poor connectivity discourages investment and employment growth and also causes retention difficulties for existing employment leading to businesses moving out of an area. The Floating Bridge is an integral part of the East Cowes Regeneration Scheme.

The longer-term impacts of not replacing and improving this transport infrastructure has the potential to impact the visitor economy of the Isle of Wight, with the sector falling further behind in the competitive global tourism market, creating a downward spiral and jeopardising existing jobs. More specifically, if the wider schemes are delivered without this investment and generate the expected additional tourism and local resident traffic on the local network, the removal of the floating bridge would act as a significant constraint on movement throughout the Island and impact on overall visitor experience.

2.6 Scheme Objectives

The scheme objectives have been defined to directly address problems that have already been discussed in this case and to improve the floating bridge service.

Further discussion on how these fit with council, government and SLEP strategy to be provided here and in section 2.9 below.

Floating Bridge Objectives and Outcomes Sought

Project Objectives	Key Outcomes Sought

Project Objectives	Key Outcomes Sought
Provide direct pedestrian access between the two town centres of East Cowes and Cowes, to ensure their future vitality and competitiveness in a global tourism market. Allow for continued river access upstream for commercial and private vessels Provide continuity of river crossings during the delivery period. Improve reliability in operation, which has become more critical since the reserve ferry was decommissioned in 1982. Minimise congestion on the local road network, particularly where this negatively impacts the economic potential of town centres. Ensure affordable fares for a population that experiences high levels of deprivation. Safeguard and enhance the value for money of the substantial delivery of the East Cowes Regeneration Project, adopted in 2006 and subsequent planning permission in October 2007. Enhance environmental sustainability, through reduced vehicle use, operational energy requirements and carbon emissions.	• Reducing queuing times • Increased crossings per day • Shorter crossing times • Greater capacity for vehicles • Reduced running costs • Improve passenger accommodation • Reduced carbon emissions • Improved energy efficiency • Less congestion in and around Newport • Increased financial and operation security • Separation of vehicles and passengers • Introduce opportunities to advertise local business and attractions • Supporting the economic well-being of the towns • Introduce new technologies for payment e.g. smart/proximity cards mobile phones

2.7 Constraints and Interdependencies

The Floating Bridge is one of only two vehicular access/egress points for East Cowes, and its replacement and modernisation therefore underpins the ability to secure economic benefits from recent and future investment across the town.

2.8 Scheme Option Development

The previous Floating Bridge (FB5) was commissioned in 1976 and is subject to annual Maritime and Coastguard Agency (MCA) UK inspection in April, at which time minor works and localised refurbishment takes place. During 2015, it was determined that the bridge would be coming to the end of its economic life in 2017/18 due to increased maintenance costs arising from its age and the ongoing annual MCA inspections.

At the age of about 42 years the vessel also does not offer the level of passenger facilities expected of the transport network at the present time. FB5 was already the oldest of the current fleet of similar car carrying vessels in the UK, although all have had very long service lives with similar floating bridge/chain ferries operating for well over 30 years.

A long list of options for safeguarding access between East Cowes and Cowes have been considered and are listed below:

- Option 0 – Do Nothing – with no public sector obligation to provide a crossing of the Medina in the vicinity of Cowes, provision is left to the market, with the likelihood that a private water taxi facility would be provided.
- Option 1 - Do Minimum (reference case) – Pedestrian and cyclist only passenger launch at the current floating bridge location, with vehicles crossing the River Medina at Coppins Bridge in Newport. Services would be provided on a timetabled basis similar to those in place during the reconstruction of the floating bridge slipways during early 2017 and during periods when FB6 has been out of action.
- Option 2 – Do Something – vehicle and passenger provision.
    - 2a – Replacement of the floating bridge across the River Medina with a new chain ferry, operating as planned into the long-term with high levels of service and reliability.
    - 2b – Replacement of the floating bridge across the River Medina with a new chain ferry but based on current 2018 service levels and reliability.
    - 2c – Replacement of the floating bridge across the river medina but with a vehicle ferry not using the chain principle.
- Option 3 – Fixed link bridge provision
    - 3a – Fixed vehicle bridge over the River Medina at current floating bridge location.
    - 3b – Opening vehicle bridge over the River Medina at current floating bridge location
    - 3c – Fixed vehicle bridge over the River Medina located just south of two settlements of Cowes and East Cowes
    - 3d/e – Fixed vehicle bridge over the River Medina located near Newport
- Option 4 – Vehicle tunnel under the River Medina

OPTION 0: Do Nothing

The Council has an established procedure to operate a pedestrian and cycle service as a “back up” option to the Floating Bridge service, but it is under no statutory obligation to provide the service. Therefore, in theory, were the council to pull out of facilitating any cross-Medina service between East Cowes and Cowes, it would be entirely up to the market to provide such a service.

Given that there is some level of underlying demand for, at least a passenger service, there is a strong likelihood that a private water-taxi facility would be provided

either on a timetabled or hailed basis with charges left to the operator to determine based on market prices.

However, whilst this option is theoretically possible, there are a number of social, economic and political drivers to suggest that this is not a realistic option to be considered in a replacement for the provision of the earlier or current Floating Bridge links between East Cowes and Cowes.

OPTION 1: Do Minimum

The Council has an established procedure to operate a pedestrian and cycle only back up option when the floating bridge is temporarily out of service and this service has been separately procured. This procedure was used during the extensive disruptions caused by reliability issues with FB5, especially between 2011 and 2014 and more recently following the problems with commissioning and the early reliability of FB6.

In the Do Minimum, the council would effectively extend this service on a permanent basis with the council arranging a launch and retaining the full revenue. Whilst there is no statutory obligation to provide this service, it would be supported by the public sector to ensure the existing extended hours of operation across a year and a similar charging structure to the current system are retained to maintain an affordable and accessible service for users.

With no vehicle carrying provision, road vehicles wishing to travel between East Cowes and Cowes would be required to drive 10 miles via Newport, crossing at Coppins Bridge. As well as journey times due to the diversion (currently a minimum of 28 minutes), journey times will increase further in the future if anticipated growth in Red Funnel services is realised and/or congestion levels in and around Newport continue to rise.

This option is feasible and as such has been considered in the detailed appraisal supporting the Economic case (see Economic Case).

OPTION 2: Do Something – Replacement floating bridge

A direct replacement for FB5 to maintain a similar service is a clear option to retain direct pedestrian and vehicle links between East Cowes and Cowes. A replacement for the bridge would have been expected to provide potential for a number of design changes to be made, for example in expanding crossing capacities through vehicle capacities and frequencies, and increasing the clearance over the Floating Bridge chains to enhance river access upstream.

A direct replacement permitting passenger and vehicle movements on the same alignment would have been expected to provide the following additional benefits, with the out-turn for FB6 demonstrating delivery of these benefits:

- improved passenger accommodation;
- separation of vehicles and passengers to ensure operating safety;
- opportunities to improve payment of fares (e.g. smart/proximity cards, mobile phone), and;

- associated improvements and remodelling to slipways.

OPTION 2a/b: 'Do Something' – Replacement of the Floating Bridge

Whilst ordinarily one may expect to appraise the expected out-turn specification of any investment when assessing business cases, for this FB6 assessment, the difficulties with actual commissioning and initial operations of the new bridge suggest a need to consider two 'Do Something' scenarios:

- Option 2a – Full Operations - Replacement of the Floating Bridge across the River Medina with a new chain ferry operating as intended, including service frequencies and high levels of reliability. Modelling and appraisal has been based on full operations, explicitly assuming that it is possible for management and technical actions to address the observed reliability issues with the early operation of the FB6 - the service would be largely or fully delivering to the earlier expectations for the new bridge and over the long-term.
- Option 2b – Disrupted Operations - Replacement of the Floating Bridge across the River Medina with a new chain ferry, but with an assumption that it is not possible for management or technical actions to address the observed reliability issues with the actual operation of the new Floating Bridge. Given the current work on FB6 to address the earlier operational issues, and the significant improvement in actual performance since initial commissioning in Spring 2017, this scenario is unlikely to be realistic for a long-term assessment. However, modelling work has been based on service frequencies and reliability observed during 2018. Implicitly, over time, as the current management or technical work is undertaken, this scenario will effectively transition towards or fully into the Full Operations scenario.

OPTION 2c: 'Do Something' – Replacement of the Floating Bridge with a vehicle ferry not using the chain ferry principle

This option would replace the Floating Bridge with a non-chain ferry to maintain the vehicle links, but without any of the operational issues arising from chain ferry operations that were problematical with FB5 and have been significant following the introduction of FB6, including both operational, engineering and noise issues.

A full detailed assessment of the maritime considerations for using a non-chain ferry has not been undertaken as part of work supporting this Revised Business Case. However, the very strong river and tidal currents suggest that some form of chain guidance is required to permit the safe crossing at Cowes, despite potential issues of snagging of chains with the heavy yachting traffic in the area. Therefore, vessels similar to the Dartmouth Lower 'push and pull tug' operation or the Bodinnick/Fowey non-chain ferry have not been considered further in developing this Revised Business Case.

OPTION 3: Fixed Crossing – River Medina

The idea of constructing a fixed link from one side of the River Medina to the other has been considered a number of times before and a feasibility study commissioned

in 1987 had an open brief to investigate all types of crossings on alignments between Newport and Cowes.

The various crossings considered included tunnels, barrages, low- and medium-level opening bridges and high-level bridges. The locations for possible structures were split into five corridors at Cowes, Kingston (just south of the two towns) half way between the Newport and Cowes, Dodnor – just north of Newport and at Newport itself. Tunnels and barrages were rejected at an early stage for a combination of technical and economic reasons as were routes at Cowes and in the central corridor.

The situation has changed since these studies were undertaken and land on both sides of the river has been developed as part of the planned growth of both settlements. Despite this the work undertaken is still useful and relevant when considering options for a fixed crossing and the following were considered in outline within the context of this latest piece of work:

OPTION 3a: Fixed Bridge at Floating Bridge Location

When looking at the construction of a fixed bridge in the location of the Floating Bridge, it is considered that this would require a wide span with clearance of 200ft to allow for craft to pass underneath. This would necessitate the construction of substantial approach ramps, on both sides of the river to achieve the necessary access. It is considered that these ramps would require significant land assembly and run up on both sides resulting in the likely demolition of large parts of both town centres. The scheme is considered unrealistic on these grounds alone and has not been costed and, therefore, is ruled out.

OPTION 3b: Opening Bridge at Floating Bridge Location

It is considered that an opening bridge in the location of the Floating Bridge would offer the advantage of a direct link for pedestrians and vehicles between the two towns. However, as a navigable river, priority would have to be given to river users with the result that the bridge would have to open and close as required. Cowes is a popular sailing venue and the location of the East Cowes Marina, moorings on the river at The Folly and at Newport Harbour and the needs of commercial craft means that the river is well used throughout the year. The harbour and river are especially busy during summer months when the whole river gears up for its famous sailing festivals and regattas.

To maintain free river access would mean that a bridge would have to be opened or remain open for considerable periods during the day with resulting hold ups for foot and road based traffic. It is considered that the costs for such a project would be between £15-20m, with the cost of construction funded through tolls of a scale to repay the capital investment over and above the grant funding, and to enable ongoing maintenance. A scheme of this magnitude would be clearly outside the scope of council funding and well beyond the cost of a replacement Floating Bridge. Furthermore, a bridge of this type was considered in the 1990 study and was ruled out early on.

OPTION 3c – Fixed Bridge located just south of the two settlements

Perhaps the most obvious location for a fixed bridge would be just to the south of the two towns linking Victoria Gove in East Cowes and Arctic Road in Cowes. Identified as one of the three locations chosen for further investigation by consultants in the early 1990s, this line was chosen as being the shortest and most direct high level crossing point between the two settlements. On the west side it would follow the line of Arctic Road, but on the eastern side would have passed through the then planned marina development east of Clarence Road. The marina development subsequently took place and to the south of it a housing development Medina View.

It is considered that the construction of a fixed crossing in this location would not be able to offer the direct and convenient access required by pedestrians and cyclists wishing to travel between the town centres, as it would require a bus service or other form of transit. This is likely to have a largely negative impact upon the vitality of the two town centres.

This option is also now more difficult to achieve since the development of the marina and other developments to the south. The presence of a bridge would also restrict commercial traffic using Kingston and Medina Wharves. Ruled out in the 1990s and not costed as part of that work it is thought that the approximate costs for such a project would be in excess of £20m, which in the current economic climate would need to be funded privately with costs recouped through charging a toll to use it. This would need to be at a level sufficient to repay the capital investment over and above any possible grant funding, and allow for the ongoing maintenance required. A scheme of this magnitude would be clearly outside the scope of council funding well beyond the cost of a replacement Floating Bridge.

OPTION 3d: Fixed Bridge located further downstream – Kingston, north of Whippingham

The Floating Bridge is located approximately 1,000 meters (0.5mile) from the mouth of the river, where the width of the river is only 153 meters wide. The next most feasible location for a fixed bridge is further towards Newport where the river narrows again. Identified in the 1990 study as the preferred location (route K2), this line has subsequently been revised through public consultation and re-drawn to run to the south of the local school at Kingston. The revised line, known as K2a would have linked the main roads on either side of the river, the A3020 at Northwood to the A3021 at Whippingham.

Seen as the best compromise in terms of proximity to the two towns, location south of the power station at Kingston and width of river, the construction of a bridge here would still require a significant structure, of a height to allow free flow of river traffic and lengthy approach roads. Its location further to the south of the two towns could not offer easy pedestrian access between the settlements requiring instead bus services or other form of transit with a resulting negative impact upon the vitality of the two town centres.

Much of the land on the eastern side of the river has been developed since that report was prepared, in effect ruling out a bridge in this location.

OPTION 3e – Fixed Bridge located between Newport and Cowes

Some consideration was given to the idea of constructing a bridge during consultation on the Island Plan – Core Strategy. Suggested as an alternative to the planned upgrading of roads in and around Newport as included in the plan, a number of respondents suggested that a bridge should be north of Newport on a line that would link into the road network at a point on the main Newport to Cowes Road on Horsebridge Hill, crossing the Medina Valley and River Medina to join the A3054 at the northern end of North Fairlee Road, somewhere near Binfield Corner.

Such a proposal would cross the river somewhere north of Stag Lane on the western side of the river and would necessitate the construction of a new 2.7km link, crossing the river at a comparatively narrow section (0.17km). During early work in 2015, it was estimated that the cost of constructing the bridge element alone would be in the region of £15m-£20m making the total cost of the project including the bridge, land acquisition and construction between £33m - £44m; costs may have now increased further due to construction cost inflation.

In addition, the earlier work in 2015 considered a scheme of this magnitude to be outside the scope of council funding and well beyond the cost of a replacement for FB5.

However, current work on the Local Plan review includes examination of some early transport benefits and feasibility of a new link and bridge broadly following the same alignments.

Without wishing to pre-empt any of these finding from the new 2018 work, it is most likely that any new crossing would provide a scale of capacity and benefits significantly higher than those of any Floating Bridge replacement, but focused on delivering targeted benefits around Newport, rather Cowes, and again at a significantly higher cost.

Were such a scheme to progress, then at the margins some demand on the Floating Bridge could be lost to the new road crossing. However, a new crossing is most unlikely to be available until the mid-2020s at earliest, and with demand growth in the area, a Floating Bridge and new road crossings are likely to be complementary.

OPTION 4 - Tunnel under the River Medina

The idea of constructing a tunnel under the river was considered as part of the 1990 study however this was ruled out early in that process primarily on cost and engineering grounds. Experience gained since that time through the construction of the Channel Tunnel, Hindhead A3 tunnel and Crossrail may now make this idea more feasible in engineering terms.

It is clearly difficult and unwise to draw absolute conclusions from these high profile projects all of which are far larger than that which would be required to provide a fixed link under the River Medina. However, in simple terms, a tunnel can be ruled out on the alignment of the current Floating Bridge on similar grounds to a fixed crossing here. To get the depth required it would be necessary to start the approach roads well away from the river and the impact and resulting cost in terms of land required would add significantly to the cost of construction, therefore ruling this option out.

When considering the potential to construct a tunnel on alignments to the south of the towns it might be useful to note that the Hindhead tunnel was 1,829m (6,000 ft.) in length and is understood to have cost a total of £371m in 2011. The cost of constructing a tunnel on a line to the south of the towns and avoiding recent developments as much as possible would entail a new road of approximately 2.3km (1.4miles) of which approximately 900metres would be in a tunnel. Using the Hindhead tunnel as an example, this would estimate the tunnel section alone to cost significantly over £100million. Again, a scheme of this magnitude would be outside the scope of council funding and well beyond the cost of a replacement Floating Bridge.

Preferred Option

The longlist above was narrowed down further during the preparation of this business case with the bridge and tunnel options being ruled out largely on physical deliverability and economic grounds. The two options shortlisted (‘Do Minimum’ and replacement of Floating Bridge) have been considered in terms of their performance against the strategic objectives set out in Section 2.6 and summarised in the following table. Options 3c, 3d and 4 have been included for reference and comparison only as historically considered options.

Floating Bridge Options Analysis

Project objectives	Option 1	Option 2	Option 3c	Option 3d	Option 4
Direct pedestrian access between two town centres	✓	✓	×	×	×
Continued river access upstream	✓	✓	✓	✓	✓
Provide continuity of river crossings during the delivery period	✓	✓	✓	✓	✓
Improve resilience in operation	✓	✓	✓	✓	✓
Minimise congestion on the local road network, particularly in town centres	×	✓	×	×	×
Affordable fares	(✓)	✓	✓	✓	✓
Safeguard and enhance VFM of delivery of the East Cowes Regeneration Project	✓	✓	✓	×	✓
Enhance environmental sustainability	(✓)	✓	×	×	×
TOTAL	6.0	8.0	5.0	4.0	5.0

On the basis of the overall fit with the strategic objectives, and for the wider engineering and economic rational stated, Option 2 – replacing the floating bridge is deemed the preferred Do Something option. The shortlisted Do Minimum and Do Something Options have therefore been taken forward for more detailed transport and economic modelling as discussed in the Economic Case.

2.9 How the Scheme Meets Policy Objectives

The preferred option scheme responds well and strongly supports local and national policy objectives. The relevant policy documents are:

- Industrial Strategy White Paper
- Solent LEP SEP (2014)
- Solent Strategic Investment Plan
- TfSH/IW Local Transport Plan (2011-2031)
- Isle of Wight Local Transport Plan (2011-2038)
- Isle of Wight Core Strategy (2012)
- Isle of Wight Infrastructure Investment Plan

The project fits with the Solent LEPs key priorities and growth targets as set out in the table below:

Floating Bridge – SLEP Policy Fit

SLEP Priority	Scheme contribution
Enterprise	The SEP acknowledges the size, value and potential for growth of the visitor economy in the area. The project will improve journey experience and accessibility for visitors, promoting the Island as an attractive tourist destination and contribution to growth in the sector.
Infrastructure	The scheme will retain connectivity and improve accessibility between Cowes/East Cowes assisting with SME growth and retention within the town. The scheme would increase network capacity and connectivity supporting the East Cowes regeneration scheme and other permitted developments which will be delivering new housing and employment. The scheme supports wider measure to improve network resilience provided by permitted developments and helping to reduce congestion in Newport, improving accessibility between people and jobs.
Inward Investment	Safeguarding and improving accessibility would increase business confidence in journey time, reliability and improve visitor journey experience. The scheme would therefore contribute to new business locating and investing in the Island as well as the number of visitors.
Skills	The scheme will indirectly support the retention of employment skills, as well as attract new opportunities to broaden the skill base through regeneration.
Strategic sectors	By facilitating growth in the tourist sector to the Island of Wight, the scheme supports the development of the visitor economy locally. By improving the quality of the journey experience, it is anticipated the local tourism offer will be able to attract higher spending customers. At the construction stage, the scheme will provide a direct boost to the marine industry through the delivery of the floating bridge ferry.
Innovation	Supporting the marine industry will encourage the development of knowledge and encourage innovation in this sector.

In addition the project is also assessed against broader objectives of the SLEP and objectives within the Solent Strategic Investment Plan.

By providing direct improvements to the transport infrastructure, the project facilitates growth of the advanced manufacturing, marine and aerospace sectors and makes the area more attractive to the quality of workforce demanded by firms in the growing local economy. The project also facilitates growth of the visitor economy.

This project provides a local transport system that provides for affordable fares for a population that experiences high levels of deprivation and opens up new areas of opportunities for employment, both existing and future e.g. East Cowes Redevelopment, Red Funnel Terminal improvements; Medina yard re-development.

The project will enable people to have a means of travel to access existing and future employment and academic institutions. It also directly addresses a recognised transport infrastructure deficit that if it is not replaced within the next two years, will contribute to congestion and increased journey times for the passengers using the vessel annually.

The project will help to reduce congestion on the local road network. This will reduce queuing times, and an increase in crossings per day will impact positively on congestion. Improved ease of movement for people will mean businesses will be able to market to a greater market. The floating bridge will also introduce opportunities to advertise local businesses and attractions that will support business survival and growth.

There are a number of policies set out in the TfSH/IOW Local Transport Plan 3 that the project directly responds to as set out in the following table:

Floating Bridge – TfSH/IOW Local Transport Plan 3 Policy Fit

TfSH/IOW Plan 3 Policy	Scheme contribution
Policy A: to develop transport improvements that support sustainable economic growth	The improved links between East Cowes and Cowes is partly aimed at facilitating sustainable growth, whilst simultaneously relieving congestion on the road network, particularly in Newport.
Policy C: to optimise the capacity of the highway network and improve journey time and reliability for all modes.	The project would reduce anticipated congestion on the local road network and an enhanced service would reduce queuing times and greater frequency of savings.
Policy D: to achieve and sustain a high quality, resilient and well-maintained highway network for all.	The project would reduce anticipated demand and vehicle impact on areas of the network currently experiencing congestion in and around Newport.
Policy E: to deliver improvements in air quality	The project would reduce vehicle km travelled and emissions on areas of the network currently experiencing congestion in and around Newport.
Policy F: to develop strategic approaches to management of	The project would support development at East Cowes which will seek to rationalise commuter parking to promote

TfSH/IOW Plan 3 Policy	Scheme contribution
parking to support sustainable travel and support economic development	sustainable travel.
Policy G: to improve road safety	The project would reduce vehicle kms travelled improving road safety on the local network, particularly on congested parts of the network around Newport.
Policy H: to promote active travel modes and develop supporting infrastructure	The scheme retains a vital pedestrian/cycle link between Cowes and East Cowes. Reduced vehicle kms travelled and improved road safety would also support vulnerable road users elsewhere on the network.
Policy I: to encourage private investment in bus, taxi, and community transport solutions and where practical, better infrastructure services	The project would retain a vital link and maintain accessibility for those reliant on community transport and taxis.
Policy J: to further develop the role of water-borne transport	This project is directly concerned with improvements to water-borne transport across the Solent.
Policy L: to work with local planning authorities to integrate planning and transport	The project is directly concerned with the integration of transport within permitted and potential development sites in Cowes and East Cowes.
Policy M: to develop and deliver high quality public realm improvements	The scheme will include public improvements to the floating bridge slipways and public waiting areas.

The project strongly aligns with the objectives of the IW Transport Plan (2011-2038) including:

- Supporting economic growth;
- Tackling climate change;
- Better safety, security and health;
- Equality of opportunity; and
- Improving quality of life and the natural environment.

Floating Bridge – IOW Local Transport Plan Policy Fit

5	Scheme contribution
Objective A	The project directly aligns with this objective by retaining a key highway asset and by enhancing capacity.
Objective B	The project significantly improves on the reduced journey time reliability and predictability of the additional 10-mile car journey introduced by the fall back do minimum scenario.
Objective C	The project would modernise the existing service, improving efficiency and carbon footprint, as well as prevent as well as increased journey distances and emissions.
Objective D	The project would reduce vehicle kms travelled particularly through the more congested Newport area with benefits for road safety, emissions and health.
Objective E	The project reduced vehicle kms travelled and retains a vital pedestrian/cycle link across the River Medina.
Objective F	The project provides a vital multi-modal connection between Cowes and East Cowes reducing the distance and potential cost for those reliant on car or taxi to make local journeys.

The scheme is consistent with a number of Island Plan Core Strategy policies, including:

- DM2 – Design Quality for New Development
- DM7 – Social and Community Infrastructure
- DM8 – Economic Development
- DM9 – Town Centres
- DM17 – Sustainable Travel
- DM18 – Cross-Solent Travel

In detail:

- DM2 Design Quality for New Development – the scheme will improve overall accessibility to support higher quality development at Cowes and East Cowes;
- DM7 Social & Community Infrastructure – the scheme maintains a vital transport link between the Cowes and East Cowes communities;
- DM8 Economy – the scheme retains direct vehicle access for cross Solent ferry services improving traveller experience and reliability for visitors and enhancing tourism as well supporting the regeneration of East Cowes;
- DM9 Town Centres – the retention of transport links will maintain the resilience of local town centres safeguarding against the loss of A1 floor space and deterioration of town centre offer;
- DM17 Sustainable Travel – the scheme retains pedestrian/cycle links as well as reducing vehicle kms travelled through the most congested areas of the Island's network; and

- DM18 Cross-Solent Travel – the scheme complements and supports the wider 'Solent Gateways' schemes to improve cross-Solent travel and grow the visitor economy.

The Island's Transport Infrastructure Task Force, in the report of 2017 identified a number of transport challenges for the Island, including:

- Island Gateways
- Congestion
- Sustainable transport
- Technology

This project provides a link across the River Medina, linking both Cowes and East Cowes, both of which are key gateways to the Island; it aims to reduce congestion on the local highway network; it provides a link which promotes walking and cycling and is significantly smarter than FB5 with regard to technology used on the vessel.

2.10 Evidence Base

Public Consultation

In June 2014, the Council conducted an informal consultation for the Medina Valley Area Action Plan, which included these questions:

> *Do you agree that there should be a floating bridge between Cowes and East Cowes?*
>
> *What are your views on the importance of a pedestrian and vehicle link across the River Medina between Cowes and East Cowes?*

The responses to this consultation were overwhelmingly in support of continuing to provide a floating bridge between the two towns.

In December 2014, the council subsequently consulted on the proposed introduction of pedestrian and cyclist fares. The consultation used a combination of online and face to face surveys to assess:

- Frequency of use and journey purpose;
- Willingness to pay and if so how much;
- Preferred method of payment;
- Proposed improvements to the service; and
- Concessionary fares for different user groups.

The results identified that 52% used the service on a weekly or more frequent basis and principally for leisure or shopping purposes. The introduction of pedestrian and cycle charges is an emotive issue and there was a clear geographic split in willingness to pay between Cowes and East Cowes responses (73% against) with elsewhere on the Island (64% in favour). The amount people were willing to pay averaged 26p per pedestrian single and 37p per cyclist single with strong support (83% - 92%) for concessionary fares for students, pensioners, those with a disability and the unemployed.

The survey looked at ways to improve the service with a more environmentally friendly and more frequent service receiving the most responses. Cash payments was the overwhelmingly preferred method with significantly less support for other payment methods such as mobile phone apps and e-travelcards.

Following the arrival and introduction into service of FB6 the well documented commissioning issues have generated significant interest in this project.

Views on the project range from those who consider that FB6 should be scrapped and FB7 procured to those that support the investment in improving the service so that it can move from current operations to full service as initially planned.

As a result of the ongoing public interest and debate the council has agreed to convene a Floating Bridge user group to help develop future improvements to the service.

The first meeting of this group is programmed for 24th September 2018 and the draft terms of reference for the group to agree are attached as Appendix 1 to this document.

Further information on communications and stakeholder management is set out in Section 6; the Management Case.

2.11 Internal and External Drivers

The single most important drivers for this project are:

- Internally from the Isle of Wight Council in their role as facilitators of economic growth and as highway authority.
- Externally from companies wanting to invest in the Isle of Wight and to grow their businesses.
- Externally from central government in its bid to promote economic growth and a reduction in CO2 emissions.

2.12 Project Summary and Commentary on Operational Challenges

The East Cowes-Cowes Floating Bridge has been replaced and modernised to:

- Provide direct pedestrian access and reduce the vehicular journey times between the two town centres to ensure their future vitality and competitiveness in a global tourism market.
- Minimise congestion on local road networks, particularly where this risks negatively impacting the vitality of town centres.

Since its arrival, there have been a number of concerns raised by stakeholders which include:

- Size and specification of the vessel

Comparative drawings have been provided which detail the differences between FB5 and FB6. Although it is clear that FB6 is taller than FB5, this was a requirement of the specification to allow for the upper passenger deck and wheel house. The length

of the vessel is almost the same to that of FB5 with raised prows in their respective operation positions with just 20cm difference and the width is 1.2m wider that FB5.

- Training of staff

The MCA expressed concerns on a visit on 2nd June that the crew were not sufficiently familiar with the operation of the vessel.

The ship builder provided additional training for all staff and worked with the Council to prepare a detailed training and competency log and this work was carried out immediately once the issue was raised by the MCA.

The floating bridge crew receive some 60 hours of training annually together with ongoing continual assessment to ensure that they are competent to carry out their role. Processes and procedures are documented in the safety manual which sets out the operational requirements of both the crew and the vessel.

With the introduction of FB6 there have been two further training requirements added to the training programme; (1) sea survival/man overboard; and (2) VHF licence (an exam based qualification).

All of the crew hold the floating bridge operators certificate (FBOC) and all are required to complete a competency task assessment. Each crew member is continually assessed on their work activities to ensure they are competent in their role and their competency is signed off by the Harbour Master as “qualified to work on the river”.

- Passenger safety

The contract with ship builder together with the specification produced by the naval architects provides for a series of trials to be carried out on the vessel. The majority of these trials have been completed. Following FB6 being towed from its dock in Pembrokeshire, to enter into service, it was the responsibility of the ship builders to ensure that the vessel was fit for purpose and to seek confirmation from the Maritime and Coastguard Agency (MCA) that the vessel met the required standards. The only outstanding trials are relating to noise and vibration and these cannot be undertaken until the chains can be properly tensioned.

In May 2017, the MCA undertook their inspection and following confirmation that any issues had been resolved the vessel was approved to enter service on 13th May 2017.

On 14th May, the vessel experienced a loss of power whilst just off the East Cowes slipway which was caused by a faulty connection in the pilothouse which was rectified. The MCA undertook a follow up visit on 15th May and a further visit on 2nd June and agreed that all issues had been cleared and resolved by 10th August 2017.

- Procurement process.

Price Waterhouse Coopers (PWC) conducted an independent review of the procurement process undertaken in procuring FB6 and concluded that the vessel had been procured in line with the council’s procurement process. The full PWC report is appended to this business case – Appendix 2.

- Noise created by the vessel

There have been some noise issues which have been the subject of complaints by nearby residents, caused by wheel bearings, movement of the chain over guide wheels and landing of the prow on the slipway. Interventions have been put in place and more detail on these are provided in Section 7 Operational Update.

The prow on FB5 was gravity fed but FB6 uses a hydraulic function. It took the crew a little time to familiarise themselves with the change in the way they need to operate this control bringing the prow gradually closer to the slipway as they approach the shore.

The design of the prow lends itself to create a boom when the prow hits the slipway. As a result of noise issues operational times were reduced.

- Depth of water over the chains

One of the main issues with the vessel and a factor in the grounding and non-operation around low water is that of insufficient clearance above the chains during all tidal states.

A number of concerns raised by members of the public have suggested that the environmental conditions have not been fully considered in the design, operation and tension of the chains of the vessel and assurances of the size and height of the vessel being able to operate in these environmental conditions has not been evidenced.

- Access and egress onto the vessel.

Further training of the crew has ensured that they are more competent in docking the vessel. By bringing the vessel in closer to the shore this has in turn reduced the angle between the ramp and the slipway and reduced the likelihood of vehicles grounding. Modelling of the slipway has also been undertaken by the ship builder and it has been confirmed that subject to the correct placement of the vessel and deployment of the ramp there should be no issue unless the vehicle has lowered suspension or approaches beyond a reasonable speed.

3. ECONOMIC CASE

3.1 Introduction

This section of the Business Case sets out the economic benefits of the investment in FB6 using current versions of WebTAG and TUBA as appropriate to provide a quantified economic appraisal to assess all relevant impacts.

Ordinarily, an economic appraisal is undertaken as an ex-ante exercise before scheme implementation, with the requirements of a full ex-post evaluation including an economic evaluation, to be undertaken around five years after opening. The 'year five' evaluation report would be expected to include a reassessment of the value for money case for investment. This would include retrofitting a 'benefit cost ratio' using a detailed analysis of the out-turn costs and estimates of the long-term impacts of the scheme determined through on-going monitoring and evaluation.

However, here, with FB6 already delivered, there is a requirement to carry out a hybrid appraisal using the established ex-ante appraisal approaches, but taking on board some of the ex-post or out-turn elements to inform the appraisal. The ex-post elements that can be considered are out-turn capital and operating costs, service delivery and some early indicators of transport demand. However, on-going short-term responses to further improvements in service reliability and any medium- to long-term impacts cannot be covered in the appraisal here; the expectation being that such assessments would be carried out to support a 'year five' evaluation.

3.2 Options Appraised

For this Revised Business Case, a number of scenarios have been modelled and appraised. The options being taken forward are considered as meeting the objectives set out in the Strategic Case and being deliverable and affordable. This builds on the initial options assessment set out earlier:

- Option 0 – 'Do Nothing' – private water-taxi facility. Not modelled – not considered as a realistic option due to social, economic and political delivery issues.

- Option 1 - 'Do Minimum' – Pedestrian and cyclist-only passenger launch. Modelled as a long-term replacement to the Floating Bridge.

- Option 2 – 'Do Something' – Replacement vessel offering vehicle, pedestrian and cycling crossing facilities.
    - Option 2a - Replacement of the Floating Bridge, operating as planned into the long-term with high levels of service and reliability. Modelled, with FB6 offering a long-term replacement to FB5.
    - Option 2b - Replacement of the Floating Bridge across the River Medina with a new chain ferry, but based on current 2018 service levels and reliability. Modelled, with FB6 offering a long-term replacement to FB5, but with no further improvements over current 2018 operations.
    - Option 2c - Replacement of the Floating Bridge across the River Medina, but with a vehicle ferry not using the chain principle. Not

modelled as may not be feasible in marine operations terms.

- Option 3 – Fixed link bridge provision
  - Option 3a – 3e – Various options for fixed/opening vehicle bridges over the River Medina at different locations. Not modelled as such options are likely to be undeliverable, unaffordable or meet much wider objectives well beyond the scope of the Floating Bridge objectives.

- Option 4 – Vehicle tunnel under the River Medina. Not modelled – considered as unaffordable.

For the Revised Business Case, it has been assumed that, although FB6 is in place and operating (effectively now being the actual 'Do Minimum') the appraisal report here will be based on the assumption that Option 1, the pedestrian and cyclist-only passenger launch, becomes the 'Do Minimum' against which the investment in FB6 is assumed to be compared through Options 2a and 2b.

In reality, were the outcome from this Revised Business Case to suggest that the case for the investment in FB6 was not made, and that somehow one would have to revert to the pedestrian and cyclist-only passenger launch option, then there could be additional costs associated with the disposal of FB6 either for scrap or potentially re-use elsewhere, as well as loss of the transport and wider benefits associated with the current delivery of the FB6 service.

In addition to the modelling of Option 1 (the pedestrian and cyclist-only passenger launch) and Options 2a and 2b (FB6), an appraisal sensitivity has been considered illustrating the impact of replacing FB6 by another new vessel, as has been advocated by some in the belief that the current Floating Bridge will never be able to satisfactorily operate across the Medina. This sensitivity considers scrap value or potentially re-use value of the current FB6 vessel.

3.3 Floating Bridge Operational Issues

As has been well documented and reported externally, FB6 has had a challenging commissioning period and first year of operation, with some periods of extensive disruption. Some 'teething troubles' might ordinarily be expected in the delivery of major schemes, with this often being reflected in scheme appraisals through 'build-up' factors that can be used to factor in some operational difficulties and the build-up of revenues and benefits as travellers get used to the new infrastructure or service provision.

For the original FB6 appraisal, as the new bridge was a direct replacement for the earlier FB5, 'build-up' was not considered in the appraisal. For the Revised Business Case here, it is clear that FB6 has not delivered the service levels expected with extensive periods out of service and, therefore, the lack of benefit delivery whilst there has been no-service or reduced service levels need to be considered in the appraisal. However, whilst passage for vehicles has been severely impacted by the temporary withdrawal of FB6, relative to the expected operation of the bridge, in appraisal terms relative to the do minimum, the expected benefits to road users (generated by reduced traffic flows via Newport) will not occur.

At virtually all times of disruption, a passenger-only launch has been provided to maintain connectivity between East Cowes and Cowes for pedestrian and cyclists. The additional costs of providing the launch have been included in the appraisal. In benefit terms, the replacement passenger launch provides the same level of service as the Do Minimum and largely similar to the current FB6 operations.

A key issue with the appraisal of FB6 is whether the observed operational problems can be resolved in part or full in moving through the full appraisal period. For FB6 remedial work undertaken by Wight Shipyard has and will continue to address a number of operational challenges. General operational 'learning' as well as this work has seen a marked increase in service reliability, with the number of lost operational days reducing significantly during 2018, and with a general improvement in lost hours due to tidal and other issues.

Whilst an appraisal sensitivity has been developed, based on Scenario 2b, that assumes FB6 will never be able to meet its expected operational specification, it is much more likely that full service level will be possible to meet the specification of Scenario 2a with enhanced service levels and reliability.

The following table provides a summary of the number of lost operational days since 2011 in the operation of FB5 and the new FB6. The table demonstrates the serve disruption caused following commissioning of FB6 during 2017, but also the significant improvement in reliability into 2018, albeit with some issues remaining over operations during low tides. The tidal disruptions have been predictable (with the replacement passenger-only launch being put in place), but at variable times during the day so difficult for the casual motorist to plan around without reference to the Floating Bridge website.

Cowes Floating Bridge Performance - Out of Service Days

Floating Bridge 5

	Lost Days			
2011	27			breakdown (6), inspection (17,4)
2012	15			inspection (14,1), unquanitifed industrial dispute
2013	10			inspection (8), chain replacement (2) (possible 2 additional disruption days in December on '9/10 traffic lights'
2014	19			hull damage (2), out of water inspection (17)
2015	6			maintenance/MCA inspection (5), chain replacement (1)
2016	4			maintenance/MCA inspection (4)

Floating Bridge 6	**Lost Days**	**FB6 Reliability**	**FB6 hours**		
2017 Jan	n/a			slipways under reconstruction, FB6 trails and commissioning. Passenger launch for foot passengers for 'normal service hours'	
2017 Feb	n/a			slipways under reconstruction, FB6 trails and commissioning. Passenger launch for foot passengers for 'normal service hours'	
2017 Mar	n/a			slipways under reconstruction, FB6 trails and commissioning. Passenger launch for foot passengers for 'normal service hours'	
2017 Apr	n/a			slipways under reconstruction, FB6 trails and commissioning. Passenger launch for foot passengers for 'normal service hours'	
2017 May	17		0500-0030		
2017 Jun	7		0500-0030		
2017 Jul	0		0500-0030 - Cowes Week 0500-0300 - then 0700-2230		
2017 Aug	0		0700-2230		
2017 Sep	27	*10.0%*		service withdrawn. Passenger launch for foot passengers for 'normal service hours', except 1000-1300 and after 2230	
2017 Oct	31	*0.0%*		service withdrawn. Passenger launch for foot passengers for 'normal service hours', except 1000-1300 and after 2230	
2017 Nov	30	*0.0%*		service withdrawn. Passenger launch for foot passengers for 'normal service hours', except 1000-1300 and after 2230	
2017 Dec	10	*67.7%*	0700-2230	service withdrawn. Passenger launch for foot passengers for 'normal service hours', except 1000-1300 and after 2230	
					total hours lost
2018 Jan	0	*98.5%*	0700-2230		7.0
2018 Feb	6	*77.0%*	0700-2230	broken prow chain (6)	100.0
2018 Mar	0	*98.5%*	0700-2230		7.0
2018 Apr	0	*97.3%*	0700-2230		12.5
2018 May	0	*97.3%*	0700-2230		13.1
2018 Jun	0	*94.3%*	0700-2230 to 21/6, then 0500-0030		29.0
2018 Jul	2	*92.8%*	0500-0030	replacement guide wheels (2)	43.3
2018 August	2	*91.5%*	0500-0030 extended further in Cowes week		53.1

3.4 Modelling and Appraisal Approach

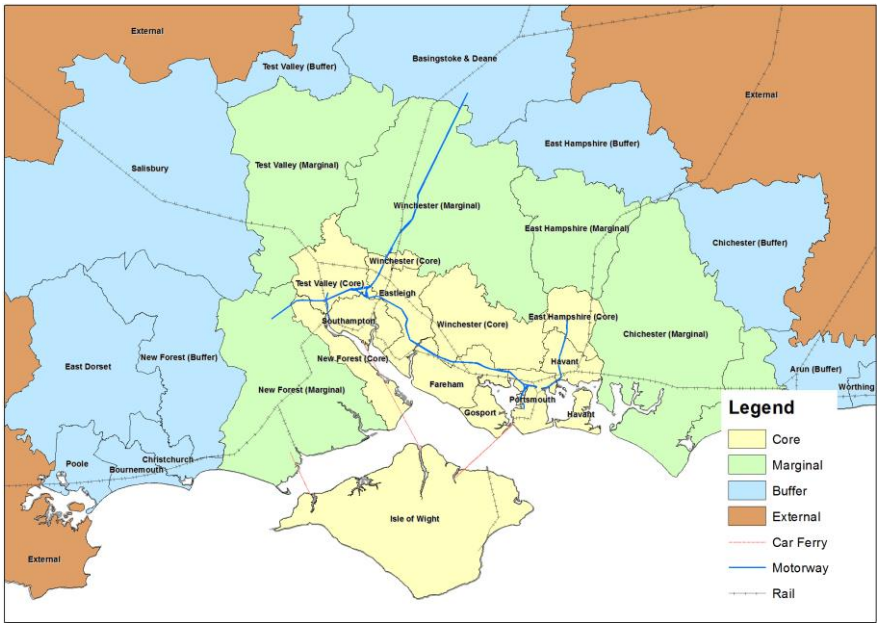
The Solent SRTM (Sub Regional Transport Model) modelling suite is an evidence-based land use and transport interaction model developed to provide a strong analytical basis for the development of coherent, objective-led implementation plans to enable the changes in transport provision required to deliver prosperity to the area. The integrated forecasting approach contains a suite of transport models, and for appropriate applications a linked Local Economic Impact Model (LEIM) can be operated to consider land-use implication of infrastructure and network changes. The toolkit has been developed to assist in the ongoing investigation, appraisal and assessment of different policies, strategies and infrastructure, management and operational interventions on land use policies and transport provision.

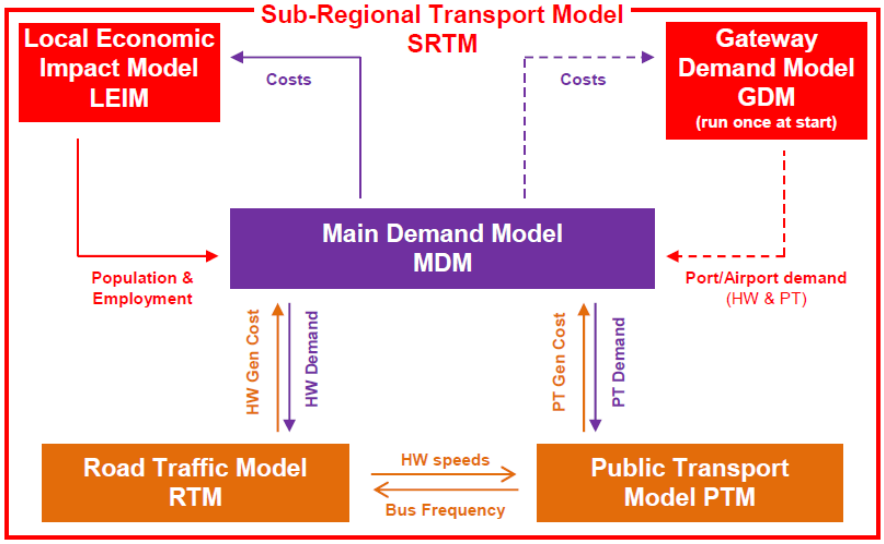
The suite of transport models comprises the Main Demand Model (MDM), the Gateway Demand Model (GDM), Road Traffic Model (RTM) and Public Transport Model (PTM). The figure below shows the interaction of the various models within the SRTM.

The model predicts when, where and how journeys are made and for this Revised Business Case the 2015 version of the model has been used to forecast the travel demand patterns and impacts for forecast years of 2019 and 2036. The SRTM forecasts typical weekday transport movements, assessing morning, inter-peak and evening peak conditions and applying changes to journey mode choice and trip distribution based on changes in travel related generalised costs.

The Core SRTM model area (shown in yellow in the figure below) contains detailed network models and this area, combined with the surrounding area (shown in green), is covered by LEIM.

SRTM Map and Model Flowchart





The overall growth of South Hampshire and the Isle of Wight can be allowed to vary within constraints set by the TEMPRO data at a sector level, to test the impact of transport and planning policies, or it can be fixed to test the consequences of higher or lower levels of growth.

The outputs of the LEIM are used by the transport models to predict the demand for travel to and from areas within South Hampshire/Isle of Wight and these can be compared to assess the land-use/economic impacts of different planning and transport policies.

However, for the original FB6 appraisal, the LEIM, although available, was specifically not activated to assess any impacts on changes in employment and population resulting from any of the changes in transport accessibility arising from the provision of FB6. While population and employment changes are valid impacts, they are not permitted to be quantified in the BCR section of an appraisal (i.e. the transport scheme BCR is determined with fixed land-use). They can be added as supporting benefits of a scheme but, in this case, it was considered that such impacts would be expected to be modest and that it would be more transparent to adopt a conservative approach in not claiming any changes brought about by actual and perceived accessibility improvements and keep job changes restricted to those associated with regeneration impacts. Future Reference case land use inputs were therefore used across the Do Minimum and Do Something tests.

For this Revised Business Case, there was a request in the AECOM Assurance Review of May 2018 that the LEIM should be used and that this would be of paramount importance as two local businesses in East Cowes had closed citing the unreliability of FB6 as the primary reason.

The linkage of the long-term accessibility forecasting of the LEIM and these specific local business closures is not appropriate. Whilst local business closures are regrettable, it has not been proven in any way that the Floating Bridge reliability issues have driven this; there are likely to be a wider range of other drivers that ordinarily could be investigated further using ex-post evaluation techniques. It is known, for example, that vehicle demand on FB5 fell by over 20% between 2013 and 2016 and that passenger demand was falling in 2016 just before decommissioning of

FB5; similarly, other local factors affecting the economic vitality in East Cowes may also have been influential.

In the timescales available for developing this Revised Business Case, it has not been possible to operate the LIEM model to assess the potential long-term impacts of the connectivity benefits of FB6, relative to the Do Minimum passenger-only launch. It is clear, however, that the long-established travel patterns provided for by FB5 can be maintained with FB6, whereas those relying on vehicle access would be lost were FB6 to be replaced by the Do Minimum passenger-only launch or full closure of the passenger and vehicle crossing, reducing connectivity and potentially threatening the support offered by the transport to new and redevelopment activity, especially in East Cowes.

FB6 Specification for Modelling and Appraisal

The following table gives details of how scheme specific components were implemented within the SRTM.

Revised Business Case - SRTM Assumptions for FB6 (Do Something)

Scheme	Scheme Component	SRTM Assumption	Assumption Rationale
Do Something	Capacity	Capacity increase by 20% (15–19 vehicles)	Information from Isle of Wight
	Frequency	Do Something Scenario 2a (Full Service) Frequency increase from 4.5 to 5/hour Do Something Scenario 2b (Current Service) remains as FB5 at 4.5/hour	Information from Isle of Wight
	Reliability	Reliability is considered in this Revised Business Case as an adjustment in the appraisal rather than as a journey time proxy as in the original appraisal	Option 2a full service specification informed by other Floating Bridge operators. Option 2b current operation informed by out-turn 2018 reliability figures
	Ped/Cycle Charging	75p single fare (actually only available as return for £1.50)	Information from Isle of Wight
	Revenue	Retained by IoW Council	Information from Isle of Wight
	Costs	Paid by IoW Council	Information from Isle of Wight
Do Minimum	Capacity	No vehicles permitted to use the service	Information from Isle of Wight
	Frequency	Frequency remains as FB5 at 4.5/hour	Information from Isle of Wight
	Ped/Cycle Charging	75p single fare (actually only available as return for £1.50)	Information from Isle of Wight
	Revenue	Retained by IoW Council	Information from Isle of Wight
	Costs	Paid by IoW Council. Hours of operation as FB6	Information from Isle of Wight

Floating Bridge 6 Reliability

A key difference between Scenario 2a providing the full Floating Bridge service specification and Scenario 2b representing the current service is reliability. Reliability differentials have been considered in the appraisal as set out in the table below. In both cases, the forecast highway related transport benefits generated by TUBA have been removed to represent the number of service days and hours when FB6 has been out of service to date since commissioning; during these periods there is no road-based alternative and no benefits will arise for those road users who would otherwise use the bridge or for other road users who would benefit through reduced traffic flows on the alternative congested routes via Newport (accepting some may transfer to become pedestrian users). For public transport users, when FB6 has been unable to operate, the replacement passenger launch offers a broadly similar level of service (albeit of a lower quality, especially for the mobility impaired and cyclists) and one that is similar to the Do Minimum Option 1.

For the full Floating Bridge service specification, represented by Option 2a, it has been assumed that the current remedial works on Floating Bridge will be completed by 2019 with the bridge only being out of service for planned maintenance or emergency situations. There is no reason to suggest that these longer-term reliability assumptions, based on data and intelligence from other floating bridge operators, should not be possible in normal operations.

For the current Floating Bridge forecasts, represented by Option 2a, the out-of-service days/hours have been assumed to reduce a little due to the current remedial works, then remain in place for the rest of the service life for FB6. Given that there has been a marked improvement in performance of FB6 from 2017 into 2018, in response to the remedial works being undertaken by Wight Shipyard, it is most likely that a fuller and more reliable service will be possible in the relatively near future.

Revised Business Case – Floating Bridge 6 Out-of-Service Assumptions

Scheme	Observed or Assumed Lost Days/Hours	Benefits Assumptions
FY 2017/18, FY 2018/19 Do Something scenarios	FY 2017/18. 128 days lost from commissioning on 13th May 2017. Also during 2018 there have been around 25 hours of service lost on operating days largely due to Spring tides. This suggests that a little under 60% of the expected service was operated. FY 2018/19. Only 2 days were lost between April and July, but with around 60 lost hours when the service has been unable to operate. If it assumed that a further 8 days and 70 hours are lost during normal operations for the rest of the FY year then the observed average performance will be maintained.	FY 2017/18. Lost service days/hours suggests that ~60% of the expected service was delivered. But with uncertainty over operations, road user benefits may be expected to be somewhat lower. Also, with operations only starting on 13th May, the benefit stream has been assumed to be only 40% of the modelled annual benefits of Option 2b. Public transport user benefits would be expected to be largely unchanged as the replacement launch provides a similar level of service to both FB6 and the Do Minimum Option 1. FY 2018/19. Lost service days and hours suggest that to the end of August around 95% of scheduled services were run, with the assumptions set out to the left maintaining this figure. With some uncertainty over service delivery, road user benefits may be expected to be somewhat lower, and to be conservative, it has been assumed that 85% of the modelled annual benefits of Option 2b for FY 2018/19 will be realised.
FY 2019/20 and beyond. Do Something Option 2a Full Service	FY 2019/20 – FB6 reliability assumed to improve to 7 lost days per annum FY 2020/21 and beyond – FB6 assumed to be out of action for 4 days per annum. The design expectation for FB6 was that the vessel would be unavailable for service on 2 days/annum due to planned inspections and maintenance. In the longer term, this expectation remains. However, in reviewing other floating bridge operations this assumption has been increased to 4 days per annum to allow for other unplanned incidents, such as weather or marine issues. .	FY 2019/20. Reliability assumed to improve to 7 lost days per annum, but with the benefit delivery as per Option 2b at 95% of forecast. FY 2020/21 and beyond. With the high levels of reliability and the number of lost days either being planned (2 days/annum) or in responses to exceptional issues (2 days/annum), benefits are assumed to be delivered across all the quantified TUBA benefit streams.

Scheme	Observed or Assumed Lost Days/Hours	Benefits Assumptions
FY 2019/20 and beyond Do Something Option 2b Disrupted Service	FY 2019/20 and beyond – as above, Floating Bridge was observed/assumed to have 10 days out of service in FY 2018/19 alongside around 130 lost hours. With Wight Shipyard's remedial work delivered, some further small improvement is most likely into 2019. However, beyond this and into the longer-term, it has been assumed that no further improvements will be possible	FY 2019/20 and beyond. With some modest improvement over the observed/assumed FY 2018/19 service delivery from 95% to say 97.0%, then there would remain some disruption and unreliability. With some potential uncertainly for travelers, it has been assumed that road user benefits may be expected to be a little lower at 95.0% of the modelled annual benefits of Option 2b for FY 2018/19. From FY 2046/47, when FB6 has been assumed to be replaced, the benefit streams revert to those of Option 2a as a new bridge will be in place

There are a number of other vehicle carrying floating bridges operating in the UK on a similar chain ferry principle to FB6. The assumption above for Option 2a that FB6 will only have 4 days out of service in the longer term has been informed to feedback from a number of operators, including:

- For the Sandbanks floating bridge time is seldom lost to mechanical problems, but more so due to the weather, with the issue at the entrance to Poole Harbour linked to very high tides and "amounting to a couple of days in total a year". Some lost time did arise a number of years ago when the cross-channel ferry, the Barfleur, cut the floating bridge chains.
- The King Harry floating bridge has delivered high reliability, with a target of a just a single day per year for maintenance, but with an out-turn averaging another 2 days / year because of weather and other technical issues.
- The Torpoint floating bridges have a KPI availability target of 99% of all scheduled crossings, with current operations delivering 98.7%, including the impacts of some "big ticket scheduled maintenance items (chain and prow wire changes)". It should be noted that there are three ferries in use at Torpoint.

It is acknowledged that the Windermere floating bridge has been out-of-service since May 2018 due to a severe engineer room fire. This vessel is 28 years old and expected to be returned to service in October 2018.

TUBA Appraisal Assumptions

Standard input (scheme file) assumptions were used for the standard application of TUBA to assess the impact of demand and cost changes in matrices produced by the SRTM. TUBA version 1.9.11 was used with a standard (TAG recommended) set of discount rates, values of time inflators etc. All costs and benefits are reported in 2010 prices and values with scheme construction assumed to start in 2015, opening in 2017 and evaluation period running for the 60 years after opening (to 2076).

TUBA utilises cost and demand inputs from the highway and public transport assignment models. These were provided for the Do minimum and Do Something scenarios for 2019 and 2036. Benefit volumes beyond 2036 have been assumed to remain constant, although benefit values have increased due to specified value of time assumptions. All benefit streams have been discounted, reducing their value as would be perceived in 2010.

FB6 Benefits

Benefits of the investment in FB6 have been estimated using TUBA. They comprise of a benefit stream over the standard 60-year appraisal period driven from the SRTM modelling work considered above. Clearly the operational problems following commissioning will have eroded benefits in the first and second years of operation, as outlined in detailed above.

In common with the earlier business case for FB6, a conservative approach to benefit estimation has been adopted with respect to benefit delivery at off-peak times (early morning and evenings) and at weekends and bank holidays. Benefits for the core appraisal reported below are based on the standard SRTM annulisation factors:

- Weekday benefits were only considered for 12 hours (3hours AM, 6hrs Interpeak and 3 hours PM), with no off peak (19:00 to end of service, and start of service to 07:00) benefits were calculated or applied; and
- An annualisation factor of 253 was used in TUBA representing the number of working days in a year – i.e. no claim is made for weekend or bank holiday periods.

However, the FB6 currently operates in normal service from 0500 to 0030 on weekdays and Saturdays and from 0630 to 0030 in Sundays. Whilst in 2017 and early 2018 the service was more limited to 0700 to 2230, from late June 2018 the longer hours have been operated, and with no reason to suggest this will not continue into the longer-term.

Therefore, under both the initial 7 days/week operations between 0700 and 2230, and the more recent full 7 days/week service hours, benefits will have been realised from those travellers that are making journeys outside of the core 12-hour period on weekdays, and at weekends. User benefits will accrue on all Floating Bridge journeys, although non-user benefits, such as decongestion benefits, will not be realised in full in off-peak or less busy times, but nevertheless will still be apparent, say in daytime hours on Saturdays particularly related to Saturday afternoon congestion around Newport.

Given the acceptance in the Assurance Audit of the earlier business case that benefits were underestimated through using conservative annualisation factors, a sensitivity test is shown in the appraisal section below to identify the impact of taking a less conservative view of annualised benefits. This includes weekend benefit delivery based on out-turn FB6 demand data shown in the table below. It is interesting to note here how much more stable vehicle demand at weekends is relative to weekdays, but also that in heading towards the summer period, average foot passenger demand on Saturdays is higher than during weekdays.

Floating Bridge 6 – Weekend Demand relative to Weekdays

Month	Total Average Weekday Demand	Relative Saturday Demand	Relative Sunday Demand
Foot Passengers			
March 2018	5.00	0.78	0.50
April 2018	5.00	0.89	0.92
May 2018	5.00	1.12	1.22
June 2018	5.00	1.04	0.54
July 2018	5.00	1.12	0.61
August 2018	5.00	1.25	0.67
Vehicles			
March 2018	5.00	0.75	0.62
April 2018	5.00	0.75	0.68
May 2018	5.00	0.77	0.66
June 2018	5.00	0.75	0.62
July 2018	5.00	0.83	0.79
August 2018	5.00	0.73	0.71

The forecasts underpinning the Revised Business Case appraisal use the 2015 version of the SRTM model. As noted later, in respect of a sensitivity test relating to user benefits, the highway model validation is not unreasonable. However, it has not been possible to validate the public transport/foot passenger demand, with the model appearing to over-forecast foot passenger usage. The reasons for this are not known at present and this may be a function of having too much local foot passenger demand in the model, which itself may be a reflection of the reductions in foot passenger demand for FB5 in 2015 and 2016 following the introduction of foot passenger fares (though car demand also fell significantly in the final years of FB5 operation).

Although having too much public transport/foot passenger demand in the model is not ideal, the benefits accruing from foot passengers are small in both Floating Bridge scenarios, largely as the foot passenger services is largely unchanged between the Do Minimum and Do Something scenarios (although of a lower quality, especially for the mobility impaired and cyclists). In order to address this potential overestimate in the appraisal, modelled public transport benefits and associated foot passenger revenues have been assumed to be 50% of those generated directly from the model (in application to the revenue estimates this is applied as a factor of 66% to account for vehicles revenues and any other model application issues).

The table below provides a breakdown of the user benefit by mode and time period from SRTM, including the benefit factoring as noted above relating to public transport benefits.

Floating Bridge 6 60-year Benefit Appraisal Values. Floating Bridge Option 2a (2010 PV)

Benefit Type	Annualised AM Peak	Annualised Inter Peak	Annualised PM peak	Annualised Total
Highway - Car	£15.2m	£8.2m	£11.7m	£35.1m
Highway - LGV	£2.4m	£1.6m	£1.4m	£5.4m
Highway - Goods	£0.5	£0.2m	£0.2m	£0.8m
Public Transport User	£1,4m	£0.0m	£0.2m	£1.6m
(Non FB6) Operator Revenue	-£1.3m	-£1.1m	-£1.0m	-£3.4m
Indirect Tax	-£2.0m	-£1.1m	-£1.4m	-£4.5m
Total	£16.1m	£7.8m	£11.1m	£35.1m
Greenhouse Gases				£1.0m
Present Value of Benefits				£36.0m

As can be seen from the table, the primary benefit source is derived from road user benefits. The Floating Bridge provides a direct link between Cowes and East Cowes, for foot passengers, cyclists and vehicles. For local journeys by car, the alternative routeing is around 10 miles in length and takes around 28 minutes, although this detour is highly affected by the operational performance of the Coppins Bridge gyratory system in Newport.

By providing a direct link those car users crossing the Medina by Floating Bridge will avoid additional travel time and costs, whilst road users in Newport will benefit from reduced congestion as Floating Bridge users can avoid the area, and in particular, Coppins Bridge gyratory. Whilst considered within the monetised journey time savings, these decongestion benefits will also have a positive impact on journey time reliability.

FB6 Costs

Capital and operating costs comprise of the short-term Floating Bridge construction and commissioning costs, and with on-going operating costs incurred for the rest of the appraisal period. For this Revised Business Case, the construction and commissioning costs have been updated to the out-turn costs, as have the additional operating costs associated with the temporary provision of the passenger launch and on-going Floating Bridge operating costs.

The out-turn costs, detailed by cost-head are provided in the Financial Case chapter. This includes all physical infrastructure works as well as current spending on remedial works being undertaken by Wight Shipyard. These total out-turn capital costs, totalling around £5.9m have been used in the appraisal reported below. Unlike the earlier business case, which was based on forecast costs with an optimism bias premium added, the out-turn costs do not need to be further adjusted for optimism bias.

The additional one-off costs associated with the provision of the passenger launch of around £540,000, also reported in the Financial Case, have been used in the appraisal reported below, again without the need for an optimism bias to be applied.

Renewal costs have been based on the FB6 out-turn costs. This includes costs associated with professional fees, the ferry itself, including chain surveys and works and updated ticketing systems. However, it has been assumed that the slipways would not need rebuilding in full when the vessel is renewed, but that some works will be required with an estimate of a third of the recent costs incurred. It has been assumed that the specific remedial works associated with FB6 (primarily noise mitigation and the Wight Shipyard works) will not be required when the vessel is replaced, but to provide a conservative view for the appraisal, a 10% contingency allowance has been included to reflect the potential for additional commissioning problems/costs. An allowance of £370,000 (in 2046 values, 2018 prices) has been included in the renewal costs to cover Council project management and staff time, based broadly on the observed exceptional costs associated with the delivery of FB6 inflated for wage growth (as detailed in the Financial Case). All staff related costs incurred supporting the vessel renewal have been assumed to increase in the future in line with WebTAG wage growth forecasts, whilst other components have been assumed to remain constant in real terms.

The FB6 replacement costs in 2046, suitably inflated for wage growth and contingencies have been estimated at £5.3m (in 2046 values and 2018 prices). In the appraisal, a further 15% optimism bias premium has been included in respect of these renewal costs.

Renewal of Floating Bridge has been assumed to take place after 30 years. This is a change from the earlier business case and has been based on FB5 being 40 years old when decommissioned, Floating Bridge being built with an expected lifespan of 40 years, and a review of the lifespans of the other UK floating bridges, many of which have been replaced since around 2005. The table below suggests that the earlier 20-year renewal assumption was overly conservative. However, it is likely that some modest refurbishment may be required to FB6, say after 15 years and nominal cost has been included in the appraisal to represent this spending.

Review of UK Vehicle Carrying Floating Bridge Service Lives

Floating Bridge	Vessel	Dates	Operating Years
Cowes	Floating Bridge 5	1976 to 2016	40 years
King Harry	No 6	1974 to 2006	32 years
Dartmouth	No 7	1960 to 2009	49 years
Sandbanks	No 3 Bramble Bush Bay	1958 to 1994 1994 to date	36 years 24 years plus
Torpoint	Tamar, Lynher, Plym	1961 to 2005 (x2) 1966 to 2005 (x1)	44 or 39 years (lengthened in 1980s)
Windermere	Mallard	1990 to date	28 years plus

The assumed FB6 on-going maintenance and operation costs have been taken from a review of the out-turn costs for FB5 and the operations of FB6, acknowledging that some additional costs have been spent since commissioning in resolving some of the initial operating challenges. Over the 60-year appraisal period there is no reason to suggest that these assumptions should change materially, although it should be noted that all staff related costs have been subject to real inflation suggested in the WebTAG data book (taking account of value of time growth) and a further 15% optimism bias premium has been included.

Estimates of likely Do Minimum Option 1 operating costs for passenger-only launch have been based on the out-turn hiring costs incurred by the Council, assuming that the service operates the same hours as FB6, but with a 30% discount to represent the assumption of a long-term hire. In the earlier business case, shorter operating hours were assumed, in part as it is understood that the launch operators were not keen to run a service beyond 2300 due to passenger behaviour. However, to provide a like-for-like comparator between the Do Something Floating Bridge scenarios and the Do Minimum, this assumption has been revised.

Out-turn operating costs for FB6 have been reported in the Financial Case, with the underlying costs for FY 2019/20 being estimated for appraisal purposes of £684,500 (2018 prices) and £5,000 reduction in the following year as there is assumed to be a small reduction in the replacement launch costs in moving to the long-term reliability with 4 days out of service per annum. No optimism bias was applied the operating costs for FY 2019/20 and FY 2020/21, but a premium was added to all costs thereafter, increasing gradually to 15% applied from FY 2023/24. The underlying costs for FY 2019/20 for the Do Minimum passenger-only launch was estimated as £419,000 without the optimism bias with gradually building on the same basis to FB6 to the same 15% premium from FY 2023/24. Consequently, the incremental scheme cost for FY 2019/20 around is £265,500 falling by £5,000 in the following year.

A breakdown of full 60-year cost assumptions in the model is provided in the table below. This was created through the development of an Excel based 60-year cost profile, primarily informed by the cost assessment noted above and WebTAG growth indices. As noted above, the FB6 out-turn delivery costs no longer have to include the earlier optimism bias premium in the appraisal (the 'TUBA' column) as these costs are out-turn.

Floating Bridge 6 60-year Appraisal Cost Assumptions and Values

DS/ DM	Single investment or continuous operational Cost	Cost Component	Timescales and Value Growth Assumptions	Total 60 year value (not inc. optimism bias current £m	Overall TUBA 60 year value 2010 PV £m
Do Something (no differences in capital costs between DS Option 2a and Option 2b, but there are differences in the extent of the replacement launch hire on an on-going basis)	Single Investment	New chain ferry associated infrastructure and remedial works	Out-turn costs as reported in the Financial Case. Therefore, no optimism bias premium is required.	6.12	5.17
		Replacement launch costs	Costs incurred in providing the replacement passenger launch whilst FB6 was not available in 2017/18, 18/19	0.55	0.45
		Replacement vessel	Single investment in 2046	5.29	1.91
	Continuous Operational	Costs based on those reported in the Financial case			
		Premises, equipment, insurances, other costs	Constant in real terms	6.82	2.88
		Replacement launch (DSa)	Constant in real terms (DSb = 0.96 60-year and 0.38 PV with optim.bias)	0.39	0.16
		Staff and management	Assumed to increase in real terms by rates provided in WebTAG databook A5.3.1 May 2018	52.60	18.25
		Vessel maintenance	Constant in real terms	2.32	0.93
		Fuel consumption	Assumed to increase in real terms by rates provided in WebTAG databook 1.3.7 May 2018	2.29	0.90
	Total Do Something Cost (public sector)			76.38	30.64
Do Minimum	Continuous operational	Passenger-only launch hired – staff wage component	Assumed to increase in real terms by rates provided in WebTAG databook A5.3.1 May 2018	8.86	3.05
		Other hiring costs	Constant in real terms	20.10	8.22
	Total Do Minimum Cost (public sector)			28.97	11.27
	Total Appraised Scheme Cost (DS cost - DM cost) (public sector)			**47.42**	**19.37**

3.5 Economic Impacts

Economic Appraisal – Core Assessment for Option 2a

The following table provides a summary of the core appraisal of FB6 relative to the Do Minimum passenger-only launch. This assumes that the remedial works undertaken, and on-going, are able to address the earlier reliability issues with the operation of FB6. With average reliability of around 95% for FY 2018-19 to end of July 2018, there are expectations that the enhanced service levels associated with FB6 Option 2a will be achieved in the near future.

The present values of benefits (PVB) are taken from the TUBA appraisal of FB6 against the Do Minimum passenger-only launch. These benefits are primarily related to road user benefits arising from reduced congestion around Newport, with a relatively small volumes of public transport user benefits, public transport operator disbenefits (to non FB6 operators), taxation changes and greenhouse gas benefits. The benefits for FY 2017/18 and 2018/19 have been factored down to represent the disrupted service delivered.

The present value of costs include the capital and operational costs of FB6 and a replacement vessel in 2046 to maintain service levels of the standard 60 year appraisal period totalling £30.6m (broadly £7.5m capital and £23.1m operating) . The capital costs are based on out-turn costs, including costs of the replacement passenger launch whilst FB6 has been out of service, remedial works being undertaken by Wight Shipyard and additional management and other costs associated with the disrupted service delivery. The total appraisal costs of FB6 include the avoided cost (savings) of the Do Minimum passenger-only launch of £11.3m. With the present value of the additional revenue stream of £12.7m, retained by the Council and attributable largely to vehicle fares, the effective scheme cost be further reduced to £6.7m PV 2010 prices as shown below.

Floating Bridge 6 Option 2a Core Economic Appraisal (2010 PV)
Observed operations 2017 and 2018, full specification thereafter

Present Value of Benefits (PVB) - Car Users - Good Vehicle Users - Public Transport Users - Non-User (PT rev, tax and g'house gases)	£36.0m £35.1m £6.3m £1.6m -£6.9m
Present Value of Costs (PVC)	£6.7m
Net Present Value (NPV)	£29.4m
Benefit:Cost Ratio (BCR)	5.40

The table demonstrates that FB6 generates large net present value with a benefit to cost ratio of over 5, suggesting that the scheme represents high value before any wider consideration of non-monetised benefit delivery.

Whilst the appraisal above sets out the theoretical economic performance of FB6 against a Do Minimum that is assumed to provide a passenger-only ferry, in reality, the Do Something exists currently. Were the outcome from this Revised Business Case to suggest that the case for the investment in FB6 was not made, and that the bridge should be scrapped, then the transport and wider economic benefits identified here, would no longer be realised, although there would be some sunk costs of the investment in FB6. However, compared to 2015, when FB5 was operational, there would be a significant loss in transport and wider economic benefits to the local community, largely of the same scale identified in the table above.

Economic Appraisal – Option 2b Disrupted Service Sensitivity Test

The modelling and appraisal of Option 2b, reflecting a scenario whereby the reliability of FB6 only marginally improves into 2019/20, but then does not improve the rest of the operations of FB6 (and subsequent replacement), generates a reduction in benefit delivery of FB6. In addition, some modest additional costs will be incurred as there will be a need to provide a replacement launch for those additional days when the service is unavailable (relative to Option 2c).

Given the interest of the Council in ensuring FB6 does deliver a reliable service over the long-term, improvement in reliability observed in 2018 and the remedial works currently being designed, it is unlikely that this scenario will materialise. The following table shows the appraisal of FB6 were performance to not improve over time, and also that any replacement for Floating Bridge 6 when this is renewed in 2046 has similar operating problems and is unable to deliver the expected benefits again over its full lifetime. In such an unlikely scenario the impact is a reduction in the BCR to 2.98 from that reported for Option 2a in the core appraisal table above.

Floating Bridge 6 Option 2b Sensitivity Appraisal (2010 PV)
Observed operations 2017 and 2018, marginal improvement in 2019, then no further change in for FB6 and its replacement

Present Value of Benefits (PVB) - Car Users - Good Vehicle Users - Public Transport Users - Non-User (PT rev, tax and g'house gases)	£28.1m £27.5m £5.1m £0.6m -£5.1m
Present Value of Costs (PVC)	£9.4m
Net Present Value (NPV)	£18.7m
Benefit:Cost Ratio (BCR)	2.98

Two more realistic and likely sensitivities tests based on the disrupted level of service tests have been undertaken:

- FB6 delivers full service specification (of Option 2a) but only in 2024/25 after significant further work costing an additional £1m (spread over 5 years at £200,000 per annum) - BCR increases to 4.72 from the 2.98 identified above.
- FB6's reliability is unable to improve any further beyond 2019/20, but the replacement for FB6 in 2046 will deliver the full service specification (of Option 2a) - BCR increases to 3.86 from the 2.98 identified above.

Early Replacement of Floating Bridge 6

It has been suggested by some observers that the design of Floating Bridge means that it will never be able to operate to its full specification. Effectively this is represented by Option 2b where the service levels for Floating Bridge do not improve over time and the bridge is never able to operate as intended in Option 2a.

Whilst this appears unlikely, it is potentially one outcome if the remedial works currently in design cannot be successful. Such an outcome will be disappointing and will compromise the long-term delivery of transport and other economic benefits to the local communities in Cowes. An alternative here could be that FB6 is replaced by a new Floating Bridge to a different specification, but then with the ability to fully deliver benefits similar to those expected with Option 2a.

A sensitivity test has been undertaken representing this scenario, with an additional purchase of a new Floating Bridge provided in 2020/21 (assuming it takes this time to arrange a procurement and delivery exercise). The benefit stream will therefore revert to that of Option 2a following delivery of the new bridge, but it has been assumed full service and benefits stream occur from 2022/23. A nominal residual scrap or re-use value of FB6 £300,000 has been assumed in the appraisal; this value has not been market tested and may well be much higher. Note here that the Windermere ferry is a similar size to Floating Bridge and, at 28 years old (or 30 in 2020) will be due for replacement; it may be possible to re-use or repurpose FB6 for use in Cumbria.

Based on these additional costs and a nominal 10% scrap/re-use value, the BCR reduces to 3.70 from that reported for Option 2a in the core appraisal table above.

Weekend Benefits

As noted earlier, the appraisal reported in both the earlier business case and in this Revised Business Case is acknowledged as being somewhat conservative in claiming user benefits only for weekday peak and interpeak periods, with no allowance for benefits generated in the early mornings and evenings during the week or at any time at weekends. It is acknowledged that the propensity of users to generate benefits will vary by time period, so that, for examples, travellers using FB6 will contribute to demand and revenue at all times, but those no longer driving via Newport and unlikely to generate any ‘non-user’ road decongestion benefits during the late evening at weekends, but they will do during core shopping hours on Saturday when congestion around Newport can be as severe at during weekday peak periods.

In the timescales available for preparing this Revised Business review, a simple set of assumptions have been made to represent the benefits that could accrue to the FB6 from the inclusion of weekday off-peak periods, Saturdays and Sundays. The earlier table showed that demand at weekends can be significant, and whilst weekend passenger flows appear to fluctuate fairly significantly, the relative vehicle flows between weekends are more stable, with Saturday demand of around 75%-80% of an average weekday and Sunday flows of around 65% of an average weekday.

In generating estimate of benefits during these periods, it has been assumed that a 4-hour period on Saturday behaves similar to a weekday peak period, with the rest of the weekend behaving similar to the weekday off-peak. Benefit 'value' factors, relative to the weekday interpeak, have been applied to represent the reduced propensity of demand to generate benefits during these periods, using factors of 0.10 for weekday off-peak (early mornings and evenings), 0.50 for Saturday non-peak, and 0.25 for Sundays and Bank Holidays.

Applying these factors to the weekday road-user benefit streams gives an increase in road-user benefits of around 17%. All costs of operating at weekends are already included in the cost estimates. As a consequence, the BCR increases to 6.43 from that reported for Option 2a in the core appraisal table above. Note that this is an indicative sensitivity increasing only the road-user benefits streams, whereas other appraisal streams would also change, including public transport benefits, public transport and FB6 revenues, indirect tax and greenhouse gases.

Operating Cost and Revenue Sensitivities

The long-term operating cost stream used in the appraisal has been assumed to include a 15% optimism bias premium from 2024/25, increasing gradually from zero in 2020/21 to this level. Appraisal guidance suggests that this value could be seen as very conservative, especially given that FB7 costs are in a large part actual observed with the long-term forecast costs pivoting off the observed values and incorporating appropriate staff and fuel costs inflations. The sensitivities reported below therefore include an impact of an increase in the optimism bias premium to 25% as well as a reduction to 5%.

The following table provides a range of sensitivity tests varying the operating costs as noted above and reducing the forecast revenue streams throughout the appraisal period. Note that in practice, it is most likely that operating costs would be managed in response to changes in revenues, especially decreases in revenues. Further changes in ticketing arrangements, beyond those delivered to date and planned for FB6 may well result in reduced operating costs or increased levels of passenger service as staff can devote more time to managing and supporting passengers.

Floating Bridge 6 Option 2a Operating Cost and Revenue Sensitivities

Benefit:Cost Ratio (BCR)	Operating Cost Optimism Bias Premium		
	5%	15%	25%
Revenue – as core appraisal	6.25	5.40	4.75
Revenue – less 10%	5.12	4.54	4.07
Revenue – less 20%	4.03	3.66	3.35

Model Validation and Benefit Sensitivity

The 2015 version of SRTM has been used in generating the benefit estimates for FB6. In the timescales available for this work it was possible to broadly validate the performance of the model against out-turn FB6 demand but only for the highway demand components of the model. This was done by comparing the 2019 forecast demand for Options 2a and 2b with the out-turn demand from 2018. A validation

using the 2015 Base model was determined to be inappropriate given that this would have had to use the 2015 FB5 demand and would have effectively validated FB5 rather than against the current performance of FB6.

This validation itself is not ideal, as the operational challenges will influence observed demand which itself may recover once a full reliable service is established. It has also not been possible to validate at a detailed time period level as detailed observed data is not available, and it would not be appropriate to adjust the 2002-2006 detailed data that underpinned to 2010 model validation. However, by expanding the modelled forecasts to daily and then to monthly, it has been possible to illustrate that the highway demand forecast by the model broadly replicates the observed demand in March 2018.

- Observed total vehicle demand for March 2018 = 12,000
- Modelled vehicle demand for 2019 expanded from AM, Interpeak and PM time period = 10,800 (Option 2b)

It is known that there is significant seasonal variation in demand for the Floating Bridge which further complicates the validation. Vehicle demand data from FB5 for 2015 and 2016 confirms that March can be used a representative average month (97% and 103% relative to average monthly demand). Note that a longer time series has not be used here due to the unreliability of the FB5 operation between 2011 and 2014.

Alongside the equivalent forecast figures for Option 2a of 12,800, this suggests the model may be slightly under-estimating demand for an average month for vehicle crossings.

It is possible that once fully operational and with high levels of service reliability, the demand on FB6 will increase beyond the forecasts generated by the model, as travellers who have rejected the use of the bridge on non-generalised cost grounds return to the service; these 'perception' issues are not included the current model. In this case the model will then inherently under-estimate demand and benefits

Were the model to under-estimate highway user benefits by, say 5%, then the BCR for FB6 would increase to 5.71 from that reported for Option 2a in the core appraisal table above.

It is possible that highway benefits may have been over-estimated in the model, either in the modelling process or potentially due to any provision of a new Medina crossing or significant highways works in Newport that reducing the extent of underlying congestion on the road network in and around Newport and especially Coppins Bridge. Were any over-estimate of the long-term highway user benefit stream to be, say 10%, then the BCR for FB6 Option 2a would decrease to 4.78, reducing further to 4.16 if 20% of the highway user benefits were removed from benefit stream throughout the appraisal period.

Single Vessel 30-year Appraisal Sensitivity

The core FB6 appraisal is based on the standard appraisal period 60 year, including an appropriate renewal cost for replacing FB6 in 2046 (including using suitable value

to cover staff costs). The Assurance Review of the initial business case suggested undertaking a single vessel lifetime appraisal (at the time suggesting a 20 year period, although FB6 has now been assumed to be replaced after 30 years).

Were the appraisal period to be curtailed to only 30 years with no vessel renewal then the benefit and cost streams will be reduced with no renewal costs, nor any operating costs and benefits accruing after 30 years. This generates a reduced present value of capital costs and a different scale of operating costs and benefits, as set out in the table below. The benefit to cost ratio generated from this appraisal is not comparable to those of the core 60-year appraisals.

Floating Bridge 6 Option 2a Core Economic Appraisal (2010 PV) Non-Standard 30-year appraisal period. No vessel renewal , no operating costs and benefits beyond 2046

Present Value of Benefits (PVB) - Car Users - Good Vehicle Users - Public Transport Users - Non-User (PT rev, tax and g'house gases)	£15.4m £16.0m £2.9m £0.8m -£4.3m
Present Value of Costs (PVC)	£4.1m
Net Present Value (NPV)	£11.3m
Benefit:Cost Ratio (BCR)	3.73

3.6 Regeneration

Ordinarily, an ex-post Economic Evaluation is required to be undertaken only after the long-term impacts of an investment or intervention on regeneration can be fully realised, with this being generally carried out to support a 'year five' report. For this Business Case, there is clearly insufficient time for the full economic impacts of the Floating Bridge to be noted and reported.

However, the potential long-term economic impacts relative to the counter-factual (in this case the Do Minimum of replacing the earlier Floating Bridge with a passenger-only launch) can be considered. Earlier work has suggested Floating Bridge would have a moderately beneficial impact on the regeneration of the local area by maintaining connectivity for road users between East Cowes and Cowes.

Whilst there have been some local claims that the commissioning problems of FB6 have contributed to the closure of two business, which may well be, at least in part, due to reductions in pedestrian footfall and (more significant) reductions in vehicle movements, there is nothing to suggest that the longer-term regeneration impacts of the Floating Bridge set out in the earlier business case and reassessed here should not be fully realised. The business closure issues would, ideally be considered as part of ex-post evaluation exercise that would consider wider context factors, such as the known reductions in FB5 demand to 2016 and other local factors affecting the economic vitality in East Cowes.

3.7 Employment and GVA impacts

Earlier work on the initial Business Case reported on the potential the employment, housing and GVA impacts of the scheme and how these were assessed, using anticipated growth projections from the Isle of Wight Council (IWC) Southampton City Council (SCC), including the SCC Major Projects Operational Report, East Cowes Masterplan, Southampton City Deal, Planning Applications and the SCC City Centre Delivery Plan Report.

The earlier work suggested FB6 would directly generate or retain a number of construction related job and indirectly support jobs at development or redevelopment sites in close proximity to the river crossing. Furthermore, the bridge was expected indirectly to support a number of tourism related jobs on the Isle Wight.

Direct transport related construction jobs

It has not been possible to confirm the number of directly generated or retained jobs through the construction works; for the vessel supplier Mainstay Marine, related to works associated with the rebuilding of the Floating Bridge slipways and other ancillary activities, or for the more recent remedial works currently being designed.

Based on a capital spend of around £5.3m (excluding professional fees, project management and warranties), and using the using the SLEP Local Major Transport Scheme Fund Project Application Guidance of 2015, which suggested that the direct employment outputs during the construction of FB6 would have been estimated at 66 temporary construction jobs based on 12.5 FTE jobs being created or retained per £1 million capital spend. It is possible that more recent estimates of temporary job creation or retention may be available that could slightly reduce this estimates, thought is likely to remain around 58-66 as per the earlier business case and this simple reassessment. In due course, it might be possible, as part of an ex-post evaluation exercise, to confirm the job estimates and inferred values.

Direct transport related operating jobs

The retention of the Floating Bridge facility crossing the River Medina has safeguarded 11 FTE jobs, with 2 further FTEs now employed through a reduction in occasional/relief casual staff with permanent work for key individuals, and an increase in the number of hours to support the vessel's engineer. Relative to the Do Minimum Option 1, these jobs are new, although there would be some employment (via the private sector) in providing the passenger-only launch as a replacement to FB6.

Indirect development related jobs

Indirect Employment outputs are taken as those jobs created at development or re-development sites near to the scheme which could be facilitated by the implementation of the scheme or where the scheme will form a key part of the access strategy for sites that are further afield; or those jobs which have been safeguarded or prevented from moving out of the area.

An assessment of the number of housing starts that will be indirectly facilitated by the scheme was undertaken in 2015, identifying that the Trinity Wharf/Trinity Yard in East Cowes would involve 50 housing units. The site now benefits from outline permission granted on appeal in 2017, which permits up to 100 to be developed on the site, although it may take a number of years before the development is delivered. There are now also a number of other residential permissions to the north of the Trinity Wharf/ Trinity Yard area as part of the wider East Cowes masterplan area, with a combination of full and outline permissions for the development of around 200 housing units and tourism uses. All will benefit from the enhanced connectivity, especially for motorists, offered by FB6 relative to the Do Minimum passenger-only launch.

Indirect Isle of Wight Tourism Jobs

It is likely that FB6 will support a number of jobs in the local tourism industry, particularly in providing an important pedestrian link between Cowes (and the Red Jet ferry service to Southampton) and Osborne House, which has around 300,000 visitors annually. The assessment of these jobs, reported in the earlier business case was linked to the wider Solent Gateway project. This assessment has not been repeated in the Revised Business Case.

3.8 Wider Impacts

There is potential for FB6 to trigger wider economic benefits by improving accessibility on the Isle of Wight, particularly locally around Cowes, and to assist with new homes and jobs to be delivered across the lifetime of the Isle of Wight Council Core Strategy up to 2027. Without this investment, the vital transport link between East Cowes and Cowes would not be retained and furthermore, existing local employment and tourism markets in the immediate area would be more vulnerable due to reduced accessibility and connectivity.

For the earlier business case the assessment of the wider impacts of FB6 the SLEP Project Application Guidance was followed using the latest version of the Office for National Statistics' Annual Business Survey, at the time 2011. Now using the (updated) 2016 version of May 2018, the construction sector's GVA contribution of 38% it is possible to update the estimate the direct impact of the scheme construction investment. Based on a capital spend of around £5.3m (excluding professional fees, project management and warranties) the ratio of construction spend to GVA, the direct impact on GVA of FB6 is expected to be just over £2.0m.

The quantified assessment reported in the earlier business case of the employment and productivity contribution to GVA has not been repeated for this Revised Business Case.

3.9 Environmental Impacts

Air Quality

The SRTM has an inbuilt Emissions Assessment Tool (EAT) application, which provided outputs for carbon and other greenhouse gas emissions. The SRTM-EAT uses the same underlying methodology as used in the DEFRA Emissions Factor

Toolkit. The results from EAT for the 2036 forecast year are shown below. The results show a reduction in emissions on the Isle of Wight, caused by drivers utilising the shorter route across the Floating Bridge compared to the scenario without this option.

Floating Bridge 6 Emissions Assessment Tool.
FB6 Option 2a vs Do Minimum Option1 Passenger-Only Launch

	NOX	NO2	PM10	PM2.5	HC	Carbon Monoxide	Carbon Dioxide	Benzene	Methane	1 3-Butadiene
	kg / 12hr	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*	*kg / 12hr*
Southampton	0	0	0	0	0	0	3	0	0	0
Test Valley (Core)	0	0	0	0	0	0	3	0	0	0
Eastleigh	0	0	0	0	0	0	0	0	0	0
New Forest (Core)	0	0	0	0	0	0	0	0	0	0
Winchester (Core)	0	0	0	0	0	0	-27	0	0	0
Fareham and Gosport	0	0	0	0	0	0	2	0	0	0
Portsmouth	0	0	0	0	0	0	24	0	0	0
Havant and East Hampshire	0	0	0	0	0	0	0	0	0	0
Isle of Wight	**-4**	**-1**	**0**	**0**	**0**	**-7**	**-3,799**	**0**	**0**	**0**
West Cowes	*0*	*0*	*0*	*0*	*0*	*0*	*-89*	*0*	*0*	*0*
East Cowes	*-3*	*-1*	*0*	*0*	*0*	*-5*	*-2,775*	*0*	*0*	*0*
Newport	*-2*	*0*	*0*	*0*	*0*	*-2*	*-1,443*	*0*	*0*	*0*
E of Isle of Wight	*1*	*0*	*0*	*0*	*0*	*1*	*547*	*0*	*0*	*0*
SE of Isle of Wight	*0*	*0*	*0*	*0*	*0*	*0*	*11*	*0*	*0*	*0*
S of Isle of Wight	*0*	*0*	*0*	*0*	*0*	*0*	*11*	*0*	*0*	*0*
W of Isle of Wight	*0*	*0*	*0*	*0*	*0*	*0*	*-61*	*0*	*0*	*0*
From Core	-4	-1	0	0	0	-7	-3,793	0	0	0
Marginal	0	0	0	0	0	0	0	0	0	0
Buffer	0	0	0	0	0	0	-2	0	0	0
External	0	0	0	0	0	0	7	0	0	0
Total	-4	-1	0	0	0	-7	-3,788	0	0	0

The overall impact of the scheme is a slight reduction in carbon monoxide and more of a reduction in carbon dioxide emissions, where there is a reduction of 3,793 kg of carbon dioxide per 12 hours period in the core modelled area. This is equivalent to 1,214 tonnes per annum for weekdays only (based on factor of 1.265 to convert from 12 to 24 hours and for 253 weekdays per annum). Therefore, the impact on carbon/carbon dioxide can be assessed as slightly beneficial. Other forms of emissions are neutral.

Noise

In the planning stage, it was envisaged that FB6 would not result in significant highway or maritime traffic flow changes and therefore noise impacts would be minimal and scoped out of any need for detailed assessments. However, following commissioning it has been apparent than noise from the bridge operations, has been an issue of concern to local residents.

Work on mitigating additional noise has been undertaken (with additional costs reflected in the Financial and Economic Cases here) with some further mitigation possible of any noise issue reappear. Whilst, immediately following commission, local noise impacts were experience by local residents, with remedial works undertaken it is expected that FB6 will not have a noticeable impact on noise levels in the area compared to the earlier FB5. Similarly, the scale of local traffic flow changes, both in East Cowes and Cowes, and on the diversionary routes via Newport, will not generate any perceptible changes in traffic noise. Therefore, the impact is neutral.

Landscape, Townscape and Historic Resources

The replacement Floating Bridge has improved ferry capacity, and, combined with the upgrade of the slipway access the new bridge will be expected to generate a small improvement in the local area and improving the townscape. Similarly, the scheme will support the longer-term revitalisation of East Cowes town centre, including supporting and linking to any forthcoming wider local public realm improvements in East Cowes.

Biodiversity and Water Environment

Although FB6 is a waterborne scheme, there are no significant impacts anticipated on the biodiversity or water environment of the surrounding area because the scheme involves improvements to a pre-existing service. In terms of impact on the environment, the service is not materially different from the earlier Floating Bridge operation and therefore a neutral impact on biodiversity and water environment is anticipated.

Similar, although the marine footprint of Floating Bridge is somewhat larger than the Do Minimum Option 1 of providing a passenger-only launch, the impacts on biodiversity and water environment in this location is expected to be neutral.

3.10 Social and Distributional Impacts

An analysis of the Social and Distributional Impacts of the scheme has been undertaken following the principals laid out in TAG units A4.1 (Social Impact Appraisal) and A4.2 (Distributional Impact Appraisal).

In line with this guidance, an approach that is proportionate to the size of the investment and nature of the scheme has been taken.

The following table summarises the indicators included within the Social and Distributional Impacts analysis, and the analytical approach we have taken for the scheme. Blank cells indicate that no analysis is required by the guidance. Note that there is a screening stage for Distributional impacts to determine whether a detailed appraisal is required. In several cases below only the screening stage has been undertaken as this has indicated that no further analysis is required.

Social and Distributional Impact Analysis

Area	Social Impact (SI) Assessment	Distributional Impact (DI) Assessment
User Benefits	Assessed quantitative under Economic Impacts section.	Qualitative Only as per example in TAG unit A4.2. Suggests lower income groups, including residents in East Cowes, could be disproportionately impacted by removal of Floating Bridge (in Do Minimum scenario)
Physical Activity	Earlier analysis using Health Economic Assessment Tool but not repeated for this business case.	
Noise	Acknowledgement of some short-term noise issues related to commissioning and early operation of FB6 may have impacts on local residents	Screening stage only. Changes in traffic flows are not significant enough to require a detailed assessment. Also no schools or other children's facilities which would require an assessment.
Air Quality	Analysed using Emissions Assessment Tool (EAT).	Screening stage only. Changes in traffic flows are not significant enough to require an assessment. Also no schools or other children's facilities which would require an assessment.
Accidents		Detailed analysis not required as no significant changes in traffic flows.
Security	Qualitative assessment only using criteria set out Table 4.1 of TAG unit A4.1.	Quantitative assessment identifying potential security concerns for some groups with the Do Minimum that are addressed with FB6.
Severance	Largely qualitative assessment using criteria set out Table 5.1 of TAG unit A4.1. Supporting quantitative analysis of journey time impacts considered under Economic Impacts.	Quantitative assessment which highlights alternative routeings and identifies potentially disproportionate impact on school children.
Journey Quality	Largely qualitative assessment using TAG unit A4.1..	
Option and Non-Use Values	Qualitative approach identifying a step-change in service compared to Do-Minimum passenger launch by providing vehicle routeing options	
Accessibility		Quantitative assessment which highlights fully accessible FB6 relative to Do-Minimum launch.
Personal Affordability		Quantitative assessment identifying impacts on distributional groups.

The following sections describe the approach and results of these analyses for each indicator.

User Benefits

The user benefits are calculated as part of the Economic Impacts and are reported in that section of this chapter.

A distributional impacts analysis is required where the impacts of a scheme can be ascribed to specific residential areas, as an analysis against the income profile of those areas can be made. As the Floating Bridge draws passengers from a large catchment area it is difficult to determine the profile and therefore TAG Unit A4.2 recommends a more qualitative approach.

Considering that the Floating Bridge is within a defined Regeneration Area, it may be inferred that those affected by its removal (in the Do Minimum) may be of lower income groups and would be disproportionately affected by the loss of this connectivity as they lack the means to make alternative arrangements. Further analysis of the distribution of scheme benefits by modes shows that there are some small public transport user benefits (representing 4% of total user benefits), and in general, public transport users have lower incomes than car users. It is therefore possible these lower income groups would be disproportionately benefit from FB6 and the retention of the vehicle and fully accessible pedestrian across the Medina in Cowes.

A reduction in the number of highway trips or distance travelled, resulting from scheme delivery, could have the benefit of relieving highway congestion at bottlenecks, particularly in and around the Newport area. Reduced highway congestion will also be expected benefit bus journey times and reliability, again providing positive benefits for lower income groups.

Physical Activity

Whilst the scheme is not specifically directed at active modes it will improve the journey experience for pedestrians and cyclists by segregating these modes from vehicular traffic during the crossing and providing fully accessible boarding of FB6 that cannot be guarantee or may not be possible with a replacement passenger launch. Furthermore, there may be some benefits arising from the continued provision of the Floating Bridge link as a vehicle link, facilitating both pedestrian and cycle journeys on the wider Isle of Wight and generating reduction of vehicle traffic on some of the congestion routes approaching and passing through Newport.

In the earlier business case, a quantified assessment of the potential benefits arising from FB6 was undertaken using modelled outputs from SRTM and the World Health Organisation's Health Economic Assessment Tool (HEAT). HEAT calculates the number of preventable deaths per person as a result of changes in walking and cycling and includes using the DfT's statistical value of lives and mortality rates. This earlier assessment has not been repeated from this Revised Business Case as the impacts identified in the earlier work were marginal (though positive overall) with an overall assessment as neutral.

Noise

The screening criteria require that a Noise DI distributional assessment impact is undertaken if the intervention causes:

- Significant changes in traffic flow, speed or %HDV content (>+25% or <- 20%)
- A change in the separation between people and traffic
- There are schools or other places where children spend significant time outside in the vicinity.

None of the above applies for the FB6. Therefore, no DI assessment has been made, and as the changes in traffic flows resulting from the scheme are minimal, the SI is assessed as neutral.

It is acknowledged that there have been some noise issues arising from the introduction of FB6 that did affect some of the local residents and businesses adversely, with reduced operating hours being one response in mitigating early morning and late evening operating noise (0500-0700 and 2230-0030). The remedial works undertaken to date on FB6 have been focused around reducing local noise issues and operating hours have been duly extended fully to 0500-0030 Monday to Saturday and 0630-0030 on Sundays.

Air Quality

The same screening criteria used for Noise also apply to Air Quality, so on the same basis the SI assessment for this indicator is neutral, and no DI analysis is required.

Accidents

East Cowes is bisected by an A road (A3021), which carries not only internal town traffic, most traffic accessing the Red Funnel car ferry service to/from Southampton, and vehicles accessing and aggressing the Floating Bridge – the most direct link between Cowes and East Cowes, and Cowes and Southampton for vehicles. The replacement Floating Bridge will provide a greater degree of separation between vehicles and passengers on the vessel than for FB5, thus reducing the level of conflict pedestrian/vehicle conflicts slightly. Other traffic flow changes will be modest relative the operation of FB5.

Relative to the Do Minimum passenger-only launch, it would be expected that a small reduction in accident levels in the slight injury category will arise from reduced traffic flows on the A3021 and busy A3054 and A3020 as vehicle traffic to Cowes and the west from East Cowes and Southampton can avoid route via Newport. However, the overall impacts will be small and there are no recognised safety concerns that this scheme seeks to address so the overall impact is assessed to be neutral.

Security

There is not expected to be a material change in the security as a result of the scheme, relative to the earlier FB5 operation. However, it has been noted by the Council that staff and vessel security concerns have, in the past, limited the hours of operation of the replacement passenger launch, especially on Friday and Saturday evenings, with the service curtailed to 2230 rather than operating through to 0030.

These concerns, real or perceived, are likely to disproportionately affect vulnerable travelers or late-night employees relying on pedestrian access to Cowes or East Cowes. Therefore, a minor beneficial impacts of FB6 is likely to arise.

Severance

Without the Floating Bridge connection, vehicle users of the service would be forced into a 10-mile/28-minute detour to travel between East Cowes and Cowes. This would create severance for those reliant on their car, such as people with a disability, local deliveries and for those looking to access areas of the East Cowes/Cowes community exceeding a reasonable walking distance.

It is apparent that there is demand peak for the Floating Bridge around the start and end of the school day, indicating the importance of this connectivity to local school children, who would be disproportionately affected by the loss of this link. However, the Do Minimum passenger-only launch would maintain the connectivity for school children, even if the launch operating hours were to be more limited than FB6.

Continued and improved connectivity is considered vital to ensuring the areas economic sustainability. With FB6 in place, then these movements for vehicle users will continue to be possible, and therefore, the scheme is expected to have a moderately beneficial impact in terms of reducing severance.

Journey Quality

Floating Bridge had some severe reliability issues, especially between 2011 and 2014. At 40 years old in 2016 it was showing its age and quality of the passenger experience (both for foot passenger and drivers) was being comprised by the service on offer. The expectations for FB6 was to improve the service reliability, frequencies and the quality of journey through improved passenger environment and reduced car dominance for foot passenger. Whilst reliability issues have been a problem in the since service commencement, though with significant improvements in 2018, the passenger environment has improved markedly.

Relative to the Do Minimum provision of a passenger-only launch, FB6 provides a significantly enhanced passenger environment, with fully accessible boarding and covered accommodation, and largely unconstrained in capacity terms. Therefore, the scheme has been assessed as having a large beneficial impact on journey quality.

Options and Non-user Values

Continued provision of the Floating Bridge will have a large beneficial impact on options and non-user values as it represents a step-change in service compared to the Do-Minimum passenger-only launch scenario where no such vehicle link exists. It is difficult to estimate the full catchment of the Floating Bridge to quantify any options values, largely since the bridge provides both a local link between Cowes and East Cowes, access to both Cowes and East Cower from the other side of the Medina, and longer distance routes east-west across the island avoiding Newport. The bridge also provides an access route to the Red Funnel ferry to and from Southampton for cross-Solent vehicle movements.

Accessibility

The Floating Bridge provides a fully accessible cross river link between Cowes and East Cower, with level access for both the mobility impaired and cyclists, albeit with some gradients to negotiate at times. Although it may be possible to configure a Do Minimum passenger-only launch to offer a similar, fully accessible, service, this cannot be guaranteed and may involve additional costs over and above those included in the costs underpinning the appraisal reported above.

Maintaining the Floating Bridge link between Cowes and East Cowes for pedestrians, cyclists and vehicles retains the wider accessibility to facilities that has become established by the earlier bridge connections, particularly for those reliant on the car. In the wider context, this transport link is also vital to support connectivity between the Isle of Wight and Southampton given the proximity of the East Cowes ferry terminal as this provides access to employment, key services and for tourism. Therefore, the scheme has been assessed as having a large beneficial impact on accessibility.

Personal Affordability

The impacts on personal affordability are likely to be slightly beneficial, as the Floating Bridge maintains an affordable link for those wanting to cross between Cowes and East Cowes. Without it, car users and public transport users would face longer journeys with higher operating costs. This provides benefits to a number of vulnerable groups, such as those on low income, the young, students, the unemployed and those with a disability.

3.11 Overall Value for Money

The analysis contained within this section shows that FB6 will generate a very healthy BCR of over 5 during the appraisal period. With this quantified assessment, and the wider supplementary business case components which generally report a mix of strongly positive, more modest and neutral impacts, the investment in FB6 offers high value for money. A wide range of sensitivity tests have been undertaken demonstrating that this conclusion remains robust, including an option for an early replacement of the FB6, for further spending of £1m on FB6 and consideration under a 30-year appraisal period (where the BCRs cannot ordinarily be compared with standard 60-year appraisals).

It is clear that the most pessimistic sensitivity, suggesting that service reliability will never meet the long-term expectations of FB6, still delivers a BCR of around 3.0, even when assuming that the replacement of FB6 is also unable to meet the expected reliability and levels achieved across a number of other UK Floating Bridge operations.

This conclusion is not surprising. The case for FB6 was strong in 2015, even though it represented a somewhat conservative appraisal. Whilst there were severe operating issues in 2017, reliability has improved significantly in 2018, and with remedial works in hand with Wight Shipyard, further improvements in service levels are likely for the remaining 28 years or more of FB6. Also from a cost perspective, whilst the actual capital costs are higher than the point estimates used in the 2015

appraisal (£5.9m vs £4.7m), the 2015 appraisal included an optimism bias uplift of 15% no longer required and two vessel renewals over the 60-year appraisal period.

4. FINANCIAL CASE

4.1 Introduction

This section sets out the costs associated with the delivery of FB6, including, in the table below, the out-turn costs incurred to commissioning of the vessel in May 2017 and, as set out in the following note, costs then incurred to date on a limited number of contract variations and the (more substantive) current work on designing options for further remedial works, and some forthcoming spending for the rest of 2018 and a small allowance for chain surveys into 2019.

Floating Bridge 6 Out-Turn Delivery Costs

Professional Fees (naval architect, owners reps etc)	£328,764
Superstructure (construction, fit out, approvals)[A]	£3,031,249
Superstructure (contract variations)	£431,412
Ticketing[B]	£160,282
Slipways	£683,149
Slipway design	£49,029
Chain survey, works, fees	£114,603
Noise mitigation works	£31,441
IWC costs – project manager[C]	£65,000
Other expenditure[D]	£205,307
Known additional works	£169,200
Extended Warranty[E]	£65,000
Remedial options design work[F]	£500,000
Contingency[F]	£100,000
Total	£5,931,936

Replacement Passenger Launch Costs

Replacement Launch Costs (2017 and 2018)	£439,281
Operative Employment costs - additional	£114,000
Other operating incurred costs - additional	£33,000
Savings in Floating Bridge 6 out of service	-£47,000
Total	£539,281

A – MCA and Lloyd's approvals costs that were estimated in the earlier business case as distinct line items formed part of the superstructure contract and therefore cannot be disaggregated
B – costs included enhanced ticketing system, including smart card functionality, and a new dedicated floating bridge web-site (see https://www.iwfloatingbridge.co.uk/)
C – estimated cost. These costs were absorbed into IWC revenue costs and not recharged to the project but are included in this appraisal for completeness
D – various ancillary works including provision of client supply items for the build, new waiting area at East Cowes, land surveys, health and safety audit
E – Extended warranty to cover months 13-24
F- Includes some on-going or expected work, and therefore subject to change

Floating Bridge 5 and Floating Bridge 6 Operating Costs

	Floating Bridge 5			Floating Bridge 6		
	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	actual	actual	actual	actual	adjusted budget	Assumed (+15% OB from 22/3)
Staffing[A]	£390,811	£427,842	£477,149	£432,477	£433,596	£430,000
Maintenance	£125,556	£39,474	£18,218	£7,136	£19,386	£39,500
Operational Insurance	£26,230	£25,472	£29,109	£29,193	£29,503	£29,500
Fuel	£22,996	£26,575	£12,782	£16,449	£28,500	£28,500
Premises	£19,033	£19,441	£21,222	£28,016	£19,237	£19,250
Op Equipment and IT	£12,237	£13,390	£33,020	£21,905	£6,500	£6,500
Other Direct Costs	£16,562	£24,709	£41,987	*£110,742*	£39,686	£39,500
Management, Support	£46,406	£76,139	£31,851	*£166,329*	*£189,011*	£65,000
Depreciation	£18,135	£19,263	£6,980	£149,413	£14,859	£15,000
Total (exc Launch Costs)	£677,966	£672,305	£672,318	£961,660	£780,278	£672,750
Likely Exceptional Costs[B]				*£300,000*	*£100,000*	
Excluding Exceptionals	£677,966	£672,305	£672,318	£731,660	£680,278	£672,750
Launch Cost[C]	£34,608	£10,227	£132,303	In cap costs	In cap costs	£6,630
Used in Appraisal[D]				£961,660	£780,278	£679,380

A – 2017/18 staff costing reduced by £62,000 to limit the potential double counting of costs with the £114,000 allowance for additional staff costs included in the capital costs
B – these costs represent an interpretation of one-off costs related to management costs, depreciation allowances in the FB accounts and other direct costs for those costs not expected to be repeated on an on-going basis (identify above in italics)
C – Launch hire costs for FB6 are provided in the capital costs for 2017/18 and 2018/19, but then in the annual operating thereafter
D – Operating costs for 2019/20 are projected forward in the appraisal using appropriate growth rates as considered earlier. From 2022/23 an optimism bias premium of 15% has been added to all operating costs (see also the appraisal sensitivity to this assumption).

Review of out-turn costs versus earlier business case estimates

Ordinarily, a comparison of ex-ante scheme cost estimates with ex-post out-turn costs would be included as part of an ex-post evaluation. For this Revised Business Case undertaking an appraisal of the scheme, it is possible to compare the two set of costs. A direct comparison of detailed delivery costs has, however, not been possible due to some differences in cost heads used, but in broad terms it is possible to set out where costs have changed since the estimates prepared for the 2015 Business Case, and those of both the initial delivery of Floating Bridge 6 and the more recent remedial works undertaken to address the problems arising following initial commissioning.

At a headline level, the capital costs for FB6 in out-turn, allowing for the current design works for remedial options and further contingency allowance, total £5.93m.

Of these costs around £1.49m could be associated with the extra work following the delivery of FB6 in spring 2017, suggesting an underlying cost of about £4.46m.

In the earlier business case of 2015 used to support the approved for scheme delivery, the forecast scheme cost was £4.66m (although in the appraisal a 15% optimism bias premium was added to this estimate).

The differences between the 2015 estimated costs and FB6 costs at delivery broadly relate to:

- a significant increase in the slipway costs, that were re-constructed rather than re-modelled as initially intended, including the construction of aa new diverter pit for the northern chain
- a reduced cost for the FB6 vessel with the superstructure and fit-out costs being significantly less than anticipated, even with a number of contract variations.

The additional costs incurred since relate primarily to:

- increased professional fees and project management fees
- additional chain surveys, mitigation works and associated fees in addressing early operational noise issues
- final contract variations and extended warranty costs
- current design works for remedial options.

Additional costs of around £540,000 have been incurred by the Council in hiring an replacement passenger launch to cover for periods when FB6 has been out of service. These costs are included in the capital costs for 2017/18 and 2018/19, but then as an operating cost for 2019/20 and beyond with the expectation that with improving reliability such costs will be significantly reduced.

The cost overspends have been entirely covered by the Council. Some further expenditure is possible directly linked to FB6 operations, and covered by the £500,000 Wight Shipyard costs and the £100,000 contingency figures noted above.

Some limited spending on additional works, not considered part of the FB6 project, but directly linked to improving the overall project delivery include:

- work to alter the highway layout at Ferry Road/Castle Street and improvements to foot passenger and vehicle safety – estimated at £75,000
- Variable Message Signing to improve on-Island communication of service status – estimated at £90,000.

4.2 Budgets/Funding Cover

Based on the capital costs (and replacement launch costs) identified above, the Floating Bridge 6 costs were covered as follows. Please note, those costs covered by the Council may have been allocated to a number of different authority accounts either explicitly identified or absorbed into established budgets:

SLEP Funding	£3,784,000

Isle of Wight Council	£2,687,217

4.3 Accounting implications

Floating Bridge 6 will be a wholly owned asset of the Isle of Wight Council.

4.4 State Aid Implications

The Isle of Wight Council obtained counsel's opinion on whether the funding from the SLEP will constitute State Aid and if so, on what basis State Aid compliance can be most easily achieved. Further discussion on State Aid is set out in the commercial case within section 5.10.

5. COMMERCIAL CASE

5.1 Introduction

This section sets out the approach that was taken to commercial viability for the Floating Bridge replacement project.

5.2 Specifications

A Supplier's Day was held on 2 December 2014 to gather intelligence for the specification, and procurement options. The specification includes the following outcome-based aspirations:

- Reduced queuing times
- Increased crossings per day
- Shorter crossing times
- Greater capacity for vehicles
- Reduced running costs
- Improved passenger accommodation
- Reduced carbon emissions
- Improved energy efficiency
- Less congestion in and around Newport
- Increased financial and operational security
- Separation of vehicles and passengers
- Introduce opportunities to advertise local business and attractions
- Supporting the economic well-being of the towns
- Introduce new technologies for payment including smart/proximity cards and mobile phone payments
- The Isle of Wight Council organised its tender process to ensure graded options are offered against the specification. In this way, value engineering was built into the process to ensure an affordable option was available for selection.

5.3 Procurement Strategy & Processes

Supplier's day - 2 December 2014

At the outset of the process it was agreed with the Councils Procurement and Legal team to hold a suppliers day and this was advertised on iwght.com and in the marine section of the European Journal.

The aim of the event was to present the project to a range of naval architects and ship builders and canvas opinions on the best way to deliver the project given the likely tight deadlines associated with the grant funding.

The event was attended by 10 shipbuilders and 3 naval architects and the consensus of the attendees was that, in order to deliver the project to the likely timescales, the traditional route (as set out below) would be the best option:

- Naval architect – prepare outline design, general arrangement and technical specification
- Shipbuilder – tender, detailed design and build (checked by naval architect)

Naval architects

Following the supplier's day, and based on advice from the Councils Procurement and Legal team, it was agreed to seek a waiver on the basis of 'urgency not of the Council's own making' which had been imposed through the terms of the LEP grant funding; this was duly granted by the Council's Procurement Board on 18th December 2014.

The Invitation to Tender (ITT) was subsequently issued to the 3 naval architectural companies that had attended the supplier's day on 2 December 2014.

At the closing date only two submissions had been received and one of these would not have passed the stage one evaluation; as the value of the one remaining submission had the potential to go above the EU threshold the award could have been challenged as it was not through an open process but instead via a waiver.

Due to the value and profile of the overall project it was proposed to halt the current process and re-advertise through the OJEU – this was subsequently agreed by the Deputy Managing Director and Procurement Board were verbally informed of this at the meeting held on the 16th April 2015.

The ITT was revised to include the requirement for the companies submitting the top 4 scoring submissions to make a presentation which would form part of the evaluations. The OJEU notice was advertised on 14 April 2015 with a return date of 22 May 2015 for the submissions.

A total of six submissions were received; out of which one failed the financial checks whilst another failed to meet the stage one threshold of 70% to be able to pass to stage two.

The top 4 scoring companies were then invited to make a presentation on 1 July 2017; these were evaluated by Sean Newton – Commercial Services Manager, Nick Symes – Fleet and Floating Bridge Manager; Tim Light.

The contract was duly awarded to Burness Corlett Three Quays (Southampton) Limited (BCTQ) on 9 July 2015. The contract required BCTQ "to assist the council in the preparation of the outline design and statement of requirements for the design and construction of the new floating bridge, to provide assistance with evaluation of the tenders from shipyards for the design and build of the floating bridge and overseeing the build and delivery of a replacement floating bridge until such time as it commences operation" BCTQ's obligations under the consultancy agreement include (but are not limited to) the following:

- Undertaking a review of the operation of the (now previous) floating bridge and demonstrate an understanding of issues then current.
- Establishing the key stakeholders (including Cowes Harbour Commission CHC) and the Maritime and Coastguard Agency (MCA) and undertaking a

baseline audit of their requirements which may impact upon the design of a new floating bridge.

- Producing an outline design and specification together with a statement of requirements for the new floating bridge to detail the construction class, requirements for all testing, installation, bringing into service and staff training.
- Overseeing the construction of the new bridge with the company appointed as a result of the tender process to include attendance at technical meetings at the selected shipyard.
- Approval of the shipyard detailed design and construction drawings.
- Attendance at shipyard final trials.
- Overseeing the delivery, bringing into service and commencement of operation of a replacement floating bridge (which was, at this stage, envisaged to be by October 2016).
- Ensuring that at the end of the consultancy agreement the council has a clear, structured and fully costed plan detailing the preventative maintenance schedule for the new bridge; and
- Advice to the council during the warranty period.

Owner's representative

Tim Light (Managing Director, King Harry Ferry) was already providing consultancy services to the Council to assist with re-writing the Domestic Safety Manual (DSM) for floating bridge number 5; he was subsequently asked to provide a fee bid to undertake the role of Owners Representative, the principal duties of which were: **Phase 1** – assist with planning, up to the selection of the shipbuilders and will include assistance with evaluation of the ship builders (approximately 20 days)

- **Phase 2** – liaising between the ship builders, naval architects and Council on the build, delivery, acceptance trails, commissioning and staff training (approximately 50 days)
- **Phase 3** – over the first years operation to include snagging, latent defects and look at potential development opportunities (approximately 10 days)

The initial proposal was at a cost of £40,000 and was approved as a waiver (through direct award) by the Councils Procurement Board on 4 June 2015.

Legal advice

Following consultation with the Councils Procurement and Legal team it was agreed that, due to the specialist nature of the contract required, it would be preferable to engage the services of a law firm with extensive marine experience.

On behalf of the Council BCTQ obtained proposals from Allan and Overy LLP, TLT LLP and Ince and Co LLP; following a review of these by BCTQ and officers from both Commercial Services and the procurement and Legal team the contract was awarded to Ince and Co. at a cost of £8,000.

Ship builders

Following completion of the technical specification and preparation of the Invitation to Tender documentation a notice was placed in the European Journal with the Pre-Qualification Questionnaire (PQQ) documentation being issued to 23 companies. This included two companies based on the Isle of Wight.

Eight companies returned the PQQs and these were evaluated by Sean Newton – Commercial Services Manager; Nick Symes – Fleet and Floating Bridge manager and Mark Slawson – Fleet and Technical Director at Red Funnel. Out of the 8 companies one failed the PQQ evaluation and 7 passed (including the two islands based companies); these were then issued the Invitation to Tender (ITT) pack that consisted of the tender documentation and the technical specification as prepared by BCTQ.

Three tenders were received. These were evaluated by Sean Newton – Commercial Services Manager; Tim Light – managing director at the King harry Ferry and John Waters – Engineering Manager, BCTQ (Mark Slawson was not available during the evaluation period).

A preferred tenderer was agreed. In accordance with the provision made in the ITT, a visit to the shipyard was undertaken by the evaluators on 7 January 2016. This was to view their facilities, review processes, meet the project team and talk to the ship yard staff.

The consensus of the evaluators was that the preferred tenderer had excellent facilities, capabilities, staff and suitable processes to ensure the delivery of the replacement floating bridge; subsequently the contract award was ratified through an officer decision record signed on 27 January 2016 by John Metcalfe, Chief Executive in consultation with the Councillor Shirley Smart, Executive member for Regeneration, Economy and Public Transport.

The council entered into a contract on 29th March 2016 “for the design and construction of a drive through, roll-on roll-off chain ferry with articulated hydraulically operating loading and unloading ramps at each end of the vehicle deck and an enclosed weather proof passenger shelter and an offset pilot house with Mainstay Marine Solutions Ltd.

Slipway – civil engineering consultant

Part of the scope of works for the overall project was to remodel the slipways at Cowes and East Cowes to ensure that they were fit for purpose and would, as a minimum, have an operational life commensurate with the expected life of the new vessel.

A fee bid was requested and received from PTR Consulting Engineers Limited and was accepted as a single quote as it was below the relevant Isle of Wight Council procurement threshold.

Following an initial report from the engineers, it became apparent that both slipways would require full re-construction. The work included the following elements:-

- Site Investigations
- Design Development

- Full civil engineering design for East and West slipways and associated chain pits and retaining walls
- Project specification, AutoCAD plan and details
- Tender evaluation assistance (working with IWC in-house team)
- Site supervision of works

The detailed design and specification was incorporated into the Councils standard Invitation to Tender (ITT) documentation.

Slipway civil engineering contractor

The scope of the works to be undertaken was:

- Repositioning the northern chain to accommodate the increased width of the replacement bridge; this included the construction of a new chain diverter pit in Bridge Square, East Cowes
- Reconstruction of both the Cowes and East Cowes slipways
- Alterations to the pedestrian footways on the northern sides of both slipways; this was to enable foot passengers to queue and board from this side without the need to cross vehicles that are being loaded/unloaded. All works were agreed with the Councils PFI client team and Island Roads
- Relocation of one of the existing ticket machines at East Cowes to the north of the slipway
- Conversion of the existing waiting room to a store

Due to the estimated value of the works this was advertised as an open tender which was advertised on the South Eastern Business portal as well as the procurement section of the Councils website iwight.com.

The tender period was from 21 July 2016 to 9 September 2016 and when it closed a total of 2 tenders had been received. These were evaluated by Sean Newton – Commercial Services Manager, David Watts – Principal Officer, Corporate Property and Jim Fawcett – Principal Officer, Environment.

The contract was awarded to Geomarine Limited on 18 October 2016 with work commencing on site on 3 January 2017 and completion on 4 May 2017.

5.4 Payment Options

The tender specification set out staged payments against delivery on the following basis:

- Payment at contract award
- Acceptance of general drawings/layout
- Purchase of materials (steel etc)
- Payment at 50% completion of hull
- Payment at 100% hull + 80% prows assembly
- Completion of all internal & external painting; chain wheel fabrication, watertight doors, main hatches; car deck gates and handrails installed. Vessel delivered for fitting out

- Cable Tray installation; switchboard on board ready for connection
- Main engines & drive wheels installed
- Installation of all major systems
- Fit out complete & dock trials commenced
- Final delivery and acceptance
- Release of retention

At the contract start up meeting payment terms were agreed, linked to agreed milestones. This was reflected in a deed of variation signed by both parties.

In the event that any milestone set out in clauses 4(1)(a)(ii) to 4(1)(a)(x) is:

- not achieved as a result of the Clients actions or omissions then the payment dates set out in the said clauses shall apply regardless of the relevant milestone not being achieved;
- partially achieved then the Client and the Contractor shall use their respective reasonable endeavours to agree an appropriate instalment payment based on the proportion of the relevant milestone that has been partially achieved."

Works were inspected on a regular basis by the owner's representative and a recommendation for payment of an instalment (either in whole or in part) was made to BCTQ and the IWC (as client).

5.5 Pricing Framework and Charging Mechanisms

The tender specification set out the pricing framework and charging mechanisms for the package of works, however this was varied by mutual agreement as set out above at 5.4.

Through discussions at the contract start the accepted tender price was reviewed and reduced by £140,000.

5.6 Risk Allocation and Transfer

The Council's Commercial Services Manager implemented a project risk register on the corporate risk database; all risks were reviewed on a monthly basis and reflected steering committee meetings, updates for both the owners representative and BCTQ and conference calls.

Full responsibility for the design and build was held by the boat builders and was overseen by the owner's representative. MMSL prepared a full risk register for the project (design/build) and this was reviewed and updated at each Steering committee meeting.

5.7 Contract Length

The specification required tenderers to set out timescales for the delivery of the vessel, taking into account all industry variables (e.g. purchase of steel). At the suppliers day It was accepted that the timescale from award to delivery was

challenging and this was borne out as there were a number of technical challenges that resulted in an extended programme.

5.8 Human Resource Issues

There were no IWC HR issues associated with the contracting for this scheme. However, it was necessary for MMSL to appoint a replacement contract manager to oversee the completion of the build, delivery, trials, testing and defect rectification.

5.9 Contract Management

Details of the contracting arrangements are as set out in the Management Case.

5.10 State Aid

Isle of Wight Council have held discussions with state aid experts in the Local Growth Team at BIS. All applications to the EU need to be routed through and agreed with BIS. BIS view is that if the Council is satisfied that there is a reasonable argument that the funding of the floating bridge will not distort trade, then there is no issue of state aid and the Council does not need to take any other action.

This view is consistent with the Counsel opinion which says “The floating bridge is operated on a commercial basis and the funding of its replacement meets most of the conditions for a measure to be regarded as State aid. However, I think there is a good case that this measure will have no effect on inter-state trade, and should therefore fall outside Article 107(1) on that basis.”

It is quite clear that the bridge is a small local infrastructure project, which benefits predominately local travellers and is extremely unlikely to have any effects on the flow of trade between Member States. The council’s data indicates that 74% of users of the floating bridge are from the Island. It is estimated that less than 4% of tourist visitors to the island are from outside the UK. This would indicate that only a tiny percentage (1% or less) of users of the floating bridge are likely to be tourists from outside the UK.

It is accepted that the LEPs Grant funding letter places the risk of any challenge with the Council, in that it requires both an indemnity and a Warranty – in which the Council has to confirm that it has conducted its own diligence review in relation to compliance with the rules on state aid, under Articles 106 and 107 of the Treaty on the Functioning of the European Union, including the reporting rules.

In January 2016 the Council wrote to the Solent LEP and confirmed that the council will fully indemnify the LEP and accountable body in relation to any costs associated with a potential state aid challenge.

The council is satisfied that it has fully explored whether there is likely to be any State Aid arising that could represent a risk in relation to the LGD funding proposed for the Floating Bridge. The advice of Kelyn Bacon QC has been carefully considered. She commented that the Commission has concluded that measures giving support to purely local operations did not involve State aid since they were unlikely to have a significant effect on trade between Member States. She considered there would be

good arguments on this point in relation to the Floating Bridge, although did address her mind to what steps should be taken should it be considered that there was a State Aid issue. Subsequent to this the Council approached BIS, clarifying in doing so the very local aspect of the Floating Bridge and its users. BIS expressed the view that they agreed with Counsel's assessment that no aid is involved based on the fourth test of aid (effect on intra community trade) not being met. They made it clear that the Isle of Wight Council is best placed to judge the risk and that it is for us to decide if this is acceptable. As said, the Council is of the view that State Aid will not arise due to the fact that it will have no effect on inter-state trade – taking into account the size, nature and location of the operation.

The council is also satisfied that it has fully explored whether there is likely to be any State Aid arising in relation to the proposed Public realm works. Counsel was clear in her advice that these works are likely to be regarded as general rather than user-specific and therefore do not constitute State aid and the detail of her advice has been carefully considered. BIS flagged with us the sensitivity around Ports and identified the need for us to ensure that the costs being incurred were not costs that the port operator (or indeed any other developer) would usually have to bear itself. We have looked carefully at the works proposed and are satisfied that these are works would not fall to the port operator or other developer. The works do not include the junction that will be created to access the terminal itself, those will be a requirement for the developer. The Public realm works will enhance and revitalise this area of East Cowes and the updated road layout will take into account a number of changes that have occurred in the area as part of the regeneration of East Cowes, including the new Waitrose Store, the Medical Centre and new housing. The primary beneficiaries will be the general public and local businesses that operate in the area. The council is of the view that taking into account the above, State Aid will not arise.

The Isle of Wight Council therefore considers it has undertaken the required due diligence and is satisfied state aid does not apply having considered counsel's advice, the requirements of the state aid rules, and their own knowledge of the floating bridge, its users and the lack of any other potential cross-border investments or challenge to this project.

5.11 Lessons Learnt

In January 2018, the Scrutiny Committee received a report from the Leader of the Council presenting the findings of a review which was set up to examine the circumstances surrounding the purchase, provision and subsequent failure of FB6 to enter service in full as anticipated in the earlier business case and in the delivery contracts put in place by the Council.

The review sought to establish what happened and to ask the question "Why did we end up where we are". Whilst the review concluded that there were a number of matters relating to project governance, staff training, communication and the involvement of third parties which have been identified as learning outcomes.

In summary the review recommendations set out:

Governance of Projects

All large strategic projects should have an appropriate and effective project board established, where there is collective responsibility for decisions made and there is both support and challenge of project managers to get the best outcomes from delivery of the project;

The board needs to give consideration to the changes in skill sets of staff and processes that a project delivering change will bring and factor these changes into the project plan;

The project plan must include effective communication and working with local members and communities, in order to achieve engagement and consultation with stakeholder groups;

The project manager role is to oversee the project management on a day to day basis, reporting to the project board;

The role of project sponsor needs to be equally responsible for overseeing the project's success and ensuring key decisions are made appropriately to keep the project focused.

There is a need for due diligence to be applied to project resources to ensure that those managing a project have appropriate capacity over and above any other duties they have.

Clearly defined roles and governance structures will ensure that projects are managed through all levels; that there is separation of roles and that appropriate assurance is in place throughout the life of the project.

There must be a clearly defined and documented handover process to ensure project continuity when any individual joins or takes over any role in the project.

As a result of these recommendations, the council is keen to demonstrate that it has taken appropriate action from the lessons learnt and wants to further the work already undertaken to strengthen project and programme management approaches within the council by further reviewing the way in which project governance is managed corporately and ensure that the appropriate assurances are in place.

The Floating Bridge inquiry key recommendations around project governance controls can be summarised as:

- Project governance is put in place and responsibility of roles are defined and structured so a clear escalation route for any issues to be raised through
- All large strategic projects musty have an appropriate Project Board established to ensure there is both support and challenge of the delivery of the project
- Ensure effective communication and political oversight by being more transparent
- Due diligence is applied to project resources in terms of capacity and skills to undertake the project are understood.

To ensure the required levels of governance are appropriate within the organisation, a review of existing governance and reporting boards is being undertaken across all council directorates. The council is creating as a minimum three levels of governance oversight and control that is being applied using a Project Risk Matrix to determine what level of assurance and oversight governance arrangements are required through the reporting tiers.

The three categories within the matrix would consist of:

- Category 1 – Lowest Level of governance in that a project should have a Project Board to provide scrutiny and oversight
- Category 2 – Each Directorate of the council should establish a 'Directorate Programme Board' to receive highlight progress and issue reports
- Category 3 – A Strategic Programme Board led by the Chief Executive or their deputy to receive exception highlight reports from each Directorate Programme Board for those projects of the required strategic importance in terms of risk categorisation from the Project Risk Matrix. There will be a Members Review Board to receive updates on strategic projects progress and any exception reporting needs and political guidance

Preparing for live service

It was identified that more time was needed between the vessel being put on the chains and operation starting to ensure that all staff were sufficiently trained and signed off on all required capabilities prior to service commencing.

The vessel should not have entered service over a weekend and should have been commissioned during the week.

These are relevant lessons for any project which requires "going live". It is common practice in ICT projects that live testing occurs and this lesson has been identified and will be included in project governance work and future procurement of vessels.

Engagement and communication

Greater consideration to be given to stakeholder involvement in projects so that interested parties can be included in the journey of any project.

The communication strategy needs to remain a live, working document, refreshed as appropriate to reflect changes that may be needed during the course of a project.

Greater use of social media to promote the service needs to be considered.

A recommendation from the Scrutiny Committee was that the council consider setting up a user group through which it can discuss operational and future improvements.

It has been agreed that a user group will be convened, the first date of which is to be arranged. Terms of Reference for the user group are in the process of being drafted.

Competency of the Crew

The crew required sufficient time to familiarise themselves with the new vessel and to be trained and signed off on any and all capabilities as appropriate.

As a learning outcome it is appropriate that this issue is considered in full in any future procurement of vessels.

6. MANAGEMENT CASE

6.1 Introduction

The earlier Business Case set out the management arrangements proposed by IWC for the commencement of the project. In this section we have described the original management arrangements and provided information on the changes in management during the different phases of the project lifecycle, the current status in terms of Acceptance and Delivery, and the arrangements for monitoring and evaluation.

We have also briefly alluded to the internal audit review commissioned by the council in July 2017 from PWC (appended in full at Appendix 4 below), and the council's report to scrutiny committee made in January 2018. This is further discussed in the commercial case in respect of learning outcomes from the project to date.

The scheme sponsors are the Isle of Wight Council. The scheme continues to sit under the Assurance Framework agreed between the SLEP and the DfT in February 2014.

6.2 Evidence of Similar Projects

There are only seven vehicle carrying Floating Bridges in the UK. As noted earlier many have been in use for considerable more than 30 year, and although some have been replaced in the last 10-15 years previous experience is not common. As such, the Council has retained the services of Tim Light, Managing Director of the King Harry Ferry, the company responsible for letting the most recent Floating Bridge replacement contract in the UK. Tim sat on the Project Board. Further information with regard to the role of the Owners Representative is set out later in this element of the business case.

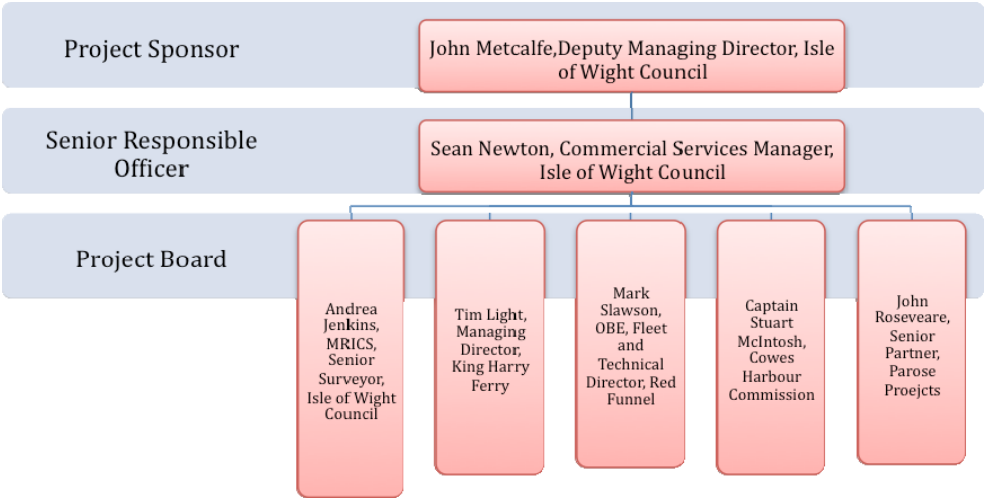
6.3 Initial Stakeholder Engagement

Isle of Wight Council carried out detailed surveys relating to the future provision of the Floating Bridge in October/November 2014, both through face-to-face interviews and on-line. The results are available at:

https://www.iwight.com/Council/OtherServices/Cowes Floating Bridge/Consultation

6.4 Procurement, design and build governance

The governance structure for the project set out in the earlier business case and reproduced below, assumed the scheme would be part of the wider Solent gateway Scheme:



SRO and Project Board Biographies

Sean Newton – please see information provided later in this report.

Tim Light, Managing Director, King Harry Ferry

Tim Light left the army in 1999 where he commanded at company level on operations and purchased, with a small syndicate, the King Harry Floating Bridge and set about the funding case, design and build of a replacement bridge for the service. The company prepared a bid to gain EU funds through the Objective One Programme and were successful. Profits were increased from £100k to “280k in 5 years allowing the company to gain a combination of reserves and bank funding to make up the funding gap and set about the design and build with wide stakeholder interaction and a really innovative design process that was in principle aimed at reducing annual downtime and making the crossing a visitor attraction in its own right as well as part of a sub-regional destination marketing hub.

The project was delivered on time and with a 3% overage primarily due to fluctuations in material costs and the inclusion of some shore side civils. Tim was the lead project manager and owners representative.

Tim also project managed the build of a 100-seater passenger ferry, built in the companies refit yard with an apprenticeship scheme and the vessel, the Duchess of Cornwall, was launched by the Duchess of Cornwall and the Duke of Cornwall in 2008 on time and within budget. Tim has expertise in point of sale, on line sales and in particular smart card systems.

Mark Slawson, OBE, Fleet and Technical Director, Red Funnel

Mark Slawson is the Fleet and Technical Director for Red Funnel, the ferry company linking Southampton with Cowes and East Cowes. Mark joined Red Funnel in 2014.

Mark was previously a Royal Naval Officer of the Marine Engineering Specialisation. His 25-year career culminated as a Commodore when he served as Commanding Officer of HMS Sultan, the Royal navy's Engineering training establishment and concurrently as the inaugural Commandant of the Defence College of Technical Training, responsible for delivery of training to the Royal Navy, the British Army and the Royal Air Force.

During his career Mark has been responsible for the operational engineering of warships, the Project Contract Management of multi-million pound warship refit packages and has participated and led numerous large and small change programmes.

Captain Stuart Mackintosh - please see information provided later in this report.

Andrea Jenkins, MRICS, Senior Surveyor, Isle of Wight Council

Andrea has been a Senior Surveyor for the Isle of Wight Council for the past 9 years. She is a Chartered Surveyor with over 20 years experience, having previously worked in the private sector for a series of planning and development practices on the Isle of Wight and in London.

John Rosevere, Senior Partner, Parose Projects

Following a spell as a Director at a London Borough, John has worked independently for nearly 20 years in the area of regeneration, transport and the arts, where he engages directly with senior politicians and managements teams including CEO's and Strategic Heads, community and business leaders, to turn nascent public realm ideas into funded realities.

John led several award winning transport-led regeneration projects in central London and has continued to champion the re-creation of public space that puts people at the centre of a difficult balancing act. Recent projects have included Southampton Station Quarter, an £8+ million regeneration project.

Project Board and Steering Committee

The Board met on a monthly basis, receiving a pre-meeting report highlighting the key decisions required at a high level. This continued until the appointment of the naval architects and was superseded by steering committee meetings.

Once the build contract had been awarded to MMSL a contract start up meeting was held at BCTQs offices in Southampton on 11.02.16, attended by representatives from IWC, BCTQ and MMSL. In addition to reviewing key design elements this also established the project team and Steering committee.

The steering committee consisted of the following personal form the IWC, MMSL and BCTQ:

• Sean Newton	Commercial Services Manager	IWC
• John Waters	Technical Consultant	BCTQ
• Tim Light	Managing Director	KHF
• Stewart Graves	Managing Director	MMSL
• Kevin Lewis	Operations Director	MMSL
• Mel Lewis	Technical Director	MMSL
• Meurig Jenkins	Financial Director	MMSL
• Pol van Steelant	Project Manager	MMSL

The project team then met on 9 occasions throughout the build process (15.03.16, 12.04.16, 24.05.16, 06.07.16, 16.08.16, 14.09.16, 13.10.16, 29.11.16 and 10.01.17); all meetings took place at MMSL premises in Pembrokeshire.

After the vessel was brought to the island, conference calls were scheduled between the three parties as required.

In addition to the scheduled contact meetings additional visits were undertaken by Tim Light in the role of Owners Representative; these were to review progress and discuss any issues that cropped up between formal meetings in a timely manner.

BCTQ's principal consultant also undertook 6 build inspections at key points throughout the process and submitted detailed reports - these were undertaken on the following dates:

- 28 & 29 July 2016
- 31 August & 1 September 2016
- 28 & 29 September 2016
- 13 & 14 December 2016
- 23 & 24 February 2017
- 20 & 21 March 2017

Throughout the process both MMSL and IWC maintained risk logs which were reviewed at contract meetings and on a monthly basis respectively.

6.5 Contract Management

The key roles in relation to the contracting regime were as follows:

Project Sponsor: The role of the project sponsor is to hold overall responsibility for the delivery and project success. It is a key decision making role.

Project Manager - Commercial Services Manager: Strategic management and resource co-ordination, Overview of project Lifecycle Reporting; Procurement. This role has been in place since commencement and in the design and build phase this role also acted as SRO with regard to SLEP requirements.

Owners representative: Delivery and quality auditing; Cost control and spend profiling Resource planning CDM. The appointment to this role was made in July 2015 and provided technical support to the project manager and provided liaison between the naval architect and the shipbuilder during the build and delivery of FB6.

Naval Architects: Assist the Council in the preparation of the outline design and statement of requirements for the design and construction of the new floating bridge, to provide assistance with evaluation of the tenders and overseeing the build and delivery of a replacement floating bridge until such time as it commences operation. This role was appointed in August 2015. The obligations of the naval architects under the consultancy agreement included (but were not limited to) the following:

- Undertaking a review of the operation of the (now previous) floating bridge and demonstrate and understanding of the issues then current;
- Establishing the key stakeholders and undertaking a Vaseline audit of their requirements which may impact upon the design of a new vessel;
- Producing an outline design and specification together with a statement of requirements for the new floating bridge to detail the construction class, requirements for all testing, installation, bringing into service and staff training;
- Overseeing the construction of the new bridge with the company appointed as a result of the tender process to include attendance at technical meetings at the selected shipyard;
- Approval of the shipyard detailed design and construction drawings;
- Attendance at shipyard and final trials;
- Overseeing the delivery, bringing into service and commencement of operation of a replacement floating bridge (which was, at this stage, envisaged to be by October 2016);
- Ensuring that at the end of the consultancy agreement the council has a clear structured and fully costed plan detailing the preventative maintenance schedule for the new bridge; and
- Advice to the council during the warranty period.

Ship builders: Detailed design, construction, delivery and commissioning of a replacement floating bridge to operate between Cowes and East Cowes; the company will be expected to undertake all routine maintenance within the first 12 months of commissioning. This contract commenced in March 2016.

6.6 Commissioning to operations phase governance

The governance arrangements originally put in place anticipated the project being part of the wider Solent gateway Scheme. However, as it became a stand-alone scheme rather than a partnership delivery scheme, it became a service governed project – this also provided an opportunity to reflect organisational changes within the Council which led to a change in the officer involved in the project.

At this stage the project was governed and run via the steering group (membership of which is set out above).

In 2017 the ship builder project manager's contract came to an end (this was a fixed term contract that expired on 31/03/2017). The fixed term nature of the contract was planned to expire after the original delivery date for FB6. His successor was an employee of the ship builder and there was a handover in mid-March 2017. This change is not considered to have had a detrimental impact on the project.

During 2017 the role of owner's representative came to an end. In essence there were three phases for this role:

- Planning up to selection of the ship yard.
- Build, delivery and acceptance trials through to operations training.
- First year snagging and development.

It was a requirement of the owner's representative role, as set out in the role specification as part of Phase 2 and 3 to provide support to the project manager during the move of the floating bridge from the shipyard to Cowes, acceptance trials, operations training and first year snagging and development needs. The owner's representative support ended once the floating bridge left the shipyard on 6 April 2017. On reflection this was an issue that the project manager should have considered escalating to senior management, in order that it was sighted on and clear about this change in expectation. At this time the project was monitored by reporting by exception and this issue would not have been raised if this change was not recognised as being of no immediate concern to the project manager.

The contractual arrangement with the owner's representative allows for continued call off works as required. However, the project manager and owners representative had differing views in terms of why the involvement of the owner's representative ended on delivery of the vessel to the Island. At this stage, with governance through the steering group, there was no formal council oversight (through for example a project board) and there was no opportunity to question the impact of this change on the project as a whole.

The project risk register did not identify the risk of this role leaving or finishing during the project, prior to completion as being a risk that was evaluated.

Whilst it may have been beneficial to have maintained this specific role during trials and training and to provide support to the project manager, it is general agreed (and this is set out in the review of the project presented to Scrutiny Committee) that the owners representative would not have been able to add anything meaningful to the project once the vessel had been delivered and this was because:

- The onsite training package was being developed between the shipyard and the council;
- The council engineer was familiar with the new vessel and had been involved in site meetings and discussions; he was capable of putting FB6 on the chains and tensioning these to ensure the efficient operation of the vessel as he had previously undertaken this role for FB5.

6.7 Recovery Phase

Although titled recovery phase, the governance is set up to oversee the programme of work as a whole and this includes:

- Technical matters relating to design and build, including the need for variations in design and construction and any outstanding contractual requirements.
- Operational matters, including programming of service, planned maintenance, planned service interruptions, staffing matters, monitoring service

performance, complaints, incident reporting.

- Communications, including protocols for steady state operational messaging and service interruption messaging, communications strategy, stakeholder engagement.
- Legal and other matters, including contractual legalities, requirements of SLEP etc.

The recent review of governance, resulting from the report to Scrutiny and this resulted in changes which include:

- Appointment of a Programme Manager
- Appointment of a Technical advisor to the board
- CHM becoming an invited attendee at board meetings

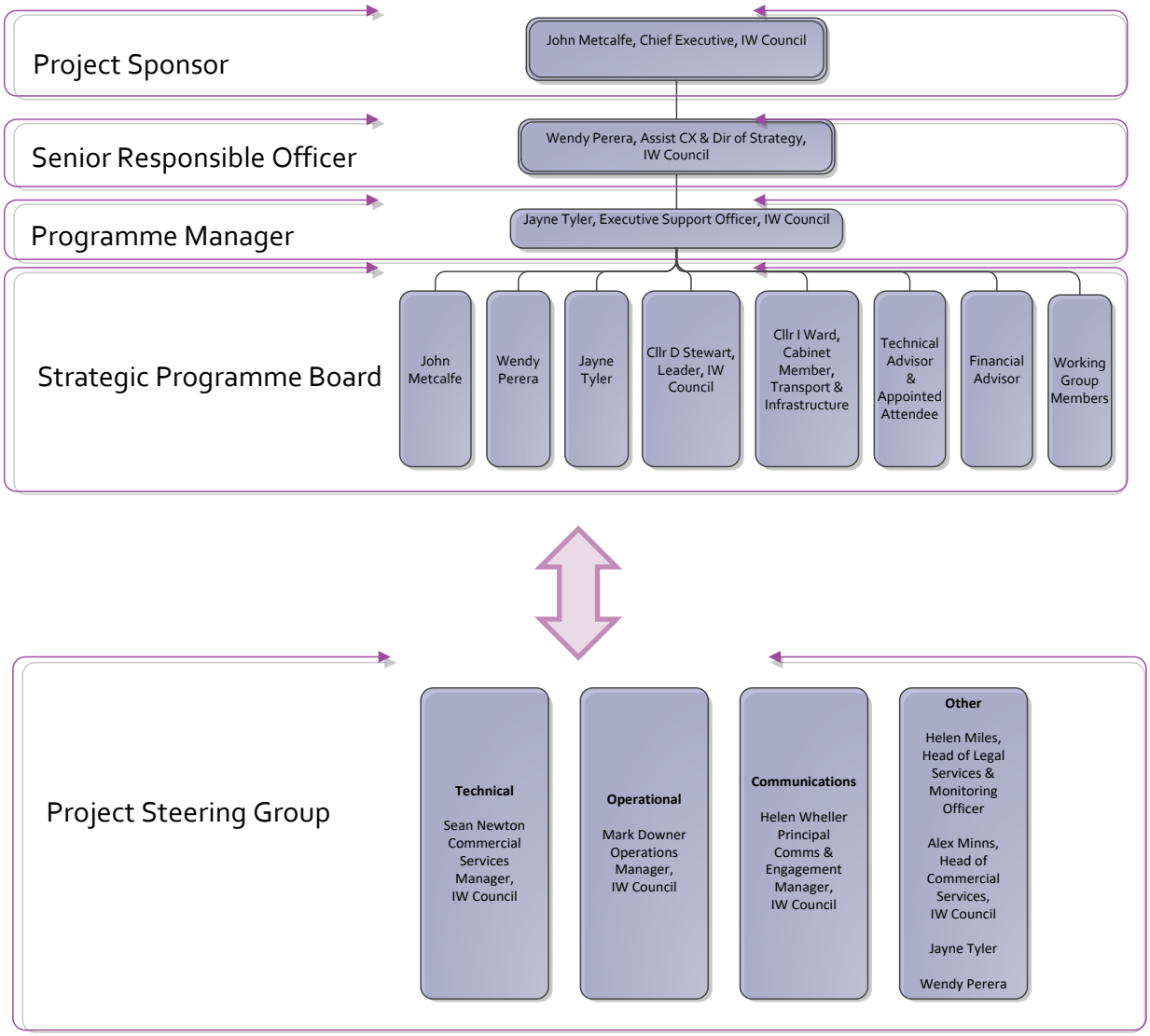
The programme board's strategic functions are:

- Review of FB6 recovery project plan and overall performance against plan through the use of highlight reports
- Confirmation of project tolerances
- Overall financial management
- Review major risks and issues
- Approve comms plans for uncontrolled loss of service
- Approve long term steady state comms plans
- Approve long term monitoring plans
- Approve long term replacement strategy

At the end of the programme the board will:

- Assure all outputs have delivered successfully
- Make arrangements if necessary for a post implementation review
- Ensure a strategy for long term replacement identified.

The current governance structure for the project is set out below covers all activity associated with the floating bridge.



The board meets monthly and will receive information from a series of highlight reports from the project steering group. The steering group meets weekly and copies of minutes from the group are sent to a nominated officer of SLEP.

Membership of the Strategic Programme Board

John Metcalfe – Project Sponsor, Chief Executive, IW Council. John has extensive experience at Executive and Senior Management level within local government.

Wendy Perera – Senior Responsible Officer. Assistant Chief Executive and Director of Strategy, Isle of Wight Council. Formerly Head of Place at the IWC, responsible for managing service delivery across a number of key council areas, including Commercial Services, Planning and Housing, and the contract management team responsible for both the Highways PFI and Waste contracts.

Jayne Tyler – Programme Manager. Jayne is the appointed programme manager with responsibility for overview of the various project elements and is the first point of

contact for the council for all contact (save the SRO role) with regard to the Floating Bridge.

Jayne commenced employment with Buckinghamshire Fire and Rescue Service in 1989 and transferred on promotion to Isle of Wight Fire and Rescue Service in 1998, working within Fire Control. From 2006, she was Station Manager and undertook new work activities relating to the National Fire Control Project. Following the eventual merger of the Island's Fire Control to Surrey Fire and Rescue Service in 2013, Jayne was redeployed and co-ordinated the roll out of Superfast Broadband to 20,000 homes on the Island. Following the completion of this project Jayne assumed an Executive Support role for the Chief Executive of Isle of Wight Council.

Jayne has also been a lay advisor to an NHS research ethics committee from 2004 – 2013 and finished this role as the Vice Chair of the Portsmouth Research Ethics Committee, when it was dis-established.

Kerry Hubbleday, Assistant Director of Finance, IW Council. Kerry has extensive finance experience and performs the role of financial advisor to the Board.

Cllr D Stewart – Leader, IW Council

Cllr I Ward – Cabinet Member, Transport & Infrastructure

Steve Gosden – Technical Advisor. Steve is a dynamic, intelligent, highly resourceful and successful senior executive with extensive maritime engineering experience particularly in the ship support environment. In terms of consultancy work he is supporting Red Funnel in both their new Freight Ferry build and Car Ferry replacement options. Additionally, he has recently completed significant roles in the growth and management of Complex Maritime business for Babcock.

Steve began his career in the Royal Navy in 1973, he holds BSc and MSc qualifications in Naval and Marine engineering, Key achievements including overseeing and managing the performance of the Royal Navy's surface Fleet through a series of Joint Business Agreements. This included supporting their operational availability and war readiness against a backdrop of meeting an evolving national maritime change strategy and in an environment of tight fiscal constraint. He also led on the development of key maritime support improvement programmes aimed at improving docking, repair, training and assurance of Royal Navy Ships and their engineering personnel.

Captain Stuart Mackintosh – Invited attendee, Cowes Harbour Master. Stuart Mackintosh is the Harbour master and Chief Executive for Cowes Harbour Commission, the Trust Post, which is the statutory harbour authority for Cowes Harbour.

Stuart is a Master Mariner by profession. During his leadership of Cowes Harbour Commission he has overseen a period of significant change management and modernisation of this important Trust Port. These changes include modernisation of the constitution and the transition of the Commission from a traditional regulatory harbour authority to a modern Trust Port delivering both statutory responsibilities and the provision of marine services for the benefit of all the harbour stakeholders.

This position on the board is a non-voting position. The role provided is to ensure that board members are aware of harbour regulatory matters and harbour user issues. This is also not a decision making role.

In addition the following members of the project steering group are invited to attend Board meetings and provide a link between the working group and the Programme Board.

Helen Miles (legal)

Alex Minns (operational)

Sean Newton (operational)

Membership of the Project Steering Group

Sean Newton – Project Manager, Technical Matters. Sean is the commercial services manager for the Council and is the appointed project manager for the floating bridge replacement. Sean has extensive experience managing local authority projects and procurement processes. More recently he was responsible for the delivery of a £6.8 million project to refurbish the council's three main leisure facilities, ensuring that the opportunities to remodel the facilities in order to maximise future revenue were incorporated. The refurbished facilities meet the leisure, health and well-being needs of the Island's community; in addition the works introduced aspects of sustainable building management.

Mark Downer – Project Lead, Operational Matters. Parking Operations Manager Isle of Wight Council. Responsible for the day to day operation of both on-street and off street parking provision; this includes the management, performance and promoting a culture of continuous service improvement within the team of Civil Enforcement Officers, Parking Supervisors and Cash Collection Operatives. The role also enjoys responsibility for the day to day operation of Cowes Floating Bridge; this includes ensuring that the service is operating according to the Floating Bridge DSM, and that the Crew, Ticket Collectors, Floating Bridge Engineer are confident and competent in undertaking their duties, and identifying and organising appropriate training in order to promote a culture of continuous service improvement. The role also places emphasis on dealing with queries from a range of stakeholders including service users and administering the back-office ticketing system. Responsible for the day to day operation and management of the Road Crossing Patrol service, ensuring adequate resources to provide an effective and safe service. To promote the welfare of children/carers and young people travelling to and from educational establishments.

Helen Wheller – Project Lead, Communications and Stakeholder Engagement. Principal Communications and Engagement Manager. Responsible for strategic planning and delivery of all communications, media, publications and public consultations.

Helen Miles - Assistant Director of Corporate Services, Isle of Wight Council. Helen is legally qualified and until recently promoted was Head of Legal Services,

responsible for corporate governance arrangements and corporate legal advice and service manager for the council's procurement team.

Alex Minns - Head of Commercial Services, Isle of Wight Council. Responsible for the day to day management of the floating bridge in addition to a number of activities and service areas that form the Councils Commercial services function

Wendy Perera and Jayne Tyler are also invited to attend the project steering groups. Administration support for the steering group is provided by Katharine Ventress.

6.8 Internal Audit Report, PriceWaterhouseCoopers, November 2017

Following the commissioning difficulties experienced, for the first time in May 2017, IWC commissioned an independent Internal Audit report from PriceWaterhouseCoopers in July 2017, with the following scope:

"This audit will understand the key project steps undertaken and identify if there are any areas for improvement. The review is intended to focus on compliance with the procurement procedures that were in place at that point of the project initiation and through the lifecycle to delivery. This audit will therefore focus on the following key points of the project delivery process and the documentation that is available to support the decisions made to ensure this is in line with the requirements of the Council's tendering, procurement and contracting Policy and procedures:

1. Project Specification and Tendering: confirm that there was appropriate engagement with key stakeholders, development of clear specifications around project requirements and identification of businesses who would be able to respond to the tender.

2. Tendering Review and Recommendations: confirm that there was controlled receipt and overview of the tender documentation with suitable specialist review of any technical specifications or changes to allow for assessment of any impact of changes identified and an appropriate recommendation to be made.

3. Contracting: contract terms are in line with Council requirements for the contract and any technical requirements are reviewed and agreed by an individual independent of the process to ensure that they meet the original brief. Confirm that appropriate project monitoring and progress review points are identified and included with penalty rectification clauses in place should there be issues around project delivery.

4. Communication/Oversight: confirm that there was appropriate engagement and checkpoints were in place around the project delivery, risk management, oversight and that progress reporting was in place.

5. Delivery: confirm that testing and staff training requirement were specified and were delivered before the bridge went into service and there is a technical review and sign-off both from within the council and from and external agency e.g. MCA for delivery acceptance.

The audit set out control objectives and potential risks.

Outcomes

For items 1. **Project Specification and Tendering**, 2. **Tendering Review and Recommendations**: and 3. **Contracting,** PWC concluded these areas had been conducted in line with the requirements of the Council's tendering, procurement and contracting Policy and procedures, and identified no recommendations for improvement.

With regard to item 4, **Communication**, the PWC report considered there to have been insufficient engagement the wider stakeholder groups throughout the project life-cycle, and insufficient cascading of the communications plan. The report stated that: "The practical reality with this type of project is that while safety testing is completed there is always a potential for problems with the infrastructure and there was always likely to be a period of time when the crew and staff develop their knowledge of how the Bridge responds at different states of tide and in different weather conditions. An effective communications plan would have predicted the impact of this.."

The report recommended that a more detailed communications plan should be in place at the outset for the delivery of projects of this nature, and that "The Council should also put in place a revised communications plan in order to manage this period of service issue with the Bridge."

With regard to the second part of item 4, **Oversight,** the report identified shortcomings in the council's processes and recommended: this function should rest with the applicable Director/Head of Service; for future major project consider the use of independent oversight; and improved project documentation, to be kept in one place.

With regard to item 5, **Delivery**, the report identified critical changes in the project team that adversely affected the delivery process. These were: the ship builders Project Manager leaving in March 2017, and the Owners Representative leaving in April 2017, neither of whom were replaced.

The report stated that: "The subsequent issues with the MCA inspection in April and May 2017 indicate that the loss of these two individuals impacted on this critical stage of the project." The report recommended that: The Council should ensure the delivery date/testing schedule for major projects is provided by contractors and reviewed adequately prior to the commissioning phase commencing to ensure that it is detailed, complete, and adequately sets our remediation responsibilities and time frames. This review should include the independent oversight function where appropriate".

On the basis of the PWC report, on 9th January 2018 the Council's CEO presented a Floating Bridge Review Report to scrutiny committee, providing a comprehensive account and analysis of the project from inception. Details can be found at:

https://www.iwight.com/Meetings/committees/Scrutiny%20Committee/9-1-18/PAPER%20C.pdf

The Review Report of 9/1/18 made a series of recommendations that responded to the PWC report to address the identified shortcomings. Where relevant, these are reflected at 6.06 above.

6.9 Communications and Stakeholder Management

Communications are managed through the Council's Communications Team based in Newport. As a response to the service issues, together with the PWC & Council scrutiny report recommendations, a series of changes have been made, with the following highlights:

- a more detailed communication is in place, including a more regular and targeted flow of information to the communities impacted through a variety of sources including Town and Parish Councils and social media
- press releases are issued to the local elected member in advance of general issue
- the Floating Bridge out of service procedure now includes a section on notifying all stakeholders as part of the initial contacts
- regular information on steady state is provided via social media
- protocols for flow of information should there be an interruption to service have been developed.

6.10 Risk Management

The process of identifying, assessing, responding to, monitoring, controlling and reporting risks is summarised in this section. It outlines how risk management activities were performed, recorded and monitored throughout the lifecycle of the project and sets out risk management structure, within the governance arrangements illustrated above.

Risk identification is the responsibility of the entire project team, including appropriate stakeholders. The local authority and shipbuilders project managers overseeing delivery of named projects were responsible for identifying impact and interdependencies, paying careful attention to environmental factors and organisational culture, as well as scope, schedule, cost and quality factors.

All risks were logged onto project register maintained by both the IWC and MMSL. Key risks were allocated an owner. The risk owner was responsible for assessing, in more detail, the range of possible outcomes, defining the level of risk, contingency planning, monitoring, controlling and updating the status of the risk throughout the lifecycle of the project.

Key risks will be reported up to the SRO and to the programme board. New or updated risks across the range of projects being delivered will be discussed and challenged by the working group before reporting issues and exceptions to the programme board.

Risks closure was considered by the project manager when the event had passed, was no longer valid or considered a risk however they remained on the log.

6.11 Monitoring and Evaluation Programme

The principal means of monitoring and evaluation will be through:

1 - The IW Tourism Trends Quarterly Bulletin which uses face to face interviews carried out amongst a sample of 4,700 passengers on board the 6 ferry routes to the Island. The monitor covers:

- Volume of passengers and breakdown by type (domestic/overseas, day/short stay etc.)
- Group purpose
- Length of stay
- Type of accommodation used
- New versus repeat visitors
- Visits to Island attractions
- Mode of transport
- Volume and value of tourism

2 - Floating Bridge Performance Data, including:

- Punctuality statistics
- Total passenger numbers and modal split
- Customer satisfaction ratings
- Customer complaints

3 - Jobs data - A method for agreeing job creation has been agreed with DfT through a separate route (SCC's Platform for Prosperity Scheme). This will be used and the annual employment rate will also be used where appropriate.

4 - Transport data

- Smart card data
- Travel attitude surveys
- Average daily vehicle movements (annual)
- Road transport emissions
- Levels of congestion

5 - Qualitative information

- User group involvement
- Stakeholder engagement

In addition, the table below sets out information on data and monitoring:

When	What
February 2018	Monitoring and Evaluation Design including a short Business Case Review
Quarterly (as SLEP returns)	Patronage figures
September 2018	Business Case Review (this document)
Autumn 2018	Traffic counts at Newport
March 2019	'After 1 year' report, to include analysis of: Patronage, queuing times, number and duration of daily crossings, commentary on annual running costs & energy efficiency, impact on congestion, customer survey (all modes, and status of segregation issues), advertising performance, overview of economic well-being & jobs & tourism spending, payment technology performance.
March 2023	'After 5 years' report, to include: Update of the indicators used in the After 1 Year report to consider the medium-and longer-term responses to the new Floating Bridge, especially those relating to behaviour change and emerging economic impacts. This will include further analysis of patronage, queuing times, number and duration of daily crossings, commentary on annual running costs & energy efficiency, impact on congestion, and advertising performance. Building on the medium-term and emerging longer-term impacts it will be possible to undertake an economic evaluation including the calculation of the Present Value of Cost (PVC), the Present Value of Benefits (PVB), and the resulting Benefit Cost Ratio (BCR) for comparison with the 2015 estimates, including an analysis of economic benefits such as identifiable contributions to tourism and job creation and retention.

6.12 Monitoring and Evaluation Design

A matrix for the monitoring and evaluation measures and the rationale for their inclusion is set out in the following table.

	Process	**Measure**	**Rationale for inclusion**
1	Business Case, including Appraisal, Procurement, v-f-m, Governance, and Management	IoW analysis against Business Case expectations.	To learn lessons for future capital projects including Floating Bridge replacement '2037'.
2	Communications	PR impact	To improve future performance.
	Outputs	**Measure**	**Rationale for inclusion**
3	Floating Bridge and Slipways	Specification of new Floating Bridge against the old one + slipway changes	Better understand upgraded status of the new FB.
	Outcomes	**Measure**	**Rationale for inclusion**
4	Increase in use (broken down by mode)	Monthly returns from operation.	Measure the patronage.
5	Reduced queuing times	Methodology to be confirmed.	Maximise efficiency of operation of the new FB.
6	Increased crossings per day	No. of crossings per day.	Maximise efficiency of operation of the new FB.
7	Shorter crossing times	Length of crossing time.	Maximise efficiency of operation of the new FB.
8	Greater capacity for vehicles	Specification of new FB.	Better understand upgraded status of the new FB.
9	Reduced running costs	Annual return	Maximise efficiency of operation of the new FB.
10	Improved passenger accommodation	Customer survey.	Understand travellers perceptions
11	Reduced carbon emissions	Sub Regional Transport Model (SRTM)	Maximise environmental benefits of the new FB.

	Process	Measure	Rationale for inclusion
12	Improved energy efficiency	IoW analysis	Maximise efficiency of operation of the new FB.
13	Less congestion in and around Newport	Levels of congestion in Newport Customer survey	Maximise efficiency of operation of the new FB. Understand traffic volumes 'avoiding' Newport
14	Increased financial and operational security	IoW analysis	Maximise efficiency of operation of the new FB.
15	Introduce opportunities to advertise local business and attractions	IoW analysis	Improve financial performance of FB and provide opportunity for engagement with local community groups etc.
16	Supporting the economic well-being of the towns	IoW analysis	Maximise the benefits of the new FB.
17	Tourism and Leisure Spending	IoW analysis	Maximise the benefits of the new FB.
18	Jobs (FTE and Construction)	IoW analysis	Maximise the benefits of the new FB.
19	Introduce new technologies for payment – smart/proximity cards.	Uptake and plans for the future	Maximise efficiency of operation of the new FB.

6.13 Arrangements for Maintenance

A log of all reported defects is maintained and this is split between warranty issues, contractual issues and items requiring a variation order (VO). The shipyard has been undertaking all warranty issues since the vessel has been delivered. Certain contractual and VO issues were held up whilst discussions took place regarding contractual payments, but these issues have all been resolved.

6.14 Arrangements for Warranty

The Council has purchased an extended 1 year warranty to cover the ongoing period of recovery.

7. OPERATIONAL UPDATE

7.1 Introduction

In May 2017 the new Floating Bridge (FB6), a chain link style ferry, to allow an improved capacity and regular capability for vehicle and pedestrians to cross the Medina river was introduced into service. This new bridge was a replacement for FB5 situated in the same location as its predecessor and used previous infrastructure and chains.

FB6 commenced service at 1400 on the 13th May, but suffered from a number of reliability problems thereafter, with periods out of service, including immediately on 14th May with service resuming June after 24 days out of service. Initially service hours were 0500 to 0030, but from 24th July 2017 service hours were reduced to 0700 to 2230 to counter noise issues when the vessel was docking. The exception to the reduced hours, where we operated extended hours over the period of Cowes week 2017 and New Years' Eve 2017 with longer hours up to 0300.

FB6 was withdrawn from service in of 4th September 2017 in order for the council to discuss matters with both the designers and shipbuilders, returning to service operating to the reduced hours schedule on 11th December 2017. Reliability improved significant with only 8 full days lost to the end of July 2018, although a number of additional hours have been lost primarily due to problems with operating during Low Spring Ebb tides.

With improved reliability and remedial works delivered or in hand, from 21st June Floating Bridge reverted a full scheme operating from 0500 to 0030 Monday to Saturday and 0630 to 0030 on Sundays.

As of early September 2018, the vessel has been in service for some 15 months, operating under a warranty by MMSL which has recently been renewed.

Although reliability has improved significantly into 2018, with average reliability for between for FY 2018/19 to end of August 2018 being around 95%, the vessel continues experiencing some minor technical problems, which are in the process of being addressed. Additionally, an unexpected issue has arisen which was either not apparent or not relevant to FB5, in the form of chain depth at low spring ebb tides and this is constraining this crossing process. This issue has the effect of potentially restricting Floating Bridge usage for crossing the Medina or restricting passage for vessels.

A series of trials have been undertaken to address this issue, mainly focused around chain length, stays and tension with some success but has introduced other factors such as potential chain slip over the gypsy wheel drive and FB alignment to the slipway.

In addition, there have been issues noise when the vehicle docks and further improvements are required with regard to egress and access onto the vehicle.

The table below sets out the options that have been considered with regard to further works associated with operating the vessel:

FB6 Proposed Solutions Evaluation		
Chain Clearance Activity		
Primary Aim: 1. To improve the clearance over the chains at all states of the tides to achieve a minimum of 1.5m plus height of tide		
Proposed Solution	**Has proposal been implemented?**	**Comments**
Shorten both North and South Chains by hand using existing technique to the maximum extent (Surveys at LW, mi, HW, Mid-Ebb and LW) If results are the same or better than 08.08.17 leave chains. If results are worse, chains to be adjusted back to pre-adjustment length (to be reviewed dependent on the number of links removed and results) (included in Arch Henderson's recommendations)	Complete - 01/12/2017	Completed; variable results which are not consistent
Add weight to each chain baskets – essentially add 0.25 tonnes in each (Surveys at LW, mi, HW, mid ebb and LW)	Complete - 01/01/2018	Discounted as part of original chain survey
Install additional (possibly temporary) Chain Anchor point at East Cowes (included in Arch Henderson's recommendations)	On hold	Discounted until WSY work is completed
Install additional Pile and fender adjacent to GKN wall east Cowes. This will enable a bridle and check chain, and a motorised winch to be installed. This will enable check chains and blocks to be installed at different locations to reflect the tidal conditions as well as improved way to achieve tension on the check chains	On hold	Discounted until WSY work is completed
Consider placing restrictions on deep drafted yachts – similar to that of SCC – 'if draft is greater than tide height you should only pass the chain ferry when it is on the east bank' (similar principle in place for pilotage of large commercial vessels). Signage will be required, as well as an LNTM.	On hold	Discounted until WSY work is completed
Consider if any further chain adjustments need to be considered and should be carried out, with accompanying survey.	On hold	Discounted until WSY work is completed
Heavier stud-link chain should be considered to increase the overall weight of the chains and help them sit closer to the seabed when under tension	Discounted	Discounted - MMSL have advised that the cost to implement larger/studded heavier chains is prohibitive

FB6 Proposed Solutions Evaluation		
Dredging of seabed (included in Arch Henderson's recommendations)	On hold	Discounted until WSY work is completed
Implementation of heavier chain (included in Arch Henderson's recommendations)	Discounted	Discounted - MMSL have advised that the cost to implement larger/studded heavier chains is prohibitive
Forces to be calculated based on tidal range and / or wind speed and direction and the combined effect of both forces, in order to define operating limitations.		Complete
LED signage north and south of the chain ferry to display live tide height and / or clearances to further inform vessels.	On hold	Pending outcome of WSY work
Consider alternative 'live' tensioning systems and / or alternative drive systems.	No - still at feasibility stage	
WSY work package 2 Consider if vehicle ramp can be extended to reduce the relative angle between the ramp and the slipway -	No - still at feasibility stage	
WSY work package 4A Hydraulic Rams - to consider a revised chain length based on determining what chain length would be required to meet the chain clearance depths	No - still at feasibility stage	
WSY work package 4B Addition of Piles - coupled with WP4a this work package seeks to propose location of piles to the north of the floating bridge on the West Bank	No - still at feasibility stage	
Noise Reduction Activity		
Trellex recommendation Sharland	Yes	Only effective on main ramp section and not on fingers
Noise dampening/mitigation material applied to slipway	Yes	Interim solution likely to be unnecessary post WSY ramp works
WSY work package 1 Ramp Finger Modifications. Review by WSY to consider if changing the geometry and adding sound reducing material to the fingers	No - still at feasibility stage	
WSY work package 1 Ramp Finger Modifications. Review by WSY to consider if the operation of the ramp fingers can be changed to reduce the noise.	No - still at feasibility stage	

FB6 Proposed Solutions Evaluation		
Loading Ramp Impacts - Redesign the lifting ramp sections, either adopting replacement components in a different material or lining the existing steels. Lining the slipway with a neoprene layer potentially faced with UHMWPE plastic or steel.	This replicates number 1	
Chain Impacts on the Slipway - Sleeving the end sections of the chains in neoprene mouldings, lining the slipway beneath the steels, as above	Complete; matting has been replaced	
On board chain impacts - Replacing inlet guides, lining the drive tunnel with neoprene along the floor and absorptive foams to the soffit, adjusting rollers to limit impact noise	Part of WSY noise investigation works	
Hydraulic systems - Upgrade existing power pack enclosure, enclose valve manifold and mechanically isolate the hydraulic pipework from the structure	Part of WSY noise investigation works	
On board safety gates - Add neoprene pads to prevent metal on metal impact	Complete	
Claxons - Ensure claxons are limited in use and volume to the minimum required by H&S constraints	Pre-set level that cannot be adjusted	

7.2 Current Programme of Activity

It is the IWC desire to provide an unrestricted safe service for passengers and vehicles crossing the Medina generally from 0530 to 0030 daily.

It is the Cowes Harbour Commission remit to provide safe passage on the river and maintain the operation of the port such that it is open for business.

In normal operation both two remits can be met with the chains tension set to give a minimum of 1.5m clearance throughout the central 30m of the fairway of the main channel. However, this is not the case at spring ebb tides 1 hr before low water.

To date this has meant to ensure a margin of safety that there is an operational usage challenge on the Medina for 2 hours before Low Water on Spring tides (with tidal ranges greater than 3.0 metres.

Operational Availability Table

	Option 1 **FB does not operate during schedule times when LW Spring ebb tide running**	**Option 2** **FB operates to timetable but at correct chain tension**	**Option 3** **FB time table is adjusted seasonally (no FB constraint in winter but pleasure vessel priority summer)**	**Option 4** **(combine seasonal approach but reduce tension on chains in summer for LW Spring tide ebbs**	**Option 5** **Use Hydraulic chain tightening rams and guide piles**
Required Operational availability of river and crossing	100%	100%	100%	100%	100%
Achieved Overall	94%	96%	96%	100%	100%
Availability for Passengers and Vehicles	94%	100%	98%	100%	100%
Availability for Commercial Vessels	100%	100%	100%	100%	100%
Availability for Shallow Draught Vessels	!00%	100%	100%	100%	100%
Availability for Pleasure Vessels. 1.5M draught	100%	96%	98%	100% summer 98% Winter	100%
Comments	This reflects the summer schedule currently in place. Can reduce impact by providing passenger boat during constrained times. Chains currently slack causing 'banging' noise and potential incurred damage. (particularly noticeable at low tides. Some frustration from car drivers when ferry stopped	This could be a winter schedule where pleasure boat movement on the Medina is reduced	This could be called share the pain Has less impact but will frustrate both yachting and local/tourist communities	This is reducing the pain to almost zero. In summer use boat to push FB stern square to maintain chain depth as proven in 17 July trial and keep river open. Slacken chain only in this period) (Out of season tighten chain and constrain Pleasure craft during LW spring ebb. Reduces noise, reduces wear on FB.	This looks on paper to be the best availability option but comes with significant risk. Design is complex Positioning of Rams is constrained on slipway Risk of disturbing BT Cables at top of Slip Need Medina bottom survey Risk of unknowns on bottom UXE, Heavy metals, waste, depth of piling required -
Potential upgrades	Traffic Light system informing motorists and passengers.	Traffic light system for vessels on	Traffic lights on both river and roads –	Need traffic light system etc Cost of lease/hire	

	Option 1 FB does not operate during schedule times when LW Spring ebb tide running	Option 2 FB operates to timetable but at correct chain tension	Option 3 FB time table is adjusted seasonally (no FB constraint in winter but pleasure vessel priority summer)	Option 4 (combine seasonal approach but reduce tension on chains in summer for LW Spring tide ebbs	Option 5 Use Hydraulic chain tightening rams and guide piles
/Equipment	Both at RF terminal and lead to FB. Could tighten chains when outside of LW Spring period - need to discuss	Medina + warning signs and potential chain depth read out Could tighten chains when outside of LW Spring period - need to discuss	improved notification process. Ferry boat for passengers required when Bridge constrained.	of boat – investigate using dual use boat for passenger ferry and stern quarter push	
Complexity	Low	Low	Low	Low	High
Safety	Good	Mod /Good	Good	Good	Good
Public Perception	No change	Some improvement	Some Improvement	Acceptable	Complex
Risk to project	Low	mod	Low	Low	Med - High
Potential Cost	V low	V low	Low	Low	V High

Remedial Works

To identify solutions to some ongoing problems within or surrounding the FB6, the IWC has commissioned the production of Work Package proposals (WP) by Wight Shipyard Company (WSC). There are also mitigating activities that the council are progressing alongside with work that WSC are designing.

To date the Identified Issues are as follows:

1. Floating Bridge Chain Guide Wheels and Bearings

Issue	Wear - noise related
Action	Wheels and bearings being upgraded and replaced on opportunity basis
Agreed liability	IWC
Lead organisation	Mainstay, overseen by IWC
Funded by	IWC

2. Floating Bridge result of Chain Inspection

Issue	Excessive wear on some 30 % of chain
Action	Replace chain
Lead organisation	IWC to subcontract work
Funded by	IWC

3. Ramp Fingers

Issue	Excessive noise when contacting with ground
Action	Redesign to reduce noise/amend rate of ramp lowering (hydraulics). (NB. The impact of the ramp onto new concrete slip exacerbated noise when compared to the earlier tarmac slip. It is noted that MMSL have already slowed the operation of the ramp.)
Lead organisation	Re-design proposal is being produced by WSC – Work Package 1 (WP1)
Funded by	IWC

4. Floating Bridge Ramp

Issue	The grounding clearance for some vehicles during loading and unloading of vehicles at the ramp/slipway interface in insufficient and needs increasing
Lead organisation	Re-design proposal is being produced by WSC – Work Package 2 (WP2)
Funded by	IWC

5. Airborne Noise Onboard the Floating Bridge

Issue	There is a perception that the floating bridge machinery is generating too much noise.
Action	Conduct noise survey and compare to acceptance criteria
Lead organisation	IWC via subcontractor
Funded by	IWC

6. Floating Bridge Chain Depth Clearance

Issue	For safe passage of vessels, the chain depth in the mainstream fairway is required to be a minimum of 1.5m. This depth of chain is not being achieved on Ebb tides during low water spring periods.
Action	Conduct a series of trials to identify if it is possible to achieve correct chain depth and investigate series of potential solutions to ensure safe passage whilst maintaining maximum availability of both FB and vessels on Medina
Lead organisation	Work packages 4a and 4b for WSC (WP4a and WP4b)
Funded by	IWC

The risk register for this recovery phase is provided as Appendix 3 to this Revised Business Case.

7.3 Floating Bridge 6 Patronage and Reliability Data

Floating Bridge Foot Passenger and Vehicle Demand – 2011 to date

	Foot Passengers		Vehicles (all classes)	
Floating Bridge 5				
2011	n/a		330234	
2012	n/a		334759	
2013	n/a		333453	
2014	n/a		292033	
2015	315390	Aug-Dec	281546	
2016	653959		259754	inc to 3/1/17
Floating Bridge 6				
2017	435695		57212	
2018	305738	Jan-Aug	112385	Jan-Aug
	2017	**2018**	**2017**	**2018**
January	28800	23923	0	9323
February	26977	22681	0	7444
March	33554	27174	0	12207
April	41774	30530	0	14583
May	42528	45670	376	16368
June	46354	44109	13845	17538
July	57856	48255	17117	17548
August	68242	63396	19099	17374
September	25701		926	
October	22143		0	
November	19280		0	
December	22486		5849	

Floating Bridge Service Reliability and Hours of Operation

Floating Bridge 5		Lost Days		
2011		27		
2012		15		
2013		10		
2014		19		
2015		6		
2016		4		
Floating Bridge 6		**Lost Days**	**% scheduled hrs operated**	**FB6 operating hours**
2017	January	n/a		
2017	February	n/a		
2017	March	n/a		
2017	April	n/a		
2017	May	17		0500-0030
2017	June	7		0500-0030
2017	July	0		0500-0030 - Cowes Week 0500-0300 - then 0700-2230
2017	August	0		0700-2230
2017	September	27		
2017	October	31		
2017	November	30		
2017	December	10		0700-2230
2018	January	0	98.5%	0700-2230
2018	February	6	77.0%	0700-2230
2018	March	0	98.5%	0700-2230
2018	April	0	97.3%	0700-2230
2018	May	0	97.3%	0700-2230
2018	June	0	94.3%	0700-2230 to 21/6, then 0500-0030
2018	July	2	92.8%	0500-0030
2018	August	2	91.5%	0500-0030 extended further in Cowes week

7.4 Future improvements

The council has also been considering future improvements to the service provision and will be discussing these as part of the FB user group so that the service develops in a way that meets community needs. Potential improvements include:

- Fares and marketing of fares and contactless payment improvements.
- Webapp – currently accepts all major credit/debit cards; option to add payment to mobile phone account to be extended to O2 so that all networks are covered.
- Ticketing – self scan stations on the vessel will become publicly available which should speed up foot passenger boarding the vessel.
- Website – has been refreshed; it is easier to navigate and now includes monthly performance data. Future planned changes include a webcam showing the vessel transiting the river in real-time so that foot passengers and

drivers users can log on and see where it is, as well a feed to the vessel AIS system for the benefit of river users.

- Promotion of any live service issues through the use of twitter. Floating Bridge staff have recently undertaken training and will be providing service status updates on a regular basis and positively promoting the service.
- Working with community information providers and town and parish councils to ensure that they produce accurate and reliable information for travellers.
- Use of variable message signs to assist in alerting travellers as to whether there are any 'live' service issues.
- Development of app linked to AIS.
- Infrastructure improvements - improvements to pedestrian and vehicle queuing areas at Cowes and East Cowes; these will ensure a safer experience for passengers and will include the provision of wider footways, safety railings, improved signage and a new barrier system that will prevent vehicles entering the slipway when the vessel is not docked there.
- Highway improvements - works will be undertaken to provide an easier transit for Heavy Goods Vehicles so that they do not need to transit through the lower section of Ferry Road and Castle street; this work is being designed in conjunction with Island Roads and is subject to negotiations with Red Funnel to ensure it is complimentary to their agreed highway proposals for the area.

APPENDICES