

# ORKNEY ISLANDS COUNCIL: ORKNEY HARBOUR AUTHORITY

## DRAFT ORKNEY HARBOURS MASTERPLAN PHASE 1

JUNE 2019

### **Fisher Associates**

**Fisher Advisory Ltd, 4 The Boltons, Lymington, SO41 0PU, UK**

**Tel: 01590 643 184**

**[www.fisheradvisory.com](http://www.fisheradvisory.com)**

**Company Number: UK 10411446**



1. Introduction	2
2. Strategic Case	5
3. Masterplan Proposals	24
4. Economic Case	47
5. Environmental Considerations	51
6. Management and Commercial Considerations	55
Appendix A – Policy Context	60
Appendix B – Summary of Economic Benefits	66
Appendix C – Proposed Development Policy Principles	78

## 1. INTRODUCTION

## Introduction

Orkney Islands Council (OIC) Harbour Authority appointed Fisher Associates to develop a masterplan for Orkney Harbours.

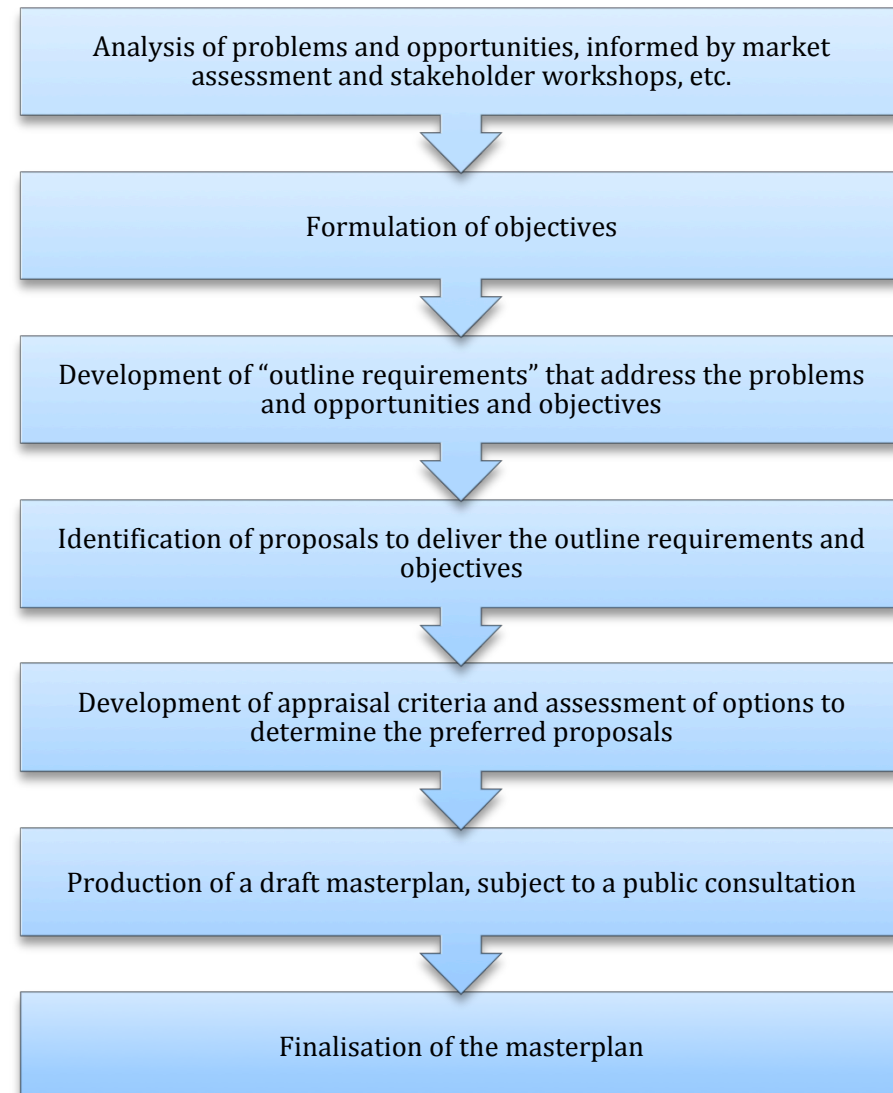
Presented here is the Draft Orkney Harbours Masterplan Phase 1 covering the main revenue generating opportunities. There will be a Phase 2, which will cover proposals relating to harbour infrastructure serving Orkney's North and South Isles, some of which will be dependent on the outcome of the ongoing Orkney Inter Isles Transport Study (OIITS), and the associated Outline Business Case (OBC). The OIITS will determine the specification for new ferries, which will in turn demand certain requirements from the harbour infrastructure, to be considered when known.

The fundamental purpose of the masterplan is to provide a **structured framework for the physical development and transformation of Orkney's harbours over a 20 year period**. It will enable the Harbour Authority to make informed decisions to meet changing markets, grow new markets, and safeguard Orkney's harbours as essential economic drivers and community assets for future generations. Further diversification and growth in harbour activities will not only safeguard existing jobs at sea and ashore, but create many more and in doing so strengthen the viability and sustainability of the local community for the longer term, making Orkney an attractive place to live, work and do business.

The masterplan has been developed using a multi-faceted methodology:

- **Tailored stakeholder engagement** to explore and validate issues, constraints and potential options.
- Development of a **multi-criteria assessment** framework to consider proposals at a high level.
- **Alignment with Treasury's Greenbook** guidance on the development of Strategic Outline Cases (SOCs) – the content of this masterplan aligns closely with this.

## Masterplanning process



## Structure of this report

### Introduction

- Overview of the masterplan process and structure

### Strategic Case

- Strategic context
- Issues, constraints and opportunities
- Masterplan priorities
- Key drivers and business needs
- Policy context
- Outline requirements and masterplan objectives

### Masterplan Proposals

- Description of the masterplan proposals and high level costs

### Economic Case

- Economic analysis and impacts

### Environmental Considerations

- Key findings from the companion SEA Report

### Management and Commercial Considerations

- Timing and phasing of proposals
- Project dependencies
- Integration with policy and planning framework
- Stakeholder relationships
- Funding and implementation

### Appendices

- Appendix A – policy context
- Appendix B – summary of economic benefits
- Appendix C – proposed development policy principles

## Acknowledgements

This masterplan was prepared during 2018 and 2019.

The Harbour Authority and various OIC departments have been central to the preparation of this masterplan, making regular reviews and participating in progress discussions.

We gratefully acknowledge the support of OIC and all stakeholders who have contributed to this work.

## 2. STRATEGIC CASE

### Orkney Harbours – an overview

Orkney Islands Council (OIC) is the Statutory Harbour Authority responsible for the safe and efficient operation of the 29 piers and harbours located throughout the Orkney Islands.

The range of ports and harbours is diverse, in terms of structure, size and nature of operational activity.

The major harbours of Hatston, Kirkwall and Stromness accommodate a range of operational activity across many sectors – aquaculture, cargo, cruise, ferries, fishing, marine leisure and renewables.

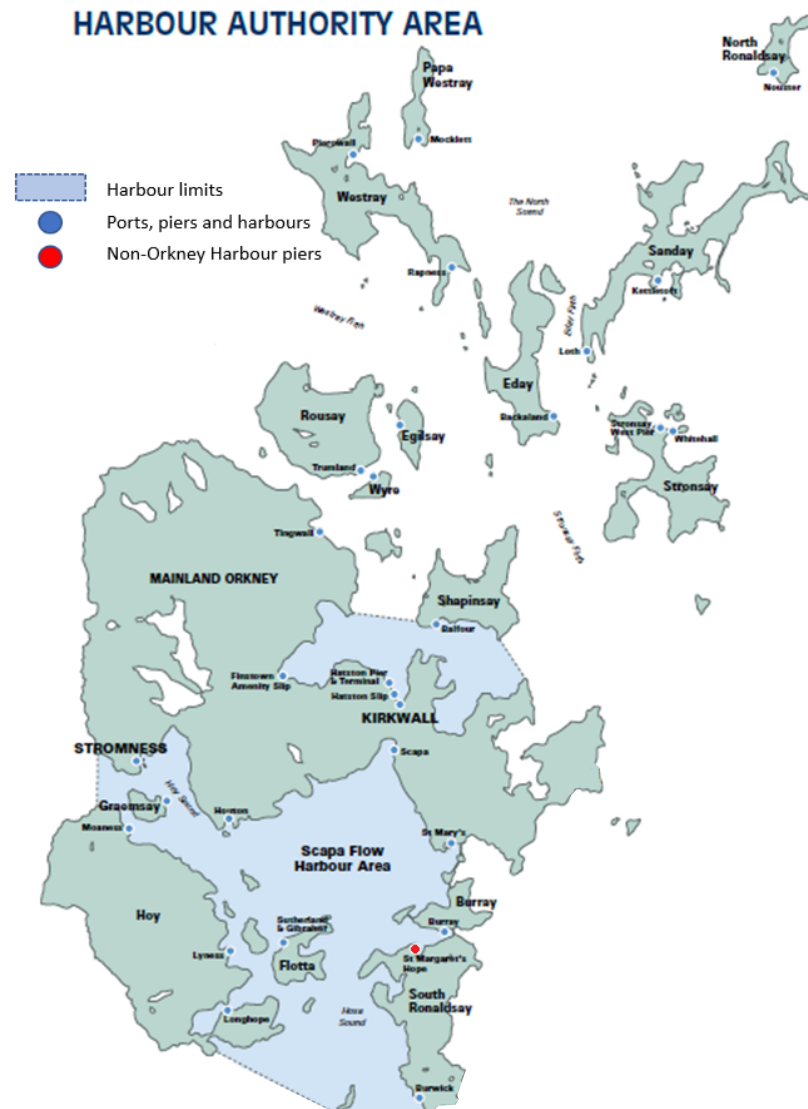
The strategically located Oil Port of Scapa Flow with its unique deep water sheltered anchorage hosts multiple ship to ship (STS) transfer operations of crude oil, LNG and LPG as well as serving the Flotta Oil Terminal and its connections to oil fields including Claymore, Golden Eagle and Piper. It now also accommodates rigs and offshore platforms at anchor for maintenance and stand-down.

There are many smaller piers and harbours throughout the North and South Isles as well as across the Orkney Mainland: many of these accommodate life line island ferry services, aquaculture, fishing and marine leisure activities. Many of these piers are critical in ensuring the future viability of island or remote communities.

Recent enhancements to infrastructure include an extension to the Hatston Pier, making it Scotland's longest deep-water commercial berth with 385m of quayside; enhancements to Lyness on Hoy and the construction of a new pier in Stromness, Copland's Dock.

**Orkney Harbours has a diverse business base and plays a fundamental role in supporting many key sectors in the Orkney economy and island communities.**

### Map of harbours and pier infrastructure in Orkney



Source: Orkney Harbour Authority.

### Orkney Harbours – Scapa Oil Port

Scapa Flow has an area of just over 125 square miles and one billion cubic metres of water making it the second largest natural harbour in the world.

The Flotta Terminal operation is at the centre of the Scapa Oil Port and has been a key source of revenue for the Harbour Authority. Flotta was identified as the landfall site for bringing crude oil ashore by pipeline from nearby oil fields. The Terminal is operated by Repsol Sinopec Resources Ltd.

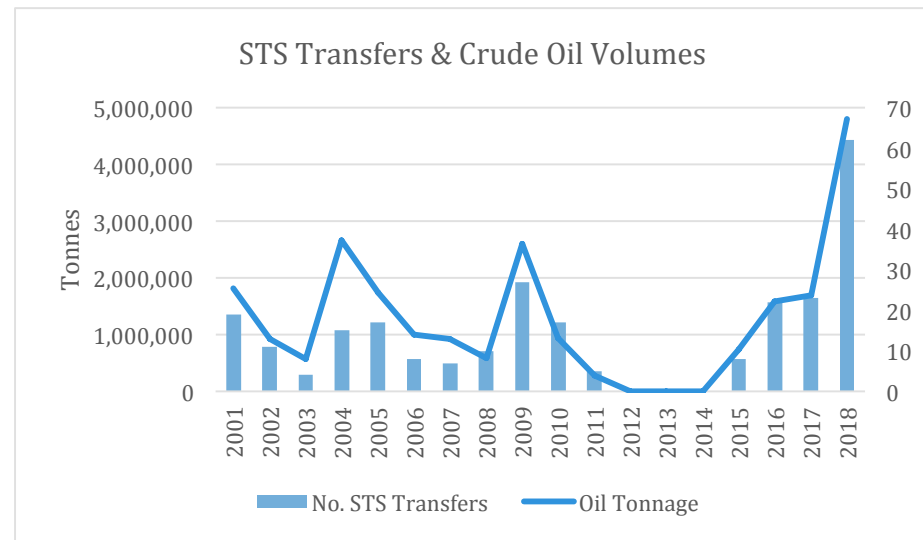
The deep sheltered water makes this location perfect for STS operations at anchor with depths of around 35 metres, as well as providing a suitable location for the positioning of rigs and platforms during downtimes or for undertaking maintenance activities. Scapa Flow is currently the pre-eminent location for STS operations in the UK and this plus the Flotta operation and offshore platforms creates a broad range of support, logistics, pilotage and towage activity.

### STS transfers

The volume of STS operations and the volume of crude oil transferred has fluctuated over the last two decades; there was continuous trade between 2001 and 2011, with noticeable peaks in 2004 and 2009 when 2.6 million tonnes of crude oil was transferred.

Following a lack of trade between 2012 and 2014 there has been constant growth over the last few years: 2018 has seen the highest number of transfers and volumes recorded since operations began – 66 operations involving the transfer of 4.8 million tonnes of oil.

Whilst future volumes and cargo types (crude, LNG, LPG) are difficult to predict there is clearly an increasing trend, suggesting that Scapa Flow will continue to be the preferred location in the UK for this kind of operation.



Source: Orkney Harbour Authority.



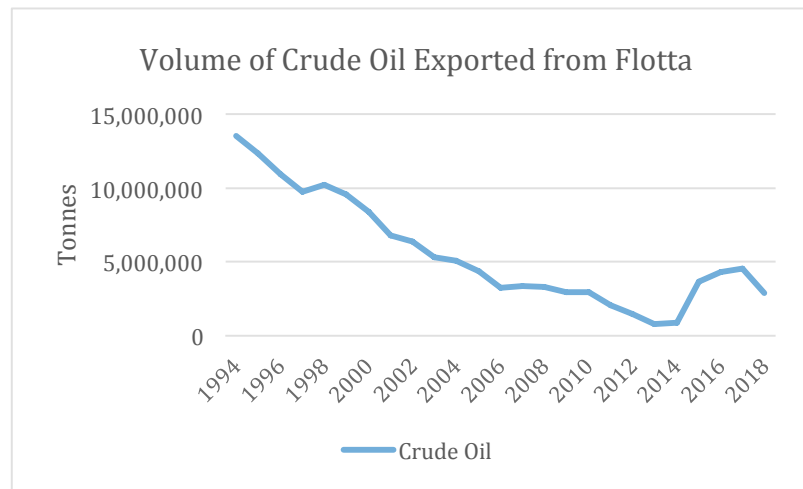
### Flotta Terminal operations

Looking at historical trends, there has been a long-standing decline in the volume of crude oil exported from the Flotta Terminal up until 2013.

From then onwards however, there has been a marked increase in volumes, with a significant rise in 2015 followed by constant growth up until 2017, when 4.6m tonnes of crude oil was exported – current figures for 2018 suggest a slight decline, with only 3.1m tonnes exported.

Despite the recent positive trend, growth is not expected over the coming years, as operations at the Flotta Terminal are envisaged to wind down and cease at some point during the next 20 years.

Diversification and extending the longevity of Flotta are therefore important aspirations.



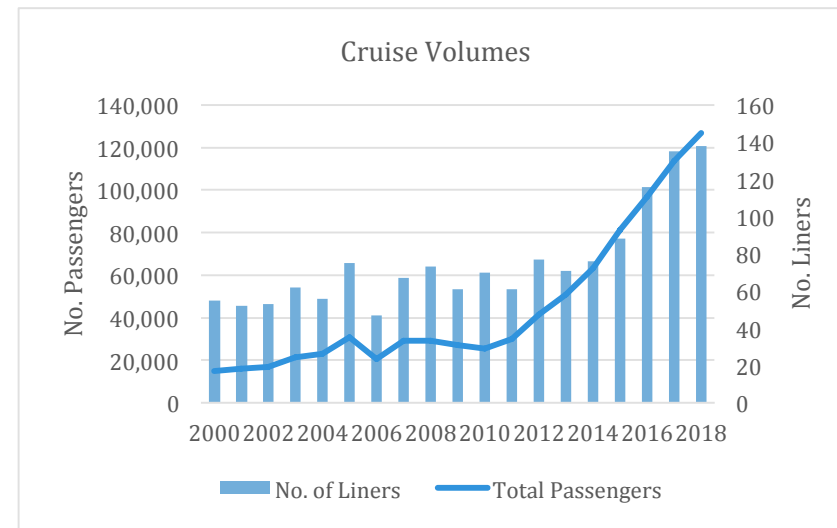
Source: Orkney Harbour Authority.

### Cruise

Orkney's cruise market has grown considerably since 2010. This reflects strength of visitor product, marketing to cruise lines, the quality of marine and shoreside service and the extension of the Hatston berth in 2014.

There were 138 calls in 2018 compared to 70 calls in 2010, and just under 127,000 passengers – more than four times those in 2010. Most of the growth has been since 2014, with vessel calls rising from 76 to 138.

There are 175 vessel calls booked for 2019 which could bring up to 160,000 passengers.



Source: Orkney Harbour Authority.

### Other harbour activities

- Orkney relies on lifeline passenger and freight ferry services with the Scottish mainland. Almost 200,000 passengers and around 52,000 cars travelled on the two Northlink services (Kirkwall – Aberdeen – Shetland and Stromness – Scrabster) in 2017. Total ferry carryings to/from Orkney will be greater than this as they will include the Pentland Ferries vehicle service and the John O' Groats passenger service. The 2017 Orkney Visitor Survey shows an equal number of visitors use the Northlink and Pentland Ferries service across the Firth. Aberdeen is currently the dominant route for freight due largely to its connectivity south and access to the oil and gas supply chain and livestock markets.
- There is a fleet of inter-isle ferries connecting isles to the north and south with the Orkney Mainland. Around 338,000 passengers travelled on these services during 2017.
- Orkney is a hub for inshore fisheries. Commercial fishing for prawn, crab, lobster and scallop and the development of large scale salmon farms contributes a significant commercial value to the local economy in Orkney.
- There are three marinas in Orkney (Stromness, Kirkwall and Westray) which are operated by Orkney Marinas Ltd (a public interest charitable company). Orkney is an attractive destination for visiting boats, with 653 coming in 2018 and numbers increasing over the last few years.
- Orkney has been at the forefront of marine renewable energy research and development for the last decade driven by the European Marine Energy Centre (EMEC). There are many harbours around Orkney which support wave and tidal energy development, particularly the handling and servicing of renewable energy devices and, most recently, the production and usage of hydrogen.

### Fishing boats and renewable devices

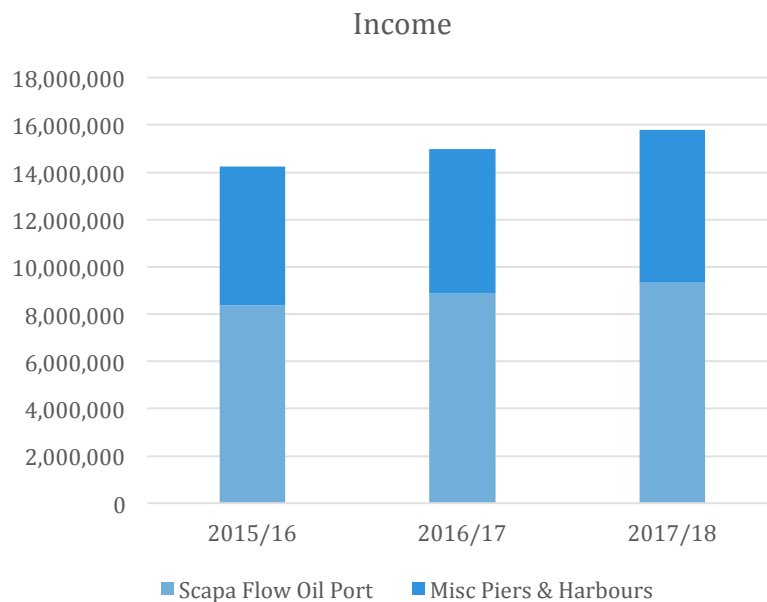


### Orkney Harbours – revenue summary

Whilst Orkney Harbours has its own financial accounts, sitting separately from the Council General Fund, they are defined in alignment with the Orkney Council Act 1974 and the Harbours Act 1964.

Thus there are two ‘accounts’ – the Scapa Flow Oil Port Account, from which any surpluses are assigned to the Council’s Strategic Reserve Fund (as enabled by the Orkney County Council Act 1974); and the Miscellaneous Piers and Harbours Account, surpluses of which are ring-fenced in a Repairs, Maintenance and Renewal Fund to undertake repairs, maintenance and improvements for the 29 piers and harbours around Orkney.

The level of turnover has been increasing over the last three years reaching more than £15m in 2017/18.



Source: Orkney Harbour Authority.

### Orkney Harbours – strategic perspective

Compared with other ports in Scotland, Orkney has invested very little of its own surpluses in enhancing its core infrastructure over the last 15 years, in the region of just £12 million – less than the Harbour Authority’s annual turnover.

The Flotta Oil Terminal, services for which provide a substantial part of the Harbour Authority’s income, is nearing the end of its current life – and this may have implications for the future financial viability of the Harbour Authority. Thus the Harbour Authority must look to the future and invest in the facilities and infrastructure that will both safeguard and enable growth in existing markets and enable diversification into new markets and revenue streams.

### Issues and constraints

Actual and perceived issues and constraints underpin the development of outline requirements and masterplan proposals. Issues and constraints have been identified through the following means:

- Consultant review and analysis of data relating to current harbour operations and activities.
- Internal discussions with the Harbour Authority.
- Workshops and discussions with harbour users and other stakeholders.

#### **Some harbours are struggling to efficiently accommodate multiple users and activities; such conflicts impede efficiency and economic activity**

- At Hatston there can at times be insufficient quay length and quayside space to efficiently accommodate operational activity. This is particularly the case when cruise liners are alongside during the summer months – whilst cruise is a key component of Orkney Harbour's business base it is also a barrier to other sectoral activity and growth.
- At Kirkwall there are many different types of vessel competing for berthing/landing space, plus there is limited space on the quayside for operational activity and transportation.
- The marina at Kirkwall cannot meet demand for resident berths or larger visiting yachts; there is also some demand from commercial boat owners for pontoon berths.
- Efficient servicing of ships and platforms at anchor is constrained by lack of berthing space, laydown area and water depth at Scapa Pier. This also renders the pier unsuitable for aquaculture support.

#### **There is a lack of appropriate infrastructure and facilities to accommodate existing and future operational activity**

- According to recent analysis there are opportunities for Orkney in oil and gas which are only achievable with the right infrastructure in place – e.g. very deep water to attract rigs and platforms alongside.
- Orkney cannot become a successful oil and gas supply base as there is not adequate harbour infrastructure in terms of water depth, available berthing space all year round, lay down/storage and other essential services and supplies.
- There are other growth sectors which will require support facilities and harbour infrastructure in the medium to long term – particularly fisheries, aquaculture and renewables. There may also be a potential opportunity with regard to the development of boat repair, lift out and maintenance facilities in the future.

#### **Ability of harbour infrastructure to ensure future resilience of Orkney's fuel supply**

- It is possible that the next generation of tankers which deliver Orkney's fuel supply will have a Length Overall (LOA) that cannot be accommodated at Scapa Pier. The only fuel tanks/offload facilities in Orkney are located at/in close proximity to Scapa Pier and are not likely to be at the end of their usable life for a considerable time.

### Issues and constraints

**The nature of some infrastructures is such that they are inflexible in what kind of activity or vessels they can accommodate**

- Smaller boats struggle to utilise some of the main piers such as Copland's Dock and Kirkwall Pier – this is because the quayside is either high or there are insufficient bollards or fenders that are suitable for small boats.

**Layout, buildings and traffic management in operational harbours areas can be inefficient, which raises safety issues**

- At Kirkwall the condition and use of all buildings requires review and assessment – some may be in the wrong location, others are not fully or efficiently utilised. The waiting room for the inter-isle ferry service, for example, is too far from the linkspan.
- Traffic management and marshalling is constrained at Kirkwall due to lack of space.
- There is uncontrolled parking at many piers including Stromness and Kirkwall.
- There are many areas where there are conflicts between pedestrian and vehicle movements/operations – at Hatston and Kirkwall.
- Overall there is poor visual amenity, poor accessibility and poor information for visitors travelling on ferries at Kirkwall.

### Opportunities

A market assessment was undertaken, which considered the opportunities in existing and potential markets. This was based on a review of relevant sectors in terms of:

- Current situation.
- Market drivers.
- Opportunities.

A summary of findings is presented overleaf, followed by an indication of masterplan priorities.

With regard to opportunities in the oil and gas sector, EY undertook a separate market assessment – these findings are also incorporated overleaf.

## Opportunities (continued)

Market	Key findings and opportunities
Oil and gas – supply base	<ul style="list-style-type: none"> <li>Orkney is ideally located to service oil and gas vessels supporting activities West of Shetland in particular.</li> <li><b>Orkney cannot attract this market at present as does not have sufficient infrastructure, guaranteed berth availability and services.</b></li> </ul>
Oil and gas STS/ crude transport	<ul style="list-style-type: none"> <li>Scapa Flow is already a preferred location for STS. <b>Improvements to Scapa Pier will improve the service offering and attractiveness of this location.</b></li> </ul>
Oil and gas – rigs at anchor	<ul style="list-style-type: none"> <li>Scapa Flow is already an ideal location for setting drilling and accommodation rigs at anchor during temporary downtimes in particular. <b>Improvements to Scapa Pier will make this activity more efficient.</b></li> </ul>
Oil and gas – rigs alongside	<ul style="list-style-type: none"> <li>Rig operators are looking for alternative sites to carry out large scale maintenance and modification programmes.</li> <li><b>Opportunity for Orkney to target this market through creating a new deep water facility in Scapa Flow.</b></li> </ul>
Oil and gas – decommissioning	<ul style="list-style-type: none"> <li>EY concluded that other ports are better placed for large-scale decommissioning work in the Central and Northern North Sea – and will generally be in closer proximity.</li> <li>Decommissioning of West of Shetland installations will not come on stream in the short term, rather post 2025: thus <b>the main opportunity for Orkney will be longer term and related to West of Shetland assets.</b></li> </ul>
LNG storage and bunkering	<ul style="list-style-type: none"> <li>Orkney has the potential to act as a LNG bunkering hub or storage facility, which could be recognised as a National Strategic Asset.</li> <li><b>Proposals are underway to build a blueprint for such infrastructure; Flotta may be a potential future site.</b></li> </ul>
Renewables	<ul style="list-style-type: none"> <li>Renewables industry in Orkney continues to develop, particularly in the testing of new technologies in <b>wave and tidal energies</b>. Whilst there are some barriers to growth in this particular area (e.g. grid connection), there is potential for growth which will then rely on the adequacy of <b>harbour infrastructure for deployment, testing and maintenance of devices</b>.</li> <li>There will be opportunities for Orkney to harness activity from the construction and operation of <b>offshore wind farms</b> as and when they come on stream. There are several identified sites in close proximity to Orkney, which will be leased in 2019, with a projected construction date of 2027. There will be specific requirements relating to harbour infrastructure, particularly in terms of <b>sufficient water depth and laydown area</b>.</li> <li>There is also an opportunity to support renewable energy technological developments through <b>identifying suitable locations for specific activities (e.g. production/storage of hydrogen, LNG, synthetic fuels, etc.)</b>.</li> </ul>



## Opportunities (continued)

Market	Key findings
Cruise	<ul style="list-style-type: none"> <li>Underlying demand is increasing across all vessel sizes – the challenge will be accommodating this growing demand through enhancing port infrastructure and developing the wider visitor experience whilst lessening the potential negative impacts locally.</li> <li><b>More opportunity to come alongside at Kirkwall will be attractive to cruise lines – additional infrastructure will reduce conflict between cruise and other operations and lower carbon fuelling opportunities could become an opportunity.</b></li> </ul>
Ferries	<ul style="list-style-type: none"> <li><b>Significant uncertainty regarding external and internal ferry services in terms of vessels and service configuration.</b></li> <li>Finalisation of the next Northern Isles ferry services contract (for ferry services between Scotland and mainland Orkney) could result in different infrastructure requirements (e.g. different timetables, service provision, etc.).</li> <li>Should the Road Equivalent Tariff (RET) be implemented there could be a significant impact in terms of traffic carried.</li> <li>Work is ongoing to determine how the future inter-isle ferry fleet will look in terms of type of vessel, number of vessels and configuration of services.</li> <li><b>There may be impacts on harbour infrastructure requirements at multiple locations.</b></li> </ul>
Aquaculture	<ul style="list-style-type: none"> <li>The industry is well developed in Orkney and plays a key role in the economy.</li> <li>Strong growth is expected in salmon farming with new sites currently being developed.</li> <li>In the medium to longer term there may be a requirement for <b>new processing/harvesting facilities.</b></li> <li>At an operational level companies report <b>issues with significant lack of berth space and provision of facilities.</b></li> </ul>
Fisheries	<ul style="list-style-type: none"> <li>Orkney has a strong and diverse inshore fisheries and seafood processing sector.</li> <li>Opportunity to improve efficiency of these sectors through <b>provision of better facilities for fishing and processing.</b></li> <li>The impact of the UK leaving the EU is unclear, but it could be beneficial with the <b>potential for local control over stocks.</b></li> </ul>
Marine leisure	<ul style="list-style-type: none"> <li><b>Demand for resident berths and for larger visiting yachts</b> in particular – at key locations such as Kirkwall/Stromness.</li> <li>There is at the same time demand from commercial operators for pontoon berths.</li> <li>Number of marine tours around Orkney is growing; at present there is no dedicated berth for such tours: <b>better pier facilities would enhance the attractiveness of this tourism product.</b></li> </ul>
Boat repair/maintenance facility	<ul style="list-style-type: none"> <li>There is potentially an opportunity to <b>develop a boatyard repair, lift out and maintenance facility in Orkney</b> – this view came across strongly during stakeholder discussions. Such a facility could cater for fishing, aquaculture boats and other work boats operating around Orkney, potentially even small ferries and oil supply boats in the future.</li> </ul>

## Priorities for the masterplan

Short (0 – 5 years)	Medium (5 – 10 years)	Long (10+ years)
<ul style="list-style-type: none"> <li>• <b>Oil and gas:</b> build infrastructure so that Orkney becomes a thriving and attractive oil and gas supply base for West of Shetland assets.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Internal ferries:</b> create dedicated lay-by area in Kirkwall and reconfigure marshalling area and buildings.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Renewables:</b> ensure appropriate infrastructure is there to handle and maintain renewable energy devices in the future (tidal/wave).</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Oil and gas:</b> optimise efficient operation of anchorages and STS operations through enhancing Scapa Pier.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Fisheries:</b> enhance harbour infrastructure to support fisheries – e.g. expansion of Tingwall or new dedicated fishing port (to be investigated in Phase 2).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Oil and gas:</b> potential decommissioning associated with West of Shetland assets.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Fuel supply:</b> futureproof Orkney's fuel supply delivery for the long-term by enhancing Scapa Pier.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Boat repair and maintenance facility:</b> earmark area for construction of shiplift and undercover facility.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Aquaculture:</b> earmark shoreside area for development of new facilities to support this growth sector (e.g. processing/harvesting plant).</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cruise:</b> more smaller cruise liners will come alongside at Kirkwall Pier, reducing conflict between cruise/other activities.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Fisheries:</b> improve and increase facilities for fishing boats in Orkney.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Marine leisure:</b> reconfiguration and expansion of Kirkwall marina.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>External ferries and freight:</b> improve freight handling and logistics.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Oil and gas:</b> create very deep water quayside to handle structures and large vessels alongside.</li> </ul>	
<ul style="list-style-type: none"> <li>• <b>Marine leisure:</b> create dedicated marine tourism berth at Scapa Pier.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Offshore wind:</b> create harbour infrastructure with sufficient depth of water and laydown area to support construction and O&amp;M operations.</li> </ul>	



### Key drivers and business needs

Based on the issues and constraints and market assessment there are several factors which make up the case for change:

#### Key driver 1: if and when operational activity at the Flotta Oil Terminal ceases, there will be a significant drop in harbour income

- One key driver for change is **financial** and is centred around the uncertainty over future income generated through Orkney Harbours, particularly if and when operational activity at the Flotta Oil Terminal ceases.
- If there is no investment in infrastructure/services in the short term, it will be difficult not only to maintain current income levels but also to generate new income from growth in existing markets or from new markets. This in turn will impact on the ability to maintain and invest in any harbour infrastructure around Orkney, including the many small piers and harbours that do not generate substantial revenue.

#### Key driver 2: lack of appropriate infrastructure is constraining operational and economic activity

- Another key driver is **efficiency**, in terms of how infrastructure is used, conflicts between users, availability of infrastructure and layout and available land area for development and/or operational activity. In terms of **economic development** there are opportunities at Kirkwall to create economic activity and deliver community benefit through a waterfront development and marina expansion in particular.

#### Key driver 3: without investment in harbour infrastructure Orkney will not attract substantial new business from the oil and gas or other key sectors

- Orkney has the potential to develop a successful oil and gas supply base, to support the West of Shetland assets coming on stream. It cannot do this at present with its current infrastructure and service provision.
- Hatston is the preferred location given its proximity to the West of Shetland, alongside the potential area available for laydown and operations and proximity to the supply chain.
- The construction of new quayside infrastructure here would provide the oil and gas sector with unconstrained berthing, as well as an ex-pipe fuelling system, sufficient depth of water and, potentially lower carbon fuel solutions in due course.
- Without investment in new infrastructure this opportunity will be missed, with supply boats continuing to operate out of the North East and North of Scotland and Lerwick.
- There is also a much larger opportunity, should Orkney decide to deliver a deep water port in Scapa Flow capable of handling structures and vessels alongside. Such investment could give

#### Key driver 4: futureproofing Orkney's supply of fuel

- It is regarded as paramount that the delivery of Orkney's entire fuel supply is secured for the long term. As the current fuel tanks are not at the end of their life, the only solution for this is to ensure that Scapa Pier can continue to accommodate the tankers that deliver fuels.

### Importance of policy context

This masterplan has been developed in cognisance of key national, regional and local policies and plans (see opposite). A detailed summary of these is presented in Appendix A.

The level of fit with policy aims and objectives at all levels is pertinent in that this can influence the availability of funding and deliverability.

Subsequent tables show how masterplan proposals fit with some of the key policies.

### Key policies and plans

National	<ul style="list-style-type: none"> <li>• Scotland's Economic Strategy</li> <li>• National Planning Framework 3 (4)</li> <li>• Infrastructure Investment Plan</li> <li>• National Transport Strategy</li> <li>• Scotland's National Marine Plan</li> <li>• Scottish Government Ferries Plan</li> <li>• Marine Tourism Strategy</li> </ul>
Regional	<ul style="list-style-type: none"> <li>• HIE Operating Plan</li> <li>• HITRANS Regional Transport Strategy</li> <li>• Our Islands Our Future (Islands Act 2018)</li> <li>• Pentland Firth and Orkney Waters Spatial Plan</li> </ul>
Local	<ul style="list-style-type: none"> <li>• Orkney Council Plan 2018 – 2023</li> <li>• Orkney Community Plan 2017 – 2020</li> <li>• Orkney Local Development Plan 2017</li> <li>• Kirkwall Urban Development Framework</li> <li>• Stromness Urban Development</li> </ul>

Fit with Scotland's Economic Strategy				
	Investment In people and infrastructure in a sustainable way	Innovation Foster culture of innovation and R&D	Inclusive growth Create opps through fair & inclusive jobs market/ regional cohesion	Internationalism Promote Scotland on international stage to boost trade/investment, etc
<b>Kirkwall</b>				
New multi-use quays & berths	✓	✓	✓	✓
Marina expansion & waterfront development	✓	✓	✓	✓
<b>Hatston</b>				
Multi-use quays & berths for oil & gas, etc	✓	✓	✓	✓
Land and facilities available for development	✓	✓	✓	
Better management of traffic & access routes	✓			
New ferry/cruise passenger reception facility	✓			
New aquaculture processing/harvesting facility	✓		✓	✓
<b>Stromness</b>				
Copland's Dock quay improvements	✓			
Additional development land	✓			
<b>Scapa Pier</b>				
Longer quay, deeper water	✓	✓	✓	
Marine leisure pontoons	✓	✓	✓	
<b>Scapa Deep Water Quay</b>				
Deep water quay & berths	✓	✓	✓	✓
<b>Lyness</b>				
Hard standing terminal area	✓	✓	✓	✓

Fit with Scotland's National Marine Plan and Marine Tourism Strategy			
	National Marine Plan		Marine Tourism Strategy
	Achieve a sustainable marine economy	Strong, healthy and just society	Marine Tourism Destination of Choice
<b>Kirkwall</b>			
New multi-use quays & berths	✓	✓	✓
Marina expansion & waterfront development	✓	✓	✓
<b>Hatston</b>			
Multi-use quays & berths for oil & gas, etc	✓	✓	✓
Land and facilities available for development	✓	✓	
Better management of traffic & access routes	✓	✓	
New ferry/cruise passenger reception facility	✓	✓	✓
New aquaculture processing/harvesting facility	✓	✓	
<b>Stromness</b>			
Copland's Dock quay improvements	✓	✓	
Additional development land	✓	✓	
<b>Scapa Pier</b>			
Longer quay, deeper water	✓	✓	
Marine leisure pontoons	✓	✓	✓
<b>Scapa Deep Water Quay</b>			
Deep water quay & berths	✓	✓	
<b>Lyness</b>			
Hard standing terminal area	✓	✓	

Fit with HIE's Operating Plan				
	Accelerating Business Growth: investment, innovation and internationalisation	Strengthening Communities: growth in social enterprise and place-based development	Supporting Growth Sectors: sectoral development & regional opportunities	Developing Regional Attractiveness: making H&I a globally attractive region
<b>Kirkwall</b>				
New multi-use quays & berths	✓	✓	✓	✓
Marina expansion & waterfront development	✓	✓	✓	✓
<b>Hatston</b>				
Multi-use quays & berths for oil & gas, etc	✓	✓	✓	✓
Land and facilities available for development	✓	✓	✓	✓
Better management of traffic & access routes		✓		✓
New ferry/cruise passenger reception facility	✓	✓		✓
New aquaculture processing/harvesting facility	✓	✓	✓	✓
<b>Stromness</b>				
Copland's Dock quay improvements	✓	✓	✓	✓
Additional development land	✓	✓	✓	✓
<b>Scapa Pier</b>				
Longer quay, deeper water	✓	✓		✓
Marine leisure pontoons	✓	✓	✓	✓
<b>Scapa Deep Water Quay</b>				
Deep water quay & berths	✓	✓	✓	✓
<b>Lyness</b>				
Hard standing terminal area	✓	✓	✓	✓

Fit with Orkney's Council Plan				
	Invest in marine infrastructure & business development	Continue to develop strategic projects, to capitalise on renewable sector	Progress Islands Deal to deliver innovative, enterprising & transformational projects	Continue to encourage & support economic opportunities which maximise islands' opportunity & influence
<b>Kirkwall</b>				
New multi-use quays & berths	✓		✓	✓
Marina expansion & waterfront development	✓		✓	✓
<b>Hatston</b>				
Multi-use quays & berths for oil & gas, etc	✓	✓	✓	✓
Land and facilities available for development	✓	✓	✓	✓
Better management of traffic & access routes				✓
New ferry/cruise passenger reception facility	✓			✓
New aquaculture processing/harvesting facility	✓		✓	✓
<b>Stromness</b>				
Copland's Dock quay improvements	✓			✓
Additional development land	✓			✓
<b>Scapa Pier</b>				
Longer quay, deeper water	✓		✓	✓
Marine leisure pontoons	✓		✓	✓
<b>Scapa Deep Water Quay</b>				
Deep water quay & berths	✓	✓	✓	✓
<b>Lyness</b>				
Hard standing terminal area	✓			✓

### Outline requirements

A series of outline requirements have been defined, which represent what the masterplan should deliver against (see overleaf).

Delivering these outline requirements will enable the masterplan objectives to be achieved (opposite).

### Masterplan objectives

#### Commercial

- To establish a strategic framework and vision that will guide future infrastructure investment decisions towards a coordinated and sustainable future.

#### Financial

- To safeguard and enhance the financial sustainability of the harbour business within the context of a competitive business environment.

#### Socio-economic

- To support and enhance the socio-economic prosperity and social well-being of local communities.

#### Environment

- To safeguard and support the long-term productivity of the coastal and marine environment through best practice and strong environmental stewardship.

**Outline requirements**

- A. Address wave climate and weather issues where relevant
- B. Enable Orkney to become a preferred supply base location for offshore oil and gas
- C. Enable Orkney to attract more rigs/platforms for repair, supplies and crew changes
- D. Improve the usability of pier infrastructure for smaller boats
- E. Provide necessary infrastructure to enhance resilience of Orkney's fuel supply now and potential diversification in the future
- F. Provide necessary infrastructure to safeguard and attract renewable energy activity and technologies
- G. Enable sustainable growth in cruise
- H. Enhance marine leisure and tourism in Orkney
- I. Facilitate potential growth in fishing
- J. Encourage new developments in boat repair sector
- K. Safeguard and grow aquaculture activity and supply chain development in a manner that is compatible with harbour operations
- L. Facilitate growth in freight traffic and increase efficiency of freight handling
- M. Remove conflicts between pedestrians and operational activity
- N. Improve safety for all harbour users
- O. Improve local character and visual amenity for residents and visitors
- P. Improve integration with transport networks
- Q. Address accessibility issues
- R. Meet future requirements of external and internal ferry services and their users



### 3. MASTERPLAN PROPOSALS

## Masterplan proposals

This Draft Orkney Harbours Masterplan Phase 1 comprises proposals at six harbour locations – see right.

The selection of these follows an assessment of proposals against the outline requirement and harbour objectives.

This section covers the following aspects:

- A description of proposals, accompanied by a plan.
- A high level cost estimate for each proposal, where possible.

### Kirkwall Pier

- New multi-purpose quayside infrastructure.
- Waterfront development and marina expansion.
- Improving quayside layout and traffic management.
- Improvements to fish landing areas.

### Hatston

- New multi-purpose deep water quayside infrastructure.
- Reclamation and land available for development
- Reconfiguration of marshalling areas and access routes.
- New passenger reception facility.

### Scapa Pier

- Pier extension and dredging to provide deeper water.
- Marine leisure slipway/pontoons.

### Stromness & Copland's Dock

- Improvements to Copland's Dock.
- Reclamation to create additional quayside area.
- Improvements to shoreside layout & traffic management.

### Scapa Deep Water Quay

- New deep water quayside infrastructure.
- 5+ hectares of laydown area.

### Lyness

- Extension of hard standing yard/storage areas.

### Kirkwall Pier

Kirkwall Pier sits within the heart of Orkney's largest town, offering a picturesque waterfront looking out to sea and accommodating a diverse range of users and activities.

It is the hub for inter-isle ferry routes to the Outer North Isles and Shapinsay and home to the largest marina in Orkney; it is a key port for the inshore fishing fleet, the aquaculture sector and the marine supply chain in general, with many commercial boats operating out of Kirkwall.

Smaller cruise liners sit alongside at Kirkwall whilst larger ones tender in passengers to a pontoon in the Basin; the pier is frequently used for boat repair on the quayside.

The plan for Kirkwall Pier is focussed on improving usability and efficiency of berths and quayside infrastructure, improving visual amenity, improving safety and better management of traffic and pedestrian movements.

Core proposals comprise new quayside infrastructure, a waterfront development area and marina expansion, as well as improvements to traffic management and facilities on the quayside.



### New multi-purpose quayside infrastructure

#### Aligns with the following outline requirements:

- R. Meet future requirements of external and internal ferry services and their users
- D. Improve the usability of pier infrastructure for smaller boats
- H. Enhance marine leisure and tourism in Orkney
- G. Enhance sustainable growth in cruise
- I. Facilitate potential growth in fishing

200m of new multi-purpose quayside will be constructed to the north of the existing pier, with water depth of -6.5m CD. The main purpose is to create lay-by berths for the inter-isle ferry fleet; it could also be utilised for fishing, cargo or larger cruise ships than can currently be accommodated at this location (e.g. up to 130m LOA).

### Waterfront development and marina expansion

#### Aligns with the following outline requirements:

- H. Enhance marine leisure and tourism in Orkney
- O. Improve local character/visual amenity for residents/visitors

A waterfront development area (circa 2.75 hectares) will be created through reclamation shoreside of the marina, for a range of uses/facilities: this could be marina facilities, marine leisure club facilities, boat storage, repair/chandlery provision, tourist/travel information, seating, retail, café or parking. Part of the area could be incorporated into the reconfiguration of the marshalling area or relocation of the travel centre so that it is integrated with the Orkney Ferries ticket office. The marina can be doubled in size, with 95 additional berths. Some could be dedicated for residents, visiting yachts or commercial boats.

### Improving quayside layout and traffic management

#### Aligns with the following outline requirements:

- M. Remove conflicts between pedestrians and operational activity
- N. Improve safety for all harbour users
- O. Improve local character/visual amenity for residents/visitors

The entire layout of Kirkwall Pier, in terms of buildings, facilities and traffic management will be reviewed and remodelled. It is anticipated that some buildings will be demolished or moved, or that there may be new buildings or facilities constructed. The marshalling and parking areas, and designated routes for vehicles and pedestrians will be reviewed and re-designed, cognisant of changes in harbour infrastructure and potential new configuration of ferry vessels and services.

### Improvements to fish landing areas

#### Aligns with the following outline requirements:

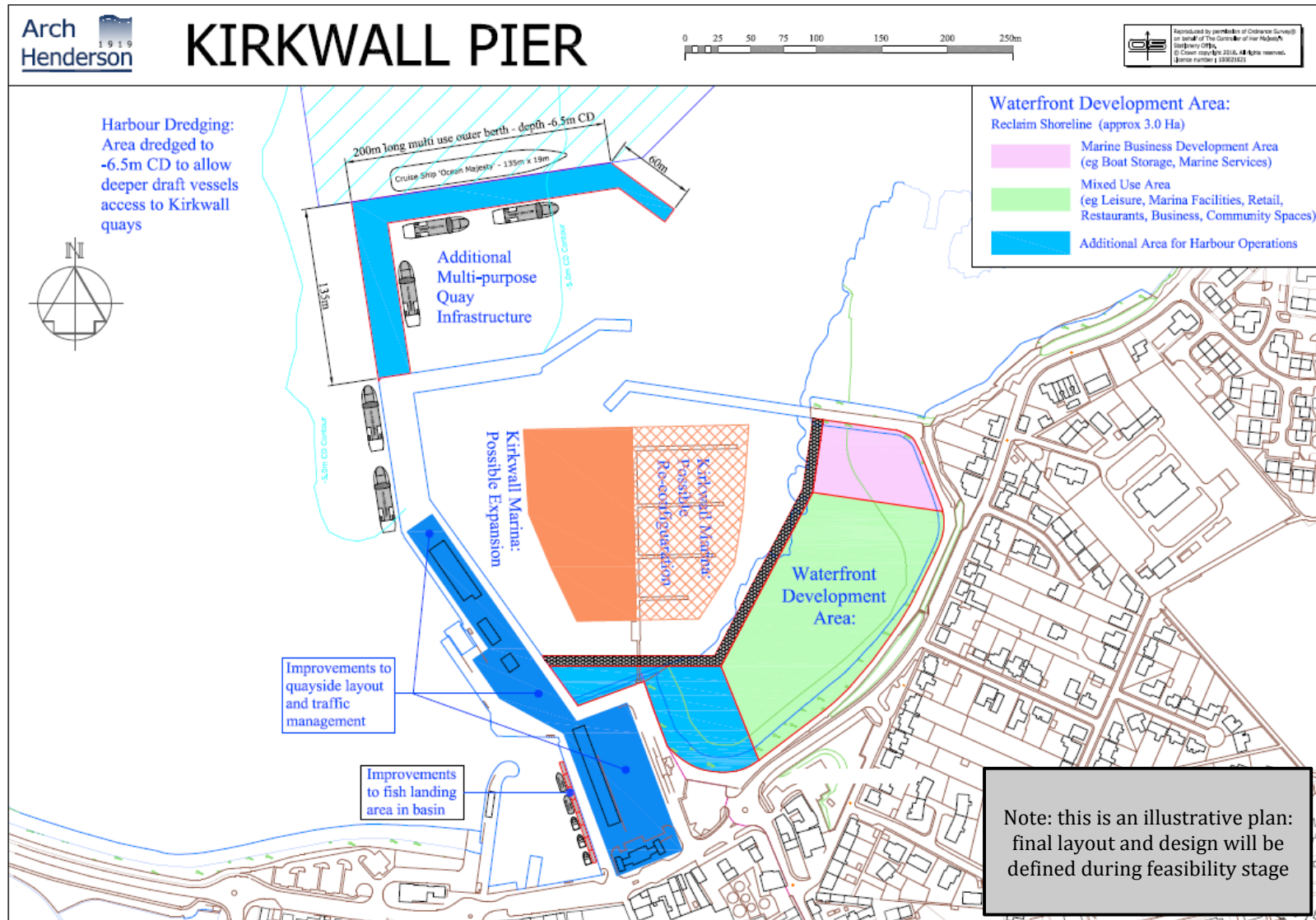
- M. Remove conflicts between pedestrians and operational activity
- I. Facilitate potential growth in fishing
- N. Improve safety for all harbour users

Working with key stakeholders in the fishing industry, improvements are planned for the fish landing area at Kirkwall. One option is to relocate the pilot boats and/or RNLI vessels away from this area, freeing up additional quayside for landing, as well as consideration of possible options opposite the crane shed, e.g. removal of railings, changes in traffic management and possible installation of pontoons.

### Kirkwall Pier



## Masterplan proposals at Kirkwall Pier



## 3.2 KIRKWALL PIER

## Masterplan proposals at Kirkwall Pier – high level cost estimate (£m)

Project component	Cost <sup>1</sup>	Contingency <sup>2</sup>	Fees <sup>3</sup>	Total (£m)
New multi-purpose quayside infrastructure	24.930	2.493	1.842	29.265
Waterfront development (reclamation costs only)	3.344	0.334	0.255	3.933
Marina expansion (430m pontoon length allowed)	0.775	0.078	0.067	0.920
<b>Total (projects costed so far)</b>	<b>29.048</b>	<b>2.905</b>	<b>2.164</b>	<b>34.118</b>
Reconfiguration of buildings, waiting room, marshalling and traffic management system on Kirkwall Pier	<i>Cost unknown at present. Could assume construction of at least two new buildings.</i>			
Improvements to fish landing area in Basin (installation of pontoons, moving railings and relocation of pilot boats)	<i>Cost unknown at present. Could assume cost of original installation of railings and cost of pontoons and ramp for the east pier in the Basin.</i>			

- 1.Costs, as developed by Arch Henderson, are based on actual costs incurred on similar projects elsewhere. They are high level estimates and assume that each project is stand alone – should projects be grouped together then there may be savings through shared mobilisation and general item costs. Where a proposal is unlikely to be delivered by the Harbour Authority no cost estimate has been provided.
- 2. Contingency is assumed to be 10% construction risk and does not include Optimism Bias, which will still need to be assessed based on procurement routes finally chosen coupled with client knowledge of potential development constraints.
- 3. Consultant fees associated with design, feasibility and construction including third party Site Investigation cost estimates; excludes costs relating to HRO, legal aspects, EIA and VAT.



### Hatston Pier and Terminal

Hatston Pier and Terminal is Orkney's primary commercial terminal and link south to Aberdeen.

With water depth of 10m and a 385m berth this multi-purpose infrastructure has been hugely successful in accommodating a range of operational activities including the largest cruise ships, renewable energy, ferries, oil and gas and cargo/livestock.

The plan for Hatston is focussed on reducing conflicts between users and operational activity and enabling growth across a range of economic sectors. Seasonal lack of availability of berths due to cruise with a resultant year round constraint on other vessel use would be resolved and the plan also considers how freight and traffic can be handled more efficiently and effectively.

Core proposals comprise a significant extension to the existing pier and expansion of landside area through reclamation to futureproof availability of sufficient land for harbour operations.



### Multi-purpose deep water quayside infrastructure

#### Aligns with the following outline requirements:

- B. Enable Orkney to become a preferred supply base location for offshore oil and gas
- F. Provide necessary infrastructure to safeguard and attract renewable energy developments and technologies
- J. Encourage new developments in boat repair market supply chain
- K. Safeguard and grow aquaculture activity and supply chain
- L. Facilitate growth in freight traffic and increase efficiency of freight handling

The existing outer quay would be extended by 300m (with water depth of -10m CD) and there would be a 125m inner berth possibly with a fixed ramp. Circa 7.5 hectares of additional land would be made available for harbour-related operations through reclamation.

There will be an ex-pipe fuel supply and storage facility with consideration given to LNG from bunkering vessels and alongside electrical power to reduce carbon footprints.

Hatston would be able to accommodate oil and gas supply operations and there is sufficient landside area and infrastructure to support development in other sectors: new aquaculture facilities such as a harvesting/processing plant with quayside access; a boatyard with an undercover facility: this could be a small scale facility handling the smaller leisure, fishing and aquaculture boats (e.g. up to 100 tonne) or a larger commercial facility incorporating a boatlift adjacent to the new pier infrastructure capable of handling vessels up to 300 tonnes; a facility in close proximity to the quay for handling renewable energy devices; a site could also be earmarked for the development of a logistics park/common user freight hub.

### Reconfiguration of marshalling areas, parking and access

#### Aligns with the following outline requirements:

- M. Remove conflicts between pedestrians and operational activity
- N. Improve safety for all harbour users

This will reduce conflicts between different users and uses. Areas for car and freight marshalling will be reconfigured and there will be better defined pedestrian routes to and from the quayside: for example to the long stay car park and the main road. There is also potential for the reconfigured pedestrian access within the harbour area to connect to the proposed coastal path identified within the Kirkwall Urban Design Framework (KUDF).

### New passenger reception facility

#### Aligns with the following outline requirements:

- R. Meet future requirements of external and internal ferry services and their users
- H. Enhance marine leisure and tourism in Orkney

In the future there may be a need to refurbish and/or extend the existing facility that caters for both ferry and cruise passengers on the quayside.

### Vessel at Hatston Pier





### 3.3 HATSTON



## Masterplan proposals at Hatston – high level cost estimate (£m)

Project component	Cost <sup>1</sup>	Contingency <sup>2</sup>	Fees <sup>3</sup>	Total (£m)
New deep water pier infrastructure (additional 300m quayside and water depth of -10m CD) including 4.75 hectares of reclamation	33.850	3.385	2.465	39.701
Additional reclamation of 3.0 hectares	2.934	0.293	0.074	3.301
Ex-pipe and fuel storage	1.900	0.190	0.000	2.090
Reconfiguration of freight marshalling, parking, pedestrian routes and public access	-	-	-	-
<b>Total (projects costed so far)</b>	<b>38.684</b>	<b>3.868</b>	<b>2.539</b>	<b>45.092</b>
Boatyard infrastructure (shiplift and facility)	<i>Cost will depend on what ground works are required and specification of shiplift and adjacent facility. Likely to be in region of £5m - £7m but cannot be estimated until a more detailed specification is provided.</i>			

- 1.Costs, as developed by Arch Henderson, are based on actual costs incurred on similar projects elsewhere. They are high level estimates and assume that each project is stand alone – should projects be grouped together then there may be savings through shared mobilisation and general item costs. Where a proposal is unlikely to be delivered by the Harbour Authority no cost estimate has been provided.
- 2. Contingency is assumed to be 10% construction risk and does not included Optimism Bias, which will still need to be assessed based on procurement routes finally chosen coupled with client knowledge of potential development constraints.
- 3. Consultant fees associated with design, feasibility and construction including third party Site Investigation cost estimates; excludes costs relating to HRO, legal aspects, EIA and VAT.

### Scapa Pier

Scapa Pier is a key component of Orkney's critical infrastructure. As well as supporting Flotta Oil Terminal activities, STS and rig stacking/maintenance; it is the single point of entry for Orkney's entire supply of domestic and commercial fuels.

Three tugs and one pilot boat are based at Scapa Pier, as well as commercial boats – all servicing vessels and platforms at anchor in Scapa Flow, as well as the provision of marine services for Flotta (this encompasses towage, pilotage, boarding and landing, counter pollution, conservancy, port security, etc.). At present there is only just enough depth of water for tugs – in inclement weather they have to use other harbours. There is limited availability of berthing and quayside space, impacting on operational safety and efficiency.

Fuels are discharged here using dedicated pipelines running from the pier directly into a tank farm located underground in close proximity to the pier, owned by Highland Fuels. One of the main concerns at present is that tankers are increasing in size: new vessels coming into the James Fisher fleet within the next five to ten years cannot be accommodated at Scapa Pier. At the same time it is unlikely that Highland Fuels would wish to relocate the tank farm until such time that it reaches the end of its usable life.

Another concern is that over time the nature of Orkney's fuel supply may change, particularly as climate change targets focus on reducing carbon footprint: in 20 years time we may be looking at a fuel supply comprising not only petrol, kerosene and diesel, but other fuels, such as LNG, hydrogen or even synthetically produced fuels.

### Scapa Pier extension and deepening

#### Aligns with the following outline requirements:

- E. Provide necessary infrastructure to enhance resilience of Orkney's fuel supply
- C. Enable Orkney to attract more rigs/platforms for repair, supplies and crew changes

The existing Scapa Pier would be lengthened by circa 100m, and dredging would provide deeper water (from -5m CD to -7.5m CD). The extension is angled with a wider quay. This would enable larger vessels to come alongside and increase berthing space. The quayside would be improved by making it the same level and removing any obstacles, as well as creating additional laydown area shoreside.

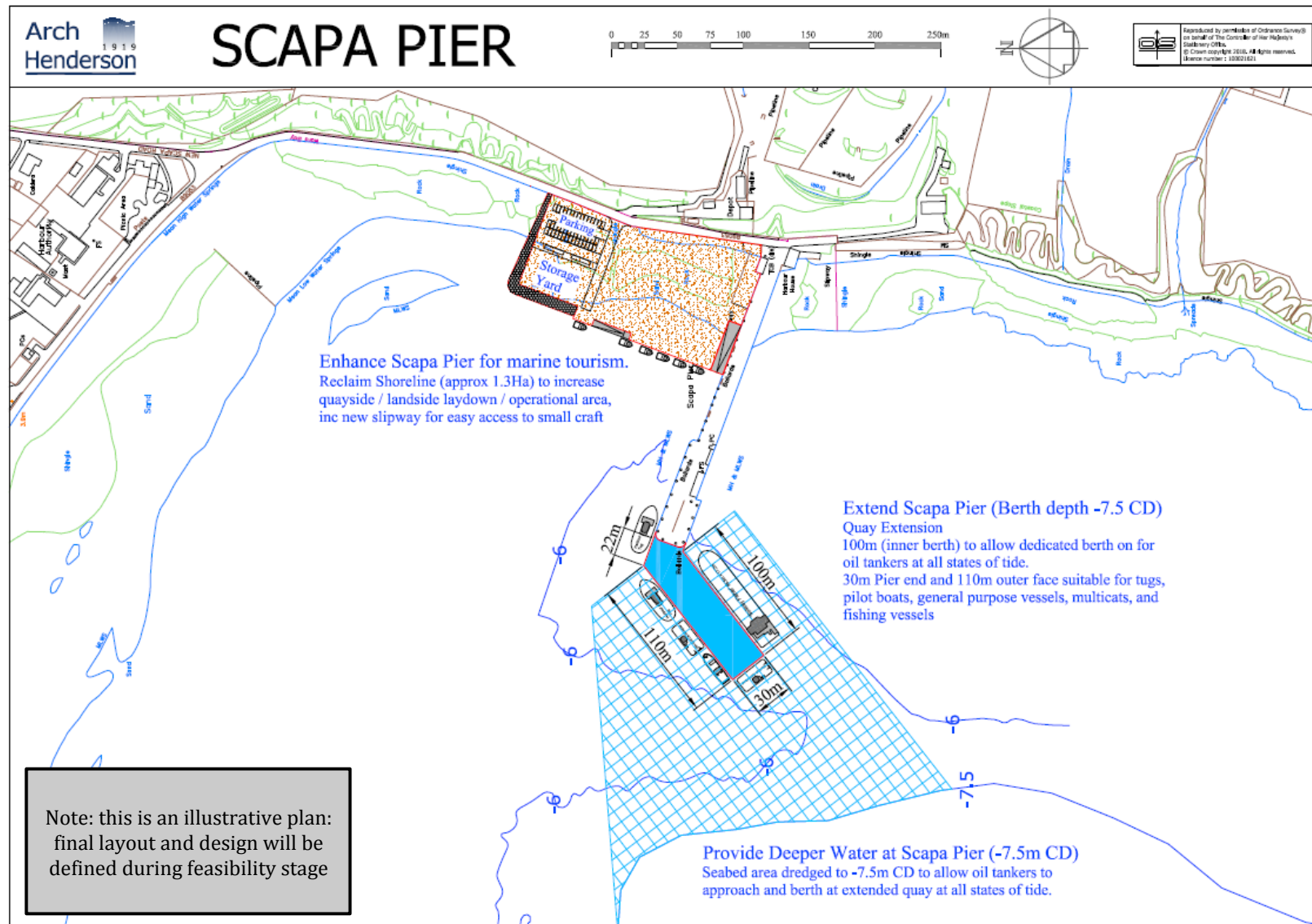
### Additional shoreside area and marine leisure berths

#### Aligns with the following outline requirements:

- H. Enhance marine leisure and tourism in Orkney
- C. Enable Orkney to attract more rigs/platforms for repair, supplies and crew changes

Through reclamation an area adjacent to the shore would be made available for operational use, storage and/or parking. Several berths for marina use and a small slip to service these would be incorporated – this could be a suitable location for vessels offering marine tours in Scapa Flow, or smaller commercial boats, for example.

## Masterplan proposals at Scapa Pier



## 3.4 SCAPA PIER

## Masterplan proposals at Scapa Pier – high level cost estimate (£m)

Project component	Cost <sup>1</sup>	Contingency <sup>2</sup>	Fees <sup>3</sup>	Total (£m)
Scapa Pier angled extension (100m) (pier construction and dredging)	8.692	0.869	0.694	10.256
Increase laydown/operational area/slipway and marine leisure berths	2.302	0.230	0.200	2.732
<b>Total</b>	<b>10.994</b>	<b>1.099</b>	<b>0.894</b>	<b>12.988</b>

- 1.Costs, as developed by Arch Henderson, are based on actual costs incurred on similar projects elsewhere. They are high level estimates and assume that each project is stand alone – should projects be grouped together then there may be savings through shared mobilisation and general item costs. Where a proposal is unlikely to be delivered by the Harbour Authority no cost estimate has been provided.
- 2. Contingency is assumed to be 10% construction risk and does not include Optimism Bias, which will still need to be assessed based on procurement routes finally chosen coupled with client knowledge of potential development constraints.
- 3. Consultant fees associated with design, feasibility and construction including third party Site Investigation cost estimates; excludes costs relating to HRO, legal aspects, EIA and VAT.

### Stromness and Copland's Dock

The harbour in Stromness is at the heart of this historic town. This vibrant harbour is a hub for ferry services, inshore fisheries, marine leisure, cruise and renewables. There are issues with access to the main pier in Stromness and there is competition for berthing space here too. Whilst the construction of Copland's Dock has enabled some operations to be moved out of the town centre, there remains issues of capacity, conflict of use and traffic and the flexibility of Copland's Dock to cater for different types of vessel, particularly small boats. If Copland's Dock could do this, there would be significant opportunity to remove heavy traffic from the historic town centre.

The plan for Stromness is focussed on improving the flexibility and usability of existing infrastructure, as well as creating capacity and facilities to enable growth in all sectors for the future.

### Increasing flexibility and usability of Copland's Dock

#### Aligns with the following outline requirements:

- I. Facilitate potential growth in fishing
- D. Improve the usability of pier infrastructure for smaller boats

This proposals involves increasing the number of fenders at Copland's Dock, which will enable smaller boats to use this infrastructure more easily.

An additional area is proposed for reclamation, which will create a development opportunity for shore-based business – this is potentially an ideal location for the relocation of the Orkney Fishermen's Society (OFS) facility. Access to the holms will be preserved through this area.

### Improving shoreside layout and traffic management

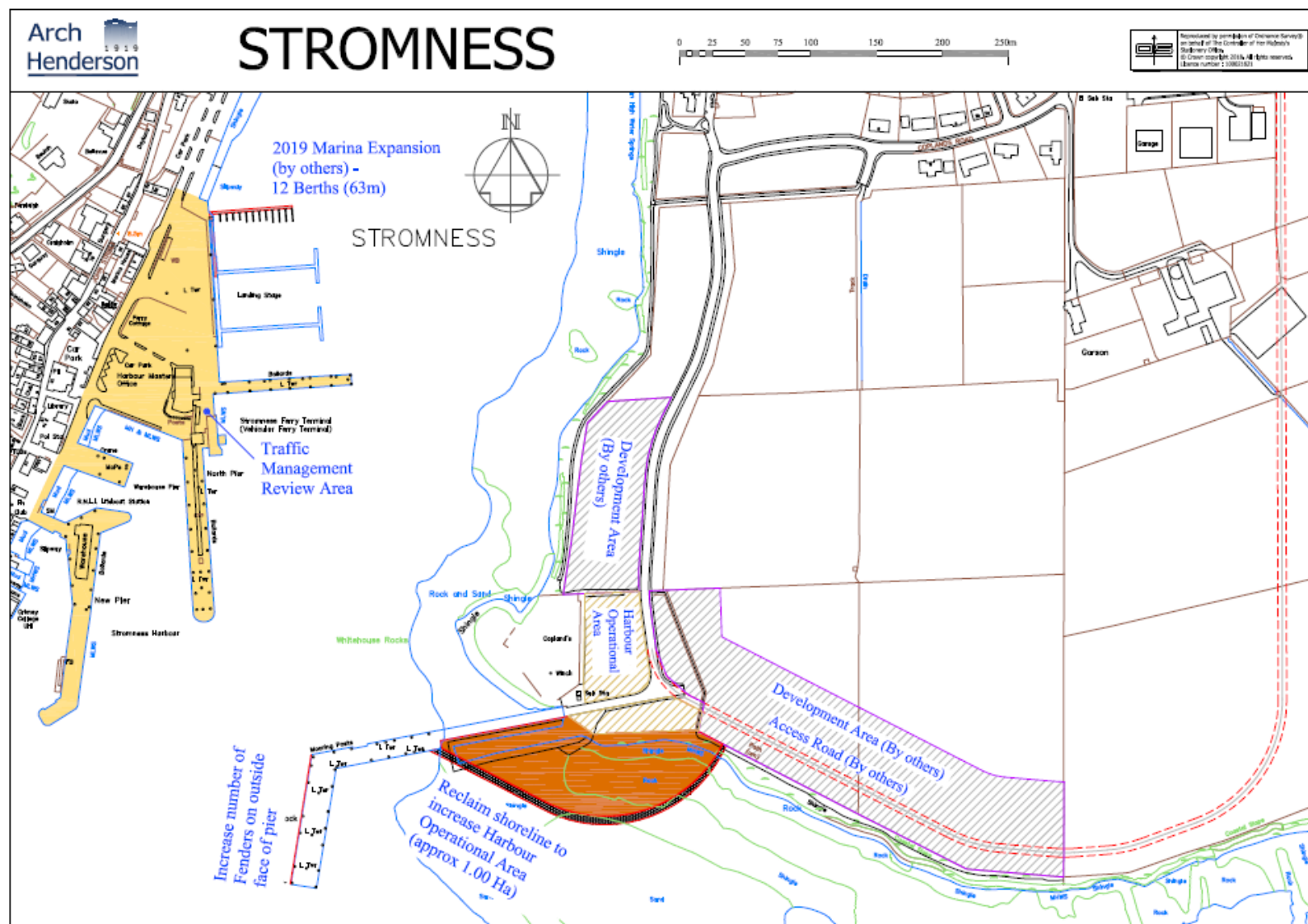
#### Aligns with the following outline requirements:

- M. Remove conflicts between pedestrians and operational activity
- N. Improve safety for all harbour users
- O. Improve local character/visual amenity for residents/visitors

A review of current parking, pedestrian routes and traffic management and controls, as well as an evaluation of the location, condition and purpose of buildings and facilities on or close to the quayside in Stromness will be undertaken, which will determine what kind of improvements could be made: this might, for example, look at alternative parking arrangements and controls, reconfiguration of the marshalling area, relocation of marina facilities, waiting room facilities and signage.



## Masterplan proposals at Stromness and Copland's Dock



## Masterplan proposals at Stromness and Copland's Dock – high level cost estimate (£m)

Project component	Cost <sup>1</sup>	Contingency <sup>2</sup>	Fees <sup>3</sup>	Total (£m)
Infill fenders to Copeland's Dock	0.200	0.020	0.010	0.230
Reclamation of land at Copland's Dock	1.549	0.155	0.055	1.759
Improving shoreside layout and traffic management	<i>Cost unknown at present</i>			
<b>Total (projects costed so far)</b>	<b>1.749</b>	<b>0.175</b>	<b>0.065</b>	<b>1.989</b>

- 1.Costs, as developed by Arch Henderson, are based on actual costs incurred on similar projects elsewhere. They are high level estimates and assume that each project is stand alone – should projects be grouped together then there may be savings through shared mobilisation and general item costs. Where a proposal is unlikely to be delivered by the Harbour Authority no cost estimate has been provided.
- 2. Contingency is assumed to be 10% construction risk and does not included Optimism Bias, which will still need to be assessed based on procurement routes finally chosen coupled with client knowledge of potential development constraints.
- 3. Consultant fees associated with design, feasibility and construction including third party Site Investigation cost estimates; excludes costs relating to HRO, legal aspects, EIA and VAT.



### Scapa Deep Water Quay

There is no deep water pier infrastructure in Scapa Flow located on the Orkney mainland coast. As part of the option development consideration has been given to possible locations for deep water quayside infrastructure in proximity to the existing Scapa Pier, with a suitable site potentially identified to the south of Scapa Pier.

#### Aligns with the following outline requirements:

- B. Enable Orkney to become a preferred supply base location for offshore oil and gas
- C. Enable Orkney to attract more rigs/platforms for repair, supplies and crew changes
- F. Provide necessary infrastructure to safeguard and attract renewable energy activity and technologies

This proposal comprises 300m of quayside with water depth -20m CD, 75m wide approach quay with 5+ hectares of landside area.

The main purpose of this facility would be to undertake any/multiple industry activity that requires both deep-water berthing and large laydown area adjacent. There are specific market opportunities in the offshore wind and oil and gas sectors.

With regard to offshore wind, there are several lease areas earmarked for development around Orkney, with Orkney the preferred location as a construction and O&M hub – Scapa Deep Water Quay is the optimal site for this activity.

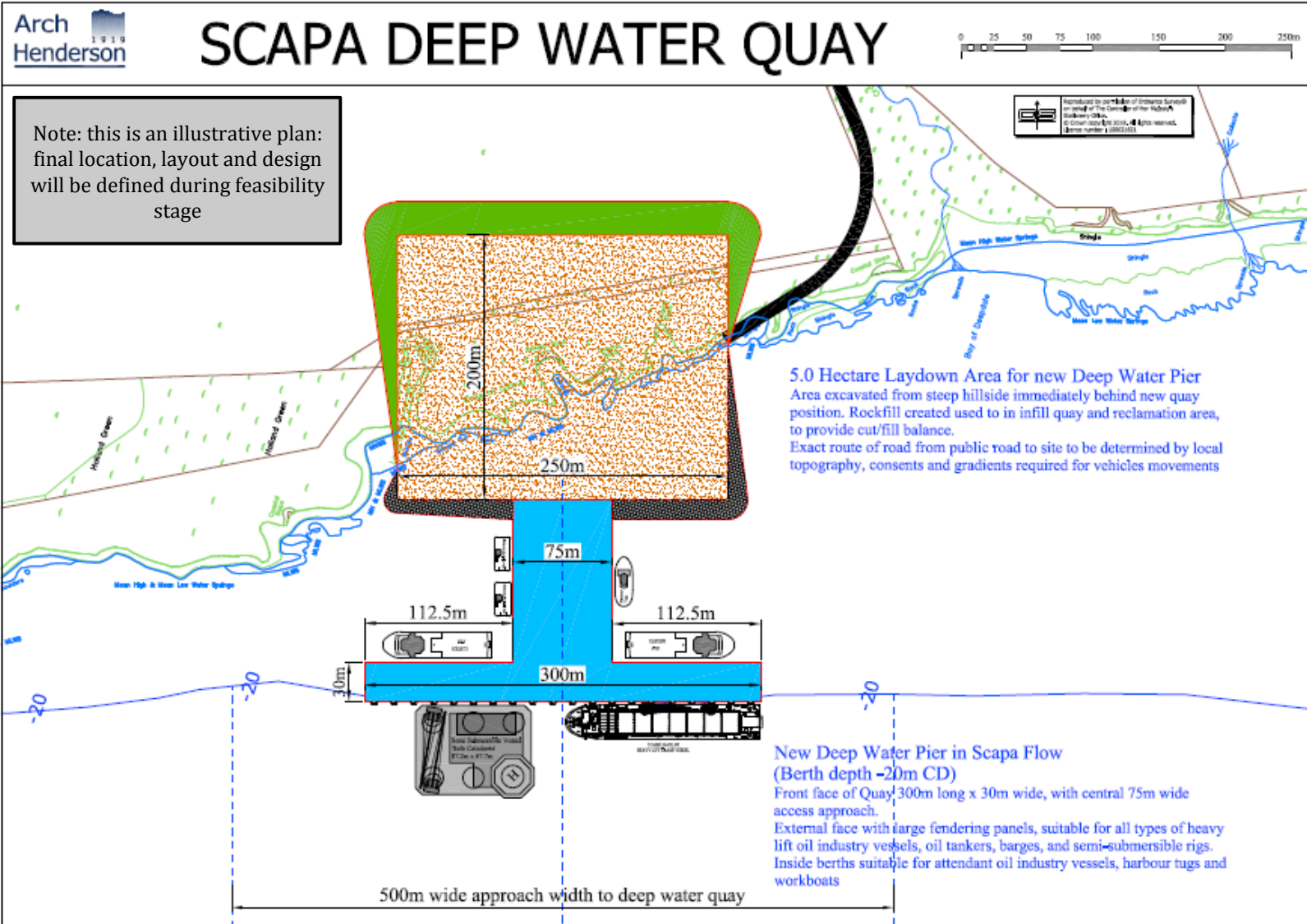
In the oil and gas sector large structures and vessels could come alongside for repairs and maintenance.

This infrastructure has the potential to be identified as a National Strategic Asset.

### Scapa Flow



## Scapa Deep Water Quay – masterplan proposals



## 3.6 SCAPA DEEP WATER QUAY

## Masterplan proposals at Scapa Deep Water quay – high level cost estimate (£m)

Project component	Cost <sup>1</sup>	Contingency <sup>2</sup>	Fees <sup>3</sup>	Total (£m)
Deep water facility in Scapa Flow (300m quayside and -20m CD water depth, 75m wide approach quay and 5+ hectares of land reclamation)	<b>65.660</b>	<b>4.050</b>	<b>6.566</b>	<b>76.276</b>

- 1.Costs, as developed by Arch Henderson, are based on actual costs incurred on similar projects elsewhere. They are high level estimates and assume that each project is stand alone – should projects be grouped together then there may be savings through shared mobilisation and general item costs. Where a proposal is unlikely to be delivered by the Harbour Authority no cost estimate has been provided.
- 2. Contingency is assumed to be 10% construction risk and does not included Optimism Bias, which will still need to be assessed based on procurement routes finally chosen coupled with client knowledge of potential development constraints.
- 3. Consultant fees associated with design, feasibility and construction including third party Site Investigation cost estimates; excludes costs relating to HRO, legal aspects, EIA and VAT.

## Lyness

Lyness has in the past been earmarked for a variety of operational activities – particularly the development of a container hub, as well as a potential base for oil and gas and renewable sector operations.

In the short-term it could be used as a support base for Scapa Flow, as a laydown and storage area for equipment required to service rigs and vessels at anchor. It could also serve as a suitable site for some aquaculture operations such as the building and maintenance of salmon cages. For these operations no additional infrastructure improvements are required.

There are longer term opportunities particularly in the oil and gas and renewable sectors. EY recently proposed that Lyness could be a suitable location for decommissioning of smaller scale items in the longer term when West of Shetland assets come on stream for this. It could also provide a service base for some offshore wind activities around Orkney.

## Creation of hard standing areas

### **Aligns with the following outline requirements:**

F. Provide necessary infrastructure to safeguard and attract renewable energy activity and technologies

How the brownfield land would be developed and to what extent will depend on the nature of future activity and requirements thereof.

An initial step might be to create hard standing across the two areas closest to the quay edge – 5.88 acres and 3.35 acres respectively (just under 40,000 square metres), providing a suitable storage or yard area.

Costs are based on 40mm Bitmac and 250mm thick reinforced concrete slab plus some elements of drainage.



## Masterplan proposals at Lyness – high level cost estimate (£m)

Project component	Cost <sup>1</sup>	Contingency <sup>2</sup>	Fees <sup>3</sup>	Total (£m)
Area 1 hard standing (5.88 acres)	5.718	0.570	0.250	6.538
Area 2 hard standing (3.35 acres)	1.735	0.175	0.110	2.020
<b>Total</b>	<b>7.453</b>	<b>0.745</b>	<b>0.360</b>	<b>8.558</b>

- 1.Costs, as developed by Arch Henderson, are based on actual costs incurred on similar projects elsewhere. They are high level estimates and assume that each project is stand alone – should projects be grouped together then there may be savings through shared mobilisation and general item costs. Where a proposal is unlikely to be delivered by the Harbour Authority no cost estimate has been provided.
- 2. Contingency is assumed to be 10% construction risk and does not include Optimism Bias, which will still need to be assessed based on procurement routes finally chosen coupled with client knowledge of potential development constraints.
- 3. Consultant fees associated with design, feasibility and construction including third party Site Investigation cost estimates; excludes costs relating to HRO, legal aspects, EIA and VAT.

### Estimated costs – a summary

It is estimated that the total cost of projects will be in the region of £179m.

Costs are indicative at this stage and initial estimates include contingency and fee cost elements, based on similar projects elsewhere.

With regard to Optimism Bias the following assumptions have been made. It is assumed that the Scapa Deep Water Quay proposals would require a higher level of Optimism Bias than proposals for improvements at existing ports and harbours.

Location	High level cost	Optimism Bias level	High level cost with Optimism Bias
Kirkwall Pier	34.118	30%	39.927
Hatston	45.092	30%	52.828
Scapa Pier	12.988	30%	15.187
Stromness and Copland's Dock	1.989	-	1.989
Scapa Deep Water Quay	76.276	70%	115.673
Lyness	8.558	-	8.558
<b>Total</b>	<b>179.021</b>		<b>234.162</b>



## 4. ECONOMIC CASE

## Introduction

The masterplan comprises a range of proposals that will **significantly enhance the operability and attractiveness of Orkney's harbour infrastructure** through the construction of new deep water quayside infrastructures, as well as extensions and enhancements to existing harbours, marina expansion, the creation of additional land for development and improvements to quayside areas and traffic management.

**These proposals will create efficiencies within existing operations as well as enable Orkney Harbours to attract more business and generate more revenue thus ensuring financial sustainability for the longer term and ultimately safeguarding and creating employment opportunities in Orkney.**

To better understand the benefits associated with each of the masterplan proposals an economic and financial analysis has been conducted, as part of a detailed Outline Business Case (OBC).

This analysis looks at the costs and benefits of each proposal, both the financial return to Orkney Harbours, but also the wider economic benefit to Orkney as a whole.

High level results from this analysis are presented in this masterplan along with a qualitative description of how the proposals will be beneficial (see Appendix B). The analysis is ongoing and a full OBC will be produced in summer 2019.

## Core aspects of the financial and economic analysis

The analysis considers the impact of the masterplan proposals (the 'With project' case) against what would have happened without the proposals (the 'Reference case' or 'Do nothing').

In the 'With project' case three potential scenarios have been defined: High case, Base case and Low case which are based on realistic assumptions about what could happen in each of the markets. The analysis undertaken so far only considers the Base case, and the assumptions for the Low and High cases will need to be discussed and agreed.

The quantitative economic and financial analysis has been done for all proposals except those at Stromness & Copland's Dock and Lyness – for these there is a qualitative summary of beneficiaries and impacts (see Appendix B).

**The masterplan proposals altogether return a very positive economic Net Present Value (NPV) in the Base case, which indicates that from an economic viewpoint, they are worthwhile. On an individual basis, all proposals generate positive NPVs.**

**It is estimated that successful implementation of all masterplan proposals will generate between £185m and £331m in additional GVA over the next 20 to 30 years. In addition, at least 130 cumulative jobs, mostly in Orkney, are expected to be generated or safeguarded by 2030, as well as several hundred more jobs in offshore renewables and offshore-related support activities in Orkney and Scotland. As the local supply chain strengthens, more of the jobs and the value added will be retained in Orkney.**

### Summary results by proposal

There are considerable uncertainties regarding the capital costs, particularly for Scapa Deep Water Quay. As the proposals progress and more information from surveys and design work becomes available, these risks will be reduced as costs are refined. We have included Optimism Bias on the capital costs as shown below. **Even allowing for substantial escalation in capital costs, the proposals still return a positive economic NPV overall as summarised below.**

#### Economic Return on Major Projects

Proposal (£000s)	Capital cost Base case	Optimism Bias	Capital cost (with Optimism Bias)	ENPV Base case	ENPV (with Optimism Bias)
Kirkwall Pier	34,118	30%	39,927	£12.0m	£6.7m
Hatston	45,092	30%	52,828	£68.0m	£61.1m
Scapa Pier	12,988	30%	15,187	£1.8m	-£0.3m
Scapa Deep Water Quay	76,276	70%	115,673	£37.9m	£3.3m
All projects	168,474		223,615	£107.8m	£59.0m

The following page presents further details on the substantial positive impacts on GVA and employment.

## Summary of costs and revenues

Base case (£'000)	2020	2021	2022	2023	2024	2025	2026	2030	2040	2050
Total cost	£13,521	£23,699	£22,827	£23,777	£28,802	£37,686	£19,005	£767	£767	£767
Harbour revenue	£0	£0	£530	£530	£862	£1,192	£1,207	£3,092	£3,315	£3,315
<b>Revenue – Cost</b>	<b>-£13,521</b>	<b>-£23,699</b>	<b>-£22,297</b>	<b>-£23,247</b>	<b>-£27,939</b>	<b>-£36,494</b>	<b>-£17,798</b>	<b>£2,325</b>	<b>£2,547</b>	<b>£2,547</b>

The above comparison of costs and revenues for all proposals shows that the additional operating costs will be significant in relation to the additional revenue, but that the Harbour Authority will be able to meet them.

## Summary of GVA impacts

Base case (£000s)	2020	2021	2022	2023	2024	2025	2026	2030	2040	2050
Total direct GVA	£0	£0	£415	£415	£1,407	£2,601	£3,682	£8,406	£8,564	£8,564
Total indirect & induced	£0	£0	£220	£220	£822	£1,509	£2,132	£4,896	£4,989	£4,989
<b>Total GVA</b>	<b>£0</b>	<b>£0</b>	<b>£635</b>	<b>£635</b>	<b>£2,229</b>	<b>£4,109</b>	<b>£5,813</b>	<b>£13,302</b>	<b>£13,553</b>	<b>£13,553</b>

## Summary of employment impacts

Base case	2020	2021	2022	2023	2024	2025	2026	2030	2040	2050
Direct employment	35	35	36	36	76	79	80	415	419	419
Indirect & induced employment	18	18	19	19	39	40	41	243	245	245
<b>Total employment</b>	<b>53</b>	<b>53</b>	<b>55</b>	<b>55</b>	<b>115</b>	<b>119</b>	<b>121</b>	<b>658</b>	<b>664</b>	<b>664</b>

## 5. ENVIRONMENTAL CONSIDERATIONS

## Introduction

A Strategic Environmental Assessment (SEA) of the Draft Orkney Harbours Masterplan Phase 1 has been undertaken by Intertek. This section presents a high level summary from the SEA Environment Report.

The aim of the SEA is to fulfil the requirement of EU Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive), as transposed into Scottish Law by the Environmental Assessment (Scotland) Act 2005.

The Environmental Report identifies, describes and evaluates the likely significant effects of the masterplan proposals and provides an early and effective opportunity for the Consultation Authorities and the public to offer views on any aspect of this Environmental Report.

The assessment of effects is based around a set of SEA objectives (see opposite).

There is the potential for negative effects on each of the SEA topics arising from the implementation of the masterplan proposals.

These potential impacts are mainly resulting from activities during the construction phase. Good planning and selection of mitigation measures and implementation of them will mitigate many of these potential negative effects.

Potential impacts on the SEA topics are summarised overleaf.

## SEA objectives

SEA topic	SEA objectives
Air	<ul style="list-style-type: none"> <li>To maintain or improve air quality and reduce emissions of key pollutants.</li> </ul>
Biodiversity, flora and fauna	<ul style="list-style-type: none"> <li>Avoid damage to the biodiversity, flora and fauna within the vicinity of the Orkney Islands.</li> <li>Prevent introduction of new invasive species into the Orkney Islands.</li> </ul>
Climatic factors	<ul style="list-style-type: none"> <li>Minimise greenhouse gas emissions and the Harbour Authority's carbon footprint.</li> </ul>
Cultural heritage	<ul style="list-style-type: none"> <li>Prevent damage to or loss of heritage features including maritime heritage.</li> </ul>
Landscape	<ul style="list-style-type: none"> <li>Protect the landscape/seascape character and visual amenity in the vicinity of the area.</li> </ul>
Material assets	<ul style="list-style-type: none"> <li>Promote the sustainable use and management of material assets.</li> <li>Meet the objectives of the Zero Waste Plan.</li> </ul>
Population and human health	<ul style="list-style-type: none"> <li>Improve the safety record of the harbours and improve safety for the sea users.</li> <li>Protect and improve human health and wellbeing through improved environmental quality.</li> </ul>
Soils	<ul style="list-style-type: none"> <li>Maintain or improve soil quality and prevent any further degradation of soils.</li> </ul>
Water	<ul style="list-style-type: none"> <li>Protect and enhance the state of the water environment.</li> </ul>

## Potential effects arising from the masterplan proposals

SEA topic	Potential effects
Air	<ul style="list-style-type: none"> <li>Negative effects on air include increased emissions and dust (during construction); change to local air quality; and additional traffic (sea and road) following implementation of the developments could lead to higher future emissions during the operation phase.</li> </ul>
Biodiversity, flora and fauna	<ul style="list-style-type: none"> <li>Negative effects on biodiversity, flora and fauna may include underwater noise and visual impacts resulting in disturbance of birds and marine mammals; direct habitat loss and disturbance; effects on designated sites (indirectly through vessel movements or disturbance or loss of habitats and species during construction and operation).</li> </ul>
Climatic factors	<ul style="list-style-type: none"> <li>Negative effects on climatic factors include increase in Green House Gas (GHG) and carbon footprint during construction and operation.</li> </ul>
Cultural heritage	<ul style="list-style-type: none"> <li>Potential negative effects on cultural heritage include disturbance of archaeology during construction; and long-term effects due to change in the cultural setting.</li> </ul>
Landscape	<ul style="list-style-type: none"> <li>Potential negative effects on landscape include changes to landscape character; effects on national scenic area; and general deterioration of visual amenity/seascape.</li> </ul>
Material assets	<ul style="list-style-type: none"> <li>Negative effects on material assets could arise due to an increase in waste due to dredging and additional vessels visiting the harbour and piers.</li> </ul>
Population and human health	<ul style="list-style-type: none"> <li>Negative effects on human health and population include effects on the safety of harbour users as introduction of new structures presented physical barriers affecting navigation. This could lead to an increase in accidents. In addition, increased vessel movements due to additional traffic could lead to an increase in accidents and incidents. There could also be health effects from increased dust and emissions and disturbance and nuisance impacts from construction and increased shipping traffic. Benefits include sustainable use of material assets through the enhancement of existing port facilities. The development and enhancement of facilities could lead to employment opportunities (both during construction and operation).</li> </ul>
Soils	<ul style="list-style-type: none"> <li>Negative effects on soils include introduction of new sources of pollution, erosion of coastline due to changes in wave climate and effects on soil function and land use changes.</li> </ul>
Water	<ul style="list-style-type: none"> <li>Negative effects on water include degradation of water quality due to short term mobilisation of contaminated sediments and turbidity impacts; hydrodynamic changes due to changes to the shoreline and dredging; and follow on morphological changes, though these are expected to be minor. In addition, degradation of water quality through accidental release of fuel or vessel containment.</li> </ul>



### Mitigation and enhancement measures

Mitigation measures will be selected during the Environmental Impact Assessment (EIA) process at project level and through detailed planning and design – when the specifics of the developments can be optimised through detailed feasibility studies and design in order to limit the potential impacts on sensitive receptors.

The timing of construction works should be planned to avoid any potential for negative cumulative impacts or inter-relationships with other schemes, plans or projects.

All works and planning of works should be undertaken with respect to all relevant legislation, licencing and consent requirements and recommended best practice.

Examples of key mitigation measures proposed in the SEA Environment Report are shown opposite.

- Development of a Construction Environmental Management Plan detailing how impacts on biodiversity, flora and fauna would be avoided/mitigated.
- Appointment of Ecological Clerk of Works for each construction project.
- Surveys to determine European Protected Species and basking shark presence in areas where development is proposed.
- Presence of marine mammal observed where works may generate loud underwater noise.
- Undertake construction works during less sensitive periods to avoid disturbance to birds.
- Dredging mitigation strategy and implementation of good practices.
- After construction landscaping, re-vegetation and habitat enhancement should be undertaken in line with appropriate guidelines.
- If archaeological features are identified construction should be supervised by a qualified archaeologist and combined with sensitive construction methods and restoration to minimise potential damages.
- Re-use of dredged materials where possible.
- Each development should be subject to a detailed Flood Risk Assessment at the planning phase.

## 6. MANAGEMENT AND COMMERCIAL CONSIDERATIONS

## Introduction

The masterplan sets out a vision for Orkney Harbours. It is a live document and should be reviewed regularly so that it remains relevant. In particular it should be reviewed following the outcome of the OIITS Study with a view to developing Phase 2.

This section considers aspects that are key to the implementation of masterplan proposals:

- Potential phasing of proposals.
- Project dependencies.
- Planning policy framework.
- Partnerships and engagement.
- Funding.
- Implementation.

## Potential phasing of proposals

The phasing of proposals ultimately depends on a number of key factors:

- Are any proposals critical in terms of maintaining operational activity, safety, etc?
- Are there dependencies between proposals which might influence when they are delivered?
- Is there any merit in delivering some proposals in a phased approach – e.g. cost savings?
- What are the key priorities, are there ‘quick wins’ that can be delivered easily and quickly but which also offer clear value for money?
- What is the appetite among stakeholders regarding significant investment in infrastructure with a view to securing long-term benefit for Orkney?

A clear understanding of the financial and economic impacts will make it easier to determine which proposals should be prioritised on a value for money basis.

Finally, the level of Council support and commitment will play a pivotal role in prioritising proposals, phasing and funding.

### Project dependencies

Project dependencies arise where the delivery of masterplan proposals is affected in some way by other projects or factors:

- Ability to attract funding is a key dependency in that it will govern which proposals can proceed and when. Similarly commitment of key stakeholders politically and operationally, as well as financially, will influence when some proposals might be delivered.
- Outcome of the OIITS Study and the future provision and requirements of internal ferry vessels will have a key influence on masterplan proposals relating to ferry infrastructure.
- Proposals at Hatston may be influenced by the terms of the new Northern Isles ferry services contract – there may be a new operator in place and there could be changes to timetables for external ferries.
- The expansion of the marina at Kirkwall Pier is dependent on being able to remove ferry vessels from the east basin – thus it is dependent on the construction of new quayside to the north.
- As and when the Scapa Deep Water Quay proposal is progressed, this should be done with cognisance of future planned activity at Flotta and any timescales for decommissioning there – there could be a future opportunity for the development of a deep water quay at Flotta either as an alternative or complementary option, including LNG hub and spoke and energy supply opportunities at Flotta.
- Developments and projects within specific sectors may influence some proposals in how and when they are developed – particularly oil and gas, aquaculture, fishing, renewables and boat repair and maintenance.

### Integration with the planning and policy framework

It is essential that this masterplan is aligned with the local planning and policy framework, with a view to guiding future decision-making on the development of Orkney's harbour infrastructure. The masterplan identifies proposals that may require consideration within future iterations of the Orkney Local Development Plan (ODLP) and proposals that may need to be considered within future revisions of the adopted OLDP Settlement Statements.

From a policy perspective it is envisaged that the Harbour Authority will work closer with Government bodies to ensure that the masterplan is aligned with planning and policy developments, which might lead to funding opportunities through the Scottish Government.

In parallel to the development of this masterplan a set of proposed development planning policy principles have been defined in relation to Scapa Flow (see Appendix C).

## Partnerships and engagement

**Ongoing dialogue and engagement with stakeholders is fundamental in ensuring that the masterplan proposals are fit for purpose and meet the needs of existing and future users.**

The purpose of engaging with stakeholders is:

- To ensure that they are aware of what is happening in terms of development and the potential impacts.
- To maintain buy-in for masterplan proposals – as these can be developed over a long period of time.
- To obtain information and views on particular projects which can be used to refine proposals and processes.

There has already been substantial engagement with harbour users and local stakeholders throughout the development of the masterplan.

A stakeholder engagement plan will be developed, setting out which stakeholders need to be engaged at what point in the process of delivering each of the masterplan proposals.

A summary of key stakeholders is presented opposite.

## Key stakeholders

- Orkney Islands Council.
- OIC Marine Services.
- All harbour users, including aquaculture companies, ferry operators, cargo/shipping/haulage companies, fishing boats, cruise, marina operators and users, renewable energy developers, marine leisure users, users of the existing fish/shellfish facilities, businesses based in the Harbour Estate or using facilities there.
- Potential new users/customers.
- Industry associations and representative bodies.
- Local community through Community Councils and other key local groups.
- HIE.
- Scottish Government.
- Crown Estate.
- Marine Scotland.
- Transport Scotland.
- Environmental authorities (e.g. SNH, HES, SEPA, etc).

## Funding

There will likely be a range of possible funding sources that will need to be explored:

- Harbour Authority own funds and ability to borrow money.
- Orkney Islands Council through various departments and possible contribution from the Strategic Reserve (formerly the Harbours Fund) in particular.
- HIE.
- Scottish Government.
- Private sector entities.
- Developer contributions.
- If funding is sourced from outside of Orkney, there may be some merit in considering mechanisms developed by the Scottish Futures Trust (SFT).

## Implementation

Following publication of the final masterplan, the Harbour Authority will progress implementation of the masterplan proposals. This may comprise the following steps:

- Completion of an Outline Business Case which clearly sets out the financial and economic impacts associated with each proposal, as well as what the funding gaps might be.
- Development of a detailed implementation plan and governance strategy, outlining what the project management arrangements will be for the planning and delivery of proposals. A key element of this will be the succession strategy with regard to Harbour Authority management.
- Preparation of feasibility studies.
- Dialogue with potential funders.
- Ongoing engagement with key stakeholders.

## APPENDIX A – POLICY CONTEXT



### Scotland's Economic Strategy

The Scottish Government's purpose is to create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth. The Strategy focusses on two pillars to achieve this objective: increasing competitiveness and tackling inequality.

This is underpinned by four priorities for sustainable growth: **investment, innovation, inclusive growth and internationalisation.**

### National Planning Framework 3 (4)

This framework sets out a long-term vision for development and investment across Scotland for the next 20 to 30 years.

Hatston and Lyness are identified as 'enterprise areas' and as additional NRIP (renewable) sites, whilst Kirkwall is recognised as an 'island hub for investment'.

Pentland Firth and Orkney Waters are earmarked as one of four 'energy hubs' in Scotland.

Scapa Flow is highlighted as one of five key ports in Scotland, on the basis that there could be opportunities arising from the opening up of new shipping routes across the Arctic.

**There is scope for the masterplan outputs to inform the next version of the Framework (National Planning Framework 4), in particular to secure a major infrastructure project of national significance.**

### Infrastructure Investment Plan 2015

The Infrastructure Investment Plan sets out priorities for investment and a long-term strategy for the development of public infrastructure in Scotland.

The Plan states that "action is being taken across Government programmes to empower our island communities and, recognising the important role infrastructure plays in realising our islands potential, we will prioritise relevant transport, energy and digital investment."

**There is scope for the masterplan outputs to inform the next version of the Plan.**

### National Transport Strategy (NTS)

The NTS provides the framework for enhancing Scotland's transport system, in response to the main transport challenges that Scotland faces, which in turn contributes to improvement in its economic, environmental and social performance. There are three key strategic outcomes: tackling congestion and lack of integration; reducing emissions and improving the quality, accessibility and affordability of public transport.

**The NTS is due to be refreshed in 2019 – there is scope for the masterplan outputs to inform the next version of the NTS.**

### Scotland's National Marine Plan

This plan sets out strategic policies for the sustainable development of Scotland's marine resources out to 200 nautical miles. The key aim of this plan is:

“Achieving a sustainable economy, promoting good governance and using sound science responsibly are essential to the creation and maintenance of a strong, healthy and just society capable of living within environmental limits.”

### Marine Tourism Strategy

The vision of Scotland's Marine Tourism sector strategic framework, “Awakening the Giant” is: “By 2020 we want Scotland to be “a **marine tourism destination of first choice** for high quality, value for money and memorable customer experience delivered by skilled and passionate people.”

The strategy seeks to increase visitor expenditure from sailing tourism from £101m in 2010 to £145m by 2020 and to increase the overall economic value of the sector to over £450m by 2020.

### Ferries Plan (2013 – 2022) and related studies

The Ferries Plan aims to maximise the economic and social potential of Scotland's remote rural and island communities. Its intention is provide a clear view of the way forward for lifeline ferry services in Scotland, addressing issues of funding, fares, accessibility, responsibility and the environment. With reference to the internal ferry services in Orkney and Shetland, the Plan states that there would be discussions with the relevant local authorities to determine the future running of such ferry services. Negotiations with Transport Scotland are currently underway, which may result in the inter-isle ferry services being operated in-house by the Scottish Government.

Following an Appraisal of Options for the Specification of the Northern Isles Ferry Services (NIFS) in 2017 the tender process is now underway to select an operator for these external ferry services. The contract covers ferry services between the Scottish mainland and the Northern Isles of Orkney and Shetland to transport passengers, vehicles and freight.

The full specification for these services will be made available to bidders during the tendering process. The contract is due to commence in October 2019 and run for a maximum of eight years.

A revised Ferries Plan is due to be published in 2022.

### HIE Operating Plan

HIE's Operating Plan (2018-2019) sets out HIE's purpose, vision and priorities and the actions to build the region's future.

- Accelerating Business Growth: supporting businesses to grow through investment, innovation and internationalisation.
- Strengthening Communities: enabling communities, particularly in remote and rural areas, to make a significant contribution to place-based development.
- Supporting Growth Sectors: sectoral development with a focus on sub-sectors and supply chains offering distinctive regional opportunities.
- Developing Regional Attractiveness: making the Highlands and Islands a globally-attractive region in which to live, work, study and invest.

### HITRANS Regional Transport Strategy (RTS)

The RTS vision is to deliver connectivity across the region which enables sustainable economic growth and helps communities to actively participate in economic and social activities. To achieve these high level objectives, there are four transport objectives:

- Reduce journey times and improve reliability and resilience.
- Improve safety of transport and travel.
- Tackle capacity constraints.
- Improve quality, accessibility and integration of travel.

### Our Islands Our Future (Islands Act 2018)

In 2013 the Scottish Government, together with the Council leaders in Orkney, Shetland and Western Isles, formed the Island Areas Ministerial Working Group. As part of this initiative, the Empowering Scotland's Island Communities prospectus set out proposals for increased autonomy for island communities and a package of measures to ensure that Scotland's islands can address the challenges they face and seize the opportunities for economic growth that are available. The Islands (Scotland) Act 2018 has brought forward a range of these measures to ensure that island communities are empowered with the tools to realise these opportunities. A National Islands Plan is currently being drafted.

### Pentland Firth and Orkney Waters Spatial Plan

The Plan sets out an integrated planning policy framework to guide marine development, activities and management decisions, whilst ensuring the quality of the marine environment is protected. The vision is as follows:

"Pentland Firth and Orkney Waters will be a clean, healthy, safe, attractive and productive marine and coastal environment that is rich in biodiversity and managed sustainably to support thriving and resilient local communities."

### Orkney Council Plan (2018 – 2023)

The Council Plan sets out the key priorities of Orkney Islands Council, and details the projects and activities through which these priorities are to be implemented, within agreed budget.

The Plan's mission is focused on 'working together for a better Orkney'. There are five strategic priorities and a number of key priorities and aspirations which the masterplan proposals could potentially deliver against (see opposite).

### Orkney Community Plan (2017 – 2020)

The Orkney Community Plan incorporates Orkney's Local Outcomes Improvement Plan (LOIP) and describes what the Orkney Partnership (this is a partnership between OIC and other stakeholder organisations) aims to achieve, setting out its strategic priorities for action. There are three strategic priorities:

- Positive ageing – independent living; positive and valued participation in the community; long-term health and wellbeing.
- A vibrant economic environment – opportunities for young people; Orkney innovation zone; community-based enterprise and employment.
- Healthy and sustainable communities – healthy lifestyles; inclusiveness and equality; access; a sustainable health and care workforce.

### Relevant priorities and aspirations (Council Plan)

Strategic Priority	Priorities/aspirations of relevance
Connected Communities	<ul style="list-style-type: none"> <li>• Invest in marine infrastructure and business development.</li> <li>• Address workforce development to make sure we have the right people in the right place at the right time.</li> </ul>
Caring Communities	
Thriving Communities	<ul style="list-style-type: none"> <li>• The Orkney Community is able to access work, learning and leisure through a modern, robust infrastructure which supports all our communities and meets the requirements of 21<sup>st</sup> century life.</li> </ul>
Enterprising Communities	<ul style="list-style-type: none"> <li>• Continue to develop strategic projects, particularly to capitalise on the renewables sector.</li> <li>• Progress the Islands Deal to deliver innovative, enterprising and transformational projects.</li> <li>• Continue to encourage and support economic opportunities which maximise islands' opportunity and influence.</li> </ul>
Quality of Life	<ul style="list-style-type: none"> <li>• Orkney has a flourishing population with people of all ages choosing to stay, return or relocate here for a better quality of life.</li> </ul>

### Orkney's Local Development Plan (LDP) 2017

OIC adopted a new Local Development Plan (LDP) for Orkney in April 2017. It sets out a vision and spatial strategy for the development of land in Orkney over the next 10 to 20 years.

The plan sets out 15 policies for each type of development. All of the policies in the Plan are afforded equal weight in the determination of planning applications; if a proposal is contrary to any single policy then it does not accord with the Plan.

There are several supplementary guidance documents for specific planning issues and sectors.

The Plan's vision incorporates the following:

- To ensure that effective planning policies are in place to strengthen and support Orkney's communities by enabling those developments which will have a positive and sustainable socio-economic impact, and utilise locally-available resources, whilst striving to preserve and enhance the rich natural and cultural heritage assets upon which Orkney's economy and society depends.
- Orkney's settlements will act as a focus for growth in order to support existing facilities and services such as shops, schools and public transport links. Facilitating active travel will be an integral part of development planning across the county with a commitment to include well-integrated footpaths and cycleways within new developments and to connect any fragmented sections of the existing network to encourage active and healthy living.
- The Plan supports Orkney's strong maritime links and guides relevant developments to key land around ports and harbours.

### Kirkwall Urban Development Framework

The Urban Design Framework (UDF) sets out land use planning policy and development land allocations for Kirkwall.

A number of planning and design principles are focussed on enhancing Kirkwall's sense of place, improving connectivity within the town, visual amenity and public realm aspects. There is also a principle to create a robust landscape framework for the future development of Hatston industrial area, a coastal pathway linking the town centre to Hatston, a proposed Harbour Re-purposing Zone at Kirkwall Marina and developments in other areas around Kirkwall.

### Stromness Urban Development Framework

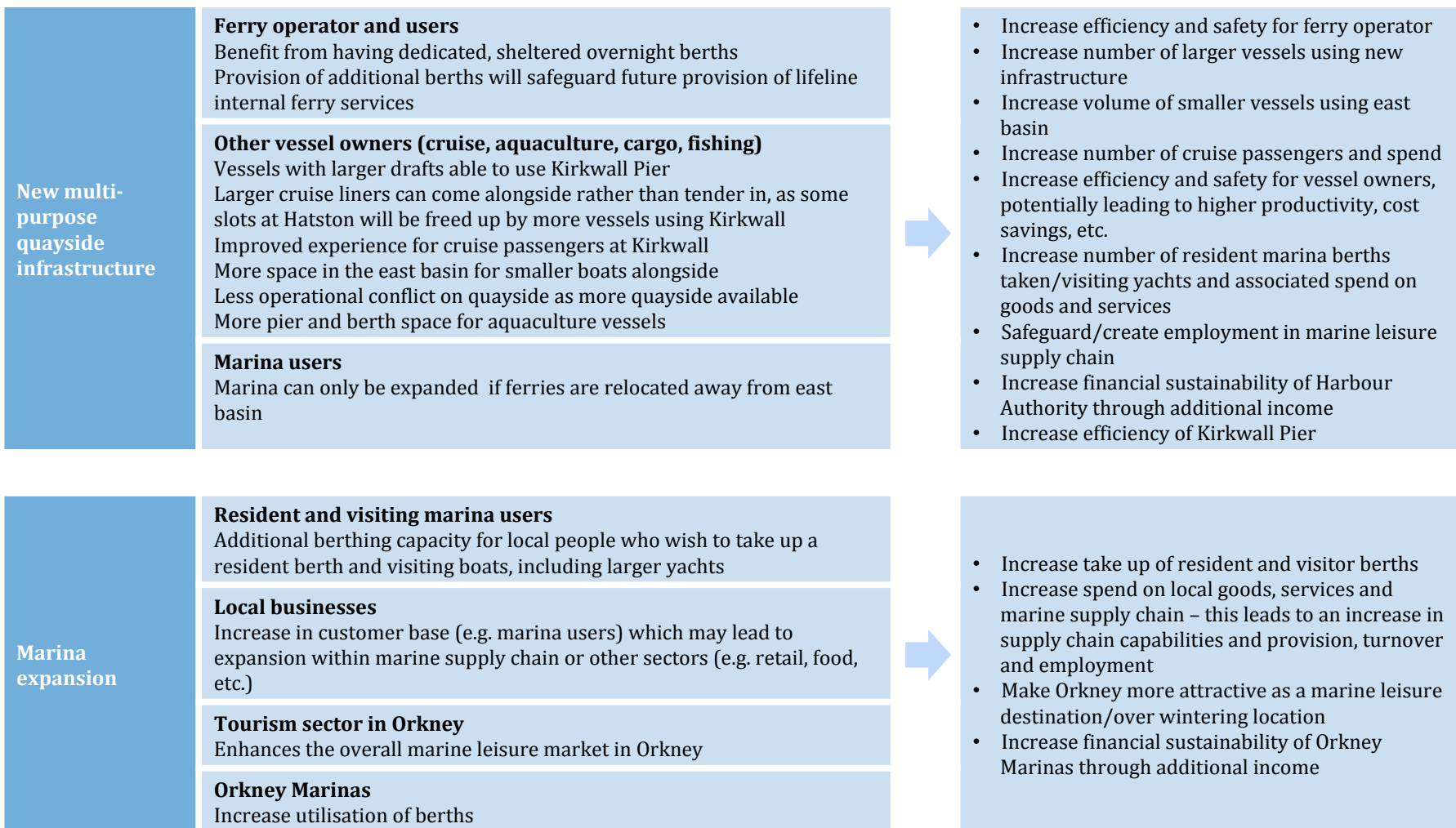
The Urban Design Framework (UDF) sets out land use planning policy and development land allocations for Stromness. Adopted in 2009.

The urban design framework contains policies and proposals for eight key areas of the town. The report has assessed a wide range of project ideas at various stages of development and recommends nine key economic development projects.

This framework is currently being revised.

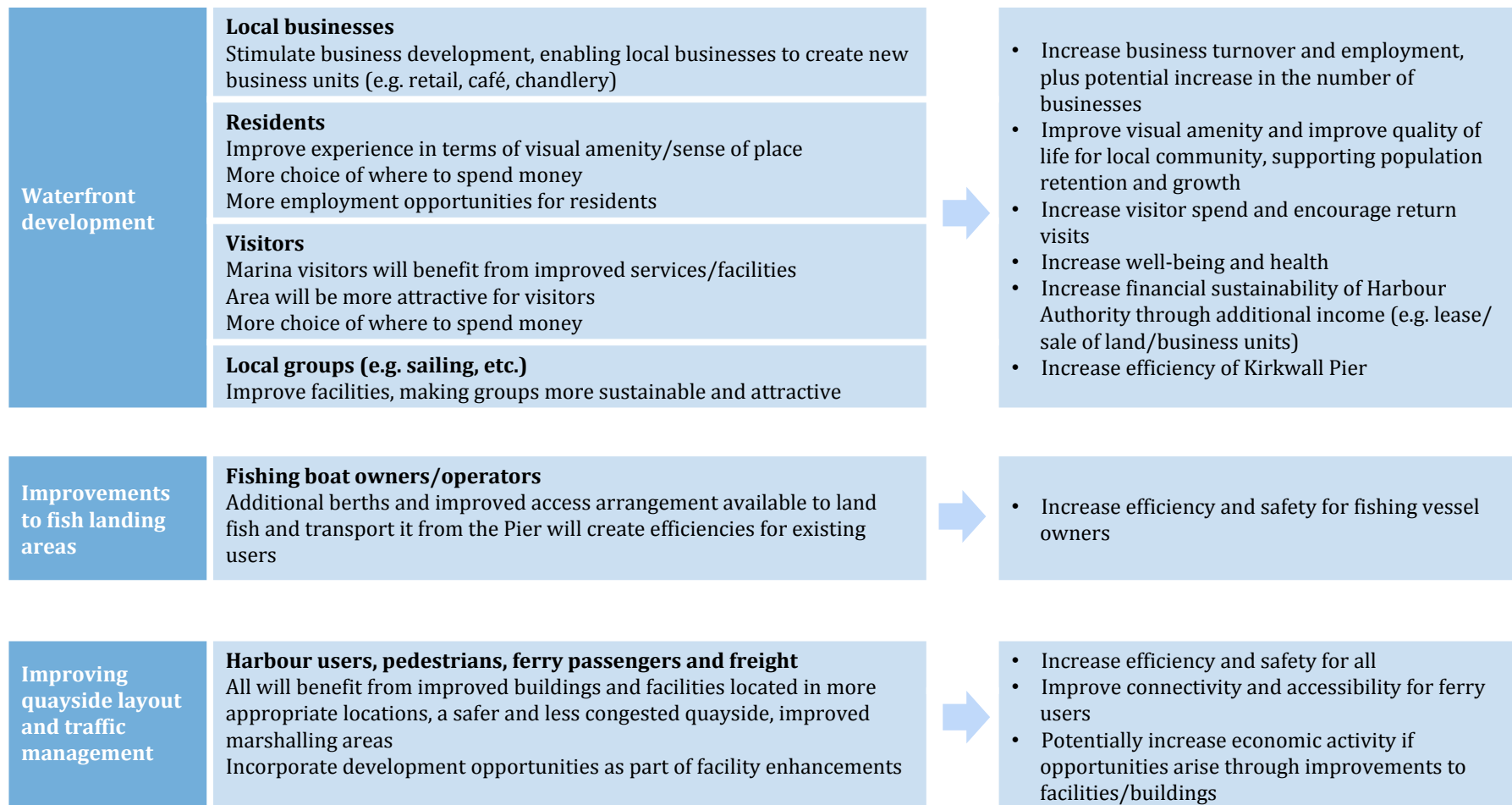
## APPENDIX B – SUMMARY OF ECONOMIC BENEFITS

## Kirkwall Pier proposals – who will benefit and potential impacts





## Kirkwall Pier proposals – who will benefit and potential impacts



## Kirkwall Pier – key assumptions

## Marina expansion

- The marina will double in size with an additional 95 berths.
- 65 berths will be for residents and 30 for visitors.
- Flexibility for visitors to use unoccupied resident berths for short stays, though this is not included in the analysis.

## Cruise

- The additional depth and quayside at Kirkwall will enable greater flexibility in terms of meeting unmet demand in the cruise market.
- In particular, if Kirkwall can accommodate small cruise ships that currently go to Hatston (on the 'first come first served' policy), then Hatston could accommodate some of the medium/larger cruise ships that decide not to visit because they do not want to/cannot tender passengers in from anchor.
- There could also be a modest increase in the number of smaller cruise ship calls, but we have not included this potential upside.

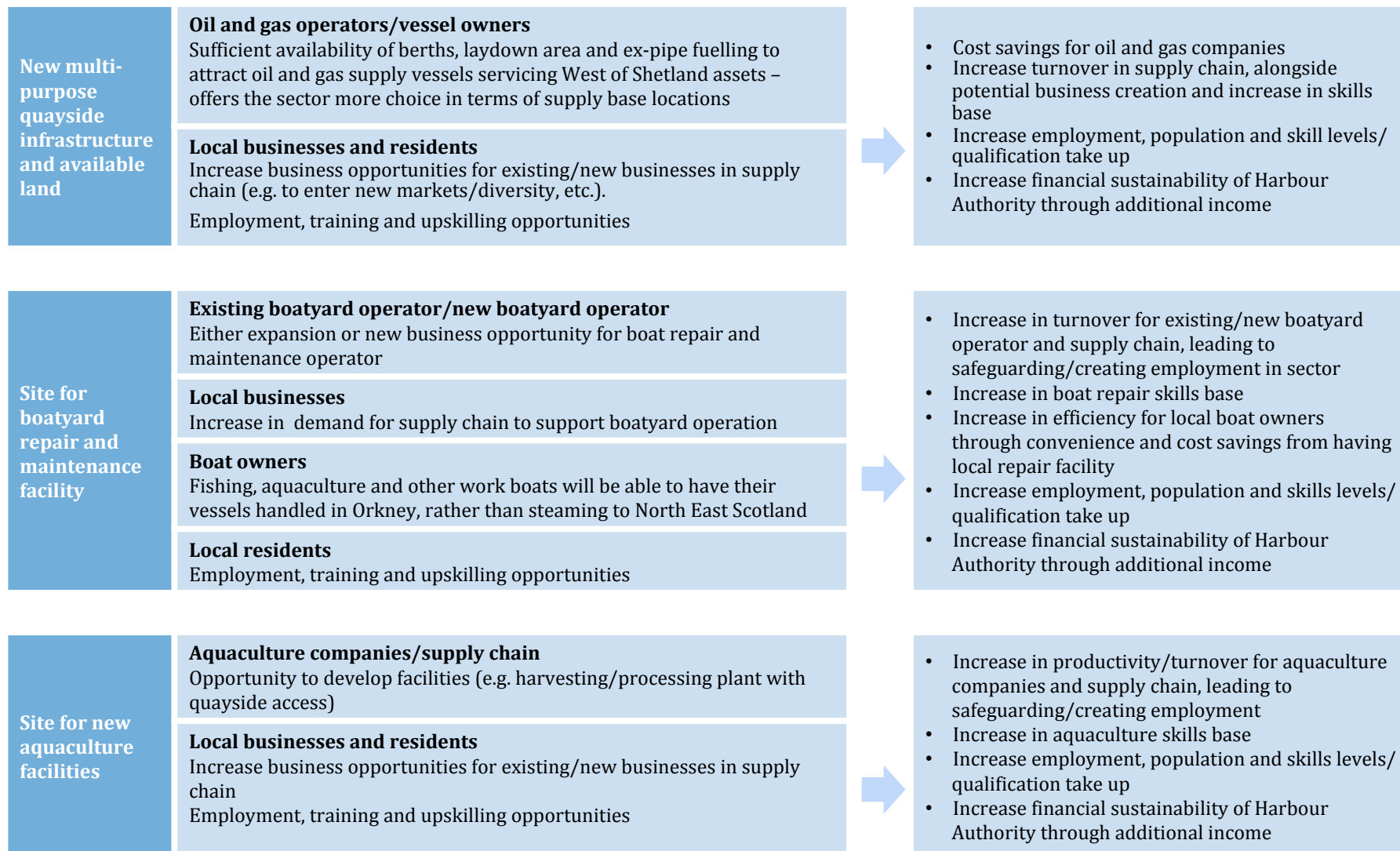
## Waterfront development area

- Area of 2.75 hectares will be created through reclamation.
- Could be for wide range of uses – marina facilities, more general marine leisure facilities, retail, tourism, transport, etc.

## Kirkwall Pier – high level results

Project Cost	£34.118m
NPV	£12.0m
Financial IRR	-£7.6m
Employment (direct + indirect & induced) in 2050	69
GVA in 2050	£1.8m

## Hatston proposals – who will benefit and potential impacts



### Hatston – key assumptions

#### Oil and gas supply base

- Additional berthing and quayside space, along with ex-pipe fuelling will enable Orkney to better serve the oil & gas sector as an operations/supply base, served by PSVs and SSVs and other offshore vessels.
- Orkney is in close proximity to the West of Shetland oil assets.
- Assumptions are based on Orkney handling between 2% and 5% of 2017 traffic at Aberdeen.

#### Aquaculture

- Potential requirement in short to medium term for a processing/harvesting facility with quayside access.
- One existing processing plant is near capacity and relies on all salmon transported by road tanker.
- This development would enable greater efficiencies and growth in the volume of farmed salmon in Orkney.

#### Other potential outcomes (unquantified)

- There are many other possible developments and benefits arising from enhancements to harbour infrastructure at Hatston: e.g. potential for the establishment of a boatyard repair facility, facilities for handling renewables, facilities to support other aquaculture activities, the development of a logistics hub, improving efficiencies around ferry and cruise operations, for example.
- These opportunities have not been quantified at present, given lack of clarity with regard to market requirements at this time.

### Hatston – high level results

Project Cost	£45.092m
NPV	£68.0m
Financial IRR	-£7.9m
Employment (direct + indirect & induced) in 2050	56
GVA (direct + indirect & induced) in 2050	£8.7m

## Scapa Pier proposals – who will benefit and potential impacts

### Pier extension and provision of deeper water

#### Fuel operators and suppliers

Certainty that Orkney's internal fuel supplies can continue to be delivered to the existing tank farm at Scapa

#### Oil and gas operators and businesses

Increased safety and efficiency will make Orkney Harbours more attractive as a service provider in this sector and enable much better support to vessels/platforms utilising the deep sheltered anchorage

#### Local businesses

Continuity of supply of oils and fuels required by local businesses  
Maintain and increase role of supply chain in servicing activity in Scapa Flow

#### Residents

Continuity of supply of oils and fuels required by residents



- Resilience of fuel supply for Orkney safeguards businesses and employment across all sectors
- Fuel operator can continue to operate fuel tank farm at Scapa, rather than construct a new farm elsewhere
- More efficient 'at anchor' operations, which will safeguard and potentially enable this sector of business to grow, which in turn leads to higher spend on supply chain activities
- Certainty of domestic and vehicular fuel supply enhances population retention

### Reclamation and marine leisure berths/slipway

#### Local business – marine leisure sector

Provision of berths for marine leisure may act as catalyst for marine tour operators to grow their business or start new businesses

#### Visitors

Provision of a dedicated berth for marine tour operators may enhance the visitor experience



- Increase in marine leisure sector business activity
- Increase in marine tours offered in Scapa Flow, leading to increased visitors and spend

## Scapa Pier – key assumptions

## Orkney's fuel supply

- Scapa Pier is the single point of entry for Orkney's entire supply of domestic and commercial fuels.
- Should the pier be out of action for any reason, then fuel would need to be shipped by road tankers across the Pentland Firth, then by road to the storage depot.
- Vessels bringing in fuel are getting bigger and some struggle to come alongside already.
- The project will reduce the probability of this being required, and hence deliver a potential cost saving over the current situation.
- Some vessels delivering fuel already struggle to come alongside, and this problem will continue to get worse as vessels get larger.

## Vessel displacement and efficiency

- Lack of berthing and quayside space impedes efficient and safe handling of rigs and vessels at anchor – on occasion harbour vessels have to divert to Stromness which costs time and money.
- Should STS volumes continue to grow, there will be considerably more pressure on this infrastructure; with growth potentially impeded.

## Marine tourism

- Assumed that a berth would be made available for marine tourism and a possible tour provider, given the lack of suitable berths for this elsewhere.
- At the same time berths could be used by small boat users, both leisure and commercial (not quantified).

## Scapa Pier – high level results

Project Cost	£12.988m
NPV	£1.8m
Financial IRR	£0.4m
Employment (direct + indirect & induced) in 2050	2
GVA (direct + indirect & induced) in 2050	£0.6m

## Scapa Deep Water Quay proposals – who will benefit and potential impacts

### New deep water quayside and yard terminal

#### Offshore wind farm developers

An option to manage offshore wind farms (construction and O&M) in Orkney rather than ports located further away – a new choice of port

#### Oil and gas operators

A new choice of port for taking rigs and platforms alongside for much more efficient support and maintenance

#### Local businesses

Increase business opportunities for existing/new businesses in supply chain

Local companies may need to diversify/upskill/employ more people

#### Residents

Employment, training and upskilling opportunities



- Cost savings for oil and gas companies and offshore wind farm developers
- Increase turnover in supply chain, alongside potential business creation and increase in skills base
- Increase employment, population and skill levels/qualification take up
- Increase financial sustainability of Harbour Authority through additional income

### Scapa Deep Water Quay – key assumptions

#### Oil and gas – handling rigs and platforms

- There are few facilities in Scotland and the UK that offer 20m depth of water that enables 6th generation rigs and platforms to be brought alongside for maintenance. Most of these rigs are serviced alongside in Norway.
- A rig generally comes alongside for 40 to 50 days and undergoes all maintenance requirements, which contributes significantly to the local economy: based on what happens now with rigs at anchor in the region of £400K per visit.
- It is envisaged that circa seven rigs could be serviced per year initially.
- There is already market interest in this facility.

#### Offshore wind

- Six sites for offshore wind farms are located in close proximity to Orkney, making Orkney the ideal port location for construction and O&M. Each site could host between 80 and 100 turbines.
- These sites are due to be leased in 2019, which could mean consent in 2024 and start of construction in 2027.
- In the base case, we have modelled sites going ahead from 2027 each with 80 turbines, which amounts to 20 turbines a year from 2027 to 2049.

#### Passing trade and vessel calls

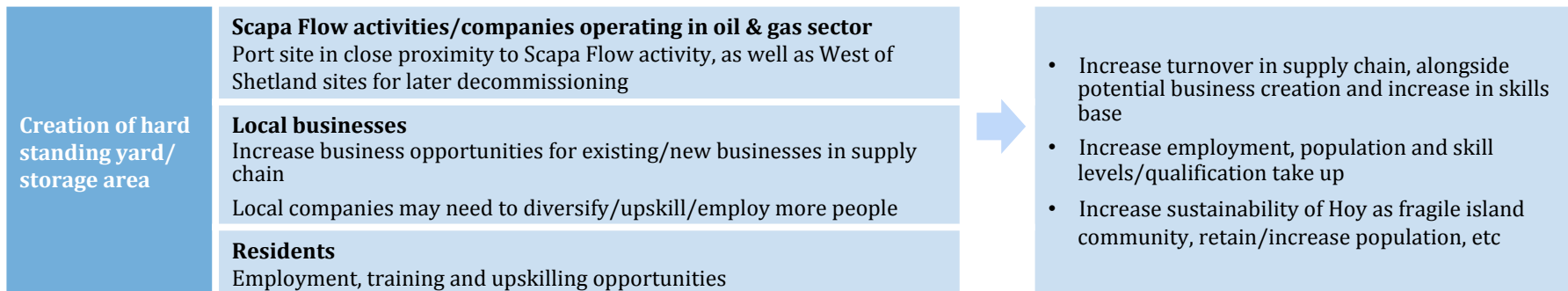
- With this facility in place there is a likelihood that larger vessels, such as tankers, may choose to come alongside for maintenance.

### Scapa Deep Water Quay – high level results

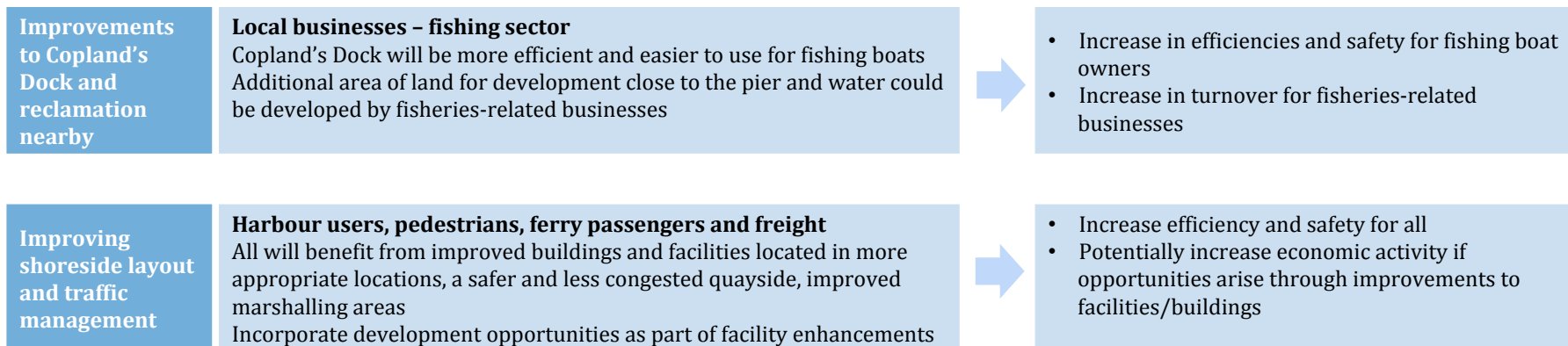
Project Cost	£76.276m
Economic NPV	£37.9m
Financial IRR	-£5.9m
Employment (direct + indirect & induced) in 2050	537
GVA (direct + indirect & induced) in 2050	£2.4m



## Lyness proposals – who will benefit and potential impacts



## Stromness and Copland's Dock proposals – who will benefit and potential impacts



Summary results – Base case										
All proposals	2020	2021	2022	2023	2024	2025	2026	2030	2040	2050
<b>Costs</b>										
Capital expenditure	£13,521	£23,699	£22,774	£23,724	£28,710	£37,363	£18,682	£0	£0	£0
Operating costs	£0	£0	£53	£53	£92	£323	£323	£767	£767	£767
<b>Total costs</b>	<b>£13,521</b>	<b>£23,699</b>	<b>£22,827</b>	<b>£23,777</b>	<b>£28,802</b>	<b>£37,686</b>	<b>£19,005</b>	<b>£767</b>	<b>£767</b>	<b>£767</b>
<b>Benefits</b>										
Total direct benefit	£0	£0	£136	£136	£1,801	£3,223	£4,325	£13,020	£13,365	£13,365
Total indirect and induced	£0	£0	£28	£28	£1,000	£1,714	£2,256	£6,947	£7,141	£7,141
<b>Total benefits</b>	<b>£0</b>	<b>£0</b>	<b>£164</b>	<b>£164</b>	<b>£2,801</b>	<b>£4,937</b>	<b>£6,581</b>	<b>£19,967</b>	<b>£20,506</b>	<b>£20,506</b>
<b>Net benefits</b>	<b>-£13,521</b>	<b>-£23,699</b>	<b>-£22,663</b>	<b>-£23,613</b>	<b>-£26,001</b>	<b>-£32,749</b>	<b>-£12,424</b>	<b>£19,200</b>	<b>£19,739</b>	<b>£19,739</b>
<b>NPV at 3.5% (£m)</b>	<b>£107.8m</b>									
<b>Financial</b>										
Costs	£13,521	£23,699	£22,827	£23,777	£28,802	£37,686	£19,005	£767	£767	£767
Harbour income	£0	£0	£530	£530	£862	£1,192	£1,207	£3,092	£3,315	£3,315
<b>Net revenue</b>	<b>-£13,521</b>	<b>-£23,699</b>	<b>-£22,297</b>	<b>-£23,247</b>	<b>-£27,939</b>	<b>-£36,494</b>	<b>-£17,798</b>	<b>£2,325</b>	<b>£2,547</b>	<b>£2,547</b>
<b>Financial IRR</b>	<b>-6.5%</b>									

The masterplan proposals altogether return a very positive economic NPV in the Base case, which indicates that from an economic viewpoint, they are worthwhile. The negative financial return to Harbours arises because Harbours incurs the investment cost, but the wider community is the main beneficiary, and revenue from dues and charges is under 25% of total direct benefits.

## APPENDIX C – PROPOSED DEVELOPMENT POLICY PRINCIPLES

### Proposed Development Policy Principles

As part of the masterplanning process a number of policy principles to safeguard harbour operations in Scapa Flow have been developed.

It is paramount, both from a Harbour Authority point of view and from a wider community perspective that existing and future harbour operations in Scapa Flow are safeguarded as far as possible in terms of safe navigation, manoeuvring, anchorages and provision of necessary harbour infrastructure.

Scapa Flow is an important EU location for STS operations for the transfer of crude fuel oils and LNG. At present there are 15 designated anchor berths in Scapa Flow including four STS berths. There has been significant growth in the volume of STS coupled with new operations involving the supply and maintenance of oil platforms at anchor.

Looking to the future there is significant potential for growth, encapsulated in the masterplan proposals for Scapa Flow.

Whilst this masterplan only covers the period up to 2040 there may be well be longer term requirements for more harbour infrastructure around Scapa Flow. At the same time, Flotta may offer a unique industrial opportunity in the longer term, with its current facilities transforming to meet future market needs.

Three Development Policy Principles are proposed and presented overleaf.

### Future coastal and marine planning policy in Orkney

It is proposed that the final Orkney Harbours Masterplan – Phase 1 be adopted as Planning Policy Advice providing status for the Plan, and the Policy Principles for Safeguarding Harbour Operations, as a material consideration in the determination of relevant planning and works licence applications.

Following public consultation and the adoption of the Final Masterplan, it is proposed that the Harbour Authority development policy principles to safeguard existing and future harbour operations should inform:

- The future review of the Orkney Aquaculture Supplementary Guidance.
- The future review of the Orkney Local Development Plan.
- Future Orkney Islands Regional Marine Plan.

The future Orkney Local Development Plan, Orkney Aquaculture Supplementary Guidance and the Orkney Islands Regional Marine Plan will be subject to public consultation.

## Proposed Development Policy Principles: Safeguarding harbour operations in Scapa Flow

### Proposed Development Policy Principle 1: Safeguarding strategic importance of Scapa Flow coastal areas

- No marine or coastal development and/or activities should have a significant adverse impact on Harbour Area operations and/or navigational safety on the east coast of Scapa Flow from Scapa Beach to St Mary's within a buffer zone of 1,500m from the shore. The purpose of this is to safeguard any future proposals to build deep water harbour infrastructure, or any other strategically important harbour infrastructure, along this coastline and allow for safe navigation and manoeuvrability.
- The north coast of Scapa Flow stretching from Scapa Beach to Stromness is regarded as a strategically important area for potential future harbour development and could be subject to new harbour infrastructure in the longer term.

### Proposed Development Policy Principle 2: Safeguarding strategic navigational channels for all vessels entering and exiting Scapa Flow

No marine or coastal development and/or activities should impede the following recognised navigation channels:

- All ferry navigational routes in Scapa Flow.
- Navigational routes for tankers and other large vessels.
- Channels/approaches associated with Flotta and Lyness.

Similarly no marine or coastal development and/or activities should impede safe passage through any sound (e.g. West Weddel Sound, Switha Sound, Gutter Sound), including Widewall Bay which acts as a safe escape route for large tankers.

### Proposed Development Policy Principle 3: Safeguarding operational safety and flexibility of Scapa Flow anchorages

Based on operational evidence, it is the view of the Harbour Authority that the Aquaculture Supplementary Guidance 1,000m area of sensitivity associated with STS berths and the other designated anchor berths in Scapa Flow is insufficient, for the following reasons:

- If weather changes once a vessel is in position (at for example STS 4), then it can be the case that the vessel is within only 400m of potential fish farm cages located at the 1,000m point.
- Anchor dragging.

A 1,500m area of sensitivity associated with STS berths and the other designated anchor berths is therefore proposed by the Harbour Authority. The operational area to the north of Flotta Oil Terminal should be safeguarded for harbour operations also.

## Proposed Development Policy Principles: Safeguarding harbour operations in Scapa Flow

