

Port of Cork Masterplan 2050

May 2023





Table of Contents

Foreword

Executive Summary

Section A: Masterplan Backdrop

1. Introduction

- 1.1 Purpose
- 1.2 Background
- 1.3 Sustainable Development Goals
- 1.4 Strategic Goals
- 1.5 Methodology

2. Port Profile

- 2.1 History of Port of Cork
- 2.2 Port Characteristics
- 2.3 Recent Port Activities
- 2.4 Existing Port Infrastructure
- 2.5 Other Private Port Facilities

Section B: Influencing Factors

3. Policy

- 3.1 European Directives and Policy
- 3.2 National Policy and Guidance
- 3.3 Regional Policy and Guidance
- 3.4 Local Planning Policy and Guidance

4. Global Trends

- 4.1 Global Macro-Economics
- 4.2 GDP
- 4.3 Population Increase
- 4.4 Consumer Awareness
- 4.5 Net Zero and Renewables
- 4.6 International Investment
- 4.7 Agri-Products

5. Shipping Industry Trends

- 5.1 Changes to Trade Routes
- 5.2 Vessel Sizes and Industrialisation

6. Natural Environment and the Community

- 6.1 Settlements and Communities
- 6.2 Coast and Islands
- 6.3 Economic Development, Commerce, and Industry
- 6.4 Tourism, Recreation, and Heritage
- 6.5 Biodiversity and the Environment

7. Net-Zero Port

- 7.1 Environmental Management
- 7.2 Decarbonisation
- 7.3 The Port as an Energy Hub
- 7.4 Port Resilience to Change

8. Stakeholder Engagement and Consultation

- 8.1 Customers and Key Commercial Stakeholders
- 8.2 Public Consultation
- 8.3 Feedback Integration into Masterplan

9. Hinterland Transport and Connectivity

- 9.1 Road Access
- 9.2 Rail Access
- 9.3 Coastal Shipping

Section C: Development Strategy

10. Projections

- 10.1 Basis of Design
- 10.2 Containers - LoLo and ConRo
- 10.3 Liquid Bulks
- 10.4 Dry Bulks
- 10.5 Break Bulks
- 10.6 RoRo Freight – Accompanied and Unaccompanied
- 10.7 Trade Cars
- 10.8 Roll-on Roll-off Passenger Services (RoPax)
- 10.9 Cruise Ship Calls

11. Future Infrastructure Development

- 11.1 City Docks
- 11.2 Tivoli Docks
- 11.3 Marino Point
- 11.4 Ringaskiddy West
- 11.5 Ringaskiddy East
- 11.6 Cobh Cruise Terminal
- 11.7 Additional Land Requirements

12. Conclusions

- 12.1 Overview
- 12.2 Constraint and Challenges
- 12.3 Summary of Infrastructure Requirements
- 12.4 Next Steps

Appendix A – Acronyms

Appendix B – Terms of Use

Foreword

We, at the Port of Cork Company (PoCC), are embarking on a historic change. We are on a **“River to Sea Port”** journey to move our port operations from Cork City Docks and Tivoli Docks in the upper harbour downstream to modern and environmentally sustainable facilities in the lower harbour.

This once-in-a-generation move is essential for us to facilitate increasing global vessel sizes; provide consolidated, efficient, and sustainable operations for our customers; and ensure the global connectivity of the southern region.

Project Ireland 2040 has identified that the population of Ireland is expected to grow by one million people over the next 20 years. Our port will play a critical role in facilitating the economic growth of Cork, the southern region, and the island of Ireland.

Cork Harbour is one of the largest natural harbours in the world. It has been a working port for centuries, and it is one of only two ports in Ireland capable of handling all six modes of port traffic.

It is the second largest Lift-on Lift-off (LoLo) port, handling over 20% of all LoLo trade in Ireland. Some 10 million tonnes of trade passed through the Port of Cork in 2022, reflecting Ireland's strong economic growth. The Port of Cork is home to Ireland's only dedicated cruise terminal with 113 cruise ships scheduled to visit in 2023.

Cork Harbour is also one of the most important industrial areas in Ireland. Several traditional industries such as shipbuilding at Verolme Dockyards, steelmaking on Haulbowline Island, and fertiliser manufacturing at IFI have ceased. They have been replaced with newer industries, and the harbour is now of considerable importance for the pharmaceutical industry, which is a large employer in the region.

Historically, the Port of Cork has been an energy hub for the region, facilitating the import of fuels such as coal, oil, timber, and land-based wind turbines. Ireland's only oil refinery is located on the south-eastern shore, together with the adjacent Whitegate and Aghada Combined Cycle Gas Turbine (CCGT) power stations. Whiddy Island Oil Terminal in Bantry Bay continues to play a critical role in European energy storage, as it has done over the past 50 years. As the country, and the world, move away from fossil fuel consumption to tackle the effects of climate change, the Port of Cork will continue to play a key role in facilitating the future energy needs of the country as a hub for renewable fuels, transition fuels, and offshore energy streams.

We will also play our part in tackling the climate crisis. In accordance with the Government's Climate Action Plan 2023, our ambition is to achieve at least a 51% reduction in overall greenhouse-gas emissions by 2030 and to set ourselves on a path to reach net-zero emissions by 2050.

The Port of Cork is a commercial port, and – to ensure its ongoing competitiveness – we must adapt to the rapidly changing customer expectations which are pressuring the shipping industry to deliver goods in a faster, more flexible, and sustainable manner at low delivery cost. To do this, we must provide our customers with reliable, safe, high-performing facilities and services, and we must also be an efficient link in the logistics chain.

“While there are many challenges that we must overcome to deliver this ambitious plan, we believe there is a great opportunity to deliver a truly world-class port for the benefit of our country, communities, customers, and people.”

Alongside this commercial ambition, we are extremely aware of our heritage and the role we play in our local community.

As we endeavour to meet changing demands, the well-being of the people of Cork and its environment will continue to be embedded in our values, and it will be reflected in every decision we make.

This Port of Cork Masterplan 2050 presents a vision of how the Port of Cork can adapt and grow from now through to 2050 to deliver on our economic, environmental, and social responsibilities for the region.



Eoin McGettigan
Chief Executive Officer

May 2023

“This Masterplan maps the PoCC journey from ‘River to Sea Port’, aiming to consolidate activities in the lower harbour by 2050.”

Executive Summary



Executive Summary

Overview

The Port of Cork is designated as a “Core Port” in the Trans-European Transport Network (TEN-T) and a Port of National Significance (Tier 1) under the Irish Government’s National Ports Policy 2013. The Port of Cork Company (PoCC) is mandated by the Government to lead the response to Ireland’s future port capacity demands and infrastructure requirements and to be a driver for economic growth in the region.

Purpose

Under the National Ports Policy, Irish ports are advised to produce port masterplans in line with international best practice. The purpose of the Port of Cork Masterplan 2050 (“Masterplan”) is to provide a vision of how the PoCC can continue to adapt and grow. This Masterplan builds upon the previous Strategic Development Plan (SDP) adopted by the PoCC in 2010. It provides an integrated framework to strategically plan for the short, medium, and long term; to coordinate port planning; to assist local authorities in the preparation of their own local and regional plans; to evaluate future development proposals; and to facilitate the green energy sector.

The Masterplan maps the PoCC journey from **“River to Sea Port”**, aiming to consolidate activities in the lower harbour by 2050. This journey has largely been driven by ever-increasing vessel sizes, which will become unviable to accommodate at City Docks and Tivoli Docks. Furthermore, the Masterplan responds to an increasing demand from global industry to provide reliable, safe, high-performing facilities and services, in deeper water, near the main shipping routes, and it will ensure the Port of Cork remains an efficient link in the global logistics chain.

Cork Harbour is one of the largest natural harbours in the world. It has been a working port for centuries and is one of Ireland’s major employment hubs. This Masterplan will help to continue and grow that tradition. The €89 million Cork Container Terminal (CCT) has recently been opened at Ringaskiddy in response to industry growth. Commercial cargo projections, highlighted in this Masterplan, indicate a need to provide for future expansion in the short, medium, and long term.



Nomenclature

For the purpose of this Masterplan, the term “Port of Cork Company (PoCC)” is used to refer to the Port’s organisation and the term “Port of Cork” is used to describe its physical location.

Port Profile

Recent Port Activities

The most recent annual report indicates that the PoCC's container traffic amounted to a record 282,781 TEUs (20-foot equivalent units), a slight increase of 965 TEUs on 2021. The turnover for 2022 amounted to €48.4 million (2021: €39.8m).

In September 2022, the PoCC opened the new Cork Container Terminal in Ringaskiddy. The PoCC Masterplan shows that the CCT will reach capacity in 2024–25, and so container operations in Tivoli Docks will continue until the M28 is complete.

Existing Port Infrastructure

The Port of Cork is the key seaport in the south of Ireland, and it is one of only two Irish ports that accommodates all six shipping modes: Lift-on Lift-off (LoLo), Roll-on Roll-off (RoRo), Liquid Bulks, Dry Bulks, Project Cargoes, and Cruise. The Port of Cork is also the second largest port in the Republic of Ireland in terms of turnover, and it operates 363 days a year. Currently, there are six main port facilities situated at:

1. City Docks
2. Tivoli Docks
3. Ringaskiddy (East and West)
4. Cobh
5. Marino Point
6. Bantry

Figure 1 : The Port of Cork's Six Main Port Facilities





Development Timeline

Over the course of the Masterplan's timeline, it is envisaged that operations in City Docks and Tivoli Docks will migrate towards the lower harbour. This proposed relocation of Port of Cork activities will enable the development of Cork City Docks and Tivoli Docks for urban regeneration.

The Cork City Development Plan 2022 – 2028 envisages that new sustainable, people-centred city neighbourhoods will be developed in these locations. Functional replacement of the port activities within the city is a key component of the proposed Masterplan; nonetheless, new port facilities in the lower harbour will need to be operational before the city site can be vacated.

Figure 2 : River to Sea Port - Development Timeline

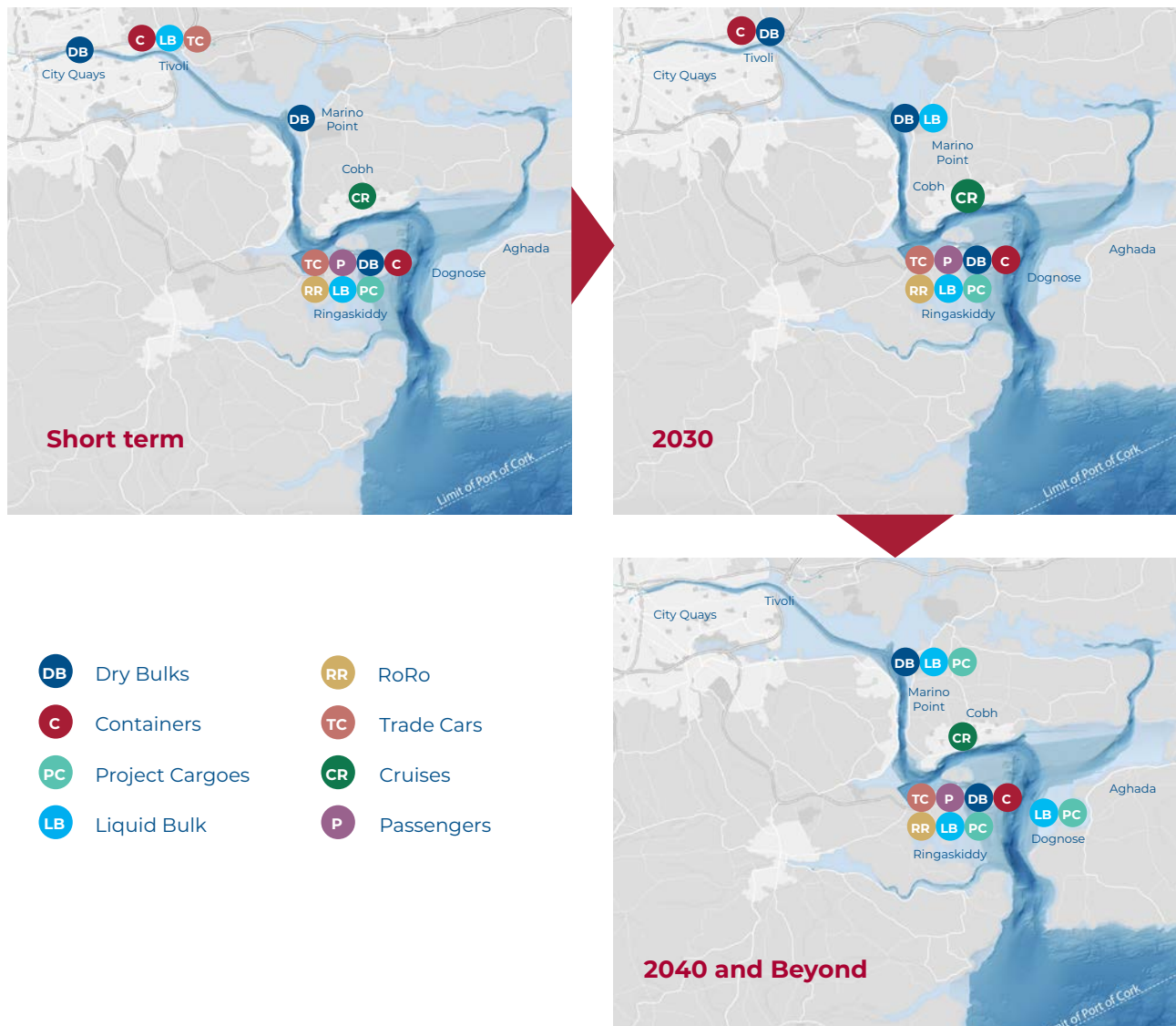


Figure 3: Port of Cork Masterplan 2050

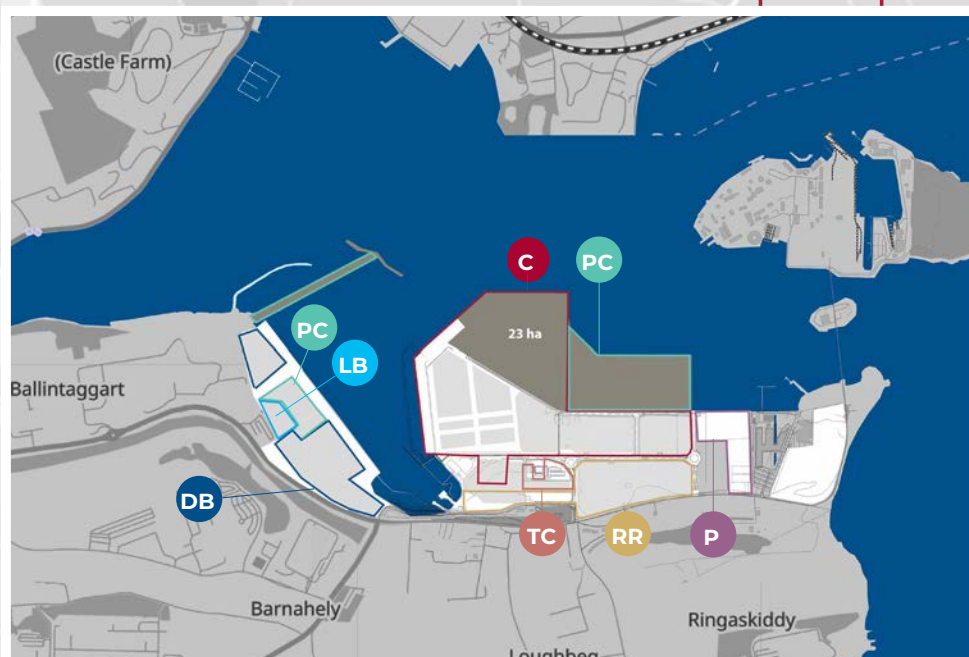
This map shows an overview of what port operations will look like in 2050. It is based on the agreed projections which formed the Basis of Design for this Masterplan, as well as an analysis of sustainability factors such as decarbonisation, resilience, and future green energy vectors.

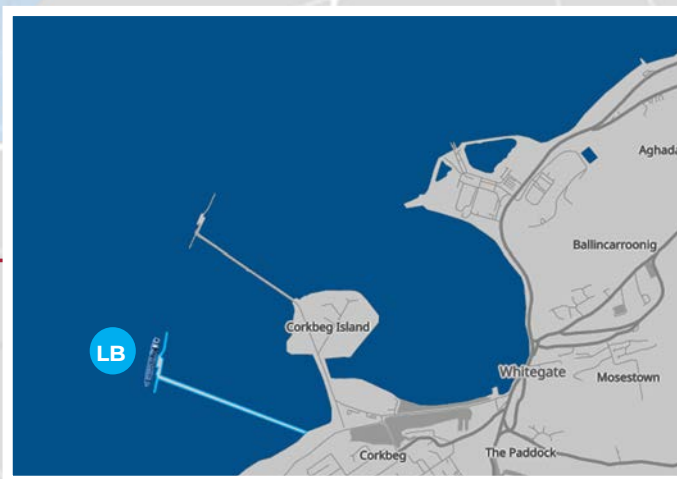
Marino Point



Ringaskiddy West

Ringaskiddy East















Bantry



Legend

- | | | | |
|---|----------------------|---|------------|
|  | Available space | | |
|  | New land reclamation | | |
|  | Dry Bunks |  | RoRo |
|  | Containers |  | Trade Cars |
|  | Project Cargoes |  | Cruises |
|  | Liquid Bulk |  | Passengers |

Dognose



Strategic Goals

The strategic goals in this Masterplan are structured in line with those identified in the recent PoCC Corporate Strategy 2023, and they are also aligned with the sustainable development goals (SDGs) the port has prioritised. The thinking under each section has been expanded to account for the life cycle of the Masterplan.

Figure 4: Port of Cork Strategic Goals



Influencing Factors

The following influencing factors were identified as central to the comprehensive analysis and design of the Masterplan.

1. Policy and Guidance

2. Global Trends

- Global and Macro-Economics
- GDP
- Population Increase
- Consumer Awareness

3. Shipping Industry Trends

- Changes to Trade Routes
- Vessel Sizes and Industrialisation

4. Net-Zero Port

- Environmental Management
- Decarbonisation
- The Port as an Energy Hub

5. Natural Environment and the Community

6. Stakeholder Engagement and Consultation

7. Hinterland Transport and Connections

1. Policy and Guidance

This Masterplan is a non-statutory document; nonetheless it has been framed within the context of the EU, national, regional, and local agreements, policies, and plans listed in the body of the document. Within this regulatory framework, the key policy influencing the Port of Cork is the National Ports Policy 2013, which designates it as a Tier 1 port. Under its terms, the PoCC is mandated to lead the response to Ireland's future port capacity demands and infrastructure requirements and to act as a driver of economic growth for the country.

Another policy central to this Masterplan is the National Climate Action Plan 2023, which is the driver for the PoCC's climate ambitions. Under this plan, the PoCC will aim to achieve a 51% reduction in its overall greenhouse-gas (GHG) emissions by 2030, with a view to reaching net-zero emissions by 2050.

2. Global Trends

Despite recent disruptions to the market, analysis suggests certain global trends will remain valid in the long term.

Global and Macro-Economics

Changes to global and macro-economic trends have potential impacts on trade volumes handled at ports. The traditional methodology for calculating potential market growth is to develop macro-economic projections using GDP multipliers.

GDP

The impact of the COVID-19 pandemic has meant that projected rates of GDP growth are highly volatile. However, as the Masterplan horizon extends to 2050, it is anticipated that, in the long run, growth rates will be restored. Nonetheless, disruptions of economic growth are almost certain to occur over such an extended period, and therefore projections should be prudent. Global GDP has been reviewed as part of this analysis and is expected to continue to grow at a rate between 2% and 3%.

Population Increase

Central Statistics Office (CSO) Population and Labour Force Projections 2017 – 2051 suggest that population numbers in Ireland will increase to reach between 5.6 million and 6.7 million. The current population of Cork City is over 210,000.¹ This is anticipated to increase by between 105,000 and 125,000 people (50 – 60%) by 2040.² This population increase is expected to lead to a rise in goods transiting through the Port of Cork.

Consumer Awareness

Consumers are increasingly making more informed and sustainable decisions around products, services, and essential items, like food. Many people are rejecting the culture and practices that made built-in obsolescence acceptable, and they are either searching for durable items that can be repaired or are engaging more with the sharing economy. Similarly, there is a drive to source food locally, reducing its carbon footprint. All of these trends will contribute to drops in the volume of products and requirements for associated transport.

The more granular global trends affecting consumer behaviour are considered in Section Four of the main body of this document.

3. Shipping Industry Trends

Changes to Trade Routes

Trade is changing from off-shoring to near-shoring or on-shoring, which means that longer trade routes will be replaced by shorter, more localised, or coastal routes. This is due to the relocation of manufacturing to locations that are closer to the point of consumption. The COVID-19 pandemic has helped to drive this change, which has also been accelerated by growing labour costs. The Balkan regions and Turkey are likely to be the main beneficiaries of these shifts within the European market.

Meanwhile, the conflict in Ukraine has resulted in companies relocating out of Russia, and this is helping to embed these trade route amendments. Localised 3D printing of products may also contribute over time to decreased use of longer trade routes.

Vessel Sizes and Industrialisation

Global vessel sizes have been continually increasing in recent years as the industry has pursued efficiencies in container shipping based on economies of scale. This trend has prompted the industry to shift towards ports that are closer to main shipping lanes with deeper drafts, wider navigation channels, and spacious terminals. The model relies on very brief times in port and minimal port calls.

To support the Offshore Renewable Energy (ORE) sector, ports will require greater industrialisation of infrastructure and landside facilities, including, for example:

- On-dock landside facilities, which will be required to provide laydown and assembly areas for turbines.
- Heavy-duty quay structures, needed to cater for large wind turbine installations and support vessels.

This industrialisation will put added strain on port land availability, drafts, and port-city traffic interfaces, making hinterland transport modes even more critical.

The Port of Cork's **"River to Sea Port"** journey is a direct response to this global trend and will ensure the port remains an efficient link in the global logistics chain.

¹ Cork City Development Plan 2022 – 2028: <https://www.corkcity.ie/en/cork-city-development-plan/>

² Project Ireland 2040: <https://assets.gov.ie/8349/2cfac8570b61460e8ed5a0c5f4b2822d.pdf>

4. Net-Zero Port

The PoCC's climate ambition is to achieve at least a 51% reduction in overall greenhouse-gas emissions by 2030, with a view to reaching net-zero emissions by 2050 in accordance with the targets of the National Climate Action Plan 2023.

Environmental Management

The PoCC is certified to ISO 14001 and ISO 50001, which will ensure it complies with the relevant environmental standards in relation to air quality, climate change, energy efficiency, noise, community relations, ship waste, water quality, port waste, and dredging. The PoCC is also certified to the EcoPorts Port Environmental Review System (PERS) standard, which is the main environmental initiative of the European port sector and has been fully integrated into the European Sea Ports Organisation (ESPO) since 2011.

Decarbonisation

The PoCC will also develop a plan to facilitate their customers' transition from fossil-based fuels to greener solutions, contributing to a reduction in carbon usage in the shipping industry.

The Port as an Energy Hub

Ireland's only oil refinery is located on Cork Harbour's south-eastern shore, adjacent to Whitegate and Aghada CCGT power stations. Historically, the Port of Cork has been an energy hub for the region, facilitating the import of fuels such as coal and oil, with land-based wind turbines also being commissioned in the vicinity.

As import volumes of fossil fuels decline, in line with the targets set in the National Climate Action Plan 2023, the PoCC will continue to play a key role in the energy sector. The PoCC will ensure support to their existing customers while also facilitating the future energy security of the country through its support for transition fuels, the ORE sector, and a variety of green energy cargoes.

Offshore Renewable Energy (ORE)

While developing the Masterplan, the PoCC has engaged with several private sector and semi-state companies that are spearheading the delivery of renewable energy in Ireland, and particularly Offshore Renewable Energy (ORE), to understand how best to facilitate their ambitions.

The PoCC can be a key enabler of the green energy sector in Ireland by taking advantage of its deepwater channels and berths; building out new infrastructure that has approved planning permission in place; reclaiming land to accommodate large project cargoes for offshore wind Marshalling and Assembly (M&A) activities; upgrading infrastructure; facilitating use of port lands and/or near shore storage; and providing access to berths and quays for Operation & Maintenance (O&M) activities.

Future Cargoes

Liquid Bulks

There are several liquid bulk fuels emerging as part of either the new energy sector or the energy transition.

- Green hydrogen
- E-Methanol
- Green ammonia
- Liquefied Natural Gas (LNG)
- Hydrotreated Vegetable Oil (HVO)
- Biofuels e.g. Biodiesel, Sustainable Aviation Fuel (SAF)

The PoCC can become a key enabler of these energy vectors and other future cargoes, by providing port lands to energy providers for infrastructure and storage.

Dry Bulks

Dry bulks, in the form of solid biomass fuels, are seen as important to reducing dependency on electricity and increasing the resilience of energy systems through diversification. These biomass fuels require substantial amounts of dry storage due to the hydrophilic nature of many of the products. Solid biomass fuels can potentially be enabled through Ringaskiddy West Deepwater Berth (DWB) simply by modifying the existing dry bulk business.

Figure 5: The Port of Cork Energy Hub

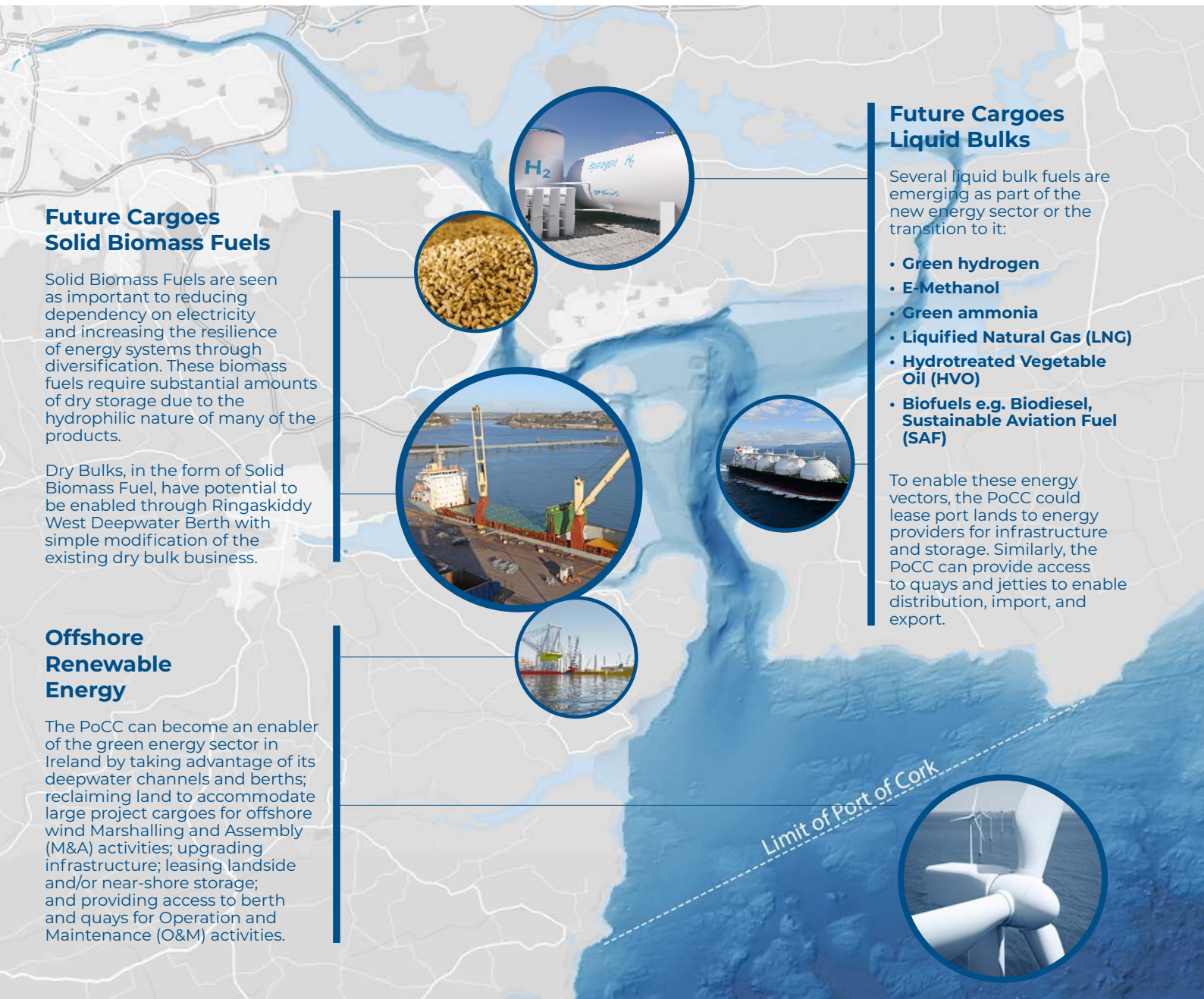


Table 1: Port of Cork Strategies for Enabling a Greener Future

Liquid Bulks	Project Cargoes Offshore Renewable Energy (ORE)	Dry Bulks
Green hydrogen	Marshalling and Assembly (M&A)	Solid Biomass Fuel
E-Methanol	Operations and Maintenance (O&M)	
Green ammonia		
Floating Storage Regasification Unit (FSRU)		
Hydrotreated Vegetable Oil (HVO)		



5. Natural Environment and the Community

Cork Harbour is a natural harbour and river estuary at the mouth of the River Lee in County Cork. It is one of several harbours that lay claim to being the “second largest natural harbour in the world” by navigational area, after Sydney Harbour in Australia.

Cork Harbour has helped to shape world history and, today, it is a thriving port and emerging tourism hub. It has served as a working port and a strategic defensive harbour for centuries and as one of Ireland’s major employment hubs since the early 1900s.

The harbour is a diverse environment that comprises natural and built elements. Its amalgam of settlements has developed over time to include military installations, port infrastructure, heavy industry, energy production and transmission facilities, and pharmaceutical plants. Port-related activities, tourism, and land- and water-based amenities, have all shaped life around the harbour too, and each addition has contributed to Cork Harbour’s evolving character.

The harbour’s complex character – along with its diversity, constraints, and opportunities – has been carefully considered as part of this Masterplan.

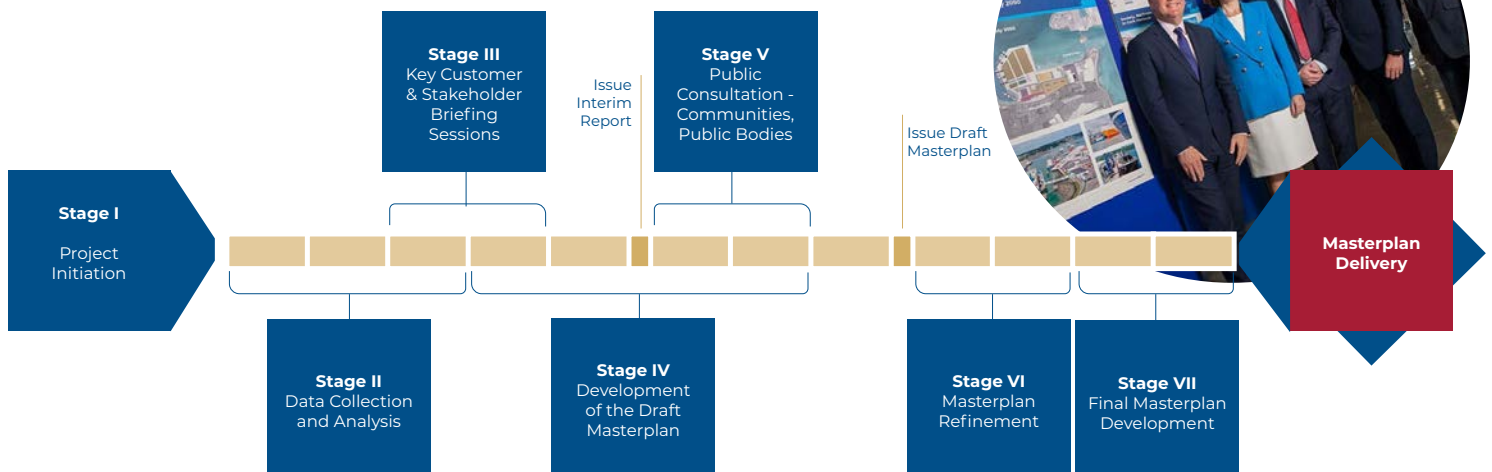
6. Stakeholder Engagement and Consultation

The initial draft of the Masterplan was developed through cargo projection analysis and in conversation with the PoCC, its existing customers, and key commercial stakeholders.

The Masterplan draft then underwent extensive review by key local and national stakeholders, statutory bodies, government agencies, public representatives, and local business networks. Furthermore, a Public Consultation was held over three days across the Port of Cork Ferry Terminal, Páirc Uí Chaoimh and Cobh’s Sirius Arts Centre from the 5th to the 7th October 2022.

Feedback from these consultations has been incorporated into the final iteration of this Masterplan. At a technical level, it is reflected in the ambition to support the emerging energy sector and the continued ambition to facilitate economic growth across the region. The PoCC acknowledges that this is a time of transition for many businesses, including port operations. The PoCC will endeavour to collaborate continuously with local communities, customers, and all key stakeholders to help them through this change.

Figure 6: Stages of Masterplan Development



7 Hinterland Transport and Connections

An important factor in ensuring the success of this Masterplan will be increased hinterland access. High-quality road access to the port is required to fulfil Ireland's obligations as a Tier 1 port. Under Article 9 of Decision 661/2010/EU,³ Tier 1 ports are required to be connected to the primary national road network as part of the European TEN-T core network. The Cork Metropolitan Area Transport Strategy 2040 (CMATS) aligns with these requirements.

Road Access Ringaskiddy

The CCT opened in September 2022; however, a planning condition limits throughput at the Ringaskiddy facility to 322,846 TEU until the M28 and Dunkettle road schemes are complete. The planning application for the M28 was approved by An Bord Pleanála in June 2018. The delivery of the M28 will enable further relocation of the PoCC's activities from Tivoli Docks to Ringaskiddy and unlock significant port capacity in the lower harbour.

Road Access Marino Point

Cork County Council is actively pursuing the planning and design for the upgrade of the R624, including the provision of an enhanced bridge crossing at Belvelly - however, no date has been released for its future upgrade.

Rail Access Marino Point

Upgrades to the rail system to provide fast, reliable services at national, suburban, and city levels are seen to be vital to reduce road traffic and increase public transport use. An additional station adjacent to Marino Point may facilitate rail freight options and complement the European Rail Traffic Management System (ERTMS)⁴ – a horizontal priority to the TEN-T.

Coastal Shipping

The EU's "Motorways of the Sea" concept is seen as another horizontal priority that can support the TEN-T networks in Europe. It proposes the development of new, intermodal maritime-based logistics chains in Europe in response to the identified lack of connections between sea, inland waterways, and rail. Future growth of this transport mode could be inexpensive, minimise damage to the environment, and reduce road congestion.

³ Decision No 661/2010/EU of the European Parliament and of the Council of 7 July 2010 on Union guidelines for the development of the trans-European transport network (recast): <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32010D0661>

⁴ European Rail Traffic Management System (ERTMS): https://www.era.europa.eu/domains/infrastructure/european-rail-traffic-management-system-ertms_en



Constraints and Challenges

The delivery of the Port of Cork Masterplan 2050 is reliant on the successful resolution of key constraints and challenges:

- Delivery of the M28 by Cork County Council and Transport Infrastructure Ireland (TII) to unlock significant port capacity in the lower harbour.
- Planning permission and the necessary consents for future infrastructure development (e.g. foreshore licences and leases, and dredging permits) being secured.
- Funding being obtained for future infrastructure developments to meet projected trade growth and to facilitate the requirements of ORE and the green energy sector.
- Additional land holdings being secured to enable the port expansion outlined in the Masterplan.
- Delivery of the R624 link road from Marino Point to the N25 by Cork County Council.

Future Infrastructure Development

New infrastructure in the lower harbour is needed to fulfil the ambitions of the Masterplan. Cobh Cruise Terminal will continue its current operations, and Tivoli, Marino Point, and Ringaskiddy will see progressive development during the period of the Masterplan.

The Future Infrastructure Development strategy within this Masterplan provides a framework of options to enable the PoCC to strategically plan port capacity to accommodate future economic trade growth and to facilitate the green energy sector. The Masterplan will enable the PoCC to evaluate future proposals and coordinate planning applications and/or marine consents. Any individual projects that emerge in the course of implementing the Masterplan will be assessed at the time of design and construction. In relation to such projects, the PoCC will follow, and comply with, all the normative planning, marine, environmental, and consent requirements such as:

- **Cork County Council** - Planning Permission
- **Maritime Area Regulatory Authority** (MARA) - Maritime Area Consents (MACs) Foreshore Co-ordination Unit - Foreshore Leasing, Licensing, and Permitting
- **Environmental Protection Agency** (EPA) Dredging Licensing and Permitting | Appropriate Assessments (AA) Screening | Report or Natura Impact Statements (NIS) | Environmental Impact Assessments Screening or Environmental Impact Assessment Reports (EIAR)

Projections

The projections which formed the Basis of Design were based on analysis completed by Port Centric Logistic Partners (PCLP) and ratified by the PoCC. They took account of the potential impacts of global and macro-economic trends on trade volumes, the national picture in Ireland; and the competitive position of the PoCC within this sector along with future expectations. All projections were based on unconstrained demand;⁵ historical data from the CSO and the Irish Maritime Development Office (IMDO), historical data from the PoCC management records, and historical GDP data from Ireland and the Eurozone. COVID-19 and Brexit are two contemporary factors that were also considered. These 2050 projections are based on the assumption that trade markets will stabilise in the long term, with the caveat that there may be unforeseen disruptions in the future. The Future Infrastructure Development strategy is a spatial, temporal, and operational response to this projection analysis.

Spatial requirements in this section are independent of the additional requirements for facilitating the ORE and Future Cargoes mentioned above.

Tivoli Docks

Cargo projections demonstrate the need for port operations to continue at Tivoli Docks until sufficient port capacity can be provided in the lower harbour. The timeline for this phased move is being driven by the projected growth in trade and shaped by a planning constraint that limits throughput at Ringaskiddy until the construction of the M28 motorway has been completed.

⁵ Unconstrained demand is demand that is not impacted by capacity limitations within the port infrastructure and operations.

Figure 7: Tivoli Docks 2030 – Vacated by 2040

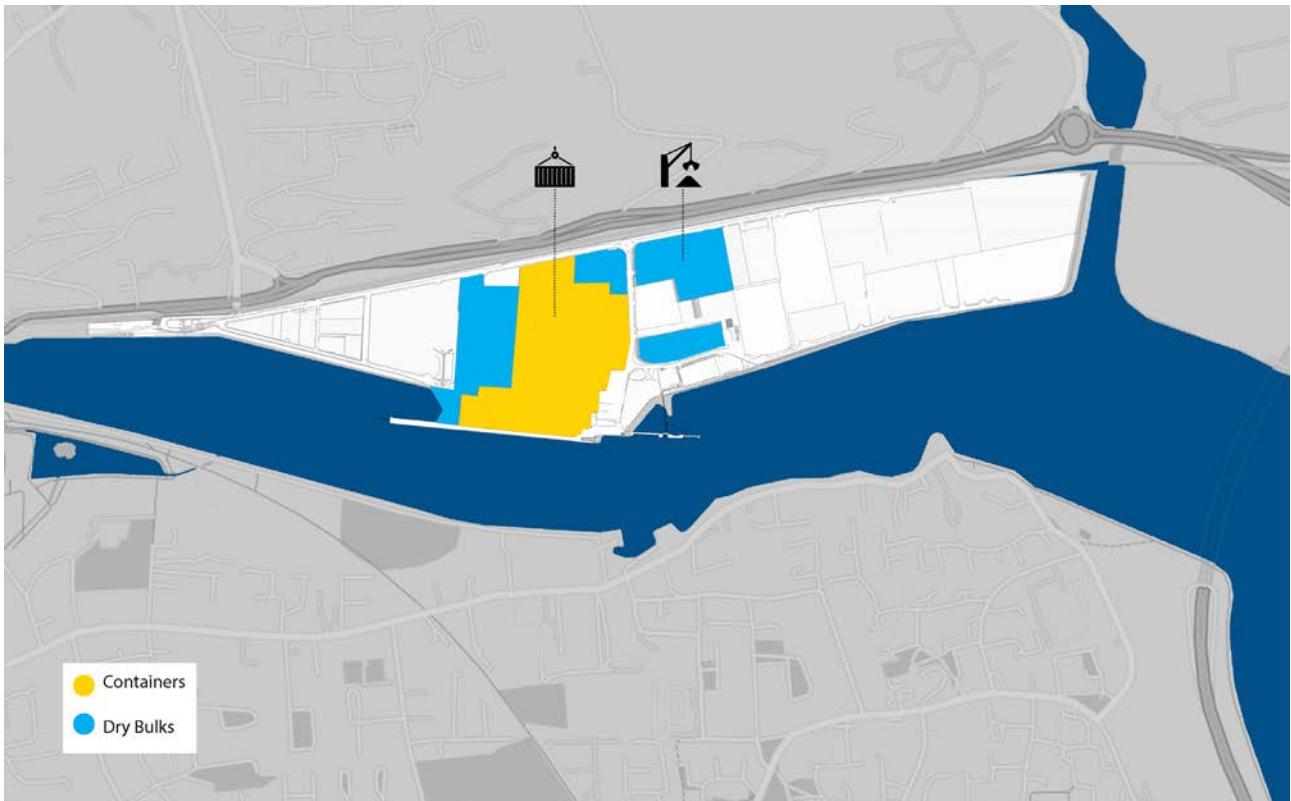
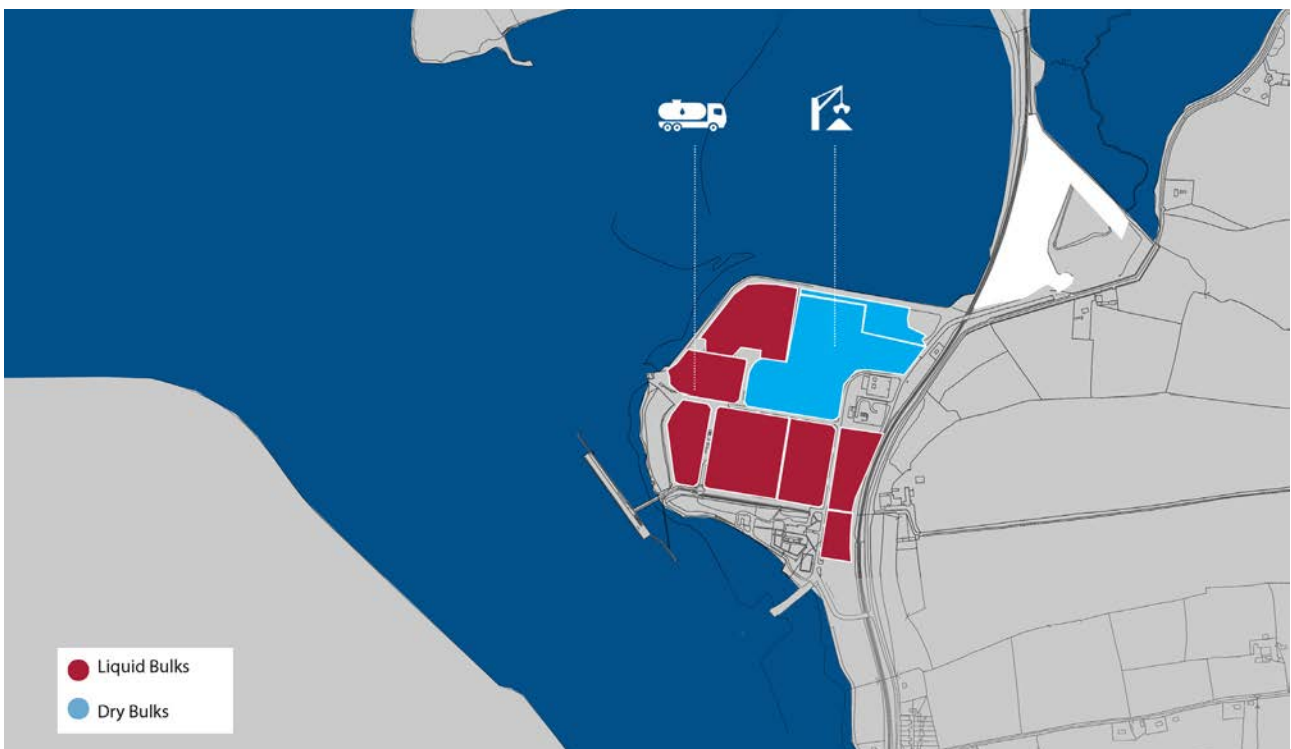


Figure 8: Marino Point Masterplan Layout 2050



Some commodities and cargoes will be moved from City Docks to Tivoli Docks in the near future. Sufficient storage for relocated cargoes will be maintained while the container yard will be reduced. The Masterplan envisages that, by 2040, Tivoli Docks will have ceased operations, with all cargoes having moved to the lower harbour.

Marino Point

There are currently 46 hectares (ha) of land available for development at Marino Point. Some commodities and cargoes will be relocated to Marino Point following the vacation of City Docks. Upgrades to infrastructure and equipment will allow the facility to handle dry bulks and project cargoes.

Due to increasing volumes and storage space limits at Ringaskiddy West, some commodities may need to be relocated to Marino Point by 2040.

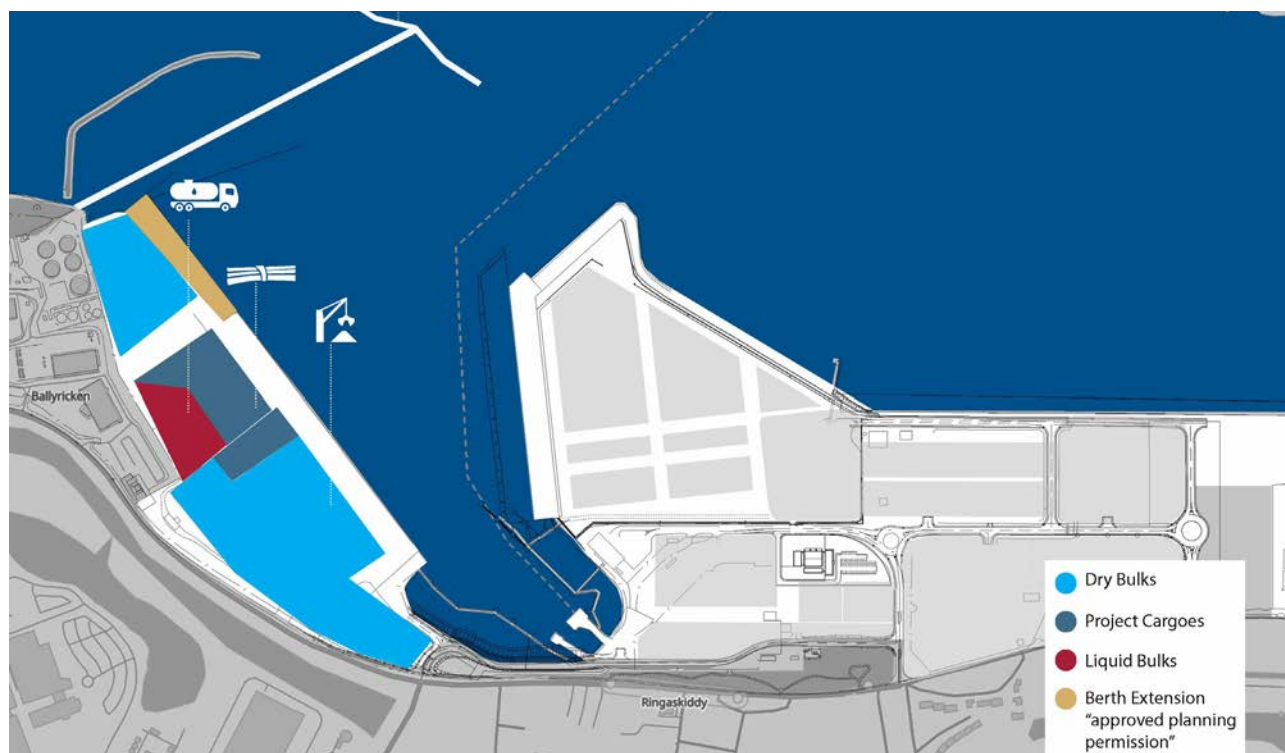
Ringaskiddy West

Ringaskiddy West has enough capacity to handle its current liquid bulks, dry bulks, and project cargoes. There is currently 9.6ha of landside storage available at this location.

By 2030, some commodities and cargoes will be moved from City Docks to Ringaskiddy West. The planned berth extension of 230m will be required to handle an additional 2 million tonnes of dry bulks and project cargoes per year. An additional 7.8ha of off-site landside storage will be needed to facilitate this operational capacity.

While additional infrastructure will not be constructed after the berth extension, port capacity and operations will continue to grow. Projections indicate that 25ha of off-site land storage will be needed by 2050 to sustain these operations.

Figure 9: Ringaskiddy West Masterplan Layout 2030



Ringaskiddy East CCT

The new Cork Container Terminal (CCT) was officially opened in September 2022. Large Panamax vessels can be accommodated along its 360m-long quay, where two Ship-to-Shore (STS) gantry cranes are installed.

Trade vehicles are discharged at the linkspan in Ringaskiddy East, which also houses the Ferry Terminal. Ferry services are provided by Brittany Ferries to Roscoff.

The current infrastructure gives the port sufficient operational capacity up to 2029. However, a planning condition limits throughput at the Ringaskiddy Port facility to 322,846 TEU until such time as the M28 and Dunkettle road schemes are complete. Consequently, the PoCC will need to operate dual container operations at both Tivoli and CCT in the interim.

To cater for the projected increase in container trade, the CCT in Ringaskiddy East will undergo infrastructure and logistics upgrades to guarantee the required capacity and allow expanded operations once the M28 has been completed.

By 2027, the PoCC will need to provide a berth extension to enable increased unloading/loading operations arising from the increased volume of container traffic.

It will also need to expand the CCT to the east by 2029 to provide extra storage capacity in the lower harbour.

It is envisaged that, by 2036, the terminal will need major infrastructure upgrades to accommodate future container-related demand. A land reclamation project is proposed, covering around 6.4ha, to allow the construction of a second berth.

Figure 10: Ringaskiddy East CCT Masterplan Layout 2050

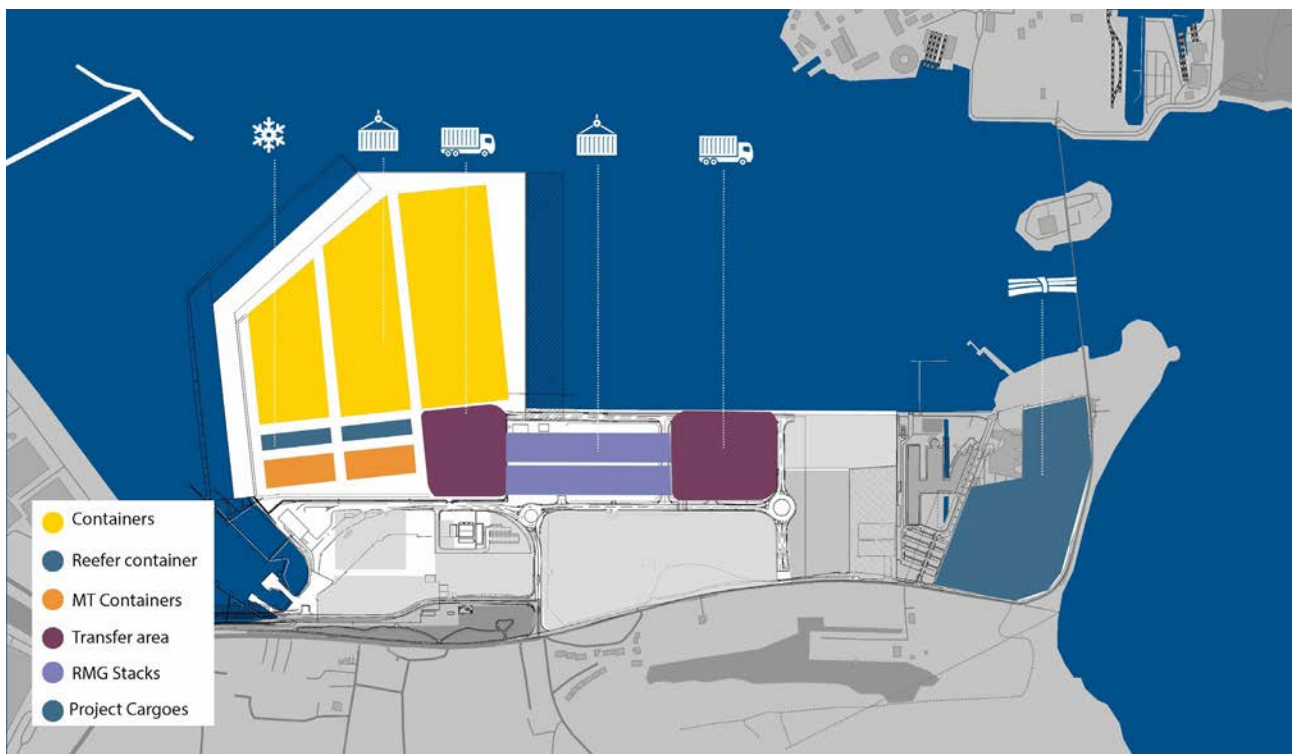


Figure 11: Ringaskiddy East - Additional Cargoes - Masterplan Layout 2050



Future volume projections indicate that demand in container trades will continue to grow and will require additional capacity from the port. Reclaiming a further 6.6ha towards Paddy's Point will provide the terminal with sufficient storage area and berthing length. This second reclamation will allow the expansion of the container yard and facilitate the installation of a new RoRo berth.

Ringaskiddy East Additional Cargoes

Additional cargoes are identified as RoRo, ConRo, RoPax, and Trade Cars. The remaining locations at Ringaskiddy East will be developed alongside the expansion of the CCT for these purposes.

RoRo, ConRo, RoPax, and Trade Car businesses are expected to grow substantially in the future. The Port of Cork will undergo significant infrastructure upgrades to satisfy the increasing demand. Between now and 2030, the Port of Cork will need to transition to a new RoRo, ConRo, and Trade Car layout at this location, increasing the efficiencies within the existing area.

By 2040, the land dedicated to RoRo, RoPax, and Trade Cars will need to be expanded to accommodate the continued steady growth in these markets over the intervening period. An expansion of the RoPax marshalling lanes will also guarantee sufficient capacity to handle the increased ferry passenger traffic.

By 2050, some of the storage and marshalling areas for RoRo, RoPax, and Trade Cars will be moved off-site to provide sufficient capacity at the terminal. The increase in volumes will lead to additional vessel calls, and therefore a second RoRo berth will be located in the northern part of the terminal on the newly reclaimed land.

Additional Land Requirements

To accommodate future volumes and to allow for infrastructure upgrades, the PoCC will require supplementary industrial lands adjacent to or near their current operations. Incremental additional land requirements can be seen in the tables below. These figures do not account for the additional land required to support the Offshore Renewable Energy sector.

Ringaskiddy East

Table 2: Ringaskiddy East Additional Land Requirements

	Current	2030	2040	2050
Total storage area	18ha*	25.2ha	29.6ha	34ha

*Area already in use - part of this area will be used for the extension of the CCT

Ringaskiddy West

Table 3: Ringaskiddy West Additional Land Requirements

	Current	2030	2040	2050
Total storage area	9.6ha*	17.4ha	20.8ha	25ha

*Area already in use

Future Energy Hub Infrastructure

Development

The following locations have been identified as having potential to support the future green energy sector.

1. Ringaskiddy West
2. Ringaskiddy East
3. Dognose Bay
4. Bantry

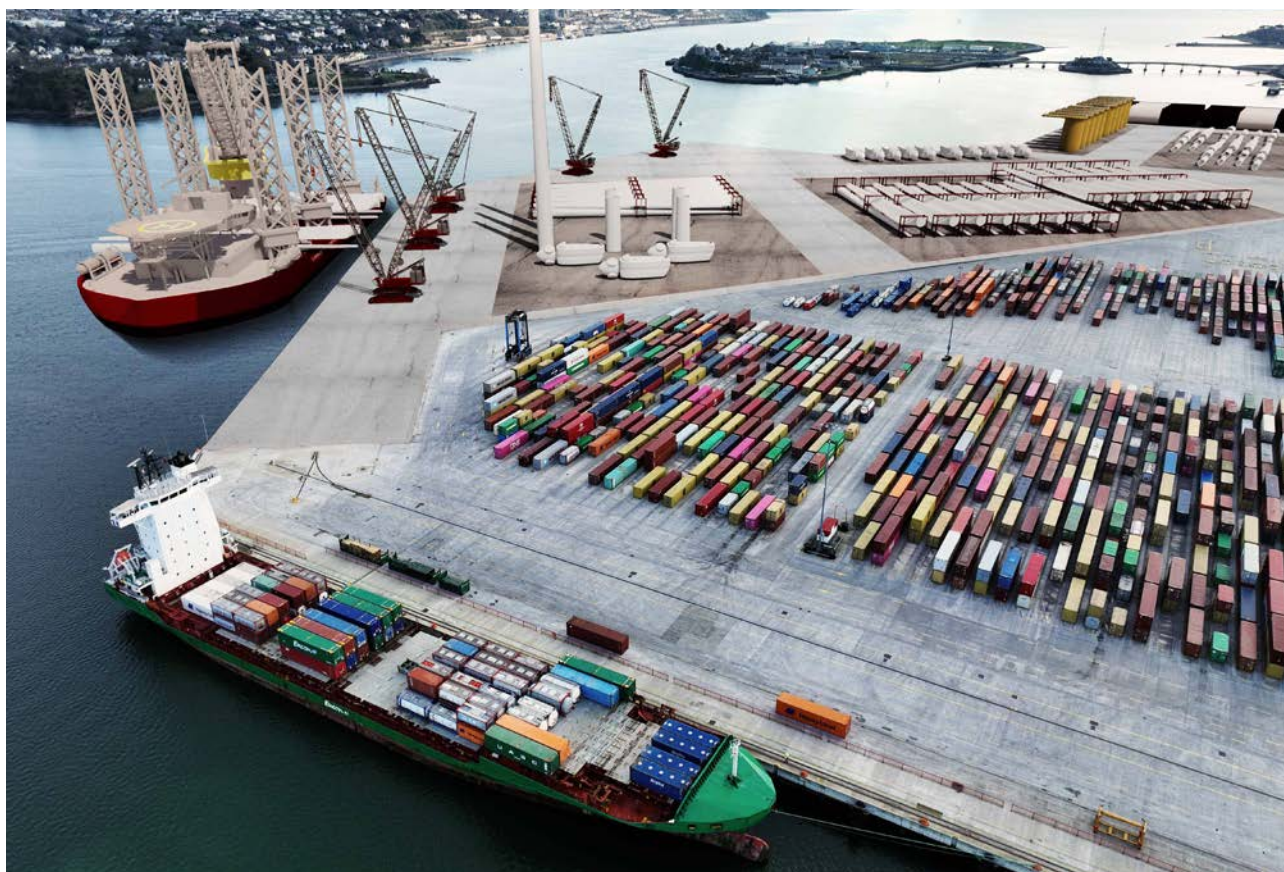
Ringaskiddy West

The deepwater berth (DWB) at Ringaskiddy West currently facilitates the import of wind turbine components and other project cargoes associated with the land-based wind energy sector. Some of the longest blades in Ireland have been imported at the deepwater berth. The ADM jetty is currently used for the import of green liquid bulks, such as HVO.

There is potential for dry bulks, in the form of solid biomass fuel, to be enabled through Ringaskiddy West DWB with simple modification of the existing dry bulk business.

The DWB is currently able to facilitate many of the vessels associated with the ORE industry, and the ADM jetty at Ringaskiddy West could be widened and an additional hammerhead berth added to allow for ORE project cargoes.

Figure 12: ORE at Ringaskiddy – A Concept Image



Ringaskiddy East

Ringaskiddy East has been identified as a potential location for the development of Offshore Wind activities (ORE), supporting Marshalling and Assembly (M&A) in the short term and Operational & Maintenance (O&M) in the longer term. To achieve this, the PoCC can build out port infrastructure with the approved planning permission already in place for 430m of quay walls (Ringaskiddy East CCT: 200m, Ringaskiddy West DWB: 230m). It can also utilise existing landside facilities to support the fixed bottom ORE sector. To facilitate the floating ORE sector, a reclaimed area of 23ha would be required for M&A in the short- to medium-term future.

In the longer term, this space would be used for the expansion of the CCT, with the remaining area being employed as an O&M Offshore Wind Facility. Reclamation would include the construction of additional berth lengths, to produce a total length of 800m when completed. Land allocation for different functions would potentially change over time, as indicated below.

Table 4: Potential ORE Spatial Requirements

	CCT	Offshore Wind
2022 – 2036	-	23ha (M&A)
2036 – 2048	6.4ha	16.6ha (O&M)
Beyond 2048	13ha	10ha (O&M)

Figure 13: Potential ORE Spatial Requirements at Ringaskiddy

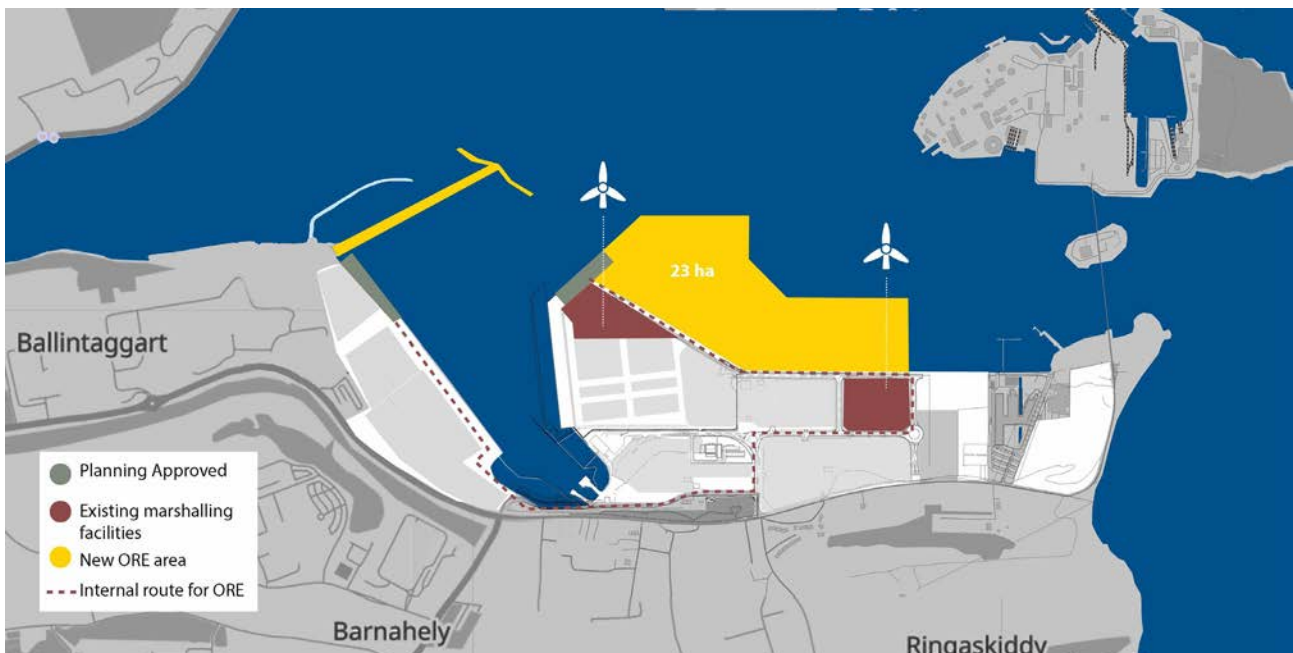


Figure 14: ORE at Ringaskiddy - A Concept Image



Dognose Bay

Dognose Bay is seen as a site that, after land reclamation (12ha), could support the ORE sector by facilitating offshore wind industry requirements for M&A. Due to challenges with hinterland connectivity, components would need to be shipped in for such operations or fabricated on the quays. The proximity of Dognose Bay to the national electrical grid at this location is a positive driver for energy production and supply.

Dognose could also gain capacity to support future and transition cargoes in the form of LNG bunkering and a Floating Storage Regasification Unit (FSRU) with the addition, in the short to medium term, of a jetty and berth for a permanent vessel. The proposed location is near (1km) the main gas pipeline and the main CCGT power stations for the region, and so the site could also help Ireland to meet its energy security requirements.

Once the ORE and hydrogen industries are established, Dognose Bay has the potential to serve as a multipurpose terminal for other liquid bulks (e.g. green hydrogen, green ammonia, and E-Methanol), providing additional support to efforts to match national energy needs.

Bantry Bay Harbour

Bantry Bay Harbour has the potential to provide facilities to support M&A, O&M, and wet storage for ORE. Further investigation is required to determine suitable locations for these facilities.

This is in addition to Bantry's potential to provide storage facilities and port infrastructure for the import and export of green energy liquid bulks.

Figure 15: FSRU at Dognose Bay – A Concept Image



Summary of Infrastructure Requirements

The following infrastructural upgrades and extensions will be needed, on a phased basis, to ensure port capacity successfully meets demand:

- An extension of the CCT yard with the installation of Rail-Mounted Gantry cranes (RMGs)/Rubber-Tyred Gantry cranes (RTGs) on lands located on the eastern side of Ringaskiddy East by 2029.
- A 200m extension of the CCT berth by 2030 (planning permission in place).
- A 230m extension of the DWB in Ringaskiddy West by 2030 (planning permission in place).
- An extension of the CCT in Ringaskiddy East, involving construction of an additional 160m of quay wall and land reclamation of 13ha, to be carried out in two phases (Phase One to be completed by 2036).
- The provision of additional Dry and Break Bulks storage areas at Ringaskiddy West. Reconfiguration of the RoRo terminal layout and reallocation of storage areas for Trade Cars in Ringaskiddy East.
- A new multipurpose RoRo berth on the northern side of Ringaskiddy East, adjacent to the CCT.

- The upgrade of the jetty and allocation of land for Dry and Break Bulks storage at Marino Point.
- The provision of storage for Liquid Bulks at Marino Point.

Timelines for the delivery of this infrastructure are dependent on projected demand and industry trends, and so they will need to be re-evaluated on an ongoing basis.

The following infrastructure is needed to meet the Government's climate action targets and ensure energy security across the island of Ireland. The construction of this infrastructure can facilitate the ORE, transition fuel, and green energy industries. It will:

- Utilise existing port facilities and accelerate the build-out of new infrastructure that has planning permission in place to facilitate the fixed ORE sector (CCT & DWB berth extensions).
- Reclaim 23ha of land and construct associated quays at Ringaskiddy East to support the floating ORE sector.
- Provide new port facilities at Dognose Bay for transition fuels (e.g. LNG), ORE, green hydrogen, and other green energy cargoes.





Next Steps to 2030

The following steps are those needed to be carried out by 2030.

1. **Implement** the infrastructure with existing planning permission in place by 2030 (e.g. the new berth extensions at Ringaskiddy East (CCT) and Ringaskiddy West (DWB), which together add 430m of quay length)
2. **Seek** planning permission for, and build out, the next phase of the CCT terminal (RMG/RTG yard) by 2029 to increase capacity and meet the demand of projected trade growth
3. **Support** the fixed Offshore Renewable Energy sector by using existing port facilities, and accelerate the build-out of new infrastructure with approved planning permission in place. Also, support the floating ORE sector by developing further port infrastructure and by reclaiming lands at Ringaskiddy East
4. **Harness** the potential of Dognose Bay as a strategic location, 1km from the main gas pipeline, to facilitate transition fuels (LNG), ORE, green hydrogen, and other future green cargoes
5. **Grow** Marino Point as a bulk port facility, while also exploring rail freight, energy, and cruise options

Figure 16: A Vision for Ringaskiddy 2050





“The Port of Cork Company (PoCC) is mandated by the Government to lead the response to Ireland’s future port capacity demands and infrastructure requirements and to be a driver for economic growth in the region.”

Section A

Masterplan Backdrop



1. Introduction

The Port of Cork is designated as one of Ireland's three "Core Ports" in the Trans-European Transport Network (TEN-T)⁶ and as a Port of National Significance (Tier 1) under the Government's National Ports Policy 2013.⁷ Continued commercial development is a key objective for the Port of Cork Company (PoCC) under this policy and will include contributions to meeting Ireland's future port capacity.

Ports are essential infrastructure, handling approximately 90% of all of Ireland's imported and exported tonnage.⁸ The provision of effective, efficient, and competitive port facilities is essential to the economic vitality of the country.

The PoCC governance model in Ireland is broadly in line with Europe's – publicly controlled port authorities operating with high levels of private-sector involvement in the provision of their infrastructure and services.⁹

The National Port Policy indicates that each port company in Ireland is independently tasked with developing their individual port infrastructure and business, subject to certain functions being reserved for Government ministers.

As Ireland is an island nation, the state-of-the-art facilities proposed as part of this Port of Cork Masterplan 2050 (Masterplan) will be a key enabler of economic growth, not just for Cork, but for the Munster region and the country as a whole.

"The core objective of National Ports Policy is to facilitate a competitive and effective market for maritime transport services."¹⁰

Figure 17: Trans-European Transport Network (TEN-T) – European Commission



⁶ European Commission, Mobility and Transport – Trans European Transport Network: https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en

⁷ National Ports Policy 2013: <https://assets.gov.ie/11557/277d22d364fe4c13be390493282c0557.PDF>

⁸ IMDO, The Irish Maritime Economist – Volume 1818, p.43: https://www.imdo.ie/Home/sites/default/files/IMDOFiles/IMDO%20IMTE%20Vol%2018%202021_1.pdf

⁹ National Ports Policy 2013: <https://assets.gov.ie/11557/277d22d364fe4c13be390493282c0557.PDF>

¹⁰ National Ports Policy 2013, p. 14: <https://assets.gov.ie/11557/277d22d364fe4c13be390493282c0557.PDF>

Figure 18: River to Sea Port-Development Timeline

1.1 Purpose

The National Ports Policy advocates the production of port masterplans, in line with international best practice, for all Irish ports. This publication builds upon the 2010 PoCC Strategic Development Plan (SDP) and is informed by relevant international guidance on port masterplanning.

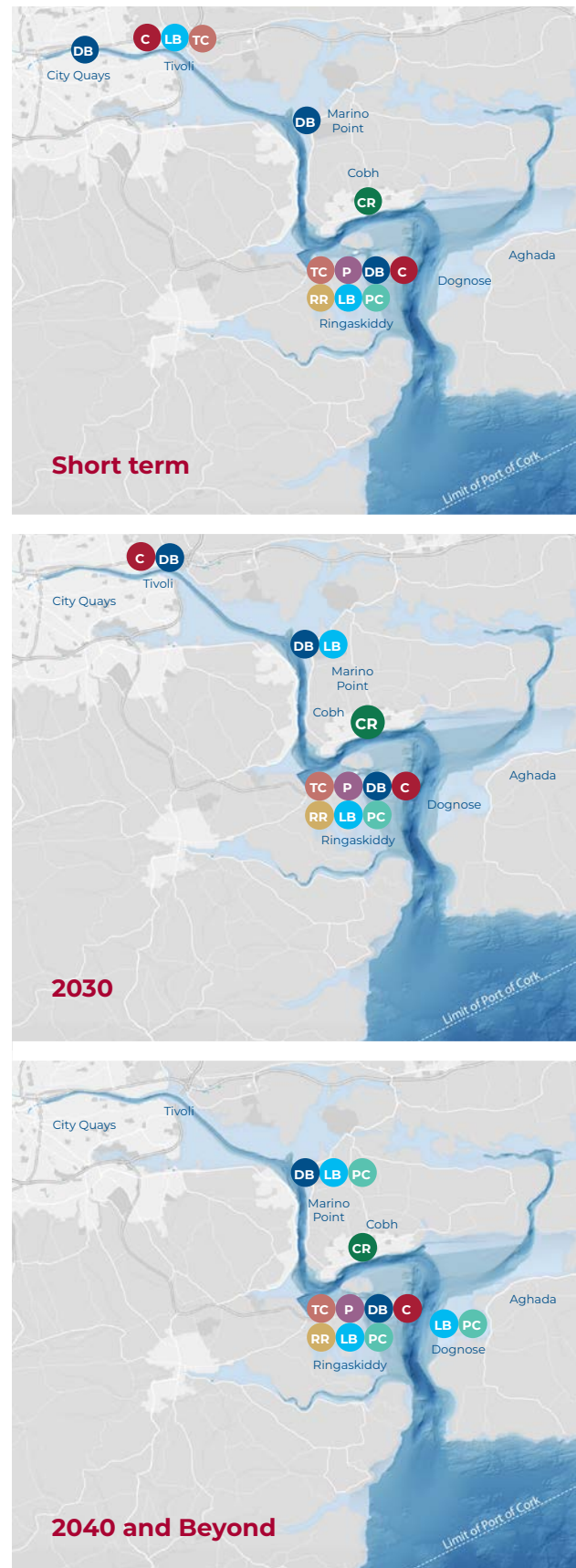
The Masterplan documents the journey the Port of Cork will take from **“River to Sea Port”** as it strives to consolidate its activities in the lower harbour by 2050. This project has largely been driven by ever-increasing vessel sizes, which will become unviable to accommodate at City Docks and Tivoli Docks. It is further driven by increasing demand, from the global industry, for reliable, high-performing facilities in deeper water, near the main shipping routes. This relocation will benefit Cork City itself by releasing brownfield sites in the city and Tivoli Docks for urban regeneration.

This Masterplan provides a vision for how the PoCC can continue to adapt and grow through to 2050. It offers an integrated framework for the PoCC that will allow it to:

- Plan strategically for the short, medium and long term.
- Facilitate the green energy sector.
- Coordinate port planning.
- Assist local authorities in the preparation of their own local and regional plans.
- Evaluate future development proposals.

Furthermore, it will form the basis for conversations with port users, employees, and local communities about the value and opportunities port activities can bring to the region.

DB Dry Bulks	RR RoRo
C Containers	TC Trade Cars
PC Project Cargoes	CR Cruises
LB Liquid Bulk	P Passengers



1.2 Background

1.2.1 Existing Planning Permission

In May 2015, An Bord Pleanála (ABP) granted a 10-year planning permission to the PoCC for the redevelopment of existing port facilities at Ringaskiddy, Co. Cork. The redevelopment is required to alleviate existing constraints in handling larger vessels and to future-proof Cork as an international trading port. The redevelopment consists of the following key additions.

Ringaskiddy East:

- A new 361-metre, container-optimised berth.
- An additional 200-metre container berth.
- Surfacing of existing port lands to provide operational areas.
- Dredging of the seabed to a level of -13.0m Chart Datum (CD).
- Demolition of existing linkspan and installation of a new linkspan comprising a floating pontoon and access bridge
- Installation of container-handling cranes and terminal transport equipment to include Rubber-Tyred Gantry (RTG) cranes, a maintenance building, administrative buildings, and entrance kiosks.

Ringaskiddy West:

- A new 230-metre extension to the existing Deepwater Berth (DWB).
- Dredging works to varying levels to facilitate navigational access.
- Ancillary lighting.
- Internal roads within the facilities, improved to facilitate the new development.

Paddy's Point:

- Construction of a new public pier, slipway, and boarding platform.
- New planting and landscaping of a public amenity area.
- Boat storage, lighting, and fencing.

In June 2017, ABP granted planning permission for proposed alterations to the development plans that had been approved in May 2015. The following larger-scale alterations were agreed:

- Installation of straddle carriers (15 no.) and Rail-Mounted Gantry (RMG) cranes (2 no.) for container handling in place of the RTG cranes.
- The construction of the container terminal at Ringaskiddy East would be divided into two phases, with a single berth to be constructed in Phase One.
- The RoRo linkspan bridge would be omitted until the M28 and Dunkettle road schemes are completed.

1.2.2 Future Redevelopment

The National Planning Framework (NPF) recognises that the regeneration of City Docks and Tivoli Docks is key to the sustainable growth of Cork City.

The Cork City Development Plan 2022 – 2028 provides the strategic planning policy framework for the development of these areas, focusing on regeneration that promotes compact living.¹¹ The Port of Cork, on its journey from **“River to Sea Port”** in the lower harbour, will leave room for sustainable, people-centred neighbourhoods.

Functional replacement of port activities within the city is a key component of this Masterplan; therefore, new facilities will need to be developed and operational in the lower harbour before the POCC vacates the city.

¹¹ Cork City Development Plan 2022 – 2008, Volume 1: <https://assets.gov.ie/8349/2cfac8570b61460e8ed5a0c5f4b2822d.pdf>

¹² All information in Project 2040 The South West: <https://assets.gov.ie/8349/2cfac8570b61460e8ed5a0c5f4b2822d.pdf>

Figure 19: City Docks and Marina Park Map, Cork City Development Plan 2022 – 2028



City Docks

The Cork City Docks, on a 146ha brownfield site adjacent to the city centre, will become home to the largest regeneration project in Ireland. The ambition is to create an exemplar development of the highest design quality in Europe.

The Cork City Development Plan 2022 – 2028 highlights the potential of the City Docks area as a new sustainable neighbourhood that will exemplify excellent placemaking with its people-centred streets and spaces.

It is envisaged as an integrated part of the city that will be a great place to live and work, as well as a key locus of the city's economic, cultural, educational, commercial, civic, and social vibrancy. Furthermore, it will be a green lung for the city with great green and blue infrastructure designed using nature-based solutions.

Photo: Existing PoCC Operations at Tivoli



Tivoli Docks

Tivoli Docks is located on the north bank of the River Lee, 2.5km from the City Centre, with 3km of water frontage. The Cork–Cobh rail line and the Lower Glanmire Road (N8) run to the north of the site.

There is a potential, longer-term, development opportunity at Tivoli Docks, once all operations of the Port of Cork have relocated to the lower harbour, with an area of 61.5ha available for regeneration. This development is seen as a nationally significant urban regeneration opportunity, and, along with the City Docks, it will be inextricably linked to the delivery of compact growth in the city.

The regeneration at Tivoli is planned as an international exemplar of sustainable development that will reconnect this industrial land back to the city and harbour, design a place that reflects the unique character of the area, create a district neighbourhood rich in community and culture; deliver a high-quality transport system and mobility hub, and become a destination for water- and land-based recreation.

Green and Blue Infrastructure (GBI) is intended to be integrated into any design for Tivoli Docks. Nature-based solutions will be used for flood risk management, and local ecosystems and biodiversity will be strengthened.¹²



1.3 Sustainable Development Goals

The 2030 Agenda for Sustainable Development (Sustainable Development Goals or SDGs)¹³ was adopted by all United Nations (UN) Member States in 2015. These goals recognise that efforts to end poverty and tackle climate change must be combined to spur sustainable economic growth.¹⁴

At the national level, Ireland has developed the “National Implementation Plan for the Sustainable Development Goals 2022-2024”¹⁵ to align Ireland’s commitments to the SDGs. Many businesses, like the PoCC, are individually reflecting these goals within their own sustainability targets, as highlighted below:



SDG 3: Ensure healthy lives and promote well-being for all at all ages

The PoCC is certified to ISO 14001 and ISO 50001. This ensures compliance with the relevant environmental standards in relation to air quality, climate change, energy efficiency, noise, community relations, ship waste, water quality, port waste, and dredging. The PoCC is also certified to ISO 45001. The health and safety of workers will be further ensured under the PoCC’s “Safety, Health, Environment, Energy & Quality” (SHEEQ) Management System.



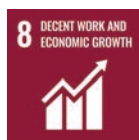
SDG 5: Achieve gender equality and empower all women and girls

The PoCC sees the modernisation and automation of port operations as an opportunity to engage more women and support gender diversity in the maritime sector through the provision of highly skilled jobs.



SDG 7: Ensure access to affordable, reliable, sustainable, and modern energy for all

The PoCC plans to continue its role as an energy hub, looking towards a greener future. This will be done by facilitating the growth of Offshore Renewable Energy (ORE) in the region and focusing future business on greener energy cargoes.



SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

The PoCC is mandated to lead the response to meet Ireland’s future port capacity requirements and support economic growth. It is already a key economic driver in the region and will continue in this role as its shifts towards more sustainable business opportunities. The PoCC will develop its workforce to ensure that all feel welcome, respected, and valued.



SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

The PoCC intends the construction of new infrastructure to take account of energy efficiency, embodied carbon, and circular building principles. Port operations will be made more efficient through digitisation and automation. The PoCC will also seek to use more carbon-neutral energy solutions.



SDG 13: Take urgent action to combat climate change and its impacts

The PoCC recognises the urgency of the need to respond to climate action and intends to act as quickly as possible to support the green economy through ORE, green energy cargoes, and carbon-neutral port operations. The PoCC will also play a part in tackling the climate crisis by achieving a 51% reduction in overall greenhouse-gas emissions by 2030 and net zero by 2050.

¹³ UN Sustainable Development Goals – The 17 Goals: <https://sdgs.un.org/goals>

¹⁴ UN Sustainable Development Goals, History: <https://sdgs.un.org/goals>

¹⁵ Ireland’s Second National Implementation Plan for the Sustainable Development Goals 2022-2024: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/238357/74386d7f-167d-402e-82b9-4eb71b3077db.pdf#page=null>

1.4 Strategic Goals

The structure of the strategic goals in this Masterplan reflects the goals identified in the PoCC Corporate Plan 2023 – 2027, which have been aligned with the prioritised SDGs mentioned above.

Figure 20: Port of Cork Strategic Goals



The thinking under each goal below expands on the priorities of the current Corporate Plan 2023 to reflect the longer life cycle of the Masterplan. The short-term Corporate Plan has not been fully replicated here.

1. Maximize Value

Maximise the value of the PoCC across all activities and deliver a sustainable business model to fund the future

- Respond to important market trends and opportunities identified as key to the growth of the port.
- Remain flexible and incorporate resilience into planning for a sustainable future.
- Grow new business opportunities, such as future and transitional energy fuels.

2. Achieve Net Zero by 2050

Put decarbonisation at the centre of future infrastructure development to respond to the national Climate Action Plan 2023

- Develop and implement the PoCC Climate Action Roadmap.
- Provide customers with reliable, high-performing facilities and services, thereby reducing energy consumption and acting as an efficient link in the supply chain.

3. Develop Capacity

Develop port-wide capacity to facilitate regional and national economic growth

- Integrate the development of the Port of Cork into broader city development strategies and support the renewal of the city-centre docklands.
- Facilitate the development of the ORE and green energy sectors.

4. Grow Connectivity

Grow Cork's global connectivity and the PoCC customer base

- Strengthen the European connection in the context of Brexit.
- Grow the transatlantic trading business and other direct deep-sea shipping services.
- Promote the cruise terminal at Cobh as a gateway for tourism in Ireland.

5. Manage Efficiently

Implement an efficient and competitive organisation which adopts best-in-class management systems

- Procure energy-efficient products and services.
- Set measurable targets in accordance with the principles of the ESPO EcoPorts Port Environmental Review System (PERS).

6. Prioritise People

Prioritise people and develop capabilities for the future

- Develop a workforce where all feel welcome, respected, and valued.

7. Modernise Systems

Modernise the PoCC through innovation and the delivery of information and communications technology (ICT) and digital strategies

- Integrate greener solutions for port operations and the transport of goods to prevent pollution, manage emissions, minimise waste, and make efficient use of resources.
- Ensure any future building design activities incorporate energy performance.

8. Care for Local Heritage and Communities

Care for the environment and heritage, and fulfil social responsibilities to the local community

- Unlock land for the future development of Cork City Centre, facilitating the Cork City Development Plan 2022 – 2028 goal to develop people-centred, sustainable city quarters.
- Emphasise the importance and value of the Port of Cork and its supporting business as a source of employment.
- Identify environmental priorities within Cork Harbour and ensure future developments align with these natural sensitivities.
- Become a hub for maritime heritage in the region.
- Collaborate and engage with the local community and key stakeholders.
- Reflect the values and well-being of the local community in our decision-making.

1.5 Methodology

The Masterplan was developed through seven stages, as illustrated in Figure 20, with some stages happening concurrently.

Stage I: Project Initiation

Stage II: Data Collection and Analysis

Stage III: Key Customer & Stakeholder Briefing Sessions

Stage IV: Development of the Draft Masterplan

Stage V: Public Consultation – Communities, Public Bodies

Stage VI: Masterplan Refinement

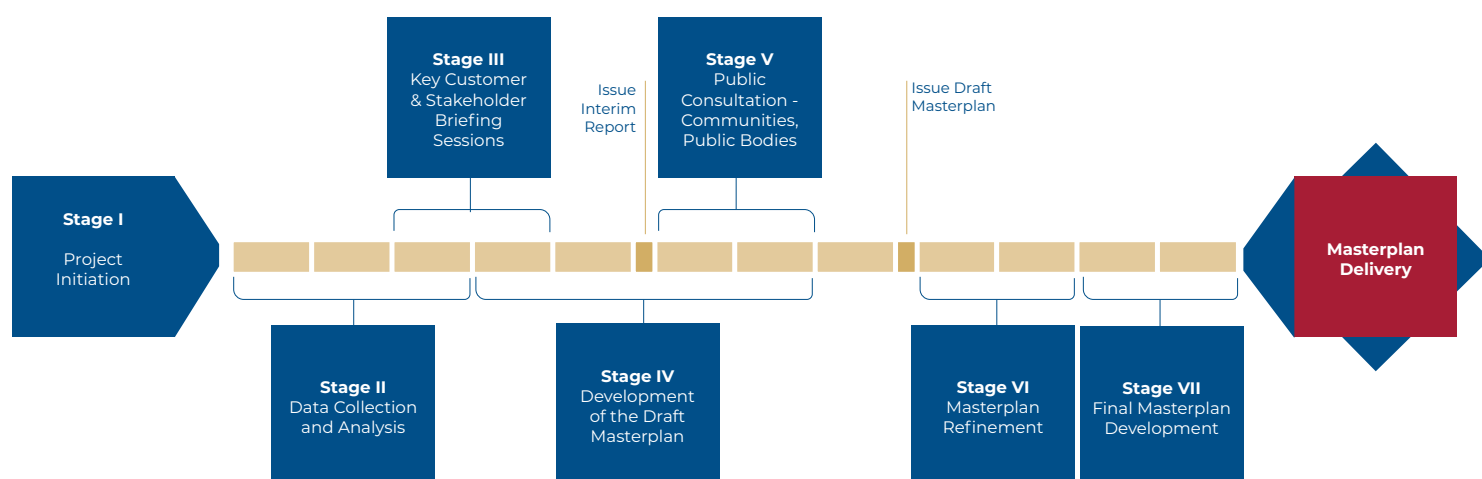
Stage VII: Final Masterplan Development

The Basis of Design developed during Stage II by Port Centric Logistics Partner (PCLP), and issued in December 2020 and January 2021, was used to develop three case scenarios – Base, Low, and High – for each port cargo throughput. The appropriate case was then agreed with the PoCC, and this projection data then underpinned the design of the Future Infrastructure Development strategy.¹⁶

An iterative and consultative process was used during Stage III and Stage IV to capture the feedback of key internal and external stakeholders. Stage V involved a broader, consultation process with the wider public, a broader range of stakeholders, and interested public and/or statutory bodies, resulting in the refinement and finalisation of this Masterplan publication during Stages VI and VII.

The Masterplan publication is informed by the “Guidance on the Preparation of Port Master Plans” document published by the Minister for regional development in Northern Ireland.¹⁷

Figure 21: Stages of Masterplan Development



¹⁶ Internal Arup Report - Basis of Design: Traffic projections and Port Infrastructure requirements to be used for Masterplan, 10th May 2021

¹⁷ Department of Regional Development, Guidance on Preparation of Port Master Plans, Northern Ireland: <https://www.infrastructure-ni.gov.uk/sites/default/files/publications/drd/guidance-in-the-preparation-of-port-master-plans.pdf>

1.5.1 Influencing Factors

The following influencing factors were identified as pertinent to comprehensive analysis and design of the Masterplan. Details of each element have been elaborated in “Section B: Influencing Factors”.

1. Policy and Guidance

2. Global Trends

- Global and Macro-Economics
- GDP
- Population Increase
- Consumer Awareness

3. Shipping Industry Trends

- Changes to Trade Routes
- Vessel Sizes and Industrialisation

4. Net-Zero Port

- Environmental Management
- Decarbonisation
- The Port as an Energy Hub

5. Natural Environment and the Community

6. Stakeholder Engagement and Consultation

7. Hinterland Transport and Connections

1.5.2 Assumptions and Limitations

There will be debates and uncertainty around the stability of markets and shifts in trends due to changes in international trade and Irish-based industry and population. The very recent disruptions generated by Brexit, the COVID-19 pandemic, and the conflict in Ukraine have highlighted how fragile economies are and how projections can rapidly shift.

Some of the changes to markets and the movement of labour, critical to our projections of trade and growth, are thus taken as guidance. The relative normalisation of Ireland to European and international trends can create the feeling that things are predictable, but history shows that long-term projections have often been contradicted or changed.¹⁸

While it is essential to understand the upper limits linked to the outer timeframe of 2050, the assumptions and calculations on which the Masterplan is based need to be understood as best estimates.

1.5.3 Evaluations

A Masterplan is considered to be a living document, and therefore evaluations will take place frequently over its lifetime to assess its overall effectiveness.

The Masterplan is intended to be updated every 10 years to align with industry trends and changes in the market.



¹⁸ Internally commissioned Port Centric Logistics Partner (PCLP) Basis of Design Report, December 2020 and January 2021

2. Port Profile

The Port of Cork is the key seaport in the south of Ireland and it is one of only two Irish ports that can accommodate all six shipping modes (i.e., Lift-on Lift-off (LoLo), Roll-on Roll-off (RoRo), Liquid Bulk, Dry Bulk, Break Bulk and Cruise).

The PoCC has made impressive strides in recent decades, including the addition of a new €89-million Cork Container Terminal (CCT) at Ringaskiddy. Due to its favourable location on the south coast of Ireland and its modern deepwater facilities, the Port of Cork is ideally positioned for additional European and transatlantic trading, and, yet unexploited, direct deep-sea shipping services. The Port of Cork's growing reputation for quality service, including prompt and efficient vessel turnaround, ensures its position as a vital link in the global supply chain.

2.1 History of Port of Cork

Cork Harbour is one of the largest natural harbours in the world. It has been a working port for centuries and is one of Ireland's major employment hubs. It has evolved from being a key military base of the British empire to a modern-day port.¹⁹

Historically, the navigation and port facilities of the city and harbour were managed by the Cork Harbour Commissioners, who were responsible for them for almost 183 years (1814 – 1997). In 1904, the Harbour Commissioners moved into and extended the Custom House building on Custom House Quay.²⁰

“The Port of Cork was the first port in Ireland to set up a planning and development department. By 1972, this department produced the Cork Harbour Development Plan which included the design blueprints for the future which would include sites such as that at Ringaskiddy ²¹”

Following the Harbours Act in 1996, the assets of the Commissioners were transferred to the PoCC, the new statutory authority responsible for the management, control, operation, and development of the Port of Cork. Since then, the PoCC has maintained its role as a strategic authority with an important regional role. During this time, it has established strong and productive links with the European Commission and with other port authorities around the world.²²

¹⁹ ArcGIS Cork Harbour Storymap: <https://storymaps.arcgis.com/stories/5f4c2b708857468baf4033fed94f5453>

²⁰ PoCC Website, Port History: <https://www.portofcork.ie/index.cfm/page/porthistory>

²¹ PoCC Website, Port History: <https://www.portofcork.ie/index.cfm/page/porthistory>

²² PoCC Website, Port History: <https://www.portofcork.ie/index.cfm/page/porthistory>

²³ ArcGIS Cork Harbour Storymap: <https://storymaps.arcgis.com/stories/5f4c2b708857468baf4033fed94f5453>

²⁴ County Development Plan 2022 – 2028, Volume 4, South Cork: <https://www.corkcoco.ie/sites/default/files/2022-06/volume-4-south-cork.pdf>

2.2 Port Characteristics

Cork Harbour is located on the south coast of Ireland. The harbour entrance is a narrow channel at Roche's Point, just under one mile wide. Cork City is located nine miles upstream on the River Lee.

Table 5: Cork Harbour Characteristics

Estuary area	8,585ha
Estuary length	17.17km
Maximum width	6.14km
Width at mouth	1.65km
Main channel width at mouth	1.65km
Maximum depth	29m
Maximum depth at mouth	29m
Population adjacent to estuary	180,000
Tidal prism	150 x 106m ³
Volume	642 x 106m ³
Ratio prism to volume	0.23
Tidal range (spring)	4.2m
Tidal range (neap)	2.1m

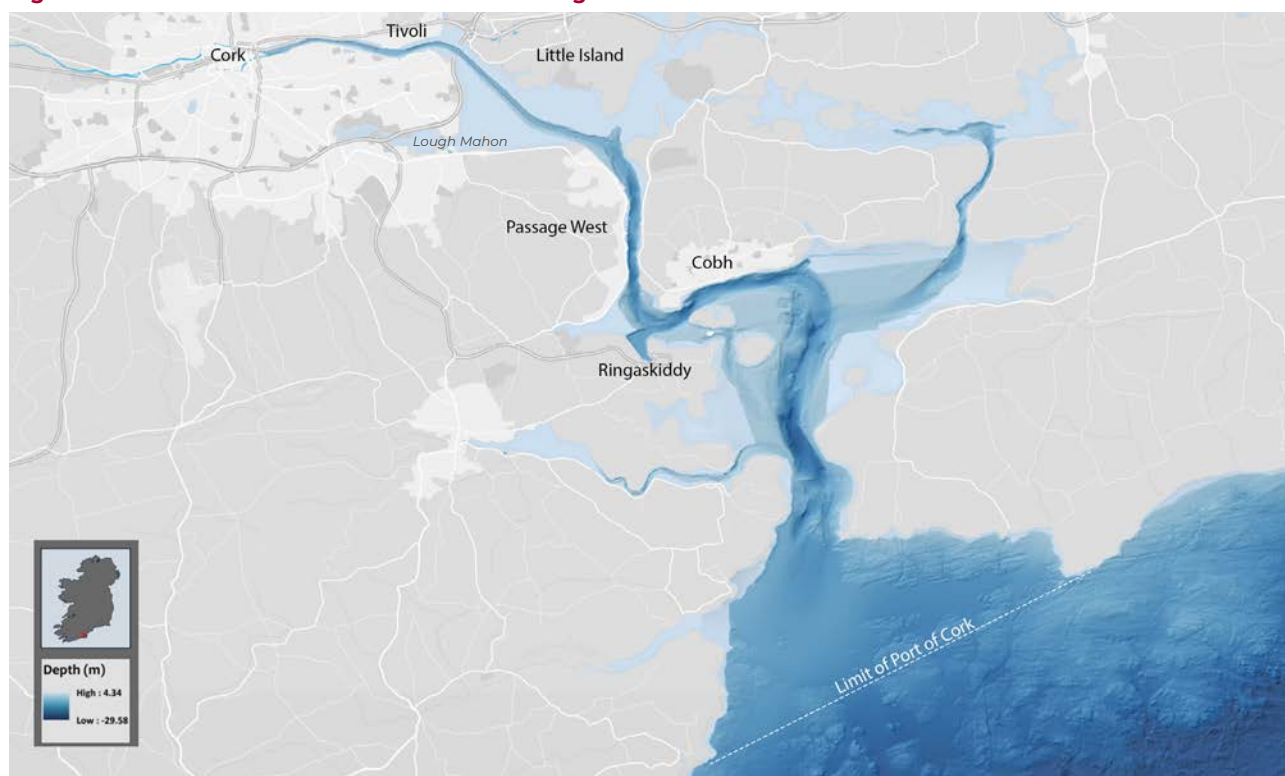
2.2.1 Cork Harbour Main Characteristics

The harbour can, for convenience, be divided into two distinct areas – the deepwater section from the harbour entrance to Passage West is called the lower harbour, whilst from Passage West to the City Docks is known as the upper harbour.

The lower harbour is a vast, well-sheltered, virtually land-locked basin embracing around 3,500ha of water. It has three significant islands: Great Island, Haulbowline, and Spike Island.²³ Haulbowline is physically linked to Ringaskiddy by road. It is home to the Irish Naval Service, the old Irish Steel site, and a crematorium.²⁴

The upper harbour contains many port facilities located at the City Docks and Tivoli Docks. These facilities are served by a dredged channel that extends some five miles upriver from Lough Mahon. The suburbs of Tivoli and Douglas lie on Lough Mahon.

Figure 22: Profile of Cork Harbour Access and Navigation Channels



2.2.2 Marine Access

The marine access to the Port of Cork is shown on Admiralty Charts “1777 – Port of Cork, Lower Harbour and Approaches” and “1773 – Port of Cork, Upper Harbour”. The entrance to Cork Harbour lies at the mouth of the River Lee estuary, as indicated in Figure 22. The limits of the harbour include the existing limits as set out in Part I of the Third Schedule to the Harbours Act 1996 (No. 11 of 1996).

Navigation Channel

In the lower harbour, the channel between Roche’s Point and Passage West is a natural deep-water channel, except at the three locations where dredging is carried out. The bar at Roches Point is dredged to provide a depth of 12.9m Chart Datum (CD); the Spit Bar and Ringaskiddy Bend are both dredged to provide a depth of 11m CD; and the basin at Ringaskiddy is dredged to a depth of 11m CD.

The entire channel is man-made in the upper harbour, and dredging has been carried out in this stretch since 1840. In 1994, the channel was deepened to provide a depth of 6.5m CD between Passage West and the Tivoli Docks berths. The depth in the channel between the berths at Tivoli Docks and Cork City Docks is 5.2m CD.

2.3 Recent Port Activities

The most recent annual report indicates that the PoCC’s container traffic amounted to a record 282,781 TEUs, a slight increase of 965 TEUs on 2021 figures, primarily as a result of the new direct ConRo services between Europe and Ringaskiddy. The turnover for 2022 amounted to €48.4 million (2021: €39.8m).

“Limits extending seaward to an imaginary straight line drawn between Power Head on the eastern approach to Cork Harbour and Cork Head on the western approach and extending landward to the Eamon de Valera Bridge and the Michael Collins Bridge in the City of Cork.”²⁵

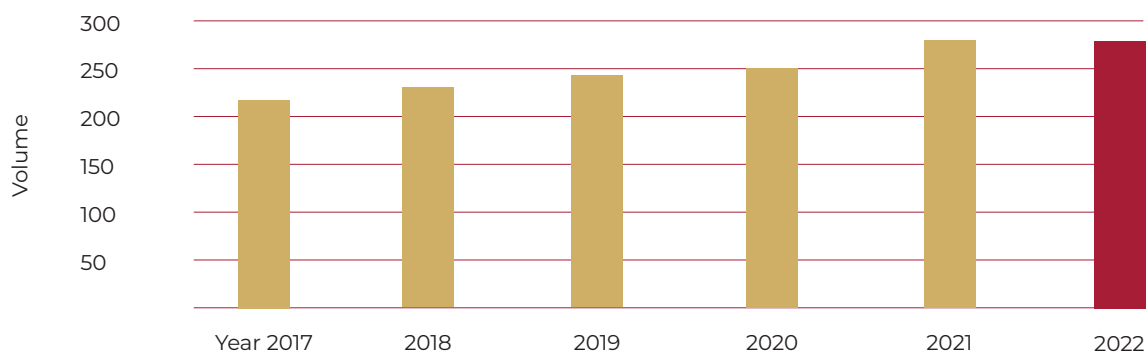
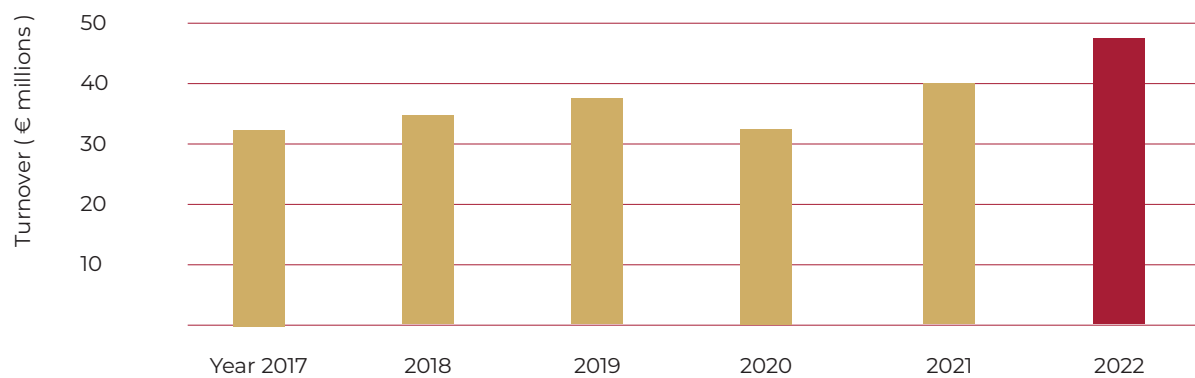
In the past five years, the Board has approved over €100m of capital investments, primarily in the container terminal facilities at CCT in Ringaskiddy and Tivoli, to accommodate port container traffic growth of over 30%. These investments included the construction of the CCT in Ringaskiddy; installation of additional reefers; accommodating the movement of adjacent licence tenants; the purchase of new straddle carriers; and digitisation, with the implementation of a new automatic gate-operating system for trucks and a vehicle booking system. These measures resulted in improved container facilities, quicker truck turnaround, and less congestion at both container terminals.

In 2022, the PoCC opened the new CCT in Ringaskiddy. The transition of LoLo services from Tivoli to Ringaskiddy commenced in April 2022, and the new CCT was officially opened in September 2022. The CCT is constrained by conditions attached to the current planning permission and so cannot exceed 320,000 TEUs. The PoCC Masterplan shows that the CCT will reach capacity in 2024/2025, and therefore container operations will need to continue at Tivoli to manage volume until the M28 is complete.

²⁵ Third Schedule, Part of The Harbours Act 1996: <https://www.irishstatutebook.ie/eli/1996/act/11/schedule/3/enacted/en/html>

Table 6: Container Volumes 2017 to 2022

(TEU's 000')	2017	2018	2019	2020	2021	2022
Total Container Volumes	218	230	240	250	282	283

Figure 23: Consolidated Container Volumes 2017 to 2022**Figure 24: Turnover Figures from 2017 to 2022**

2.4 Existing Port Infrastructure

The Port of Cork operates 363 days a year, from various locations and facilities within the Greater Cork Harbour Area. There are six distinct public port facilities situated at:

1. City Docks – Bulks
2. Tivoli Docks – Lift-on Lift-off (LoLo), Roll-on Roll-off (RoRo), and Bulks
3. Marino Point Terminal – Dry Bulks and Liquid Bulks
4. Ringaskiddy Terminal (East and West) – Lift-on Lift-off (LoLo); Roll-on Roll-off (RoRo); and Bulks
5. Cobh Terminal – Cruise
6. Bantry – Liquid Bulks, Cruise, and Leisure

2.4.1 City Docks

The City Docks, with their 4km waterfront, lie between Cork City Centre and Tivoli Docks along the north and south of the River Lee.

For centuries, the City Docks have handled most of Cork's port trade, and while much of that traffic has moved downriver to Tivoli Docks, this area continues to account for a significant amount of the total PoCC cargoes, ranging from cereals, animal fodder, and fertilisers, to coal, timber, magnesite, and salt.

In addition, a small number of medium-sized cruise ships, naval vessels, and research vessels continue to call. The berth length and water depth below CD are indicated in Table 7. Additionally, there are privately owned silos at South Jetties (69,000 tonnes) and South Deepwater Quay (22,000 tonnes).

Figure 25: Facilities, Greater Cork Harbour Area

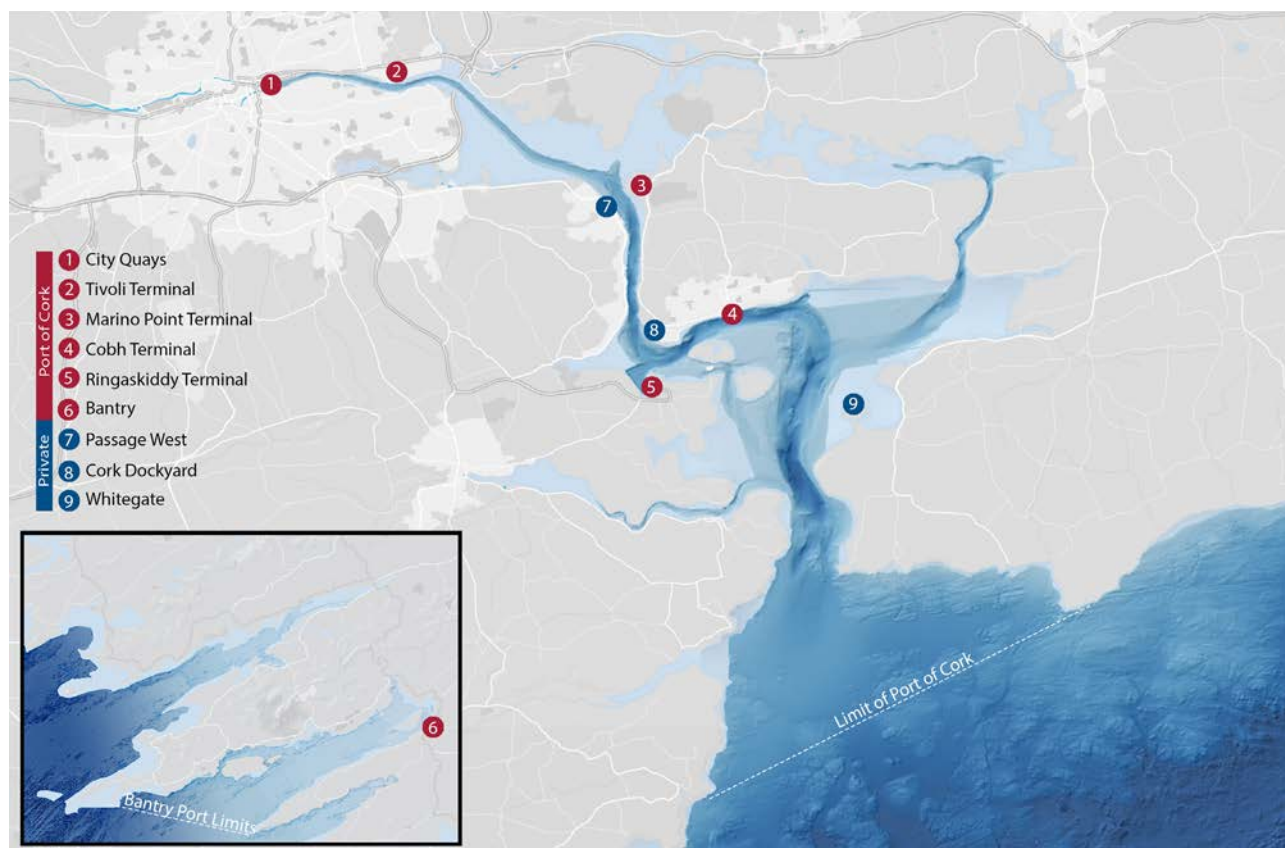


Table 7: City Docks Length and Depth of Quays – The PoCC Website, Facilities, City Docks ²⁶

Berth	Length	Depth
South Side		
Albert Quay	135.0m	5.6m
South Jetties	411.5m	8.8m
South Deepwater Quay	194m	6.0m
North Side		
Penrose Quay	146m	3.6m
Horgan's Wharf	205.7m	8.8m
Custom House Quay	176.9m	7.3m

Photo: City Docks

²⁶ PoCC Website: 'Facilities, City Quays', <https://www.portofcork.ie/city-quays/>

2.4.2 Tivoli Docks

Tivoli Docks is a site of 61.5ha, located on the northern bank of the River Lee, approximately 2.5 kilometres east of the City Centre. The docks have a river frontage of 3km. The site is bounded by the Cork–Cobh rail line and the N8/Lower Glanmire Road to the north.²⁷

Tivoli's development as a port began as early as the 1800s, and extensive dredging was carried out until 1914. Tivoli's reclamation was conducted in 1913 when the Cork Harbour Commissioners purchased the lands between Tivoli and Dunkettle for the deposition of dredged materials. By 2000, Tivoli stood as we see it today.²⁸

The Tivoli Container Terminal has at least eight sailings per week to European and UK ports. The Container Terminal comprises a 155m-long berth, with a depth of 8.8m, equipped with two gantry container cranes and 10 straddle carriers.

The 8ha container-marshalling compound accommodates 80 reefer/heater points. Chemicals and LPG are the liquid bulk cargoes currently handled at Tivoli Docks. The liquid bulk berth has a length of 115.8m and a depth of 6m.

Photo: Aerial Photo of Tivoli (Source: Reproduced from *Port Pro of the Month* Brendan Keating, May 2019)



Table 8: Tivoli Docks Length and Depth of Quay

Berth	Length	Depth
ORE/General Purpose Berth Quigley's	170m	8.8m
Container Terminal	155m	8.8m
Liquid Bulk Berth	115.8m	6.0m

²⁷ Cork City Council, Tivoli Docks Issues Paper, May 2017: <https://www.corkcity.ie/en/council-services/services/planning/local-area-plans/tivoli-docks-issues-paper.pdf>

²⁸ Cork City Council, Tivoli Docks Issues Paper, May 2017: <https://www.corkcity.ie/en/council-services/services/planning/local-area-plans/tivoli-docks-issues-paper.pdf>

Figure 26: Redevelopment of Belvelly Port Facility (Source: The PoCC Website)²⁹



2.4.3 Marino Point Terminal – Belvelly Port Facility

Marino Point Terminal is located on a small peninsula on Great Island, approximately 5km north of Cobh, and it includes an area of approximately 46 hectares.

Belvelly Marino Development Company (BMDC) purchased Marino Point in June 2017 with the objective of developing the site in line with the existing port-related industrial zoning objective. BMDC is a Public–Private Partnership between Lanber Holdings and the PoCC. The facility was formerly an Irish Fertilizer Industries (IFI) fertiliser plant. It is envisaged that Marino Point will become an integral part of the PoCC infrastructure. The Marino Point site has been identified as a suitable location to complement the facilities in Ringaskiddy with:

- An existing 237m jetty with 10m draft.
- A Seveso designation.
- Rail connectivity.

A Marino Point Masterplan was finalised by BMDC, and an enabling works planning application was approved by Cork County Council (CCoC) and subsequently by An Bord Pleanála (ABP) in February 2021 (ABP-307938-20).

Goulding Chemicals Ltd. wishes to relocate its operations from the City Docks to this location. In parallel with the relocation of Goulding's operations, BMDC is proposing additional use of the existing jetty at the Belvelly Port Facility for general dry cargo vessels. As these proposals relate to the same timeline, a joint planning application, with an Environmental Impact Assessment Report and Natura Impact Statement, was submitted in December 2020 (Planning Ref. No. 20/06955) and is currently under review by ABP.

²⁹ PoCC Website: 'Belvelly Port Facility', <https://www.portofcork.ie/index.cfm/page/about-belvelly-port-facility>



2.4.4 Ringaskiddy Terminal (East and West)

Ringaskiddy is located 16km from Cork City on the western side of Cork Harbour, separated from the suburbs by an open green belt.

With a total berth length of 485m and minimum berth drafts of 13.4m, the Ringaskiddy Deepwater Berth (DWB) (West) handles fully laden Panamax-size vessels (60,000 tonnes deadweight). Most of the animal feed trade is discharged through here, utilising specialist private-sector facilities. In addition, the DWB handles other bulk cargoes, such as molasses, cement, steel scrap, timber, and other project cargoes.

RoRo services to and from the Mediterranean, Northern Europe, and West Africa are handled at Ringaskiddy. The RoRo terminal is served by a 180m-long berth and a 42.1m linkspan. Trade vehicles are discharged at both the DWB and the adjoining Ringaskiddy Ferry Terminal, where the Brittany Ferries service to Roscoff is accommodated.

Large Panamax vessels can be accommodated at the new Cork Container Terminal (CCT), in Ringaskiddy East, along the 360m quay, where two Ship-to-Shore (STS) gantry cranes are installed.

Picture: Ringaskiddy West Deepwater Berth (Source: Port of Cork Company)



Table 9: Ringaskiddy Length and Depth of Quay

Berth	Length	Depth
CCT	360m	13m
Deepwater Berth	485.0m	13.4m
Roll-on Roll-off Terminal (No. 1 Ramp)	180m	9.2m
ADM Jetty	259.1m	9.6m

2.4.5 Cobh Cruise Terminal

The Port of Cork is the only port in Ireland with a dedicated cruise berth. Situated within a few hundred metres of the centre of the town of Cobh, it is capable of accommodating cruise ships of up to 350m in overall length.

2.4.6 Bantry Bay

The consolidation of the Bantry Bay Harbour Commissioners' assets with the PoCC was completed on the 1st of January 2014, and a 100%-owned subsidiary – Bantry Bay Port Company (BBPC) – was created to manage the Bantry Bay operations. The BBPC opened the new Bantry Harbour Marina for local and visiting boats in 2017, at a cost of around €9m. Improved access has benefited existing businesses by increasing commercial and leisure activity in the harbour and town.

Table 10: Cobh Length and Depth of Quays

Berth	Length	Depth
Deep Water Quay	183m	6.1m
	350m (with pontoon)	9.1m

Photo: Cobh Cruise Terminal (Source: Port of Cork Company)



2.5 Other Private Port Facilities

In addition to the facilities owned by the PoCC, there are a number of privately owned port facilities situated within Cork Harbour.

2.5.1 Whitegate Refinery

The Whitegate Refinery facility opened in 1959 and is Ireland's only oil refinery. The delivery jetty comprises two berths. The refinery has a crude capacity of up to 75,000 barrels per day and employs a workforce of over 200 people, with distribution networks across Europe and Ireland. It plays a critical role in Ireland's energy infrastructure, supplying around 40% of the nation's transport and heating fuel.³⁰

2.5.2 Passage West

Passage West is a facility privately owned by Doyle Shipping Group (DSG). It has been an active shipyard since 1832, and it is situated 6km from the N28/N40 junction on the Cork Ring Road. General cargoes, including a variety of bulks, are handled at the facility, which has on-site warehousing.

2.5.3 Haulbowline Island

Haulbowline is an island located in Cork Harbour. The western side of the island houses the main base and headquarters of the Irish Naval Service, which comprises a harbour basin and a jetty.

2.5.4 Rushbrooke (Cork Dockyard)

Rushbrooke has a long tradition of ship- and boat-building, and the dockyard once employed 1,100 workers. Ship and boat repairs continue at this facility. It also handles dry bulks and project cargo assembly and export. It is operated by Cork Dockyard Ltd.

Table 11: Whitegate Length and Depth of Quays

Berth	Length	Depth
No. 1 Oil Jetty	365.8m	13.1m
No. 2 Oil Jetty	106.7m	10.2m

Table 12: Passage West Length and Depth of Quay – The PoCC Website, Facilities, Lower Harbour³¹

Berth	Length	Depth
Passage West	Length alongside 274.3m	9.0m

Photo: Haulbowline Amenity Park (Source Cork County Council Website)³²



³⁰ I30 Irving Oil Website: 'Discover Irving', <https://www.irvingoil.com/en-CA/discover-irving/operations>

³¹ PoCC Website: 'Facilities, Lower Harbour', <https://www.portofcork.ie/index.cfm/page/lowerharbour>

³² Cork County Council Website: <https://www.corkcoco.ie/en/news/ringaskiddy-residents-welcome-opening-haulbowline-amenity-park>

“This Masterplan is a non-statutory plan; nonetheless, it has been framed within the context of international, EU, national, regional, and local agreements, policies, and plans.”

Section B

Influencing Factors



3. Policy

This Masterplan is a non-statutory plan; nonetheless, it has been framed within the context of EU, national, regional, and local agreements, policies, and plans. The previous SDP, adopted by the PoCC in 2010, informed the National Ports Policy, the National Transport Policy, and the National Planning Framework (NPF), along with regional, county, and city development plans. Some of the most important examples of policies and guidance affecting the strategy and the business of the port going forward are highlighted here.

3.1 European Directives and Policy

The European policies highlighted below illustrate the strategic importance of the Port of Cork within EU frameworks and reflect international climate targets adopted into policy. The PoCC wishes to support these climate targets by positioning the port as an Energy Hub that facilitates Offshore Renewable Energy (ORE) and more environmentally friendly cargoes.

3.1.1 Ports

3.1.1.1 EU TEN-T Ports Policy

The Port of Cork is part of the Core Network of European ports identified under the Trans-European Transport Network (TEN-T), a policy responsible for EU-wide development of coherent, efficient, multimodal, and high-quality transport infrastructure. The port is situated on the EU network's North Sea Mediterranean (NSMED) and Atlantic corridors.”³³ The policy covers the implementation and development of a European network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports, and railroad terminals.

This policy enshrines the strategic importance of the Port of Cork, and particularly its ambition to relocate to Ringsakiddy, a move that brings it closer to Europe.

3.1.1.2 ESPO EcoPorts and Green Guide 2021

EcoPorts is the main environmental initiative of the European port sector and it has been fully integrated into the European Sea Ports Organisation (ESPO) since 2011. The Port Environmental Review System (PERS) within this initiative is the only port-specific environmental management standard. It builds upon the policy recommendations of ESPO and incorporates the general requirements of recognised management standards, such as ISO 14001. PERS is a certification that remains valid for 2 years.³⁴

The “ESPO Green Guide 2021” provides a cornerstone that supports member ports’ efforts to excel in their environmental management and performance.³⁵ Divided into three parts, the Green Guide explains the ideal general approach, outlining:

- The competencies of port authorities and the scope of their activities.
- A manual and tools for greening a port.
- How ports can engage in the mitigation of negative externalities and contribute positively to greening the European economy, as partners in achieving the energy transition.

The PoCC is EcoPorts-certified, using PERS, and will be using the “ESPO Green Guide 2021” to facilitate its transition to a decarbonised, sustainable future.

³³ Trans-European Transport Network (TEN-T): https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en

³⁴ EcoPorts Port Environmental Review System: ‘PERS’, <https://www.ecoport.com/pers>

³⁵ ESPO: ‘ESPO Green Guide 2021 – A Manual for European Ports Towards a Green Future’, <https://www.espo.be/media/ESPO%20Green%20Guide%202021%20-%20FINAL.pdf>

3.1.2 Spatial Planning and Development

3.1.2.1 European Maritime Spatial Planning Directive (2014/89/EU)

Directive 2014/89/EU established a framework for maritime spatial planning aimed at promoting the sustainable growth of maritime economies, the sustainable development of marine areas, and the sustainable use of marine resources.³⁶ The Directive required Member States to make maritime spatial plans for their seas and designated the range of activities that must be included in the maritime spatial process and plan. Ireland's marine spatial plan – the National Marine Planning Framework (NMPF) – is summarised in Section 3.2.2.3.

3.1.3 Climate and Energy

3.1.3.1 European Green Deal 2019

The European Green Deal,³⁷ published by the European Commission in December 2019, provides an action plan to boost the efficient use of resources by moving to a clean, circular economy while cutting pollution and restoring biodiversity. The EU aims to be climate neutral by 2050. European Climate Law ensures that the goals set out in the European Green Deal are legally binding.³⁸ Reaching this target will require actions being taken by all sectors of the Irish economy that will include:

- Investing in environmentally friendly technologies.
- Supporting industry to innovate.
- Decarbonising the energy sector.
- Working with international partners to improve global environmental standards.

Section 2.1.2 of the Deal – “Supplying clean, affordable and secure energy” – emphasises that further decarbonising the energy system is critical to reaching climate objectives in 2030 and 2050. The production and use of energy across economic sectors account for more than 75% of the EU's greenhouse-gas emissions. The Deal states that:

“Renewable energy sources will have an essential role. Increasing offshore wind production will be essential, building on regional cooperation between Member States. The smart integration of renewables, energy efficiency and other sustainable solutions across sectors will help to achieve decarbonisation at the lowest possible cost. The rapid decrease in the cost of renewables, combined with improved design of support policies, has already reduced the impact on households' energy bills of renewables deployment.”

The Deal outlines a sustainable blue economy among its objectives, stating that this will include “ways to manage maritime space more sustainably, notably to help tap into the growing potential of offshore renewable energy.”

3.1.3.2 2030 Climate and Energy Framework

The European Green Deal means that the EU's climate and energy targets will need to be increased. The current targets for 2030 include:

- At least 40% cuts in greenhouse-gas emissions (from 1990 levels).
- At least a 32% share for renewable energy.
- At least a 32.5% improvement in energy efficiency.

³⁶ Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0089>

³⁷ Eu Communication: ‘European Green Deal’, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596443911913&uri=CELEX:52019DC0640#document2>

³⁸ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (‘European Climate Law’): <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588581905912&uri=CELEX:52020PC0080>

The European Green Deal will increase the 2030 greenhouse-gas emissions reduction target to at least 55% in comparison with 1990 levels. Targets for renewable energy and energy efficiency are also likely to be increased.

The EU has adopted integrated monitoring and reporting rules to ensure progress towards both its 2030 climate and energy targets and its international commitments under the Paris Agreement. These are outlined in Regulation (EU) 2018/1999 on the Governance of the Energy Union (the Governance Regulation).

3.1.3.3 EU Strategy for Offshore Renewable Energy 2020

The Strategy for Offshore Renewable Energy supports the EU net-zero 2050 goal.³⁹ The strategy sets targets for an installed capacity of at least 60 GW of offshore wind and 1 GW of ocean energy by 2030, and 300 GW and 40 GW, respectively, by 2050. Port infrastructure upgrading, to support deployment and connection of offshore energy, is being prioritised as part of the EU mission to strengthen supply chains and support continuous innovation. The strategy lays out how best to exploit and scale up offshore renewables through generation, distribution, and use.

The objectives of this Masterplan comply with the European Green Deal, the 2030 Climate and Energy Framework, and the EU Strategy for Offshore Renewable Energy, in addition to other relevant European climate and energy policies by providing new port infrastructure to facilitate and service offshore renewable wind energy; by moving towards greener cargoes; and by ensuring more energy-efficient port operations.

3.1.4 EU Environmental Legislation and Policy

A vast array of EU environmental legislation and policy that is subsequently adopted into national policy and legislation is directly relevant to the future development and operations of the Port of Cork. It relates to marine and coastal environments, nature and biodiversity, noise, water, waste, air, chemicals, the circular economy, industrial emissions, and environmental planning.

The consenting process for any future developments which form part of the Masterplan objectives will have regard to the relevant environmental legislation and policy to ensure compliance and future-proof solutions. Some examples of relevant materials are included below:

- EU Biodiversity Strategy for 2030.
- Proposed EU Nature Restoration Law Birds Directive 09/147/EC on the conservation of wild birds.⁴⁰
- Habitats Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.⁴¹
- EU Regulation 1143/2014 on Invasive Alien Species.⁴²

³⁹ EU Offshore Renewable Energy Website: https://energy.ec.europa.eu/topics/renewable-energy/offshore-renewable-energy_en#eu-strategy-on-offshore-renewable-energy

⁴⁰ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>

⁴¹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

⁴² Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1417443504720&uri=CELEX:32014R1143>

3.2 National Policy and Guidance

The following national policies have been highlighted as those most relevant to the future business of the port. These policies cover renewable energies, the need to adapt to climate change, sustainable development, and the maritime industry.

3.2.1 Ports

3.2.1.1 National Ports Policy 2013

The core objective of the National Ports Policy 2013 is to facilitate a competitive and effective market for maritime transport services. The Port of Cork, as a Tier 1 Port under this policy, is responsible for at least 15% to 20% of the overall tonnage through Irish ports and has a responsibility to lead the development of future port capacity in the medium and long term. Provision of appropriate port facilities and services is critical to ensuring this competitiveness and future growth.

3.2.2 Spatial Planning and Development

3.2.2.1 Project Ireland 2040-National Planning Framework (NPF) 2018

The National Planning Framework (NPF) is the overarching policy and planning framework for the social, economic, and cultural development of the country.

Among the key National Strategic Outcomes of the NPF will be the facilitation and development of High-Quality International Connectivity:

“This is crucial for overall international competitiveness and addressing opportunities and challenges from Brexit through investment in our ports and airports in line with sectoral priorities already defined through National Ports Policy and National Aviation Policy and signature projects such as the second runway for Dublin Airport and the Port of Cork – Ringaskiddy Redevelopment.”

Section 7.3 of the NPF addresses the country's ports, acknowledging that Ireland's port and shipping services play an important role as enablers of economic growth.

“Irish ports are critical infrastructure for international trade, with over 90% of our international trade moving by sea. Ports also serve as logistics and distribution hubs.”

“To maintain economic growth, we must be capable of delivering additional port capacity in a timely and predictable manner. National ports policy requires Tier 1 and Tier 2 ports, or ports of national and regional significance, to lead the response in meeting Ireland's future port capacity requirements.”

“Tier 1 ports are located within close proximity to Dublin, Cork and Limerick and the role of these ports will be considered and addressed in tandem with long-term infrastructural requirements as part of the relevant Regional Spatial and Economic Strategy and concurrent and subsequent metropolitan area or city/county development plan processes.”

In relation to ports in the south of the country, the NPF acknowledges that they have naturally occurring deep water, which gives them the capability to receive the largest ocean-going vessels and offers the potential for industrial development that depends currently, or will depend in the future, on deepwater berths.

National Policy Objective 40 refers to port development. It commits to:

“Ensure that the strategic development requirements of Tier 1 and Tier 2 Ports, ports of regional significance and smaller harbours are addressed as part of Regional Spatial and Economic Strategies, metropolitan area and city/county development plans, to ensure the effective growth and sustainable development of the city regions and regional and rural areas.”

3.2.2.2 National Development Plan 2021-2030

In October 2021, the Government launched a revised National Development Plan as part of Project Ireland 2040. The Plan identifies 10 National Strategic Outcomes (NSOs), related to those set out in the NPF. NSO 6 aims, for example, to facilitate high-quality international connectivity through support for the development of the country’s airports and ports.

This strategy is underpinned by an acknowledgment that:

“As an island, continued investment in our port and airport connections to the UK, the EU and the rest of the world, is integral to underpinning international competitiveness. It is also central to responding to the challenges as well as the opportunities arising from Brexit.”

The importance of ports and airports in the context of regional connectivity is also acknowledged as being of strategic importance to the development of the country. The Port of Cork’s redevelopment at Ringaskiddy is highlighted as an important investment project.

Under Strategic Investment Priorities in Chapter 11 (‘High Quality International Connectivity’), the plan states that:

“Three major capital infrastructure programmes are currently ongoing in Tier 1 Ports, namely Dublin, Cork, and Shannon-Foynes. These will enhance national and international connectivity and provide for future increases in trade and national port capacity requirements by facilitating more vessels, larger sized vessels and increased tonnage and throughput. None of these projects receive exchequer funding.”

“It is crucial that all potential avenues for investment in port infrastructure are explored, particularly as ports do not receive exchequer funding. The Department of Transport has this year successfully negotiated with the European Commission to make funding for ORE infrastructure at ports eligible under the Connecting Europe Facility programme in the next 2021–2023 funding stream. There will be three calls for applications in this period. The Department of Transport is engaging with ports on the Trans European Network for Transport (TEN-T) to assist where appropriate in applying for this funding.”

Under the sub-heading ‘Decarbonising Energy’ (Ch. 13: “Transition to a Climate-Neutral and Climate Resilient Society”), the plan states that:

“The significant role for ports and need for associated infrastructure development in Irish ORE development is recognised. The Department of Transport continues to engage with the ORE sector, with a review of national ports policy due to commence in 2021 allowing a new Ports Policy to take account of required port infrastructure development to facilitate Ireland’s future ORE sector.”

3.2.2.3 National Marine Planning Framework 2021

As part of the Government's comprehensive approach to marine planning across three main areas of forward planning, development management, and marine planning enforcement, the National Marine Planning Framework (NMPF) sets the framework for the forward-planning component of the country's marine-planning system. The NMPF is a parallel document to the National Planning Framework (NPF) and includes *"An initial elaboration of potential high-level objectives for Ireland's first National Marine Planning Framework, informed by Harnessing Our Ocean Wealth (HOOW) and the Maritime Spatial Planning Directive 2014/89/EU."*

It sets out *"overarching Marine Planning Policies (OMPPs) that will apply to all marine activities or development"*, including policies in relation to matters such as *"co-existence, biodiversity, coastal and island communities, and infrastructure. Each of these is separately numbered, contextualised and cross-referenced to other relevant OMPPs and Activity-specific or Sectoral Marine Planning Policies (SMPPs)." The NMPF also includes "Activity-specific or Sectoral Marine Planning Policies (SMPPs) to guide decision makers in assessing or dealing with specific proposals (for example, aquaculture, ORE, ports development, etc.)."*

In relation to ports, shipping, and harbours, the NMPF sets out four key objectives, which are to:

- *"Safeguard the operation of ports as key actors in the economic wellbeing of the State through the provision of safe and sustainable maritime transport."*
- *Facilitate a competitive and effective market for maritime transport services*
- *Sustainable development of the ports sector and full realisation of the National Ports Policy with a view to providing adequate capacity to meet present and future demand, and to adapt to the consequences of climate change.*
- *Ensure that the strategic development requirements of Tier 1 and Tier 2 Ports, ports of regional significance, and smaller harbours are appropriately addressed in regional and local marine planning policy".*

A total of 10 planning policies are set out to achieve these objectives, and they cover issues including the protection of current port activity (e.g. dredging). They also commit to supporting future opportunities for expansion of port and harbour activities.



3.2.2.4 Maritime Area Planning Act 2021 (MAP)

In 2021, the Government of Ireland passed the Maritime Area Planning (MAP) Act.⁴³ The Act underpins an entirely new marine planning system and will facilitate Offshore Renewable Energy (ORE) development aligned with the National Marine Policy Framework (NMPF). The planning permission system will extend into the entire maritime area, where certain developments will be subjected to a single comprehensive environmental assessment and development consent process managed by An Bord Pleanála (ABP).

Part 4 of the MAP Act 2021, as amended, provides for the issuance of Maritime Area Consents (MACs). All maritime usages, except those listed in Schedules 3 and 4 of the Act, require a MAC for the purposes of such a usage.

“Maritime usage”, in relation to the maritime area, is defined in the legislation as:

“any activity, operation, works or development undertaken in that area for any purpose (including conservation), and includes—

- (a) the construction or use, or both, of any infrastructure in that area associated with, or otherwise supporting, the activity, operation, works or development, and*
- (b) the maintenance of such infrastructure, and references in this Act to ‘proposed maritime usage’ shall be construed accordingly.”*

Issuance of the MAC can be considered the first step in the new planning process. Following receipt of a MAC, certain projects will be eligible to proceed to consult with ABP prior to applying for ABP development consent. This process will involve full statutory consultations and environmental assessment processes.

3.2.3 Climate and Energy

A significant body of national climate and energy legislation has been introduced in recent years to facilitate Ireland’s transition to net zero, including the Acts and plans listed below. In particular, targets have been proposed for the development of offshore renewable energy. This Masterplan has allowed for the development of infrastructure to support the ORE sector and facilitate energy generation in the region, directly contributing to national climate and energy policy :

- Climate Action and Low Carbon Development (Amendment) Act 2021. National Energy and Climate Plan 2021 – 2030 (NECP).
- Climate Action Plan 2023.
- Offshore Renewable Energy Development Plan (ORDEP) 2014.
- Offshore Renewable Energy Development Plan II (ORDEP II) 2022.
- Programme for Government: Our Shared Future 2020.

The PoCC’s climate ambition is driven by the national Climate Action Plan 2023. The PoCC will aim to achieve a 51% reduction in its overall greenhouse-gas emissions by 2030, with a view to reaching net-zero emissions by 2050.

3.2.4 National Economic Policy

The international economic environment has changed dramatically and rapidly in recent years. Further uncertainty is expected. Ireland’s national economic policy response is being informed by publications such as those from the National Competitiveness Council (NCC) and is reflected in recent plans, such as the Economic Recovery Plan 2021 (the national recovery and resilience plan), which sets out measures to secure €915m in funding from the EU’s Recovery and Resilience Facility.

⁴³ Government of Ireland: ‘Maritime Area Planning Act Number 50 of 2021: <https://www.irishstatutebook.ie/eli/2021/act/50/enacted/en/html>

⁴⁴ Ireland’s Competitiveness Challenge 2021: <https://www.gov.ie/pdf/?file=https://assets.gov.ie/198878/b6f66435-2065-47b5-82b9-cd278076078b.pdf#page=null>

In discussing Brexit's effects on Ireland's trade, the NCC's report on "Ireland's Competitiveness Challenge 2021" notes the significant increase in goods transported via port facilities.

*"Imports from the EU have risen substantially due to Irish businesses seeking to broaden their suppliers. Prior to Brexit, most Irish trade to the EU went through the so called 'land bridge' via the UK but with checks and delays on goods passing through, many businesses have taken to shipping directly to the continent through new sea routes through Dublin and Rosslare ports. For example, the number of sea routes from Rosslare to the continent have more than quadrupled compared to 2020, and freight traffic in January 2021 on these routes had increased by 446% compared to January 2020."*⁴⁴

Acknowledging the importance of investment in high-quality, productive infrastructure for sustainable economic and social development, the report calls for a coordinated approach to the delivery of key housing and associated social and economic infrastructure, together with other critical infrastructure projects, to ensure the country's economic competitiveness is sustained in the medium to long term.

These reports underpin the 2020 Programme for Government, in which the Government makes the following commitment:

"In line with the National Ports Policy, we will work with our port companies to ensure they have the capacity, finance and policy supports to deliver in the years ahead."

We will:

- *Work with ports and airports to safeguard supply chains for businesses and access for tourists, as the economy is opened on a phased basis.*
- *Review potential to expand passenger and cargo capability at all of our ports, prioritising rail connections and interchange.*
- *Work to ensure that ferry companies provide access for foot passengers without cars".*

3.3 Regional Policy and Guidance

3.3.1 Regional Spatial and Economic Strategy for the Southern Region (2020)

The Regional Spatial and Economic Strategy for the Southern Region (RSES) and the Cork Metropolitan Area Strategic Plan (MASP), a constituent part of the RSES, strongly support the development of the Tier 1 Port of Cork, which is a strategic asset for both the Cork Metropolitan Area and the wider Southern Region. The Port of Cork is also recognised as having a role as a driver for the State economy.

Under Regional Policy Objective (RPO) 142, it is an objective of the RSES to strengthen investment to deliver both actions under the National Ports Policy and investment in sustainable infrastructure projects that strengthen and develop the strategic international, national, and regional economic role of the Port of Cork.

Through policies such as RPO 144, 146 and 147 and Cork MASP Policy Objectives 8 and 9, the RSES supports improved connectivity between the Port of Cork and other locations in the region, its relocation from the Cork Docks to Ringaskiddy, its economic development, and its improved international connectivity.

Specifically, RPO 146 and Cork MASP Policy Objective 13, which deal exclusively with the Port of Cork, commit to continued support for capital infrastructure projects in the PoCC's Strategic Development Plan (SDP), including redevelopment of existing port facilities in Ringaskiddy, balanced with the protection of Cork Harbour's natural environment.

Cork MASP Policy Objective 3 relates to Cork Harbour and acknowledges that it can be a significant driver of economic growth in the metropolitan area, that port-related activities form a key part of this potential, and that economic harbour-based development must be balanced with the protection of the harbour's ecology and natural habitats, including the Cork Harbour Special Protection Area (SPA).

3.4 Local Planning Policy and Guidance

3.4.1 Cork County Development Plan 2022-2028

The newly adopted Cork County Development Plan (CDP) aligns with all of the above RSES policy. The CDP notes that the Tier 1 Port of Cork is of national significance and is a Core Port within the TEN-T.

The CDP emphasises that investment in port infrastructure must be complemented by the sustainable development of improved access infrastructure. The CDP also states that port-related development proposals in Cork Harbour will be subject to environmental assessment and implementation of mitigation measures outlined in applicable Strategic Environmental Assessments, Appropriate Assessments, and planned feasibility studies.

In this regard, the CDP states that it aims to *"assist in providing a balance between environmental considerations and competing land-uses specifically in relation to the relocation of the Port of Cork and further industrial development in Ringaskiddy."*

Section 12.20 of the CDP deals exclusively with the Port of Cork and states that the CDP *"supports the Port of Cork's expansion of facilities in Ringaskiddy so that port centred operations and logistics can become more efficient through the accommodation of larger ships and so that port traffic can directly access the National Road network without passing through the City Centre."*

The CDP also states that development of port-related facilities at Marino Point is planned and supports the redevelopment of rail-based port freight transport infrastructure. Part b. of "County Development Plan Objective TM 12.13: Freight" commits to:

"Protect the potential for rail-freight facilities to the former IFI plant at Marino Point and North Esk in Glounthaune."

County Development Plan Objective TM 12.14: Port of Cork and Other Ports" is key to the development of the Port of Cork, and it states commitments to:

- *"Ensure that the strategic port facilities at Ringaskiddy, Whitegate and Marino Point have appropriate road transport capacity to facilitate their sustainable development in future years."*
- *"Ensure delivery of the upgrading and realignment of the N28 Cork to Ringaskiddy Road and the upgrading of the R624 Regional Road linking N25 to Marino Point and Cobh and designation to National Road Status to provide appropriate road transport capacity to facilitate sustainable development of port facilities at Ringaskiddy, Whitegate and Marino Point."*
- *"Support the landside capacity of Port of Cork subject to consideration of environmental concerns including water quality, flood risks, human health, natural and built heritage."*
- *"Support the relocation of port activities and other industry away from the upper harbour on the eastern approaches to the city."*

- *"Support Ringaskiddy as the preferred location for the relocation of the majority of port related activities having regard to the need for a significant improvement to the road network. Also recognising the key role that Marino Point can play in providing an alternative relocation option for some of the port related uses that could best be served by rail transport taking account of residential amenity, tourism, recreation and renewable energy. The Council is committed to engage with the Port of Cork and other relevant stakeholders in achieving this objective."*
- *"Future expansion or intensification of Port activities will have regard to environmental, nature conservation and broader heritage considerations at design, construction and implementation stages."*

3.4.2 Cork Metropolitan Area Transport Strategy 2040 (2020)

The vision of the Cork Metropolitan Area Transport Strategy (CMATS) is to deliver an accessible, integrated transport network that enables the sustainable growth of the Cork Metropolitan Area. This vision is underpinned by six guiding principles, including Principle 4:

"To identify and protect key strategic routes for the movement of freight and services including the provision of a high level of freight access to the Port of Cork."

CMATS sets out overarching objectives for the management of freight movement in the Cork Metropolitan Area, which include re-directing the through movement of freight from densely populated areas and unsuitable local roads to the strategic road network and examining the potential for rail freight movement.

Regarding the former, CMATS states that the *"relocation of the Port of Cork, coupled with the upgrade of the N28 to Motorway standard (M28) will reduce some localised HGV impacts within the city and reinforce the transfer of strategic freight to the National Road Network."*

In this regard, Chapter 14 of CMATS notes that rail-based freight movement would likely necessitate a new link between the relocated Port of Cork in Marino Point and the Cork Suburban Rail network.

CMATS states that National Development Plan projects, such as the M28 Cork to Ringaskiddy and Dunkettle Interchange (currently under construction), are to be realised over the period up to 2030. CMATS also proposes the inclusion of a new Cork North Distributor Road and an upgraded N40 to support strategic and freight traffic. Furthermore, CMATS proposes to protect the alignment of a future Cork North Ring Road and the strategic function of roads, such as the Middleton to Whitegate road and the R624, to support potential increase in freight traffic to Marino Point.

3.4.3 Cork City Development 2022 – 2028

The Cork City Development Plan 2022 – 2028 replaces the Cork City Development Plan 2015 – 2021; the Cork County Development Plan 2014; and Cork County Municipal District Local Area Plans 2017 for areas now within the Cork City Council boundary (e.g. Ballincollig, Blarney, Glanmire, and Tower).⁴⁵

This development plan lays out detailed strategic plans for the development of City Docks and Tivoli Docks. It celebrates the move of the Port of Cork to Ringaskiddy, not only as a mechanism for creating a thriving port operation for the PoCC, but also as a means of paving the way for new, sustainable, vibrant living quarters within the city.

⁴⁵ Cork City Development Plan 2022 – 2028: <https://www.corkcity.ie/en/cork-city-development-plan/>

4. Global Trends

Despite recent disruptions to the market, analysis suggests that certain global trends will remain valid in the long term.

4.1 Global Macro-Economics

Changes to global and macro-economic trends have potential impacts on trade volumes handled at ports. The traditional methodology for calculating potential market growth is to develop macro-economic projections using GDP multipliers.

4.2 Gross Domestic Product (GDP)

The impact of the COVID-19 pandemic has meant that projected rates of GDP growth are highly volatile. However, as the Masterplan horizon is to 2050, it is anticipated that, in the long run, growth rates will be restored. Nonetheless, disruptions of economic growth are almost certain over such an extended period, and therefore projections should be prudent. Global GDP has been reviewed as part of this analysis and is expected to continue to grow by between 2% and 3%.

4.3 Population Increase

Central Statistics Office (CSO) Population and Labour Force Projections 2017 – 2051 suggest that population numbers in Ireland will increase within the range of 5.6 million and 6.7 million. The current population of Cork City is over 210,000.⁴⁷ This is anticipated to increase by between 105,000 and 125,000 people (50 – 60%) by 2040.⁴⁸ This population increase is expected to lead to a rise in the volume of goods transiting through the Port of Cork.

4.4 Consumer Awareness

Consumers are increasingly making more informed and sustainable decisions around products, services, and essential items like food. They are rejecting the current universal application of built-in obsolescence and searching for durable items that can be repaired, and many people are engaging more with the sharing economy. Similarly, there is a drive to source food locally, reducing its carbon footprint. Therefore, a corresponding drop in the volume of products and associated transport can be anticipated.

4.5 Net-Zero and Renewables

Climate change is creating an urgent need to move away from fossil fuels towards renewable solutions. This remit has been bolstered by net-zero levels declarations at European and national level and will continue to have an impact on port throughputs. An adaptive approach that tracks changes to renewables, energy vectors, and facilities, to support renewable investments, is therefore likely to be needed.

4.6 International Investment

Ireland has been very successful in attracting international companies to invest in the country and specifically in the pharmaceutical sector in Cork. This inward investment is expected to continue, utilising EU funds which will benefit the port.

⁴⁶ International Transport Forum: Container Ship Size and Port Relocation Discussion Paper 169: <https://www.itf-oecd.org/sites/default/files/docs/container-ship-size-and-port-relocation.pdf>

⁴⁷ Cork City Development Plan 2022 – 2028: <https://www.corkcity.ie/en/cork-city-development-plan/>

⁴⁸ Project Ireland 2040: <https://assets.gov.ie/8349/2cfac8570b61460e8ed5a0c5f4b2822d.pdf>

4.7 Agri-Products

There are many factors with potential to disrupt the agri-product sector that are likely to be exacerbated due to the impacts of climate change. While bad weather in Ireland in 2018 meant animal feed production was low and feed had to be imported, similar crop failures elsewhere may decrease import options in the future. Similarly, the current conflict in Ukraine may create a global wheat shortage.

As well as adopting a conscious focus on local food choices, as noted above, consumers are becoming increasingly conscious of the CO₂ implications of meat consumption and are gravitating towards more plant-based diets; this, in turn, reduces the need for fodder. The current energy crisis is also increasing the price of fertilisers.

Conversely, ammonia can be produced from green hydrogen, which could replace traditional fertilisers.

Certain fluctuations have been accounted for in the volume estimations outlined in this document, but it is in the context of the volatility identified here that such products will need to be monitored and assessed to ensure the sustainability of the port.





5. Shipping Industry Trends

5.1 Changes to Trade Routes

Trade is changing from off-shoring to near-shoring or on-shoring, meaning that longer trade routes will be replaced by shorter localised or coastal routes. This is due to the relocation of manufacturing from long overseas routes to locations that are closer to the point of consumption. COVID has been an increased driver for this change, which is further driven by labour costs. The Balkan Regions and Turkey are likely to be the main beneficiaries within the European market.

Additionally, the conflict in Ukraine has resulted in companies relocating out of Russia, which will contribute to these trade route amendments. Localised 3D printing of products may also decrease the need to utilise longer trade routes.

5.2 Vessel Sizes and Industrialisation

Global vessel sizes have been continually increasing in recent years, and this has led the industry to shift towards ports that are closer to main shipping lanes with deeper drafts, wider navigation channels, and spacious terminals. This efficiency is based on economies of scale in container shipping that rely on very brief times in port and fewer port calls.

To support the ORE sector, ports will require greater industrialisation of infrastructure and landside facilities. For example:

- On-dock landside facilities will be required to provide laydown and assembly areas for turbines.
- Heavy-duty quay structures will be required to cater for large wind turbine installations and support vessels.

The PoCC's **“River to Sea Port”** journey is a direct response to this global trend and will ensure the Port of Cork remains an efficient link in the global logistics chain.

Picture: Ship Turning at Tivoli Docks



6. Natural Environment and the Community

Cork Harbour is a natural harbour and river estuary at the mouth of the River Lee in County Cork. It is one of several harbours that claim to be the “second largest natural harbour in the world” by navigational area, after Sydney Harbour in Australia. It has helped to shape world history and, today, it is a thriving port and emerging tourism hub. The harbour has been a working port and a strategic defensive harbour for centuries and it has been one of Ireland’s major employment hubs since the early 1900s.

Cork harbour is a diverse environment that comprises natural and built elements. Its amalgam of settlements has developed over time to include military installations, port infrastructure, heavy industry, energy production and transmission facilities, and pharmaceutical plants. Port-related activities, tourism, and land- and water-based amenities, have all shaped life around the harbour too, and each addition has contributed to Cork Harbour’s evolving character.

The harbour’s complex character – along with its diversity, constraints, and opportunities – has been carefully considered as part of this Masterplan. Some of the key features of the harbour are summarised below. It is these dynamic and diverse uses that will ensure Cork Harbour continues to be an authentic, compelling, and dynamic visitor destination, while remaining a successful working and living harbour.

6.1 Settlements and Communities

Cork City, including the PoCC City Docks, is located slightly upstream on the River Lee in the northwest corner of Cork Harbour. Several of the city’s suburbs, including Blackrock, Douglas, Passage West, and Rochestown, lie on Lough Mahon or the Douglas Estuary, both of which are parts of upper Cork Harbour. Tivoli, which incorporates Tivoli Docks, is located along the north side of the river channel in the upper harbour accommodates residential, commercial, and industrial uses.

The lower harbour has several towns and villages along its shores. Ringaskiddy, which hosts the largest port operations; Monkstown; Passage West; and Raffeen are located on the western shore. Crosshaven is located on the south-western shore. Cobh, and its surrounding communities, are located on Great Island, whilst the villages of Whitegate and Aghada are located along the less densely populated eastern shores. Many of these settlements and communities have a strong association with the harbour and their inhabitants use it for water-based recreational purposes.

The harbour landscape is a place for living and working and has evolved to respond to the needs of the community over time. Traditional heavy industries have waned since the late 20th century with the closure of IFI in Marino Point, Irish Steel in Haulbowline Island, and ship-building at Verolme Dockyard in Rushbrooke. In some cases, these industries have been replaced by local amenities, such as the remediated recreational park on Haulbowline Island, which is also home to the headquarters of the Irish Naval Service.

There is a range of social infrastructure within the harbour area, servicing the local and wider community including facilities for education (pre-primary, primary, secondary, and third level), healthcare, childcare, and community-based care.

6.2 Coast and Islands

The main tributary to the harbour is the River Lee, which – after flowing through Cork City – passes through Lough Mahon in the northwest and to the west of Great Island, emerging into the lower harbour near Haulbowline Island. The depth of the harbour ranges between seven and 26 metres. The main shipping channel undergoes dredging to maintain required navigational depths.

Cork Harbour contains islands of various sizes, some of which are connected to the mainland by bridges. The land use and character of these islands vary considerably and have changed over time. There is a rich maritime heritage associated with all of these islands and the coastal areas within the harbour itself. The islands have accommodated a range of uses and types of activity, including:

- **Established settlements** – Cobh on Great Island
- **Industrial Activity** – Whitegate Oil Refinery - Corkbeg Island
- **Naval and Recreational** – Haulbowline Island
- **Tourism, Natural Heritage and Recreational** – Spike Island, Fota island and Hop Island
- **Crematorium** – Rocky Island

6.3 Economic Development, Commerce, and Industry

Cork Harbour is one of the most important industrial areas in Ireland. As noted previously, while several traditional industries, such as shipbuilding at Verolme Dockyards, steelmaking on Haulbowline Island, and fertiliser manufacturing at the IFI plant have ceased in recent years, they have been replaced with newer industries.

The harbour is now important for the pharmaceutical industry, which is a large employer in the region. Ireland's only oil refinery is located on the south-eastern shore together with the adjacent Whitegate and Aghada CCGT power stations. The Port of Cork itself, as described in this Masterplan, has a number of significant existing facilities within the harbour, including operations at City Docks, Tivoli Docks, Cobh, and Ringaskiddy.

Ringaskiddy is designated as a strategic employment location within the Cork Metropolitan Strategic Planning Area (MASP), with strong Foreign Direct Investment (FDI) and indigenous enterprises. The area is deemed a specialist employment area for life sciences, it features significant Industrial Development Agency (IDA) enterprise assets and world-leading marine research and innovation centres.⁴⁹

⁴⁹ Cork MASP, Project Ireland 2040: http://www.southernassembly.ie/uploads/general-files/Cork_Southern_Regional_Assembly_MASP_Report_Cork_v3.pdf

There are 343 hectares of available land zoned for industrial use in Ringaskiddy. With an estimated 3,835 people employed in the area, it is the second largest direct investment employment centre in the country.⁵⁰ Cork County Council intends to work with key stakeholders to ensure the area maintains its attractiveness as an employment location and its prominent role as the main FDI location in Ireland.⁵¹ The stated aim for Ringaskiddy within the Cork County Development Plan (CDP) 2022 – 2028 is to reaffirm its function as a strategic employment location through large-scale industry which is compatible with environmental, nature, and landscape protection policies.⁵²

The Port of Cork sits at the centre of this strategic employment location. Approximately two-thirds of the PoCC's customers are in Cork, 70% in the southwest region, and 92% in Munster, illustrating its value for the wider catchment area. The Port of Cork has particular significance for the manufacturing industry, with Cork City and County gross outputs representing one-third of the State's total volume. The total tonnage of cargo that passed through the Port of Cork was 10.2 million in 2022, equating to a revenue of €48.4 million.

6.4 Tourism, Recreation, and Heritage

As a tourism and amenity destination, Cork Harbour owes its appeal to its vast scale and its diversity of uses. Visitors' experience of the harbour, either on land or on water, is of an authentic living and working harbour, with a mix of natural and built landscapes and seascapes. The co-existence of heritage, landscape, industry, settlements, energy infrastructure, amenities, tourism, the water, and the port makes Cork Harbour a compelling place to visit.

Each of the settlements outlined above has individual characteristics associated with previous and current land uses, and some are important for heritage and tourism. Visitors to Cobh experience the heritage town itself and its iconic cathedral. Beside this is the vast expanse of water, alive with the movement of tugs, container ships, sail boats, and small vessels carrying people and goods, along with the arrival and departure of large cruise ships. The backdrop is formed by the natural and working landscapes and seascapes of Rostellan, Aghada, Whitegate, Carlisle Fort, Roche's Point, Curraghbinny, Ringaskiddy, and Monkstown. Spike Island, with its rich history, is considered a jewel at the centre of the sea view.

⁵⁰ County Development Plan 2022 – 2028: 'Volume 4: South Cork', <https://www.corkcoco.ie/sites/default/files/2022-06/volume-4-south-cork.pdf>

⁵¹ County Development Plan 2022 – 2028: 'Volume 1', p. 176, <https://www.corkcoco.ie/sites/default/files/2022-06/volume-1-main-policy-material.pdf>

⁵² County Development Plan 2022 – 2028: 'Volume 4: South Cork', <https://www.corkcoco.ie/sites/default/files/2022-06/volume-4-south-cork.pdf>

Crosshaven, Cobh, and Monkstown have long associations with sailing. A number of rowing clubs have facilities on part of the River Lee between Cork City and Blackrock, co-existing on the river with the large ships, tugboats, and other port vessels. There are boatyards and marinas dotted along the harbour, with access points for boating, windsurfing, and jet-skiing.

There are some beaches within the harbour, such as Gobby Beach and Lough Beg Beach, both of which are close to Ringaskiddy. Given the location of Ringaskiddy along the shoreline, it is important to maintain public access to the water for local boating and leisure craft and facilitate the expansion of such facilities in future. Paddy's Point, located adjacent to Gobby Beach, has a public marine recreation facility developed by the Port of Cork.

Haulbowline Island public amenity park is accessed from a single bridge that connects it with Ringaskiddy via Rocky Island. As well as being a local and regional amenity, it expands tourism opportunities for the area.

The headquarters of the Irish Naval Service, located on the western side of the island, is of historical interest, as it was a site of fortification as far back as the 1600s.

These various tourist, amenity, and heritage areas in the lower harbour will soon be linked by an important 'active travel' commuting route when Cork County Council delivers the Cork Harbour Greenway, an element of the Lee to Sea Greenway proposed in the CDP.

Photo: Paddy's Point Recreation Area and Public Jetty



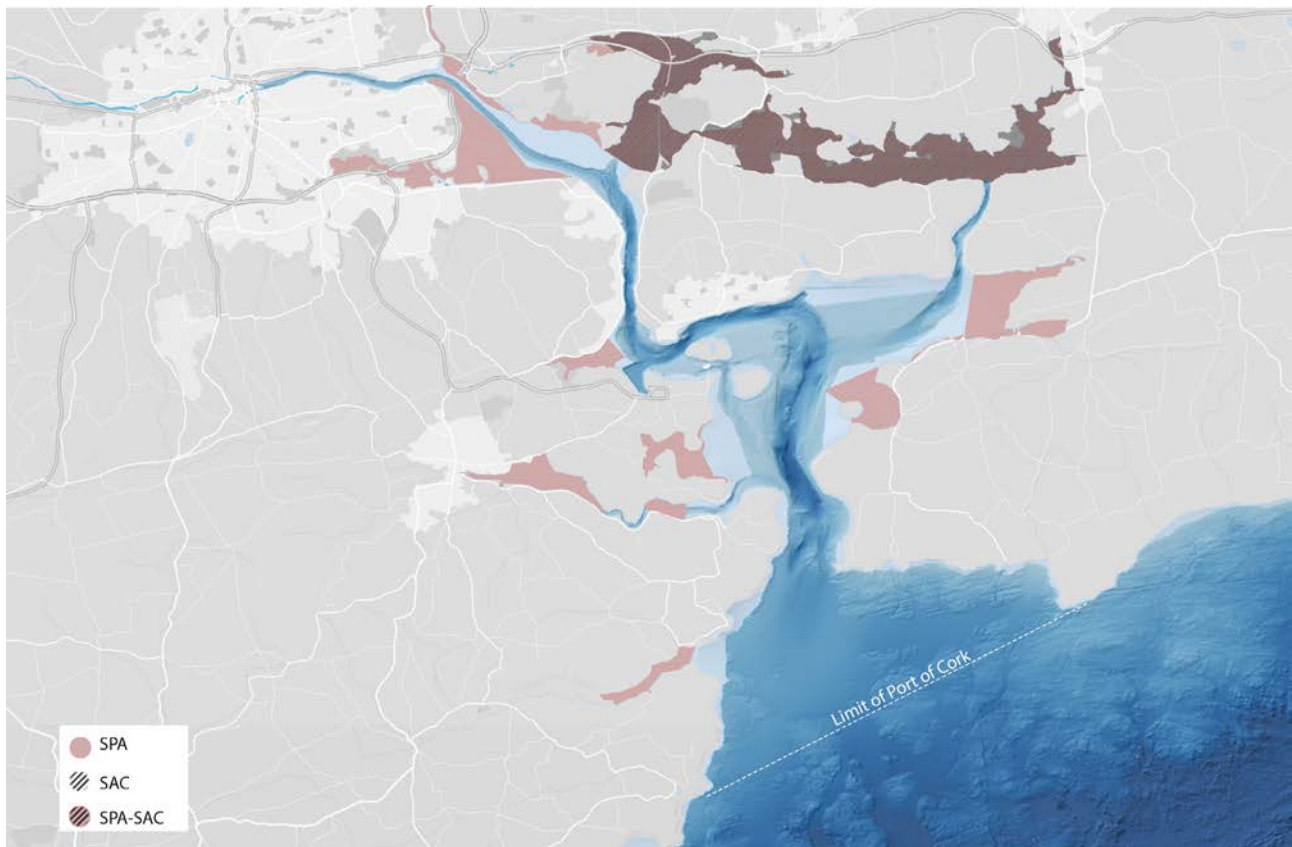


6.5 Biodiversity and the Environment

Special Areas of Conservation (SACs) and candidate SACs are protected under the Habitats Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Special Protection Areas (SPAs) are protected under the Birds Directive 2009/147/EC and European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, these sites are referred to as Natura 2000 or European sites. (Protected) Natural Heritage Areas (NHAs/pNHAs) are national designations under the Wildlife Act 1976, as amended.

There are two European sites located within the harbour (Great Island Channel SAC and Cork Harbour SPA), in addition to some pNHAs, most of which overlap with the European sites. This rich biodiversity resource is of significant importance to the harbour.

Figure 27: Cork Harbour SPAs and SACs





7. Net-Zero Port

The PoCC's climate ambition is driven by the national Climate Action Plan 2023. The PoCC will aim to achieve a 51% reduction in its overall greenhouse-gas emissions by 2030, with a view to reaching net-zero emissions by 2050. These targets are acknowledged in Directive (EU) 2018/410 of the European Parliament and of the Council of 14th March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814. Under this Directive, objectives will be regularly reviewed and reported back to the European Parliament and to the Council once a year.⁵³

In response to these ambitions, two workshops were held on "Decarbonisation and Resilience" and "ORE and Future Cargoes" with the PoCC Management. The following policies and targets were identified during these workshops as relevant to the ambitions of the "Net-Zero Port" (Figure 28).

7.1 Environmental Management

The PoCC is certified under ISO 14001, ISO 50001, and OHSAS 18001 and is compliant with EcoPorts – Port Environmental Review System (PERS), which ensures that port operations are managed in a sustainable way. To comply with these certifications, the PoCC operates under a "Safety, Health, Environment, Energy & Quality" (SHEEQ) Management System.⁵⁴ This ensures proper environmental management on site and safeguards employees, and other stakeholders, who may be affected by the operations.

Continual audits will be undertaken under this management system and, in general, a positive safety culture will be promoted across the site, including through adequate training of employees. An awareness of SHEEQ management systems will be further promoted amongst contractors, suppliers, customers, and other stakeholders, where applicable.

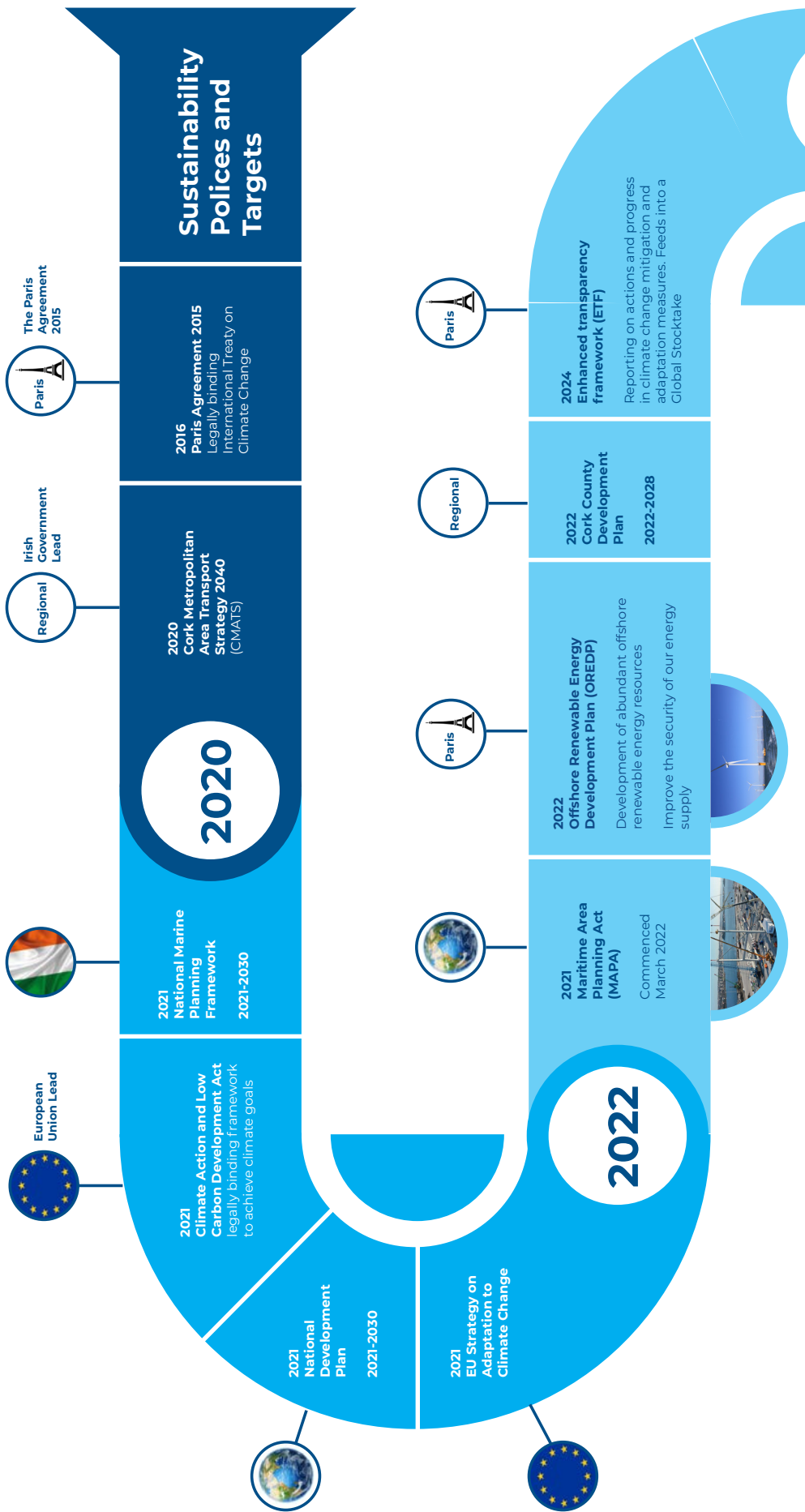
ESPO Green Guide 2021 was developed to support the mission for greener port operations. The guide provides a mechanism for the PoCC to ensure it is complying with relevant environmental standards in relation to air quality, climate change, energy efficiency, noise, community relations, ship waste, water quality, port waste, and dredging. All of these processes are considered in the port operations that relate to this Masterplan.

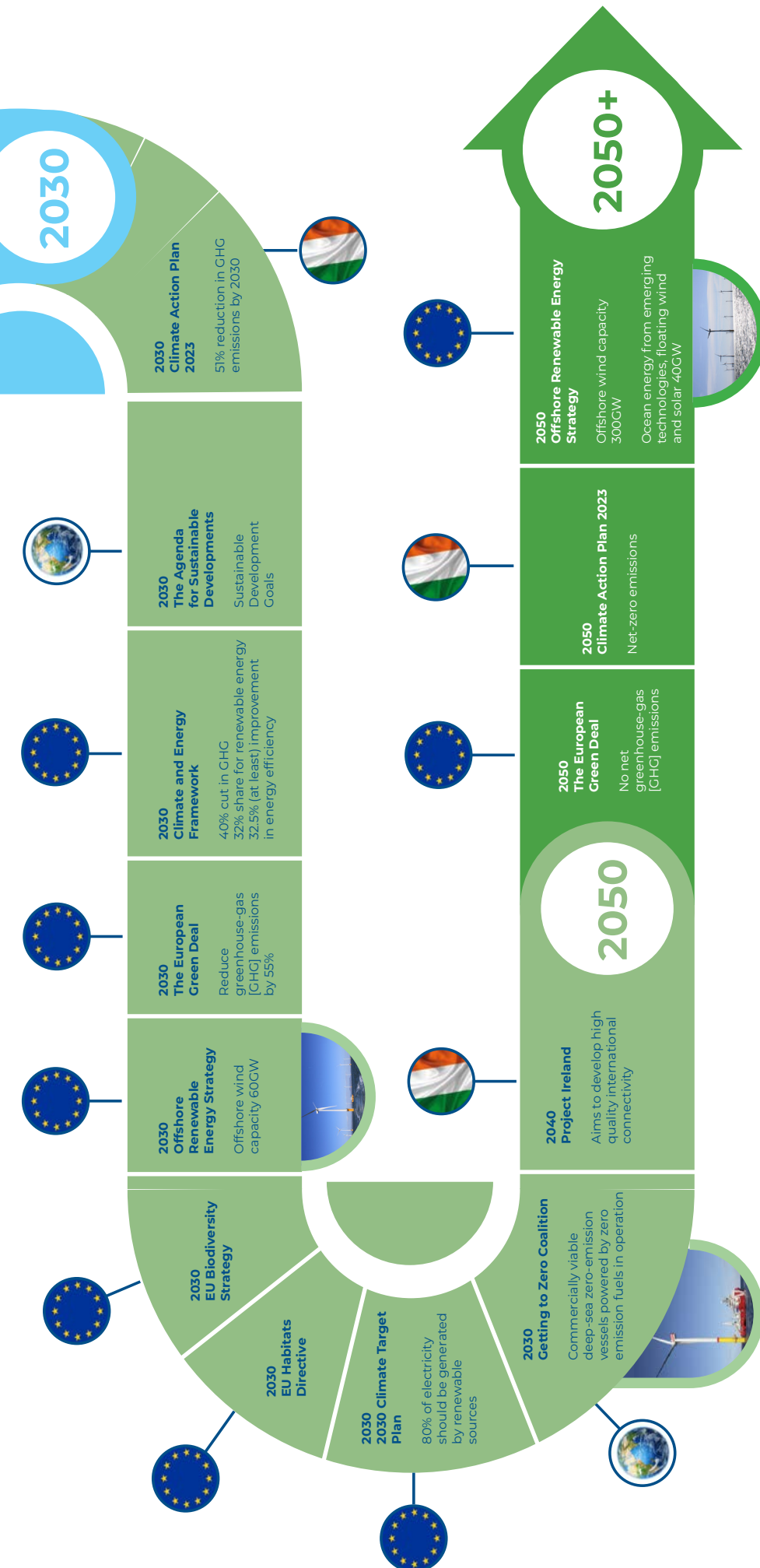
⁵³ Directive (EU) 2018/410 of the European Parliaments and of the Council of 14 March 2018, amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0410&from=EN>

⁵⁴ The PoCC Safety, Health, Environment, Energy & Quality (SHEEQ) Management System: <https://www.portofcork.ie/safety-health-and-environment/>

Figure 28

Sustainability Polices and Targets Relevant for the Net-Zero Port





7.2 Decarbonisation

During the “Decarbonisation and Resilience” workshop, the following actions were identified by the PoCC, as part of a roadmap to respond to climate needs and achieve net-zero targets.

1. Update the PoCC policies and commitments to reflect international, European, and national guidelines.
2. Develop a roadmap outlining an approach for decarbonising the port. This would include objectives that align with the PoCC policies and commitments and have tangible, timebound targets.
3. Develop a baseline for carbon emissions on which to evaluate future options. This will build on current emission studies being conducted by the PoCC.
4. Establish where new revenue can be generated through emerging technologies, lower carbon commodities, and investments in greener infrastructure, such as green hydrogen and offshore wind.
5. Explore a variety of collaborations that might support the transition to net zero, such as a change in the business model to include the facilitation of private investors or sharing initial capital investments with other European ports.

7.2.1 Decarbonisation and Energy Plan

As an initial step, the PoCC will develop a Climate Action Roadmap, which will identify interventions required to address capital and operational carbon usage. The PoCC will also develop a plan to facilitate customers' transition from fossil-based fuels to greener solutions to aid carbon usage reduction in the shipping industry, acknowledging that uncertainty will require an adaptive approach.

A whole-life carbon management framework will shape all interventions going forward, addressing capital, operational, and user carbon. Interventions currently being planned to create the Net-Zero Port are:

- Transition fuels for marine- and port-based equipment.
- Electrification of port equipment.
- On-site energy generation and storage (e.g. Solar PV, wind turbines, new stationary battery energy storage facility, other green energy).
- Provision of zero-carbon shore power for vessels.
- Provision of zero-carbon fuels for vessels.
- Smart energy management and microgrids.
- Battery recharging facilities for land-based transport.
- Carbon Capture and Storage (CCS).
- Digitalisation and the use of AI to streamline port operations.

7.3 The Port as an Energy Hub

The PoCC envisages its Net-Zero Port as an Energy Hub, continuing a role it has fulfilled to date with a more sustainable vision. Furthermore, the CDP has identified the opportunity to promote Ringaskiddy as an energy hub, recognising the role the Cork Harbour region plays in responding to existing and future energy demands.

During the “ORE and Future Cargoes” workshop, the PoCC identified locations with the most potential for “Marshalling and Assembly (M&A)” and “Operation and Maintenance (O&M) activities” to facilitate the ORE sector. Similarly new greener cargoes were recognised as future business opportunities. These opportunities can be harnessed by the adaptation of existing infrastructure, in some cases, but may require additional infrastructure in others. All of these options are explored in this section.

Figure 29: The Port of Cork Energy Hub

Future Cargoes Solid Biomass Fuels

Solid Biomass Fuels are seen as important to reducing dependency on electricity and increasing the resilience of energy systems through diversification. These biomass fuels require substantial amounts of dry storage due to the hydrophilic nature of many of the products.

Dry Bulks, in the form of Solid Biomass Fuel, have potential to be enabled through Ringaskiddy West Deepwater Berth with simple modification of the existing dry bulk business.

Offshore Renewable Energy

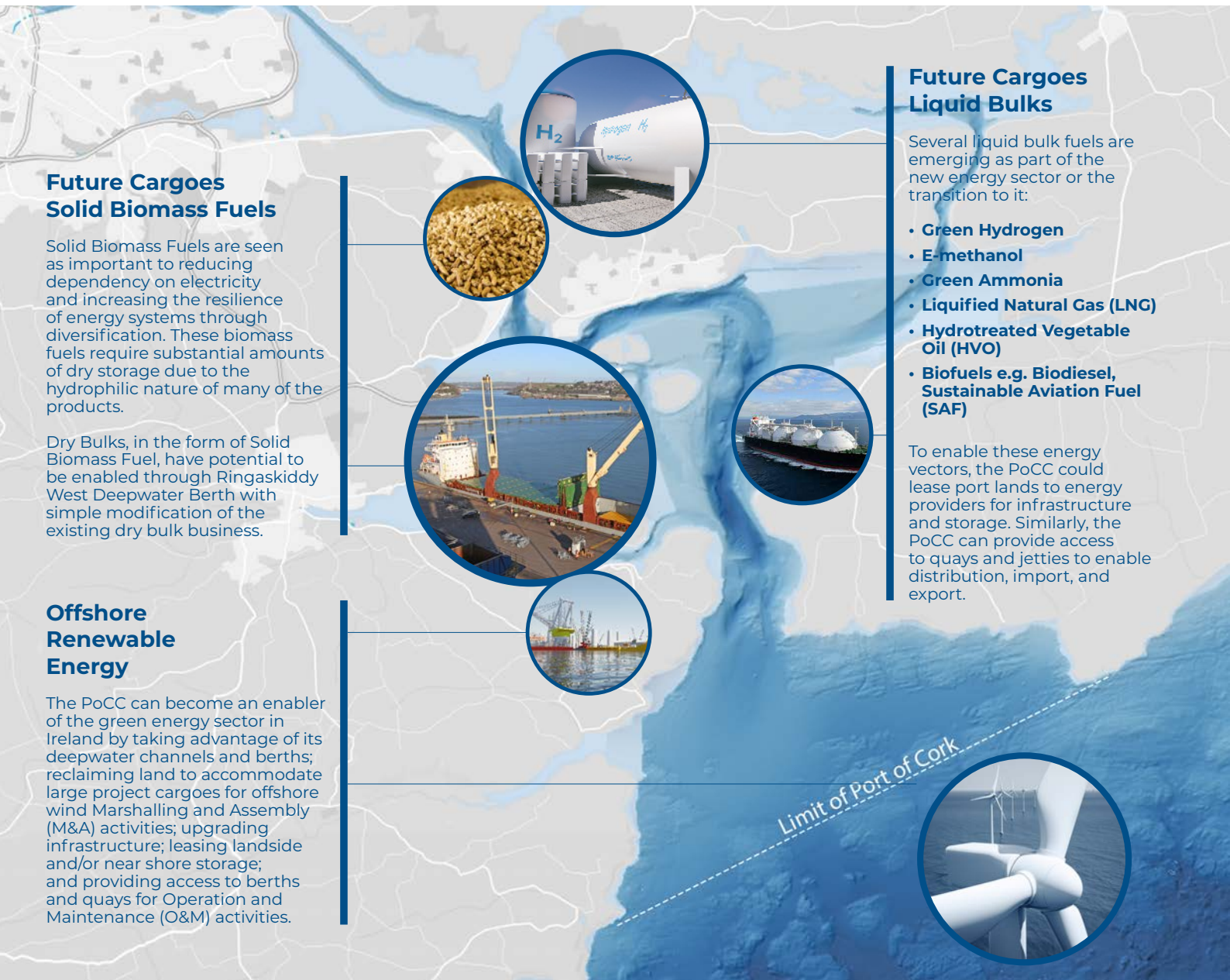
The PoCC can become an enabler of the green energy sector in Ireland by taking advantage of its deepwater channels and berths; reclaiming land to accommodate large project cargoes for offshore wind Marshalling and Assembly (M&A) activities; upgrading infrastructure; leasing landside and/or near shore storage; and providing access to berths and quays for Operation and Maintenance (O&M) activities.

Future Cargoes Liquid Bulks

Several liquid bulk fuels are emerging as part of the new energy sector or the transition to it:

- Green Hydrogen
- E-methanol
- Green Ammonia
- Liquefied Natural Gas (LNG)
- Hydrotreated Vegetable Oil (HVO)
- Biofuels e.g. Biodiesel, Sustainable Aviation Fuel (SAF)

To enable these energy vectors, the PoCC could lease port lands to energy providers for infrastructure and storage. Similarly, the PoCC can provide access to quays and jetties to enable distribution, import, and export.



7.3.1 Offshore Renewable Energy (ORE)

Offshore Renewable Energy (ORE) has been identified as an integral part of the future for the Port of Cork. This will allow the port to maintain its significance as an energy hub for the country while responding to contemporary needs.

The following ORE interventions have been identified as priorities by the PoCC:

Project Cargoes: Offshore Wind Activities **Marshalling and Assembly (M&A) Activities**

M&A facilities are usually located at a limited distance from the offshore installation site and allow the storage and assembly of the sub-structure, the wind-turbine generator (WTG), or both. For this reason, M&A facilities require extended storage areas, and adequate quay length and depths.

Operation and Maintenance (O&M) Activities

O&M activities are those required to ensure the safe and efficient running of the offshore wind project after its deployment. O&M ports are usually serviced daily by Crew Transfer Vessels (CTVs), or Service Operation Vessels (SOVs), and the space required for the development of an O&M base is mostly related to offices, warehousing for spares, and welfare parking.

7.3.2 Enabling the Green Economy

7.3.2 Enabling the Green Economy

The PoCC can become an enabler of the green energy sector in Ireland by taking advantage of the deepwater channels and

berths; reclaiming land to accommodate large project cargoes for offshore wind development; upgrading infrastructure; leasing landside and/or near-shore storage; and providing access to berth and quays. The PoCC's management, logistics, and operations systems can be adapted to support these interventions. The following locations have varying degrees of potential for supporting ORE.

Ringaskiddy East

Ringaskiddy East has been identified as a potential location for the development of ORE Offshore Wind activities, with M&A to occur there in the short term and O&M in the longer term.

To achieve this, the PoCC can build out port infrastructure, with approved planning permission in place for 430m of quay walls (Ringaskiddy East CCT: 200m, Ringaskiddy West DWB: 230m), and utilise existing landside facilities to support the fixed bottom ORE sector. To facilitate the floating ORE sector, a reclaimed area of 23ha would be required for Marshalling and Assembly in the short- to medium-term future.

In the longer term, this space would be used for the expansion of the CCT, with the remaining area used as an O&M Offshore Wind Facility. Reclamation would include the construction of additional berth lengths, giving a total of 800m when completed. Land allocation for each would potentially change over time, as indicated below.

Table 13: Potential ORE Spatial Requirements

	CCT	Offshore Wind
2022 – 2036	-	23ha (M&A)
2036 – 2048	6.4ha	16.6ha (O&M)
Beyond 2048	13ha	10ha (O&M)

The reclamation will include the construction of additional berth lengths, giving a total of 800m when completed.

Ringaskiddy West

The DWB berth in Ringaskiddy West currently facilitates the import of wind turbine components and other project cargoes associated with the land-based wind energy sector. Some of the longest blades in Ireland have been imported at the DWB. The ADM jetty is currently used for the import of green liquid bulks, such as HVO.

Dry bulks in the form of solid biomass fuel have potential to be enabled through Ringaskiddy West DWB by simply modifying the existing dry bulk business. The DWB can currently facilitate many of the project vessels associated with the ORE industry. The ADM jetty at Ringaskiddy West could be widened and an additional hammerhead berth added to allow for ORE project cargoes.

Figure 30: Vision for ORE Development at Ringaskiddy

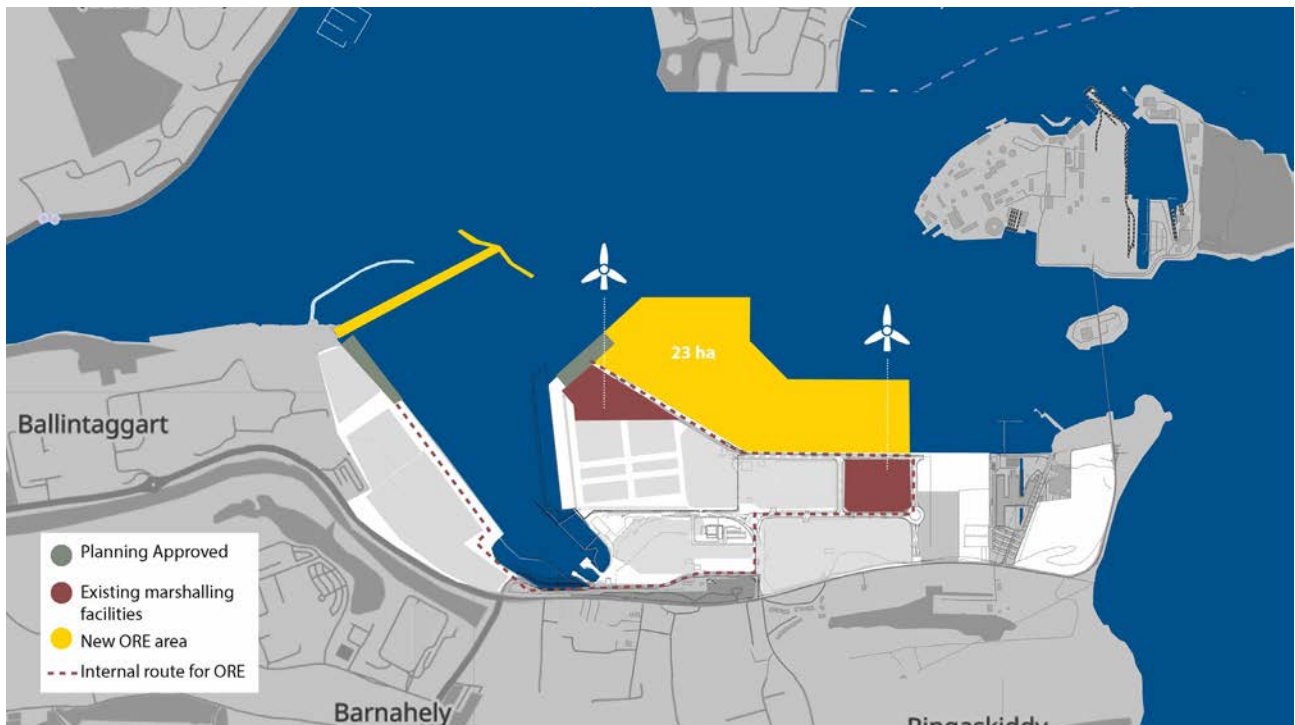
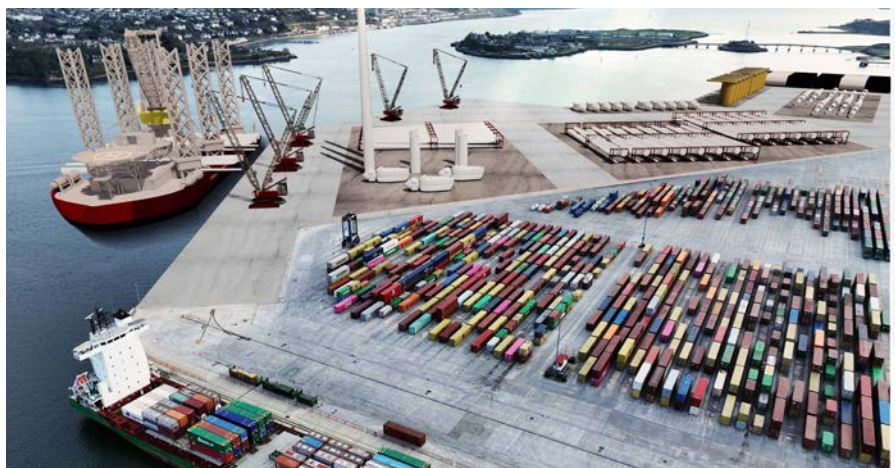


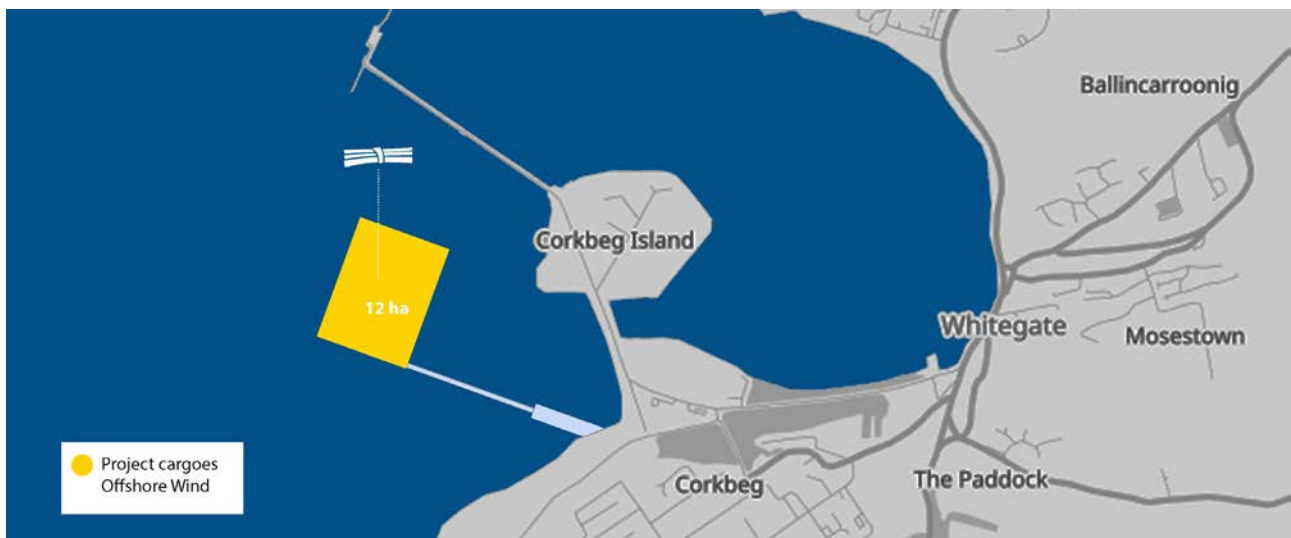
Figure 31: ORE at Ringaskiddy - A Concept Image



Dognose Bay

Dognose Bay is seen as a site that can support the ORE sector by facilitating M&A through the reclamation of 12ha. Due to challenges with hinterland connectivity, components would be shipped in for such operations or fabricated on the quays. The proximity of Dognose Bay to the national grid at this location is a positive driver for energy production and supply.

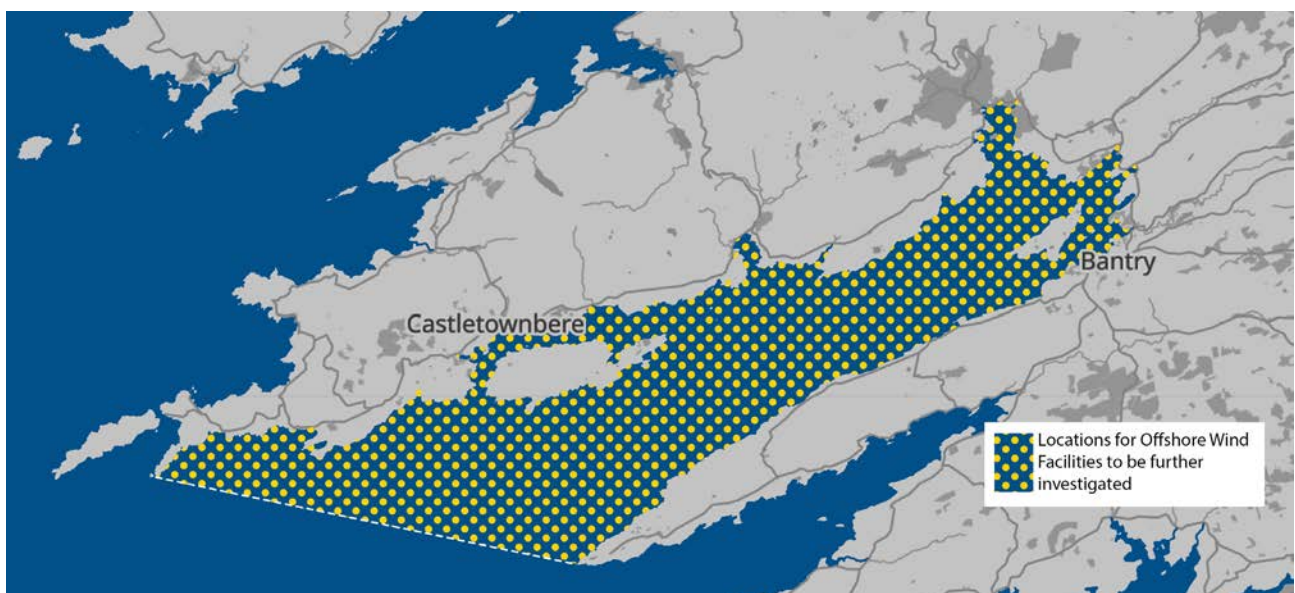
Figure 32: Potential ORE at Dognose Bay



Bantry Bay Harbour

Bantry Bay Harbour, and its deep-water channel, have the potential to provide facilities to support M&A, O&M, and wet storage for ORE activities. Further investigation is required to determine suitable locations for these facilities.

Figure 33: Bantry Bay Harbour



7.3.3 Future Cargoes

The following liquid and dry bulks are being considered as future cargoes by the PoCC. The list below is not exhaustive and, as this is a new, shifting sector, the PoCC will be prepared to carry other liquid and dry bulks that may emerge as fuels of the future.

Liquid Bulks

There are several green energy liquid fuels quickly emerging as part of the new energy sector. The following are currently being considered:

Green Hydrogen

Electrolysis: Green hydrogen can be created through electrolysis powered by offshore wind energy. This requires space for an electrolyser, storage tanks, pipelines, clean water, and jetty/quay facilities.

Reformation: Hydrogen can be reformed from methane through Carbon Capture and Storage (CCS) technologies. This requires a specialist plant for reforming methane, as well as storage tanks, and jetty/quay facilities.

E-Methanol

E-methanol is produced by combining green hydrogen and captured carbon dioxide from industrial sources. When the green hydrogen is produced using renewable energy, and the carbon dioxide used is captured, e-methanol is considered an alternative net-carbon-neutral fuel. This requires the ability to manufacture green hydrogen, as described above, and connection to an industrial system that allows for carbon capture. This process will involve a specialist plant powered by sustainable energy its will require storage tanks and jetty/quay facilities.

Green Ammonia

Green ammonia is produced by making ammonia that is 100% renewable and carbon-free. It is being considered as an option for transportation and storage of energy from renewable power plants. Green ammonia may also be considered as a stand-alone fuel or can be cracked into hydrogen at the point of use. It has further possible benefits as a more sustainable fertiliser for the future. Production requires the manufacture of green hydrogen and a connection to a specialist plant, powered by sustainable energy, that removes nitrogen from the air. This process will require storage tanks and jetty/quay facilities.

Hydrotreated Vegetable Oil (HVO)

Hydrotreated Vegetable Oil is a liquid biofuel made from plant waste and renewable materials using a specialist method of hydrotreatment. It offers up to a 90% reduction in net CO₂ emissions. HVO is very stable, which means that there are few hazards associated with storage. Importation of HVO via the ADM Jetty commenced in February 2023.

Floating Storage Regasification Unit (FSRU)

An FSRU is a special vessel used for the transiting and transfer of Liquefied Natural Gas (LNG) through the oceanic channels. LNG is cooled for transport and regasified before being pumped into the storage system. LNG is seen as an important transition fuel while green technologies are being developed.

LNG Bunkering

LNG Bunkering is the transfer of liquefied natural gas fuel to a ship for its own consumption.

Biofuels

Biofuels are liquid or gaseous transport fuels made from biomass, such as biodiesel, Sustainable Aviation Fuel (SAF), and bioethanol.

Dry Bulks

Solid Biomass Fuels

Solid biomass fuels are seen as important bioenergy fuels that can reduce dependency on electricity and increase the resilience of energy systems, through diversification. Recent studies have indicated that the preferred biomass supply chain is through long-distance transport via shipping.⁵⁵ Examples of solid biomass fuels are wood pellets and wood chips. These fuels require substantial amounts of dry storage due to the hydrophilic nature of many of the products.

7.3.4 Enabling the Green Economy through Future Cargoes

The PoCC can be an enabler of all these future fuels by leasing port lands to energy providers for infrastructure and storage. Similarly, access can be given to quays and jetties for the distribution, import, and export of green liquid and dry bulks. The following locations are being considered to enable the green economy in Ireland.

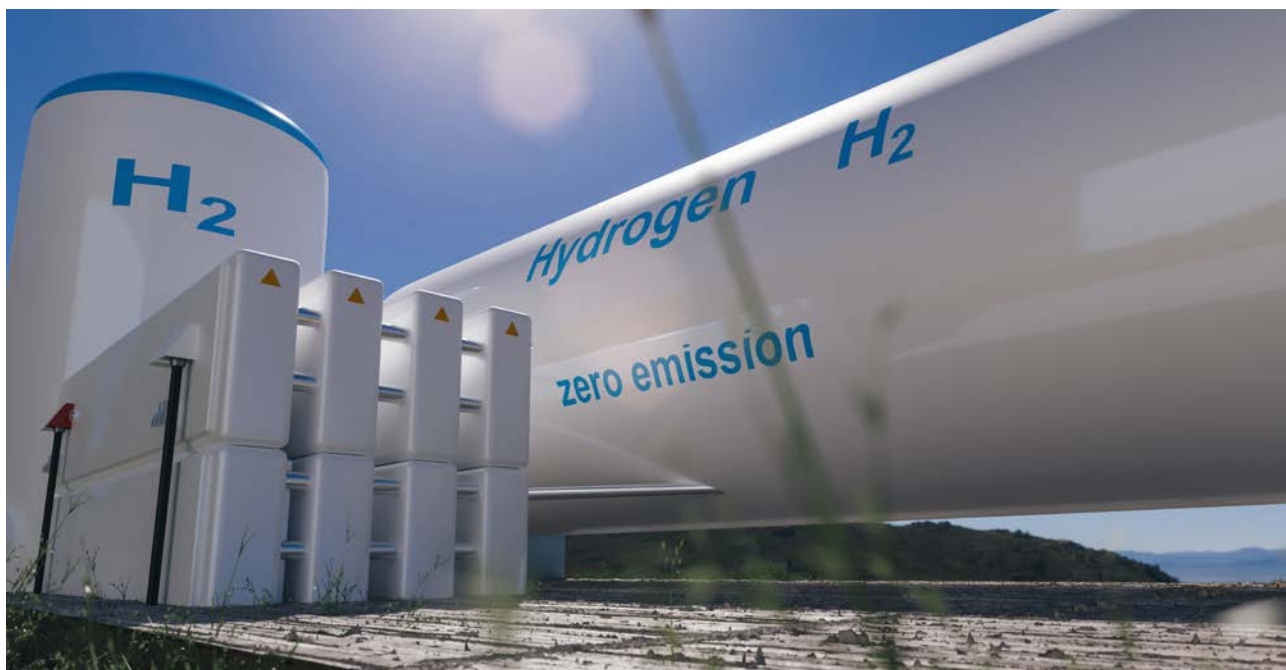
Dognose Bay – Liquid Bulks

Dognose Bay is seen as a site that can support future and transition cargoes in the form of LNG bunkering and a Floating Storage Regasification Unit (FSRU) if an additional jetty and berth for a permanent vessel are added in the short to medium term. The proposed location is near (1km) the main gas pipeline and the main CCGT power stations for the region and could assist in meeting Ireland's energy security requirements.

Once the ORE and hydrogen industries are established, this terminal has potential to be a multipurpose terminal for other liquid bulks, such as green hydrogen, green ammonia, and e-methanol to meet Ireland's future energy requirements.

Ringaskiddy West – Dry Bulks

Dry bulks in the form of solid biomass fuels have potential to be enabled through Ringaskiddy West DWB by simply modifying the existing dry bulk business.



⁵⁵ TBA Group Paper, 'Handling of solid biomass from the perspective of dry bulk terminals': <https://tba.group/en/insights/papers/handling-solid-biomass-perspective-dry-bulk-terminals>

Figure 34: Potential FSRU Location Dognose Bay

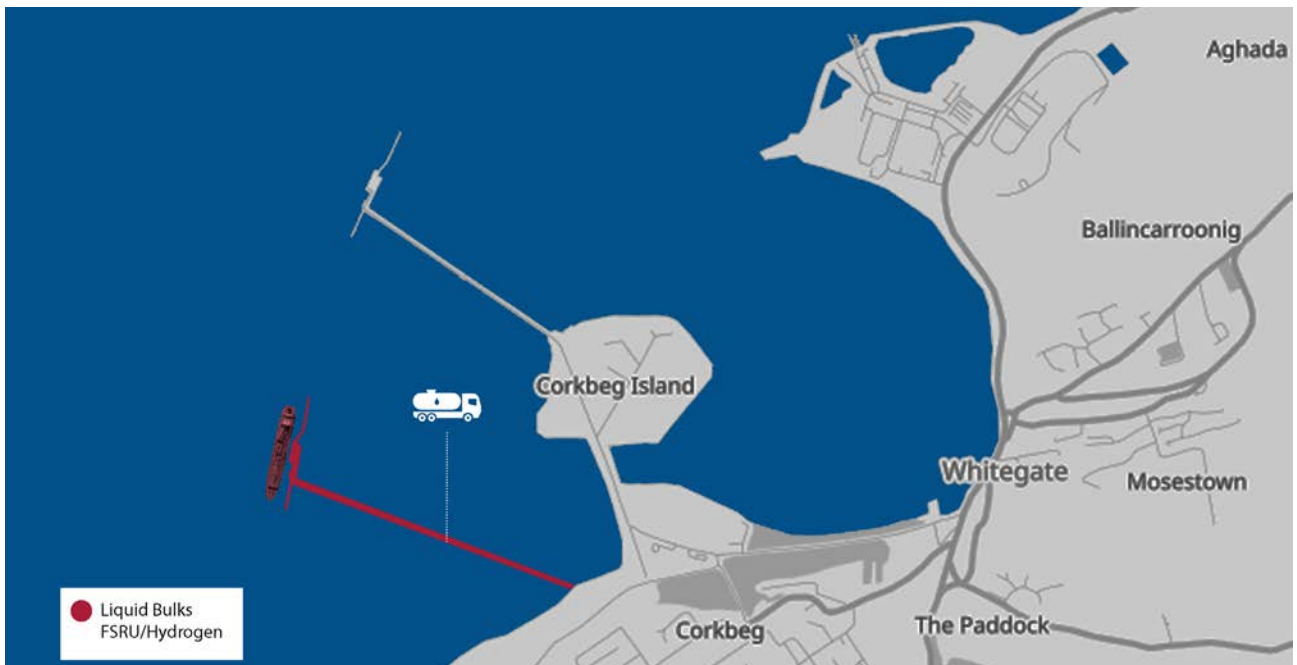


Figure 35: Concept Image for FSRU at Dognose Bay





7.4 Port Resilience to Change

The “Decarbonisation and Resilience” workshop highlighted various strategies for resilience that will be undertaken by the PoCC as part of the move away from fossil fuels and in response to climate change. Resilience was understood to be driven by a variety of factors, such as decarbonisation, technology, port communities, and the environment.

Resilience in this case is seen as the ability of ports and their systems to withstand and adapt to changing conditions, and recover positively from shocks and stresses. Shocks are defined as sudden events that impact on the vulnerability of a port system and its components, whereas stresses are understood as long-term trends that undermine the potential of a port system and increase its vulnerability.⁵⁶

Every port is a hub of system with various cross-cutting interdependencies such as:⁵⁷

- Port strategies, targets, and budgets.
- Operational procedures, standards, guidance, and staff hierarchies.
- Local culture and staff relationships.
- Flows of people, freight, energy, and water.
- Flows of data (e.g., stock, imports, exports, costs, fees, environmental information).

The following areas emerged as needing attention to create a resilient port:

- **Diversification of Current Business Models** – exploration of opportunities as a landlord port.
- **Commodities Transition for Future Cargoes** (outlined above).
- **Strengthened Collaborations** – local stakeholders and communities, local authorities, national government, and national and international ports.
- **Peer Learning** – from other ports at the European and international level.
- **Connected Transport Systems** – continued advocacy for the provisions of hinterland connections, both road and rail, which will allow the Port of Cork to function at maximum capacity for the economic benefit of the region.
- **Labour Force** – embrace technological changes that can upskill and diversify the workforce.
- **Operational Changes** – a view to increasing operational efficiencies and lowering emissions through the digitisation and automation of systems and the introduction of green pricing.
- **Physical Space** – as analysed in the forecasting and Future Infrastructure Development section of this Masterplan publication.

A holistic management approach will be required by the PoCC to balance these interdependencies and ensure the port and its systems remain resilient in relation to disturbances such as climate change.

⁵⁶ Resilience4Ports, ‘Resilience Shift’: https://www.resilienceshift.org/wp-content/uploads/2021/03/Resilience4Ports_FINAL.pdf

⁵⁷ Resilience4Ports, ‘Resilience Shift’: https://www.resilienceshift.org/wp-content/uploads/2021/03/Resilience4Ports_FINAL.pdf

8. Stakeholder Engagement and Consultation

A draft Masterplan was developed based on the initial cargo projection analysis and conversations with existing customers and other commercial stakeholders. After this process, the draft was presented to public bodies and representatives; statutory bodies; and local communities for review.

8.1 Customers and Key Commercial Stakeholders

Existing customers and key commercial stakeholders were consulted during the development of the initial draft Masterplan, including:

Arkady | Doyle Shipping Group (DSG) | NVD | Premier Molasses | Mainport | Cefetra | Simply Blue Energy | Calor | Providence | Gouldings | R&H Hall | Yara | Flogas | Irving Oil | Crosbie | Orsted

8.1.1 Consultation Process

Each company was asked about the future in relation to their expected cargo volumes; the challenges involved in achieving projections; the evolution of their vessel fleet; the implications such changes will have on infrastructure requirements, in and around the port; and the associated spatial requirements. Responses were calibrated and discussed against projections used in the development of the Masterplan. The future was further explored in terms of climate change resilience and challenges related to reducing the carbon footprint of the industry.

A number of high-level topics emerged as common themes across these broad-ranging discussions:

1. It was determined that any customers based in City Docks and Tivoli Docks have no existing concrete plans for relocation and expect to discuss this matter and further steps at an appropriate stage with the PoCC – there is currently no definitive timeline for this move.
2. Most companies felt the facility at Ringaskiddy West needed to be upgraded in terms of berths and warehousing to accommodate future volumes.
3. The completion of the M28 was seen as integral to the Ringaskiddy West upgrade, and the lack of connectivity back to the city is creating a reluctance to relocate and potentially impeding business development in the area.
4. Road and rail connectivity was seen as the main issue impeding any relocation to Marino Point.
5. While many companies were very aware of and are making strides in terms of their actions on environmental targets and requirements to reduce emissions, there was a general feeling that technology, infrastructure (port-side and beyond), and/or regulatory frameworks are not yet in place to support a quicker transition to decarbonisation and responses to climate change.
6. Socially and environmentally conscious consumers changing dietary habits towards plant-based options was seen as a strong driver for change in many industries. Companies witnessing the impacts of these behavioural shifts are being proactive in pursuing adaptive solutions.

8.2 Public Consultation

Subsequently, the draft Masterplan underwent extensive review with public and statutory bodies, public representatives, other private companies, and key stakeholders in the various local areas adjacent to Port of Cork operations.

8.2.1 Public and Statutory Bodies

The following list includes some of the key stakeholders that were engaged with via one-to-one meetings and/or by email:

- Cork County Council
- Cork City Council
- Cobh & Harbour Chamber of Commerce
- Cork Chamber of Commerce
- Transport Infrastructure Ireland (TII)
- Ireland Strategic Investment Fund (ISIF)
- Port of Cork Company (Internal Consultation)
- Department of Housing, Local Government and Heritage – Marine Environment and Foreshore Section
- Minister for Tourism, Culture, Arts, Gaeltacht, Sport, and Media
- Minister for Housing, Local Government, and Heritage
- Department of Environment, Climate, and Communications
- Minister for Agriculture, Food, and the Marine
- National Parks and Wildlife Service
- The National Monuments Service and Underwater Archaeology Unit
- Department of Jobs, Enterprise, and Innovation
- Southern Regional Assembly Enterprise Ireland
- Environmental Protection Agency-Marine Institute (Dublin)
- National Transport Authority
- Irish Water
- ESB Networks
- Gas Networks Ireland (GNI)
- Health & Safety Authority Health and Safety Executive
- Inland Fisheries Ireland
- Heritage Council
- Fáilte Ireland
- An Chomhairle Elaíon (The Arts Council of Ireland)
- Irish Rail
- Office of Public Works (OPW)
- Sea Fisheries Protection Authority
- Marine Survey Office (MSO)
- The Irish Coast Guard (IRCG)
- Commissioners of Irish Lights (CIL)
- Irish Maritime Operations Centre (NMOC) of the Irish Coast Guard – Marine Rescue Co-Ordination Centre (MRCC) of the Irish Coast Guard
- Marine Radio Affairs Unit of the Maritime Safety Directorate
- Maritime Safety Policy Division
- Maritime Services Division
- Sustainable Energy Authority of Ireland (SEAI)
- Ringaskiddy Residents Association
- Shanbally Residents Association
- Passage West Resident Associations
- Irish Sailing Association
- Irish Cruising Association
- Irish Whale and Dolphin Group (IWDG)
- Birdwatch Ireland
- Coastwatch
- Irish Wildlife Trust
- An Taisce
- Friends of the Earth
- Friends of the Irish Environment
- Irish Chamber of Shipping
- European Climate, Infrastructure, and Environment Executive Agency (CINEA)
- Irish Maritime Development Office (IMDO)
- Corio Generation
- Orsted
- DP Energy Statkraft
- SSE Renewables Simply Blue
- Wind Energy Europe

Some positive and supportive feedback was received from these individual engagements with Cork County Council, indicating that there was:

“Positive alignment with Cork County Council Development Plan.”

The National Treasury Management Agency was:

“Very interested in the ambitious development plans.”

8.2.2 Public Consultation Process

The public consultation process was held over three days in the Port of Cork Ferry Terminal, Páirc Uí Chaoimh and Cobh’s Sirius Arts Centre from the 5th to 7th October 2022. Eleven image boards representing the draft Masterplan were on view to stimulate discussion and feedback. There was very positive engagement and interaction with the public, who felt the materials presented communicated the proposed Masterplan and its objectives very clearly.

8.2.2.1 Quantitative

A survey was conducted as part of this consultation process, which collected quantitative and qualitative information. In analysing the results, it was found that 75% of the public were aware of the importance of the Port of Cork as a Tier 1 port of National Significance under the Government’s National Ports Policy. A slightly lower number of people (57%) were aware that the Port of Cork is mandated under the same policy to be a leader in Ireland in terms of future port capacity and enabling economic growth.

The response to the Port of Cork moving from the City Docks and Tivoli Docks to the lower harbour in Ringaskiddy was particularly positive with 87% supporting the move. People were excited about the prospect of releasing space for new sustainable neighbourhoods in the city. There was a similarly positive response (89%) to the possibility of the Port of Cork enabling a greener future through Offshore Renewable Energy and Green Cargoes (e.g. solid biomass fuels, green hydrogen). People were also supportive (78%) of the use of a more efficient deepwater port terminal closer to the main shipping lanes. Seventy-nine per cent (79%) of people believed the Masterplan would bring economic growth to the region.

Of the seven societal, cultural, and heritage aspects highlighted in the questionnaire, Community, Economic Growth, and Biodiversity ranked as the three most important to those who completed the survey. Parallel ideas were seen in the three most important objectives of the Masterplan, identified by the public, which were ranked as follows:

1. Care for the environment and heritage and fulfil social responsibilities to the local community.
2. Develop port-wide capacity to facilitate regional and national economic growth
3. Grow Cork’s global connectivity and the PoCC customer base.

8.2.2.2 Qualitative – General Feedback

A series of questions were asked of the public during the consultation process. Outlined below is a summary of the questions asked and the responses received.

Question: Having reviewed the proposed Port of Cork Masterplan 2050, what impressions or other proposals would you like to share?

Constructive and informative feedback was received from the public in response to this open-ended question. The item people deemed most important was Community, requesting that existing communities be respected and cared for through any redevelopment. People urged the PoCC to continue with further and better engagement as it moves through the implementation of any activities in this Masterplan. Several people advised that this community engagement should include the Irish Naval Service. However, a small number of people believed that any such consultation would be too late, as they felt that the Masterplan appeared to be already finalised and their comments would not be taken on board at this stage.

The next two elements that were equally pressing for the public were Offshore Wind and Public Amenities. The response to offshore wind was generally very positive, but many felt there needed to be greater urgency and a clearer plan around how this could be facilitated. Liquefied Natural Gas (LNG) was referenced a couple of times. People saw it as a viable transition fuel but felt that Dognose was not the appropriate location at which to implement it.

For the public amenities, there was a call for improved water facilities in the harbour, such as better water access and pontoon berths, especially in Cobh. Some people called for facilities in the city, such as a lido, but the responsibility for these types of addition to the waterscape would fall to Cork City Council once the PoCC has vacated the lands at City Docks. A couple of people called for a car commuter ferry between Cobh and Monkstown.

The main concerns expressed by the public were in relation to air pollution, light pollution, increased noise, the impact of heavy vehicles, hazards and accidents, and sea level rise.

There was also mention of improved facilities for crew and worries about staff well-being. The Masterplan itself has been designed with these elements in mind. The PoCC aims to actively manage and monitor these issues through their EcoPorts – Port Environmental Review System (PERS) Certification, which is updated every two years, and their “Safety, Health, Environment, Energy & Quality” (SHEEQ) Management Systems.

Port connectivity, especially in relation to climate change, was an issue for some, and there was a call for better rail connectivity for ferry passengers and freight materials to reduce reliance on road vehicles. Many felt port connectivity in general was poor due to significant delays to road upgrades.

One point of interest was the public lamenting the potential loss of shipping from the city.



8.2.2.3 Qualitative – Decarbonisation

Question: The Port of Cork plans to make the following interventions in the future to decarbonise port activities: electrification of port equipment; provision of zero-carbon shorepower for vessels; provision of zero-carbon fuels for vessels; on-site energy generation and storage; smart energy management and microgrids; battery recharging facilities for land-based transport; and Carbon Capture and Storage (CCS). Are there any other decarbonisation measures that the port should consider?

While much of the feedback in response to this question has already been captured in the Masterplan, a few more detailed and additional ideas were noted. There was a request for better care for biodiversity and a recommendation to offset construction carbon by adding green spaces, hedgerows, treelines, and natural boundaries, as well as supporting local wildlife conservation projects. People also wished to see a concentration on local trade for materials and equipment as a climate change mitigation measure and to stimulate a home-grown economy. There was a proposal to have electric water taxis instead of buses as a public transport connection to the port. More efficient port operations were proposed through ideas that included low-emission lighting, a ban on ships idling and using individual generators, the use of solar power for land-based activities, and a reduction in fees for low-emissions vessels.

8.3 Feedback Integration into Masterplan

Initial technical-level feedback from customers and commercial stakeholders was included in the draft Masterplan that was presented to the public. This engagement centred around support of the energy sector and a continued ambition to facilitate economic growth across the region. Going forward, during the course of the Masterplan, the PoCC will endeavour to collaborate with its customers to help them through the relocation and the general business transition away from fossil fuels.

The reception of the draft Masterplan during the public consultation process was generally considered positive. The PoCC felt many of the ideas generated by the public were already being captured in the Masterplan, and so this feedback was used to strengthen and expand upon these proposals, especially in relation to items connected to facilitating ORE in the region and driving economic growth.

Other comments, such as the desire to have continued and better community engagement, along with suitable consideration for biodiversity and the environment, will be fulfilled as individual infrastructure projects begin to emerge during the Masterplan period. The PoCC is very aware of the harbour's heritage and the role it plays within the local community, and it will endeavour to meet the changing demands of port's operations while accounting for the well-being of the local people and the environment.

9. Hinterland Transport and Connectivity

As the Port of Cork is identified as part of the “Core Network” within the European TEN-T network, hinterland access is a priority. The EU Guidelines for the Development of Trans-European Networks No. 1315/2013 indicate that Member States should ensure that “maritime ports are connected with railway lines or roads and, where possible, inland waterways of the comprehensive network, except where physical constraints prevent such connection.”⁵⁸ The importance of this is compounded by the fact that Ireland is an export-led economy: “The efficient movement of goods is vital to our competitiveness and economic welfare. 65% of our GDP is based on the export of goods and services whereas the EU-25 average is 30%.”⁵⁹

9.1 Road Access

High-quality roads are required to fulfil these obligations, with such roads considered as “motorways, express roads, or conventional strategic roads”.⁶⁰ Currently, container and bulk cargoes are distributed from the port by road to regional and national destinations. The upgrade of the N28 to the M28 will deliver a critical piece of infrastructure to help achieve these requirements.⁶¹

9.1.1 Ringaskiddy

The Cork Metropolitan Area Transport Strategy 2040 (CMATS) aligns with this ambition, stating that “the proposed upgrade of the N28 (to become the M28) is a long-term strategic objective for both Cork City and County Councils,” and this has been reiterated in the most recent National Development Plan (NDP), which identifies it as a national economic priority.⁶²

The M28 will enable the relocation of Port of Cork’s activities, provide the PoCC with the capacity to handle the increased freight capacity highlighted in the projections of this Masterplan, and reduce Heavy Goods Vehicle (HGV) traffic within the city environs.

A planning condition that restricts the current approved application limits growth of the Cork Container Terminal (CCT) at Ringaskiddy to 322k TEU until the M28 is built. As a result, operations will need to continue at Tivoli, at a reduced scale, in the interim. The upgrade will comprise approximately 12.5km of new roadway.

The alignment and form of any National Road proposal will be determined in line with TII Project Appraisal Guidelines (PAG) and Department of Transport guidance for scheme appraisals. Any such proposals will be subject to compliance with environmental legislation, including the EU Habitats and Birds Directives. TII is the funding authority for this project, and it has been included in the TII “2022 Grant Allocations to Local Authorities for National Roads, Active Travel and Greenways”. The current construction timeline is from 2026 to 2030.

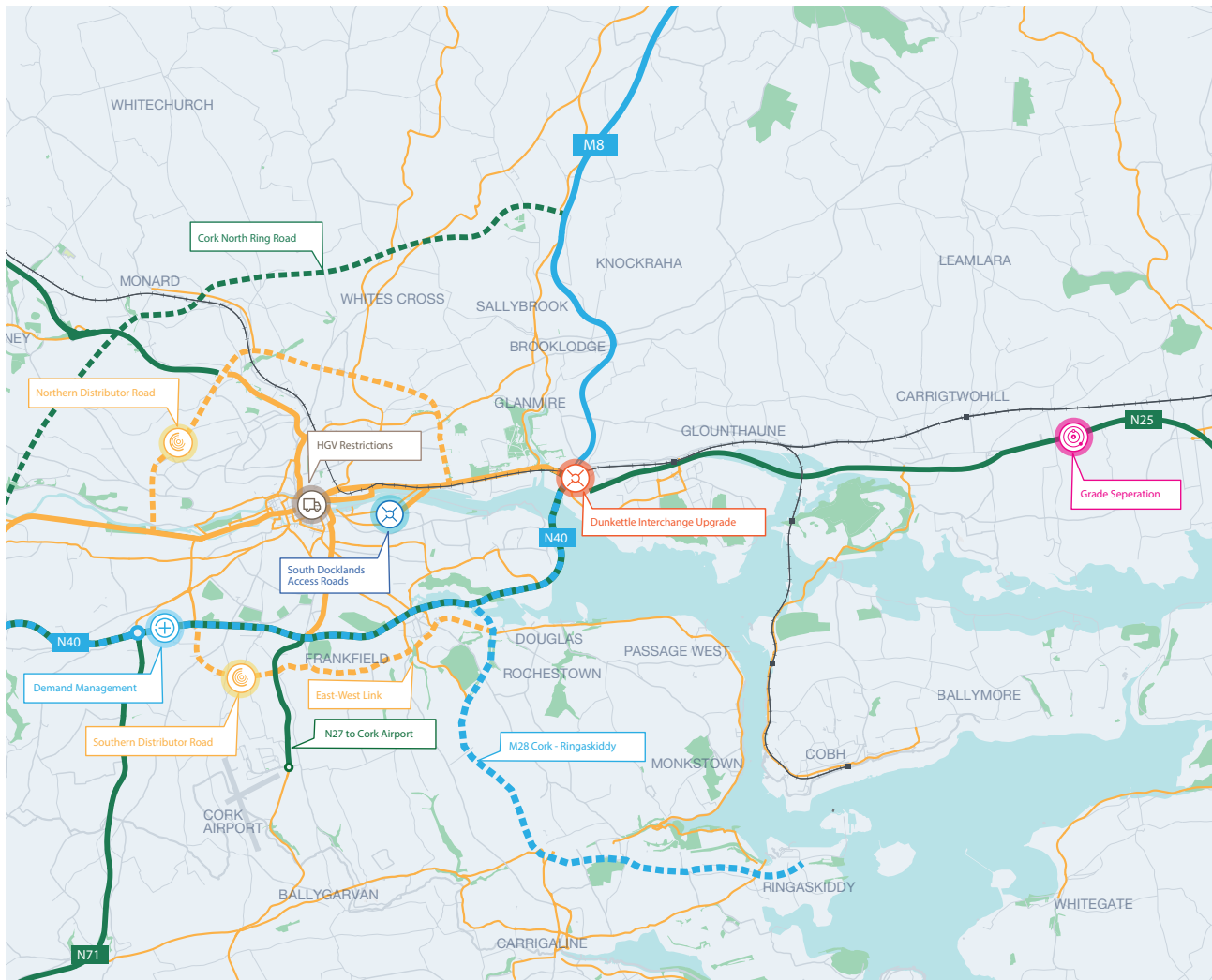
⁵⁸ EU Guidelines for the Development of Trans-European Networks No. 1315/2013: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R1315&from=EN>

⁵⁹ Smarter Travel - A Sustainable Transport Future: <https://assets.gov.ie/19854/37d829c9748446349ff586045bfbcab.pdf>

⁶⁰ EU Guidelines for the Development of Trans-European Networks No. 1315/2013: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R1315&from=EN>

⁶¹ Ballincollig Carrigaline LAP, August 2017: <http://corklocalareaplans.com/wp-content/uploads/2017/08/Ballincollig-Carrigaline-MD-LAP.pdf>

⁶² Cork Metropolitan Area Transport Strategy 2040 (CMATS), Section 13: https://www.nationaltransport.ie/wp-content/uploads/2020/04/Cork_Met_Area_Transport_Strategy_web.pdf

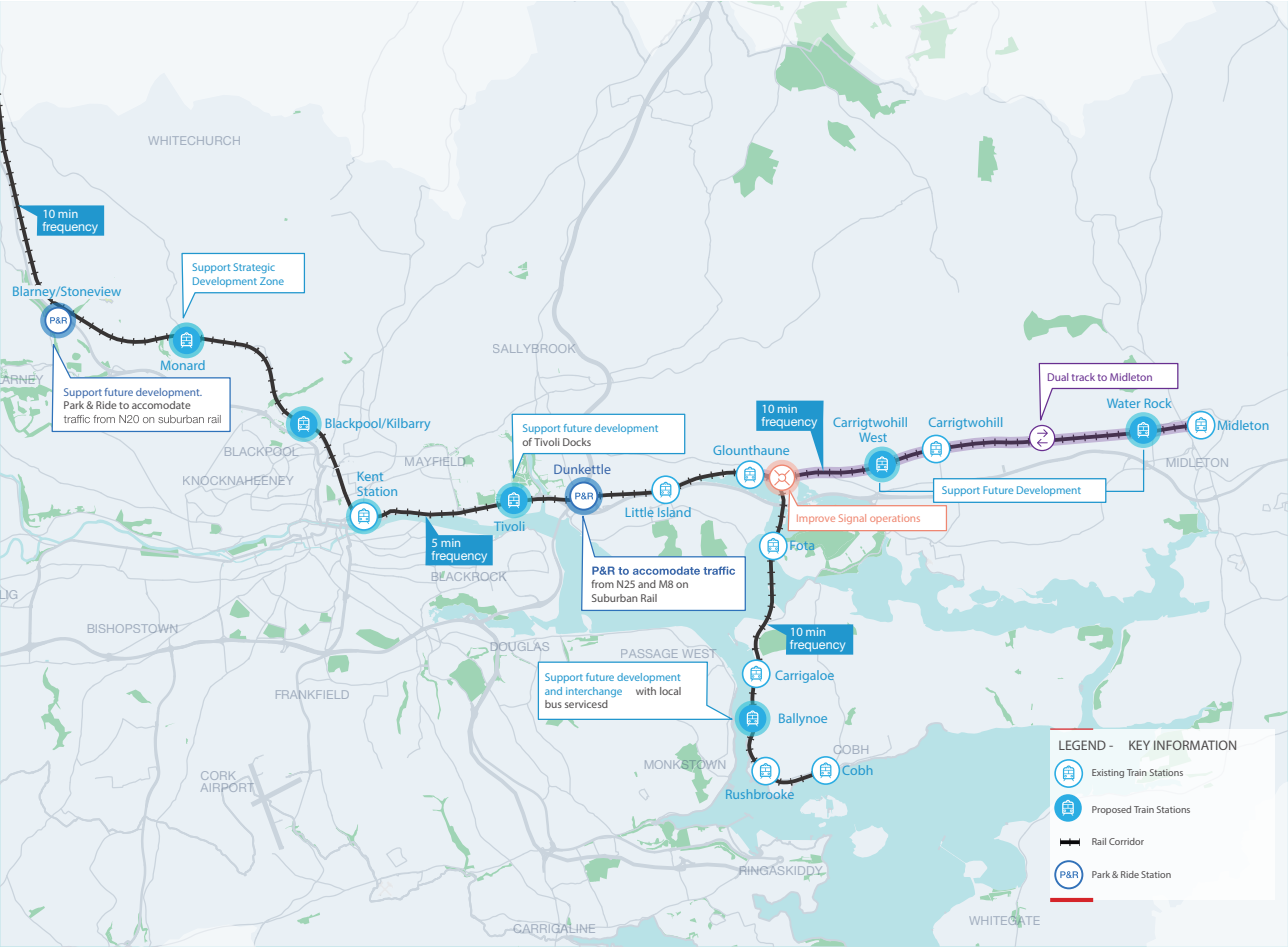
Figure 36: Cork City Proposed Road Network 2040 (Source: Cork Development Plan 2022 - 2028)

The planning application for the M28 Cork to Ringaskiddy project was approved by An Bord Pleanála in June 2018. The project comprises a Motorway Scheme, a Protected Road Scheme, and a Service Area Scheme. The decision was cleared of any legal challenges in March 2021, and the project has now proceeded to the Advanced Works Stage. These works include land acquisition, site clearance, fencing, utility diversions, and archaeological works. It is presently estimated that construction will be completed in 2029.

9.1.2 Marino Point

CMATS states that "the R624 (Cobh Road to Marino Point) road will require safeguarding in its function and form to facilitate existing and future port related uses." Cork County Council is actively pursuing the planning and design for the upgrade of the R624, including the provision of an enhanced bridge crossing at Belvelly. However, no date has been released for its future upgrade.

Figure 37: Cork City Proposed Rail Network 2040 (Source: Cork Development Plan 2022 – 2028)



9.2 Rail Access

9.2.1 Marino Point

The upgrading of rail services with fast, reliable services at national, suburban, and city level is seen as intrinsic to the reduction of road traffic and increases in the use of public transport. The current CMATS objective to deliver enhanced suburban rail services aims to maximise development opportunities offered by existing railway lines. This objective includes a plan to intensify housing, employment, and educational development within the Cobh catchment area. New railway stations are proposed along this corridor at the following locations to facilitate this growth:

- Midleton/Cobh to Cork Line
- Tivoli Docks
- Dunkettle
- Water Rock
- Ballynoe
- Carrigtwohill West

Furthermore, the potential of rail freight has been recognised within CMATS. Therefore, there may be scope to propose an additional station adjacent to Marino Point to facilitate these objectives. Any such developments would complement the European Rail Traffic Management System (ERTMS), a horizontal priority to the TEN-T, which aims to make rail transport safer and more competitive.

9.3 Coastal Shipping

“Motorways of the Sea” is seen as another horizontal priority that supports the TEN-T networks in Europe. The concept was introduced in a 2001 Transport White Paper “European Transport Policy for 2010: Time to Decide”,⁶³ which proposed the development of new intermodal maritime-based logistics chains in Europe and identified a lack of connection between sea, inland waterways, and rail.

Traditionally, goods transport in Europe was by sea and rivers, with most major towns being situated on rivers and estuaries. There has been a small revival in water transport, but it is still not seen as a mainstream transport option, even though it can be inexpensive and reduce impact on the environment by alleviating road congestion.⁶⁴

In “EU Guidelines for the Development of the Trans-European Transport Network Regulation No. 1315/2013”, priorities for maritime infrastructure were set as follows:

1. Promote motorways of the sea including short-sea shipping, develop hinterland connections, and put in place measures to improve the environmental performance of maritime transport.
2. Increase the interconnectedness of maritime ports with inland waterways.⁶⁵

Bulk cargoes, mainly liquid bulks, are re-distributed from the Port of Cork by sea to other Irish ports such as Dublin, Galway, Bantry, and Greenore.

⁶³ European Transport Policy for 2010: Time to Decide: http://aei.pitt.edu/1187/1/transport_2010_wp_com_2001_370.pdf

⁶⁴ European Transport Policy for 2010: Time to Decide: http://aei.pitt.edu/1187/1/transport_2010_wp_com_2001_370.pdf

⁶⁵ EU Guidelines for the Development of the Trans-European Transport Network Regulation No. 1315/2013: http://publications.europa.eu/resource/cellar/f277232a-699e-11e3-8e4e-01aa75ed71a1.0006.01/DOC_1

“The Future Infrastructure Development strategy in this Masterplan provides a framework of options to enable the PoCC to strategically plan port capacity to accommodate future economic growth.”

Section C

Development Strategy



10. Projections

10.1 Basis of Design

The Basis of Design for the PoCC Masterplan was developed by Port Centric Logistic Partners (PCLP). This took account of the potential impacts of global and macro-economic trends on trade volumes, the national picture in Ireland, and the competitive position of the PoCC within this sector, along with future expectations. All projections were based on unconstrained demand;⁶⁶ historical data from the Central Statistics Office (CSO) and the Irish Maritime Development Office (IMDO); historical data from the PoCC management records; and historical GDP data from Ireland and the Eurozone.

COVID-19 and Brexit are two contemporary factors that needed to be considered. The impact of the COVID-19 pandemic on global, regional, and national economies is well-documented and continuing to evolve. The pandemic demonstrated the importance of maintaining open supply chains, especially for foodstuffs, pharmaceutical products, and medical devices, critical for tackling the virus.

The outcome of the full range of Brexit negotiations is still uncertain at the time of the Masterplan's development, particularly in relation to the structure of a trade deal between the UK and the EU. Even though the short-term impact on trade flows remains speculative, the long-term impact for the period to 2050 can be expected to be market-led and the structure of trade relationships should also stabilise.

The 2050 projections in this section are based on the assumption that trade markets will stabilise in the long term, with the caveat that other unforeseen disruptions may arise in the future.

Population projections for Ireland show that population numbers should be in a range from 5.6m to 6.7m by 2050, with changes arising from natural increases and net migration. The projected population outflow from Dublin to other regions of Ireland, and particularly to Cork, is of great significance. Cork's population is expected to grow from 120k to around 340k by 2040, and this growth will increase the volume of imported goods transiting through the Port of Cork.

Three market growth projections were provided for each trade cargo. The PoCC then determined which case would be used as the basis for design for the Future Infrastructure Development strategy. The proposed cases were:

1. Base Case
2. Low Case
3. High Case

The provision of cargo-handling facilities at the Port of Cork is connected to multiple factors involving global, national, and regional trends. In considering future growth projections, it is reasonable to assume that the demand for port infrastructure will continue in the years between now and 2050.

The Future Infrastructure Development outlined in this Masterplan represents a spatial, temporal, and operational response to these projections. A detailed breakdown of the projections as they relate to each cargo can be found in the following section.

⁶⁶ Unconstrained demand is demand that is not impacted by capacity limitations within the port infrastructure and operations.

10.2 Containers - LoLo and ConRo

Container shipping,⁶⁷ handling, and logistics are key long-term drivers of port capacity requirements derived from international demand for consumer and industrial goods. These trends have led to a need for more efficient, lower-cost solutions, and they have resulted in the development of container vessels and port hubs for deep-sea shipping of a scale that was not foreseen 30 years ago.

These trends in the container market have an impact on short seaports as container vessels increase in size.⁶⁸ The market has also seen the increased use of unaccompanied trailers on RoRo vessels for transporting shipping containers.

This creates the need to accommodate megaships without directly upgrading landside infrastructure, and it manifests in a greater increase in ConRo than LoLo traffic.

The **high case scenario** has been selected for development of infrastructure in relation to containers. It assumes no constraint on demand and higher market share achievements by the PoCC. This projection scenario was agreed in consultation with the PoCC.

Table 14: Projected Container Volumes LoLo and ConRo – High Case Volume Projections

	2020 (TEUs) ⁶⁹	2030 (TEUs)	2040 (TEUs)	2050 (TEUs)	CAGR 2021 to 2050 ⁷⁰
LoLo	224,4931	336,965	489,554	721,889	Combined figure below
ConRo	13,000	38,000	54,000	80,000	Combined figure below
Total LoLo and ConRo	237,931	374,965	543,554	801,899	4.0%

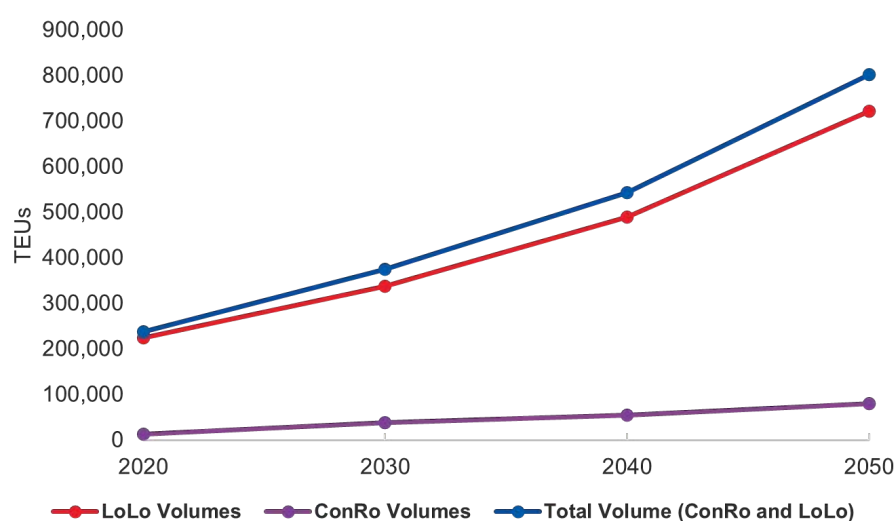
Figure 38: LoLo and ConRo volumes projections – high case scenario

⁶⁷ Containerised cargo transported using RoRo vessels.

⁶⁸ Short seaports are those that accommodate smaller vessels but not larger mega-container ships.

⁶⁹ The twenty-foot equivalent unit (TEU) is a unit of cargo capacity used in conjunction with containers shipping and ports.

⁷⁰ Compound Annual Growth Rate.



10.3 Liquid Bulks

The liquid bulks sector includes commodities such as crude oil, refined oil products, molasses, Liquefied Petroleum Gases (LPG), and natural gas. The analysis for this Masterplan is based solely on Liquefied Petroleum Gas (LPG), as it is the principal liquid bulk commodity handled at the Port of Cork.

LPG is not considered to be a renewable or green fuel, as it is made by refining petroleum and gas. As fossil fuel usage winds down in line with global commitments to curb carbon emissions, LPG volumes are likely to be replaced by alternative fuel systems, such as HVO, LNG, Biodiesel and SAF. Nevertheless, stocks of LPG are far greater than those of other fossil fuels, so there is a possibility that it could be used in Ireland's transition to renewable energy. LPG locations are considered to be Seveso sites,⁷¹ and as such they are strictly regulated.

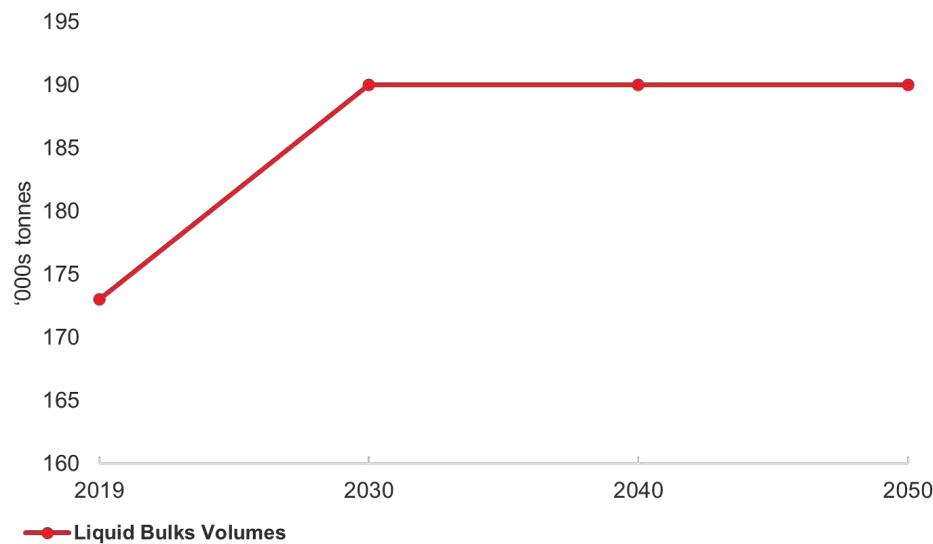
As LPG is likely to be replaced by alternative fuels, ongoing volume requirement continues to be assumed. Therefore, the **high case scenario** has been used for volume projections. In terms of Future Infrastructure Development, no new locations have been identified for LPG facilities.

⁷¹ Seveso sites are defined as industrial sites because sufficient quantities of dangerous substances are present for them to be regulated under Council Directives 96/82/EC and 2003/105/EC, commonly referred to as the Seveso II Directive.

Table 15: Liquid Bulks – High Case Volume Projections

	2019 (000s' tonnes)	2030 (000s' tonnes)	2040 (000s' tonnes)	2050 (000s' tonnes)
Liquid Bulks	173	190	190	190

Figure 39: Liquid Bulks Volume Projections – High Case Scenario



10.4 Dry Bulks

The dry bulks sector accounts for a wide range of commodities including construction materials (e.g. aggregates) and agribulks (e.g. fertilisers, animal feed, and cereals). UN Comtrade's international statistics were accounted for in projections along with historical data from the PoCC and historical GDP data for Ireland.⁷²

Between 2014 and 2019, animal feeds (including cereals) accounted for 70%, and fertilisers for 22%, of the total dry bulk volumes through the Port of Cork. Therefore, the agribulk industry was the primary driver of dry bulk projections. By 2050, assuming no capacity constraints, the dry bulk throughput at the Port of Cork is expected to reach over 3 million tonnes.

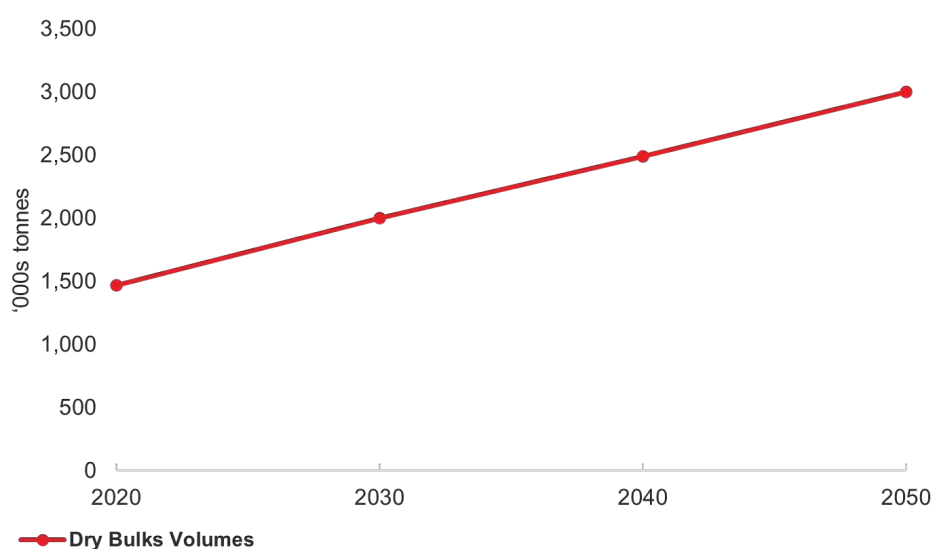
The **base case scenario** was selected in calculating volume projection, as agreed with the PoCC, and it forms the basis of the design for dry bulks in the Future Infrastructure Development strategy.

⁷² Trade Map Website: <https://www.trademap.org/Bilateral/index.aspx>

Table 16: Dry Bulks – Base Case Volume Projections

	2020 (000s' tonnes)	2030 (000s' tonnes)	2040 (000s' tonnes)	2050 (000s' tonnes)	CAGR
Dry Bulks	1,467	2,003	2,492	3,002	2.3%

Figure 40: Dry Bulks Volume Projections – Base Case Scenario



10.5 Break Bulks

This sector includes a wide range of commodities and handling systems, such as slings, bags, boxes, crates, drums, or barrels, and it provides supply to many different industries, including construction and manufacturing (e.g. steel sections and forestry timber products). All-weather covered terminals are needed to protect sensitive cargoes. Typical break bulk products in ports are often linked to landside local industry supply chains.

For break bulks, the historical pattern of trade is considered the best guide for future volume expectations. In the three years from 2017

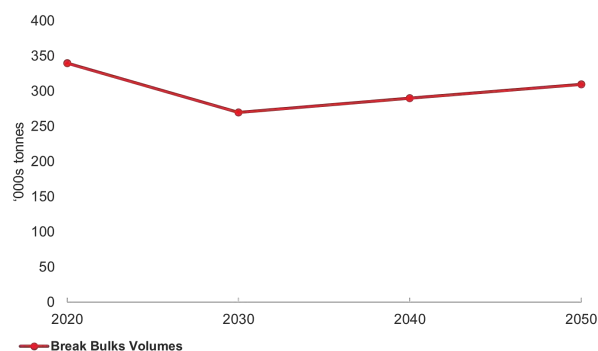
to 2019, 60% of the PoCC's break bulk cargo was exported, and it primarily comprised waste and scrap steel for recycling. The **high case scenario** used here for the Future Infrastructure Development strategy accounts for a greater uplift in volume in 2018 and 2019 and includes modest volume growth in the longer term.

Within the break bulk volumes, there are future project cargo opportunities to be explored in developing ORE connected to O&M and M&A. This has not been accounted for in detail in the above projections and is explored in the "Net-Zero Port" section of this Masterplan.

Table 17: Break Bulks – High Case Volume Projections

	2020 (000s' tonnes)	2030 (000s' tonnes)	2040 (000s' tonnes)	2050 (000s' tonnes)
Break Bulks	340	270	290	310

Figure 41: Break Bulks Volume Projections – High Case Scenario



10.6 RoRo Freight – Accompanied and Unaccompanied

Roll-on Roll-off (RoRo) freight transport is one of Europe's major short-sea shipping sectors and a critical transport mode for Ireland, not only across the Irish Sea to Great Britain but also for development of direct services with mainland European ports. In 2019, RoRo freight was Ireland's largest port sector at 16.2m tonnes, accounting for 30% of all port throughput.

RoRo freight services provide a vital role in many supply chains where just-in-time deliveries are essential (e.g. manufacturing and assembly plants, and retail). Reliability of RoRo freight services is therefore a key success factor for controlling the inventory levels and associated cash flow of many companies that operate supply chains in international markets.

RoRo freight operations are divided into two sub-sectors:

1. **Accompanied** Vehicles
2. **Unaccompanied** Freight on Trailers (the latter includes ConRo, which is already accounted for under the Containers section in these projections.)

Vessel sizes have increased to improve operating efficiencies but require enhanced infrastructure such as deepwater access and the facilitation of swift ferry turnaround times.

There is a strategic shift in the pattern of European trade as fewer trucks are using the Great Britain land bridge. The business case for maritime connectivity between EU markets and Ireland has been amplified by Brexit; the wider environmental imperative of reducing road mileage for the transport of goods; and a desire to reduce shipping times and customs delays. A new direct RoRo service between Ireland and the EU (Cork-Zeebrugge) was introduced in May 2020, and was already extended with more frequent calls by December 2020.

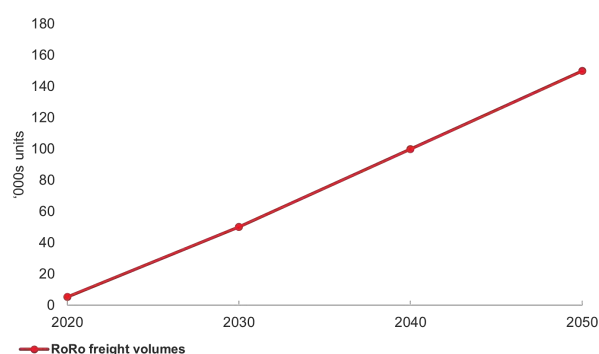
In 2019, the Port of Cork handled around 1% of the market share of RoRo tonnage, an indicator of the traditional importance of the Great Britain trading routes and the hinterland markets close to Dublin. While this is a small percentage overall, the move towards more direct connection with Europe is already producing growth in this sector. Critical mass is essential for the sustainability of these services, but this can be bolstered by the move to “near-shoring”, whereby manufacturing plants move closer to the final place of consumption. Longer term benefits of unaccompanied trade growth on larger RoRo ships may arise for the PoCC. This opportunity is largely included within the container trade projections shared earlier in this section.

The volume projections for RoRo freight indicate potential growth for the RoRo market across the period covered by the Masterplan. The figures below exclude containers and trade cars and are based on a **high case scenario**.

Table 18: RoRo Freight – High Case Volume Projection (Excludes Trade Cars and ConRo)

	2020 (000s' units)	2030 (000s' units)	2040 (000s' units)	2050 (000s' units)
RoRo freight	2.0	50	100	150

Figure 42: RoRo Freight Volume Projections – High Case Scenario





10.7 Trade cars

Trade car imports are increasing to meet consumer demand. For port operators, they are space-hungry and offer a low margin. Yet, 19% of the national market share of trade cars was handled by the PoCC in 2019.

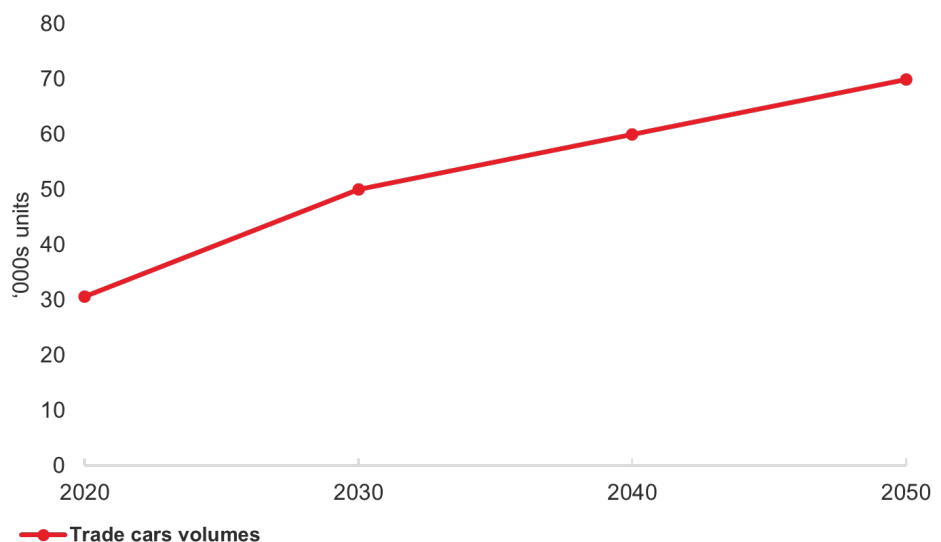
Hybrid and electrically powered engines are having a positive impact on car ownership patterns globally. However, the underlying economics of car ownership, as hail-ride options and the use of public transport increase, may be disrupted.

Modest growth is expected in the industry during the Masterplan period, and a **base case scenario** has been used as the basis of design for the Future Infrastructure Development strategy.

Table 19: Trade Cars – Base Case Volume Projection

	2020 (000s' units)	2030 (000s' units)	2040 (000s' units)	2050 (000s' units)
Trade cars	30.6	50	60	70

Figure 43: Trade Cars Volume Projections – Base Case Scenario





10.8 Roll-on Roll-off Passenger Services (RoPax)

International ferry services have faced significant competition from low-cost airlines in recent years, leading to a low level of demand, especially given that people are opting for multiple shorter breaks. Customers who use longer distance ferries are likely to take the opportunity to bring their own vehicles.

Historically, the pattern and frequency of services available from Cork has changed according to the private shipping lines' own strategies and underlying demand. At the time of the financial crisis in 2009, the number of ferry passengers reached a low point of 62k compared to a peak of 187k in 2004. The average number of passengers per year between 2011 and 2019 was 88k, reaching a peak of 114k in 2019. However, national and European travel restrictions in 2020 and 2021 severely affected international travel. The passenger ferry sector is likely to improve faster than the cruise sector, given the shorter duration of time spent on the ships.

The increasing population of Cork and the Munster region, along with greater incomes, is likely to drive an increase in the leisure sector in the long term. Nonetheless, airline competition will continue.

Accounting for these factors, passenger ferry services to and from Cork are projected to return to their pre-COVID frequency and schedules, and Future Infrastructure Development plans have been designed accordingly.

RoPax and landside requirements are driven by ship sizes and passenger/vehicle capacity. As the number of sailings does not impact on these requirements, a case scenario has not been used for these projections.

Table 20: Ferry Passengers

	2020 (000s' units)	2030 (000s' units)	2040 (000s' units)	2050 (000s' units)
Ferry passengers	7.5	110	110	110
Passengers' cars	3.2	40	40	40

Figure 44: Ferry Passengers – Volume Projections

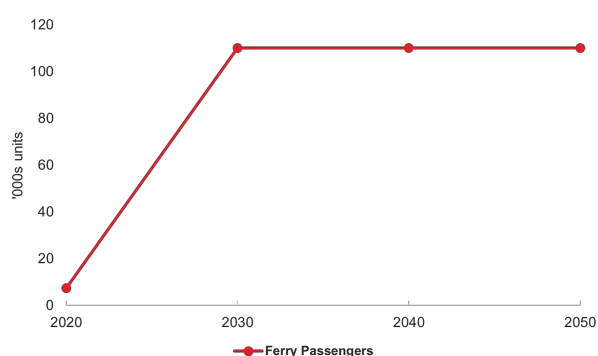
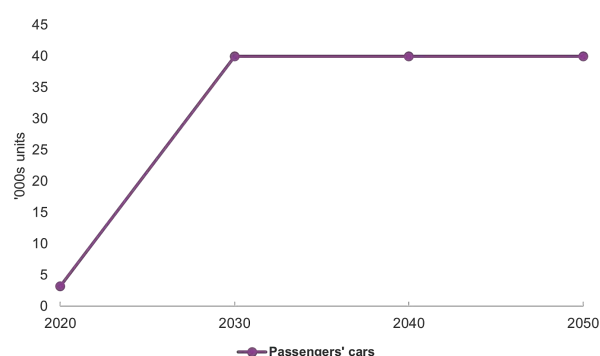


Figure 45: Passenger Cars – Volume Projections





10.9 Cruise Ship Calls

The global pandemic made 2020 a very challenging year for the tourism and cruise liner industry worldwide. Nevertheless, many businesses in the industry seem to be prevailing due to an unusually loyal customer base eager to travel again. Future cruise offerings are being planned, with the inclusion of additional health safeguards introduced in conjunction with health authorities in different jurisdictions and in anticipation of passenger concerns.

In 2020, people in the over-60s age group, that dominates cruise passenger numbers were hardest hit by COVID restrictions. Notwithstanding these challenges, in November 2020, ABP Southampton, the UK and Europe's leading cruise turnaround port, announced the opening of a £55m new next-generation-ready, open-access cruise terminal. This is the fifth dedicated cruise terminal in the port and it has shorepower connectivity installed, illustrating confidence that the industry has rebounded after COVID.

Efforts are being made to address environmental issues, such as the emission levels of sulphur oxides (SOx) and grey water discharge. The need to tackle these issues is particularly acute for tourist destinations that have become "no-go" zones due to associated pollution levels and for destinations, such as the Caribbean, that rely heavily on the cruise industry, which accounts for 5.9% of GDP in some nations.

People from Ireland and the UK dominate the ocean cruise passenger population, accounting for 2.17 million passengers in 2019 (increased from 459,000 in 2000).

Cork is a visiting port with different drivers for cruise ship calls. Passengers typically come ashore for short, local excursions or visit the town of Cobh. Despite the impact of the COVID-19 pandemic, the cruise sector in Cork has responded much faster than predicted, with 113 vessels calls booked for 2023, recovering from a tally of just two vessel calls in 2020.

11. Future Infrastructure Development

This chapter illustrates the strategic infrastructure options that can be used to increase efficiencies at the Port of Cork and provide additional throughput capacity to cater for the projected growth up to 2050. Solutions proposed here reflect the PoCC's trade projections and show how this Masterplan development can support those ambitions in a phased, cost-effective manner. The analysis also reflects the Influencing Factors outlined in Section B above. In order to future-proof the business and ensure the resilience of the Port of Cork, a certain amount of flexibility has been built into these proposals.

The Future Infrastructure Development proposals in this Masterplan provide a framework of options to enable the PoCC to strategically plan port capacity to accommodate future economic trade growth and facilitate the green energy sector. This Masterplan will enable the PoCC to evaluate future proposals and coordinate planning applications and/or maritime consents. Any individual projects that emerge in the course of implementing the Masterplan will be assessed at the time of design and construction. In such projects, the PoCC will follow and comply with all normative planning, marine, and environmental consent requirements such as:

- **Cork County Council**-Planning Permission
- **Maritime Area Regulatory Authority** (MARA)-Maritime Area Consents (MACs) Foreshore Co-ordination Unit - Foreshore Leasing, Licensing, and Permitting

- **Environmental Protection Agency** (EPA)-Dredging Licensing and Permitting - Appropriate Assessments (AA) Screening Report or Natura Impact Statements (NIS) - Environmental Impact Assessments Screening or Environmental Impact Assessment Reports (EIAR)

The previous PoCC "Strategic Development Plan 2010" identified key objectives for the Port of Cork, which seek to ensure that:

- The required multi-modal Port capacity is in place in good time so as to accommodate the short-, medium- and long-term needs of the PoCC's customers.
- The facilities are sustainable, modern, efficient, and flexible.
- The PoCC fulfils its roles as a key promoter of economic activities in the region.
- The PoCC remains a vibrant, commercially successful company that fulfils its shareholders' mandate.
- Stakeholders' views are taken into account, and stakeholders are continually advised on Port development.

These objectives are still foundational to port management and operations, but this Masterplan pushes these ideals further with a view to:

- Ensuring greater recognition for the Port of Cork as an integral economic driver, in the region; as a Tier 1 port of National Significance; and a European "Core Port" within the Trans-European Transport Network (TEN-T).
- Significantly expanding infrastructure and operations to take advantage of the port's ability to handle the largest ocean-going vessels in the world and accommodate future increases in scale.

- Identifying new sustainable business opportunities such as facilitating the ORE and green energy sectors in response to the shift in the energy market away from hydrocarbon-based fuels to greener solutions.
- Incorporating decarbonisation principles into port operations as a proactive response to climate change in line with ESPO EcoPorts Initiative.⁷³

The Cork County Development Plan 2022 – 2028 recognises Ringaskiddy as a long-established location for industrial, chemical, and pharmaceutical employment. The plan supports the relocation and expansion of port operations at Ringaskiddy, as a way strengthening this strategic employment location and giving way for the redevelopment of the city centre locations at City Docks and Tivoli Docks.

Employment opportunities are further bolstered by the fact that there are 353ha of industrial-zoned land in close proximity to the port. All such development will recognise and support local communities and have regard for their existing amenities.⁷⁴

11.1 City Docks

All Port of Cork operations will move from City Docks on the completion of the facilities and infrastructure in the lower harbour.⁷⁵ Dry bulks will relocate to Ringaskiddy and Marino Point, with some commodities transitioning temporarily through Tivoli Docks.



⁷³ ESPO EcoPorts Initiative Website: <https://www.ecoport.com/about>

⁷⁴ Cork County Development Plan, 2022 – 2028: <https://www.corkcoco.ie/en/cork-county-development-plan-2022-2028> The PoCC

⁷⁵ Annual Report 2020: <https://www.portofcork.ie/index.cfm/page/annualreports1>

11.2 Tivoli Docks

Port operations will continue at Tivoli Docks for the foreseeable future. The timeline for this phased move is being driven by a planning constraint that limits operations in Ringaskiddy until the construction of the M28 motorway has been completed (currently planned for 2030).

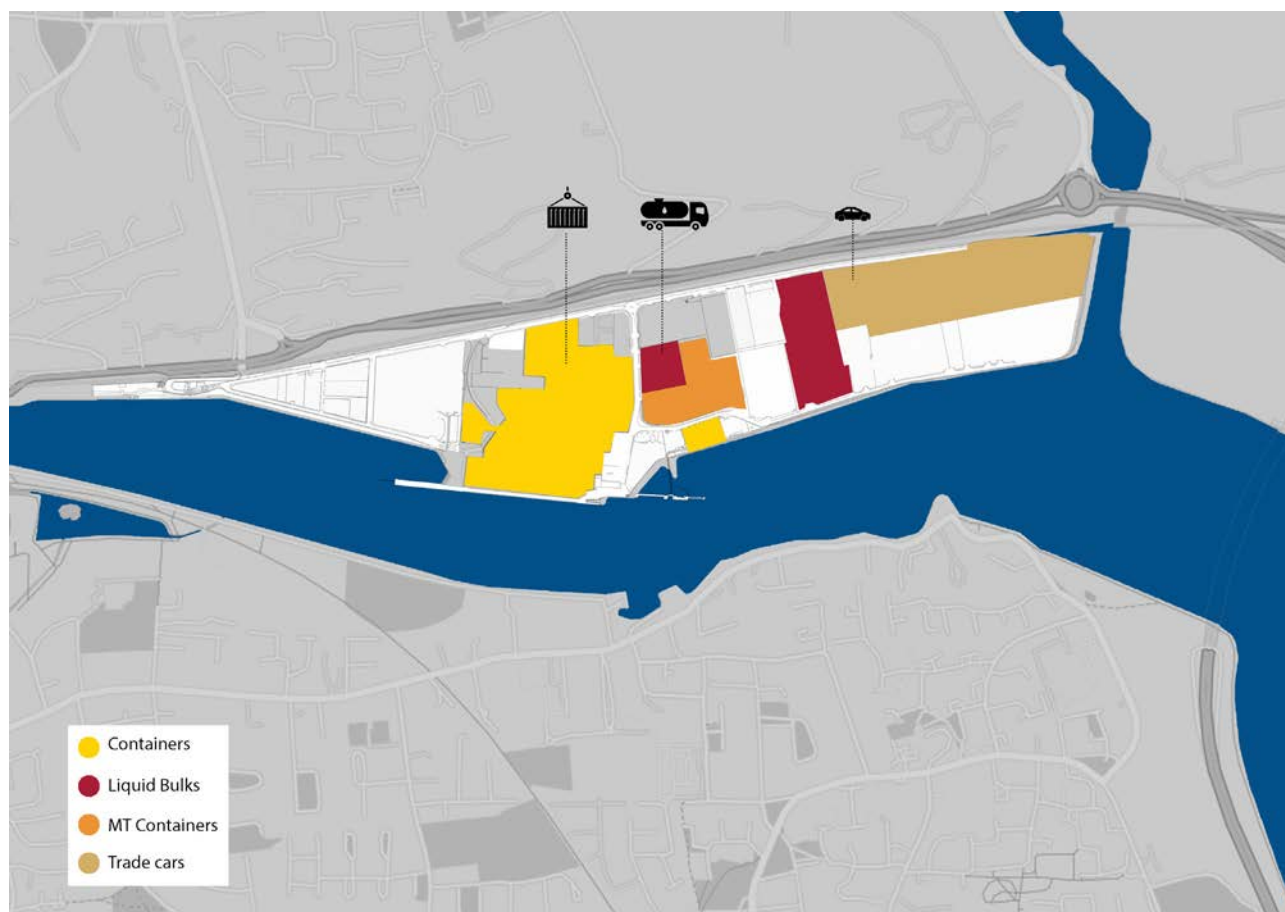
The relocation of port activities will allow for the redevelopment of City Docks and Tivoli Docks, which are seen as important residential and employment assets for the city. As noted earlier, innovative regeneration developments at these sites can support the city's responses to population growth, job creation, and liveability challenges by increasing housing stock, enabling neighbourhood development, and enhancing the vibrancy of the city centre.

Current

The need to relocate port operations from Tivoli Docks to Ringaskiddy is mainly being driven by the continuing trends towards larger vessels requiring deeper and wider shipping channels. The maximum access depth at Tivoli is 6.5m, a depth that cannot be increased due to the presence of the Jack Lynch Tunnel.

This challenge is compounded by the fact that, logistically, it is difficult for the PoCC to deal with more than one container vessel at a time, which increases delays and causes a reduction in competitiveness. Furthermore, increased freight creates an associated space demand in terms of back-up lands. The industry trend is to provide land banks adjacent to port facilities, but this is not viable in the upper harbour as it is so close to the city centre.

Figure 46: Tivoli Containers and Bults – Current Layout



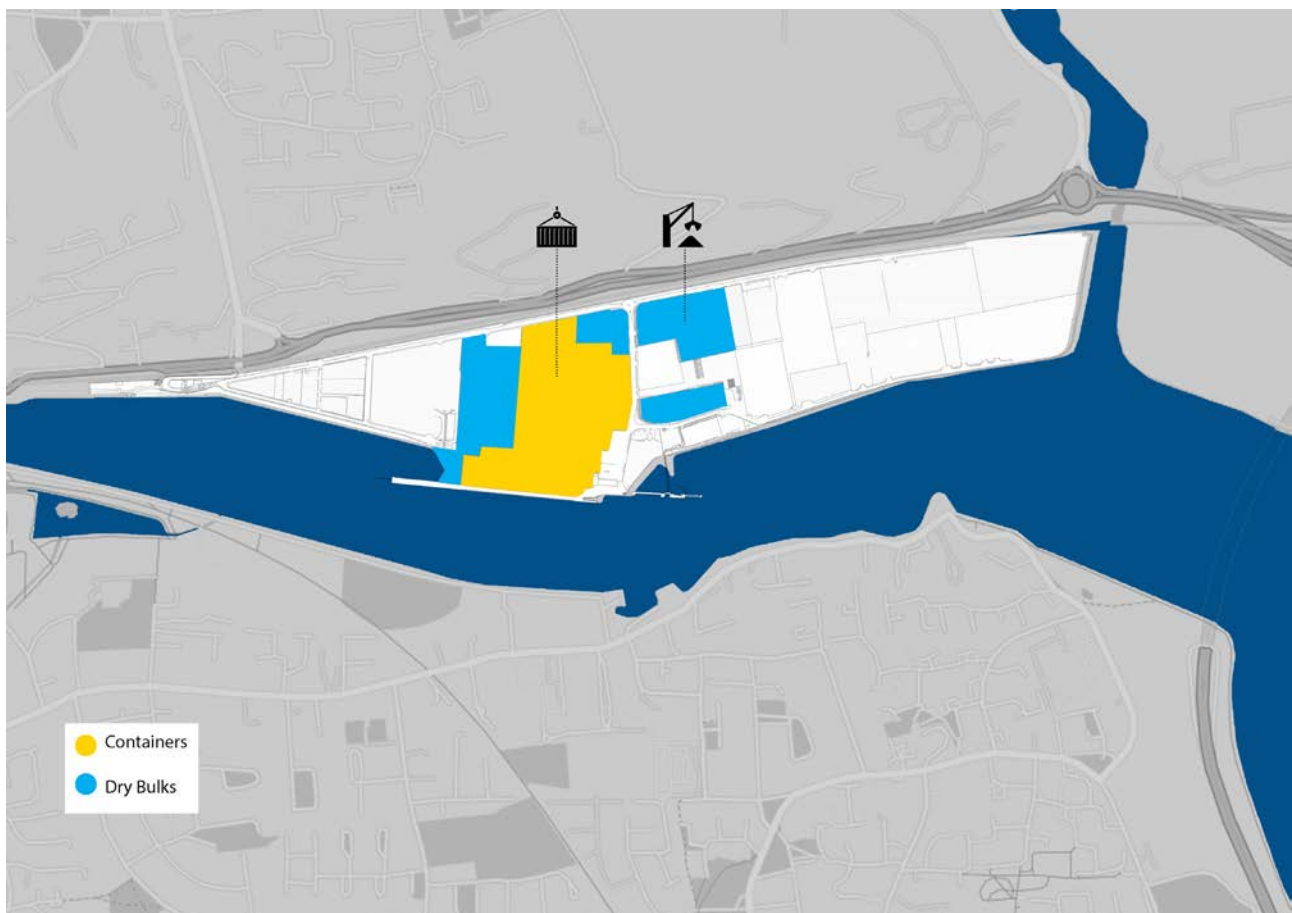
As outlined in Section 1.2, the vacation of Tivoli Docks will allow for development of a new, vibrant, medium-density residential community close to the city.

2030

Some commodities and cargoes will be moved from City Docks to Tivoli Docks in the near future. The upgrade of the existing ORE/general cargo berth located on the western side of the terminal and the use of mobile cranes will allow sufficient capacity at the facility. The terminal will also guarantee sufficient storage areas for the relocated cargoes while maintaining a reduced container yard.

The container terminal will maintain operations, with a decreased stacking yard, and all operations will be transferred to the CCT in Ringaskiddy East when Tivoli is vacated, by 2040.

Figure 47: Tivoli Containers and Bults – 2030 Layout



11.3 Marino Point

Marino Point is a deepwater port facility within the lower harbour. It is located to the northwest of Cobh Town and east of Cork City. It is immediately adjacent to the Cork–Cobh railway line and the N25 Cork–Waterford Road is accessible close by. There are 46ha of land available for development at Marino Point.

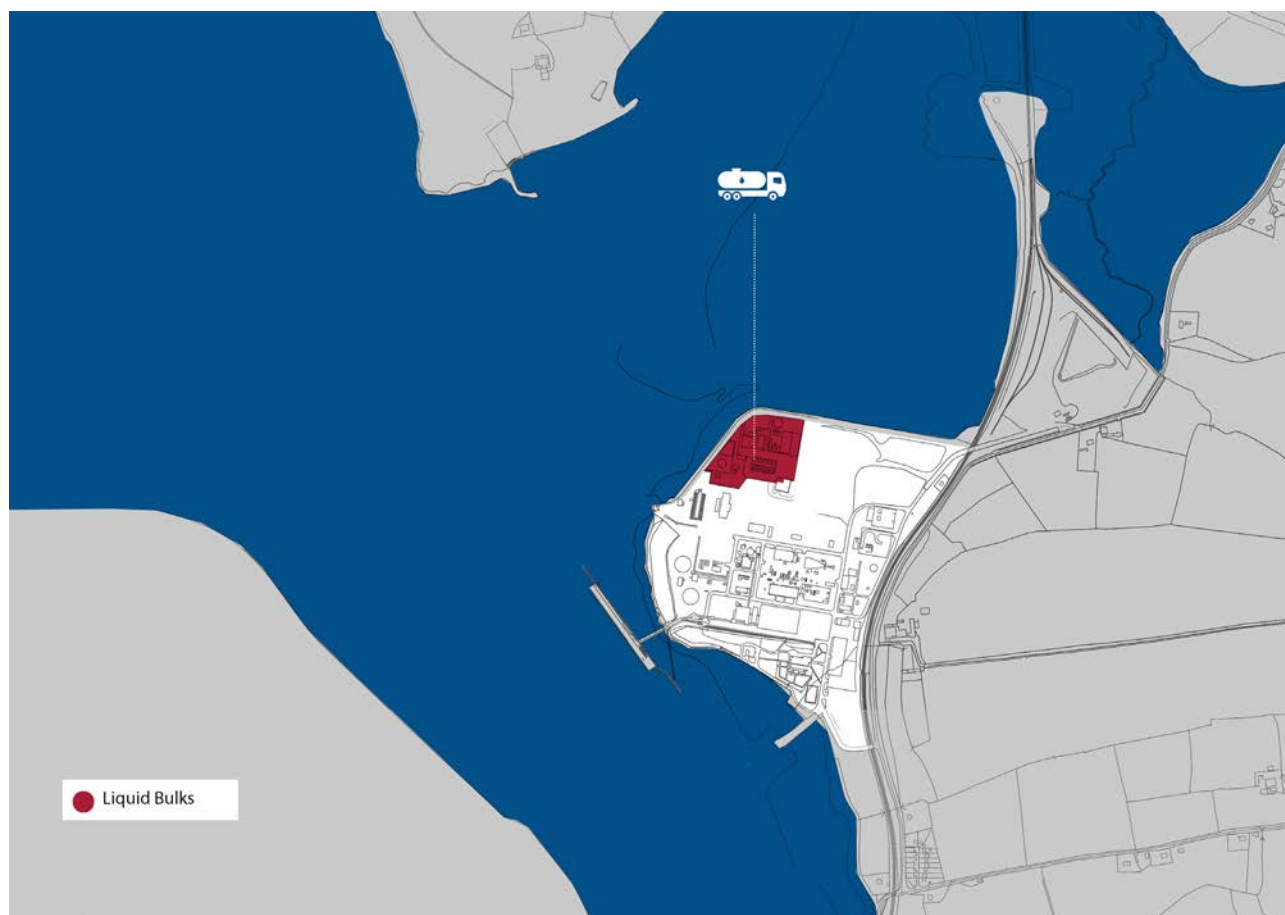
A Marino Point Masterplan was finalised by BMDC and an enabling works planning application was approved by Cork County Council (CCoC) and subsequently by An Bord Pleanála in February 2021 (ABP-307938-20). It is envisaged that Marino Point will become an integral part of the PoCC infrastructure.

The Marino Point site has been identified as a suitable port site to complement the facilities in Ringaskiddy with:

- An existing 237m jetty with 10m draft.
- A Seveso designation
- Rail connectivity.
- Viaduct for shore access.

Looking forward, the PoCC envisages liquid bulks, possibly in the form of biofuels or green hydrogen, could be future cargoes supported at this location, which also has potential for the energy and cruise industries. The PoCC acknowledges that significant environmental considerations would need to be assessed due to the site's proximity to the Special Protection Area (SPA) and Special Area of Conservation (SAC).

Figure 48: Marino Point – Current Layout



Current

The current land area available for development at Marino Point is 46ha. The total land requirements to accommodate demand will change over time between now and 2050 and have been considered in the following analysis. Liquid bulks, dry bulks, and project cargoes currently operate out of this location.

2030

Some commodities and cargoes will be relocated to Marino Point following the vacation of City Docks. Upgrades to infrastructure and equipment will increase capacity at the facility. These will include an upgrade of the existing jetty in terms of structural capacity and the use of mobile cranes on the berth.

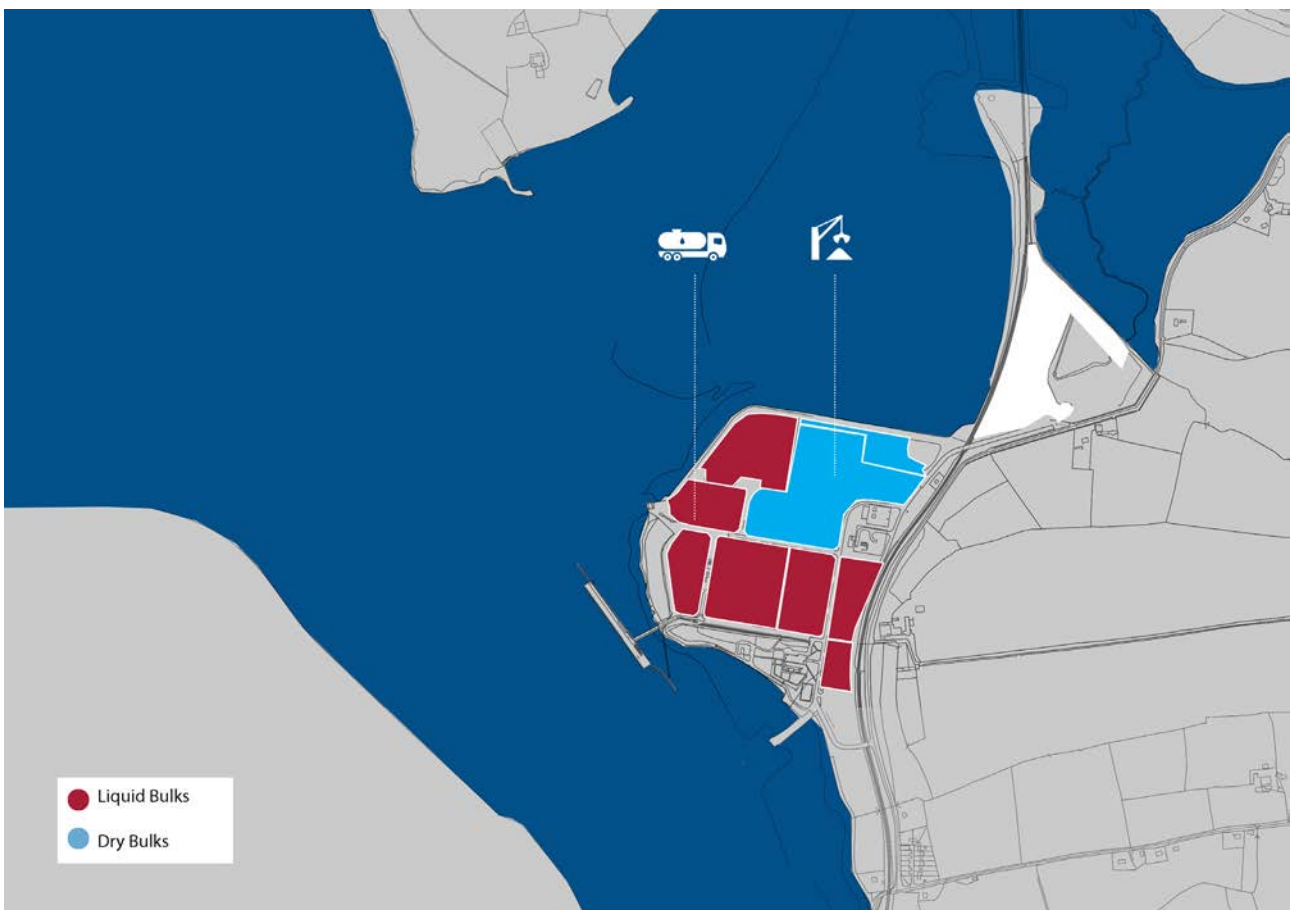
2040

Due to increasing volumes and storage space limits at Ringaskiddy West, some commodities may need to be relocated to Marino Point by 2040. The facility at Marino Point will be able to accommodate the existing and relocated cargoes without any infrastructural upgrades.

2050

As the volume of commodities at this location will continue to grow over time, the facility will provide sufficient capacity without major upgrades. Possible locations for dry bulks and liquid bulks have been identified in the Marino Point approved Masterplan to accommodate 2050 demands.

Figure 49: Marino Point – Proposed Layout 2050



11.4 Ringaskiddy West

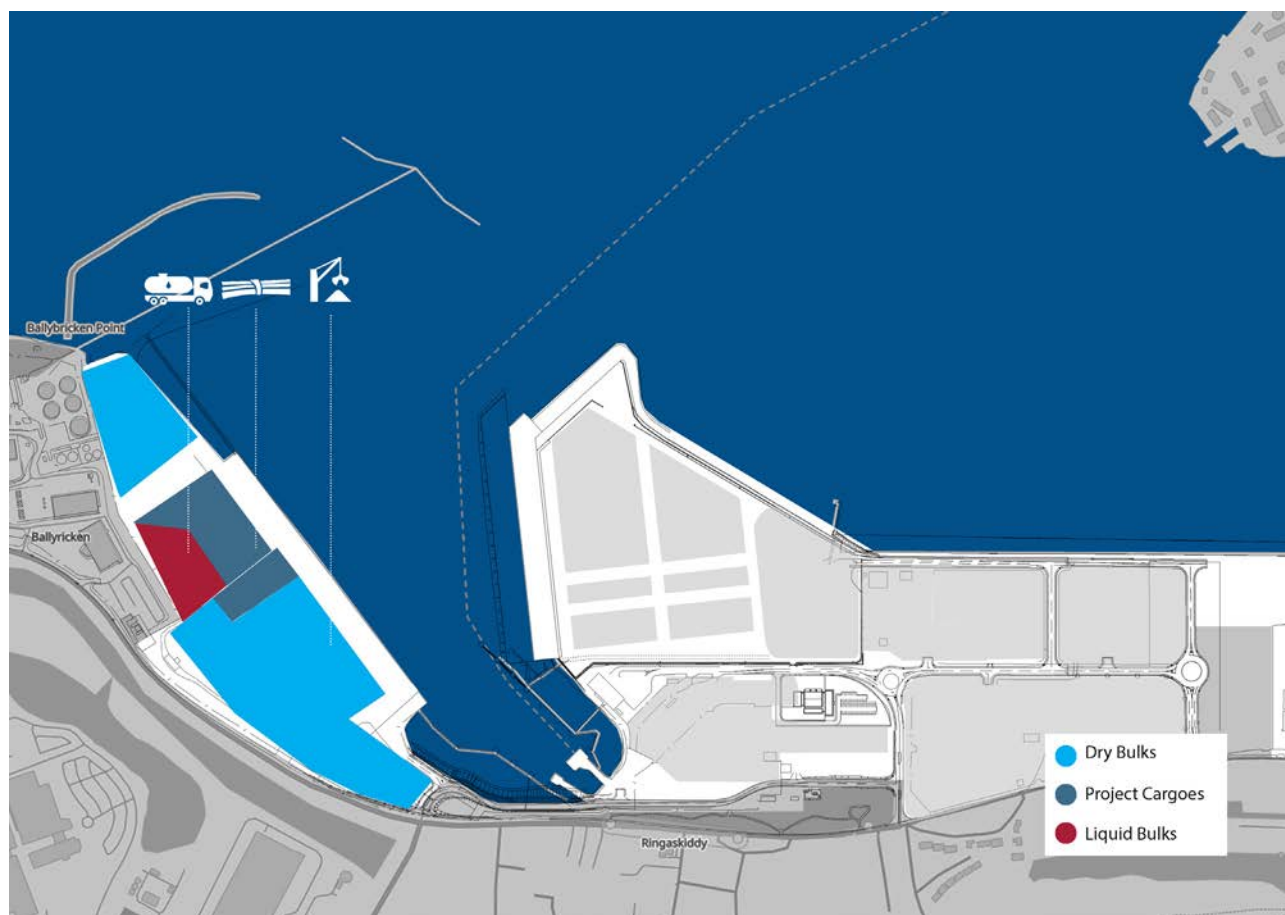
With a minimum depth alongside of 13.4 metres at low water, the Ringaskiddy Deepwater Berth, with a total berth length of 485m, handles fully laden Panamax-size vessels (60,000 tonnes deadweight). The DWB is a multipurpose quay, and most of the PoCC's considerable trade in animal feed is discharged here, where there are large-scale, private-sector specialist facilities. The DWB handles other bulk cargoes, such as fertiliser, molasses, cement, steel scrap, timber, and project cargoes. It also supports LoLo and trade car operations.

In the assessment of the bulk terminals and the growth of dry, break, and liquid bulks up to 2050, the following phasing constraints have been taken into consideration:

- Phase 1: Short-term relocation of City Docks cargoes in conjunction with opening of the Cork Container Terminal
- Phase 2: Completion of the M28, circa 2030
- Phase 3: Upgrade of the R624 road network servicing Marino Point, circa 2040

Different factors, such as suitability of the commodity, available land, and the transport network, will be considered in the relocation of cargoes at each stage.

Figure 50: Ringaskiddy West – Current Layout



Current

Figure 50 illustrates the current space allocation for the various bulk commodities at the Ringaskiddy DWB. At this location, the terminal has sufficient capacity to handle the current dry and break bulks volumes, but additional storage capacity will need to be built up for future commodities. This will involve expanding the 9.6ha storage yard.

2030

By 2030, some commodities and cargoes will be moved from City Docks to Ringaskiddy West. The planned berth extension of 230m, which already has planning permission, and the expansion of the storage yard for dry and break bulks will allow the terminal to handle up to 2 million tonnes per year. In total, 17.4ha of land will be dedicated to the storage of

bulks (i.e. 7.8ha of additional land storage). The layout shown in Figure 51 will provide sufficient capacity up to 2030.

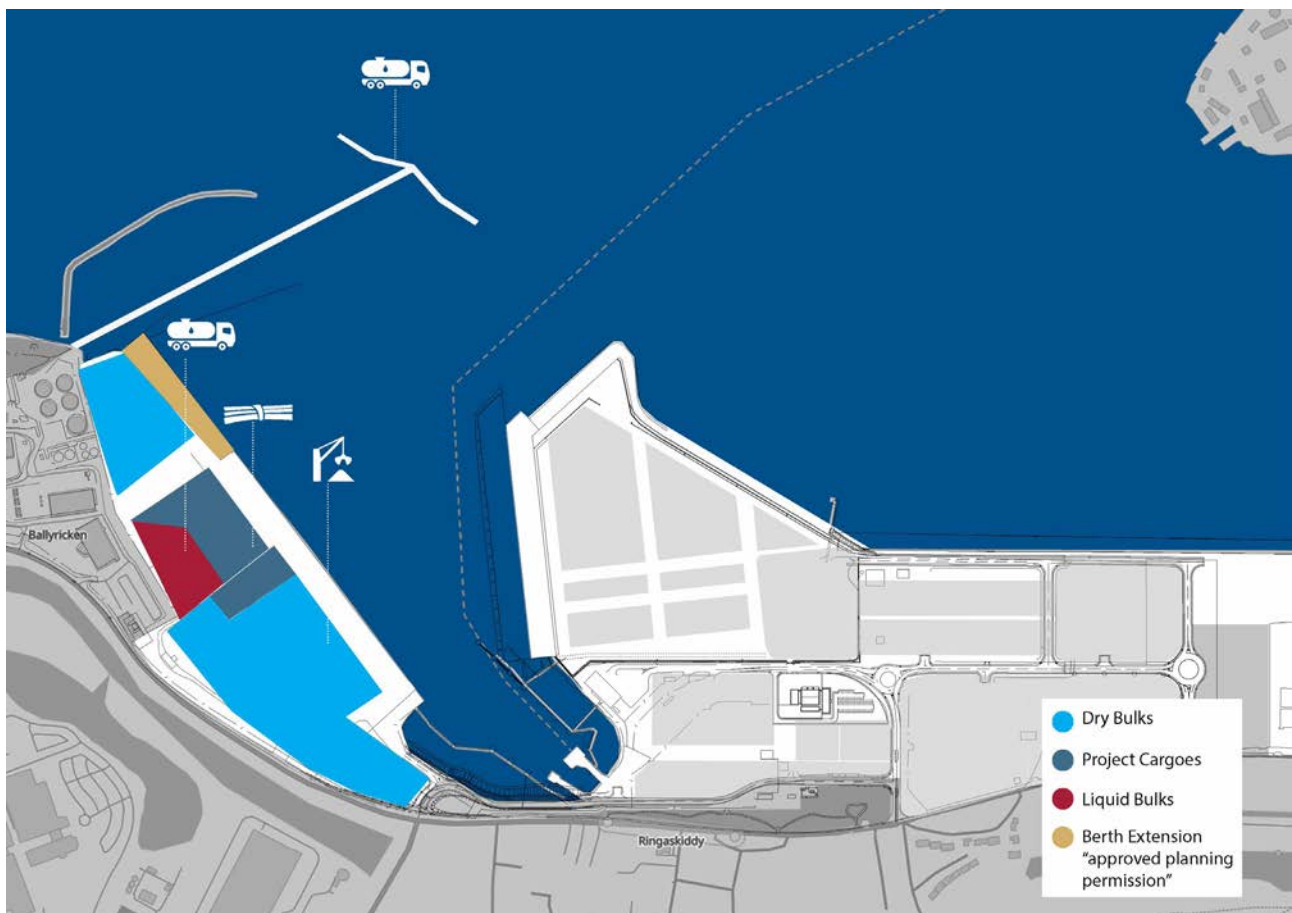
2040

The growth of dry and break bulks volumes at this location will require an additional 3.4ha of land storage to provide capacity up to 2040. Some commodities will be moved to Marino Point.

2050

By 2050, dry and break bulks volumes will have increased and additional land storage will be required at Ringaskiddy West. A further 4.25ha of land will be needed, contributing to a total storage yard area of 25ha at this facility.

Figure 51: Ringaskiddy West – 2030 Layout



11.5 Ringaskiddy East

The new Cork Container Terminal (CCT) officially opened in September 2022. Large Panamax vessels can be accommodated, and trade vehicles are discharged at the linkspan in Ringaskiddy East. It also houses the Ferry Terminal for the Brittany Ferries' services to Roscoff.

A separate analysis was undertaken for each of the following operations in Ringaskiddy East terminal:

- LoLo operations at the Cork Container Terminal (CCT).
- RoRo, ConRo, RoPax, and Trade Cars.

11.5.1 Ringaskiddy East – LoLo Operations at the CCT

Current

In Ringaskiddy East, containers are currently being handled at the new CCT. The terminal guarantees a capacity up to 295kTEU/y. Panamax vessels can be accommodated on the 360m-long quay, where two STS gantry cranes are installed.

The current infrastructure is sufficient to handle operations up until 2029 when additional capacity will be required.

Figure 52: CCT – Plan of Current Terminal Infrastructure



Following the anticipated increase in the container trade, the CCT in Ringaskiddy East will need to undergo infrastructure and logistical upgrades to guarantee the required capacity and allow efficient operations.

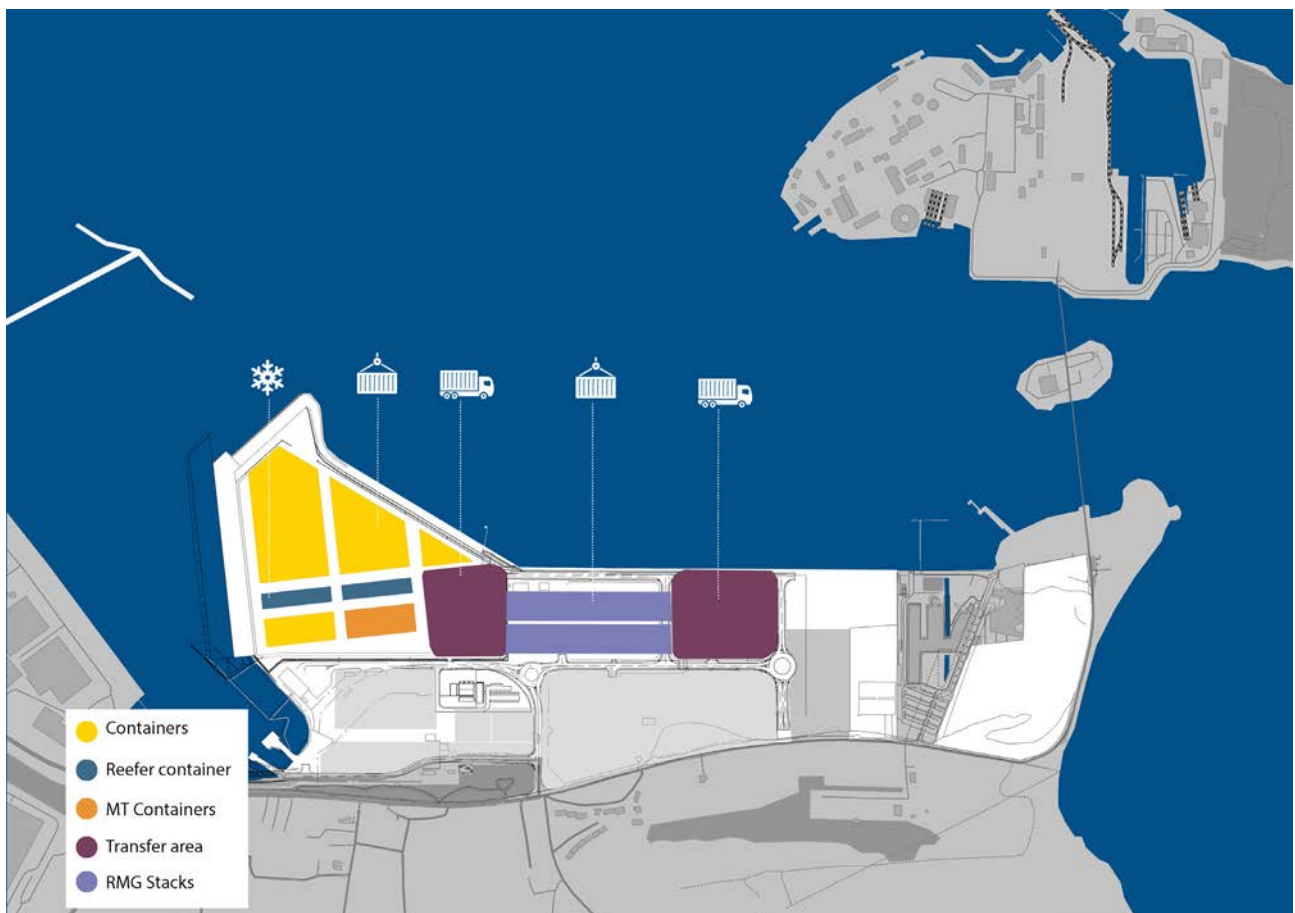
There is a planning condition on CCT that limits the operational capacity to 322kTEU/y until the M28 has been completed. In the medium term, the PoCC will need to operate dual operations at CCT and Tivoli to facilitate container volumes.

The PoCC will need to construct a berth extension at the CCT by 2027 to enable increased unloading/loading operations to cater for the predicted growth of container traffic and to facilitate dual unloading/loading of larger ships. The development already has planning permission in place.

2029 - 2036

The CCT will be expanded by 2029 on the eastern side through the installation of RMGs that will bring the capacity of the terminal up to 482kTEU/y. With this configuration, the port will be able to accommodate the container demand up to 2036 (Figure 52).

Figure 53: Plan of Terminal Infrastructure – Period Between 2029 and 2036



2036-2048

From 2036, the terminal will need major infrastructural changes to accommodate future container demand. A land reclamation project is proposed, covering around 6.4ha, to allow the construction of an additional berth. The container capacity will then increase to 737k TEU and will allow the port to satisfy demand up to 2048.

Figure 54: Map Terminal Infrastructure – Period Between 2036 and 2048



Beyond 2048

Container trade demand will continue to grow and will require additional capacity at the port to be in place before 2048. Reclaiming 6.6ha towards the east will allow the terminal to have sufficient storage area and berthing length to handle up to 963k TEU. This second reclamation will allow the expansion of the container yard, and it will also facilitate the installation of the new RoRo berth required to support the increase of the RoRo and ConRo business at the Port of Cork, as outlined in the next sections (Figure 55).

Figure 55: Map Terminal Infrastructure – Period Beyond 2048



11.5.2 Ringaskiddy East – Additional Cargoes

Additional cargoes at the Ringaskiddy East terminal are identified as RoRo, ConRo, RoPax, and Trade Cars. The remaining locations at Ringaskiddy East will be developed alongside the expansion of the CCT.

Current - 2030

Figure 56 illustrates the current locations of the storage and marshalling areas for RoRo, ConRo, RoPax, and Trade Cars. All these businesses are expected to grow substantially in the future, and the Port of Cork will undergo significant infrastructure upgrades to satisfy the increasing demand. Between now and 2030, the Port of Cork will need to transition to a new layout for RoRo, ConRo, and Trade Cars at this location to increase efficiencies within the existing area.

Figure 56: Map of Current Ringaskiddy East Terminal for RoRo, ConRo, RoPax, and Trade Cars



This new layout will include:

- An increased marshalling area for RoPax.
- Increased marshalling lanes (export and import) for ConRo.
- Increased stacks for ConRo.
- A reduction in Trade Cars space.
- The relocation of RoRo freight storage to the south of the site.

With this layout, the terminal will be able to satisfy demand and traffic up to 2030, including up to 50,000 RoRo units, 50,000 Trade Cars, and 19,000 ConRo units a year.

Figure 57: Map of Ringaskiddy East Terminal for RoRo, ConRo, RoPax, and Trade Cars – 2030



2030 – 2040

The land dedicated to RoRo, RoPax, and Trade Cars will need to be expanded to accommodate the steady growth in these markets over this period. Dedicated areas for RoRo and Trade Cars on the eastern side of the terminal and nearby lands will allow the port to handle more than 100,000 RoRo units and 60,000 Trade Cars a year.

An expansion of the RoPax marshalling lanes will also guarantee sufficient capacity to handle the increased traffic of ferry passengers. With this configuration, the terminal will provide sufficient capacity up to 2040, when new upgrades will be required.

Figure 58: Map of Ringaskiddy East Terminal for RoRo, ConRo, RoPax, and Trade Cars – 2030



2040 and beyond

By 2040, some of the storage and marshalling areas for RoRo, RoPax, and Trade Cars will be moved off-site to provide sufficient capacity at the terminal.

The increase in RoRo, RoPax, Trade Cars, and ConRo volumes will lead to additional vessel calls, and therefore a second RoRo berth will be located on the northern part of the terminal in newly reclaimed land (Figure 59). This will allow the terminal to handle more than 150,000 RoRo units, 70,000 Trade Cars, and 40,000 Passenger Cars per year.

Figure 59: Map of Ringaskiddy East Terminal for RoRo, ConRo, RoPax and Trade Cars – 2040 and Beyond





11.6 Cobh Cruise Terminal

Additional port infrastructure or landside infrastructural upgrades have not been evaluated at the Cobh Cruise Terminal. As outlined in Section 10.9, cruise traffic was heavily impacted by the COVID-19 pandemic, but ship calls have surprisingly rebounded to pre-pandemic levels in 2023. These calls are expected to continue to increase over the next 30 years, and supplementary berthing points are being considered in the lower harbour to accommodate this growth.

Some logistical considerations have been evaluated at this location and they suggest the need for additional open areas at the terminal to improve disembarkation of passengers heading to Cork by coach, train, or taxi. Supplementary berths should be explored elsewhere in the lower harbour to cater for vessels that combine visits to Cobh and Cork.

11.7 Additional Land Requirements

To accommodate future volumes and to allow for infrastructure upgrades, the PoCC will require supplementary industrial lands adjacent to, or near, its current operations. These figures do not account for the additional land required to support the ORE sector, which is illustrated in Section 7.3. The PoCC will actively engage with local authorities, landowners, and development agencies to secure suitable sites to meet the volume projections outlined in Section 10. Additional land will be required at Ringaskiddy East and West to allow for the development of the different cargo businesses as follows:

Ringaskiddy East

Additional land at Ringaskiddy East will be required to support the RoRo freight and trade cars businesses. Table 21 shows the incremental increase in land needed over the course of the Masterplan timeline based on cargo projections.

Ringaskiddy West

Additional land at Ringaskiddy West will be required to support the dry and break bulks businesses. Table 22 shows the incremental increase in land needed over the course of the Masterplan timeline based on cargo projections.

Table 21: Ringaskiddy East – Additional Land Requirements

	Current	2030	2040	2050
Total storage area	18ha*	25.2ha	29.6ha	34ha

* Area already in use. Part of this area will be used for the extension of the CCT.

Table 22: Ringaskiddy West – Additional Land Requirements

	Current	2030	2040	2050
Total storage area	9.6ha*	17.4ha	20.8ha	25ha

* Area already in use

12. Conclusions

12.1 Overview

With this Masterplan, the PoCC commits to maintaining the world-class reputation of the Port of Cork by providing sustainable, reliable, safe, and high-performing facilities to ensure we are an efficient link in the logistics chain. This commitment solidifies the PoCC's role as an economic driver at community, regional, and national levels.

Analysis for the Masterplan has established that, by 2050, the Port of Cork is expected to handle 801,899 TEUs (LoLo and ConRo), three million tonnes of dry bulks, 150,000 RoRo units, and 70,000 trade cars per year.

Approximate timing for the delivery of this infrastructure is indicated in Section 11 above. These timelines are dependent on projected demand and industry trends and will be reevaluated on an ongoing basis.

12.2 Constraints and Challenges

The delivery of the Port of Cork Masterplan 2050 is reliant on overcoming the following constraints and challenges:

- Delivery of the M28 by Cork County Council and TII to unlock significant port capacity in the lower harbour.
- Planning permission and the necessary consents for Future Infrastructure Development being secured (e.g. foreshore licence and leases, and dredging permits).
- Funding being obtained for future infrastructure developments to meet projected trade growth demand and to facilitate ORE and green energy sector requirements.
- Additional land holdings being secured to meet port expansion requirements, as outlined in the Masterplan.
- Delivery of the R624 link road from Marino Point to the N25 by Cork County Council.



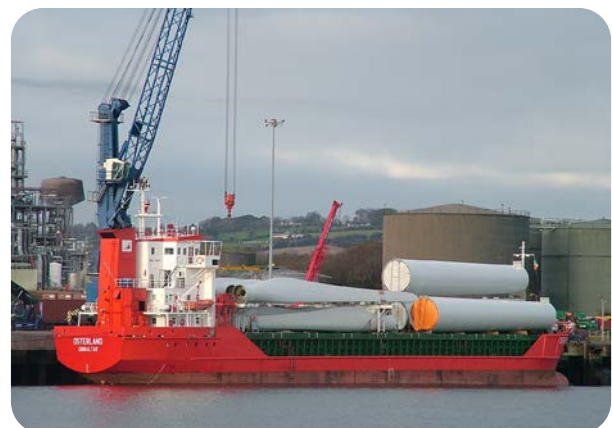
12.3 Summary of Infrastructure Requirements

The following infrastructural upgrades and extensions will be needed, on a phased basis, to ensure port capacity can successfully meet this demand:

- An extension of the CCT yard with the installation of RMGs/RTGs on lands located on the eastern side of Ringaskiddy East by 2029.
- A 200m extension of the CCT berth by 2030 (planning permission in place).
- A 230m extension of the DWB in Ringaskiddy West by 2030 (planning permission in place).
- An extension of the CCT in Ringaskiddy East, with construction of additional quay walls and reclamation of 13ha of land, carried out in two phases (Phase 1 to be completed by 2036).
- The provision of additional dry and break bulk storage areas at Ringaskiddy West.
- Reconfiguration of the RoRo terminal layout and reallocation of storage areas for trade cars at Ringaskiddy East.
- A new multipurpose RoRo berth on the northern side of Ringaskiddy East, adjacent to the CCT.
- Upgrade of the jetty and allocation of land for dry and break bulk storage at Marino Point.
- The provision of storage for liquid bulks at Marino Point.

The following infrastructure is needed to meet the Government's climate action targets and ensure energy security across the island of Ireland. The construction of this infrastructure can facilitate the ORE, transition fuel, and green energy industries. It will:

- Utilise existing port facilities and accelerate the build-out of new infrastructure that has planning permission in place to support the fixed ORE sector (CCT and DWB berth extensions).
- Reclaim 23ha of land and construct associated quays at Ringaskiddy East to support the floating ORE sector.
- Provide new port facilities at Dognose Bay for transition fuels (such as LNG), Offshore Renewable Energy (ORE), green hydrogen, and other green energy cargoes.



12.4 Next Steps

These next steps have been identified as a pathway for the successful implementation of the Port of Cork Masterplan 2050. The first five steps are considered as items that should be enacted by 2030.

-
- 1. Implement** the infrastructure with existing planning permission in place by 2030, e.g. the new berth extensions at Ringaskiddy East (CCT) and Ringaskiddy West (DWB), which will add 430m of quay length.
 - 2. Seek** planning permission, and build out, the next phase of the CCT terminal (RMG/RTG yard) by 2029, to increase capacity and meet the demand of projected trade growth.
 - 3. Support** the fixed ORE sector by using existing port facilities, and accelerate the build-out of new infrastructure which has current planning permission in place. Also, support the floating ORE sector by developing further port infrastructure on lands to be reclaimed at Ringaskiddy East.
 - 4. Harness** the potential of Dognose Bay as a strategic location, 1km from the main gas pipeline, to facilitate transition fuels (LNG), ORE, green hydrogen, and other future green cargoes.
 - 5. Grow** Marino Point as a bulk port facility while exploring rail freight, energy, and cruise options.
 - 6. Engage** in the development of planning and transport policy with local, regional, and national government bodies.
 - 7. Examine** any proposals for development based on this Masterplan in relation to environmental impacts and comply with all statutory requirements.
 - 8. Acquire** land to facilitate the expansion of port infrastructure which will help meet projected economic demands and support the development of ORE and other future cargoes.
 - 9. Raise** the profile of the required road upgrades to the R624 link road from Marino Point to the N25.
 - 10. Review** opportunities to link into the rail system at Marino Point to increase hinterland connectivity through environmentally sensitive solutions.
 - 11. Involve** all relevant stakeholders, following the publication of this Masterplan, during the design, planning, and implementation phases of projects.
 - 12. Evaluate** this Masterplan every five years to assess its continued appropriateness in reflecting market trends. Complete a thorough review, with possible updates, every 10 years.
-

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- 13. Adopt** sustainable development principles throughout operations, infrastructure development, and in relation to future commodities.
 - 14. Develop** a decarbonisation and energy plan to reduce dependencies on hydrocarbons and increase the use of alternative energy sources to reach net-zero targets.
 - 15. Embrace** appropriate technology solutions to modernise port operations, increase efficiencies, and minimise environmental impacts. This work will help to address noise reduction, air and water quality improvements, responsiveness to climate change, and the introduction of more circular waste management systems.
 - 16. Support** the advancement of proposals to redevelop City Docks and Tivoli Docks as a strategic benefit to the Cork City Development Plan 2022 – 2028.
 - 17. Explore** opportunities with private-sector partners for renewable energies.
 - 18. Investigate** opportunities to facilitate the development of future cargoes such as hydrogen, a FSRU (Floating Storage Regasification Unit), and ORE throughout the lower harbour and Bantry Bay.
 - 19. Monitor** trends in port-centred logistics and pursue initiatives that can use adjacent land banks to serve customer needs.
 - 20. Develop** financing mechanisms for the implementation and delivery of the Masterplan, including working with the New Economy and Recovery Authority (NewERA) to develop proposals for investment that support economic activity and employment.
 - 21. Engage** with the NewERA to provide financial and commercial advice to Government ministers and departments.
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Appendix A - Acronyms

AA: Appropriate Assessment	FSRU: Floating Storage Regasification Unit
ABP: An Bord Pleanála	FTE: Full-Time Equivalent
BMDC: Belvelly Marino Development Company	GBI: Green and Blue Infrastructure
BBPC: Bantry Bay Port Company	GDP: Gross Domestic Product
CASP: Cork Area Strategic Plan	GHG: Greenhouse Gas
CD: Chart Datum	HGV: Heavy Goods Vehicle
CCGT: Combined Cycle Gas Turbine	HOOW: Harnessing Our Ocean Wealth
CCS: Carbon Capture and Storage	HVO: Hydrotreated Vegetable Oil
CCT: Cork Container Terminal	IDA: Industrial Development Agency
CDP: Cork Development Plan	IFI: Irish Fertilizers Industry
CEAP: EU Circular Economy Action Plan	IMDO: Irish Maritime Development Office
CLIA: Cruise Lines International Association	LNG: Liquid Natural Gas
CMATS: Cork Metropolitan Area Transport Strategy 2040	LoLo: Lift-on Lift-off
CoCC: Cork County Council	LPG: Liquid Petroleum Gas
ConRo: Hybrid of RoRo + a Container Vessel (unaccompanied)	MAC: Maritime Area Consent
CSO: Central Statistics Office	MAP: Maritime Area Planning Act
CTV: Crew Transfer Vessels	MARA: Maritime Area Regulatory Authority
DSG: Doyle Shipping Group	MASP: Cork Metropolitan Strategic Planning Area
DWB: Deepwater Berth	M&A: Marshalling and Assembly
EIAR: Environmental Impact Assessment Report	NCC: National Competitiveness Council
EPA: Environmental Protection Agency	NHA: Natural Heritage Areas
ERTMS: European Rail Traffic Management System	NIS: Natura Impact Statement
ESPO: European Sea Ports Organisation	NMPF: National Marine Policy Framework
FDI: Foreign Direct Investment	NPF: National Planning Framework
	NSMED: North Sea Mediterranean
	NSO: National Strategic Outcomes
	ORE: Offshore Renewable Energy

OREDP: Offshore Renewable Energy Development Plan

O&M: Operation and Maintenance

PAG: Project Appraisal Guidelines

PCLP: Port Centric Logistic Partner

PERS: Port Environmental Review System

pNHA: Proposed National Heritage Areas

POCC: Port of Cork Company

RMG: Rail Mounted Gantry

RoPax: Roll-on Roll-off Passenger Service

RoRo: Roll-on Roll-off

RPO: Regional Policy Objective

RTG: Rubber Tyred Gantry

RSES: Regional Spatial and Economic Strategies

SAC: Special Area of Conservation

SAF: Sustainable Aviation Fuel

SDG's: Sustainable Development Goals

SDP: Strategic Development Plan

SHEEQ: Safety, Health, Environment, Energy & Quality

SOV: Service Operation Vessels

SOx: Sulphur Oxides

SPA: Special Protection Area

STS: Ship-to-Shore

TEN-T: Trans- European Transport Network

TEU: Twenty-foot Equivalent Unit

TII: Transport Infrastructure Ireland





Appendix B - Terms of Use

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Port of Cork Masterplan 2050

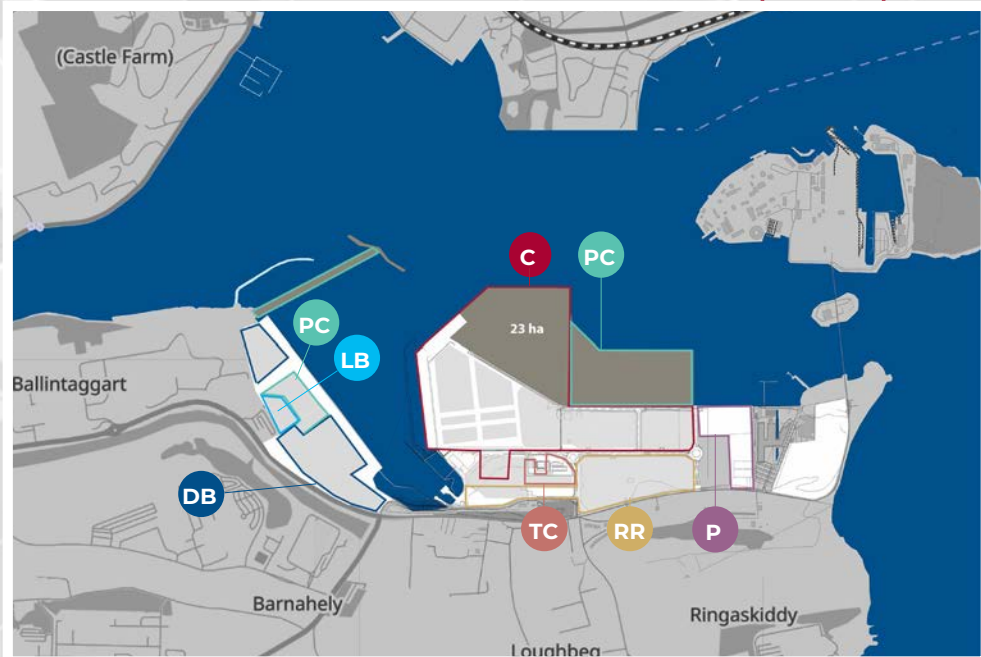
Marino Point

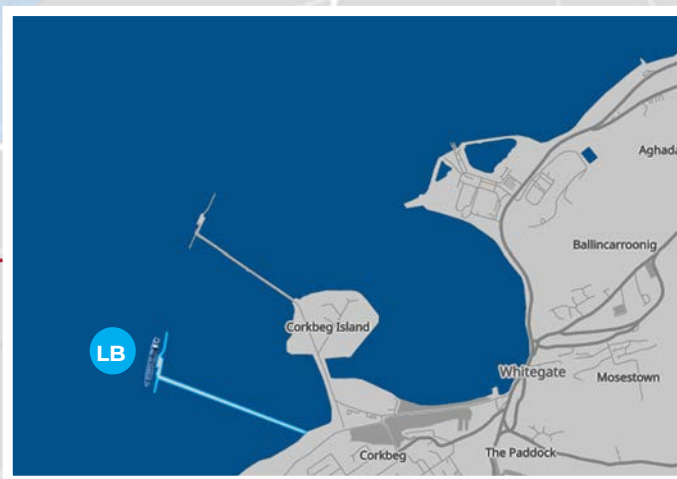


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Ringaskiddy West

Ringaskiddy East















Bantry



Legend

- | | | | |
|---|----------------------|---|------------|
|  | Available space | | |
|  | New land reclamation | | |
|  | Dry Bulks |  | RoRo |
|  | Containers |  | Trade Cars |
|  | Project Cargoes |  | Cruises |
|  | Liquid Bulk |  | Passengers |



A Vision for Ringaskiddy 2050





Concept Image of ORE at Ringaskiddy

EXISTING CCT TERMINAL

