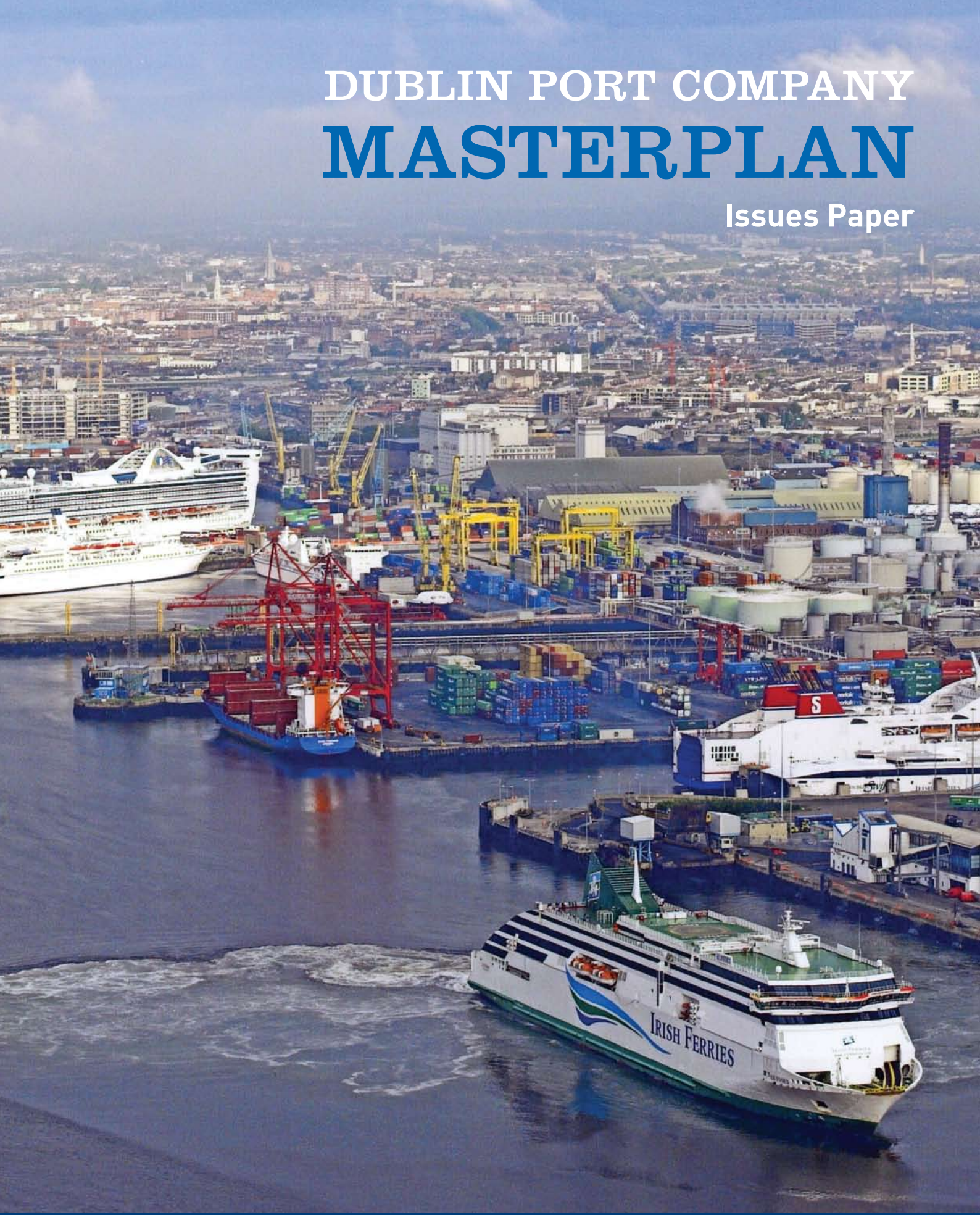
DUBLIN PORT COMPANY

MASTERPLAN

Issues Paper



COMHLACHT CHALAFORT ÁTHA CLIATH
DUBLIN PORT COMPANY

www.dublinport.ie/Masterplan

The Issues Paper and the Consultation Process

This Issues Paper has been published by Dublin Port Company to facilitate the consultation process for the preparation of a Masterplan for Dublin Port for the period 2011 – 2040. The Issues Paper describes the current operations of Dublin Port, details some strategic issues that will face the Port over the period covered by the Masterplan, and examines future trends in key areas of trade and transport. The Issues Paper also identifies some options for future development at the Port.

The Issues Paper is based on analysis carried out by Dublin Port Company and by experts examining economic, trade, environmental, engineering and planning issues. The main conclusions of the experts' reports are summarised in this Issues Paper, and full copies of their assessments can be obtained on the Masterplan website www.dublinport.ie/Masterplan.

Dublin Port Company welcomes submissions from interested parties during the consultation process leading to the development of the Masterplan. The Consultation Process will conclude on **31 May 2011** and it is hoped to have the Masterplan completed by the end of 2011. In addition to publishing the Issues Paper, Dublin Port Company is also holding a series of information events over the course of the consultation timeframe and full details will be posted on the Masterplan website and in the media.

To assist you in making your submission, the Issues Paper contains a list of questions that Dublin Port Company believes need to be considered in developing an outlook for Dublin Port to 2040. These questions are a guide to assist people, communities and organisations making submissions to the consultation process, either generally, or in relation to the specific areas or aspects of the Port's operations that are of interest to them.

Submissions can be made in a number of formats no later than **31 May 2011**:

- Online at the Masterplan website (www.dublinport.ie/Masterplan)
- By email to Masterplan@dublinport.ie
- In hard copy to:
  Dublin Port Masterplan, Dublin Port Company, Port Centre, Alexandra Road, Dublin 1

Contents

1 Executive Summary

Dublin Port is the largest port on the island of Ireland. Dublin Port's main function is to facilitate the movement of goods and people so essential to our economy, in an efficient and cost-effective manner.

The history of the development of Dublin Port is intertwined and interlinked with the establishment, growth and expansion of Dublin City. Past expansions of the Port have contributed greatly to the City - the construction of the Great South Wall and North Bull Wall resulted in the creation of Bull Island as the pattern of sand movements in the bay changed. Prior to this, the city quays were built as the Port developed and this created the central shape of the City.

Dublin Port handles some 17,000 vessel movements every year, varying in size from small coasters to very large cruise vessels. The range of vessels includes Ro-Ro passenger ferries, Ro-Ro freight vessels, oil, gas and molasses tankers, container vessels, bulk carriers, car carriers, cruise vessels, cement carriers and a range of specialist vessels such as naval vessels, light-tenders, tugs, supply ships, historic craft, and large sailing ships.

Over the last five years, throughput in Dublin Port has averaged 28.9m tonnes reaching a peak of 30.9m tonnes in 2007. Although volumes dropped off subsequently, growth returned in 2010.

With a resumption of growth in 2010, and in light of the long lead time for port development projects, Dublin Port Company is assessing what growth there will be over the coming years and what additional capacity will need to be provided to cater for this growth

Based on historical trends, a comparatively modest growth rate of just under 2.5 per cent would cause volumes to more than double to 60m tonnes. This scenario is entirely likely and the core objective of the Masterplan is to provide the answer to the question: ***how will Dublin Port handle 60m tonnes by 2040?***

Between 1980 and 2010, Port volumes grew from 7.3m to 28.9m tonnes without any increase in the Port's land area. To achieve 60m tonnes by 2040, additional lands will be required and the provision of these lands is a central challenge for both the Port and the City.

The challenge facing us now is to find the best way to re-integrate Dublin Port and Dublin City within the context of providing capacity to cater for the handling of 60m tonnes by 2040.

If Dublin Port is to reach 60 million tonnes by 2040, there will need to be some reconfiguration of the existing Port with new developments as required. There is a limit to how much more freight we can get through the Port's existing estate. The best estimate is that we will need in the order of 30 to 40 additional hectares to cater for 60m tonnes by 2040. The cheapest alternative will always be to make more of what we have and we will continue to do this.

Our future requirement to provide more land will be influenced by requirements for us to build longer and deeper berths to cater for larger ships.

Dublin Port has never been closed because of adverse weather conditions and is unique along the East Coast of Ireland in this regard. Dublin Port has managed to accommodate the full range of shipping services without difficulty.

It is important to understand that, in order to be efficient, cargo handling space must be close to the quay wall, otherwise, considerable time is lost in moving cargo from ship to storage area and vice versa which, in turn, impacts on the turn-around times of vessels, a critical factor in port and vessel efficiency.

The Masterplan will present a description of what options for new capacity are possible over the period of the Masterplan by reference to engineering and technical considerations. Whether any of these projects is actually advanced will depend on a range of considerations, including regulatory consents, market demand and funding facilities.

Dublin Port Company actively implements procedures and systems that have been designed to help facilitate and manage the environmental impacts of Dublin Port. The environmental pressures that are now present in relation to sustainable development and the operation of Port activities, together with the requirement to integrate with the city and adjacent environmentally sensitive sites, are issues that also have to be addressed by numerous port cities throughout Europe.

The engineering options for possible developments in Dublin Port over the period of the Masterplan have the potential to impact on environmental conditions within and in the vicinity of the Dublin Port estate. Dublin Port Company will develop and enhance the existing Port facilities and services in order to fulfil the needs of tenants and customers in a way that is sensitive to the local environment.

In conjunction with the development of the Masterplan, the production of a Shadow Strategic Environmental Assessment and Natura Impact Assessment (Appropriate Assessment) will aim to address and minimise the potential environmental impacts resulting from the implementation of development options that arise from the Masterplan.

Dublin Port has an excellent transport infrastructure with access to the motorway system through the Port Tunnel as well as a rail link at the hub of the country's rail system.

The Masterplan will examine the community impact of the Port and how it can improve its support and interaction with local residential and sporting communities.

Ireland is a small open economy and does not have a domestic market of sufficient size to sustain itself. External trade and, particularly exports, will remain of vital importance to future prosperity. For the internationally traded side of the economy, the quality of air and sea port access is of primary importance.

Dublin Port is the port of choice for both importers and exporters. It is viewed by them as the most efficient and cost effective way of accessing domestic and overseas markets. The key attraction of Dublin Port is that it is close to and accessible to the main markets.

Growth in unitised trade at Dublin Port will be a key feature over the period covered by the Masterplan. While some traditional elements of trade at the Port will diminish, new opportunities will emerge, particularly in relation to green energy and renewables, the bioeconomy and bio processing.

Tourism also provides significant potential for growth, particularly from Cruise liners.

2 Introduction

I am delighted to introduce this Issues Paper as a key part of the formal consultation process for Dublin Port Company's Masterplan.

This Issues Paper sets out the background to what we are trying to achieve in our Masterplan and provides background information and data on Dublin Port. The Issues Paper is based on analysis and a review by Dublin Port Company and experts retained on the company's behalf of key trends, and developments likely to impact on Dublin Port and the national economy between now and 2040.

It is also based on an assessment of the current land use and engineering options available to Dublin Port to meet anticipated capacity needs over the period to 2040. Full details of these reports are available on the Masterplan website or by request directly to Dublin Port Company.

Dublin Port Company is a State-owned commercial company charged with developing and managing Dublin Port. Dublin Port is the largest port on the island of Ireland and is a hugely important gateway for the country's imports and exports. It is also a major ferry port and is the largest destination for cruise ships on the island.

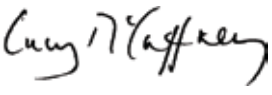
The Port has a long history and has developed synchronously with the great city of Dublin. The shape of the Port today was set two hundred years ago by the building of the Great South Wall and the North Bull Wall, both magnificent feats of engineering.

As Ireland and Dublin have prospered in recent decades, the interface between the City and the Port has become somewhat uneasy as the needs for cargo handling have come into conflict with the aspirations for development and recreation. We have reached a low in our economic fortunes and are challenged to rebuild our economy. Dublin Port has a critical role in supporting this and will be challenged to provide additional capacity over the coming years.

However, notwithstanding the over-riding economic imperative for Dublin Port to develop new infrastructure for the future, we must and are committed to trying to do this in a way which does not adversely affect either the natural or built environments. Indeed, we believe that Dublin Port can expand in a way which better integrates the Port with the City and which makes a positive contribution to enhancing both the natural and built environments.

We think that this can best be achieved through the consultation process we are commencing.

We hope that you will respond to the issues we have raised (or indeed identify and respond to issues we have not raised) so that when we come to complete the Masterplan later this year, it will reflect the needs and concerns of the Port's many stakeholders.



Lucy McCaffrey

Chairperson, Dublin Port Company

3 Key Strategic Issues for Dublin Port Company

Background

Dublin Port is the largest port on the island of Ireland. The major part of its business is handling freight. It is also a major port for passenger traffic whether from car ferry services to the UK, Europe or cruise calls.

Ports, by their nature, can be unattractive places and tend to enjoy an uneasy relationship with their hinterlands. They are likely to be utilitarian in their design and are, at best, tolerated on the basis of their economic necessity and strategic location. Dublin Port fits this stereotype well. However, it need not be so and we in Dublin Port believe that we can fulfil our economic rationale while at the same time contributing substantially to both the natural and built environments of Dublin.

To do this, however, requires that we explain better to the City and its citizens what we do and what our plans are; what we need to do; how we intend to do it; and, probably most importantly, how we can contribute to a better Dublin and to a prosperous and successful Ireland. Our Masterplan is intended to address this agenda in a consultative way.

As regards what we need to do, the Port and its customers are the best placed to identify future requirements: what quay walls will need to be built; what additional land storage space will be needed; what type of infrastructure should be provided and how it should be utilised.

However, how we do all of this needs to be tempered and modulated by the needs of the City and its citizens. Hence, we are launching this consultation exercise to elicit the views and opinions of citizens, public representatives, planners, other State bodies and anyone with a love for Dublin and a passion for its future sustainable growth and development.

What We Need to Do

It is impossible to talk of Dublin Port without referring to the basic numbers behind its business.

Over the last five years, throughput in Dublin Port has averaged 28.9m tonnes. The highest throughput in the Port's history was 30.9m tonnes in 2007 at the height of the boom. Although volumes dropped off after that, growth returned in 2010 with an increase of 6.1 per cent in throughput over the previous year even as the economy slumbered.

We believe that, as the national economy recovers, port volumes will resume their historical upward trend.

In the 30 years to 1980, Dublin Port's volumes grew at an average annual rate of 3.2 per cent from 2.9m tonnes to 7.3m tonnes. During this period, the last major expansions of the Port took place with the development of lands in what is now the Poolbeg Peninsula on the south side of the river.

Over the following 30 years from 1980 to 2010, the annual average rate of growth jumped to 4.7 per cent and, by 2010, volumes had reached 28.9m tonnes.

With a resumption of growth in 2010, the question we need to answer is: *what growth will there be over the coming years and what additional capacity will need to be provided to cater for this growth?*

Given the long-lived nature of port development, we are looking at the 30 year period to 2040. Based on historical trends, a comparatively modest growth rate of just under 2.5 per cent would cause our volumes to more than double to 60m tonnes. We believe that this scenario is entirely likely and the core objective of our Masterplan is to provide the answer to the question: ***how will Dublin Port handle 60m tonnes by 2040?***

Year	Throughput†	AAGR*
1980	7.3m tonnes	3.2%
2010	28.9m tonnes	4.7%
2040	60.0m tonnes	2.5%

†Five Year averages
**Average Annual Growth Rate*

If we are wrong in our assumed 2.5 per cent average annual growth rate, nothing is lost. If growth is less, then the various developments we plan to meet the 60m tonnes target will be deferred until demand increases. If growth is higher than 2.5 per cent (which we believe to be more likely), then a new plan will be needed in 15 to 20 years time.

What about other Ports?

In commencing our work, we were frequently faced with the question as to why Dublin needs to accommodate the future growth we are projecting. Could and should this growth not be accommodated in other ports?

Our answer to this question is that there are many proposed port expansion projects in Ireland including at Belfast, Bremore, Waterford and Cork. Whether any or all of these will ever be built, we do not know. All face similar planning processes to any project in Dublin. Additionally, some face real financing challenges.

By proceeding with our Masterplan for Dublin Port, we believe that we can identify and bring forward projects that have a reasonable prospect of receiving planning permission and other regulatory consents. We are also confident that Dublin Port's financial strength will allow us to finance these projects in a prudent way well within the financial capabilities of Dublin Port Company – this will encourage development, employment and investment without recourse to State funding. In answering our 60m tonnes by 2040 question, we believe that we can develop options for the delivery of nationally important port capacity, options that have a high degree of certainty about our capability to deliver them.

What will the Shape of Future Trade Look Like?

Cargo moves through Dublin Port in all modes.

For example, in the order of 50 per cent of all petrol, diesel, kerosene and aviation fuel consumed in the State comes through the Port's oil zone. Likewise, the Port handles large quantities of bulk products including lead and zinc ore, animal feed, cereals, peat moss, scrap metals, petroleum coke and slag cement.

However, trade through the Port is dominated by trailers and containers carried on Ro-Ro and container ships. This trade is at the heart of the domestic consumer economy and is the route for the goods we buy daily in shopping centres and on our high streets. It is also the essential outlet for our many international and domestic exporting companies.

Looking at the figures, we believe that there will be comparatively little growth in existing commodities carried in the bulk modes. One exception to this could be a growth in imports of solid biomass products for power generation. Whatever growth there is of such products will be readily accommodated within the Port's existing infrastructure.

In the unitised modes, on the other hand, we foresee substantial growth, and current trends suggest that this will be concentrated more in the Ro-Ro mode than in the Lo-Lo mode.

	2010† '000 tonnes	2040 '000 tonnes	AAGR* '000 tonnes
Ro-Ro	16,403	41,920	3.18%
Lo-Lo	6,317	10,480	1.70%
Bulk Liquid	4,009	4,000	-0.01%
Bulk Solid	2,054	3,500	1.79%
Break Bulk	96	100	0.12%
Total tonnes	28,879	60,000	2.47%

†Five Year averages
**Average Annual Growth Rate*

Translating this growth into unit loads (where one unit load generates at least one truck movement into the Port or out of it), we project growth from 1.1m units per annum in 2010 to 2.4m units by 2040.

	2010	2040
Ro-Ro ('000 units)	701	1,791
Lo-Lo ('000 units)	377	625
Total Units	1,078	2,416

Beyond the cargo volumes described above, there is also potential for future growth in:

- Passenger and car ferry tourist volumes
- Cruise tourism
- Demand for on-shore facilities for the construction and maintenance of off-shore wind farms

We believe that there is significant existing port capacity to cater for growth in passenger and car ferry tourist volumes (1.8m passengers and 383,000 cars in 2010). Whereas some capital investment may be required to cater for increasing numbers, we do not foresee any significant need for increasing the Port's footprint to handle tourist traffic.

For the cruise industry, on the other hand, the existing facilities for cruise ships (85 in 2010 carrying 130,000 tourists and crew) are unsuitable and need to be replaced. This is one of the central challenges of our Masterplan and will likely be expensive.

Finally, there is huge potential demand for port facilities for offshore wind energy projects. We believe that this demand could be met in Dublin in a way that would create port facilities for other uses once the requirements of wind energy development have been met.

Re-integrating the Port and the City

Dublin Port's land estate is 260 hectares in extent and is more than one third the size of the Phoenix Park. All of this land comes from reclamation works carried out over the past 200 years or so. The last phase of reclamation ended in the 1970s. Between 1980 and 2010, Port volumes grew from 7.3m to 28.9m tonnes and this growth was catered for without any increase in the Port's land area. Looking at growth towards 60m tonnes by 2040, it is clear that additional lands will be required and the provision of these lands is a central challenge for both the Port and the City.

It is clear that we can continue to make more use of the lands we currently have. After all, between 1980 and 2010, we put an additional 21.6m tonnes through the same footprint. However, there is a limit to how much more we can get through the Port's existing estate and our best estimate is that we will need in the order of 30 to 40 additional hectares to cater for 60m tonnes by 2040. Our cheapest alternative will always be to make more of what we have and we will continue to do this.

Our future requirement to provide more land will also be influenced by requirements for us to build longer and deeper berths to cater for larger ships.

Past expansions of the Port have contributed greatly to the City, most notably over the last 200 years when the Great South Wall and North Bull Wall were built as a result of which Bull Island grew as the pattern of sand movements in the bay changed. Prior to this, the city quays were built as the Port developed and this created the central shape of the city.

As the Port moved eastwards over the centuries, its link with the City was lessened particularly as cargo handling became more industrialised and moved beyond the capacities of small sailing ships.

For many years, there was an industrial wasteland between the City and the Port. The redevelopment of the docklands areas has brought the City to the Port and has created the current challenge of re-integrating the two. Fortunately, we know from the example of such ports as Antwerp, Hamburg and Marseilles that this can be done in a way which enhances the City. Each port and city are different, and the challenge facing us now is to find the best way to re-integrate Dublin Port and Dublin City within the context of providing capacity to cater for the handling of 60m tonnes by 2040.

The first major step to do this was taken with the building of the Dublin Port Tunnel completed in 2006. Other major initiatives that will determine the shape of this re-integration may include development in the Poolbeg Peninsula (a Masterplan for which is to be developed by the DDDA) and the building of the southern leg of an Eastern Bypass, possibly after 2030. It is essential that our Masterplan is compatible with major future developments such as these.

However, it is equally important that our Masterplan identifies a range of smaller scale and practical initiatives that will continually contribute to the re-integration of the Port with the City. We group such initiatives under the heading of "soft values" to contrast them with the hardness and utilitarianism of basic port infrastructure.

It is through our consultations that we hope to find these initiatives and "soft values" and weave them into our thinking and planning for the future.

4 History of Dublin Port

Satellite photo of Dublin Bay 1986

The history of the development of Dublin Port is intertwined and interlinked with the establishment, growth and expansion of Dublin City.

Dublin is a port city and has been a centre for trade and commerce since the 9th century. The medieval port of Dublin was located on the south bank of the River Liffey, close to Christ Church Cathedral.

The historical difficulty of creating a port at Dublin (Dyflin, Baile Átha Cliath) can be appreciated by studying an interesting satellite photo taken of Dublin Bay in 1986. From an altitude of 800km, it clearly shows the extent of the North and South 'Bulls', major sand bars in Dublin Bay. Before the construction of the two breakwaters, the Great South Wall and later the North Bull Wall, navigation was extremely hazardous in the Bay and many shipwrecks and disasters occurred in accessing or departing from the Port in the age of sail.

When Dublin developed as a trading centre in the Viking period from the 9th century, the shallow draft vessels of the time could navigate the various channels of the confluence of three rivers into the shallow Bay (rivers Liffey, Tolka and Dodder) upstream as far as Wood Quay where the original settlement was established. Medieval developments aligned the River Liffey to its current path through the city, while the Georgian and Victorian periods saw the construction of bridges, quay walls and the reclamation of the north and south Lotts areas-present day Ringsend and East Wall.

Great South Wall

Built of cut stone, mainly granite from Dalkey, the construction of the Great South Wall, Pigeon House Harbour and Poolbeg Lighthouse, as we see it today, commenced in 1748 and was completed in 1795. It is truly a work of great skill and craftsmanship reaching out into the Bay for 5.6 km from Ringsend. The effect of the Wall was to prevent the encroachment of sand from the South Bull into the shipping channel. It did not, however, increase the navigable depth across the bar. This development had to await the construction, some 30 years later, of the North Bull Wall.

In 1800, the Directors of Inland Navigation commissioned Captain William Bligh to prepare the first scientific survey of Dublin Bay and to make proposals for the improvement of the Port and its approaches. Bligh's considered opinion was to construct a sea wall eastwards from the north quays and parallel to the Great South Wall.

Funds for the building of this 'Great North Wall', as the project was called, were provided by the sale of the Pigeon House Harbour and premises in 1814 to the Government. Work commenced on the wall in 1818 and, by 1821, nearly 2,000 metres of wall had been completed and, on the advice of the famous Civil Engineer, Thomas Telford, the wall was further extended to its final length of almost 3,000 metres.

Great North Wall

Bull Island

The sheer brilliance of this design, without the benefit of sophisticated studies, hydraulic and computer models as we would have today, was shown in later years when the scouring action of the impounded water passing between the two lighthouses on a falling tide, created a channel through the infamous Dublin Bar and increased the depth at low water from almost two metres to five metres within the space of a number of years.

The beneficial effect of this hydraulic action/sediment transport and littoral transfer, for the citizens of Dublin, was the creation of the Bull Island. Bligh's map of 1800 and other charts of this and earlier periods indicated an area for this island of less than one hectare. Today the island covers approximately 300 hectares and it is still growing. Thanks to these major Port engineering works, two golf courses, a major bird sanctuary and three miles of sandy beach and dunes are available for the enjoyment of citizens.

Other major works or developments in the 1800s included the construction of the Custom House Docks, George's Dock opened in 1821 and the Inner Dock completed some years later. Warehouses were built adjoining the docks with fine storage cellars beneath. All of these works, the river quay walls and bridges are magnificent examples of the stone mason's art.

The original Custom House Dock, built in 1796 beside the Custom House (1791), fell into disuse and was eventually closed in 1927 and filled in. During the late 1940s and early 1950s, Busáras and Memorial Road were constructed on this site.

Work on the North Wall Quay commenced in 1871 and saw port engineers pioneer the use of concrete on large scale marine works in Ireland. By 1882, 700 metres of quay with a depth of seven metres had been built on the river side of the works and 500 metres with seven metres depth on the Basin side of the works. Work was suspended, at that stage, due to an economic recession and the finishing of the east end of the Extension was not completed (with caissons and steel sheet piling) until 1931.

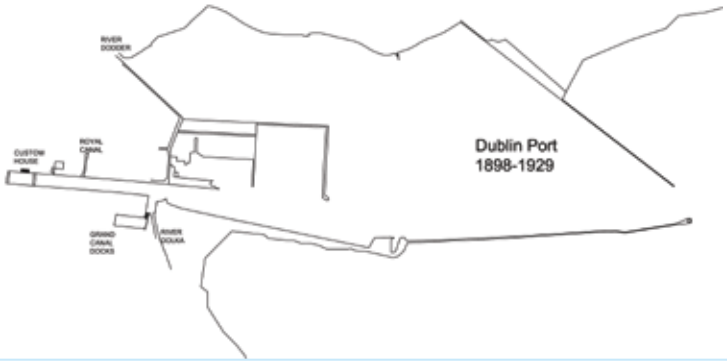
From the turn of the 19th century, there was a focus on the modernisation of Port facilities with the introduction of electric cranes and the general upgrading of river quays, facilities/ installations and the dredging of the main navigation channel to meet the

Original Custom House Docks

Custom House Docks following infill

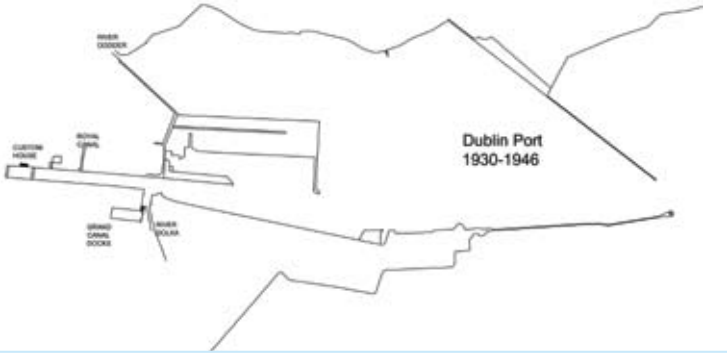
Dublin Port 1708 – 1785

Dublin Port 1898 – 1929



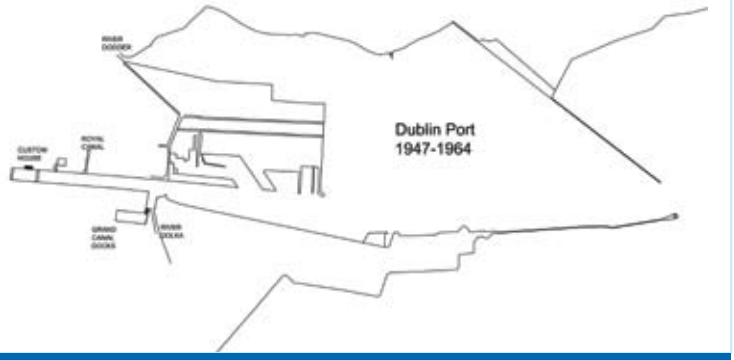
Dublin Port 1786 – 1866

Dublin Port 1930 – 1946



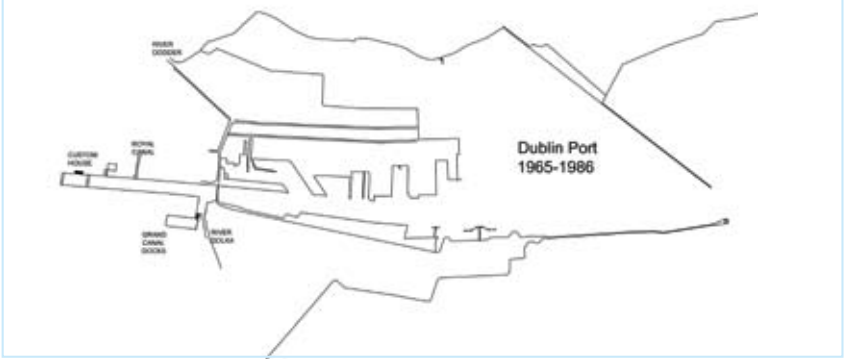
Dublin Port 1867 – 1897

Dublin Port 1947 – 1967



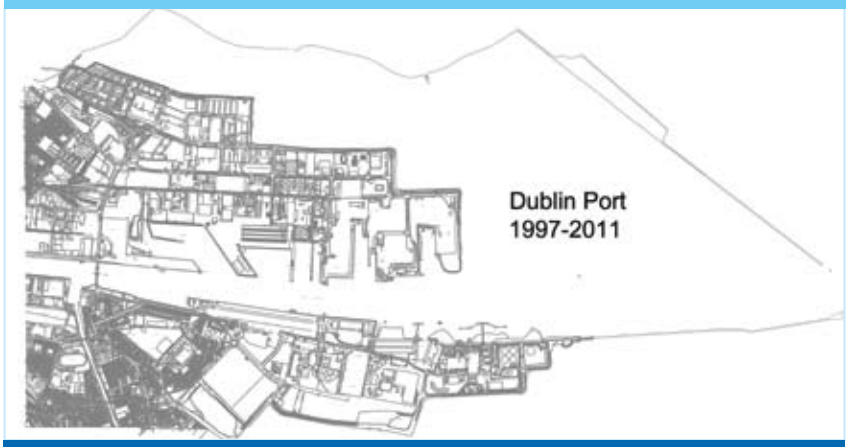
Maps at different stages of development of Dublin Port

Dublin Port 1965 – 1986



Dublin Port 1990 – 1997

Dublin Port 1997 – 2011



Maps at different stages of development of Dublin Port - continued

100ton capacity crane

ever increasing draft requirements of ships using the Port. It was during this period that a 100 ton capacity crane was installed on the North Quay Extension, the heaviest lifting device in the Port until it was dismantled in 1987.

In 1921, at the inception of the State, Dublin Port comprised mainly the North and South River Quays and the North Quay Extension with a land area of 61 hectares.

Subsequent developments in the Port were, in broad terms, carried out in various programmes in two periods, the first from 1922 to 1957, with a second phase from 1967 to date.

In the first phase, new facilities to handle the break bulk cargo common at the time were equipped with the traditional type rail-mounted four or six ton capacity cranes and supported with back-up facilities of surfacing, roads, transit sheds, water and electrical services.

View of the Port in 1921

Port during the war

Unitised freight

During the period of the Second World War (1939-'45), very little construction work was possible in the Port owing to the shortage of materials. Even maintenance operations were continued with great difficulty, and much ingenuity was required to keep the Port operational during this difficult period.

At the end of this first period of development in the early 20th century, the land area of the Port had increased by reclamation to 130 hectares, the Eastern Breakwater forming the most easterly boundary of the Port.

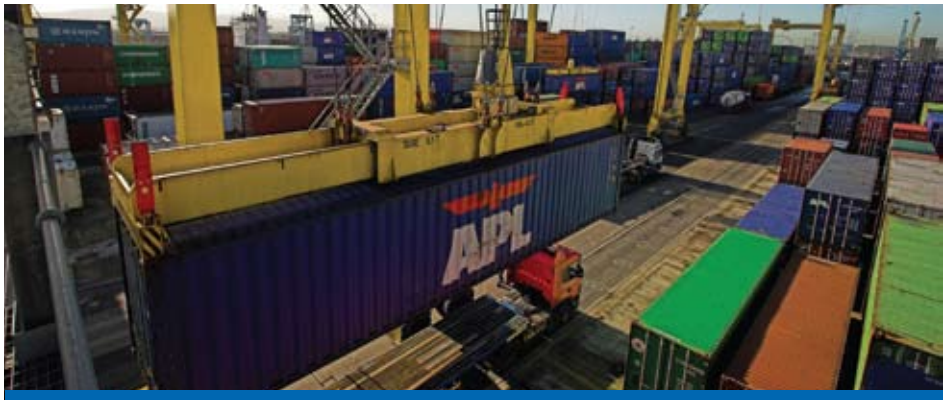
It was during the second phase of development in Dublin Port from the 1960s that it was necessary to embark on a series of major developments to meet a new set of needs and a veritable revolution in freight transport.

The advent of the container and the rapid growth of the Lift-On Lift-Off and Roll-On Roll-Off unitised modes in the 1960s (usually referred to as Lo-Lo and Ro-Ro) brought about enormous and rapid changes in both ship design and cargo handling methods requiring fewer dock workers and created demands for new types of Port facilities. No longer was there the need for numerous berths with limited support area; the need now was for comparatively few berths equipped, not with four ton cranes but 35/40 ton container cranes and/or Ro-Ro ramps, backed up by much more land for storage and marshalling of containers and trailers to permit faster turn-around of ships, typically two and a half to four hours for Ro-Ro and six to eight hours for Lo-Lo.

The second period of Port development, between 1967 and 2010, has been mainly concerned with meeting the needs of Port users and customers, and has transformed Dublin into a modern port adding a further 162 hectares of land and facilities.

The historical development of Dublin Port has created a modern multi-modal facility capable of handling the trade needs of the city and its hinterland. The challenge for Dublin Port over the next 30 years is to continue to modernise, adapt and develop to serve the needs of Ireland's trading economy well into the 21st century.

Anticipating and meeting future trends is important, particularly given the lead time for the commissioning of new port facilities. Addressing this challenge is a key issue to the preparation of the Masterplan to 2040.



Modern port facilities

5 Description of Dublin Port

General layout of the port area

Introduction

Dublin Port's main function is to facilitate the movement of goods and people, on which our economy relies so much, in an efficient and cost effective manner.

In general, the type of goods and the manner in which they are transported fall into the following main categories:

- Roll-on Roll-off (Ro-Ro) Road freight, vans, passenger cars, coaches, new car imports.
- Lift-on Lift-off (Lo-Lo): Containers, carrying all types of goods.
- Bulk Liquid: Refined oils of different types, LPG, Molasses.
- Bulk Solid: Grains, animal feeds, bulk cement, aggregates, petroleum coke, slag, peat moss, scrap metal.
- New and pre-owned car imports.
- Cruise liners.

Ro-Ro and Lo-Lo freight activities are referred to as unitised operations as the freight is carried in "units" i.e. containers or road trailers. Unitised operations comprise some 80 per cent of the freight movements through Dublin Port.

Dublin Port also facilitates visits from naval vessels, research vessels, large sailing vessels, vessels undertaking repairs and a variety of other craft.

Dublin Port handles about 1.8 million passengers each year.

The above illustrates the general layout of the Port area showing where the main activities are carried out.

Ro-Ro operations

Ro-Ro (Roll-on Roll-off)

Roll-on Roll-off, as the name implies, refers to the activity where vehicles are driven on and off specialist vessels called Ro-Ro vessels or ferries. Dublin Port handles approximately 80 per cent of Ireland's Ro-Ro traffic. This traffic consists of freight vehicles, coaches, passenger cars, new car imports, and specialist trailers.

A Ro-Ro vessel requires that it can berth with the ship's loading ramp connecting to a similar berth-side ramp or link span enabling the vehicles to be driven on and off the vessel. At present, Dublin Port handles some of the largest Ro-Ro vessels in the World with some fifteen sailings each day between here and the UK ports of Holyhead, Liverpool and Heysham.

Ro-Ro operations

Lo-Lo operations

Ro-Ro freight is divided into two main groups, namely, accompanied and unaccompanied units. "Accompanied" refers to trailer units to which the cab is attached at all times and the driver accompanies the vehicle. "Unaccompanied" refers to freight trailers that are delivered and collected from the compound adjacent to the vessel. These trailers are driven on and off ships by dock workers. The main difference in the two operations is the amount of land needed to service the units. In the case of accompanied freight, the units drive off the vessel and leave the port directly. Accompanied units boarding vessels will generally only occupy a small area prior to boarding. However, unaccompanied units require considerable space as room must be provided ashore for those units coming off the ship before any can be loaded.

Fifteen Ro-Ro services operate daily between Dublin Port and ports on the west coast of the UK (Holyhead, Liverpool, Heysham) and the Ro-Ro services between Dublin and the European ports of Rotterdam and Zeebrugge, provide customers with choice in terms of operator or destination so that they can move their goods quickly and in the most efficient and cost-effective manner.

Lo-Lo (Lift-On Lift-Off)

Container shipping can generally be divided into two main groups. These are very large container vessels, carrying up to 15,000 TEU (Twenty-foot equivalent units), that operate over long distances between the larger ports of the world, and the smaller "feeder" vessels that connect those larger ports with smaller ports.

Dublin Port is a "feeder relay port" i.e. it "feeds" containers to and from other larger ports, within the UK, northern Europe and the Mediterranean, where they are loaded onto and discharged from larger vessels on worldwide services or they are delivered and collected directly within the hinterland of the ports or moved onwards to other countries across land from the ports.

Container vessels pose particular requirements for cargo handling. The cargo handling equipment for containers is divided into two main groups: primary and secondary handling equipment. **Primary equipment** is that used to load and unload containers on and off the ship. There are two main types of primary handling equipment in use in Dublin Port, rail mounted gantry cranes and dock mobile cranes. **Secondary handling equipment** refers to the equipment used to feed the primary cranes, take containers from the ship side to different areas within the compound and stack the containers. They are also used to load/unload units on and off the trucks that deliver them to the compound or take them to their destination outside the Port. Dublin Port has seen all these different types of equipment in use as the container trade has developed. We are now at the stage where the combination of primary and secondary handling equipment ensures quick turnaround of ships and better use of the space available within the Port.

Dublin Port provides its customers with choice and competition in terms of the number of different terminal operators (three) and the wide range of destinations served directly by Lo-Lo services including, the United Kingdom (east and west coasts), Belgium, Cyprus,

Tanker

France, Greece, Italy, Netherlands, Portugal, Spain, Turkey, Egypt, Israel and the Lebanon. These services also provide direct links to the major container hub ports (such as Rotterdam, Antwerp, Felixstowe, Hamburg, Le Havre, Southampton and Liverpool) provide direct connections to all other worldwide destinations and markets.

Good access to and from the Port (from the land side) is a major factor in terms of the efficiency and cost-effectiveness of moving goods and is a significant contributor to overall national competitiveness. The Dublin Port Tunnel and the investment in upgrading the M50 and the national road network are of strategic importance in the efficient movement of those goods. The fact that Dublin Port has direct connection to the national rail network gives the Port additional capacity to move containers by rail to any part of the country on the Irish Rail network.

Bulk Liquid

Dublin Port handles many different bulk liquid products including petrol, diesel, kerosene, aviation spirit, ethanol, fuel oil, liquid petroleum gas and molasses. Crude oil is not handled at the Port since no refining capacity exists in the area.

The liquid petroleum products are discharged from tankers at four dedicated berths in the north port area and then pumped through a "common" pipeline system, shared by all operators, to storage tanks within the Port. Storage capacity for some 300,000 tonnes of oil products is available within the Port.

Bulk solid grabs

Tara Mines Train

Oil products are delivered by road from the Port to the many distribution centres and filling stations outside the Port. A very good example of the short supply chain involved is the supply of aviation fuel to Dublin Airport. Because of the relatively small storage capacity at the Airport, the ongoing operations and supply of aircraft fuel to the Airport is very heavily dependent on continuing efficient operations at Dublin Port, and it is estimated that the Airport would be seriously disrupted in only three days if the supply of fuel from Dublin Port were interrupted.

Molasses are handled in the south port area and the product is discharged through a dedicated pipeline to storage tanks at the customer's site for onward distribution by road.

Bulk Solid

Bulk solid refers to the materials that are handled in bulk (such as grain, animal feeds, fertilizer, peat moss, cement, petroleum coke, furnace slag and scrap metals) are handled on both the north and south sides of the Port. As the name implies, these materials are handled in "bulk", i.e. they are in loose form and not contained in bags, containers or other forms of packaging. The materials are loaded and discharged by "grabs" operated by dock mobile cranes.

Bulk cement is handled in the south port area by a dedicated piping system through which the material is pumped directly from the ship to the customer's premises.

Dublin Port handles exports of lead and zinc ores from Tara Mines, totalling some 400,000 tonnes per annum. All of this material arrives in the Port by rail into a dedicated storage, handling and loading facility.

Large quantities of salt are also imported through the Port to alleviate the icy road conditions resulting from severe winters. Crushed limestone and other building aggregates are currently being exported through the Port.

Cruise Liner

Car carrier

Wind Turbine Components

Cruise Liners

Dublin Port Company has been to the forefront in promoting Dublin and Ireland as a cruise destination. The Company is a founding member of Cruise Ireland and has succeeded in attracting over eighty cruise vessels to the Port per annum in recent years. Some of these vessels are just under 300 metres in length and amongst the largest in the world. Although these vessels generate very little direct revenue for Dublin Port Company, it is estimated that the local economy and that of the greater Dublin region benefit by between €35 and €50 million annually.

Imported New and Pre-Owned Vehicles

Dublin Port handles large numbers of imported new and pre-owned cars, vans and trucks. These vehicles, some of which come directly from the Far East and some from the U.K. and other European countries, are transported in ships specifically designed for their transportation. The importation of vehicles requires large areas of open, surfaced ground for parking the vehicles until they are collected by truck for onward delivery to the customer.

Project Cargoes

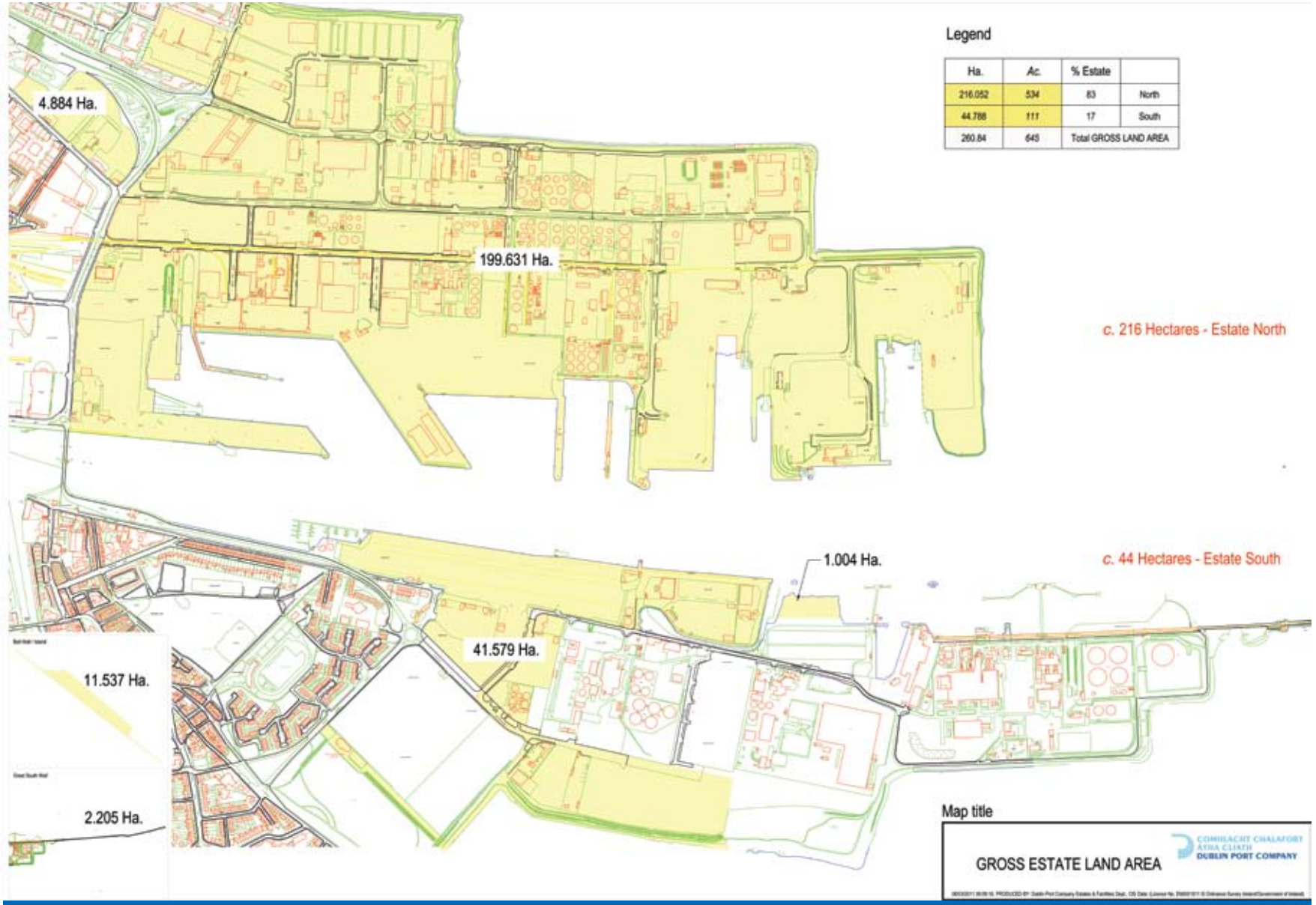
Numerous "project" cargoes are also handled at Dublin Port. For example, the structural components for the Aviva Stadium were brought in through the Port, as was the Samuel Beckett Bridge. Other major cargoes included mainline and suburban rail carriages as well as dozens of large wind turbines that were transported onwards to different locations in the country. Large items of plant and machinery for power stations, large factories or major construction projects have also passed through the Port.

Constantly improving the Port

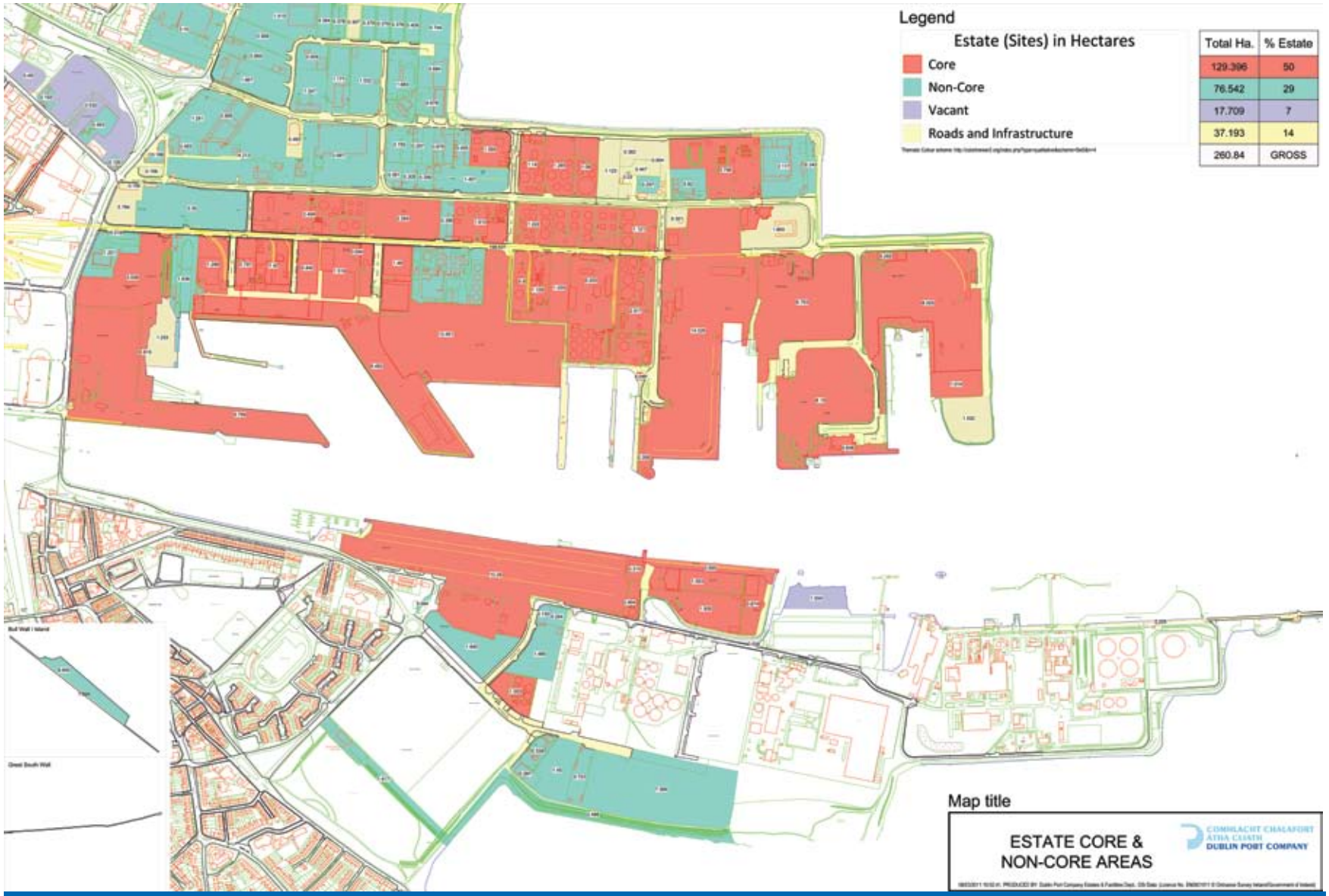
In order to meet the requirements of a changing industry and to service the needs of a rapidly developing economy, Dublin Port Company has been responding over the years to the challenges presented by changing demands for deeper and longer berths and improved space for handling cargoes.

It is important to understand that, in order to be efficient, cargo handling space must be close to the quay wall, otherwise, considerable time is lost in moving cargo from ship to storage area and vice versa which, in turn, impacts on the turn-around times of vessels, a critical factor in port and vessel efficiency.

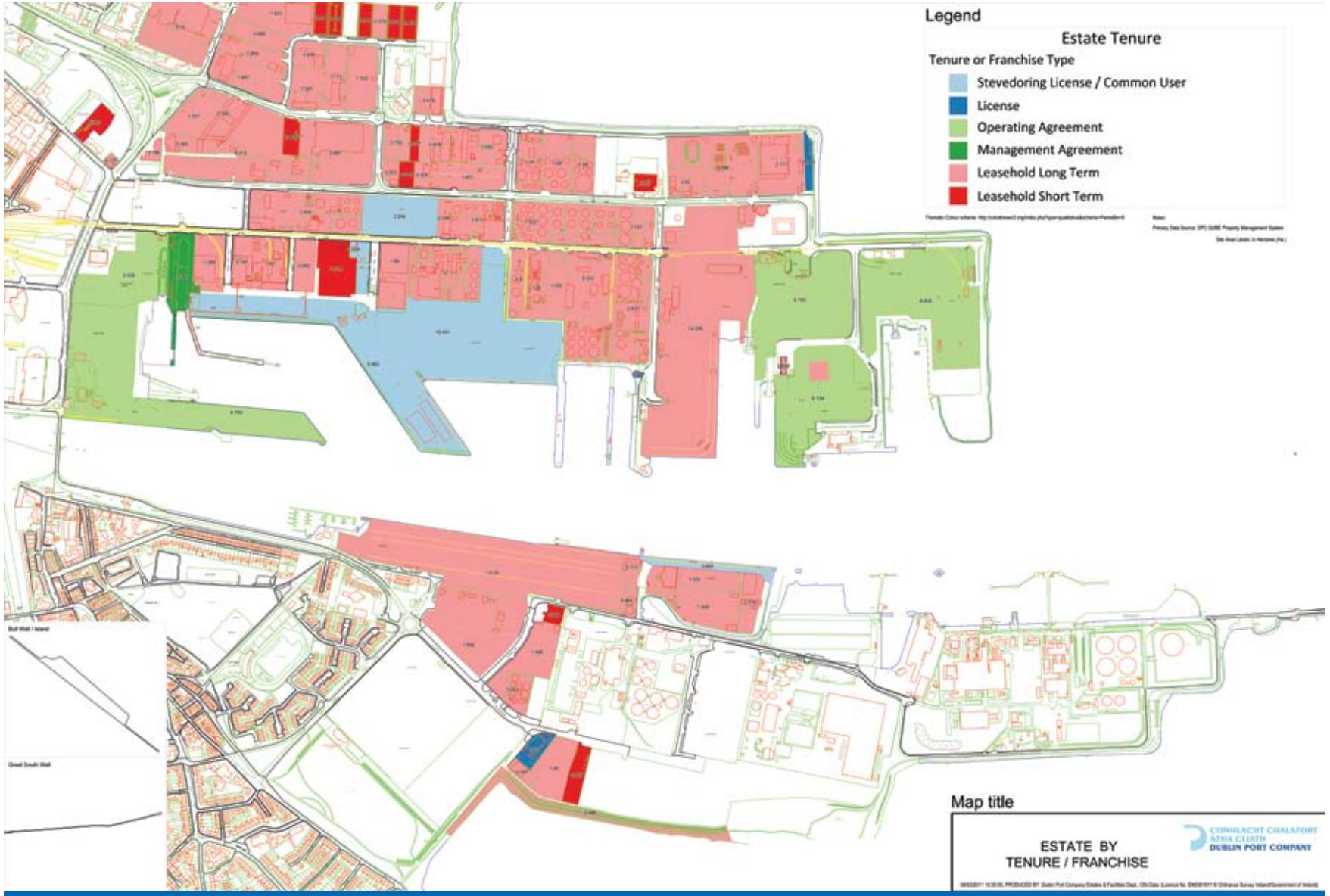
Space available for development or improvement for unitised operations has been limited as a number of suitable sites are held under long-term lease. This limits Dublin Port Company's ability to influence activities on these sites. However, although regaining control over these sites might provide additional handling and storage space associated with unitised operations, it would not assist in providing the longer and deeper berthing spaces likely to be needed for the growth in ship types in the future.



The gross estate land area of the port



The core and non core areas of the Port



The breakdown of the estate by tenure and franchise

Route map for Lo-Lo services to Dublin Port

Route map for Ro-Ro services to Dublin Port

Intensification of Land Use within the Port

In addition to developing those areas under its immediate control, Dublin Port Company has facilitated expansion of areas held under lease by different unitised operators.

Dublin Port Company's objective is to return all lands, south of Tolka Quay Road, for direct cargo operations as this is regarded as the limit within which direct unitised operations can be carried out efficiently. Utilising lands further north would require additional handling of units with the resulting reduction in turnaround efficiency.

Shipping Operations

Dublin Port handles some 17,000 vessel movements every year, varying in size from small coasters to very large cruise vessels. The range of vessels includes Ro-Ro passenger ferries, Ro-Ro freight vessels, oil, gas and molasses tankers, container vessels, bulk carriers, car carriers, cruise vessels, cement carriers and a range of specialist vessels such as naval vessels, light-tenders, tugs, supply ships, historic craft and large sailing ships.

Dublin Port Company has invested in a "state of the art" vessel traffic management system (VTMS) and the operators have been trained to the highest level in the industry and hold the highest qualifications of any such operators in this country.

Dublin Port has never been closed because of adverse weather conditions and is unique along the East Coast of Ireland in this regard.

The main approach channel is maintained at a depth of 7.8 metres below chart datum, i.e. at low tide a depth of 7.8 metres is available at all times. This depth is sufficient for many vessels using the Port including all of the large Ro-Ro vessels. Some other vessels, including some laden tankers, large cruise ships, large bulk carriers and larger container ships, must operate at times when the tide has increased the level of water available

Dublin Port Tunnel

Container Train

in the channel. Notwithstanding these limitations, Dublin Port has managed to accommodate the full range of shipping services without difficulty.

Getting Goods to and from Dublin Port

By sea

Dublin Port Company has streamlined its management of shipping to ensure that ship operators can plan, with reasonable certainty, the arrival and departure of the different shipping services. This includes allocation of priority slot-times to Ro-Ro operators and effective management of other shipping movements and channel utilisation.

By road

Dublin Port Company has invested in improving the road infrastructure within the Port to streamline the movement of goods to and from the different Ro-Ro and Lo-Lo terminals, liquid and solid bulk material storage facilities and logistics operators. Typically, there are some 13,000 HGV movements per day into and out of the Port. The completion of the Dublin Port Tunnel, in December 2006, has relieved all of the congestion within the Port and has resulted in the ability of customers to plan for the timely and more cost-effective delivery of goods. Furthermore, the upgrading of the M50 has greatly reduced the times involved in moving goods to and from Dublin Port.

By rail

The main rail infrastructure within the Port has been maintained and will form an integral part of any future port development. All of the Tara Mines product is delivered to the Port by rail (about 400,000 tonnes annually). Dublin Port is at the heart of the national rail network with direct connections to all major centres of population.

Looking to the Future

In addition to improving the state of the ground areas for unitised operations, we must look to accommodating the size and type of ship that is likely to be a feature of unitised operations in the future. There is a trend towards larger vessels to provide economies of scale in terms of ship operating costs. Accordingly, Dublin Port Company needs to plan for the larger size of vessel likely to be used for feeder operations in the future.

Dublin Port Company is basing its plans for future Lo-Lo operations on vessels of around 2,500 TEU capacity. Nevertheless, it would be prudent to plan to cater for even larger vessels if the need arose over the longer term.

Similarly, we must plan for a likely increase in the size of Ro-Ro vessels. At present, Dublin Port accommodates one of the largest Ro-Ro passenger vessels in the world: Irish Ferries (Ulysses). This ship is just over 200 metres in length.

Ro-Ro vessels tend to be more limited in their design draft in order to be able to access a wider range of ports and to ensure chartering and re-sale flexibility. Accordingly, it is considered that the length and width of such vessels will increase rather than any extreme increase in draft.

6 Engineering and Technical Contexts impacting on Dublin Port

Introduction

The proposed Masterplan for Dublin Port aims to outline the options to modernise the port layout to increase efficiency and throughput capacity recognising projected growth in port tonnage over the next 30 years.

The Plan divides the Port into zones, based on trade which principally includes:

- Cruise Liner Berths
- Unitised Trade (Lo-Lo and Ro-Ro)
- Bulk Materials
- Common Usage Berths
- Oil & Gas Imports

The execution of the Masterplan will be phased over a 30 year period (2011 – 2040).

The Masterplan Options Drawing on page 25, sets out options for development in Dublin Port over the period covered by the Masterplan. It has been produced following a detailed analysis of current land usage within the Port and details some possibilities for development between 2011 and 2040.

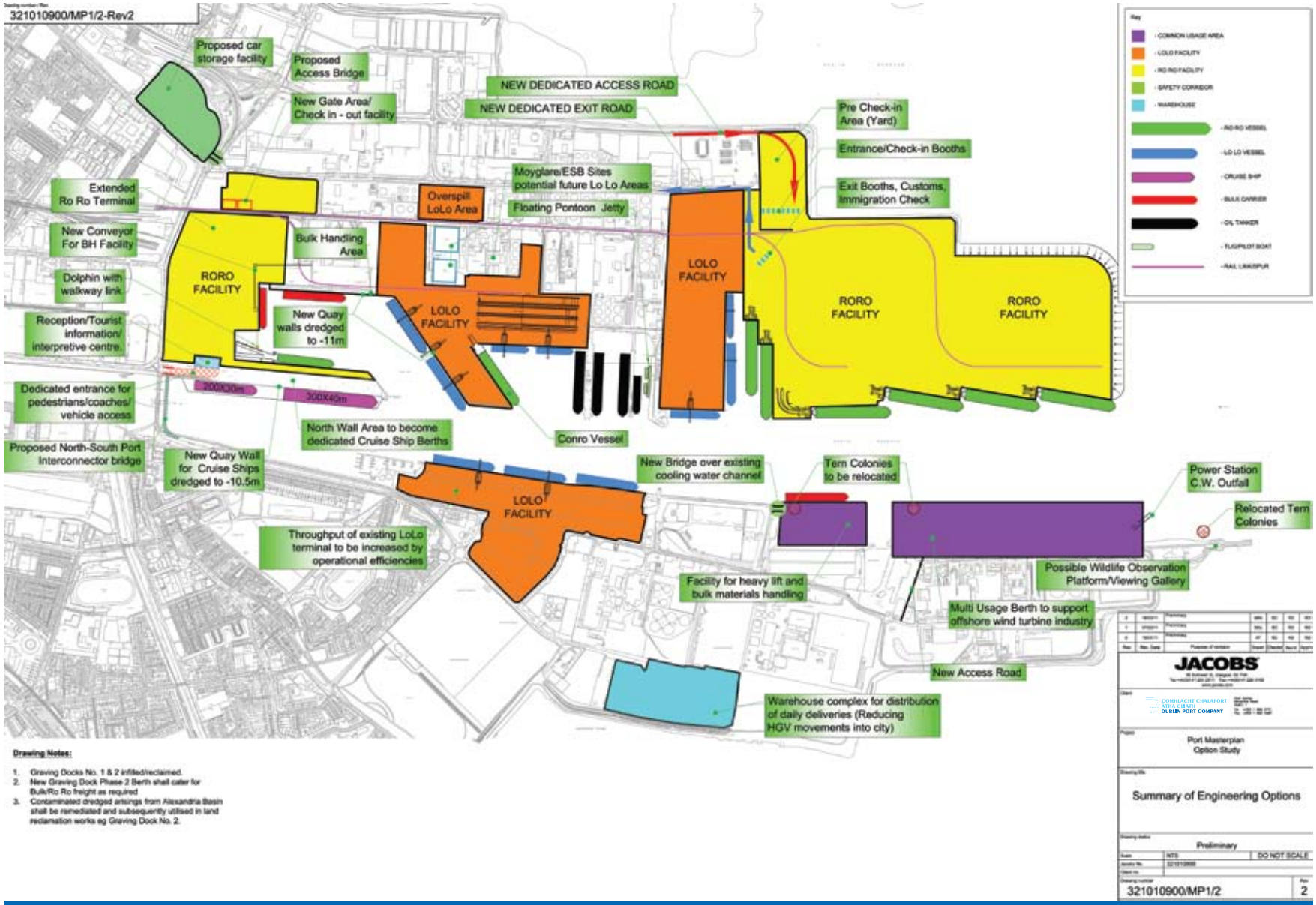
It **is not** a prescriptive menu of developments that will be carried out in Dublin Port. Rather, it is a list of possible options that need to be assessed by reference to issues of demand, capacity and that are subject to completion of relevant planning and consents requirements.

The options for possible development at the Port over the period of the Masterplan include:

1. Dedicated Cruise Ship Berths at North Wall Quay

There are benefits of berthing the Cruise Liners closer to the city for both liner passengers and for the city as a whole as the sight of cruise liners so close to the city will provide a dramatic back drop. This work will involve:

- New Quay walls for Cruise Ships dredged to -10.5m CD.
- Reception, tourist information and interpretive centre.
- Dedicated entrance for pedestrians, coaches and vehicle access.
- Traffic management issues to be developed and agreed with Dublin City Council and the National Roads Authority.



The Masterplan Options Drawing

2. Enhanced Ro-Ro yard, bulk handling berth at Alexandra Basin and New Car Storage Facility

This area is located north of the Cruise Liner berths and would involve the existing bulk jetty being demolished as part of the development together with Alexandra Basin being dredged. The main work would involve;

- Demolish existing bulk jetty
- Alexandra Basin to be dredged
- Contaminated dredged material treated and stabilised with cement for subsequent re-use
- Enhanced Ro-Ro yard
- Bulk handling berth served by a conveyor system to run parallel to new berth edge
- Relocation of ship loading equipment from the existing Bulk Jetty
- New controlled entrance and exit for the enhanced Ro-Ro yard
- New offices / facilities would be provided as well as security buildings
- High level bridge over East Wall Road linking this area of the Port with a proposed car import storage compound
- New car storage facility
- New quay walls at Alexandra Quay West to be dredged to -11m CD.
- Facilities in Alexandra Basin to accommodate Tara Mines and the animal feed bulk activities.

3. Lo-Lo Berths and Yard at Ocean Pier

The Lo-Lo yard will enable a modern, container handling system with high efficiency equipment to be deployed and would link the ConRo operations with the Lo-Lo yard. To achieve this it would be necessary to:

- Demolish the peat export shed on Ocean Pier
- Maintain the existing Lo-Lo facility on Alexandra Basin East
- This central zone within the Port to become a Lo-Lo dedicated area which can focus on maximizing Lo-Lo efficiencies with shared areas and maintenance equipment
- Provide anchored steel bulkhead wall for the structural strengthening of the quays
- Install the new bulkhead wall before the berths are deepened to -11m CD.
- Relay existing services behind the quay in a new trench
- Provide New / piled foundations for container crane rails
- Retain the ESB existing cooling water culvert as part of the development.

4. Oil Jetties Site

It is proposed that the existing Oil Jetty berthing facilities will be retained in their current location.

A small floating pontoon will be provided on the east side of oil berth No. 4 to accommodate berthing for small craft such as tugs/pilot boats.

The existing Lo-Lo facility serviced by berths 50/50A will be retained for ongoing Lo-Lo operations.

Having dedicated zones for Lo-Lo unitised freight in the central part of the Port will be beneficial, offering efficiencies by allowing modern container movement and stacking systems to be designed, by optimising the respective yard areas to their associated berths, and by common sharing of certain facilities such as road / rail infrastructure and security facilities.

5. Common Access and Egress Road System and Rail Spurs

To serve the dedicated central Lo-Lo yards and the Ro-Ro facilities a new road system is proposed which will also involve the following;

- A new access route to the East end of the Port is to be created by extending Promenade Road, following the North Eastern perimeter of the Port into a common entrance yard / check-in area
- Entrance Booths would be provided for check-in, beyond which dedicated routes will direct out-bound traffic and freight to the relevant Lo-Lo and Ro-Ro berths
- For freight and vehicles leaving the Port, the reverse operation applies where traffic will be securely routed to a common exit yard
- Buildings for customs and security etc will be provided within the footprint of the exit yard
- Vehicles will be routed out via Tolka Quay Road, thus segregated from incoming traffic
- New rail spurs will be linked into unitised freight yards.

6. Dedicated Ro-Ro Yards at Eastern Limit of Re-Developed Port

The 30 year Masterplan Options Drawing features a dedicated zone of new Ro-Ro berths and yards at the Eastern end of the Port. The Ro-Ro zone is created by making use of the existing Ro-Ro Terminals 1 and 2 together with the former Dublin Gateway site. However, this current proposal is much less intrusive than previously proposed in the Dublin Gateway planning application made to An Bord Pleanala, with no dredging on the Eastern face.

The following actions are proposed:

- The existing basin that presently serves Terminal 5 would be in-filled to create a greater yard area
- The adjacent, former Dublin Gateway project site would also be developed and would link integrally with the Ro-Ro zone
- The North East corner of the reclamation will be gradually rounded in plan layout to reduce any turbulence effects during ebb tides
- A landscaped screen would be provided along the northern perimeter of the site which would be planted with vegetation and trees however, the landscaped bund would not need to be as tall as that previously planned
- The Northern and Eastern limits of the reclamation would be formed by rock armoured revetments with higher level landscaping bunds where required
- Reclaimed areas will require soil treatment to buried soils
- Pavements, infrastructure works and buildings would then be progressed.

7. Southern Developments

On the South side of the river, the Lo-Lo terminal used by Marine Terminals Ltd will be retained. It is envisaged that the throughput can be enhanced by investing in container handling equipment to increase the efficiency of the terminal. The key features include;

- A new materials handling area for the site immediately East of Berth 47 to provide facilities for general materials handling e.g. heavy lift and bulk materials
- Provision of a new access bridge across the existing cooling water channel
- Further Eastwards, a new multi-purpose quay could be provided to support used emerging markets such as a load out facility for wind turbines, as well as for biomass import for power station usage and handling of new bulk products
- The existing Tern Colonies would need to be relocated to a new location around the entrance to the Port
- A Wildlife Observation Platform / Viewing Gallery would be established in the proximity of the relocated tern colony
- A warehouse complex would be developed for distribution of daily deliveries thus reducing Heavy Goods Vehicles (HGV) movements into the city
- Provide a new North-South Port Interconnector bridge and access road to service this Southern development to enable the efficient transfer of goods within the Port.

Summary

If Dublin Port is to handle 60 million tonnes by 2040, there will need to be some reconfiguration of the existing Port with new developments as required. The options outlined above indicate some of the approaches that might be adopted from an engineering and technical perspective. They present a description of what is possible over the period of the Masterplan. Whether any of these projects is actually advanced will depend on a range of considerations, including regulatory consents, market demand and funding facilities.

7 Environmental Issues Impacting on Dublin Port

Introduction

Dublin Port has coexisted within the Dublin city landscape and has been developing in phases since as early as the 9th century.

The port estate currently encompasses 260 Hectares and approximately 14km of water frontage within the city centre. The physical structure of the Port has continually developed since the eighteenth century with the addition of roads, railroads, quay developments and the introduction of business/ commercial enterprises into the estate. In addition, zones such as the urban/city developments, recreational facilities, local communities, and more recently designated ecological sites within Dublin Bay, which are located in proximity to the entrance to the port estate, have also become established alongside the ongoing development of the Port.

Evidence of how the Port operations have naturally integrated with the surrounding Dublin Bay interface is observed in the Port's development of the North Bull Wall. The construction of the North Bull Wall which was undertaken to assist in reducing siltation issues for the Port inadvertently resulted in the formation of North Bull Island. The North Bull Island is now a nationally and internationally designated site with regards to the presence of protected habitats that have developed on the island since its formation and also in terms of the wealth of biodiversity present there. In addition, two mooring dolphins located on the south side of the Port have been designated as being of European and national importance as a result of these structures being used as breeding colonies by both Arctic and Common Terns.

The environmental pressures that are now present in relation to sustainable development and the operation of Port activities, together with the requirement to integrate with the city and adjacent environmentally sensitive sites, are issues that also require to be addressed by numerous port cities throughout Europe.

1. Environmental Management of the Dublin Port Estate

DPC actively Implements procedures and systems that have been designed to help facilitate and manage the environmental impacts of Dublin Port.

These procedures serve to demonstrate that DPC facilities, activities and operations are managed so as not to result in a significant adverse impact on the environment and include:

- Environmental Management Systems - ISO 14001: 2004 Accreditation
- Ecoports Accreditation – Port Environmental Review System (PERS) Certification

2. Overview of the Environmental Conditions of the existing Dublin Port Estate

The engineering options for possible developments in Dublin Port over the period of the Masterplan have the potential to impact on environmental conditions within and in the vicinity of the Dublin Port estate. A brief outline of the environmental aspects which have the potential to be impacted by the Masterplan is detailed below:

Human Beings

While the immediate environment of the Dublin Port estate is primarily industrial in nature, the surrounding areas include established communities in the Ringsend, Sandymount, Clontarf and the East Wall areas.

In terms of potential impact on human beings, any future development plans within the Port will have to address the following:

- Traffic in and around the area due to construction of the developments
- Impact on the zoning objectives for the port estate and surrounding areas
- Impacts on recreational and community amenities in the area
- Noise and light pollution impacts
- Economic impacts such as employment and trade

Biodiversity – Flora and Fauna

There are a number of designated conservation sites located in the vicinity of Dublin Port. These sites are designated under EU and Irish legislation in order to safeguard identified habitats where designated species of fauna and/or flora have been identified.

Activities such as dredging and dumping at sea, demolition, reclamation proposals and construction of new quays have the potential to impact on the ecological environment. These processes will all be appropriately assessed and managed in the context of future developments arising from the Masterplan.

Surface Water

The Dublin Port estate lies within the Eastern River Basin District (ERBD) and is surrounded by the following water bodies outlined below:

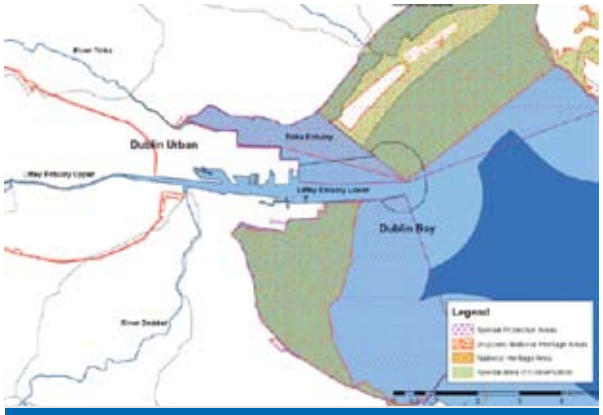
- Liffey Estuary Lower (estuarine water body)
- Tolka Estuary (estuarine water body)
- Dublin Bay (coastal water body)
- Dublin Urban (groundwater body)

The EU Water Framework Directive 2000 (WFD) requires that all water bodies achieve overall good status by 2015. The Eastern River Basin District Management Plan has developed a programme of measures relating to achieving the required overall good status for the three water bodies. However, this Plan also outlines that the overall good status cannot be achieved in these water bodies until 2027 due to the technical feasibility of implementing required measures.

DPC will continue to develop within the requirements of the Eastern River Basin District Management Plan programme of measures, and these measures will inform the future development stages of the Masterplan Options.

Utilities Consumption

Mains water consumption and energy consumption constitute the two main utility services in use by DPC. The Port has in the last number of years made much progress in reducing mains water consumption levels and have also reduced energy demand within the port estate.



The Designated Areas in the vicinity of Dublin Port which will be reviewed as part of the Masterplan

Soils and Geology

The ground conditions at the Dublin Port estate predominantly consist of infill material covering the natural ground. In general the natural ground conditions can broadly be described as being dominated by a succession of clays, sands and gravels overlying Lower Carboniferous bedrock.

Activities such as ground excavation, cut and filling, reclamation activities, construction of deep foundations and demolition of buildings resulting from the Masterplan Options may result in adverse impacts to the environment, in terms of soils and geology.

To assist in the collation of specific details on the ground conditions within Dublin Port, DPC maintains a ground investigation database, using Geographical Information Systems (GIS) services. This information on ground conditions will be used to inform any preliminary, detailed design and construction stages of the Masterplan and will also assist in identifying any potential mitigation measures that may be required to minimise impacts on soils and geology.

Ground Water

Environmental: The Dublin Port estate lies within the Dublin Urban groundwater body. The Eastern River Basin District Management Plan currently classifies this groundwater body as being of good status.

DPC environmental surveys have determined that the groundwater within areas of the Port estate has been impacted by historical industrial activities. The presence of hydrocarbon films and free phase product has been recorded in defined areas of the Port estate. Since 2006, DPC have been actively managing and monitoring the removal of free phase product from the groundwater within identified areas of the Port estate.

The main Eastern River Basin District programme of measures relate to the continued protection and improvement of this groundwater source. Although no specific measures are identified with regards to Port activities, this programme of measures, will inform the future development stages of the Masterplan Options.

Air Quality and Climate

The main sources of emissions to the atmosphere at Dublin Port are road traffic, industrial processes and sea going vessels being operated within the estate. The area immediately surrounding Dublin Port is predominantly industrial in nature. However, sensitive receptors are located in close radius to the Port and in proximity to some roads outside the Port.

Activities such as ground excavation and stockpiling during construction, increased traffic throughput, and discharge of emissions to air from additional industrial activities will have the potential to impact on air quality in Dublin Port. Local air quality measurements of NO_2 and SO_2 being undertaken by DPC within the Port estate will assist in determining the air quality conditions within Dublin Port. It is considered that this local information, together with air quality data collated from publicly available reports such as the EPA reports, will assist in informing the air quality assessments during the future development stages of the Masterplan Options.

Noise and Vibration

The immediate noise environment of Dublin Port is predominantly industrial in nature. Currently, noise sources within Dublin Port include but are not limited to Ro-Ro and Lo-Lo terminals and berths, container storage terminals, road traffic and various industrial/ commercial premises. In addition, traffic is also a dominant noise source within Dublin City.

Potential development of any of the Masterplan Engineering Options will result in the introduction of additional noise sources within Dublin Port such as construction equipment and additional traffic throughput.

To monitor against the baseline conditions, Dublin Port Company has implemented a programme of noise monitoring within Dublin Port. In terms of the potential development of any of the Masterplan Options, the noise monitoring data collated will assist in informing future noise modelling assessments and assist in identifying suitable mitigation measures which may be required as a result of future developments.

Archaeological and Architectural Heritage

Dublin Port has been a centre for trade since as early as the 9th century. The Great South Wall is located within the port estate and there are also a number of additional archaeological and historical sites which are identified in the vicinity of the port estate.

Due regard and appropriate environmental assessments will be undertaken to minimise potential adverse impacts on the archaeological and architectural environment arising from the potential future development of the Masterplan options.

Landscape and Visual

Currently the landscape character and environment of Dublin Port is predominantly of an industrial character. The main land use in the area relates to Lo-Lo/Ro-Ro terminals and berths, container storage areas with quayside loading/unloading operations and equipment, bulk materials handling and various commercial and industrial facilities. In addition, approximately 28 hectares of oil storage facilities are located within the Northern parcel of the port estate. There is also a large volume of road traffic throughput within the port estate.

The visibility of the Port to the local area and appropriate development of the Port in accordance with the planning context and policies for the area will be assessed appropriately during the future development stages of the Masterplan Options.

3. Environmental Enhancements and the Dublin Port Company Masterplan

A number of environmental enhancement options will be considered alongside the development of the 'engineering options' identified to achieve the required capacity over the period covered by the Masterplan. These will include:

- A new public foot/cycle path along the length of the north shore of the port estate
- Additional grassland areas to be provided on the north and south shore of the port estate
- Proposed relocation of the existing tern colonies eastwards in proximity to the Great South Wall
- Landscaping proposals on the East Wall Road of the Port
- Development of a viewing platform area on the south east point of the Port at the start of the Great South Wall possibly overlooking the relocated tern colonies.

4. Approach to the Environmental Assessment of the Dublin Port Masterplan Options

Dublin Port Company will develop and enhance the existing Port facilities and services in order to fulfil the needs of their tenants and customers in a way that is sensitive to the local environment.

In conjunction with the development of the Masterplan, the production of a Shadow Strategic Environmental Assessment and Natura Impact Assessment (Appropriate Assessment) will aim to address and minimise the potential significant environmental impacts resulting from the implementation of development options that arise from the Masterplan.

In addition, potential future planning submissions for development proposals will address the specific impacts relating to the proposed scheme and relevant environmental receptors through the Environmental Impact Assessment process.

8 Planning and Land Use Considerations

The Masterplan for Dublin Port Company will address the following key issues from a planning and development perspective:

- Ensuring the Port remains at the heart of National, Regional and Local Planning Policy
- Evaluating options on new berthage/ landside expansion
- Identifying lands surplus to the core operation
- The potential for land acquisition/ swaps
- The treatment of the interface between the Port and the City
- The presentation of the Port Estate
- Future Land Use
- Transport
- The Environment
- Sustainability
- Conservation
- The Port and its local communities including Community Gain

It is important that Dublin Port remains central to planning policy decisions at a national, regional and local level.

Currently, there are three key documents that consider national, regional and local land use policy regarding the Port location:

- The National Spatial Strategy (NSS)
- The Regional Planning Guidelines for the Dublin Area
- The Dublin City Development Plan

There is also the Dublin Docklands Masterplan and Planning Schemes for different areas of the Docklands and, in particular, the Poolbeg Draft Planning Scheme, that all impact on the Port. There are also other policy documents that have more indirect impacts on land use in the Port. In addition, the National Roads Authority also influences the Port in relation to transportation.

The NSS provides an overall spatial context for the consideration of future development options at the Port. In particular, it recognises the key role of the Dublin region, not just as a gateway to the wider world, but also as the significant generator of economic activity in the State.

The Regional Planning Guidelines for the Dublin Area recognise Dublin Port and also mention a possible port location at Bremore but do not inhibit the expansion of Dublin Port.

The new Dublin City Development Plan recognises the important national and regional role of Dublin Port in contributing to the economic life of the City and the region. It says that the Port will have a significant role to play in the future development and growth of the city. Dublin City Council recognises Dublin Port as a significant source of employment in the area.

The Dublin Docklands Development Authority in its Plans recognises the importance of Dublin Port to local communities and the economy of the Docklands. The Docklands Development Authority views Dublin Port and the Irish Financial Services Centre as the two main economic pillars of the area.

The Masterplan will address the issues set out in these documents and will provide an ideal means to refocus the debate on the Port's future. The Masterplan aims to set out the options for future development options at Dublin Port.

The future of Dublin Port depends on the ability of the Port to accommodate the growth in exports and the return to growth of the general economy. This raises the need to secure additional berth space and adjacent landside. In light of An Bord Pleanala's decision on the Dublin Gateway application, the Masterplan process will facilitate Dublin Port Company in addressing how it will meet future demand in these areas.

The main viable options available to Dublin Port Company to meet the future demands between 2011 - 2040 include;

- Maximising usage within the current land estate, while recognising that there will be a limit to future expansion
- Examining reclamation alternatives that avoid the area of Dublin Bay within the SPA
- Reconfiguring facilities within the existing Port area to provide additional berths and container areas
- Pursuing a land reclamation proposal within the former Dublin Gateway site on the basis that the development is required and is of over-riding national importance.

As part of the Masterplan process, Dublin Port Company will examine all lands to determine whether any are now surplus to core activity and plan how they can be best used.

The Masterplan will also involve Dublin Port Company examining how it interfaces with the City both generally and in specific locations. There are a number of critical points where it does so including East Wall Road and Poolbeg.

The Masterplan will provide an opportunity to gauge and address perceptions of the appearance and impact of the Port, while also identifying how impacts can be softened through landscaping works and to see if additional facilities are required, particularly to tackle issues of noise in the area.

The Masterplan must also examine current land use zonings in the Dublin City Development Plan to determine if they are consistent with achieving the possible options for development.

The Port has an excellent transport infrastructure with access to the motorway system though the Port Tunnel as well as the rail link at the hub of the country's rail system. Three key issues are likely to impact on the future of the Port's transport connectivity – the modal split between road and rail in the future, the impact of an Eastern Bypass on the Port, and the transport within the Port (between North and South).

There are a number of issues to consider in relation to the sustainable operation of the Port Options to ensure minimal journey times within the Port, minimal handling, mobility management plans, waste management plans, bicycle facilities, and alternative energy sources will all need consideration.

The Masterplan will examine the community impact of the Port and how it can improve its support and interaction with local residential and sporting communities, and if preferential employment policies should apply for local communities in the light of recent high unemployment.

9 An Economic Assessment of Merchandise Trade and Dublin Port

Future Trends: Economic Overview

Importance of External Trade

Ireland is a small open economy and is heavily dependent on external trade. The economy has a vibrant export sector, but also relies on the importation of many goods that are used both by consumers and in the production process in the economy.

The importance of trade to the economy and the contribution it has made to economic growth in Ireland in recent years is highlighted by the fact that in 2009, exports of goods and services were equivalent to 86.5 per cent of gross domestic product (GDP) while imports of goods & services were equivalent to 72.6 per cent of GDP. This meant that total trade in goods and services was equivalent to 159.2 per cent of GDP.

In the same year, merchandise exports were equivalent to 50.6 per cent of GDP while merchandise imports were equivalent to 27.1 per cent of GDP.

Recent Trends

From the early 1990s onwards, the Irish economy experienced an export boom. Between 1992 and 2002, annual growth in the volume of Irish merchandise exports was 14.8 per cent. Over the same period, import growth averaged 9.8 per cent per annum. The export boom was driven by strong levels of foreign direct investment, a very strong competitive position, and penetration of new export markets.

After 2002, the nature of the Irish economy changed significantly from the so-called Celtic Tiger period. The Celtic Tiger period was characterised by strong levels of foreign direct investment into the economy and a very strong export performance. Since 2003, flows of foreign direct investment into the economy have slowed and the export performance has eased back considerably.

Between January 2000 and April 2008, Ireland experienced a 33 per cent loss in international competitiveness. This reflected adverse exchange rate movements as well as sharp increases in the general cost of doing business. This loss in competitiveness was instrumental in the slowdown in exports and undermined the capacity to attract foreign direct investment.

Future Trends

Since the onset of recession in 2008, there has been an improvement of 13.6 per cent in Ireland's external competitiveness. Reflecting this improvement in competitiveness and stronger global demand, Ireland's export performance is starting to improve again. In the first 10 months of 2010, the value of merchandise exports expanded by 4.5 per cent. A merchandise trade surplus of €37.4 billion was recorded in the first 10 months of the year.

The two biggest drivers of the economy in recent years, namely consumer spending and the construction sector, have weakened significantly. Against

this background, there will clearly be a requirement for the export sector of the economy to take up the slack and drive economic growth over the coming years. The fact is that Ireland is a small open economy and does not have a domestic market of sufficient size to sustain itself. External trade will remain of vital importance to future prosperity. To ensure that the export potential of the economy is realised in the future, the state will need to focus strongly on all elements of cost and non-cost competitiveness and facilitate Ireland's external trade activities to the greatest extent possible.

For the internationally traded side of the economy, the quality of air and sea port access is clearly of primary importance. In this regard, the key role that all of the ports, and Dublin Port in particular, play in Ireland's trade activities and indeed in the overall economy will have to be recognised and facilitated. Over the period out to 2040, Ireland's potential GDP growth rate should be around 3.5 per cent. To achieve such growth exports will need to record annual average growth of around 5 per cent in real terms and import growth of around 3 per cent.

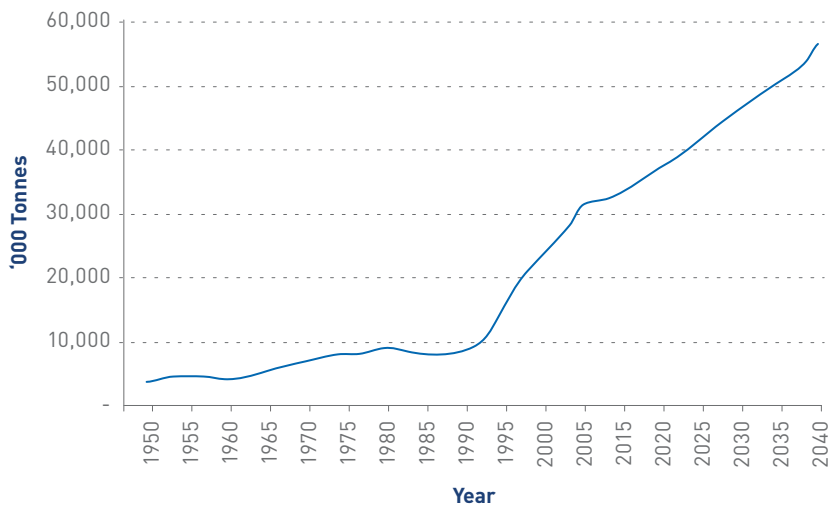
Role of Dublin Port in the Irish Economy

Dublin Port is a key facilitator of merchandise trade in and out of Ireland, and is also a key component of the national tourism sector.

Over forty per cent (43.6 per cent) of imports through Irish Sea ports came through Dublin Port in 2009, while 46.2 per cent of exports originated from Dublin Port. The rapid growth in business at Dublin Port in recent years and the key position that it commands in almost every trade type, demonstrate clearly that Dublin Port is the port of choice for both importers and exporters. It is clearly viewed by importers and exporters as the most efficient and cost effective way of accessing domestic and overseas markets.

The key attraction of Dublin Port is that it is close to and accessible to the main markets. Recent surveys by Dublin Port found that 50 per cent of all goods arriving in Dublin Port remain within the M50 area, while 75 per cent of all goods arriving at the Port remain within 80 km of the Port.

The fact that such a significant segment of goods arriving in Dublin Port is destined for markets that are so close to the Port is not surprising. The reality is that the Greater Dublin Area plays a very important role in Irish economic life with over 40 per cent of the population of Ireland living there. Dublin and the Mid-East region accounted for 48.3 per cent of gross value added in the Irish economy in 2007. Manufacturing and employment density are higher in the Dublin area than elsewhere, and Dublin Port is ideally located to serve this market in a very efficient and effective manner.



Outlines the impact of 2% annual average growth between 2010 and 2040
Source: Dublin Port Company

Economic Requirement for Increased Capacity to 2040

Looking out to the long-term merchandise trade will remain an important component of the Irish economic performance.

On the export side:

- Irish policy makers will have to work at re-establishing Ireland as an export-driven economic growth model.
- Service exports will remain an important focus of export development policy and will continue to increase its proportion of overall exports. However, merchandise exports will remain significant.
- The multinational manufacturing sector, dominated by Chemicals and to a lesser extent IT will remain key components of growth.
- Food & Drink exports will continue to contribute strongly to export performance. This will reflect specific policies aimed at nurturing Ireland's natural advantage as a food producer, and a global shortage of food.
- The export performance should be helped by policies aimed at further improvements to Ireland's external competitiveness.
- The focus of the state agencies will be to continue to develop indigenous export companies and foreign-owned multinationals. There will also be an increased emphasis on targeting the emerging economies such as China and India.

On the import side:

- Imports are of strategic importance to Ireland as essential inputs to the production process and domestic consumption.
- Ireland's relatively young demographic profile will ensure that imports of consumer goods will continue to grow.
- Small and medium-sized manufacturing businesses import proportionally less than foreign-owned multinationals. However, there is a growing trend by manufacturing SMEs towards sourcing raw materials, intermediate goods and finished products from the emerging low-cost locations such as China.

In the period out to 2040, merchandise trade flows in and out of Ireland should continue to expand, albeit not at the sort of growth rates that characterised the period from 1992 to 2002. Against this background of continued merchandise trade expansion, Dublin Port is ideally placed to benefit from and facilitate the projected growth in trade flows.

The impact of 2 per cent annual average growth between 2010 and 2040 would result in annual tonnes handled in the Port reaching 52,360 by 2040. This growth rate would be modest relative to the annual growth rate of 3.2 per cent recorded between 1950 and 1980, and the annual average growth rate of 4.7 per cent between 1980 and 2010. Growth of 3 per cent would mean that port tonnage would reach 70 million by 2040.

The Masterplan for Dublin Port is intended to show how the Port could handle 60 million tonnes by 2040 (based on growth of 2.5 per cent per annum).

10 Future Trends Impacting on Dublin Port

To assist in the preparation of the Issues Paper for the Masterplan, Dublin Port Company commissioned experts to examine future trends likely to emerge in key areas of trade and unitised cargo.

The main conclusions of the experts' reports on future trends are summarised in this Issues Paper, and full copies of their detailed reports can be obtained on the Masterplan website (www.dublinport.ie/Masterplan).

Future trends in Unitised Cargo Development at Dublin Port

There is a very strong positive trend in terms of overall tonnage handled through Dublin Port from 7.9 million tonnes in 1980 compared to 28.1 million tonnes in 2010. The Dublin Port Masterplan 2010 - 2040 is predicated on annual growth of 2.5 per cent per annum which would double the tonnage handled through the Port over the next 30 years.

The trend towards unitised cargo and away from traditional bulk cargoes has continued over the past 30 years. The proportion of cargo handled in unitised modes has risen from 39.4 per cent in 1980 to 81 per cent in 2010.

The doubling of tonnage to 60 million tonnes by 2040 will have major implications for the Port in terms of direct investment by the Port in infrastructure and also investment by license and lease holders that operate individual terminals within the Port.

The Port will need to invest in facilities to accommodate the future generations of vessels that are increasing in overall size. This has implications in respect of navigational access into the Port, turning circles within the Port and infrastructure such as quaysides, link spans and terminal footprints. Equally, there are implications for the Terminal Operators who will need to invest in cargo handling equipment, information technology and other management systems.

Ro-Ro Development Issues

Currently, ferries operating to Dublin have a maximum length of 210m and a freight cargo capacity of up to about 4,100 lane meters. There are Ro-Ro vessels already operating elsewhere that are 240m in length with 5,500 lane-meters. These vessels could not be accommodated in Dublin without additional investment in infrastructure.

Ferries also have to be able to manoeuvre in port and are often required to turn through 180 degrees prior to berthing or upon departure. Therefore, there may be an additional requirement to increase the turning circles for vessels within the Port by dredging. It should be noted that Dublin Port is sufficiently deep to accommodate ferry traffic as these vessel types have a relatively low draft.

In respect of the Ro-Ro terminals, the current terminal capacity would be insufficient to support the predicted 1.8m Ro-Ro Units that would pass through the Port by 2040.

The traditional Ro-Ro services operating into Dublin Port have, in recent years, been augmented by new direct connections between Continental Europe and Dublin. The types of vessels deployed on these routes are capable of servicing a number of market segments including the carriage of double-stacked containers, freight trailers, trade cars and construction machinery. Historically, Ro-Ro traffic from Continental Europe would use the UK as a land bridge whereby there would be an English Channel or North Sea crossing and then drive across the UK followed by an Irish Sea Crossing.

There is currently a debate within the UK about taxes being levied on hauliers for use of the transport network. If this approach is adopted there could be a marked shift towards more direct services from Continental Europe directly to Ireland.

Beyond this, similar market forces may encourage direct routes to alternative European destinations potentially from France and Iberia.

Lo-Lo Development Issues

The current Lo-Lo services that call into Dublin Port utilise vessels ranging from 260 TEU to 1,000 TEUs capacity. A number of the companies that service Dublin Port plan to introduce larger vessels of up to 2,500 TEU in future years. In order to accommodate such vessels the entrance channel would need to be deepened.

During the period 2010 - 2040 the prediction is that there will be a doubling of overall trade through the Port. Based on 2010 levels, Lo-Lo throughput could rise to 1.1m TEU by 2040. This level would exceed the current capacity of the Port's terminals. Whilst excellent management systems can play a part, there is a fundamental issue that the existing areas dedicated to Lo-Lo trade will need to be increased or utilised more efficiently to cope with increasing demand. Improved utilisation can be achieved by investing in the load-bearing conditions of the ground and improving the handling equipment. However, even with such improvements, the existing areas will not be sufficient to cater for the projected throughput.

Future Trends in the Energy Sector

Energy products are an important element of the overall traffic handled by Dublin Port and had been an area of strong growth until recent years.

However, changing environmental policies and efforts to improve energy efficiency in key end-use sectors and efforts to promote renewable energy are likely to impact on port volumes in coming years.

Figures for the volume of energy products handled by Dublin Port between 1999 and 2010 show that tonnage increased by 30 per cent from 1999 to reach a peak of 4.07 million tonnes in 2007, but volumes have declined in more recent years falling to less than 3.8 million tonnes in 2010.

In respect of energy products, fuel oils including petrol, diesel and kerosene are by far the most significant products. There are also small volumes of liquefied natural gas (LNG). By comparison, volumes of coal have declined to near zero in recent years. New products such as biodiesel and bio ethanol have started to emerge and, although still relatively modest in terms of overall volumes, could grow substantially in coming years.

There are a number of factors that are expected to shape demand for imported energy products in Ireland in the coming years. While economic growth will continue to be an important determinant of overall energy consumption levels, policy initiatives are increasingly focusing on ways of de-coupling this link and making economic growth less energy-intensive. In addition, measures being introduced to promote the development of renewable energy sources will help to reduce Ireland's reliance on imported fossil fuels.

Implications for Dublin Port

The energy sector is undergoing significant change and these changes are likely to accelerate as efforts to reduce greenhouse gas emissions and address concerns about Ireland's reliance on imported fossil fuels intensify both in the period to 2020 and beyond.

While changes in the energy sector will obviously threaten a traditionally important area of trade through Dublin Port, the changes could also offer new opportunities for the Port as much of the equipment needed to achieve the Government's targets will lead to increased demand for products (such as insulation materials, more fuel efficient boilers and capital equipment for wind farms), the majority of which will need to be imported.

In addition, ports on the Irish Sea are well placed to take advantage of the major investment that is due to take place in UK off-shore wind capacity. The Crown Estate's Round 3 off-shore wind programme will involve a significant investment in the development of 25 GW of additional UK offshore wind energy generation capacity by 2020. Because of the scale of future demand, a number of international equipment manufacturers are actively looking at manufacturing bases closer to this market.

This could present huge opportunities for Irish businesses as much of the planned investment will involve locations in the Irish Sea and west of Scotland that are more readily accessed from locations in Ireland. Given its location, Dublin Port could become an important centre in the rapidly expanding offshore wind sector.

Future trends in the Construction Sector

The main construction related products handled by Dublin Port are classified under the heading "Bulk Solid". There are in addition some construction related products which are defined under "Break Bulk", but in volume term these are relatively small:

- Cement, Additive Fines (mostly granulated slag cement)
- Ores, Concentrates
- Cement and construction materials
- Concrete sleepers (for railways) – classified as 'Break Bulk'
- Liner Board (used in buildings) - classified as 'Break Bulk'
- Plasterboard (used in buildings) - classified as 'Break Bulk'

Taking both groups of commodities together, they increased at an average annual rate of 22.6% during the boom period 1994-2007 but subsequently declined by an annual average rate of 36.5% by 2010.

It is clear that the construction sector nationally is in crisis and has been contracting sharply for three years. The total volume of construction output declined by almost 30% in 2010, resulting in a total contraction of 56% since the peak (2007).

The projection for 2011 is for a further contraction in construction output of 10.7%, and will leave overall output in the sector almost 61% below the peak in 2007, which is equivalent to an annual average decline of 21% per annum over the four years.

While construction activity is likely to resume once the current financial and economic crisis abates, the expectation is that levels of construction output will be closer to European norms and at more modest growth levels. This will impact on total volumes of construction materials through Dublin Port.

Future Trends in Tourism

While the tourism sector makes a very significant contribution to overall economic activity, it is currently experiencing difficult trading conditions, both in terms of tourism numbers and revenues.

Preliminary data for 2010 suggest that total out of state and domestic tourism expenditure totalled €4.6 billion, a decline of 13 per cent on 2009. Foreign exchange earnings in 2010 are estimated at €3.3 billion.

In 2009, 12 per cent of visitors to Ireland arrived by sea routes, which is equivalent to 786,200 visitors. In 1999, 27 per cent of visitors entered by sea routes, equivalent to 1.6 million visitors. A clear downward trend has been established. This primarily reflects the establishment of numerous extra air access routes into Ireland at very competitive fares.

In 2009, 10 per cent of total visitors brought a car with them into Ireland. This percentage stood at 22 per cent in 1999. Not surprisingly, a greater percentage of visitors from Britain bring a car with them into Ireland. In 2009, 20 per cent of total visitors from Britain brought a car with them into Ireland. This is down from 32 per cent in 1999.

Dublin Port plays a key role in visitor-related travel to and from Ireland and accommodated 47.8 per cent of total passenger cars, motor cycles and accompanying trailers and caravans in 2009 and 92.8 per cent of total passenger buses in and out of Ireland in 2009. Due to the sharp downturn in the economy in 2009, there was a decline of 830,000 in the number of Irish people travelling abroad. A further decline is likely to have been recorded in 2010.

Role of Dublin Port in facilitating Tourism Potential

There has been significant growth in cruise liner holidays globally in recent years. Given Ireland's island status and research that indicates that Ireland is a favoured location for cruise liners, the sector is expected to be a significant potential source of growth for Irish tourism over the next decade.

Dublin Port already plays an important role in cruise liner tourism and is a popular destination particularly for American visitors. It offers easy access to the capital city and its various attractions, and to other modes of transport.

There is significant potential for this activity, particularly for shorter cruises and cruises in the middle of itinerary. However, investment will be required to improve facilities for disembarking passengers.

Future Trends in Agriculture

Agriculture has traditionally been a key component of the Irish economy and this trend is set to continue over the coming decades. This sector relies heavily on Dublin Port for external trade.

Total agricultural cargo in the Port peaked in 2000 with 845,000 tonnes passing through Dublin Port that year. This trade comprised animal feed and cereals. It has since declined by one-quarter to 633,000 tonnes in 2010, which is 1.1% lower than the average tonnage of 641,000 per year in that decade.

The Irish agri-food sector has proven to be relatively resilient to the global recession. The value of food and drink

exports increased by more than €800 million in 2010 and stood at €7.9 billion for the year. As of 2010, exports were almost eight per cent higher than the 2000 to 2009 average. Increased export revenue was recorded by each major category within this industry, while the dairy sector was one of the strongest performers.

Future handling of agricultural cargo at Dublin Port will be largely dependent on the demand for cereals and animal feeds. At present much of the throughput of cargo is dominated by imports, which could grow in line with the projected increase in livestock following the abolishment of milk quotas. A surge in Ireland's agri-food exports is expected and Dublin Port should be in a position to benefit from this trade when it materialises. It is expected that increased exports will be seen in the Port's unitised volumes rather than in the bulk modes, reflecting the high value added nature of agri-food exports.

11 Key Questions Concerning Dublin Port and the Masterplan

Issues

We have identified a range of Issues set out below to facilitate the consultation process. The list may not be complete and we would, therefore, welcome responses both in relation to the Issues we have listed and also to those that we have overlooked or not understood.

Dublin Port & its Relationships with the City and Local Communities

- How would you define the image and profile of Dublin Port? How would you improve it?
- How best can Dublin Port keep its stakeholders aware of progress of the Masterplan?
- Many consider Dublin City to be a port city. Do you agree? If so, what can be done to enhance the connection between the City and the Port?
- Is Dublin Port a part of the defining character of Dublin City given the role of the Port in developing the city and its amenities?
- Dublin Port Company takes its Corporate Social Responsibilities seriously. What further measures should be taken to integrate further the activities and operations of Dublin Port with the citizens of Dublin?
- What measures should be taken to closer integrate the life and activity of the local communities with those of the Port?
- Dublin Port has a rich history and maritime heritage - what scope is there to create a museum / cultural centre to display and celebrate this? Where?
- What other resources could be accommodated there (such as the National Maritime Museum and the Inland Waterways Museum)?
- How can a busy port, with key safety and security objectives, accommodate increased public and visitor access to the Port?
- The development of Dublin Port since the 18th century has led to the creation of a considerable natural, recreational and ecological resource for Dublin – is this contribution by Dublin Port recognised sufficiently and how can it be continued in future development plans?

Dublin Port and Economic Activity

- Is Dublin Port best located to serve the merchandise trade needs of the Dublin region and Ireland overall?
- Dublin Port plays a key role in meeting the national petroleum energy needs – should Dublin Port continue this function and, if not, where should the oil tank farms be located?
- Do you consider Dublin Port to be a key part of national economic infrastructure?
- Dublin Port Company estimates that total tonnage through the Port in 2040 will be of the order of 60 million tonnes. Is that estimate too high, too low or reasonable?
- Do you agree that Dublin Port needs to plan to handle this increased capacity by 2040?
- Are there any other activities that Dublin Port should be involved in that it is not involved in at present?

Berthage

- What size ships should Dublin Port be able to cater for?
- Will we need deeper berths?
- Are existing berths long enough?
- Is there likely to be sufficient demand to economically justify deepening the bar?

Land

- Where and how can we make more use out of existing land?
- What, if any, non-core activities in the port estate could be equally well carried out outside of the Port thereby freeing up land for cargo handling within the Port?
- What, if any, measures (eg, levies, taxes, CPO) should be considered to discourage non port-related activities from operating within the Port estate?

Cruise Ships

- How important is it that Dublin Port encourages and facilitates cruise ships?
- Where can cruise ships be best accommodated in the Port?
- In 2010, there were 85 cruise calls What is a reasonable medium-term target for the volume of cruise calls to Dublin?
- Given the excellent link to Dublin Airport via the Port Tunnel, is there significant scope for more turnaround calls and what facilities should be provided for these?

Port Centric Logistics

- In many British Ports, logistics activities (including warehousing and distribution activities) are carried out within the port estate. To what extent might such port centric activities be accommodated in Dublin Port?
- How might such activities create efficient supply chains which minimise the contribution of freight movements to congestion in the city?
- Where in the port estate might such activities be carried out?

Rail Freight

- There is limited use of rail freight to move goods to and from Dublin Port. 1⁄60th of total tonnage moves by rail. What is the potential to increase this? How?
- There is a small volume of container traffic using rail currently. By 2040, we estimate that Lo-Lo container traffic will have grown from 0.4m units to 0.6m units. How much of this could reasonably be transported by rail?
- Ro-Ro will grow from 0.7m to 1.8m units by 2040. Could any of this be transported by rail?
- The largest volume of goods currently transported by rail is lead and zinc ore. What other bulk commodities could be moved by rail (such as animal feed and solid biomass)?

Dry Port

- Elsewhere in Europe, dry ports are being considered whereby goods are moved quickly (typically by rail or barge) through the port to (or from) an inland logistics centre. What is the potential for this in Dublin?
- What locations might serve as dry ports for Dublin?
- To what extent could such locations be serviced by rail?
- What potential is there for distribution by coastal feedering of goods to or from other Irish ports?

Road Access

- Road access for freight is primarily via the Dublin Port Tunnel. Is there sufficient capacity in the Tunnel to cater for transporting 60m tonnes by 2040?
- Would the requirement for road freight to access the Port from the south put an undue burden on the M50 and Port Tunnel?
- At what stage might demand for access to the Port from the south support completion of the Eastern Bypass?
- About 10 per cent or 3m tonnes of the Port's volume goes through the south of the Port. A combination of organic growth and the development of new facilities on the south side could see this increase towards 10m tonnes. Would such an increase justify an additional river crossing, possibly adjacent to the East Link Bridge?
- How might such a development facilitate access transport requirements for developments in the Poolbeg Peninsula?
- Could such a crossing be incorporated into a future Eastern Bypass?

Access for bicycles, foot passengers and others

- The National Transport Authority's draft Transport Strategy puts pedestrians, cyclists and public transport users at the top of its hierarchy of transport users. How and where should Dublin Port improve access for cyclists?
- How can cycle tourism be better accommodated?
- Should Dublin City Council's public cycle rental scheme be extended within the port estate?
- How can the Sutton 2 Sandycove Cycleway be best accommodated?
- What is the potential for recreational walkways and cycle ways on the north side and south sides of the port?
- Are bus services in the Port sufficient to facilitate port workers, foot passenger on ferries, transiting ships crews trying to access the city, cruise passengers who wish to travel independently, recreational visitors to the port and particularly to its extremities?

Permeability

- Access to the river and the bay via port lands is limited. How can better access to the river be provided at Pigeon House Harbour?
- How might access be improved in the vicinity of Ringsend Yacht Club at South Bank Quay?
- How might visitors be better able to appreciate the working port from the river?
- How might visitors be able to get close to and enjoy the working port from the land side?

Bull Island

- The southern end of Bull Island is owned by Dublin Port Company. How might this land be improved for recreational purposes?
- The water course between Bull Island and the shore is gradually silting up. Should the water flow through the causeway be re-established to reverse this process?

Environment

- What are the key environmental issues perceived with future port developments?
- How do the public perceive the Port and what enhancements might be considered appropriate for the future?
- Are the general public aware of the existing bird / wild life population within the Port environs?
- Are the public aware of DPC's environmental policies and initiatives that have been implemented to date?
- What more could be done to enhance the environment within and around the Port?

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