From: [redacted]
To: post2040
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Subject: Submission to Dublin Port
Date: 30 June 2021 17:37:09
Attachments: Iarnrod Eireann - Submission to Dublin Port Company Dialogue - June 2021.pdf

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To whom may concern,

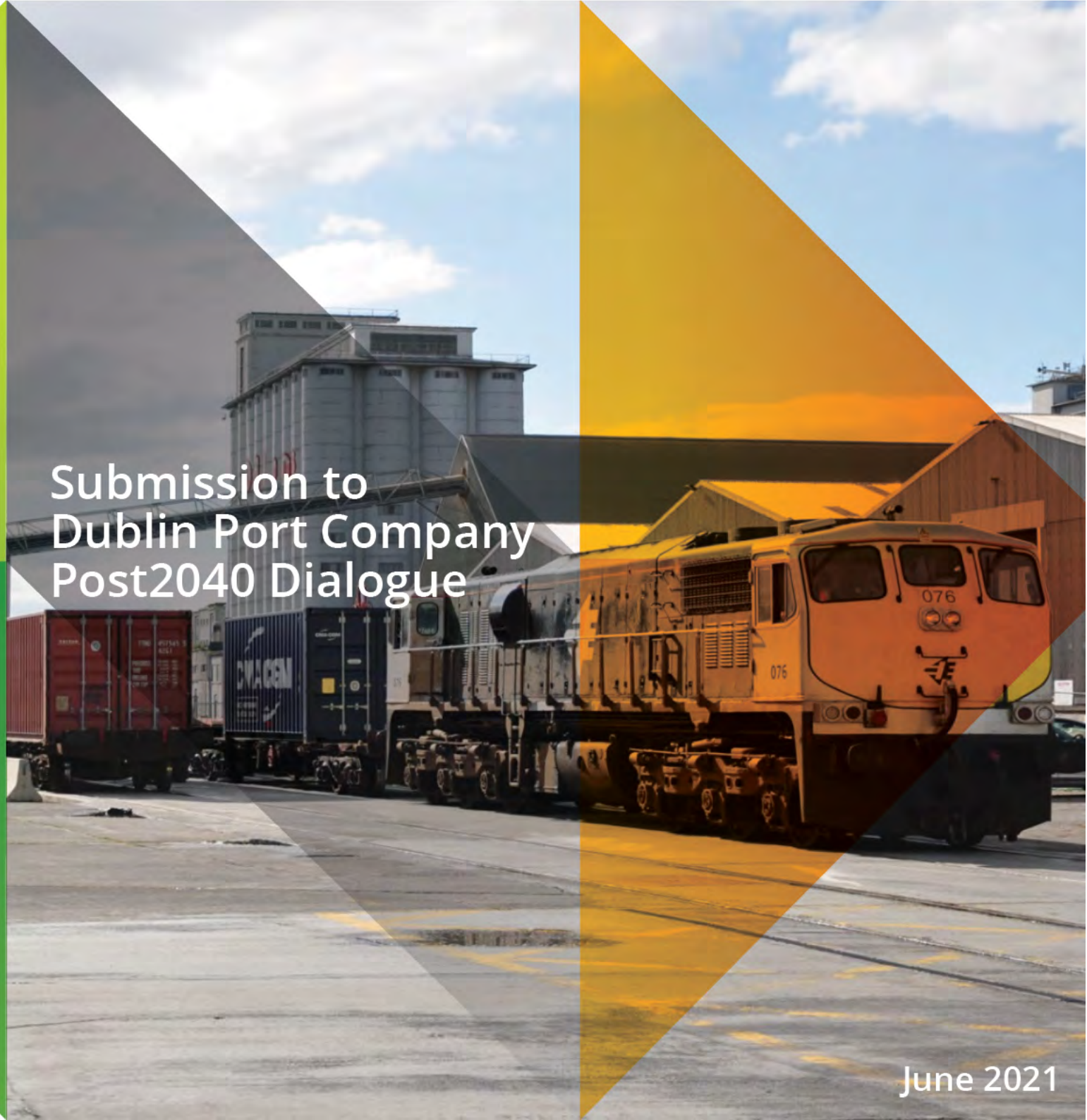
Iarnród Éireann welcomes the opportunity to contribute to the long term planning of essential port infrastructure for Dublin, through the Dublin Port Post 2040 Dialogue, and attaches its submission in support of this. We are available to discuss what is proposed by this submission should that be of assistance in due course.

Regards,

Jim Meade
Chief Executive

Iarnród Éireann
Irish Rail

Submission to Dublin Port Company Post2040 Dialogue



SYSTRA

June 2021

Contents

We welcome the opportunity to contribute to Dublin Port Company's call for alternative views as part of Dublin Port Post 2040 Dialogue. We believe Iarnród Éireann can contribute to addressing of the capacity challenges identified by Dublin Port while responding to the need for a more sustainable freight transpo solution towards achieving Irelan strategic outcomes.

Jim Meade

Introduction

Iarnród Éireann recognises the strategic importance of the issues identified by Dublin Port Company in their call for Post-2040 Dialogue.

We provide rail freight services that utilise Dublin Port and the national rail network. We also operate Rosslare Europort on the east coast of Ireland.

Iarnród Éireann and Dublin Port Company share a common objective:

'to facilitate the movement of people and goods, enabling Ireland to prosper, sustainably'.

Our submission aims to identify opportunities of shared interest that contribute to Ireland's future.

The ways in which Iarnród Éireann believes it can contribute to addressing post 2040 capacity issues at Dublin Port and the sustainable movement of growing freight volumes include:

- Rail as a sustainable mode for transport has the potential to play a greater role in the movement of freight nationally and specifically to/from Dublin Port. We believe that increasing rail freight movements to/from Dublin Port can assist in the emerging capacity challenge and is integral to increasing rail freight usage across Ireland.
- Any potential development of a new port along the eastern seaboard, as a step towards address of longer term capacity challenges at Dublin Port, should incorporate best class rail infrastructure and service design for the sustainability and efficiency benefits offered by the mode.
- Rosslare Europort, as the closest port to mainland Europe, is already playing a greater role in a post Brexit environment and could support Dublin Port in addressing longer term capacity challenges.

Ireland needs to significantly increase its investment in rail freight services to meet national and EU strategic objectives.

The Strategic Planning Context

The need for increased port capacity in Ireland is taking place in the context of national strategic objectives that target decarbonisation for the movement of people and goods.

Project Ireland 2040 - envisages an additional one million people and an extra 600,000 jobs whilst transitioning the country 'to a low carbon and climate resilient society' with high-quality international connectivity.

National 2050 Climate Objectives - targets a 51% national carbon reduction by 2030 with carbon neutrality by 2050.

National Transport Authority's **Greater Dublin Area Transport Strategy 2042** review includes the need for a Framework for Sustainable Freight Distribution for the GDA and between the GDA and the rest of Ireland.

Department of Transport and Northern Ireland's Department of Infrastructure's **All-Island Rail Study** will deliver a forward looking plan for rail in Ireland including an assessment for increased rail freight nationwide.

The Strategic Masterplans of Ireland's Port Authorities seeks to maximise the usage of rail freight at National Ports.

The EU Transport 2050 Strategy sets out specific goals including:

- Reducing CO_2 emissions from maritime bunker fuels by 2050
- Moving 30% of road freight travelling in excess of 300 km to other modes including rail and waterborne travel
- Ensuring all core seaports are connected to the rail freight and inland waterway system by 2050

The European Commission Green Deal Policy includes targets for 75% of inland freight currently carried by road to shift onto rail and inland waterways.

The recently published EU Sustainable and Smart Mobility Strategy calls on Member States to increase investment in rail freight. The Strategy's goal is that rail freight traffic within the EU will increase by 50% by 2030 and double by 2050.

Dublin Port Company Post2040 Dialogue

Dublin Port Company's Post2040 Dialogue seeks alternative views on capacity challenges at Dublin Port. Dublin Port expects to reach its maximum throughput capacity some time between 2030 and 2040.

"This means ***additional*** *port capacity will be needed elsewhere on the east coast of Ireland to cater for the growth which Dublin Port will not be able to accommodate once this point has been reached".*

We understand these challenges will arise following completion of initiatives set out in Dublin Port Company's Masterplan 2040.

"The Masterplan aim to facilitate the achievement of the sustainable transport objectives set out in both EU and national policies. DPC will continue to promote the use of rail freight through the movement of containers and bulk solids by rail"

"Dublin Port is at the heart of the national rail network with direct connections to all major centres of population. DPC believes that there is continuing potential for rail freight to grow over the period of the Masterplan".

"DPC has developed and maintained the main rail infrastructure within the Port and is committed to the provision of rail connections and sidings within the Port, thus creating space for modal shift. This has already been evident in the growth in rail freight services in the period between 2012 and 2017"

Iarnród Éireann's view on Post-2040 Port capacity challenge

Iarnród Éireann has identified several ways in which we could assist Dublin Port Company address post 2040 capacity issues at Dublin Port.

We are putting forward the following as suggestions we believe could, taken individually or in combination, contribute to address of the emerging capacity challenges and would welcome an opportunity to explore these with Dublin Port in collaboration towards agreeing a design that works for all stakeholders:

- Using rail freight at Dublin Port, as an effective and efficient method of transporting goods, to sustainably enhance throughput and capacity to/from quayside to destinations across Ireland's rail network
- Delivering Rail Freight 2040 initiatives to enable a sustainable growth in freight services nationally
- Expanding Rosslare Europort services to play a supporting role to Dublin Port and facilitate increased port capacity along the eastern seaboard
- For any new port along the eastern seaboard, incorporate best class rail infrastructure and service design to enable the sustainable and efficient movements of goods by rail

Rail can support Ireland in achieving its national strategic outcomes by availing of the sustainability benefits the mode offers. It can be an integral part of a freight distribution system that seeks to "maximise the contribution of land transport networks to our national development" while also minimising emissions.

Rail Freight 2040 - Irish Rail Vision for Rail Freight

The Rail Freight market is expected to grow across Europe, and globally, over the coming decades. In the European Union, rail freight trends are anticipated to align with EU strategic objectives around the sustainable movement of goods with several ports along Europe's western seaboard have recently invested in intermodal infrastructure.

The current level of rail freight market share across Europe is approx. 18%, whereas the market share in Ireland is 1%. We believe there is significant potential for growth of rail freight in Ireland and note that Dublin Port has indicated that it also shares this view.

We anticipate growth in movement of goods in the following key areas:

- Aligned with the population and economic growth projections of Project Ireland 2040
- HGV Traffic is expected to rise significantly increasing congestion and air pollution
- Growth in goods travelling in particular through ports at Dublin, Foynes and Cork
- Movement of bulk materials from Mid-West

Rail freight has a vital role to play in accommodating growth in movement of goods while achieving the policy objectives of Project Ireland 2040; the EU Transport Strategy; and the long term growth of Dublin Port.

Rail Freight 2040

Rail Freight 2040 aims to establish a long term sustainable future for rail freight in Ireland which supports the achievement of national environmental objectives and those of Project Ireland 2040.

It is built on five strategic pillars (below) that combine to create an integrated market for rail freight services and provide a strong offering to existing and future customers.

Through targeted infrastructure investment and policy initiatives, rail freight has the potential to accommodate significant volumes of the projected growth in movement of goods through Dublin Port. This could remove some HGVs from the national road network reducing pollution and other external costs while facilitating economic growth.

Rail freight 2040 will:

Provide rail activity to Irelands Tier 1 Ports and enables improved utilisation of existing assets

Supports regional balance and provides freight options for large industrial producers

Support Project Irleand 2040, Regional Spatial and Economic Strategies, Climate Action Plan 2019 and the European Green Deal

Reduce the impact of congestion in towns and cities across Ireland

Increase the market share of rail freight in line with other European countries

Provide a robust and resilient network of services to support businesses and economic growth

5M kgs CO_2 per year

Rail freight is up to 76% less carbon emitting than road haulage and can contribute to the decarbonisation of transport systems in Ireland, further, the current level of saving of over 5 million kilograms of CO2 per year will increase by 500% by 2040 to 25 million kilograms based on an expansion of rail freight services.

Strategy includes:

Targeted investment to increase bulk and intermodal rail freight

Development of a network of strategic inland terminals at Limerick and Dublin with smaller tactical terminals at Cork, Galway and Sligo

Connection of the Port of Foynes and the Port of Cork to the rail network and the development of infrastructure and services at other ports

Incentives to realise the environmental benefits of rail freight

Direct rail connections to industrial facilities

Investment in modern intermodal and bulk wagons for improved performance and capacity

Investment in new climate friendly locomotive fleet

Competitive price offers that are attractive to new and existing customers

Lessons from Case Studies

Dublin Port is not the only port to be struggling with the issue of capacity constraint, and the need to develop new and innovative solutions for delivering sustainable economic growth. There are numerous case studies from the UK and Europe where ports have invested in existing legacy infrastructure, or indeed in brand new infrastructure to optimise capacity and throughput.

In some cases, enormous new container ports have been constructed with direct connections from port side to the existing rail network, for example Liverpool and London Gateway ports in the UK. At a smaller scale, there are examples of where ports have invested in rail in support of their existing infrastructure to optimise performance and operation of the port.

Ultimately, all decisions on investment in infrastructure are a balance between financial/economic, environmental, social, political, and physical factors. The following case studies, whilst unique in themselves, are relevant to the situation of Dublin Port.

When using examples from other countries it is key to understand that all ports operate differently and have different markets, that the capacity constraint at Dublin Port is in some ways unique to Dublin, however there are also key similarities and lessons to be learned from the experience of other ports.

Case Study – Felixstowe, UK

The European Regional Development Fund provided over £3m to the Haven Gateway partnership to help introduce freight forwarders to the intermodal rail freight market.

The funding supported the provision of information and seminars and the programme successfully resulted in more than 50 SME freight forwarders using rail freight for the first time. These forwarders were then able to claim Low Carbon Freight Dividends of up to £75 per container to subsidise the cost of rail transport if it was dearer.

As a result of these incentives, and through the development of new and existing rail freight facilities at the port, the number of daily trains has grown from 3 trains per day during the 1980s, to 21 per day during the 2000s, and to 34 per day in each direction out of Felixstowe today.

Going forward, with the recent development of additional track capacity and the double tracking of the branch line it is hoped to increase these services to 45 per day.

With 34 rail services per day to and from Felixstowe Port and plans to grow this to 45

Case Study – Liverpool, UK

The Liverpool container port was developed by Peel Ports with direct access to the UK rail network in order to facilitate the use of rail freight operations.

The site is constrained by existing industrial and residential developments, and so they opted for a classic layout of two tracks side by side which allows two trains to be loaded and unloaded simultaneously without hindering the operation of the port.

The location of the intermodal platform, where freight is transferred to the trains, directly alongside the port operations allows efficient movement of containers between the maritime container terminal and the trains.

Upgrades to the rail infrastructure serving the port means that the port operated 10 trains per day in 2020, though the on-site infrastructure can handle up to 20 trains per day. Further increases in capacity will follow on investment in national infrastructure to provide capacity for more rail freight paths.

Whilst the Liverpool container operation is on a very large scale, their investment in rail infrastructure is particularly relevant to Dublin whereby large volume of freight needs to move by land through a densely built urban area. In this example, rail freight moves a significant volume of goods that would otherwise travel by road through the city.

Case Study – Le Havre Terminal Exploitation (LHTE), France

The port of Le Havre handles a large variety of freight entering/leaving France by sea. Unlike Dublin Port, the port at Le Havre has been relatively unconstrained from expanding over time, resulting in the port growing into a vast site of modern and legacy industrial uses.

Due to its sprawling nature, and the distribution of rail infrastructure relative to the container ports and other industries that might use rail freight, an intermodal rail hub was developed to the East of the main port for the stabling and loading/unloading of rail freight trains. Freight destined for the national/international freight network is loaded onto shorter formation rail freight services (or barges) for transport from the main port to the intermodal rail hub, where they are either joined to form longer freight trains, or transferred to longer continental trains for onward journey.

Based on demand, the current rail traffic is set between 3 to 5 block trains (750 m length) per day with a maximum annual capacity of 250 KTEU. The average rail shuttle traffic is between 1 to 3 round trips with a maximum of 36 wagons per shuttle.

This case study is relevant to Dublin Port capacity constraint because it shows how it is possible to transport freight by rail via use of an off-site intermodal platform, though this does naturally involve additional time/costs moving freight from the main port to the intermodal platform. Logistical constraints are not limited to physically constrained ports, larger ports also need innovative solutions for sustainably moving freight by rail.

Case Study – Macon, France

The port of Macon, France, is an unlikely case study in relation to Dublin Port because it is an inland port based on a major inland waterway. The port handles a variety of bulk goods and containerised freight, a significant proportion of which is loaded onto trains for onward travel.

Whilst the port handles smaller volumes than Dublin, the Macon case study is relevant to Dublin Port constraints because it is a good example of how rail freight can be effectively employed to move significant quantities of material to/from the port in a confined area, safely. The port demonstrates efficient operations that can be used for the seamless transition of goods from ship to train with minimal impact on road traffic.

Macon operating on a constrained site does not have space for large stabling and intermodal platforms on-site like the other case studies. Instead it uses short formation trains, loaded at sites around the port, which are then individually moved to larger stabling areas for combination into longer formations and onward travel.

Innovative solutions such as this approach at Macon can be upscaled and are key to delivering significant rail freight capacity at Dublin Port and other ports in the future.

From ship to train for distribution across the rail network

Rail Freight at Dublin Port

In line with Dublin Port Company and Rail Freight 2040 plans we wish to investigate the opportunity for additional rail freight services at Dublin Port. As part of this, we have looked at several illustrative options for enhancing rail freight services at Dublin Port. The options put forward, as illustrative, are suggested as starting points for exploratory engagements towards developing robust rail based solutions that could best serve the growing needs of the Port. As with all solutions to capacity challenges, each option is a compromise between opportunities and disruption to existing port activities.

Option 1 – Intermodal platform adjacent to maritime container terminal

Increase rail freight by using existing Dublin Port Company lands and rail freight spur along the existing multipurpose / heavy goods quay. Similar to Liverpool, this option permits rail freight access to the maritime container terminal without impacting on the existing operations of the container terminal.

Advantages
Able to handle whole trains (no splitting required. Reduces impact on Alexandra Road.
Close to the container terminal allowing easy and efficient access to containers.
No impact on first section of 3 Branch Road South north of the terminal.
No impact on the container terminal current arrival and departure gates.
No need for switches / points as loading track is directly connected to quay.

Disadvantages
Quay is not available for multipurpose / heavy goods activity. Trains on the dock impede arrival of vessels.
Is there sufficient demand for two freight trains at this terminal? Potentially need road barrowing to/from the other container docks.
Closure of 3 Branch Road South on the quay.
Possible security/safety issue moving containers between terminal and intermodal platform.
Track alignment and curve radius to be checked against rolling stock and proximity to edge of the quayside.

Productivity	
Container Movement	Average 3 minutes per container
Handling Time	1.5 hours per train
Productivity (14 hours/day)	8 trains per day
Alexandra Road Occupancy	5 minutes per train passage

Handling	
Train Composure	Block train of 24 wagons / 30 containers
Reach Stacker	2 units
Railcar mover	1 unit

Infrastructure	
Loading Tracks	T1 = ~370 m usable lengthT2 = ~370 m usable length
New / Removed Railway Switch	0 new / 0 removed switches/ points
New / Removed Railway Track	~1,000 m new / ~100m removed
Global footprint	~17,000 sqm
Storage area	~7,800 sqm
Reach Stacker area	~7,500 sqm / ~25 m width

Rail Freight at Dublin Port

Option 2 – Intermodal terminal inside maritime container terminal

This option provides the highest capacity at circa 10 trains per day for rail freight trains because it permits direct access to maritime container terminal by running freight trains directly adjacent to containers, as in the case of Liverpool and several other European ports. However, due to the space constraints at Dublin Port does require some reconfiguration of the existing maritime container terminal to accommodate the rail freight tracks and optimise the layout.

Advantages
Smallest footprint of options considered. Adds new capabilities directly to the existing terminal. Freight trains directly alongside containers.
High efficiency container handling facilitated by the use of existing gantry cranes to minimise handling times.
No impact on the current arrival and departure gates. Allows multipurpose activity to continue.
No need for switches/points as each loading track directly connected to existing tracks.

Disadvantages
Impact on maritime container terminal storage capacity due to removing 3 of 7 container rows to create 2 rail tracks. Compensated for by West expansion of container storage area.
Impact on terminal operations:-Increased distance travelled by yard tractors-Impact of freight train movement on traffic flows within the terminal.-Modification of empty container storage area.
Requires acceptance of terminal manager since option impacts on existing activity.

Disadvantages
Curve radius to be analysed to confirm use of existing rolling stock and track alignment.

Productivity	
Container Movement	Average 2 minutes per container.
Handling Time	1 hour per train
Productivity (14 hours/day)	10 trains per day
Alexandra Road Occupancy	5 minutes per train passage

Handling	
Train Composure	Block train of 24 wagons / 30 containers.
Rubber Gantry Crane	2 units.
Railcar mover	1 unit.

Infrastructure	
Loading Tracks	T1 = ~355 m usable lengthT2 = ~355 m usable length
New / Removed Railway Switch	0 new / 0 removed switches/ points
New / Removed Railway Track	~1,000 m new / ~100 m removed.
Global footprint	~2,700 sqm

Rail Freight at Dublin Port

Option 3 – Intermodal platform adjacent to Tara Mines area

Similar to the operations at Le Havre and Macon, shorter train formations are used within the dock, with an off-site marshalling yard to combine the short formations into longer trains for onward travel. This option does not interfere with the existing operation of the maritime container terminal, or the multipurpose quay, however the shortened train lengths do increase container handling time due to distance from the terminal, reduce capacity for freight trains, and increase disruption on Alexandra Road.

Advantages
No impact on activities at container terminal, on multipurpose quay, or on access road to terminal
Sufficient storage surface.

Disadvantages
3 short formation trains means more passage on Alexandra Road. Results in more handling time per train due to increased trips to/from marshalling yard.
Supply flows from the container terminal need in depth study because of the increased distance to the intermodal platform.
2 tracks need to be connected to existing lines on Alexandria Road with up to 3 new switches.
Global foot print higher than the other options because of the curves.

Productivity	
Container Movement	Average 3 minutes per container
Handling Time	2 hours per train
Productivity (14 hours/day)	5 trains per day
Alexandra Road Occupancy	7 minutes per train equivalent passage (sum of the 3 cuts)

Handling	
Train Composure	3 cuts of 8 wagons each
Reach stacker	2 units
Railcar mover	1 unit

Infrastructure	
Loading Tracks	T1 = ~140 m usable lengthT2 = ~140 m usable length
New / Removed Railway Switch	2-3 new / 0 removed switches/ points
New / Removed Railway Track	~615 m new / 0 m removed
Global footprint	~20,000 sqm
Storage Area	~7,500 sqm
Reach stacker area	~3,500 sqm / ~25 m width

Further Rail Freight Initiatives

Marshalling at North Wall freight yard

We are also investigating ways to enhance marshalling at North Wall freight yard in support of rail freight development options at Dublin Port. This will enable off-site marshalling to combine short formations into longer trains for onward travel and to wait for the allocated rail path. This facilitates increased rail freight capacity at the port whilst minimising disruption and landtake requirements within Dublin Port.

Any potential development of wider lands at the North Wall site for the purposes of container handling would likely be considered unacceptable from the perspectives of noise, especially should night working be required, visual impact and fit with land uses in adjoining areas.

Advantages
Potential ability to park up to three block trains (24 wagons each) - to be confirmed following detailed assessment of usable track length
A marshalling yard with slab tracks at one of its extremities (Alexandra road side) allowing efficient use of a railcar mover.
Ability to maintain the communication with Alexandra road track through one railway track.

Disadvantages
Immediate proximity of residential area along the marshalling yard : • Impact on track alignment • Impact on feasibility of solution
The connection between the tracks needs an in-depth study: • To assess the real tracks usable lengths • To clarify the railcar mover movements (no possibility here to escape by road)
In depth study needed to assess impact on the two tracks with possible need for track shifting.

West Dublin Strategic Rail Freight Terminal

As part of Rail Freight 2040 strategy, we are proposing significant targeted infrastructure investments to enhance the network and improve efficiency for transporting goods all over Ireland by rail freight. A key element of the infrastructure investment is a series of intermodal rail freight terminals across the country to improve access to the rail network for goods.

We are investigating the possibility of a strategic rail freight terminal to the West of Dublin to act as a key interchange between Dublin Port and the movement of goods to regional destinations across the island of Ireland. This terminal could act as an overflow for the Dublin Port area by providing rail shuttle services to/ from the port, as well as a marshalling yard for preparation of trains for onward movements.

Rail Freight at a new Port on Eastern seaboard

Expansion of the Port of Dublin is constrained by the city to the West, and by the sea in all other directions. As a result, the expansion of port activities beyond infilling docks and the reorganisation of existing uses becomes more challenging.

It is conceivable that a potential alternative to expanding operations at the Port of Dublin, is the development of a new port on Ireland's eastern sea-board to accommodate future growth of sea freight, ease congestion in and around the Port of Dublin, and remove constraints on sustainable growth of the Irish economy.

A new Port, should this be required as part of a post-2040 capacity solution, could be designed to incorporate best practice use of rail - based on international case studies that clearly demonstrate the advantages of such a proposed design approach. There are numerous examples from the UK and around Europe whereby new maritime container terminals have been developed with excellent connectivity to the rail network to facilitate sustainable movement of freight to/from the port.

Rosslare Europort

Rosslare Europort has an ambitious masterplan to position the port to take advantage of the wide range of opportunities currently afforded by it's strategic location. The plan will see overall investment of circa €30 million, targeted at:

- Infrastructure and expansion of the key areas of RoRo freight and passenger transport
- The infrastructure necessary to facilitate the impending border inspection requirements
- Creating increased capacity to provide a platform to capitalise on new business opportunities

Rosslare Europort is well positioned to support the easing of capacity constraints at Dublin Port as part of an aligned strategy for handling sea freight on the island of Ireland.

There is also future opportunity for port capacity expansion to cater for 200-250k containerised units on available landbank subject to infrastructure being delivered.

Conclusion

Iarnród Éireann wishes to thank Dublin Port Company for the opportunity to share dialogue on its post 2040 capacity issues. As outlined in our submission, we believe we can contribute to addressing these concerns, whilst enhancing the sustainability of freight movements in Ireland, through;

- Growth in rail freight services at Dublin Port
- Expansion of rail freight services nationally
- Integration of rail freight at a new port on Ireland's eastern seaboard should this option be progressed
- Growth in freight services at Rosslare Europport

We would welcome an opportunity for further engagement with Dublin Port Company to investigate these potential solutions and deliver our shared objectives to facilitate the movement of people and goods, enabling Ireland to prosper, sustainably.

Iarnród Éireann
Irish Rail

SYSTRA