



Rail freight and the Western Region

Final Report

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1 Introduction

1.1 Remit

- 1.1.1 Ireland has a population of some 4.6 million in a landmass approaching 70,000km² and an economy generating around €164 billion of Gross Domestic Product (GDP), the seaports handling 46.7 million tonnes of imports and exports. In 2014, road haulage lifted¹ 112 million tonnes and moved² 9.8 billion tonne km, Irish Rail lifted 589,000 tonnes and moved 99 million tonne km, rail achieving a mode share of all overland transport of 0.5% and 1.1% for tonnes lifted and tonnes moved respectively. In recent years, Irish Rail has worked with end users to reverse the decline in rail freight traffic, and is exploring opportunities to further grow traffic levels with the available resources at its disposal.
- 1.1.2 Three of the four rail freight services operated at present start or finish in the Western Region of Ireland, at Ballina and Westport in County Mayo. The Western Development Commission (WDC), as part of its remit to promote the economic and social development of the Western Region, has commissioned this study to investigate the potential for further demand for rail freight services in, to and from the Western Region, which comprises the counties of Donegal, Sligo, Leitrim, Roscommon, Mayo, Galway and Clare.
- 1.1.3 As well as highlighting infrastructure deficits which may be impeding economic growth in the Western Region, the WDC also supports the use of more sustainable transport modes, arising from the effects on climate change. The WDC considers that as a more sustainable transport freight mode, especially for high volume goods, coupled with the changed business model operated by Irish Rail and the growth of revenue generating traffic, rail freight should be considered as an important element in the future land transport mix for goods traffic.
- 1.1.4 The availability and further expansion of rail freight services (and the associated low carbon footprint relative to road haulage) could help provide a regional advantage, attracting new enterprises which might have a need for a high-volume, environmentally-sustainable transport solution. The WDC therefore believes that it is important to understand and investigate whether there may be potential rail freight clients who are not visible: this may be because they are not sure whether rail is an option for them; and/or because they perceive no immediate price advantage to warrant use of rail. In addition, economic growth and new enterprises, and any possible new policies and investment supporting transport by rail, may generate new traffic which may not be evident in the short-term.
- 1.1.5 The purpose of this study is to prepare a report addressing the following key requirements:
- To investigate the potential for new rail freight traffic in, to and from the Western Region;
 - To examine the extent to which new rail freight traffic might emerge if policy instruments change to support a greater modal shift to rail freight.

¹ "lifted" means the weight of goods carried by each mode of transport (in tonnes)

² "moved" means the weight of goods carried, multiplied by the distance those goods were carried (tonnes multiplied by kilometres, known as tonne km)

1.2 Structure of this report

1.2.1 This report sets out the main findings of the study, as follows:

- Chapter 2 looks at the wider context of rail freight traffic development across Europe, followed by a focus on selected countries including Scotland, New Zealand, Denmark and the UK, from which to determine key factors influencing the changes in rail freight traffic in recent years;
- Chapter 3 considers the Irish context for rail freight, from national economic, public policy and freight market perspectives;
- Chapter 4 sets out the opportunities for rail freight arising from market research and stakeholder interviews;
- Chapter 5 draws together the findings from the preceding sectors into a set of key conclusions and recommendations.

1.2.2 In producing this report, we would like to express our thanks to the wide range of stakeholders who have given up their time to give opinions and supply information, providing valuable local insight which is reflected in the report.

1.2.3 This study has been undertaken within the context of the current rail network coverage and capability. In the medium to long term, further development of the rail sector as a whole (passenger and freight) may involve further investment in the network, including rolling stock, rail heads, strategic freight interchanges and the reinstatement of disused routes.

2 Rail freight international comparisons

2.1 Benefits of rail freight

2.1.1 Despite the relatively small volume of traffic moved by rail in Ireland compared to road, rail is often cited by policy-makers (and the rail industry itself) as offering significant benefits over road haulage. These can be summarised as follows:

- Efficiency for transport users – a single locomotive and driver can move the equivalent of 18-50 lorry loads of freight (based on current length / payload of freight trains in Ireland), simplifying transport arrangements, particularly to and from sites where the road network would be unable to cope with large volumes of goods vehicles (eg ports, quarries and power stations). Beyond simplifying transport operations, movement of large traffic volumes by rail can help deliver direct economic benefits to end users, not least by increasing inter-modal competition between road and rail;
- Scheduling – the timetabling of freight trains implies a more predictable operation than relying on the vagaries of the road network. The UK Freight Transport Association has undertaken end user surveys in recent years which suggest that rail services achieve higher levels of reliability compared to road haulage services on parallel routes, particularly across the motorway network;
- Energy and emissions – for every tonne of freight moved one kilometre (ie 1 tonne km), UK statistics indicate that rail generates 76% lower emissions than for road haulage (see below). This has a close correlation with fuel consumption. Tesco has cited the use of rail within the UK in helping reduce its overall carbon footprint by 50% in recent years, with its first dedicated daily rail freight service in the UK (Rugby to Glasgow) saving around 3,000 tonnes of CO₂e in its first year of operation;
- National economic benefits – beyond the direct economic benefits to end users from use of rail, the economic activity associated with rail freight (investment, revenue and wages associated with rail freight services, rail network infrastructure, rail-served ports and distribution parks) can make a positive contribution to the national economy. The availability of rail freight facilities and services may also help influence global decisions on foreign direct investment (FDI) between target countries. It should be noted however that where a rail freight service displaces existing road haulage operations, this may then create localised disbenefits (loss of income / employment) in the road haulage sector;
- Other societal / indirect benefits: use of rail transport, in helping reduce road traffic (in absolute terms of in its onward rate of growth), provides indirect support to reducing the impacts of road transport on society. This may include reduced traffic congestion and the improved productivity of road transport users, a reduction in road maintenance costs or reduced road traffic accidents. The Rail Delivery Group estimates that rail freight in the UK prevents around 600 road casualties per annum.

2.1.2 In environmental terms, the latest UK data³ indicates that the combined emissions of greenhouse gases⁴ for freight moved by rail is 0.02831 kg of CO₂e per tonne km, compared to 0.08793 kg CO₂e per tonne km for articulated lorries and 0.1232 kg CO₂e per tonne km for all lorries – rail therefore generates between 23-32% of the level of emissions of road haulage.

³ DEFRA website <http://www.ukconversionfactorscarbonsmart.co.uk/>

⁴ Includes direct emissions of CO₂, CH₄ and N₂O from the combustion of fuel from owned/controlled transport, and indirect emissions associated with the extraction and transport of primary fuels as well as the refining, distribution, storage and retail of finished fuels

- 2.1.3 In taxation alone, the UK Rail Delivery Group (railway industry body) estimates that the five largest rail freight operators pay over €200m a year to the Exchequer in directly attributable taxes⁵ and €91m a year in track access charges to Network Rail⁶. This needs to be considered against the c.€27m paid out by Government in rail freight grants (most of which ends up with the rail freight operators), as well as the fixed cost component of freight track access charges which are paid by Government or Network Rail, estimated at around €200m⁷. This suggests the rail freight industry makes a net contribution of €64m per annum.
- 2.1.4 At the wider societal level, a recent study for the UK Department of Transport suggests that every £1 of grant paid in support of intermodal rail services (Mode Shift Revenue Support) produces societal benefits estimated at £4.27.⁸
- 2.1.5 These benefits suggest that, at a European and national level, rail should enjoy a much greater share of freight traffic than at present. The challenges in recent years have been a highly-competitive road haulage industry (over 80,000 Irish-registered goods vehicles alone⁹), a general lack of visibility of the rail freight offer, a lack of detailed knowledge and understanding amongst train operators of the equivalent road haulage offer, and in some cases the quality of the rail offer itself.
- 2.1.6 In terms of economics, the need to rely on road haulage at one or both ends of a rail haul (given the relative lack of rail network coverage) brings a disproportionately high level of road costs (and road<->rail transfer costs) into the overall “door-to-door” price set by road haulage, reducing the amount of revenue left for the train operator to cover the costs of the rail service. In Ireland, particular challenges have been a relatively small number of freight terminals, locomotives, wagons and staff, with high track access charges and a lack of any government rail freight incentives.

2.2 European Union

- 2.2.1 Achieving a definitive comparison between Ireland and other EU Member States is made more challenging by the peripheral island position of Ireland, lacking the cross-border rail freight flows of mainland Europe and, to an extent, the UK¹⁰. The experience of the UK is set out later in this chapter, but in an attempt to achieve more of a comparable assessment to Ireland, similar-sized states / regions (Scotland, New Zealand and Denmark) are then considered to provide alternative perspectives.
- 2.2.2 At a European Union (EU) level, the equivalent rail share of all road and rail transport (for tonnes moved) is 19% (17.8% if inland waterways are also included). Rail mode share ranges from 64% in Latvia (a country of similar size to Ireland) to 1.1% for Ireland, the lowest of all Member States.
- 2.2.3 This is not to suggest that Ireland is necessarily “off the scale” in terms of rail freight mode share, as Spain (six times the size and more than 10 times the population of Ireland) has a 4% mode share. However it remains the case that on average EU Member States have much greater levels of rail freight traffic and higher rail freight mode shares, which not only reflects the respective geography / topography, economics / trade, demographics and infrastructure, it also reflects greater emphasis on rail freight in public policy, including through grants and other fiscal instruments.

⁵ Keeping the lights on and the traffic moving: Sustaining the benefits of rail freight for the UK economy, Rail Delivery Group May 2014

⁶ Source UK Office for Rail & Road

⁷ Estimating Freight Avoidable Costs: Final Report, LEK October 2012 (net cost estimates ranged from £42m to £249m per annum)

⁸ Department for Transport Review of Revenue Support Freight Grant Schemes Summary Report, Arup 2014

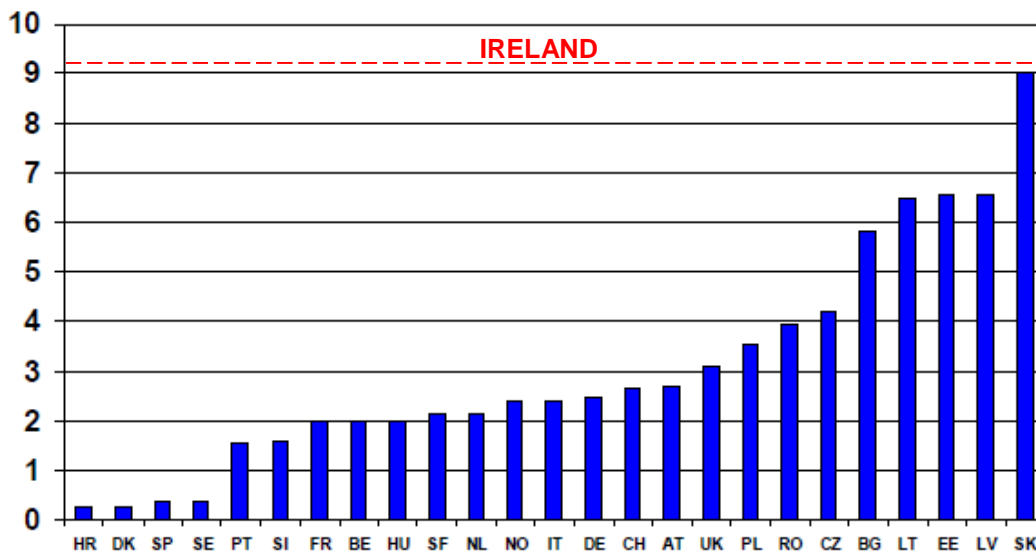
⁹ Source CSO

¹⁰ Strictly speaking, Great Britain, as no freight services currently operate in Northern Ireland

2.2.4 A recent report for the European Commission DG-MOVE¹¹ into the use and promotion of intermodal and multimodal freight transport¹² has noted the benefits of rail in reducing greenhouse gas emissions, as well as road traffic / accidents and associated indirect costs. On some major trans-continental corridors (including to/from China) rail plays a major role in relieving parallel highway routes of lorry traffic. Yet the report also noted the challenges in making more use of rail, including problems with the marketing and quality of rail services and a lack of suitable infrastructure. In some cases, there remains an apparent lack of interest from some Member States in implementing EC policies (and a specific Directive¹³) designed to make rail transport more attractive, primarily by reducing the costs of road haulage at one of both ends of a rail service (ie by reducing vehicle taxes or driving restrictions for lorries moving containers to and from railheads). The report also reviewed a number of programmes in place amongst Member States for supporting rail and intermodal (road/rail) services, which is attached in Appendix B.

2.2.5 Part of the explanation for the difference in the level of rail freight traffic in Ireland over other Member States has been the cost of rail services in Ireland relative to road haulage, which in part reflects the costs of using the rail network. A study undertaken for the European Transport Forum in 2008¹⁴ looked at track access charges for passenger and freight services across most EU Member States (excluding Ireland), with the key results for freight summarised in Figure 1 below. By comparison, the rate of track access currently applied in Ireland (€0.01 per gross tonne km) would equate to around €9.3 per train-km, higher than any of the rates shown below.

Figure 1 Track access charges for a 960 tonne (gross) train, € per train km¹⁵



¹¹ Analysis of the EU Combined Transport Final Report, KombiConsult, Intermodality, Planco and Gruppo CLAS for EC DG-MOVE

¹² "Intermodal" typically implies at least two modes of transport in a transport chain, eg a truck (mode 1) moves a container from a despatching customer to a nearby railhead for onward shipment by rail (mode 2), with a truck (mode 1) collecting the container at the other end to deliver to the receiving customer. "Multimodal" typically implies at least three modes of transport, eg a truck (mode 1) delivers a container to a port, where a ship (mode 2) then moves the container to another port, where a train (mode 3) then moves the container to an inland railhead where a truck (mode 1) makes the final delivery. As the terms "intermodal" and "multimodal" are often used to describe similar transport operations, the European Commission tends to group these under the heading of "Combined Transport" or CT

¹³ Council Directive 92/106/EEC of 7 December 1992 on the establishment of common rules for certain types of combined transport of goods between MS. See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0106> for further information

¹⁴ http://ec.europa.eu/transport/modes/rail/doc/2008_rail_charges.pdf

¹⁵ European Transport Forum http://ec.europa.eu/transport/modes/rail/doc/2008_rail_charges.pdf

Incentives for rail and intermodal freight services

- 2.2.6** The European Commission's former "Marco Polo" mode shift programme (which closed in 2013) provided grants to offset the costs of starting up new intermodal and multimodal freight projects, the level of grant based on rail's societal advantage over road estimated at €0.004 per tonne km. The Commission is currently considering a possible replacement for the Marco Polo programme.
- 2.2.7 In the EU, the UK and four other Member States (BG, CZ, DK, PL), provide discounted track access charges, either just for intermodal (container) trains, or for all freight trains (BG), compared to the standard tariffs. The level of support varies considerably between Member States. In Poland rail network access charges for intermodal services are reduced by 25%, in Bulgaria by 30-37%, and by 45% in the Czech Republic. Train operators in Denmark can even recover the total access charges if they achieve a certain amount of tonne km.
- 2.2.8 The impact of this incentive on intermodal rail services primarily depends on the general level of access charges and its relationship with taxes and fees charged on road freight transport. If the rail track access charges were high prior to the reduction, even a strong cutback may not yield major growth in traffic. There is also the risk of distorting on-rail competition by making intermodal services more cost-effective than "conventional" rail services (ie those moving bulk products in purpose-built rail wagons). It is also important to ensure, as far as possible, that (as anecdotal evidence in the UK suggests) train operators do not deliberately inflate their haulage prices, so as to capture the benefits of the incentives that would/should otherwise be passed onto the end customers.
- 2.2.9 Beyond reductions in track access charges, a wide range of other measures have been implemented in other Member States to promote greater use of rail freight and/or intermodal rail services, with most of these having secured State Aid clearance from the European Commission. In our recent study for DG-MOVE we assessed the various measures and compared them as follows.
- 2.2.10 At EU level, the 1992 Directive on Combined Transport (the CT Directive) contains provisions which oblige Member States to encourage greater use of rail and other modes by reducing the costs of road haulage at either or both ends of the rail haul, primarily by reducing / reimbursing vehicle taxes for those vehicles moving containers to and from a railhead. Other similar measures designed to support rail / intermodal freight in the EU fall within the following groups:
- Exemption from road vehicle tax (extending the scope of the CT Directive);
 - Exemption from or reimbursement of road infrastructure charges;
 - Derogation from Directive 96/53/EC¹⁶ allowing higher weights or dimensions of heavy good vehicles;
 - Exemptions from weekend / overnight driving bans for road vehicles, allowing movements to and from railheads when other deliveries by road are not permitted;
 - Reduced rail network access charges;
 - Aids (direct grants) for operations;
 - Aids (direct grants) for investments in intermodal terminal infrastructure;

¹⁶ Council Directive 96/53/EC of 25 July 1996 laying down for certain road vehicles circulating within the Community the maximum authorized dimensions in national and international traffic and the maximum authorized weights in international traffic

- Aids (direct grants) for investments in intermodal equipment.

2.2.11 Despite these measures and the CT Directive obligations, our analysis concluded as follows:

- Ireland and 2 other Member States (Lithuania and Malta, the latter having no rail network) provide no incentives and have yet to transpose the provisions of Article 6.1 of the CT Directive (on the reduction of road vehicle tax for lorries moving freight to and from railheads) into national legislation;
- 17 out of the other 28 Member States fully comply with Article 6.1 of the CT Directive and have adopted schemes for the reimbursement of vehicle taxes. This is also the type of incentive mostly applied in the EU. Romania has prepared a vehicle tax incentive but has not yet implemented this, due to public budget constraints;
- 7 other Member States (Cyprus, Estonia, Finland, Greece, Luxembourg, Romania, and Sweden) have not enforced any other incentive for CT operations beyond that provided by the CT Directive.

2.2.12 Further analysis of the various incentives is given in Appendix B.

2.3 Scotland

2.3.1 Scotland is similar to Ireland in land mass, population, GDP and total road/rail freight market (see Table 1 below), and at first glance has much higher rail freight traffic and rail mode share:

Table 1 Ireland and Scotland key statistics¹⁷

Statistic	Ireland	Scotland	Scotland / Ireland
Land mass (km ²)	69,798	78,807	13%
Population	4,581,269	5,327,700	16%
GDP (bn)	€ 164	€ 190	16%
Road network (route km)	96,525	55,961	-42%
Rail network (route km)	1,919	2,763	44%
Domestic road freight (m tonne km)	9,772	7,173	-27%
Domestic rail freight (m tonne km)	99	1,181	1093%
Total domestic road/rail freight (m tonne km)	9,871	8,354	-15%
Rail mode share (of above total market)	1%	14%	1358%

2.3.2 A number of observations can be made to help explain the difference in rail freight traffic between the two countries, as follows:

- Rail freight traffic in Scotland has been dominated by bulk mineral / ore traffic (mainly coal), accounting for nearly 50% of all rail freight moved to, from or within Scotland (rail freight figure above only relates to domestic freight, for which no commodity breakdown is available). In recent months, coal traffic has been impacted by changes in UK policy on coal-fired power generation, which has caused a dramatic reduction in coal moved by rail across the UK. This in turn will have caused a significant reduction in the overall volume of domestic Scottish rail freight, albeit offset by the

¹⁷ Source CSO, DTTAS, Eurostat, Transport Scotland, 2011-2014 datasets

remaining cross-border traffic in other commodities (a further 1,426 million tonne km), particularly intermodal services from ports and supermarket distribution centres;

- The slightly larger land mass, greater population and GDP, as well as the considerable differences in road and rail network coverage in Scotland (smaller road network and larger rail network relative to Ireland) may partly explain why more traffic is moved by rail in Scotland;
- Despite major rationalisation of railheads in the UK between the 1950s and 1990s, a number of railheads remain in Scotland, including several in the Far North where road access is less favourable;
- Government policy in Scotland supports and promotes use of rail for freight movement, principally for environmental reasons and relief of road traffic. Like the national Department for Transport, the Scottish Government has produced transport policy documents, including an action plan for freight, which *inter alia* seek to safeguard existing infrastructure and (in the case of the Borders Railway) reinstate disused rail corridors (see also later in this section);
- Rail freight grants are available to support both new capital investment (Freight Facilities Grant) and revenue (Mode Shift Revenue Support), which have helped support trial services and longer-term contract services. Scottish Enterprise (a publicly-funded development agency) has also supported feasibility studies and pilots for new rail freight services, for example movement of timber out of Scottish forests (see below), whilst the Scottish Forestry Commission has also provided grant funding for a new permanent railhead to be established at Rannoch. State funding has also been matched by European Regional Development Funding (ERDF) to support a trial service for whisky traffic (outbound product and return loads of empty casks) between Elgin and Grangemouth;
- Network Rail and its predecessor Railtrack have worked with end users to facilitate new services, an example being flows of timber from forests in the Far North of Scotland, where loading on the main line has been authorised during periods between passenger train services, to avoid the need to create permanent interchanges and minimise the length of road haulage required between source and railway (see Figure 2 below).

Figure 2 Timber being loaded on the main line in Scotland



2.3.3 Excluding coal traffic, Scottish rail freight services include the following:

Domestic (within Scotland, 1,181 million tonne km)

- Daily intermodal services linking Mossend (Glasgow) with Aberdeen (284km each way) and Grangemouth with Inverness (215km each way), carrying northbound containers of largely supermarket goods for store delivery, some backloaded with exports from Scottish suppliers destined for distribution centres in England's Midland region. A daily intermodal service has also linked Grangemouth port with Elderslie (56km each way), related to whisky traffic;
- Municipal waste moved in containers on a daily intermodal service from Edinburgh to a remote landfill site at Oxwellmains (48km each way);
- Cement from Oxwellmains to Motherwell (112km each way), Aberdeen (255km each way) and Inverness (331km each way);
- Petrochemicals from Grangemouth to Kilmarnock (79km each way), Prestwick Airport (98km each way) and Lairg (368km);

Cross-border (with England and Channel Tunnel, 1,426 million tonne km)

- Steel slab from the North East of England to Glasgow (for local steelworks);
- Alumina and fuel oil from England to Fort William (for local aluminium factory);
- China Clay from mainland Europe to Irvine and Aberdeen via the Channel Tunnel (for local paper mills);
- Cement from Oxwellmains to the North of England;
- Petrochemicals from Grangemouth to the English Midlands and South East;
- Steel pipes from the North East of England to the Far North of Scotland (for the offshore oil industry);
- Municipal waste in containers from Manchester to landfill site at Oxwellmains;
- Imported trade cars from London to Glasgow;
- Deepsea intermodal services between Glasgow and English East / South coast ports;
- Inland intermodal services linking Glasgow and Grangemouth with the English Midlands regions, for logistics companies and supermarkets;
- High-speed (160kph) mail traffic between Glasgow, Liverpool and London;
- Wagonload traffic moved in trainload quantities for multiple end users to/from the North West and South of England.

2.3.4 A recent Scottish Parliamentary Inquiry into freight¹⁸ has produced a set of conclusions of relevance to the discussion on the current policy framework in Ireland (see Chapter 3):

¹⁸ Scottish Parliament Infrastructure and Capital Investment Committee: Inquiry into freight transport in Scotland, report 29/06/15

The movement of freight is essential to the Scottish economy. The free flow of freight within Scotland, between Scotland and the rest of the UK and between Scotland and the rest of the world is of critical importance to the Scottish Government target of sustainable economic growth. At the same time, the transition to a low carbon economy remains a key priority of the Scottish Government. Therefore, increasing the efficiency and cost effectiveness of freight transport and providing the infrastructure for unobstructed movement of goods are both cornerstones of this inquiry into freight transport in Scotland.

Given the need to reduce greenhouse emissions, it is clear that a combination of model shift and the development of new technology is essential in minimising carbon emissions. Whilst the Committee acknowledges the need for all those involved in freight transport to contribute to this reduction in emissions, it recommends that this should be a prevailing theme in an updated freight transport policy.

A key recommendation of the Committee is for the Scottish Government to consider the need for an urgently updated freight transport policy taking account of changing trends in the freight transport and wider logistics sectors, addressing all modes and considering transport within its wider logistics context.

The Committee recommends that the next National Planning Framework (NPF) ensures that rail freight is treated as being of major strategic importance and that strategic rail hubs are given appropriate priority. Whilst the Committee appreciates restrictions around state aid, it calls on the Scottish Government to help maximise the drawdown of all available EU funding for freight transport projects.

2.4 Denmark

2.4.1 Denmark has a larger population in a smaller land mass (see Table 2 below) which again has much higher rail freight traffic and rail mode share than Ireland.

Table 2 Ireland and Denmark key statistics¹⁹

Statistic	Ireland	Denmark	DK / Ireland
Land mass (km ²)	69,798	42,895	-39%
Population	4,581,269	5,627,235	22%
GDP (bn)	€ 164	€ 249	52%
Road network (route km)	96,525	73,574	-24%
Rail network (route km)	1,919	2,646	38%
Road freight (m tonne km)	9,772	16,120	65%
Rail freight (m tonne km)	99	2,614	2540%
Total road/rail freight (m tonne km)	9,871	18,734	90%
Rail mode share (of above total market)	1%	14%	1339%

¹⁹ Sources as above (for Ireland) and DK Ministry of Transport, 2011-2013 datasets

- 2.4.2 Despite the smaller Danish land mass, some of the factors which can explain the higher use of rail include a significant portion of cross-border rail freight (124m tonne km of intermodal rail traffic alone), greater population, GDP and total freight market, and a larger rail network.
- 2.4.3 The Danish Government policy on freight is currently based on a 2008 initiative, “Sustainable Transport – Better Infrastructure” and subsequent 2009 “A Green Transport Policy”. A policy paper issued in 2009 sets out the key features of freight policy, including:

The Danish Ministry of Transport works for an efficient, innovative and environmentally friendly freight transport, in which the development and the dynamics are characterised by a close interaction between all players. Freight transport is an important cornerstone in the Danish economy and a declared focus area in realising the objective of creating a greener transport sector.

The [2009] political agreement involves a strengthening of the hinterland infrastructure to Danish ports in the shape of better road and rail connections to ports of great national or regional importance. The Danish Government and Parliament can make a difference, however port boards and harbour companies must exploit the framework themselves in order to secure growth and prosperity in each individual port. As far as rail is concerned, there seems in particular growth potential for increasing the rail market share on long international distances within Europe, not least for transit traffic through Denmark. Denmark is and will increasingly be a transit country for international freight transport. As a nation we must face this fact and use it offensively.

Well-functioning transport and logistics systems are required for the products to get from manufacturers to the industry and the consumers in the large cities and export markets. The markets are seldom localised near the manufacturers. Jutland accounts for a great share of the Danish production, whereas the consumers are spread throughout the country. Efficient transport systems are a central competitive parameter for the respective countries and an important factor when companies choose a location.

- 2.4.4 The policy paper sets out the three overall objectives for the freight transport sector:
- An efficient, innovative and value generating freight transport (sector). The national freight transport trade must contribute to Danish companies getting access to efficient logistics and each individual person getting access to a wide variety of goods;
 - Freight transport trade must develop in healthy competition. Legislation and rules need to contribute to fair competition and be as simple as possible. The costs of new regulation should bear comparison with the benefits;
 - Freight transport needs to be greener. Freight transport must contribute to a reduction of the costs in relation to the environment and greenhouse gases. The individual transport buyer ought to be the one deciding the given type of transport, but the option and incentive to choose environmentally-friendly solutions must be better. All forms of transport are to be developed in a more environmentally-friendly direction, and the most environmentally-friendly types of transport must take a larger share of traffic.
- 2.4.5 The state-owned rail freight operation was privatised in 2001 to Railion, the operation subsequently absorbed into a 2008 joint venture between DB Schenker and Green Cargo (51:49 shareholding respectively), known as DB Schenker Rail Scandinavia (DBSRS), which moves around 6 million tonnes of freight per annum.

2.4.6 Rail freight has attracted support from Government, which has led to a sustained increase in rail's modal share. From 1991 to 2009 rail had an average 7-9% share of inland freight, which has since grown to 12-14% since 2009. Despite this, the local sentiment from DBSRS suggests this share could/should be much higher. Gottfried Eymmer, CEO of DBSRS, has expressed frustration with the factors limiting further growth in rail freight. Citing the need for a sustainable and supportive political environment to help utilise the potential for rail freight in Denmark, he believes the competitive disadvantages for rail include:

- No master plan for freight transport in Denmark;
- Road fees for trucks have been abandoned;
- Highest rail infrastructure and terminal costs in Europe;
- Uncertain framework conditions for environmental subsidies and rail infrastructure investments.

2.4.7 Comparing the situation in Denmark with that in Austria (where rail has a 61% mode share against a 39% road share), Mr Eymmer notes the various incentives available in Austria, including:

- Up to 30% subsidy for investment in trailers, swap bodies or containers for intermodal use;
- Up to 50% subsidy for investment in terminals;
- Road pricing averaging €0.36 per km.

2.5 New Zealand

2.5.1 New Zealand is similar in population and GDP (see Table 3 below), but again has much higher rail freight traffic and rail mode share.

Table 3 Ireland and New Zealand key statistics²⁰

Statistic	Ireland	New Zealand	NZ / Ireland
Land mass (km ²)	69,798	268,021	284%
Population	4,581,269	4,578,900	0%
GDP (bn)	€ 164	€ 149	-9%
Road network (route km)	96,525	94,301	-2%
Rail network (route km)	1,919	4,000	108%
Domestic road freight (m tonne km)	9,772	22,014	125%
Domestic rail freight (m tonne km)	99	4,585	4531%
Total domestic road/rail freight (m tonne km)	9,871	26,599	169%
Rail mode share (of above total market)	1%	17%	1677%

²⁰ Sources as above (for Ireland) and NZ Ministry of Transport, 2011-2013 datasets

- 2.5.2 In comparing the results, it is apparent that New Zealand has a much larger land mass and rail network compared to Ireland. In addition, the New Zealand Government has invested heavily in its state-owned rail network and services as part of a multi-modal approach to freight transport planning, noting:

Our rail, maritime and aviation sectors also have a critical role to play in our supply chains and moving our people daily. We need to ensure the different modes are fully integrated.

When the government purchased the rail system in 2008, the business was in poor shape. After careful review, the incoming government invested substantially in the rail network. Through the KiwiRail Turnaround Plan, \$4.6 billion will be invested in rail over 10 years to improve the quality of rail infrastructure and to support KiwiRail to become a commercially viable business.

Rail currently moves 15 percent of the national freight task. With projected growth in freight over the next 3 decades, an efficient rail freight network will play an important and complementary role to road freight to maintain access to our key ports. Rail is well placed to move heavy products over longer distances. The Turnaround Plan aims to improve rail's overall capacity and ability to efficiently and effectively meet the requirements of freight shippers. A successful turnaround will enable rail to complement, as well as compete with, other modes.²¹

- 2.5.3 In July 2008 the Government purchased Toll New Zealand's rail and ferry businesses. The Crown already owned the network infrastructure. From 1 October 2008, KiwiRail became the single entity responsible for national rail services, some Cook Strait ferry services, and rail infrastructure.
- 2.5.4 In 2010 the Government agreed to contribute to the KiwiRail Turnaround Plan, a strategic plan which aims to help the rail freight business become self-sustaining. The Government noted that the additional investment in rail will help support the Government plans to improve New Zealand's productivity and export-led economic growth and increase the resilience of the transport system.
- 2.5.5 In 2012 KiwiRail restructured its balance sheet. KiwiRail Group's freight, passenger, infrastructure and ferry businesses, together with rolling stock, rail infrastructure and plant and equipment were transferred from the New Zealand Railways Corporation into KiwiRail Holdings Limited. The KiwiRail Group comprises KiwiRail Holdings Limited and its subsidiaries. The KiwiRail Group has been designated as a Profit Oriented Entity. KiwiRail Group carries assets valued at approximately \$1 billion, reflecting the revenue they generate, rather than the previous value of approximately \$7.8 billion.
- 2.5.6 New Zealand Railways Corporation continues to hold 18,000 ha of rail network land, from which no financial return will be expected. The sole purpose of New Zealand Railways Corporation is to retain the railway land and make it available for use by KiwiRail.
- 2.5.7 In the first three years of the Turnaround Plan the Government contributed \$750 million (around 0.1% of national GDP), with a further \$94 million in 2013/14 and \$198 million in 2014/15. KiwiRail is also contributing funding from its retained earnings to support the development of the Turnaround Plan. The majority of this investment has been in the freight side of the business.
- 2.5.8 As a result of the investment, KiwiRail increased its revenue over the first three years of the Turnaround Plan by over 25%, despite a trading climate affected by the global economic slowdown and the ongoing impact of the Christchurch earthquakes. Rail services remain focused primarily on freight (particularly bulk freight) with limited passenger services on some lines.

²¹ NZ Ministry of Transport

- 2.5.9 KiwiRail now carries approximately 15% of freight moved in New Zealand (measured in tonne-kilometres) by road, rail and coastal shipping. The freight business is based on four main components – movement of bulk commodities such as coal and fertiliser, movement of goods to and from ports, a specialised forestry business, and a domestic business which largely serves the freight-forwarding sector.
- 2.5.10 The Government has noted that the Turnaround Plan has provided wider economic benefits, including:
- Enabling the option of port aggregation to ensure New Zealand exports remain competitive - rail has been used to convey cargoes over longer distances to larger ports (the withdrawal of major liner services from Timaru and New Plymouth are two examples where this has happened);
 - Providing alternative transport options to enable a more efficient domestic freight market;
 - The freight forwarder market has continued to grow and some of the major players in the sector have invested in rail-served depots to take advantage of cost savings, capacity flexibility and rail's "green" credentials - Mainfreight has allocated \$60 million for investment in new railheads, while Fonterra has invested \$130m in a new rail hub complex in Hamilton and another planned for Mosgiel;
 - Major exporters and importers have increased the use of rail. More than 30% of New Zealand's export goods travel on rail. Rail offers service flexibility to optimise shipping and port selection;
 - Contributing to resilience in the freight transport system - KiwiRail ensured the movement of cargo during the Port of Auckland strike, the Manawatu Gorge closure, and after the Christchurch earthquake;
 - Providing direct economic savings - direct economic savings include fuel and driver time savings compared to road, avoided road maintenance costs, and reduction in externalities such as road accidents and greenhouse gases.

2.6 United Kingdom (Great Britain)

Background

- 2.6.1 At the time of privatisation in the mid-1990's, rail freight traffic levels in GB had fallen to an all-time low (excluding the impact of the miner's strike in 1984): from 36 billion tonne kilometres in 1954, when rail had a 40% share of all freight moved in the UK, to 13 billion by 1993 when rail's share had fallen to just 6%²². By this time, most of the non-bulk traffic (eg manufactured goods, general merchandise and parcels) had stopped being carried by rail, with little or no traffic carried for supermarkets or logistics operators.
- 2.6.2 The reasons for the post-war decline in rail freight were varied, but major causes included structural decline in the core bulk markets (eg coal, steel, petrochemicals) and in domestic manufacturing (including automotive), at a time of rapid expansion of the trunk road network and the road haulage industry, a period marked by consistent under-investment in the rail network, and rail freight services in particular.
- 2.6.3 The decline in rail freight traffic led to (and in some cases was led by) rationalisation of freight train services, particularly for non-bulk traffic such as manufactured goods. This traffic tended at the time to be carried in individual wagonloads, requiring time-consuming and costly shunting at each end between marshalling yards and small private rail terminals. Most of this traffic had disappeared by the time of privatisation.

²² Collated statistics from UK Department for Transport and Office of Road & Rail

- 2.6.4 Government officials at the time were reportedly expecting an almost complete exit for rail from the freight market post-privatisation, with the exception of specific commodities which could not easily be moved by road (eg power station coal, aggregates and nuclear material).
- 2.6.5 In parallel, the extensive network of rail freight terminals and ‘hub’ marshalling yards (which previously fed a wide range of non-bulk and wagonload traffic into the rail system) saw continuous rationalisation from the 1950’s onwards, from 4,500 to less than 1,000 by the time of privatisation, with most of the remaining facilities being geared more for bulk commodities such as aggregates than for general merchandise and logistics traffic.
- 2.6.6 In the intervening years, Britain’s economy has become increasingly dependent on road haulage to distribute goods, both for long-distance ‘trunking’ and for local delivery. From the 1990’s onwards the sustainability of this approach has been challenged commercially by road congestion and fuel prices (protests in 2000, 2005 and 2007 caused major disruption to transport and logistics), together with concerns from business and society about climate change. In response, the Corporate Social Responsibility (CSR) policies of major companies have become increasingly focussed on means to promote more sustainable business methods, such as Marks & Spencer’s ‘Plan A’.²³

Public Policy

- 2.6.7 Since 1999, the UK Government has set out a strategy for addressing climate change by promoting more sustainable means of development and distribution, through a policy framework for land use and transport planning, which spans both national and regional agendas. These policies have been the subject of intense review in recent years, through pivotal reports produced by Sir Nicholas Stern, Kate Barker and Sir Rod Eddington.
- 2.6.8 Government policy acknowledged the emerging challenge on ‘sustainability’ concerns raised at the Kyoto summit in 1997 about the wider effect of greenhouse gases on climate change. Since then, a comprehensive framework of policies has developed to create conditions favourable to, and fundamentally in support of, the planning and development of rail freight services and infrastructure (see Appendix C)
- 2.6.9 In terms of rail track access charges, the principle of charging freight on a marginal wear and tear basis (as opposed to full cost recovery) has been established in the UK for several years, with the Rail Regulator setting charges on this basis back in 2001. The Regulator concluded at the time²⁴ that freight train operators should not pay either the fixed costs related to freight use of the network, or those costs which were common between freight and passenger operations for use of the existing network. Freight track access charges should reflect the variable costs of freight operations, incorporating a factor to take account of reduced costs imposed by “track-friendly” wagon suspension.
- 2.6.10 Where the capacity or capability of the existing network was improved and the new facility was then used by freight operators, the Regulator expected freight operators to pay for any associated fixed costs not funded from other sources. A similar principle would apply to freight-only lines.
- 2.6.11 The Regulator determined that freight track access charges should be set taking a longer-term view of efficiency which takes account of the differences between passenger and freight operations, ie:

²³ Marks & Spencer website <http://corporate.marksandspencer.com/plan-a/about-plan-a>

²⁴ <http://webarchive.nationalarchives.gov.uk/20131001175041/http://www.rail-reg.gov.uk/server/show/nav.181>

- Some freight traffic faced significant competition from other modes meaning that some freight traffic, which would be economic in the longer-term based on realistic improvements in efficiency, might not be viable unless these efficiencies were immediately reflected in charges;
- Freight customers often had to incur significant sunk costs when they switched between transport modes, meaning that traffic priced off the network as a result of higher access charges in the short term might not return to rail for the foreseeable future; and
- The sunk costs of entry into rail freight markets meant that high or uncertain access charges were likely to act as a significant barrier to entry.

2.6.12 The long-run efficiency assumptions were not applied to movements of coal for the electricity supply industry or iron ore on the basis that in these markets rail already had a high market share with a clear competitive advantage over road.

2.6.13 These principles have remained in place ever since, with further minor reductions in access charges in the intervening years to reflect continued work by (and pressure on) Network Rail to reduce its costs. In practical terms, the 2001 decision effectively removed most of the fixed access charge element for rail freight, reducing track access charges from a headline rate of €0.006 per gross tonne km to €0.002 per gross tonne km, 40% lower than the current rate of track access applied in Ireland.

Performance since restructuring

2.6.14 As the main alternative mode of inland transport to road haulage, the UK rail freight industry has during the last 50 years moved from being the dominant mode of freight transport, to near extinction, to a dramatic turnaround in fortunes. Rail freight traffic has now grown by 75%²⁵ since the mid-1990's, and after rapid and substantial investment, the industry structure is now consolidating and maturing, to the extent that major shipping lines, manufacturers, retailers and distributors now use rail as an integral part of their supply chains and are looking to increase the volume of goods moved by rail.

2.6.15 Despite the recent economic downturn, total rail freight volumes (excluding Network Rail maintenance traffic) grew by 20% between 2003-4 and 2013-4. Bulk traffic (primarily coal, construction materials, iron and steel, petrochemicals) continued to represent the majority (65%) of freight carried by rail, with new growth sectors including biomass and feedstock for waste-to-energy plants. Yet the main source of new traffic growth has been in the non-bulk sector of the market, particularly in traffic for major supermarkets and third-party logistics companies (3PLs), where rail is increasingly used between ports and inland distribution centres (DC) as well as between inland DCs.

2.6.16 The Network Rail Freight Market Study (2013) described current and forecast levels of rail freight traffic. Overall, since 1995 rail has increased its market share of domestic freight moved in Great Britain to 11%. Average haul length per train has increased in recent years and average payload per train has increased by about 19% since 2005, a significant improvement in productivity. Growth has been particularly marked in the intermodal sector, as noted by Network Rail:

²⁵ Collated DfT and ORR statistics

Ports and Channel Tunnel intermodal has grown at about 4% per annum. Domestic intermodal traffic has also increased by about 4% per annum, but the underlying growth in this traffic, related to fast moving consumer goods (FMCG), is about 9% per annum. By 2011 total intermodal traffic, at over 18 million tonnes, was at a similar level to construction tonnage, and was only exceeded by coal traffic (44 million tonnes). Within the intermodal total, ports intermodal traffic predominates, at 15 million tonnes compared with less than 3 million tonnes for domestic intermodal traffic and less than 1 million tonnes for Channel Tunnel intermodal.

2.6.17 In terms of tonnes moved by rail, growth in tonne kilometres has been even more dramatic, doubling over the last 10 years. Network Rail noted that:

Ports and domestic intermodal (excluding Channel Tunnel through rail intermodal traffic) has increased by an average of 6% per annum over the decade to 2011. The intermodal sector has performed well during the current recession. In 2011, ports and domestic intermodal traffic, at over 6 billion tonne kilometres, was at a similar level as coal and was almost twice the size of the construction sector. The fact that intermodal tonne kilometres are now at a similar level to coal is remarkable given that intermodal goods are generally lower density than coal.

2.6.18 The scale of this growth is all the more significant given it has been achieved against a background of major unforeseen events eg the introduction of heavier 44-tonne goods vehicles, the aftermath of the Hatfield derailment in 2000 (which led to blanket speed restrictions on train services) and the Channel Tunnel security crisis around the same time (which led to a decline in cross-Channel rail freight services), as well as further structural changes in the rail industry and its customer base. The industry continues to face strong competition from road haulage on price and service levels, as well as further change in the traffic base; recent changes in Government environment policy have seen a sudden and dramatic reduction in power station coal traffic (82% fall in tonne km between 2014 and 2015).

2.6.19 Moving freight by rail will inevitably require interchange with other modes, and whilst most of the UK's major ports are enhancing or reinstating their rail links, most of the inland rail freight interchanges which served the non-bulk freight market (eg consumer goods) have been lost to redevelopment during the past 50 years, or no longer suit the requirements of modern industry. Growth in rail freight traffic has in part been fostered by new Rail Freight Interchanges (RFI) within the UK, a combination of larger 'Strategic' (SRFI) developments with rail facilities integrated into large distribution parks at key rail / motorway intersections, as well as smaller satellite railheads. The latest National Policy Statement on National Networks reiterates the Government support for further rail freight interchange capacity.²⁶

2.6.20 The majority of SRFI developments to date have been in the Midlands, sites such as Daventry (DIRFT), Hams Hall and BIFT located close to the 'Golden Triangle' concentration of national distribution activity around the M1, M6 and M69 motorways. The success of these developments reflects:

- The existing concentration of national distribution activity (ie longer-distance and/or higher-volume traffic where rail is most competitive) in the Midlands;
- Strategic locations on road and rail networks (the latter on routes able to carry 9'6" high containers);
- The ability to create large-scale development on site, as much in the overall quantum of floorspace as in the size of individual buildings (delivering significant potential rail traffic alongside the rail network);

²⁶ <https://www.gov.uk/government/publications/national-policy-statement-for-national-networks>

- Proximity to major sources of employees and relatively distant from major residential areas.

- 2.6.21 Other SRFI and RFI have also developed along the M1 and M6 corridors, the North West, Yorkshire and the Scottish Central Belt, again reflecting other regional clusters of distribution activity.
- 2.6.22 At present there are around 50 SRFI and RFI in Great Britain with intermodal facilities and/or rail-served warehousing, accounting for 60 million ft² of floorspace, some 3.6% of the national total. In addition, at least 15 other proposals exist for new developments, accounting for a further 45 million ft² of floorspace.

Forecast growth

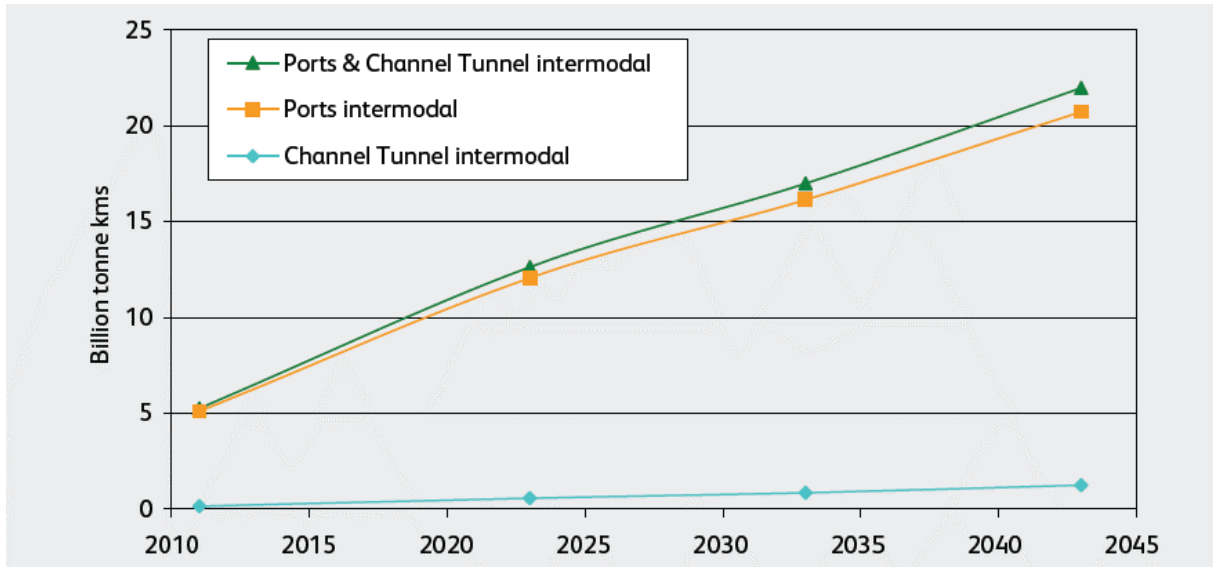
- 2.6.23 It is apparent that the factors driving demand for rail freight in the years immediately following privatisation have taken longer to realise than originally expected. This impacted on the rate of growth anticipated by Government in those early years. The former Strategic Rail Authority developed policy strategies on freight to help industry unlock an estimated 80% growth potential in rail freight traffic (tonne km) between 2000 and 2010. Whilst overall traffic growth over the same period was closer to 6%, nearly 70% growth was then achieved between 1995 and 2005 (75% between 1995 and 2014).
- 2.6.24 A joint report produced in May 2009 by Network Rail in association with the passenger and freight train operators associations (ATOC and RFOA)²⁷ noted that despite economic conditions, demand for passenger and rail freight services was expected to double over the next 30 years and possibly triple beyond that. The report set out a vision for rail increasing its market share from 11.5% to 20% of surface freight.
- 2.6.25 In June 2009 Network Rail published further long-range forecasts in connection with its Network Route Utilisation Strategy (RUS) process. The 30-year forecasts from 2001 to 2031 focussed on 4 alternative scenarios for the future, to examine the impact each would have on demand for long-distance freight services, taking account of factors including economic growth and development, social trends and sustainability.
- 2.6.26 In each of the 4 scenarios, the forecasts for intermodal traffic showed positive growth, with deepsea (maritime) traffic forecast to increase by 60% to 300%, and domestic traffic increasing by 200% to 1200%. In the case of domestic traffic, Network Rail noted that the level of growth was dependent on assumptions about rail freight interchange capacity.²⁸ This reflected the earlier forecast scenarios in the Government policy on Strategic Rail Freight Interchanges (SRFI)²⁹ which indicated that the greater the availability of rail-served warehousing, the higher the forecast rail freight tonnage.
- 2.6.27 In terms of forecast onward growth, Network Rail anticipates further significant increases in intermodal traffic, as shown in Figure 3 below. The port's intermodal market sector is forecast to have annual growth to 2033 of 5.4% in tonne kilometres and 5.8% in tonnes. Tonne kilometre growth is slightly lower than tonnage growth due to a reduction in average haul length, reflecting improved rail competitiveness for shorter distance journeys. The forecast growth, in terms of both tonne kilometres and tonnes, reflects continued trade growth and favourable economic factors for rail, such as fuel and wage growth assumptions. Channel Tunnel intermodal traffic is forecast to have annual growth to 2033 of 8.3% in tonne kilometres and 9.4% in tonnes. The forecast growth reflected an assumed reduction in Channel Tunnel charges, a process which has since been instigated by Eurotunnel.

²⁷ Planning Ahead, Network Rail/ATOC/RFOA 2009, pages 1 and 7

²⁸ Network Route Utilisation Strategy: Scenarios & Long Distance Forecasts, Network Rail 2009, page 7

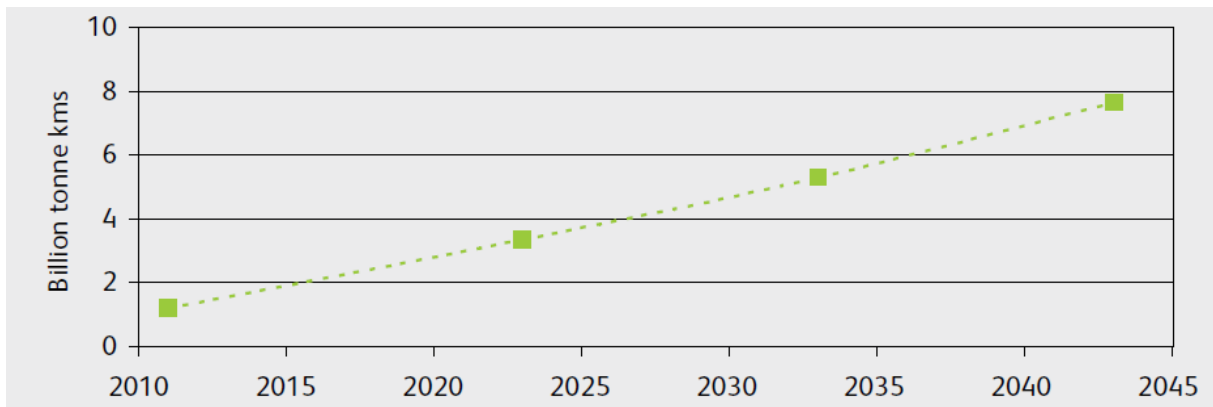
²⁹ Strategic Rail Freight Interchange Policy, Strategic Rail Authority 2004, Appendix G

Figure 3 Forecast rail freight tonnes moved, Ports & Channel Tunnel intermodal (Network Rail)



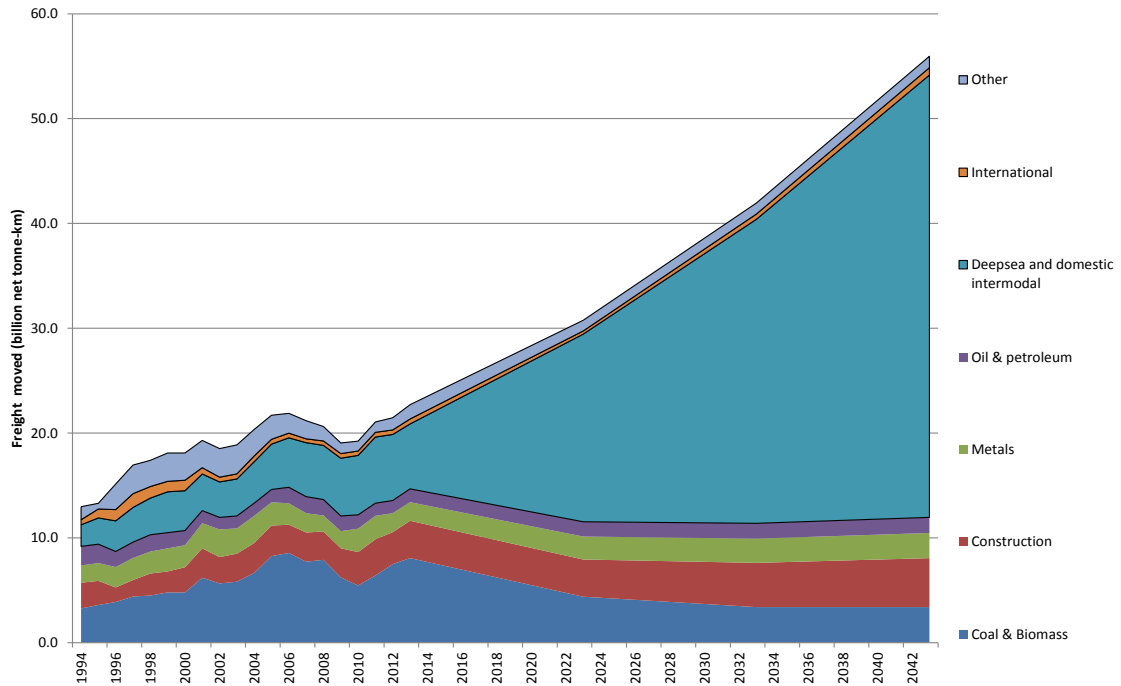
2.6.28 For domestic intermodal traffic, Network Rail forecasts average annual growth in tonne kilometres to 2033 in the range of 6 to 12%, with a central estimate of 7% as shown in Figure 4 below. As with the port intermodal forecasts, the annual growth expected for tonne kilometres is slightly lower than for tonnes and this reflects a reduction in average haul length from improved rail competitiveness for shorter journeys.

Figure 4 Forecast rail freight tonnes moved, domestic intermodal (Network Rail)



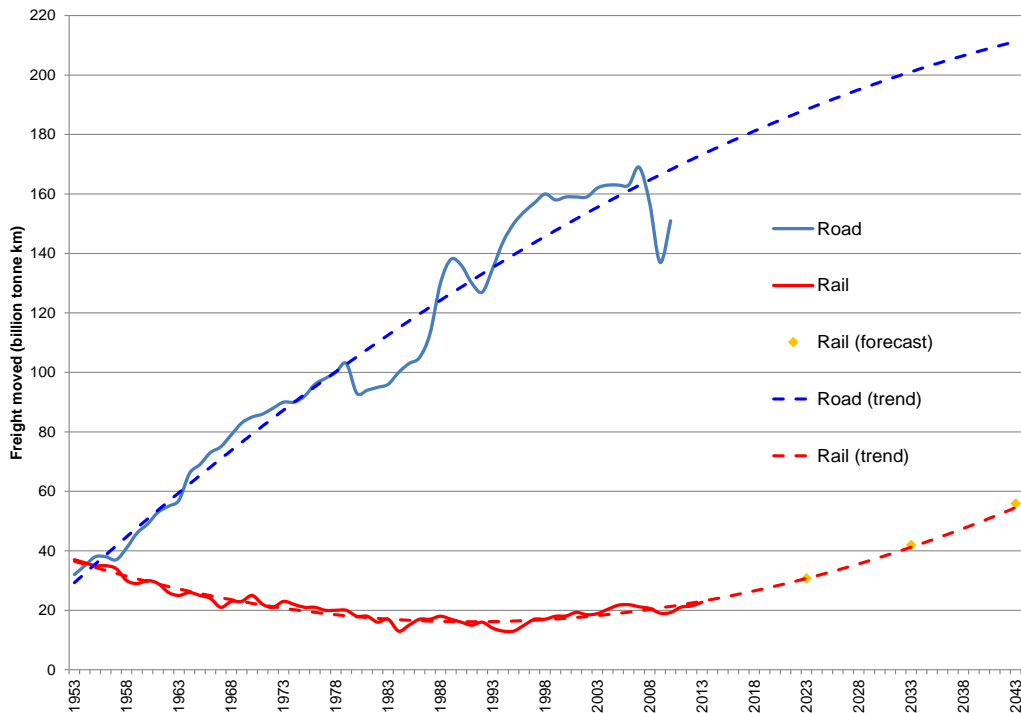
2.6.29 The charts below show different views of these forecasts. Figure 5 below shows a 50-year time series with rail freight performance since privatisation and the Network Rail unconstrained forecasts through to 2043, which would suggest that considerable effort will be required by the rail freight industry (aided where possible by public policy) to achieve such high rates of growth over the next 30 years.

Figure 5 Rail freight actual and forecast traffic (tonnes moved), 1994-2044



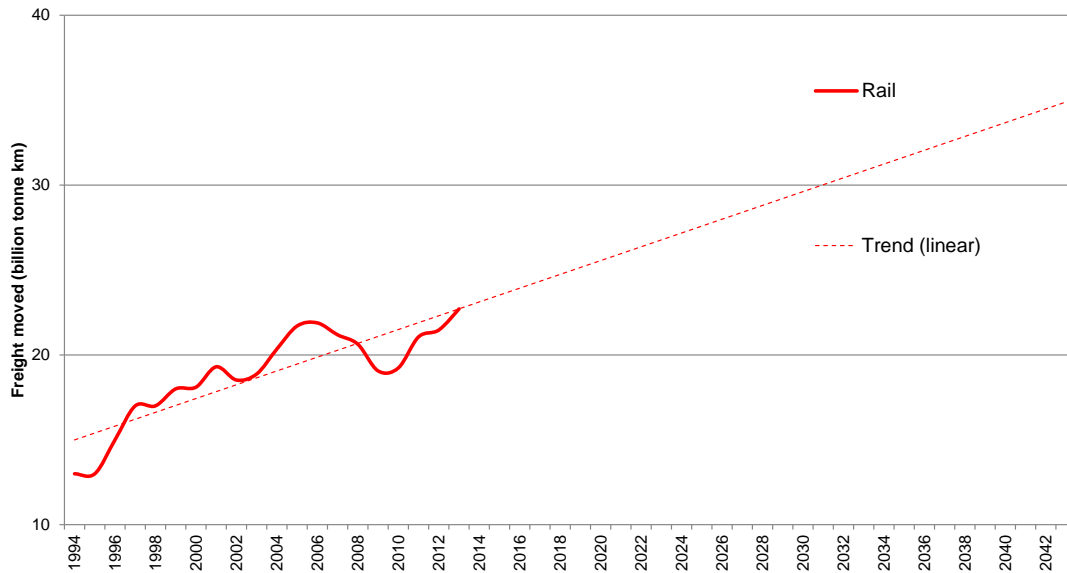
2.6.30 In comparison, Figure 6 shows a 90-year time series for road and rail freight, where in the case of the latter, the latest forecasts would appear to be in line with the long-term recovery trend for rail.

Figure 6 Road and rail freight traffic (tonnes lifted) and trends, 1954-2044



2.6.31 In practice, we would expect actual growth in rail freight (based on current road/rail economics and performance, and public policy) to be closer to the straight-line trend since privatisation, achieving closer to 30-35 billion tonne km by 2043 (see Figure 7 below) compared to the unconstrained forecast of 56 billion tonne km.

Figure 7 Rail freight traffic (tonnes lifted) and trend, 1994-2044



2.6.32 As background context to opportunities for rail freight in Ireland, the UK has similarly experienced a long post-war decline in rail freight, driven by structural change in industry combined with railways falling out of favour with business, society and politicians. The UK's increasing dependence on road haulage over the last 60 years has been checked by political and commercial concerns, such that rail freight traffic has grown considerably over the last 20 years. Whilst rail remains a relatively small player in the freight market, it nevertheless supports a number of major supply chains underpinning manufacturing, international trade, construction and energy supply, sufficient to attract support from Government policy and funding as well as from end users.

3 The national context for rail freight

3.1 Introduction

- 3.1.1 Amongst the four principal rail freight services in Ireland, three involve cross-country services linking County Mayo with the ports of Dublin and Waterford. Broadly speaking, rail freight services will tend to compete better with road haulage on such longer-distance hauls where a critical mass of freight can be secured.
- 3.1.2 On this basis, any discussion about the potential for rail freight growth to and from the Western Region needs to be considered within the wider national perspective, as most of the latent demand potential is likely to be derived from cross-country, rather than local, flows of traffic.

3.2 The role of transport in national public policy

- 3.2.1 In its Spring 2015 Budget Statement, the Government noted how the Irish economy experienced very strong growth during the 1990s, driven mainly by Foreign Direct Investment (FDI) which in turn generated robust export growth. By the mid-2000s, however, economic activity had become unbalanced. In particular, construction activity grew to unsustainable levels on the back of relaxed credit standards and a speculative bubble in property prices emerged. This had knock-on effects on the tradable sector of the economy as rising prices and labour costs led to a loss in competitiveness. The Central Statistics Office (CSO) notes that over the period between 2008 and 2013, Gross Domestic Product (GDP) fell by 0.8% per annum at constant prices³⁰ (referenced to 2012), from €152bn to €146bn.
- 3.2.2 The current economic outlook, as set out in the Spring Budget Statement and more recent Infrastructure and Capital Investment Plan³¹, notes room for cautious optimism, with a modest recovery in economic activity, led by the exporting sectors “as would be expected for a small open economy like Ireland.” With falling unemployment, exports at historic highs and strong growth in GDP (5.2% over the last year), the Government believes there is a realistic prospect of achieving growth over the medium term, subject to the right fiscal and economic policies being implemented.
- 3.2.3 Government policy seeks to support a number of sectors in the economy, including agriculture and manufacturing, with measures which aim to build on Ireland’s success in attracting FDI and multinational companies. In addition the Government is looking to spread economic growth across all regions of Ireland, with initiatives including a €250m fund to accelerate job recovery, with the Industrial Development Agency (IDA Ireland) rolling out a five-year €150m capital investment property programme to help attract more multinational jobs into each region. The Infrastructure and Capital Investment Plan seeks to combine direct investment by the Exchequer of €27 billion, a third phase of PPP (Public / Private Partnership) investments of about €500 million and State-owned sector investment of around €14½ billion.
- 3.2.4 Further investment in transport infrastructure reflects Government policy and research, which in recent years has highlighted the problems for manufacturers and exporters due to transport-related issues. In the (former) Forfas document “Making it in Ireland: Manufacturing 2020” (2013), the Government noted:

³⁰ Constant Prices means the change after any increases or decreases due to price changes have been removed.

³¹ Building on Recovery: Infrastructure and Capital Investment 2016-2021, Department of Public Expenditure & Reform 29 September 2015

As Ireland is an island location, costs involve a number of elements including the less tangible costs of 'time to market' which are impacted by infrastructures, modes of transport and services. The costs of transport are particularly relevant to manufacturing firms.... given that they are involved in the movement of goods. They also have significant implications for Irish owned logistics providers that form an essential part of the eco-system for manufacturing in Ireland, and that compete against international players (even in the domestic market).

The significance of transport costs to a firm depends on the value and volume of the product in question. For example, export costs are less of a concern for firms dealing with high value/low volume products such as pharmaceuticals than is the case for low value/high volume products, such as food. Many companies involved in the food sector in Ireland also incur the costs of transporting inputs from regionally dispersed firms, so that domestic fuel costs have a greater bearing on them.

In general, for manufacturing firms the most substantial cost of exporting is shipping. Ireland is at a cost disadvantage in relation to all freight transport modes compared to other European countries, although this is not surprising given Ireland's peripheral location. Effective integrated internal and international transport links (including roads, rail, air and sea) can serve to mitigate the impact of Ireland's location in the eyes of potential investors and overseas customers.

Recognising that there has been much development of the transport infrastructure in Ireland, capital investment in major transport infrastructural projects has reduced significantly over recent years. Sustained investment in the upgrading and maintenance of Ireland's transport infrastructure is of vital importance to the manufacturing sector which relies heavily on efficient and adequate transport links in order to successfully do business. Transport infrastructure must also be responsive to the changing needs of manufacturing firms. While capital resources are limited, it is critical that any prioritisation of investment will support economic recovery and the activities of manufacturing firms.

- 3.2.5 The report referenced an earlier Forfas document "Overview of the Main Infrastructure Issues for Enterprise (2012)", which stated in relation to transport that:

Good international air and sea access coupled with effective internal connectivity is a key factor in mitigating the impact of Ireland's peripheral location in the eyes of potential investors and overseas customers. An efficient and integrated national transport system with adequate capacity, and with levels of service comparable to other countries with which we compete for investment and trade, plays an essential role in achieving this.

Greater clarity is needed on Ireland's rail freight policy objectives, including rail freight's role as part of an integrated transport system across all modes of transport. We need to improve awareness of the recent expansion of rail freight services and promote its use. Future investment in rail freight must be driven by market demand, both existing and potential.

- 3.2.6 This acknowledgement in economic policy of the role of transport (including rail freight) is further enhanced by the recent statement in the Infrastructure and Capital Investment Plan, which notes:

It is therefore essential that road, rail and public transport networks are developed and maintained to the standard required to ensure the safe and efficient movement of people and freight... In advance of the Mid-Term Review, the Government will commission a feasibility study to examine options for expanding freight transport on the railways.

3.2.7 Yet the challenge of trying to invest in transport infrastructure with only limited funding available is set out in the Department of Tourism, Transport & Sport (DTTAS) document “Investing in our transport future: A strategic framework for investment in land transport” (2014). The balance of priorities for funding is made clear in the report, noting:

In view of the capital funding and operational subvention necessary to maintain and operate our rail network, together with the levels of revenue generated from the network, the current situation with regard to rail is not financially sustainable. The need to ensure value for money must be central to future rail policy.

A strategic road network of national, regional, and strategically important local roads, vital to the functioning of our transport system and local economies, should also be defined and funding targeted there.

3.2.8 Whilst these priorities are understandable against the wider economic challenges facing the country, there is a need to regenerate manufacturing and exports (from what is a geographically-peripheral EU Member State), as well as tackle the increasingly urgent climate change agenda. This suggests that the role of freight transport in general, and rail freight in particular, needs a national debate backed by a suitable policy framework. It is to be hoped that the National Low-Carbon Roadmap process (see below) and proposed national study into rail freight (see above) will help push this debate forward.

3.2.9 In terms of transport activity in Ireland, in recent years (mirroring the economy) there has been a dramatic decline in traffic moved by road in Ireland, where between 2007 and 2012 tonnes lifted fell by 18% per annum, from a peak of 299m tonnes to 108m tonnes. Tonnes moved fell over the same period by 12% per annum, from 18.7bn tonne km to 9.9bn tonne km. Yet over the same period, tonnes lifted and tonnes moved by rail fell at a lower rate of 7% per annum, from 825,000 tonnes to 567,000 tonnes and from 129m tonne km to 91m tonne km respectively. This has in part reflected a growing desire from Irish Rail in recent years to re-engage with end users looking for an alternative to road haulage.

3.2.10 The latest Government statistics for road haulage indicate that between 2013 and 2014 road freight traffic has resumed growth in tonnes lifted (up by 3.4% to 112.5m tonnes) and tonnes moved (up by 6.9% to 9.8 billion tonne km). The average number of registered goods vehicles in 2014 increased to an estimated 83,700 vehicles, which was the first annual increase since 2007 when the number stood at 97,800.

3.2.11 CSO rail freight traffic statistics and the latest Irish Rail annual report both confirm that between 2012 and 2013 rail freight traffic increased, with tonnes lifted up by 9% to 589,000 tonnes and tonnes moved up by 4% to 98.8m tonne km.³²

3.2.12 It is apparent that transport is a key component of another major policy challenge for Government, in terms of “decarbonising” the economy by reducing emissions. The Transport Trends document notes:

The transport sector has a key role to play in Ireland’s sustainable development and this presents a significant challenge... The transport sector accounted for the largest share of Ireland’s primary energy demand in 2013 at 33% with the residential and industrial sectors responsible for 27% and 24% respectively.

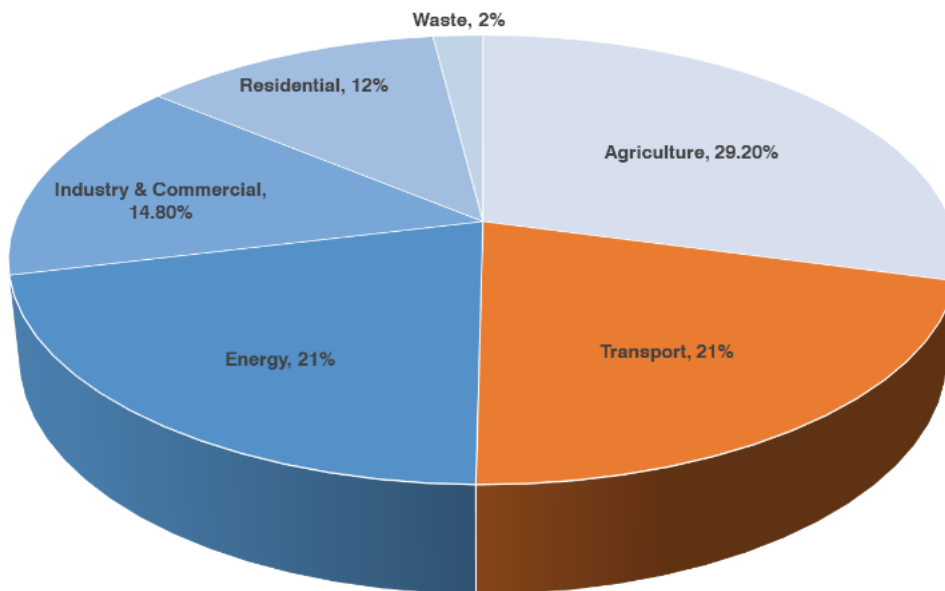
³² Transport Trends: An Overview of Ireland’s Transport Sector, DTTAS Economic and Financial Evaluation Unit, edition 1/2015

Transport's primary energy demand fell from 5,807 thousand tonnes of oil equivalent (ktoe) to 4,204 ktoe between 2007 and 2012. However, 2013 saw an uptake in demand in line with increased transport use to 4,326 ktoe. By 2020, emissions from the transport sector are projected to increase from 2013 levels by between 15% and 25% depending on policy choices.

3.2.13 To try and set this in context, in 2007 road freight in Ireland moved some 18.7 billion tonne km of traffic, which corresponded to around 3.3 million tonnes CO₂e³³ in emissions³⁴, an equivalent emission rate of 0.177 kg CO₂e per tonne km. In the absence of more recent data from Ireland on road haulage emissions, the latest UK statistics for road freight emissions from all HGVs shows an estimated rate of 0.123 kg CO₂e per tonne km (down from 0.1499 kg CO₂e in 2011)³⁵. Using the UK rate as a guide, current road freight traffic in Ireland per annum (9.8 billion tonne km) would then equate to around 1.2 million tonnes of CO₂e.

3.2.14 The Climate Action and Low Carbon Development Bill 2015 sets out the national objective of transitioning to a low carbon, climate resilient and environmentally sustainable economy in the period up to and including the year 2050. The Bill provides for the preparation of five-yearly National Low Carbon Transition and Mitigation Plans (National Mitigation Plans or NMP) setting out how national greenhouse gas emissions are to be reduced, in line with both existing EU legislative requirements and wider international commitments under the United Nations Framework Convention on Climate Change (UNFCCC). As Ireland's greenhouse gas emissions profile are predominantly made up of emissions from agriculture, transport, energy and the built environment (see Figure 8 below), it is anticipated that it is in these sectors that most mitigation effort will be required. The Bill commits the Government to have the first NMP prepared by January 2017.

Figure 8 Ireland greenhouse gas emissions by sector, 2009 (Source: EPA 2011)



³³ CO₂e is the "equivalent" level of CO₂ emissions taking account of other major sources of pollution (methane and nitrous oxide)

³⁴ Source CSO (tonne km), EPA (total 2007 emissions from transport =14,389 kt CO₂e, of which road freight = 23%). CO₂e, CO₂e, or carbon dioxide equivalent, is a standard unit for measuring carbon footprints. The idea is to express the impact of each different greenhouse gas in terms of the amount of CO₂ that would create the same amount of warming

³⁵ Source UK Government conversion factors for Company Reporting, DECC / DEFRA 2015

3.3 Port traffic

- 3.3.1 In tonnage terms, the vast majority of Ireland's international trade is moved by sea rather than air, total port traffic (2013) amounting to 46.7m tonnes (down from a peak of 54m tonnes in 2007) compared to 128,000 tonnes by air (down from a peak of 144,000 tonnes in 2007). Some 84% of all port traffic is concentrated in the ports of Dublin (43%), Shannon Foynes (22%) and Cork (19%), with Dublin being the leading port for Roll-on, Roll-off (RoRo) and Lift-on, Lift-off (LoLo) traffic³⁶, Cork for liquid bulk and breakbulk and Shannon Foynes for dry bulk.
- 3.3.2 Dublin and Waterford have active rail freight connections and services. Rosslare retains rail access for passenger traffic only, Shannon Foynes sits at the end of a disused 26-mile branch line to Limerick last used in 2000, and Cork has a disused and disconnected container railhead at North Esk which closed in 2006.
- 3.3.3 In terms of growth trends in port activity, traffic levels peaked in 2007 but then fell back due to the global recession, such that throughput in 2013 was only 3% higher than in 2000. Whilst it is anticipated that a return to economic growth will see imports and exports increase again through the ports, the Government has yet to produce onward growth forecasts for port traffic, noting in the National Ports Policy 2013 of its intention to introduce regular forecasts from 2018.
- 3.3.4 At the end of June 2015 the European Commission announced funding from the Connecting Europe Facility which will benefit a number of Irish Ports, as shown in Table 4 below:³⁷

Table 4 Proposed CEF allocations for projects in Ireland, June 2015

Port	Project	Total cost	CEF grant	% CEF
Cork	Ringaskiddy Development	€72.9m	€12.4m	17%
Dublin	Alexandra Basin Redevelopment	€221.2m	€22.8m	10%
Shannon Foynes	Jetty Enhancement	€11m	€2.2m	20%
Shannon Foynes	Foynes Rail Branch Reinstatement	€1.6m	€0.8m	50%

- 3.3.5 The EC has also proposed to support DTTAS with a rail resignalling project in Dublin City Centre, with up to 30% (€17.6m) of the total €58.6m project cost, which may help improve cross-city capacity for freight trains to and from Dublin Port. The next round of CEF bids are due in January 2016, creating opportunities for Irish Rail and the ports to secure further funding for improvements.

3.4 Road haulage traffic

- 3.4.1 As noted in the previous Chapter, domestic road haulage (ie excluding foreign-owned trucks) has seen a dramatic decline in traffic moved by road in Ireland over recent years in line with the recession, with a recent recovery in tonnes lifted by to 112.5m tonnes, and tonnes moved to 9.8 billion tonne km.
- 3.4.2 From the latest statistics for 2014 it is possible to estimate a typical day's work for a goods vehicle, as follows:
- 60,684 goods vehicle trips per day, each trip being on average 87km in length, of which;

³⁶ Roll-on, roll-off traffic comprises vehicles which are physically driven on and off ships (eg trucks, trailers), whilst Lift-on, lift-off traffic is physically lifted on or off ships by crane (eg shipping containers). Source CSO

³⁷ http://europa.eu/rapid/press-release_IP-15-5269_en.htm

- 40,376 are loaded, with an average payload of 11.28 tonnes;
- 20,308 are empty.

3.4.3 The average trip length for a goods vehicle equates with the likely minimum distance that movement of bulk goods (eg ores) would be viable by rail between two rail-connected points with no intermediate road haulage (eg Tara Mines from Navan to Dublin Port). For most non-bulk traffic, rail would therefore be looking to target haulage distances some way above the average for road haulage. With rail becoming more competitive with distance, tonnes moved by road decline as length of haul increases, eg:

- Journeys by road of 150-500km: 18% of tonnes lifted (20.6m tonnes)
45% of tonnes moved (4.4bn tonne km);
- Journeys by road over 500km: 1.2% of tonnes lifted (1.4m tonnes)
13% of tonnes moved (1.3bn tonne km).

3.4.4 To set these figures in context, these flows would represent the following number of trainloads based on current average train payloads (c.400 tonnes per train):

- 150-500km: 206 trainloads per day;
- Over 500km: 14 trainloads per day.

3.4.5 In terms of vehicle size / payload, nearly 60% of tonnes lifted, 63% of tonnes moved and 33% of laden journeys were made in vehicles over 12.5 tonnes unladen weight, which represent just 12% of all goods vehicles in Ireland. Rail is therefore primarily having to compete for traffic with the largest and most efficient goods vehicles on the road network, road haulage being aided by a further increase in maximum permitted gross vehicle weight in 2013, from 44 tonnes to 46 tonnes.

3.4.6 By commodity, the majority of road haulage traffic (80%) is in the following groups (Table 5):

Table 5 Largest road freight flows by commodity, tonnes lifted (source CSO 2015)

Commodity group	Tonnes lifted by road 2014 (m)	% of total
Quarry products, metal ores and peat	26	23%
Foodstuffs	21	19%
Other non-metallic mineral products	13	12%
Products of agriculture, forestry and fishing	12	10%
Other goods	12	10%

3.4.7 For tonnes moved, the equivalent commodities accounting for 80% of the total are shown in Table 6:

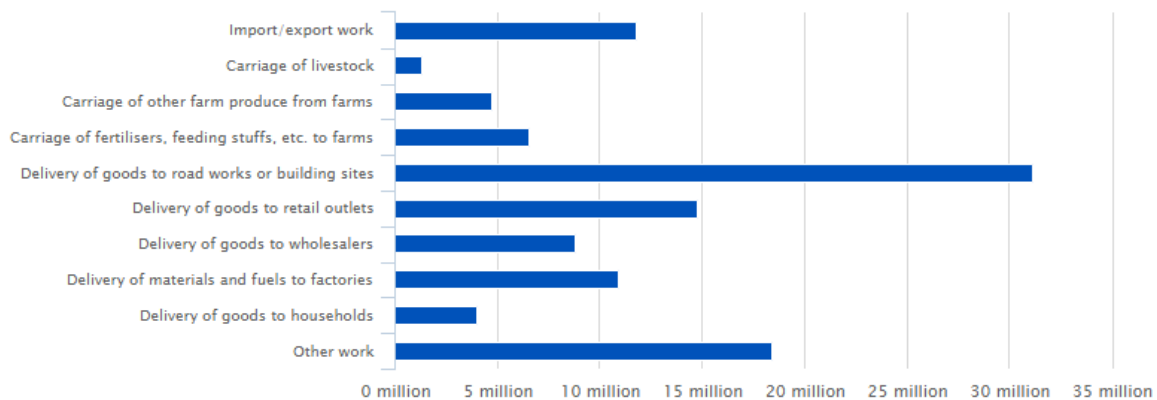
Table 6 Largest road freight flows by commodity, tonnes moved (source CSO 2015)

Commodity group	Tonnes moved by road 2014 (bn tonne km)	% of total
Foodstuffs	2.6	26%
Other goods	1.7	18%
Products of agriculture, forestry and fishing	1.1	11%
Quarry products, metal ores and peat	0.9	9%
Coke and refined petroleum products	0.8	9%
Other non-metallic mineral products	0.6	6%

3.4.8 The difference in rankings between the above Tables represents the different length of haulage between commodity groups, but most of these products could be carried by rail either in containers or conventional rail wagons (see Appendix D for a list of commodities previously carried by rail).

3.4.9 The CSO data also usefully disaggregates traffic by the type of work carried out by the goods vehicles, which is potentially as important as length of haul in identifying target flows for rail freight. Figure 9 below shows the breakdown of tonnage:

Figure 9 Quantity of goods carried by road in 2014 by type of work (source CSO 2015)



3.4.10 Of particular interest for rail freight would be traffic related to import/export work, retail, wholesale, factories and other work, totalling some 65 million tonnes per annum (625 trainloads per day @ 400 tonnes), 58% of total tonnage.

3.4.11 The regional breakdown of road haulage traffic (again showing only traffic carried in Irish-registered vehicles) is shown below in tonnes lifted (Table 7) and tonnes moved (Table 8). The data provided by CSO does not permit a specific analysis to be made of the Western Region, the constituent counties being spread across the Border, Mid-West and West regions. The regional analysis demonstrates considerable concentration of intra-regional freight traffic, where rail freight services might struggle to be competitive over the relatively short distances involved. The major concentration of activity in the Dublin, South West and South East regions reflects in part the local influence of the ports of Dublin, Cork and Waterford / Rosslare respectively, as well as the scale of economic activity.

Table 7 Road haulage regional breakdown, tonnes lifted 2014 (source CSO 2015)

M tonnes	Destination										Total
Origin	Border	Midland	West	Dublin	Mid-East	Mid-West	South-East	South-West	N Ireland	Other	
Border	7.25	0.31	0.56	1.32	0.51	0.09	0.32	0.13	0.21	0.53	11.22
Midland	0.55	3.17	0.43	0.59	0.42	0.38	0.68	0.22	0.03	0.08	6.54
West	0.57	0.23	5.39	0.50	0.24	0.20	0.18	0.11	0.00	0.06	7.49
Dublin	1.96	1.44	1.09	13.71	5.60	0.92	1.53	1.72	0.11	0.84	28.93
Mid-East	1.08	0.48	0.22	3.37	5.99	0.22	0.75	0.17	0.05	0.09	12.42
Mid-West	0.17	0.26	0.42	0.49	0.23	6.10	0.74	1.70	0.02	0.08	10.21
South-East	0.27	0.49	0.20	1.16	0.98	0.71	9.36	2.13	0.06	0.27	15.64
South-West	0.06	0.17	0.21	0.71	0.15	1.01	1.65	12.26	0.00	0.11	16.32
N Ireland	0.16	0.02	0.04	0.06	0.00	0.00	0.04	0.00	0.05	0.01	0.38
Other	0.50	0.06	0.07	0.61	0.08	0.03	0.21	0.09	0.01	1.71	3.36
Total	12.56	6.61	8.63	22.52	14.20	9.67	15.45	18.54	0.55	3.78	112.50

Table 8 Road haulage regional breakdown, tonnes moved 2014 (source CSO 2015)

M tonne km	Destination										Total
Origin	Border	Midland	West	Dublin	Mid-East	Mid-West	South-East	South-West	N Ireland	Other	
Border	315	33	70	167	42	22	68	39	16	153	924
Midland	59	149	45	61	33	30	65	48	3	29	521
West	52	23	238	100	45	21	38	23	1	30	570
Dublin	256	160	240	456	232	181	227	431	21	235	2,438
Mid-East	62	34	41	155	214	39	66	39	9	35	694
Mid-West	45	29	53	94	36	211	70	144	7	58	746
South-East	53	50	42	174	100	69	428	251	19	153	1,339
South-West	17	34	39	178	33	117	223	567	1	96	1,306
N Ireland	11	2	10	7	0	0	13	1	5	5	56
Other	115	23	18	284	39	22	112	74	7	482	1,177
Total	985	538	796	1,676	773	713	1,310	1,617	88	1,276	9,772

3.4.13 A graphical representation of road haulage traffic flows across Ireland and Northern Ireland is shown in Figure 10 below for tonnes moved in 2005, together with the more recent Figure 11 from the NRA showing HGV daily traffic flows. These highlight the concentration of traffic around the Dublin area (21% of all daily trips), and between Dublin and the West, North West and South East Ireland. Figures 10 and 11 also highlight other significant cross-border flows with Northern Ireland which are not reflected in the above tables, and hence are presumed to represent NI-based and other foreign-registered HGVs.

Figure 10 Freight tonnes moved by road between NUTS 3 regions, 2005³⁸

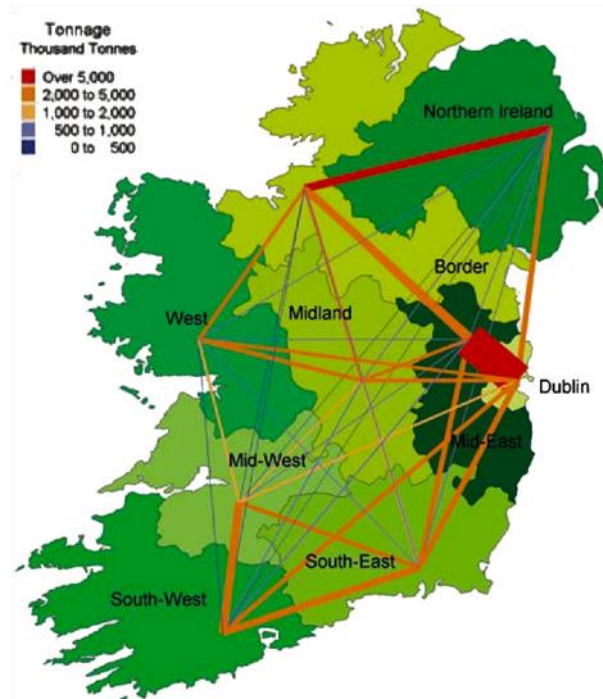
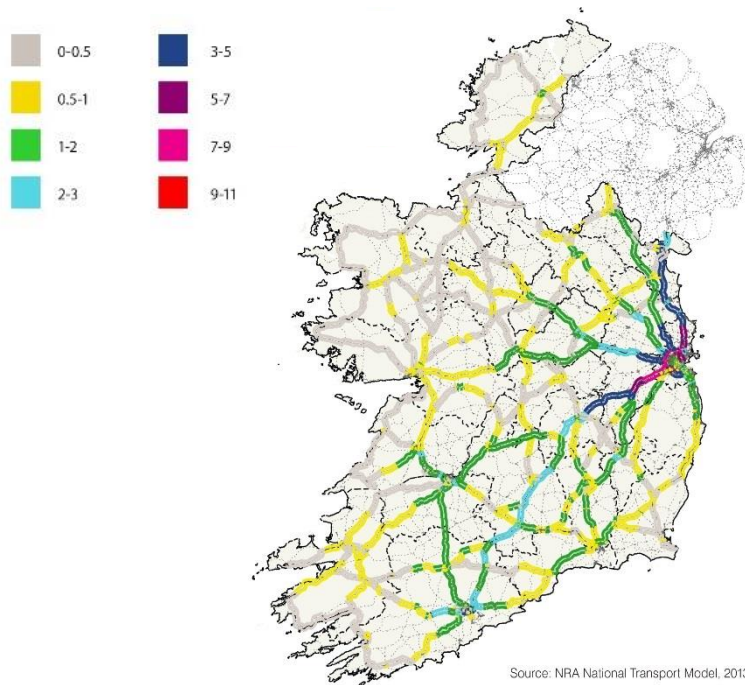


Figure 11 Annual Average Daily Traffic (AADT) for HGVs (thousands per day)



³⁸ Freight Transport Report for the Island of Ireland, InterTradelreland 2008

- 3.4.14 In terms of forecast growth, the National Roads Authority has concluded (as in the UK) that the historically-reliable linkage between GDP and freight transport activity has “decoupled” over the last decade (research is in hand to try and explain why), but is still using GDP as the basis for forecasting growth in road freight carrying capacity.
- 3.4.15 In the latest NRA forecasts³⁹, GDP is forecast to increase between 47% and 53% by 2030 and between 87% and 115% by 2050. The HGV fleet is forecast to increase between 45% and 50% by 2030 and by between 82% and 108% by 2050. Growth in the HGV fleet, in all three scenarios, is projected to be lower than the growth experienced to date. The HGV fleet increased some 230% from 23,085 vehicles in 1983 to 76,406 in 2012, an average of 4% per annum. The growth forecast in the future is in the region of 1.6% to 2% per annum depending on the scenario. Slower growth in the HGV fleet is expected by the NRA in the long-run for several reasons, including slower growth in the economy, limits on the volume of HGV traffic that would be “tolerated” (which should have positive implications for rail use) and improvements in infrastructure and logistics (eg greater use of ICT).
- 3.4.16 In terms of the impact on road traffic, forecasts of HGV traffic to 2040 produced by the NRA in 2003⁴⁰ suggested HGV traffic on all roads growing by a further 85% by 2040. In terms of tonnes moved (a useful measure by which to assess the potential for rail capture), the trend since 1991 has been for an average of 2.8% growth per annum in HGV tonne kilometres; this compares with the 3.3% growth in GDP forecast by the NRA, albeit acknowledged by the NRA that GDP and freight transport growth are no longer necessarily “hard wired”.

3.5 Rail freight traffic

- 3.5.1 Like the UK, rail freight traffic in Ireland has until recently seen continued decline since the post-war period, from a 22% mode share in 1960, to 16% in 1970, 10% by 1980 and bottoming out at 0.8% in 2008. Tonnes moved by rail fell from 500 million tonne km in 1998 to 91 million tonne km in 2012, the 84% reduction in traffic contrasting with the 75% increase in traffic in the UK over the same period. A wide range of commodities were previously carried by rail, as listed in Appendix D. The current set of rail freight services in Ireland are set out in Table 9 below, showing 2-3 trains per day to and from County Mayo:

Table 9 Current Irish Rail services (source Irish Rail)

Type	Average trains per day each way	Train Type	Operates between	Approx. distance each way (km)
IWT	1-2	Intermodal	Ballina (Co Mayo) and Dublin Port	275
DFDS	0.2 – 0.3	Intermodal	Ballina (Co Mayo) and Belview Port (near Waterford City)	342
Coillte	0.6	Bulk (pulpwood)	Ballina / Westport and Waterford	338
Boliden	Up to 3	Bulk (ore)	Tara Mines (near Navan) and Dublin Port	82

³⁹ National Transport Model, Demographic and Economic Forecasting Report, NRA / AECOM / ESRI, September 2014

⁴⁰ Future Traffic Forecasts, 2002-2040, NRA 2003

- 3.5.2 The traffic base thus comprises a mixture of bulk and non-bulk commodities moved on intermodal and conventional wagons. The intermodal services carry bulk liquids in tanktainers as well as general merchandise in ambient “dry” containers. Taller 9’6” high containers are moved as required in low-deck “pocket” wagons to circumvent headroom (loading gauge) restrictions on the network. In order to make the rail offer more competitive, Irish Rail is exploring the operation of longer freight trains, as well as reviewing the level of track access charges in the broader context of its overall cost structure.
- 3.5.3 Irish Rail’s current aspiration is to bring traffic levels back up towards a 4% share of the total domestic road and rail freight market within the next four years (as part of its current five-year plan) with the resources currently at its disposal (locomotives, wagons and traincrew). Based on the current road freight market (9,138 million tonne km) and rail freight market (99 million tonne km), a 4% share would represent around 369 million tonne km moved by rail.
- 3.5.4 Prospects for further growth will consist of a mixture of specific bulk / non-bulk flows, combined with more general traffic. The breakdown of the road haulage market (see above) in terms of tonnes moved shows significant flows of traffic in both bulk and non-bulk traffic, such that rail could be competitive in both short-haul bulk flows as well as longer-haul non-bulk flows – subject to the volume per shipment (ideally in multiple trainloads per week in both directions) and the proximity of the customer’s origin and destination to the rail network at either (or both) ends of the rail haul.
- 3.5.5 Based on past experience in Ireland and/or current experience in the UK and other EU member states, the types of traffic flow which would lend themselves to movement by rail include:
- Deepsea containers to and from (and between) ports;
 - Bulk traffic flows to and from ports (eg coal, ores, biomass, grain, scrap and other recyclates, metals, petrochemicals, forest products, bulk liquids, sea-dredged aggregates);
 - Other traffic flows between inland production / distribution centres and satellite sites (as above plus cement, waste for recycling or energy production, supermarket goods, general merchandise).
- 3.5.6 In determining what might constitute a reasonable and achievable mode share for rail in Ireland, the comparison with Scotland, Denmark and New Zealand suggests that in each case these other markets have a number of key features which make them all inherently more attractive for rail use (greater population, larger freight market, greater rail network density and/or lower road network density). Based on the current equivalent conditions in Ireland, mode shares of 14-17% (and the EU average of 19%) are unlikely to be obtained without major changes to road and rail infrastructure use and road / rail economics.
- 3.5.7 Irish Rail currently runs various services which, for intermodal, are still sustaining traffic despite train lengths and payloads being half those of the UK and other EU countries. In the short term therefore, it is assumed that rail freight services can be viable over the distances and volumes currently in place; any further work in strengthening the long-term viability of Irish Rail’s rail freight business (eg reducing costs and/or increasing the profit margin) should help sustain and enhance this position.
- 3.5.8 As will be discussed below, the scale of the untapped domestic freight market, the experience of recent traffic gains to rail, plus the response from Irish Rail and end users, suggests a mode share of 4% for Ireland is a reasonable prospect if a suitable level of rail service provision (ie rolling stock, traincrew, terminals, route and train capacity, transit time and price) can be achieved.

3.5.9 Assuming that underlying growth in the total freight market (tonnes moved) continues at the same annual rate achieved since 1991 (2.8% per annum), this would then produce the following results in terms of increased rail freight traffic and reduced emissions as shown in Table 10:

Table 10 Estimated impact of higher rail mode share on national freight traffic and emissions

Scenario	Total freight moved (m tonne km) with 2.8% annual growth	Freight moved (m tonne km)			Emissions per annum (tonnes CO _{2e}) ⁴¹		
		Road	Rail	Road	Rail	Net impact of rail use	% Reduction
Current 1% rail share	9,871	9,772	99	1,203,910	2,803	-9,394	0.8%
4% rail share by 2020	11,670	11,203	467	1,380,264	13,215	-44,296	3.1%
6% rail share by 2025	13,418	12,613	805	1,553,882	22,791	-76,393	4.7%
8% rail share by 2035	17,737	16,318	1,419	2,010,371	40,171	-134,644	6.3%

3.5.10 A 4% mode share target over the next 4 years, within an expanding freight market, would represent a 372% increase over current rail freight traffic. On this basis the current c.25 trains per week would (all other things being equal) have to increase to more than 90 trains per week.

3.5.11 The ability to then double rail freight mode share from 4% to 8% would then require significant and sustained investment by Irish Rail and/or third parties in rolling stock and infrastructure capacity, considerable growth in the total freight market and/or major changes to the balance of road/rail economics. This compares to the experience in the UK where rail traffic has grown by 75% in 20 years (with 7 separate rail freight operators) and almost doubled mode share from 6% to 11%.

3.5.12 In environmental terms, a 4% rail mode share by 2020 would reduce combined emissions from road and rail freight in Ireland by 3%, or by 6% with an 8% rail mode share by 2035. This compares with predictions from the Environmental Protection Agency (EPA) that, based on an average annual GNP growth rate of 3.3% for the second half of the decade, transport emissions will show strong growth over the period to 2020 with a 12- 22% increase on current levels depending on the level of policy implementation.⁴² Even a relatively modest increase in rail mode share would therefore make a meaningful contribution to reducing growth in emissions from the transport sector, and more than any equivalent initiatives in road haulage might achieve in the same timescale (eg improved load factors, aerodynamics, fuel efficiency and fuel mix).

3.5.13 In financial terms, using the former EC Marco Polo programme's value of €0.004 of subsidy per tonne km of mode shift⁴³ would mean a 4% mode share by 2020 would generate a shift of freight from road to rail with the equivalent value (ie cumulative net increase in rail tonne km over 2014 x €0.004) of €1.4m, or €5.3m for an 8% mode share by 2035. A review of the Marco Polo programme⁴⁴ indicated that every €1 of subsidy generated external benefits of €12.51, suggesting that an 8% mode share for rail freight in Ireland by 2035 attracting €5.3m of support would then in turn yield over €66m in external benefits.

⁴¹ CO_{2e} rates for road and rail source UK Government conversion factors for Company Reporting, DECC / DEFRA 2015

⁴² Climate Change Mitigation: Preparation of Low-Carbon Roadmap for Transport, Issues Paper for Consultation, DTTAS December 2013

⁴³ Level of subsidy as set by the EC for mode shift actions within the Marco Polo programme

⁴⁴ Ex ante Evaluation Marco Polo II (2007-2013), Final Report for the European Commission, ECORYS Transport June 2004, section 10.4

- 3.5.14 That said, achieving nearly a four-fold increase in rail freight traffic in the short term will be a challenge. In terms of competition from road haulage, the 2013 increase in maximum permitted gross vehicle weight for goods vehicles from 44 tonnes to 46 tonnes has now been further enhanced by the introduction of a fuel duty rebate scheme for tax-compliant hauliers, and most recently by an 82% cut in the top rate of vehicle road tax from €5,195 to €900 per annum. In addition, in identifying new customers for the railways it is important to note that small and medium sized enterprises (SMEs) account for a significant share of economic activity in Ireland. In 2012 SMEs accounted for 99.7% of active enterprises, 68% of persons engaged, 50% of turnover and 46% of gross value added (GVA).⁴⁵
- 3.5.15 On this basis the focus for rail freight traffic will need to focus on those larger enterprises which can generate significant volumes of traffic per week from a single location (eg ore from Navan, containers to/from Ballina and biomass to Killala), as well as logistics companies and facilities which are in business to aggregate traffic from a range of large and small enterprises into trainload quantities. In the UK, Tesco's decision to make a significant commitment to rail acted as a "game-changer" for the wider retail sector and the logistics companies and suppliers which support it. As in the UK, the ports also have a major role in consolidating freight traffic into the "critical mass" needed to support weekly or daily inland rail services. Air freight is unlikely to generate any significant traffic potential for the railways, as the volumes are relatively small (128,000 tonnes) and none of the main cargo airports (Dublin, Shannon, Cork) have rail access.
- 3.5.16 The next section therefore considers how business, Irish Rail and public policy might contribute to achieving further growth in rail freight traffic to and from the Western Region.

⁴⁵ Source Business in Ireland 2012, CSO - GVA is the gross income from operating activities and is the balance available to enterprises to pay employees and realise a return on investment.

4 Opportunities for rail freight in the Western Region

4.1 Economic activity

4.1.1 The Western Region (the counties of Clare, Donegal, Galway, Leitrim, Mayo, Roscommon, Sligo) together account for 37% of the land mass and around 18% of the total population in Ireland. Some 68% of employees are employed in the service sector, compared with 18% in industry and construction and 8% in agriculture, forestry and fishing. Echoing the national trend, some 91% of the 29,795 active enterprises in the region are Micro-Enterprises (10 or fewer employees).⁴⁶

4.1.2 Analysis by the WDC of the 2012 CSO economic statistics notes the following on performance of the Western Region's economy, as far as can be determined from regional/county data:

- Household incomes:
 - The Household Disposable Income per person in the Western Region was €17,735 in 2012, a small increase on the level in 2011 (€17,593). It is still significantly below its peak of €21,167 in 2008. The Western Region Household Disposable Income was 91.1% of the state average (€19,468);
 - Disposable Income in all counties grew between 2003 and 2008, and then fell in all counties to 2011. The 2012 data is the first to show growth in disposable incomes in some counties of the Western Region (Sligo, Galway, Mayo and Roscommon). Galway experienced a growth of 2.9% and Sligo a growth of 1.6%. Growth in income did not occur in all Western Region counties, it fell in Donegal by 2%, Leitrim by 0.4% and Clare by 0.1%.
- Economic output (Gross Domestic Product and Gross Value Added⁴⁷):
 - Overall, Western Region output is estimated to represent some 9-10% of the national total;
 - In terms of GDP (equivalent of GVA at national level), Dublin alone produced almost 42% of national GDP. However, given the importance of commuting in this region it is more useful to consider Dublin and the Mid East together. The counties of Dublin, Meath, Kildare and Wicklow together produce almost 50% of national GDP. Dublin, the Mid East and South West combined produce more than two thirds (68.3%) of national GDP. Despite good growth in the West Region, it still only produces 8% of the national GDP (though this was the third highest regional contribution);
 - GVA in 2012 was still below that of 2007 in all regions except the West, where recovery has been strong. Dublin and the South West also showed strong signs of recovery with GVA for 2012 close to that in 2007. In other regions (especially the Border, Midland and the Mid East) the GVA for 2012 is still significantly below that of 2007;
 - While Dublin contributes 41.9% of national GVA, the West contributes 8.0% and the Border 6.2%. These figures are influenced by the numbers of economically active people, commuting, the

⁴⁶ WDC website <http://www.wdc.ie/county-profiles/western-region/>

⁴⁷ GDP and GVA are the same concept i.e. they measure the value of the goods and services (or part thereof) which are produced within a region or country. GDP is valued at market prices and hence includes taxes charged and excludes the value of subsidies provided. GVA at basic prices on the other hand excludes product taxes and includes product subsidies.

presence of multinationals as well as the productivity and the levels of capital in each of the regions;

- The BMW region contributed almost a third (30.3%) of the national GVA from Agriculture, Forestry and Fishing in 2012, just over a fifth of Manufacturing, Building and Construction (20.9%), and 16.0% of Market and Non Market Services. Manufacturing is much more significant in the West region (40.2% of GVA) than in Border or Midland regions, while Services are more significant in the Midland region (77.3%), and Agriculture is slightly more important in the Border region (3.4%).

4.1.3 These figures highlight the dominance of Dublin within the national economy, beyond which the Western Region (and the wider BMW region) derives a significant level of GVA from agribusiness, manufacturing and construction.

4.2 Transport infrastructure

4.2.1 Figure 12 overleaf shows the Western Region and major highway links to the rest of Ireland, which comprise the M4/N4/M6/M7 east-west motorway routes linking Sligo, Leitrim, Mayo, Roscommon, Galway and Clare with Dublin, the N15/N17/M18 north-south routes linking Donegal with Clare, and the N3/A5 routes connecting the north west with Dublin. The M18 is currently being extended northwards from Gort in Co. Clare to Tuam in Co. Galway, to be opened in 2017/18 with a journey time saving of approximately 20 minutes.

4.2.2 The map of daily HGV traffic flows (see Figure 11) shows relatively light traffic in the Western Region, with typically no greater than 1,000 HGVs per day on the major routes. Overall traffic flows (including other vehicles) reach around 10-17,000 vehicles per day on the M6, M18, N4 and N15, with heavier flows of 25-50,000 vehicles per day on the M18 north of Limerick. HGV traffic becomes considerably heavier further east around Dublin and to a lesser extent around Cork.

4.2.3 Further analysis using the most recent NRA traffic count data on key highway crossing points to and from the Western Region (Figure 13 overleaf) estimates a total of nearly 5,000 goods vehicle movements crossing to and from the Region per day, ranging from some 130 per day on the N16 to/from Northern Ireland at Blacklion, up to 1,300 per day on the N18 into Limerick and the N/M6 through Athlone.

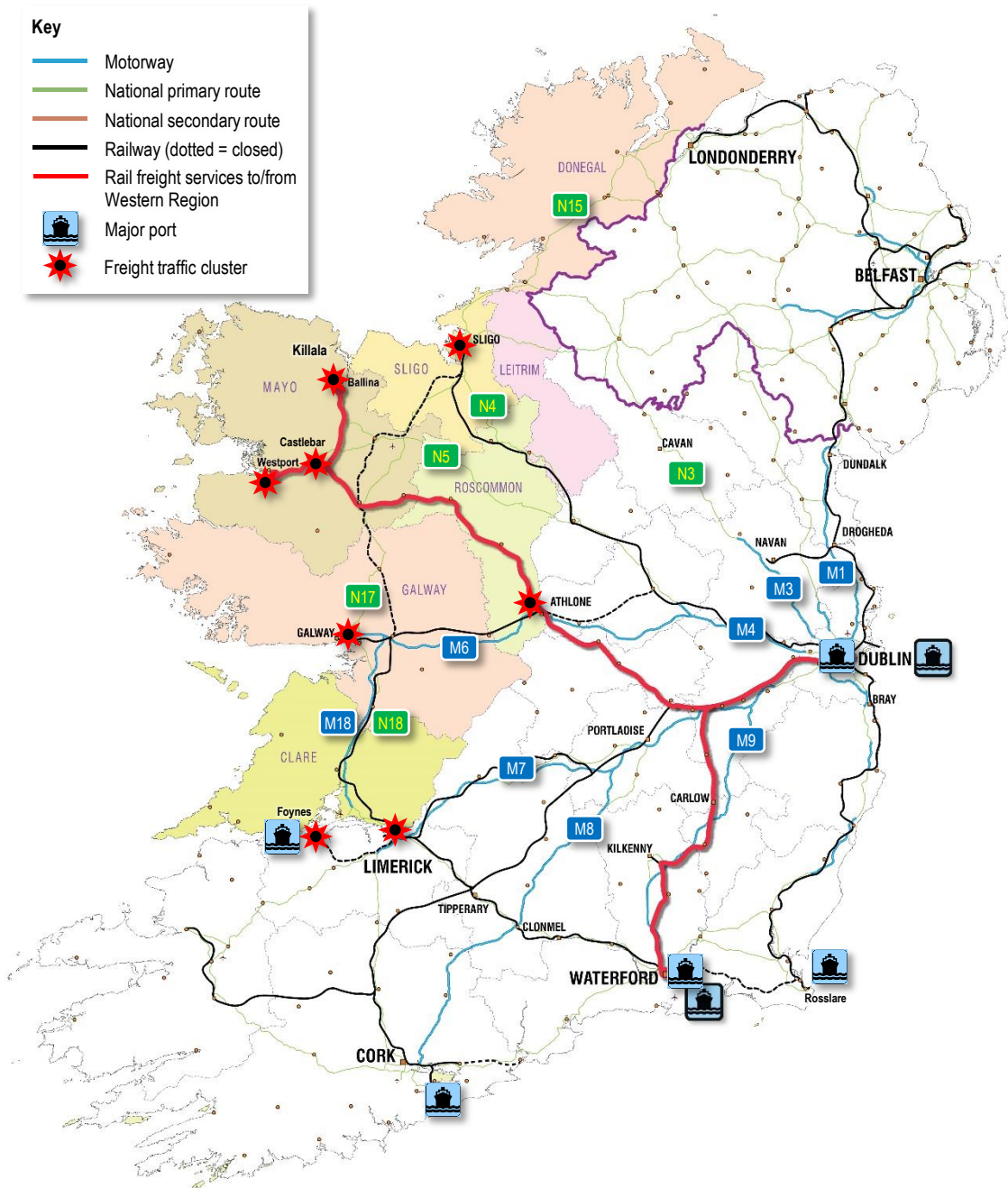
4.2.4 Whilst the motorway routes outside of Dublin and Cork appear to show little signs of major congestion outside of the morning and evening peak periods, other cross-country National roads in the Western Region can suffer from slow transit times due to poor road conditions (eg width and sightlines), a lack of dual-carriageway sections and a significant level of agricultural traffic in more rural locations. The need for better infrastructure to and from the area has been highlighted regularly over several decades by local industry such as the Mayo Industries Group⁴⁸ and various representative bodies including Chambers of Commerce, employer bodies such as IBEC⁴⁹ and statutory bodies such as the WDC and the Northern and Western Regional Assembly.⁵⁰

⁴⁸ The Mayo Industries Group represents companies including Ballina Beverages, Allergan Pharmaceuticals, Baxter and Hollister.

⁴⁹ <http://www.ibec.ie>

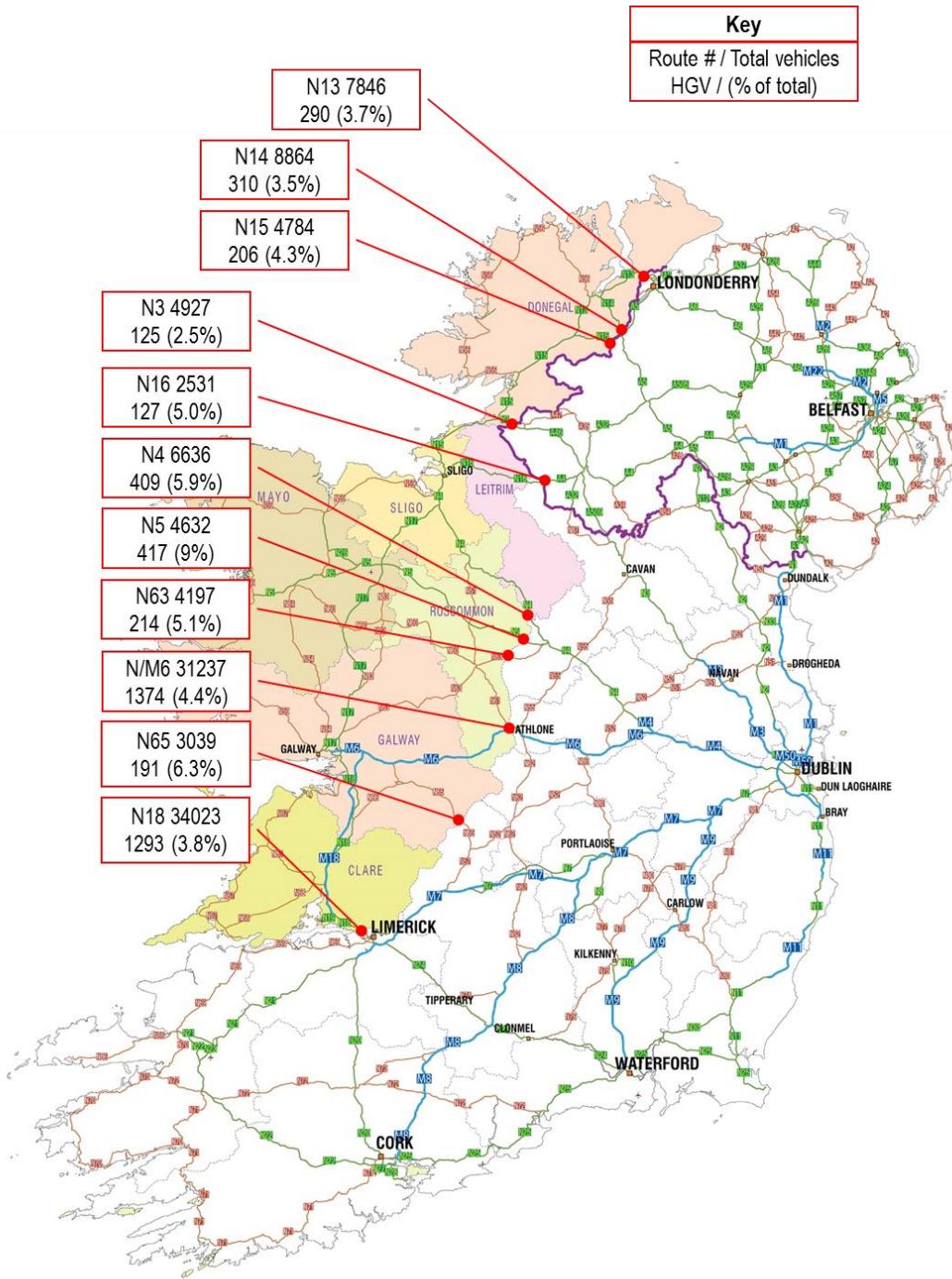
⁵⁰ <http://nwra.ie/about-the-assembly/> (formerly the Border, Midland and Western Regional Assembly)

Figure 12 Western Region and primary highway / railway routes



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Figure 13 Daily traffic count data on Western Region boundary (source NRA)⁵¹



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⁵¹ NRA 2014 data provides survey coverage between 91.2 - 99.7% of traffic movements at each site, data shown is for all sites scaled up to 100%. The routes surveyed cover the key motorway and primary highways, but there will be residual levels of traffic crossing Ireland on secondary routes not covered by the NRA surveys

4.2.5 The rail network comprises three main east-west routes linking Sligo, Ballina, Westport and Galway with Dublin, together with connecting routes via Portarlinton and Kildare for freight trains to and from the Port of Waterford. Like the UK, the rail network has suffered from considerable rationalisation over the last 50 years, with several routes in and around the Western Region in disused or derelict condition, including:

- Limerick - Ennis - Athenry – Claremorris - Collooney line (223 km), sections of which were closed between 1975 and 2009, the Limerick – Ennis – Athenry - Galway section reopening to passenger traffic in 2012. Separate proposals exist to reinstate the entire route to traffic and/or to establish a “greenway” for pedestrians and cyclists along the same corridor;
- Limerick – Castlemungret branch line in Limerick County (6km), which served the local Irish Cement factory and trains from the Kilmastulla shale quarry, last trains ran in 2009;
- Limerick - Foynes branch line in County Limerick, last trains ran in 1999, the route now being the subject of a feasibility study by Shannon Foynes Port using CEF funding.

4.2.6 A number of freight terminals previously existed on the network, some equipped with container handling cranes. Most have been out of use for several years (Cork North Esk, Limerick, Sligo) or removed (Dublin North Wall, Ennis and Mallow). Facilities remain in operation at Dublin, Waterford, and Ballina.

4.3 Freight market potential

4.3.1 To date, a relatively small number of stakeholders have generated a significant volume of rail freight traffic to and from County Mayo. Large manufacturers including Ballina Beverages, Baxter Healthcare and Coillte have provided the “anchor” traffic flows which Irish Rail and logistics companies DFDS and IWT can then blend with smaller “infill” traffic flows to generate daily or weekly trainload flows of traffic. Moving forward, similar “game-changer” opportunities (eg Mayo Power at Killala) will need to be identified to anchor additional trainload services which other companies and their traffic can then cluster around.

4.3.2 In order to determine the scale of the potential rail freight market opportunity, we have considered this from two perspectives, namely “top down” (disaggregating national freight statistics) and “bottom up” (market research and interviews with individual companies). The objective is to firstly identify how much of the total road freight market involves types of products, deliveries and distances where rail can typically best compete – in other words, how much of the market can be best “addressed” by a rail offer. Within this “addressable” market (quantified in broad terms by the “top down” analysis), the ability of rail to actually capture traffic will then be down to market knowledge, customer interest / awareness and the degree of competition with the incumbent road hauliers (examples being identified in the “bottom up” analysis).

“Top Down” statistical analysis

4.3.3 National CSO statistics on road freight for Irish-registered goods vehicles (Table 7 and Table 7) do not separate out traffic for the Western Region or at individual county level, but are instead disaggregated into NUTS3 regions.

4.3.4 To achieve a representative estimate of freight traffic to and from the Western Region, it is necessary to use other available published data to assist with separating NUTS3 regional data into its constituent counties, combining the NUTS3 West region (Galway City, Galway County, Co. Mayo and Co. Roscommon) with parts of the adjoining NUTS3 regions of Border and Mid-West (Co. Donegal, Leitrim, Sligo and Clare).

4.3.5 Two potential sources of county-level data are population and economic output (Gross Value Added or GVA), as freight transport activity will relate in part to where people live (for movement of goods for residents, consumers and employees) as well as where goods are produced. Table 11 provides a comparison between freight tonnage generated in each NUTS3 region against the equivalent data for population and GVA at basic prices by region, showing how the two indicators compare for the three target NUTS3 regions. GVA data has not been used as part of the regional freight disaggregation process, as the data is not available at County level and does not correlate to freight tonnes lifted as well as population.

Table 11 Comparison of regional freight transport against population and GVA (source CSO)

Indicator	Borde r	Midlan d	West	Dublin	Mid- East	Mid- West	South- East	South- West	Total / Averag e
Tonnes lifted by road (m)	16.5	10.0	10.7	37.7	20.6	13.8	21.7	22.6	153.7
Population 2011 (m)	0.51	0.28	0.45	1.27	0.53	0.38	0.50	0.66	4.59
GVA 2012 (€m)	9,795	5,261	12,589	65,987	12,147	10,447	11,742	29,512	157,481
<i>Tonnes per capita</i>	32	35	24	30	39	36	44	34	34
<i>Tonnes per €m GVA</i>	1,687	1,898	852	572	1,699	1,319	1,850	766	976

4.3.6 Local population data has therefore been used to determine the equivalent share of the Western Region's population in each of the three target NUTS3 regions. Appendix F shows how population in each NUTS3 region is broken down by local authority, together with the selected authorities / populations which then make up the equivalent Western Region.

4.3.7 In order to validate the above methodology, the NRA daily traffic count data for goods vehicles crossing in and out of the Western Region (Figure 13) has been combined with the CSO national road haulage data, from which to derive a comparative estimate of tonnage moved to and from (but not within) the Western Region. The results are shown in Table 12 below, the difference between the two approaches producing results within 5% of each other.

Table 12 Comparison of Western Region road freight tonnage estimates

	Based on population	Based on traffic counts
M tonnes lifted per annum to/from Western Region ⁵²	11.09	11.69
Tonnes per vehicle (average for Ireland)	11.28	11.28
Laden vehicles (67% of total vehicle trips)	3,151	3,321
Total vehicles	4,703	4,956

⁵² 2014 data, source CSO 2015 – excludes traffic starting and finishing within the Western Region, see Table 13

4.3.8 The two columns of data show the calculations from their respective starting points, ie:

- Population: 11.09m tonnes / 11.28 tonnes / 67% / 312 working days per annum = 4,703 vehicles;
- Counts: 4,956 vehicles * 67% * 11.28 tonnes * 312 working days per annum = 11.69m tonnes.

4.3.9 The CSO table on road haulage tonnages lifted to, from and within each NUTS region (Table 7) has then been reworked to expand the NUTS3 “West” region into an expanded “Western” region, by taking traffic out of the Border and Mid-West regions and adding this traffic into the West region. The share of traffic taken from these two adjoining regions is determined by the respective share of regional population falling within the Western Region (ie 100% of West, 50% of Border and 31% of Mid-West).

4.3.10 By reassigning traffic into a combined Western Region, the equivalent tonnages lifted to, from and within the Western Region are shown in Table 13 below, with the Region estimated to generate some 22.5 million tonnes of freight per annum to, from and within the Region (ie 16.25 + 17.59 – 11.37 = 22.46m tonnes⁵³), of which 11.09 million tonnes (ie 22.46 – 11.37m tonnes) travels in and out of the Region:

Table 13 Road haulage regional breakdown (adjusted), tonnes lifted 2014 (base data CSO)

M tonnes Origin	Destination (*excluding Western Region)										Total
	Border*	Midland	WESTERN	Dublin	Mid-East	Mid-West*	South-East	South-West	N Ireland	Other	
Border*	3.62	0.15	0.31	0.66	0.25	0.03	0.16	0.06	0.11	0.26	5.63
Midland	0.27	3.17	0.82	0.59	0.42	0.26	0.68	0.22	0.03	0.08	6.54
WESTERN	0.63	0.47	11.37	1.31	0.56	0.17	0.57	0.70	0.11	0.34	16.25
Dublin	0.98	1.44	2.36	13.71	5.60	0.64	1.53	1.72	0.11	0.84	28.93
Mid-East	0.54	0.48	0.83	3.37	5.99	0.15	0.75	0.17	0.05	0.09	12.42
Mid-West*	0.06	0.18	0.35	0.34	0.16	4.21	0.51	1.17	0.01	0.06	7.04
South-East	0.13	0.49	0.55	1.16	0.98	0.49	9.36	2.13	0.06	0.27	15.63
South-West	0.03	0.17	0.55	0.71	0.15	0.70	1.65	12.26	0.00	0.11	16.31
N Ireland	0.08	0.02	0.12	0.06	0.00	0.00	0.04	0.00	0.05	0.01	0.38
Other	0.25	0.06	0.33	0.61	0.08	0.02	0.21	0.09	0.01	1.71	3.36
Total	6.59	6.61	17.59	22.52	14.20	6.67	15.45	18.54	0.55	3.78	112.50

4.3.11 Having determined a suitable scale of road freight traffic to, from and within the Western Region, the next stage is to identify the potential addressable market for rail as a subset of total freight traffic in the Region. The methodology is as follows:

- Start with the total freight market – in the absence of data on freight moved in foreign-registered goods vehicles, this is assumed to be the total volume of freight lifted in Irish-registered goods vehicles (so therefore is a conservative estimate of total traffic) = **112 million tonnes** (Table 13);
- Identify the subset of the 112 million tonnes involving types of commodities and/or deliveries where rail is likely to be competitive (data extracted from chart in Figure 9) = 65 million tonnes (**58%** of total);
- Identify the subset of the 112 million tonnes involving journeys of more than 150km (paragraph 3.4.3) = 22 million tonnes (**20%** of total);

⁵³ The figure of 11.37m tonnes (freight within the Western Region) is subtracted to avoid double counting this within the row and column totals

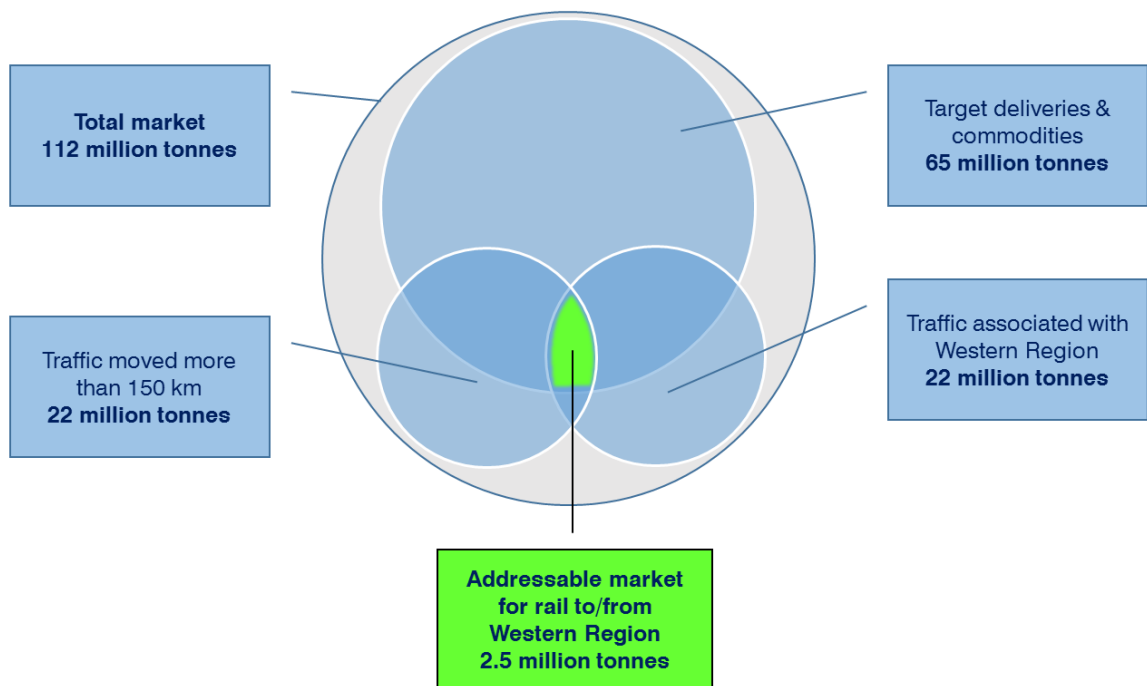
- Multiply the subset of the 112 million tonnes involving traffic generated by the Western Region (**22 million tonnes**, not to be confused with the same value for traffic moved more than 150km) by the % shares accounted for by a) the target commodities / deliveries (58%) and b) the target longer-distance journeys (20%) = **2.5 million tonnes** (2.3% of national total).

4.3.12 The addressable market to and from the Western Region is shown graphically in Figure 14 below.

4.3.13 The combination of national and regional-level freight data, disaggregated by use of a separate variable (population) is not an exact science but instead attempts to provide a reasonably robust estimate of the scale of the market opportunity for rail freight. The estimates of the addressable market are considered to be conservative as they exclude short-haul flows of bulk commodities where rail could be competitive on specific traffic flows (eg a rail-linked mine at Navan linked to a rail-linked port at Dublin).

4.3.14 Assuming a 150km minimum threshold for rail services to be viable based on current economics, the target areas for traffic to and from the Western Region would effectively be the coastal strip along the eastern and southern coastline of Ireland, including the cities of Cork and Dublin and the ports of Cork, Waterford, Rosslare and Dublin, together with Northern Ireland.

Figure 14 Estimate of addressable road haulage market to/from Western Region, tonnes lifted 2014 (source CSO)



4.3.15 Using the distribution of road haulage traffic between the Western Region and the relevant regions (Dublin, Mid-East, South East, South West and Northern Ireland), estimates can be derived for potential trainloads to and from each region, as shown in Table 14 below.

Table 14 Estimates of inter-regional rail freight addressable market

Trainloads per day	From Western Region	To Western Region	Total
Dublin	4.2	7.5	11.7
Mid-East	1.8	2.6	4.4
South-West	2.2	1.7	4.0
South-East	1.8	1.8	3.6
N Ireland	0.4	0.4	0.7
Total	10	14	24

4.3.16 An addressable market of 2.5 million tonnes per annum would equate to 24 trainloads per day, with an overall 40:60 split between outbound and inbound trains per day (10 out and 14 in). This compares to the 4 train services per day (2 inbound and 2 outbound) currently operating out of the Western Region, suggesting that the addressable market is 2-7 times the size of current rail traffic. On this basis a 4% modal share target for Irish Rail looks a reasonable proposition in the short term if sufficient resources and a suitable service offer can be provided.

4.3.17 On each corridor the following can be noted:

- **Dublin:** accounts for a large combined volume of traffic due to the presence of the port (16m tonnes handled in 2014 in target traffic flows⁵⁴) and national distribution centres located in the hinterland (eg Tesco at Santry and Donabate). The daily IWT intermodal service therefore already gives rail an equivalent 13-24% share of the addressable market on this corridor;
- **Mid-East:** being close to the economic heart of Dublin and with a significant share of population (12% of Ireland), this region will draw in goods from the Western Region, as well as supply the Western Region with goods from national distribution centres located here (eg Supervalu at Kilcock, Aldi at Naas). Some of the traffic prospects could be combined with traffic to and from Dublin port / city, through use of suitably co-located interchange facilities;
- **South-East:** the region has active rail freight facilities at Waterford Port (1.3 million tonnes of target traffic flows handled in 2014), with potential to use the existing rail link into Rosslare (1.9 million tonnes of target traffic flows handled in 2014) for freight. The current 1 train per day each way with Waterford gives rail around half of the addressable market on this corridor. If either Waterford or Rosslare are successful in securing additional major freight customers, so the potential capture to rail could be enhanced;
- **South-West:** another region where demand for freight to and from the Western Region is likely to focus on the major city (Cork) and its port traffic (3.9 million tonnes of target traffic flows handled in 2014), other economic activity and population (14% of Ireland). If rail facilities can be reinstated to the Port of Cork (assuming the distance from the quayside is relatively short) then the viability of a rail service would be further enhanced, as from Dublin and Waterford at present;

⁵⁴ Rail is assumed to be capable of addressing port traffic related to roll-on, roll-off (RoR), lift-on, lift-off containers (LoLo), dry bulk and break-bulk maritime services. Volumes quoted from CSO port statistics, 2014 data

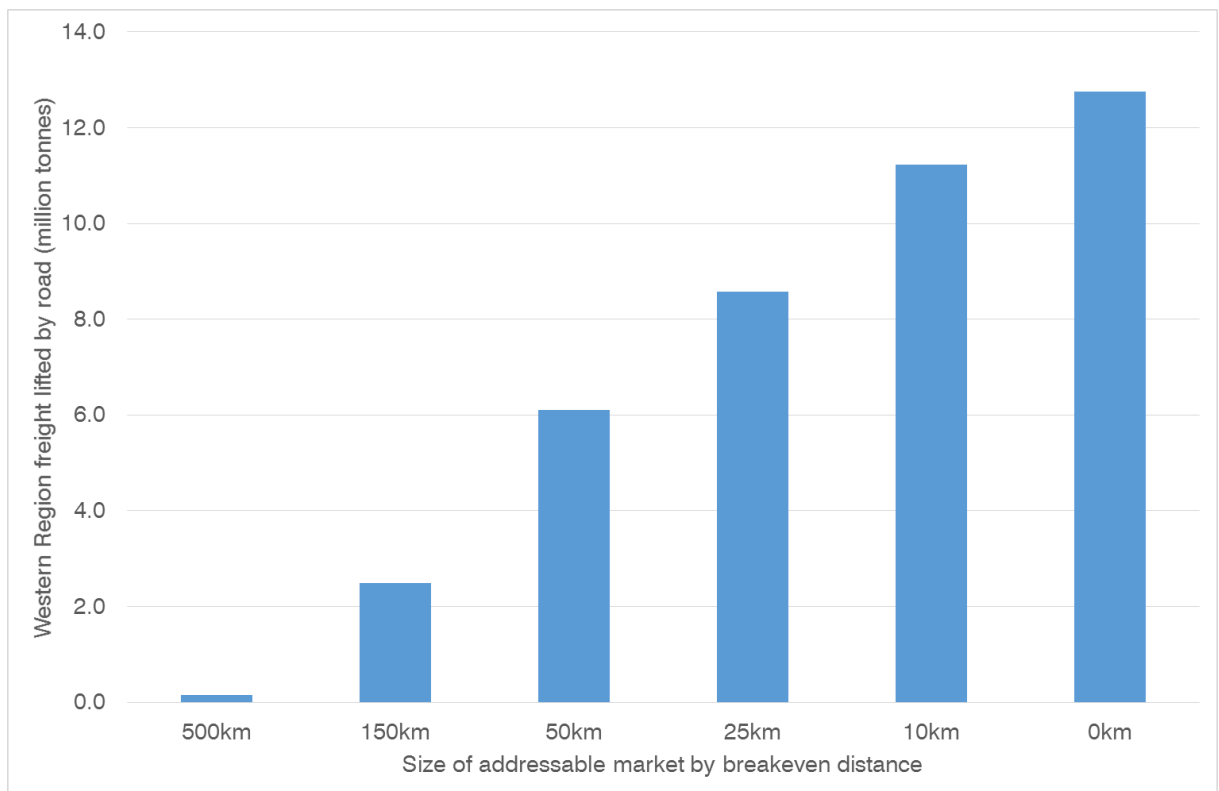
- **Northern Ireland / Other:** insufficient volume exists to generate one trainload per day each way with Northern Ireland, noting that no rail freight services operate on Northern Ireland Railways (NIR) at present. It is not possible to determine where the “other” traffic starts or finishes relative to the Western Region.

4.3.18 The “Top Down” analysis therefore suggests **a current addressable market of 2.5 million tonnes per annum, the equivalent of 10-14 trainloads to and from the Western Region**, within a total market to, from and within the Region of 22 million tonnes, 20% of the national total. This compares with the average 2 trains per day operated to and from the Western Region, suggesting a market potential some 5-7 times larger than at present.

4.3.19 With forecast growth in the economy and the road freight market in the order of 2-3% per annum, it is apparent that obtaining significant growth in the addressable market in the medium to long term will either require further improvements in the current rail service offer to reduce the notional breakeven distance below 150km, and/or for the railway to secure major users/traffic flows (particularly bulk traffic such as aggregates, cement, foodstuffs, biomass) where rail would be the most effective option from operational and commercial perspectives.

4.3.20 To give an indication of the importance of the breakeven threshold, the chart in Figure 15 below shows the impact of reducing the distance where rail can compete against road (current assumption = 150km):

Figure 15 Size of addressable market by breakeven distance



4.3.21 A small change in rail freight competitiveness can therefore make a significant change in the size of the market which can be addressed. The analysis above suggests that, on average, each 10% reduction in rail’s notional breakeven distance below 150km creates exponential growth in the size of the addressable market, eg:

- 150km = 2.5m tonnes;
- 135km (-10%) = 3.2m tonnes (+14%);
- 120km (-20%) = 3.7m tonnes (+31%);
- 95km (-30%) = 4.7m tonnes (+65%).

4.3.22 This in turn has significant implications for public policy, in terms of the overall capabilities and costs of the rail infrastructure, and the services operated on it.

4.3.23 This analysis can then be used to consider the size of the Western Region’s addressable market for rail freight in the short, medium and long term, assuming total freight market growth of 2.8% per annum (paragraph 3.5.9) and a 1% reduction per annum in rail’s breakeven distance (eg through operating longer⁵⁵ / heavier / faster trains and/or reduced access charges). The impact is shown in Table 15 below.

Table 15 Changes in addressable market under future scenarios

Year	Western Region freight lifted by road (m tonnes)		
	Total market	Addressable market for rail	% of Total market
2015	22.5	2.5	11%
2020	25.8	3.1	12%
2025	29.7	3.8	13%
2035	39.3	5.6	14%
2050	59.7	9.9	17%

4.3.24 To conclude this section, the “Top Down” analysis therefore suggests **a current addressable market of 2.5 million tonnes per annum** (11% of Western Region total, 2% of national total), with potential to increase this to **6 million tonnes per annum by 2035 and 10 million tonnes per annum by 2050** given underlying assumptions about freight market growth and rail breakeven distance reduction. This in turn will need to follow the example of the UK, which has itself achieved significant growth in its rail freight market in the 20 years between 1994 and 2014 (75% in total), not least through major investment in the sector by public and private sectors, backed by an increasingly supportive public policy framework on rail infrastructure investment, land use and transport planning.

“Bottom Up” market research

4.3.25 Alongside the “Top Down” statistical analysis (see above), market research has been undertaken through interviews with transport users and operators, combined with an online survey sent out to major manufacturers, ports and logistics companies based in Ireland. In the event the online survey returned only 6 usable responses, suggesting a lack of time and/or interest in discussing rail freight prospects. A total of 24 responses were obtained at varying levels of detail, with most requesting that details of the interviews remain confidential. Appendix E lists the companies which responded.

⁵⁵ For comparison, paragraph 2.6.16 noted that average train payloads in the UK have increased by 19% between 2005 and 2012

- 4.3.26 The broad consensus (beyond McGraths Quarries who believed rail would not be suitable for their business) reflected support for rail freight where this could provide a competitive alternative / complement to road haulage, as much in price and journey time as in the provision of suitable interchange facilities.
- 4.3.27 Additional research has also been carried out using a combination of aerial reconnaissance (using satellite and street-level imagery) and travel across the Western Region, to identify as far as possible major sources of potential rail freight traffic (eg factories, distribution centres, quarries) and other potential supporting traffic sources (eg local supermarkets and logistics companies).
- 4.3.28 For example, the major supermarkets will tend to be fed from national distribution centres located around Dublin (eg Aldi at Naas, Tesco at Ballymun) and other regional distribution centres (eg Aldi at Naas and Mitchelstown, Lidl at Charleville, Newbridge and Mullingar). Such locations are sufficiently distant to allow rail to be viable, where sufficient traffic can be consolidated into trainload volumes.
- 4.3.29 The choice of potential end users and their respective freight flows reflect those which previously used rail in Ireland (see Appendix D), and/or are already moved by rail in the UK and other EU member states. In some cases use of rail has influenced national and regional distribution models eg major quarries, factories and warehouses distributing to satellite railheads, replacing some local quarries / factories / warehouses. This “holistic” view of rail freight helps counter any potential narrow view of the market potential based only on current or previous sources of traffic and their underlying supply chains. This research has identified a number of clusters in and adjacent to the Western Region (see Figure 12), as follows (all maps sourced from Google, rail route highlighted in black).
- 4.3.30 As a high-level indicator of the potential addressable market from each locality, population⁵⁶ is used to determine the overall quantum of daily tonnage and HGV traffic generated locally, using the same assumptions from the Top Down analysis.

Sligo cluster

- 4.3.31 Sligo has a significant local population and is home to a number of major manufacturers in the healthcare sector (Abbott x 2, Abbvie, Elanco, Hospira, Protek Medical, Stiefel), as well as a number of national retailers (Aldi, Argos, Currys, Dunnes, Halfords, Lidl, Supervalu and Tesco). Further south, quarries operated by Cemex and Harrington Concrete could provide opportunities for movement of bulk aggregates and building products. Current freight traffic by road is in the order of 650 goods vehicle movements per day (N4 south of Sligo, source NRA), compared to the high-level estimate of local traffic generation of 525 per day. Figure 16 shows the local area and Table 16 summarises current local population and freight traffic estimates.

⁵⁶ Source CSO, 2011 data

Figure 16 Sligo

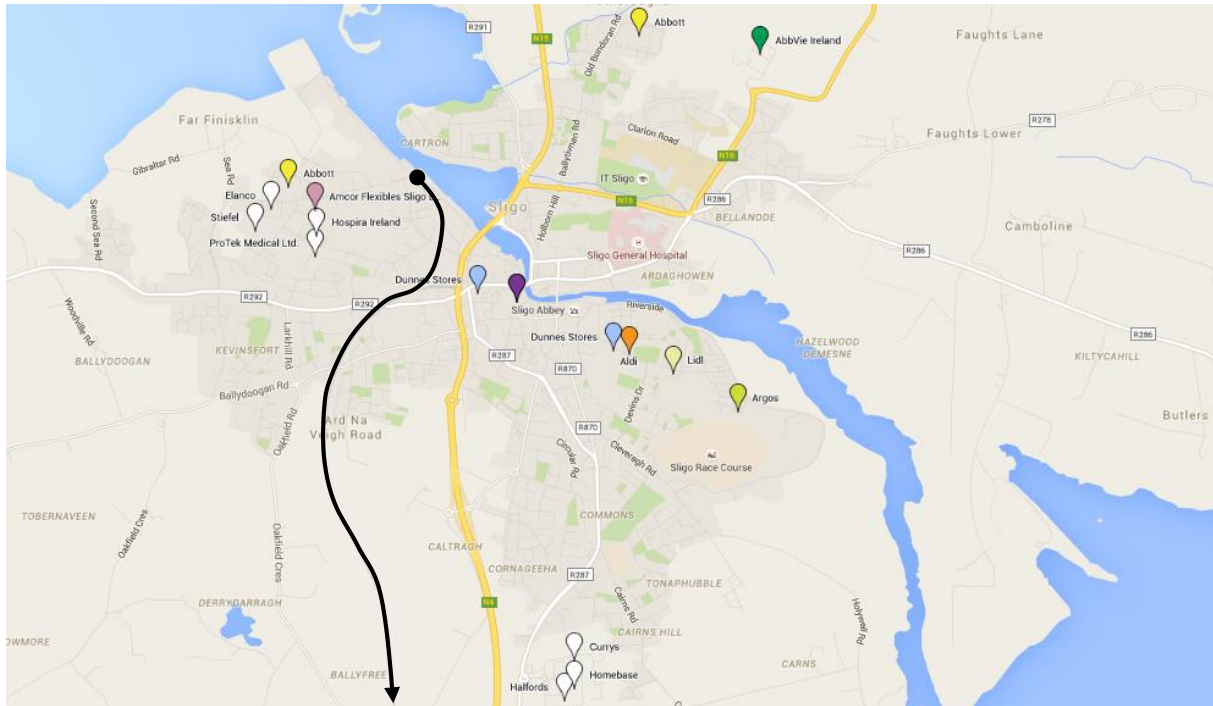


Table 16 Sligo population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
38,581	1.24	525	0.14	1.3

- 4.3.32 The population-based estimate of addressable freight suggests scope for around 1 train per day, which could comprise inbound supplies to manufacturers and stores, along with outbound manufactured goods.
- 4.3.33 At the northern limit of the Irish Rail network, the former railhead at Sligo Ballast Quay retains an overhead gantry crane for container handling, albeit the crane has not been used for several years. An alternative longer-term option would be look for a new interchange site south of Sligo where the main line and the N4 highway run parallel.

Ballina cluster

- 4.3.34 A town located in the northern part of County Mayo, Figure 17 shows the local area and Table 17 summarises current local population and freight traffic estimates. Current freight traffic on local roads is around 320 goods vehicle movements per day on the N26 and 104 – 141 per day on the N59, compared to the population-based estimate of 106 per day, suggesting a degree of through traffic and/or a greater intensity of local freight traffic generation from local manufacturing. Beyond this, retailers Dunnes, SuperValu and Tesco all have stores in the town.

Figure 17 Ballina, County Mayo

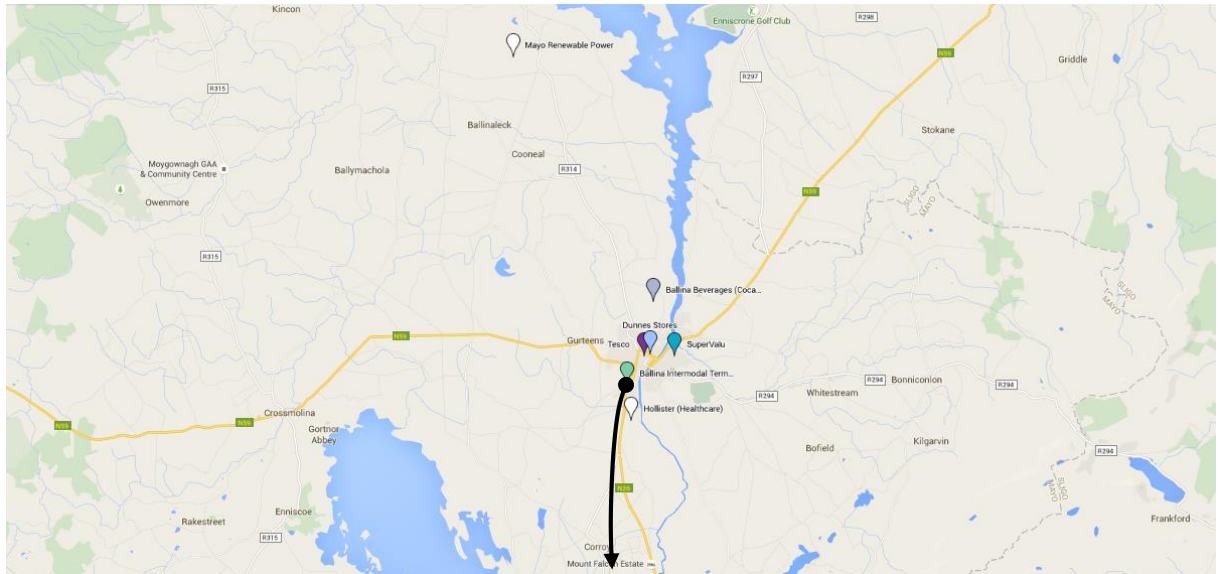


Table 17 Ballina population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
10,361	0.25	106	0.03	0.3

- 4.3.35 Apart from the existing Ballina railhead’s “anchor” customer Ballina Beverages, two other major sources of potential traffic have been identified, together offering more potential for rail freight than the population-based freight traffic estimate might suggest.
- 4.3.36 **Hollister** (global producers of healthcare products) has a factory in Ballina which was established in 1976 and now employs over 500 people on site. In 2014 the company announced an €80m investment in the site. Discussions with Hollister in Spring 2015 confirmed that 80% of the site’s production (8-10 x 45’ containers per week) moves by road in articulated lorries to Dublin port, for onward shipment to Rotterdam and on to the company’s European distribution centre at Etten-Leur in the Netherlands. Additionally, a weekly export lorry load (which could be containerised if a rail service was provided) is moved to Rosslare for onward shipment to Spain.
- 4.3.37 Hollister’s export volumes via Dublin are expected to increase to 18 containers per week by 2018. Inbound volumes are comparatively small, but empty containers still need to be delivered to site (from Dublin) for loading with exports. Hollister is aware of the existing rail services from Ballina, is interested in using rail to move its products and would welcome approaches from Irish Rail and/or logistics companies.

4.3.38 Mayo Renewable Power announced in June 2015 that it had obtained the €180m to construct a new 42.5MW biomass-fuelled combined heat and power (CHP) plant on the former Asahi site at Killala. The plant is expected to open in mid-2017. In connection with this, International Warehousing & Transport (IWT) and Burke Shipping have formed a new €6m joint venture, Biogreen Logistics, which seeking to secure the contract to move 230,000 tonnes of biomass from Dublin Port to site (equating to around 3-4 trainloads per week). The Biogreen Logistics JV is looking at rail and road options for transportation, with rail as the preferred mode of transport provided a competitive offer can be provided against road haulage.

Castlebar cluster

4.3.39 Located to the south of Ballina, Figure 18 shows the local area and Table 16 summarises current local population and freight traffic estimates.. The major supermarket chains (Aldi, Dunnes, Lidl, SuperValu and Tesco) are all present in the town. Roadstone has a major site north of the town which distributes aggregates and concrete blocks.

Figure 18 Castlebar, County Mayo

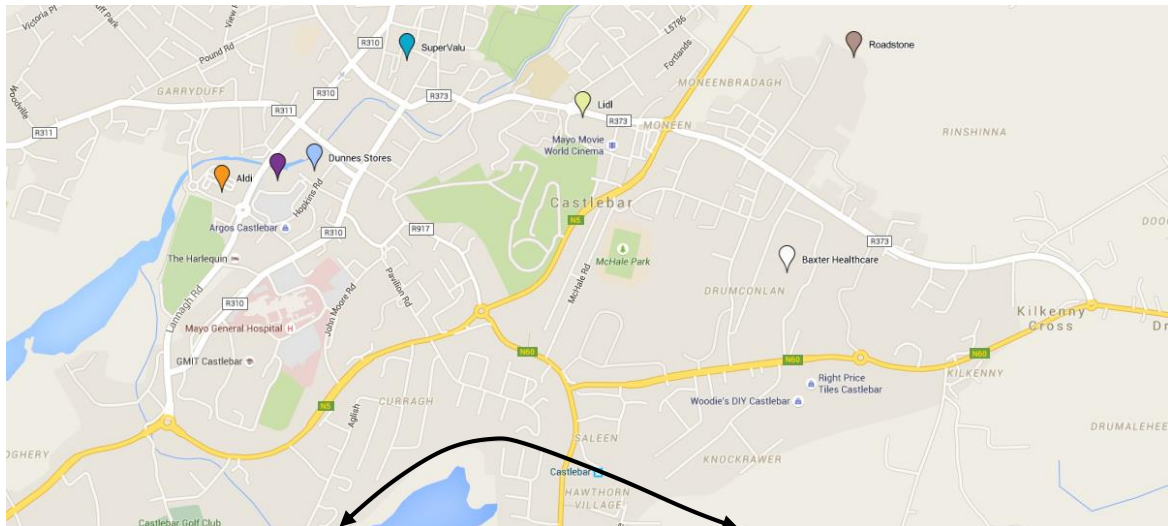


Table 18 Castlebar population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
10,826	0.26	111	0.03	0.3

4.3.40 Current freight traffic by road is in the order of 200 goods vehicle movements per day on the N60 south-east of Castlebar, 390 goods vehicle movements per day on the N5 to the north-east and 150 goods vehicle movements per day on the N84 to the south. These flows compare to the estimated 111 per day generated locally, again suggesting a greater intensity of traffic from local manufacturing, as well as other traffic passing through the area.

4.3.41 Castlebar offers potential for up to 100 containers per week (3-5 trainloads) from the Baxter Healthcare factory which could be moved by rail (in addition to the 30 containers per week already moved by rail), sufficient to “anchor” a rail service which other customers could then use, such as retailers moving products into the area.

- 4.3.42 Scope exists to construct road/rail freight interchange facilities along the railway line as it passes through the town (all of the above lie within 3km of the railway), or alternatively using the existing railheads at Westport (15km to the west) or Ballina (30km to the north).
- 4.3.43 If Irish Rail is successful in achieving operation of longer and/or night-time services, it might then be possible to run a multi-site train from Westport and Castlebar, with an inbound train detaching the rear portion at Castlebar for loading (possibly on the main line itself), the train then continuing to Westport with the locomotive then returning “light engine” to Castlebar to retrieve the rear portion later following unloading / reloading, to reattach to the Westport portion prior to departure.

Westport cluster

- 4.3.44 Westport’s local population is half that of Ballina and Castlebar, but home to manufacturers including Allergan (healthcare products), Carraig Donn (clothing), Corcoran (concrete products), Multi-Packaging Solutions (healthcare packaging), Portwest (safetywear), and Synergy Health (healthcare). The main supermarkets (Dunnes, Lidl and Tesco) are also present in the town. Current freight traffic by road on local roads ranges from 74 on the N59 to the north and 255 goods vehicle movements per day on the N5 to the east (source NRA).
- 4.3.45 Coillte currently uses rail for movement of timber felled from local forests in the Westport area to the SmartPly factory at Waterford, for manufacture of Oriented Strand Board (OSB). Irish Rail has explored the possibility of combining the Waterford rail services from Ballina and Westport to provide a more efficient operation, which could then in turn offer opportunities for other end users. The current timber traffic is finite, therefore any use of this as an anchor flow creates a potential future risk to any third-party traffic wishing to use the same train.

Figure 19 Westport, County Mayo

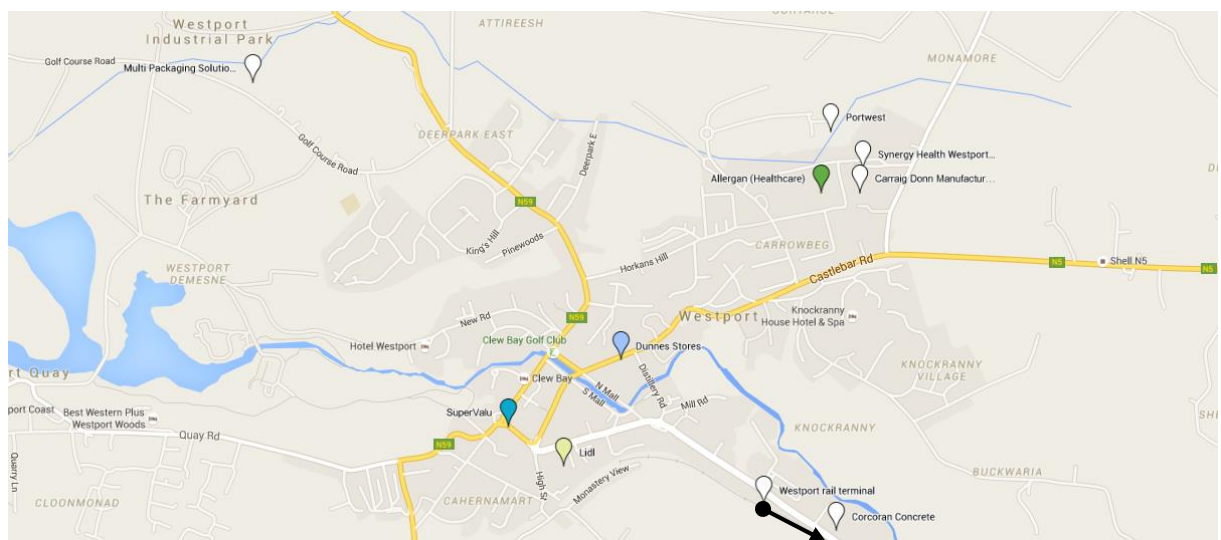


Table 19 Westport population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
5,453	0.13	56	0.01	0.1

4.3.46 The Westport railhead is a relatively small site (100m x 20m), therefore depending on the scale of additional traffic wishing to use the facility, expansion may be required to the south of the main line or to an alternative site in the area.

Athlone cluster

4.3.47 Located roughly halfway between Ballina / Westport and Dublin / Waterford, Athlone spans the boundary between the Counties of Roscommon and Westmeath, located on the River Shannon. The town has a significant and growing population, with a considerable volume of transit traffic passing through the area on the M6/N6 linking Dublin with Galway.

Figure 20 Athlone, Roscommon / Westmeath

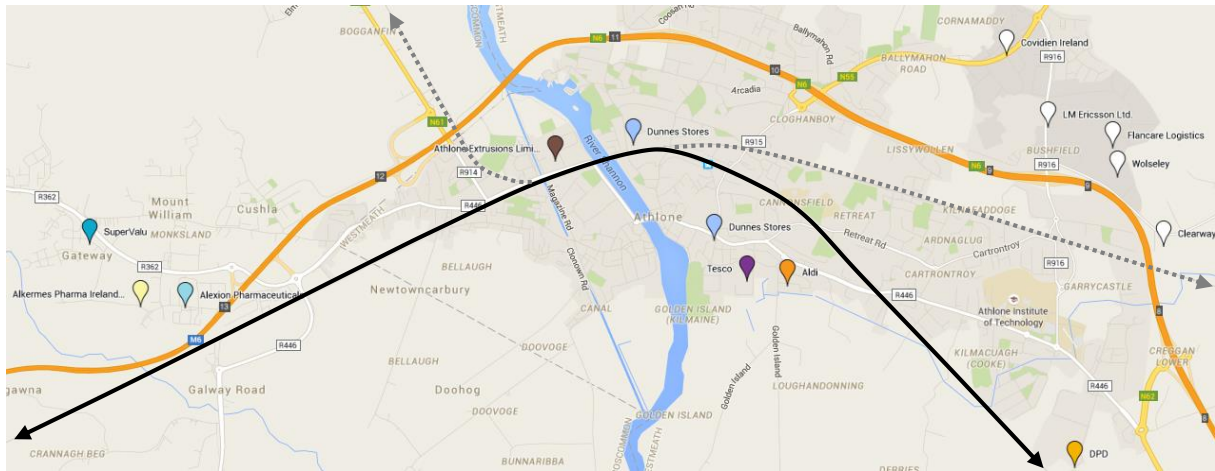


Table 20 Athlone population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
20,153	0.60	254	0.07	0.7

4.3.48 A number of manufacturers and other companies are located within 5km of the railway (and former freight facilities), including Alexion Pharmaceuticals (healthcare), Alkermes Pharma Ireland (healthcare), Athlone Extrusions (plastics), Clearway-Hammond (metal recycling), DPD Ireland (logistics), Ericsson (ICT), Flancare Logistics Medtronic / Covidien Ireland (healthcare) and Wolseley (builders merchants). The main supermarkets (Aldi, Dunnes, Lidl, SuperValu and Tesco) are also all present in the town. Freight traffic by road is significant, with 1300 goods vehicle movements per day on the N6 (source NRA), compared to the population-derived estimate of 254 vehicles per day, highlighting the significance of transit traffic.

4.3.49 Subject to the volume of traffic which might be available for rail transport, Athlone could provide an intermediate location for freight to be loaded on and off rail services operating between the Western Region and the east/south coast (which already pass through the area), or where train portions could be detached for unloading locally and collected later following reloading.

Galway cluster

4.3.50 Galway City is the largest population centre in the Western Region and the fourth largest in Ireland, suggesting at the very least a major source of demand for consumer goods. The major retailers are present (Aldi, Dunnes, Lidl and Tesco) together with other retailers in the city centre and at the Galway Shopping Centre to the north of the city (including Halfords, Currys, Argos, Woodies, B&Q). Other major local manufacturers and companies within a 6km radius which may offer rail traffic potential include Beckman Coulter Ireland (healthcare), Boston Scientific (healthcare), DPD Ireland (logistics), Hewlett Packard (ICT), Oran Precast (building products), Roadstone (aggregates) and Thermo King Ingersoll Rand (heating and ventilation).

Figure 21 Galway

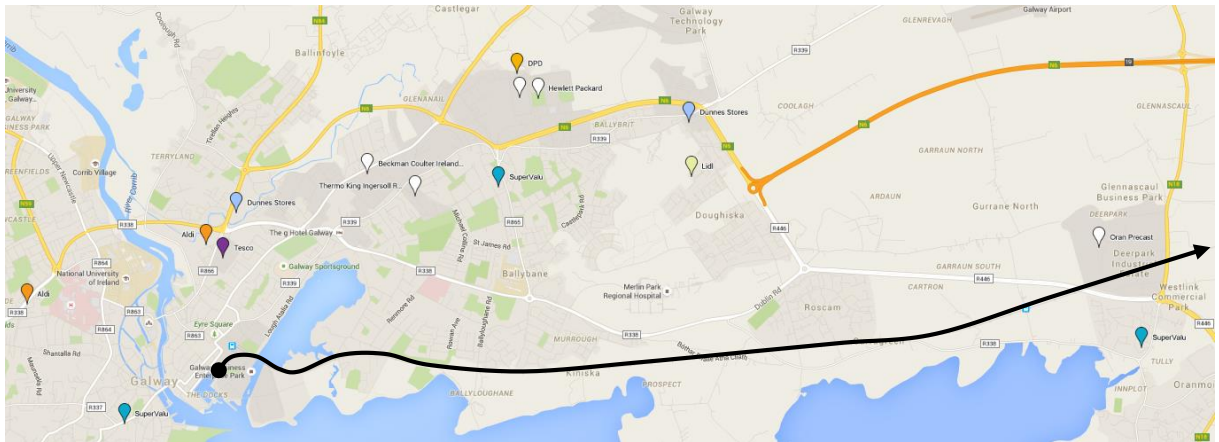


Table 21 Galway population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
75,529	1.82	772	0.21	2.0

4.3.51 Road traffic count data is not currently available from the NRA for the M6/N6 on approach to Galway, but another source suggests goods vehicles account for 1200 per day on the M6 east of Galway in the Athenry area⁵⁷. Traffic levels on other routes are significant, in the order of 810 goods vehicles per day on the N17 to the north, 240 per day on the N84 to the north, 140 on the N59 to the north-west and 650 on the N18 to the south. This again highlights the scale of transit traffic compared to the population-based forecast (see Table 21 below) of 772 vehicles per day.

4.3.52 Galway Harbour Company (0.1 million tonnes annual throughput in 2014 for target rail flows) has applied for planning permission for a major expansion of facilities on site, including provision for rail freight traffic. The current application relates to development of 7,000 sq m of land adjacent to the dock (most of which will be reclaimed from the sea) to facilitate loading, unloading, stockpiling, storage, HGV manoeuvring and crane operation. The company is actively exploring new bulk traffic prospects which would lend themselves to rail movement.

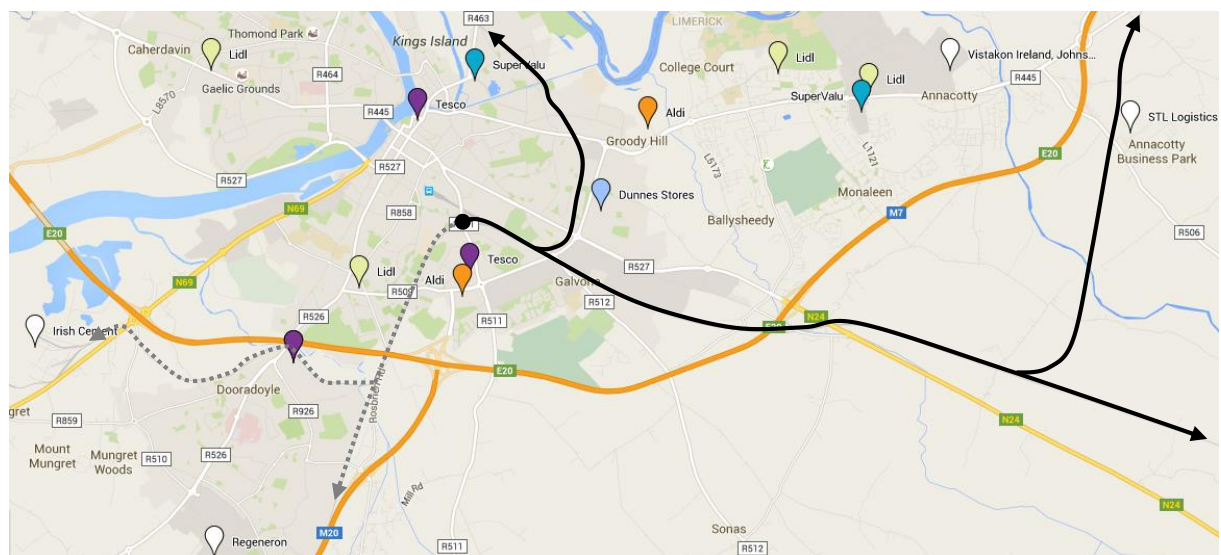
⁵⁷ www.irishmotorwayinfo.com

- 4.3.53 The population-based forecast above suggests potential for 1-2 trainloads per day each way from the area, which could be a mixture of port, local manufacturing and retailer traffic. The station retains sidings and land which could be used in the short term for rail freight handling, albeit space constraints would impact on the length / capacity of trains which could be handled. Galway Harbour Company has indicated it would be willing to open up any future quayside rail freight facilities for non-port traffic for local business if required.
- 4.3.54 Alternatively, it might be possible to develop facilities as part of the proposed harbour expansion (see above), and/or near the Westlink Commercial Park / Oranmore Business Park / Deerpark Industrial Estate, linked to the N18 / R446 interchange. Construction of the new M6/M18 interchange could offer a further opportunity to create a new “strategic” rail-linked distribution park, with the IDA already promoting a 27 hectare strategic site in the local area, primarily for biopharmaceutical manufacturing⁵⁸.

Limerick cluster (outside of Western Region)

- 4.3.55 Whilst falling just outside the Western Region, Limerick City is the third largest population centre in Ireland, offering significant potential traffic from local manufacturers, as well as consumer demand through the retailers and their multiple outlets in the City (2 x Aldi, 4 x Dunnes, 4 x Lidl, 2 x SuperValu 3 x Tesco). One of the Lidl regional distribution centres is located 30km south of Limerick at Charleville, which may offer further rail traffic prospects.
- 4.3.56 Current freight traffic by road is significant, in the order of 1600 goods vehicle movements per day on the M7 to the north-east, 1540 per day on the M20 to the south west, 1290 per day on the N18 to the north, 660 per day on the N24 to the south east and 400 per day on the N69 to the west (source NRA).
- 4.3.57 Development of rail freight services and interchange facilities in the Limerick area could then be used by companies in Shannon and other parts of County Clare as a closer alternative by road to any rail freight operations that might be developed further north around Galway.

Figure 22 Limerick



⁵⁸ <http://www.idaireland.com/how-we-help/property/strategic-site-oranmore-galway/>

Table 22 Limerick population and local freight traffic estimates

Local population	Estimated freight traffic (m tonnes)	Equivalent HGVs per day (#)	Addressable market (m tonnes)	Equivalent trainloads per day (#)
57,106	2.07	880	0.23	2.3

- 4.3.58 The Irish Cement factory on the western outskirts of the City last despatched cement by rail to other parts of Ireland in 2009, with latest information suggesting the company may be interested in looking at rail transport again for export of cement and/or import of fuel, the plant having a current installed cement production capacity of up to 1.3 million tonnes per annum. Other major local manufacturers and companies within a 6km radius which may offer rail traffic potential include Dell (ICT), Regeneron (healthcare), Roadstone (aggregates), STL Logistics and Vistakon (healthcare).
- 4.3.59 Against an estimate of rail freight potential in the order of 1-2 trainloads per day each way, Limerick station retains an overhead rail-mounted gantry crane for handling containers, but it is unlikely that the crane could be restored to use in its current location, as the sidings are now used for berthing passenger trains and the crane rails have been truncated to only around 20m length. Land is available to the east of the station and south of the main line which might be capable of development for rail freight, albeit the site is bounded to the south by housing. Beyond any short term use, a longer-term solution would be to develop a purpose-built facility close to the M7 / N24 interchange to the east (on the main line), or the M20 / N18 interchange to the south (on the disused Castlemungret / Foynes branch lines).

Shannon Foynes cluster (outside of Western Region)

- 4.3.60 Whilst Foynes is also located outside the Western Region in neighbouring Limerick County, the traffic potential is significant and could create synergies with rail services to, from and within the Western Region itself (eg the possibility for movement of biomass to Mayo Power at Killala).

Figure 23 Shannon Foynes port hinterland



- 4.3.61 Shannon Foynes Port is Ireland's second largest after Dublin (and largest dry bulk port), handling 10.3 million tonnes of traffic through various local jetties on the natural deepwater harbour (the deepest in Ireland) offering navigable depths from 8 to 25m.

- 4.3.62 The Port has noted that one of the principle inland destinations for traffic from the Port lies within the Western Region. The Port has been investigating the reinstatement of the rail link from the Port to the main line at Limerick, which has now been boosted by proposed CEF funding from the EC.
- 4.3.63 Reinstatement of the Foynes branch should be possible on a phased basis, to reduce initial upfront capital investment, for example by initially operating the route with only 1 train on the branch at any one time (combined with manual operation of level crossings en route) to minimise the need for signalling. A similar approach adopted in the UK on the Bristol Portbury branch line reinstatement has seen the line establish freight services, which in turn have since provided the catalyst for the proposed reintroduction of passenger services.
- 4.3.64 Within and beyond the port's own bulk traffic base across the jetties at Foynes and the Aughinish terminal, rail freight opportunities might include bulk ores, agribusiness and fuel traffic flows. In addition, a major (30-42 million tonne) zinc mine proposal at Pallasgreen, south east of Limerick and adjacent to the Limerick – Limerick Junction line, could represent a step-change in rail freight traffic to the port for export, which in turn could unlock rail access for other flows and routes. Other companies in the immediate hinterland of Shannon Foynes include the Nestlé plant (Wyeth Nutrition Infant Formula) in Askeaton to the east, and Joseph Hogan (building products) to the south.

4.4 Other prospects

- 4.4.1 In addition to the above potential sources of new rail freight traffic, the market research has highlighted other opportunities as follows:
- A proposal to construct a new rail freight interchange around an existing logistics facility situated adjacent to the main line to Westport, with container handling facilities already on site. The operator requested that the location not be disclosed, but construction of such a facility (even on a temporary “loading on the line” basis) would bring rail freight facilities in close proximity to a major customer. The operator is engaging directly with Irish Rail to determine the feasibility of such a proposal;
 - A proposal to construct a new rail freight interchange at Claremorris (Co. Mayo), with rail access achieved by reinstating around 1.6km of disused railway. The site is relatively remote (25km from the nearest cluster at Castlebar), and has relatively small development proposals on site (around 20,000 sq ft / 1,900 sq m). Securing a major anchor occupier / end user generating trainload volumes of traffic will be critical to achieving a viable business case;
 - Irish Rail has operated a “Fastrack” service moving small-volume parcels on scheduled passenger trains, similar to the “Red Star” service operated by British Rail until privatisation in the mid-1990s. Whilst Irish Rail is looking to exit this business, it has entered into discussions with possible interested parties from the private sector wishing to develop similar activities. In the UK, similar services restarted in 2011, moving consignments on passenger services between Sheffield, Nottingham, Leicester and London St Pancras station. Further services are planned later this year between the South West of England and London Paddington station. Current traffic includes medical supplies, similar to those carried by Fastrack in its latter years. In parallel, Colas Rail has undertaken trials of trainload overnight express freight services for Eddie Stobart, TNT and Sainsburys, moving goods in converted passenger coaches between outer-urban distribution centres in the Midlands region of England and central London. Though at a much smaller scale than the trainload freight services which form the focus of this study, there may be potential to reintroduce “express” freight services over the Irish rail network, either using scheduled passenger trains or converted passenger coaches, targeted at parcels traffic and other time-sensitive or perishable products (eg fresh produce and medical supplies).

4.5 Summary

4.5.1 The research to date, combining “top down” statistical analysis with “bottom up” interviews and fieldwork are summarised in Tables 23 and 24 respectively:

Table 23 Summary of Top Down rail freight prospects, 2015 to 2050

Region / Year	Addressable market (m tonnes)		Total	Equivalent trainloads per day ⁵⁹		Total
	From Western Region	To Western Region		From Western Region	To Western Region	
Dublin	0.44	0.78	1.2	4.18	7.52	12
Mid-East	0.19	0.27	0.5	1.80	2.63	4
South-East	0.19	0.18	0.4	1.82	1.76	4
South-West	0.23	0.18	0.4	2.24	1.74	4
N Ireland	0.04	0.04	0.1	0.36	0.37	1
Total 2015	1.1	1.5	2.5	10	14	24
Total 2020	1.3	1.8	3.1	13	17	30
Total 2035	1.6	2.2	3.8	15	21	36
Total 2050	2.4	3.2	5.6	23	31	54

Table 24 Summary of Bottom Up rail freight prospects, short term (up to 2020)

Cluster	Traffic type (speculative = manufacturing, wholesale, retail, logistics, construction)	Equivalent trainloads per day		Total
		From Western Region	To Western Region	
Sligo	Speculative	0.13	0.17	0.30
Ballina	Ballina Beverages, Hollister, Mayo Power	1.00	0.60	1.60
	Speculative	0.13	0.17	0.30
Castlebar	Baxter Healthcare	1.00	0.20	1.20
	Speculative	0.13	0.17	0.30
Westport	Speculative	0.04	0.06	0.10
Athlone	Speculative	0.30	0.40	0.70
Galway	Speculative	0.85	1.15	2.00
Totals	Target prospects	2.00	0.80	2.80
	Speculative	1.58	2.12	3.70

⁵⁹ For consistency, equivalent train payload is assumed to be 400 tonnes throughout; in order to improve rail freight competitiveness it is likely that train lengths / payloads will have to increase over time, which would then lead to a reduction in the number of daily trains required in future years

4.5.2 The results suggest the following:

- Addressable market (tonnage): **2.5 million tonnes per annum**, with potential to increase this to **6 million tonnes per annum by 2035 and 10 million tonnes per annum by 2050**;
- Addressable market (trainloads): **10-14 trainloads per day each way to and from the Region, with 2-3 trainloads per day identified from specific clusters / customers.**

4.5.3 In the short term, there is scope to almost double the number of trains operating to and from the Western Region, from an average of 4 per day (2 in each direction), adding a further 2.8 to 3.7 trainloads per day, within an overall addressable market for rail of up to 24 trainloads per day. Achieving the upper limits of this potential will require significant investment and support from public and private sectors, as discussed further in the next section.

5 Conclusions

5.1 Overview

- 5.1.1 Ireland has a population of some 4.6 million in a landmass approaching 70,000km² and an economy generating around €164 billion of Gross Domestic Product (GDP), the sea ports handling 46.7 million tonnes of imports and exports. In 2014, road haulage lifted 112 million tonnes and moved 9.8 billion tonne km, whilst in 2013 Irish Rail lifted 589,000 tonnes and moved 99 million tonne km, rail achieving a mode share of all overland transport of 0.5% and 1.1% for tonnes lifted and tonnes moved respectively.
- 5.1.2 In recent years, Irish Rail has worked with end users to reverse the decline in rail freight traffic (a pattern repeated in the UK and elsewhere across Europe). Irish Rail is exploring opportunities to further grow traffic levels with the available resources at its disposal, with a short-term target of regaining a 4% share of surface freight traffic by 2019.
- 5.1.3 Irish Rail has made considerable progress in the last year with developing a plan to trial longer trains (with up to 50% greater capacity) within the next six months. Track access charges have also been reduced in the last year, part of a wider exercise to better understand and reflect the overall costs of running the business. Such measures should help improve rail's competitiveness and secure Irish Rail a more robust commercial footing moving forward.
- 5.1.4 Enterprises in the Western Region, located on the western periphery of Europe, require quality transport links to serve their clients and suppliers, most of whom are located outside the region and many are located outside the country. While there have been improvements to parts of the road network, much of the motorway developments have occurred in the South and the East of the country. There is no motorway north of the M4/M6 Dublin-Galway route. There have been bypasses and road improvements but journey times to/from the West can still lag behind those from other locations of similar distance.
- 5.1.5 The rail network extends to Sligo in the North West and Mayo and Galway in the West. Three of the four rail freight services operated in Ireland at present start or finish in the Western Region, at Ballina and Westport in County Mayo, generating 1-2 trains each way per weekday.
- 5.1.6 From a regional development perspective, the availability of rail freight as a transport option (with its low carbon footprint compared to road haulage) could provide regional advantage in attracting new enterprise with a need for high-volume, environmentally-sustainable transport solutions. The Western Development Commission is therefore keen to see these services secured and expanded.
- 5.1.7 The objectives of this study have therefore been to investigate the potential for new rail freight traffic to and from the Western Region and to examine the extent to which new rail freight traffic might emerge if policy instruments change to support a greater modal shift to rail freight.
- 5.1.8 The study findings indicate that after decades of decline, rail freight services in Ireland are showing signs of growth, with good prospects for achieving Irish Rail's target of a 4% share of surface freight traffic by 2020, nearly four times the current level in Ireland.

5.1.9 Medium and long-term forecasts are more difficult to predict given the multiple dependencies on Irish Rail services and infrastructure, the customer base, wider economic activity and public policy. Assuming continued growth in the economy and associated freight transport activity, combined with efforts to improve the efficiency of rail freight and with increasing pressure to reduce carbon emissions, rail transport should become more attractive to business and help public policy objectives for decarbonising transport.

5.1.10 If measures to further enhance the rail freight offer are in place within the next few years, not only is a national 4% mode share possible by 2020 but the prospect of doubling this to 8% by 2035. Subject to the above dependencies, mode share could then move further towards the current 19% EU average in the longer term. An 8% mode share could in turn yield an estimated 6% net reduction in CO₂ emissions from road haulage, against a Government forecast of a 12-22% increase on current overall levels of emissions. Rail would then make a meaningful contribution to reducing growth in emissions from the transport sector, more than any equivalent initiatives in road haulage might achieve in the same timescale.

5.2 The potential for new rail freight traffic in, to and from the Western Region

5.2.1 In summary, the “top down” statistical analysis and the “bottom up” market research confirm a significant level of potential for new rail freight services across the Western Region. The *addressable* market, ie the subset of the market where rail could be at its most competitive against road haulage for addressing the end customer requirement, is estimated as follows:

- Addressable market (tonnage): 2.5 million tonnes per annum, with potential to increase this to 6 million tonnes per annum by 2035 and 10 million tonnes per annum by 2050;
- Addressable market (trainloads): 10-14 trainloads per day each way to and from the Region in total, with 2-3 of these identified from specific clusters / customers, representing a doubling of the current 2 trains per day to and from County Mayo.

5.2.2 In terms of demand for rail freight in the Western Region, analysis of the current road haulage market (22 million tonnes) indicates a significant volume of traffic (2.5 million tonnes) which could be (or already is) addressed by rail. The assessment of demand is robust and conservative, given it largely excludes bulk commodities moved over relatively short distances, where rail already provides a commercial service (ore exports from Navan to Dublin Port). It also reflects the relatively small coverage of the national rail network compared to other parts of Europe with higher rail mode shares; Scotland has a similar land mass, population and freight market, but with a rail network 44% larger than in Ireland, a road network 42% smaller and a 14% mode share compared to Irish Rail with less than 1%.

5.2.3 The major challenge for securing more growth is likely to be more about resource constraints (traction, rolling stock, staff, terminal facilities) than demand; greater private sector involvement will be needed to help ease such constraints, accelerating investment in new locomotives, wagons and rail freight interchange facilities. Regardless of the debate about the actual ownership of rail infrastructure and services, a critical factor in the success of rail freight growth in the UK has been the significant level of investment made since 1994 by both public and private sectors, improving the capacity and capability of the rail freight industry. Public policy (see below) has also had material impacts on rail freight traffic.

- 5.2.4 In terms of key sources of new traffic, Irish ports (42 million tonnes handled through Dublin, Shannon Foynes, Cork, Rosslare and Waterford) have and will continue to be critical to rail's prospects. Ports provide key nodes where international trade can be concentrated into trainload quantities, but without the need for significant levels of intermediate road haulage between quayside and railhead, which can impact on the overall viability of a rail-based offer. Distance between ports and inland centres of demand, combined with quayside and hinterland road congestion, create logistical challenges by road which then create opportunities for rail. It is no surprise therefore that all the current rail freight services in Ireland start or finish at a port.
- 5.2.5 Further major growth in rail traffic at Dublin Port (eg the new biomass flow for Mayo Power) could risk creating capacity issues on the local rail network across Dublin City, creating a need for further enhancement of local infrastructure capacity, and a growing role for other ports to help spread the demand. Subject to the ability of other ports to retain or secure new maritime flows, Waterford and Rosslare have rail access and spare quayside capacity whilst Shannon Foynes, Galway and Cork are exploring the reinstatement and enhancement of their rail links, within wider port expansion plans.
- 5.2.6 Beyond the ports, other flows of bulk and non-bulk traffic can be identified which either previously moved by rail in Ireland, or which (based on interest and experience in other EU countries) could also be moved by rail. The healthcare manufacturing sector shows considerable potential for moving products to ports, using ambient and/or temperature-controlled containers as required.
- 5.2.7 In addition, the concentration of national distribution in and around Dublin suggests scope for domestic intermodal services linking Dublin with satellite railheads in the Western Region. This could be combined with port-related traffic where necessary, to achieve critical mass for rail services to operate. In the UK, the major supermarkets and their logistics providers now account for the majority of domestic intermodal rail services, some operated over shorter distances than exist between Dublin and the Western Region.
- 5.2.8 Other potential "anchor" traffic prospects include cement and aggregates which could be distributed by rail in trainload quantities to regional railheads, for final local distribution by road.
- 5.2.9 The level of potential demand is significant, but in order to unlock this traffic, Irish Rail will need to continue work towards making rail "irresistible" against road haulage in its target market. This will need:
- Marketing effort to raise awareness about the opportunities for end customers to use rail;
 - Identifying key customers to anchor new trainload services, working in collaboration with logistics companies (eg DFDS and IWT) and ports to provide a seamless end-to-end service;
 - Greater flexibility in piloting new services, for example the option of loading trains on the main line where possible, to avoid the need to create new railheads before a service can be trialled;
 - Increasing efficiency through longer trains, improved traction, rolling stock and working practices;
 - Infrastructure enhancement, such as new / extended passing loops to allow longer trains to be operated over a wider part of the network, along with new railheads to tap new sources of traffic;
 - Working with the public sector (eg IDA) to help attract more major new customers to locate in Ireland on rail-linked sites, using rail as the natural choice for high-volume import and export flows.

- 5.2.10 As traffic grows, Irish Rail will need more locomotives, wagons and traincrew. Irish Rail does not consider there to be any immediate constraints, but at some point a plan (and funding) will need to be developed to ensure additional resources can be brought to bear as required. Discussions with Government and private-sector suppliers will need to be progressed in the short term to ensure growth does not get choked off through lack of equipment, or lack of staff.
- 5.2.11 Rail freight services also need tracks to run on, timetable paths to run in, and railheads to interchange freight with other modes of transport and facilities such as factories and warehouses. The current network has a finite capacity, so in order to grow the level of traffic (and the length of trains), investment in the rail network will need to start within the next 5 years and ramp up considerably in the years that follow. This could include reinstatement of disused lines such as the Western Rail Corridor, connections to ports and rail freight interchanges.
- 5.2.12 Whilst most of the investment would be expected to come from Government, there is also a role for EU funding as well as leveraging in private-sector investment, particularly in creating more rail-served ports, factories and inland distribution parks. In the UK a network of Strategic Rail Freight Interchanges (SRFI) has been largely led by the private sector, with several billion pounds invested in modern interchange facilities, which in turn have spawned over 30 new freight trains per day and brought major customers such as Tesco to rail for the first time with significant volumes of traffic.

5.3 The role of Government in fostering further mode shift to rail

- 5.3.1 Rail freight not only delivers direct commercial and operational benefits to end users; the transfer of freight away from road transport and the highway network also yields wider indirect / societal benefits. The hierarchy of public policy, starting with the European Commission, therefore regards public policy support for rail freight (and mode shift of freight away from road) as an entirely legitimate exercise.
- 5.3.2 Elsewhere in the world, the “mission statement” of the New Zealand Government for its own investment plan in rail freight (paragraph 2.5.4) could provide the template for a similar initiative in Ireland, in stating:

additional investment in rail will help support the Government plans to improve [national] productivity and export-led economic growth and increase the resilience of the transport system.

- 5.3.3 The Irish Government wishes to de-carbonise the economy, with transport representing a major contributor to energy consumption and emissions. The recently published Department of Transport policy document, *Investing in our Transport Future – A Strategic Investment Framework for Land Transport*, notes the need for modal shift as part of the response to reducing carbon emissions by 80% by 2050. Whilst expansion of the road network may help improve capacity and reduce journey times for road haulage, each tonne km generated by road haulage will still create three times more emissions compared to that for rail freight.
- 5.3.4 If Irish Rail and the wider ports and logistics sector can demonstrate the emerging commercial and environmental potential for rail freight, public policy and investment will then need to support the role that rail can, in turn, play in supporting public policy objectives (eg economic growth and decarbonisation). Public policy needs to address the following:
- An over-arching policy framework for logistics, which sets a multi-modal context for supporting the wider economy, as well as being a strategically-significant economic activity in its own right – as without logistics, the economy would quickly grind to a halt.

- A strategy for development of the rail network for passenger and freight, setting out a sustainable case for long-term investment, on the basis of direct benefits (eg increased freight track access charge income and general taxation, lower costs / public subsidies) as well as wider societal and indirect benefits (eg attracting new inward investment, reductions in road traffic growth) and associated socio-economic and environmental impacts. The strategy should seek to use government investment to provide leverage for EC and private-sector funding. Investment in rail freight should not be undertaken in isolation from passenger rail services, as synergies may exist that could bolster the overall case, such as the ability to run longer or larger passenger trains on the same routes, or to create new passenger journey opportunities;
- Safeguarding and/or enhancing rail access into ports - Dublin and Waterford have played a valuable role in the recent renaissance of rail freight. Policy support and investment in other ports such as Shannon Foynes, Rosslare, Cork and Galway, to reduce potential congestion and/or over-dependency on Dublin. Interconnecting the ports by rail would also assist with the repositioning of empty containers, as already occurs in the UK, where Felixstowe and Tilbury are linked by rail;
- Safeguarding and/or developing new inland rail freight interchanges – these will be increasingly important given the lack of facilities at present and the economic / operational benefits that arise from bringing end users closer to or alongside the railway;
- Public policy should encourage rail access to be integral to larger freight-generating developments (eg port expansion, major new industrial and distribution sites). Policy should *encourage* use of rail to achieve viable, sustainable services over time, rather than *require* business to make use of rail and so create a potential ransom situation for the train operators. The UK planning system has largely moved away from blunt planning conditions requiring certain rail traffic targets to be achieved (all of which have failed to work), towards more pragmatic measures requiring rail facilities to be in place before the start of operations on site;
- “Pump-priming” support for new rail freight services – in Europe this has been largely predicated on the environmental benefits of rail freight compared to road freight, whether in absolute terms (eg €0.004 per tonne km for the former Marco Polo scheme) or in terms of the benefit:cost ratio (eg 4.27 to 1 for GB rail freight revenue support grants⁶⁰ and 12.51 to 1 for Marco Polo mode shift grants⁶¹). Most of the intermodal services in the UK serving maritime and domestic customers have at some stage received revenue support grants; while it is arguable the extent to which the train operators have inflated their prices to justify (and capture) most of this support, as the grant budget has declined so more of these services are (or will have to) become self-supporting, as service patterns and “anchor” customers become established.
- Reducing the costs of the road haulage at either end of the rail service – the costs of making collections and deliveries by road between railheads and end users can have a disproportionate impact on the overall cost of the door-to-door service, therefore implementation of the provisions of the European Directive on Combined Transport would give the Government additional means (and obligations) to promote rail freight by reducing the costs of any associated road haulage;

5.3.5 The forthcoming consultation on Sustainable Freight Transport and the planned Rail Policy, as well as a new proposal for a national rail freight study, provide the first steps towards an overall strategy for logistics.

⁶⁰ Department for Transport Review of Revenue Support Freight Grant Schemes Summary Report, Arup 2014

⁶¹ Ex ante Evaluation Marco Polo II (2007-2013), Final Report for the European Commission, ECORYS Transport June 2004, section 10.4

- 5.3.6 Note that to be successful any public support in policy and/or fiscal terms has to be matched by the right conditions to foster rail freight services, ie sufficient daily / weekly volume (at least 300 tonnes payload per train) over sufficient distance (dependent on volume), with a suitably attractive service in terms of price, reliability, transit time and flexibility to adapt to day-to-day circumstances.
- 5.3.7 In terms of service provision, the experience of the UK and New Zealand (and noting the dominance of state-owned DB Schenker and SNCF Geodis across much of the EU) suggests that the ultimate ownership of the train operators matters less than the actual service provided. In the UK the remaining state-owned rail freight operator Direct Rail Services not only performs a strategic role in moving nuclear waste by rail, it has also diversified into domestic intermodal rail services, where it enjoys a commanding position hauling trains for logistics companies and supermarkets. In New Zealand the KiwiRail operation also has achieved growth in traffic whilst remaining in state ownership. Public policy therefore needs to avoid any dogmatic polarisation into “public-sector = bad, private-sector = good”, but instead focus on securing the most efficient and equitable use of public and private sector stakeholders and their resources, to shift more freight from road to rail.

5.4 Conclusions & recommendations

- 5.4.1 The Government is seeking to restore economic activity and growth, with acknowledgement of the role of transport infrastructure and logistics services in providing a vital conveyor belt for the wider economy, as well as being a significant component of the economy in its own right. The importance of logistics needs greater prominence in public policy, not least to have a dedicated policy strategy and action plan. Investment in transport infrastructure then needs to support this, the North West being particularly lacking in highway access (eg no motorway north of the M4/M6 Dublin-Galway motorway link). Where rail freight services and facilities are available they need to be safeguarded and enhanced.
- 5.4.2 The Government also wishes to de-carbonise the economy, with transport representing a major contributor to energy consumption and emissions. If greater efficiency is to be derived from freight transport, both road and rail will need to be exploited to their maximum extent, with the rail network having considerable untapped capacity.
- 5.4.3 Rail cannot provide a universal panacea for tackling Ireland’s economic, logistical and environmental challenges, but can provide an important supporting role in reducing emissions, supporting business and attracting further inward investment through provision of multimodal, sustainable transport options – as global companies such as Ballina Beverages are already exploiting.
- 5.4.4 After decades of decline, rail freight services in Ireland are showing signs of growth, with good prospects for achieving Irish Rail’s target of a 4% share of surface freight traffic in Ireland by 2020 with its current available resources. The Government is now acknowledging the potential role for rail freight in Ireland, a crucial first step towards a suitable policy framework for rail freight, as well as the wider logistics sector.
- 5.4.5 Demand for new rail freight services comes at the end of a period of continued under-investment and rationalisation of rail freight infrastructure and rolling stock. To assist Irish Rail unlock a reasonable but substantive level of new traffic (and associated direct / indirect benefits to the nation), the Government needs to invest in accelerating the onward rebuilding of the rail freight business, in terms of longer / faster trains, use of the rail network at night, a bigger fleet of traction and rolling stock, and selective upgrading or reinstatement of routes where justified (assessment of which falls outside the scope of this study).

- 5.4.6 If required, the Government should then also consider providing short-term pump-priming of new rail freight services during their critical start-up phase, to the point where they can achieve viable levels of traffic and frequency.
- 5.4.7 The prospects for rail freight in Ireland will not solely depend on Government intervention, as the private-sector also needs to support (and be supported by) Irish Rail and its services. The early signs of a resurgent rail freight sector (and the wider benefits which accrue to the nation) should give the Government sufficient encouragement and justification to create a supportive policy and investment framework. This in turn should then further incentivise the private sector to commit investment where necessary, in areas such as locomotives and wagons, port expansion and inland rail freight interchange facilities. The IDA and Enterprise Ireland can help develop multimodal industrial and distribution platforms as a means to attract FDI (and help attract EC funding through TEN-T, ERDF etc). This in turn can be aided by planning conditions which require rail facilities to be in place before sites can be occupied or operated, to help encourage (rather than force) end users to make use of rail.
- 5.4.8 In this way, the current favourable outlook for rail freight to and from the Western Region could then be further developed as follows:
- **Short term** (2015 - 2020): a 4% mode share for rail freight, delivered largely through existing public and private-sector resources and policies, securing a small number of further anchor customers and clusters of smaller customers around them. A more flexible, proactive response by Irish Rail will allow customers to test services prior to making any major commitment, as part of a background of improving rail freight competitiveness from running longer trains within a clearer cost structure and lower track access charges. Towards the end of this period, Government policy starts to crystallise around a sustainable logistics policy framework, from which emerges a freight-driven strategic infrastructure investment programme, short-term pump-priming support for new service start-ups, greater pan-European collaboration on investment and innovation, and general policy support for improving rail access to ports, major manufacturing and distribution facilities – predicated on a clear understanding of the direct and indirect benefits of rail freight to logistics, the wider economy, society and the environment;
 - **Medium term** (2020-2025): growth in rail freight towards an 8% mode share is sustained by the measures implemented prior to 2020, such that new infrastructure capacity is brought to bear alongside new traction, rolling stock and personnel from a combination of European / national public-sector support, creating in turn a multiplier effect for leveraging private-sector investment. The customer base becomes increasingly diverse through blending a small number of major inward investors (integrating their own supplier base and supply chain), alongside medium and smaller enterprises, using an expanding range of ICT applications to infill volume gaps through online booking systems. Modern traction and rolling stock, moving increasing volumes of freight per train, then increases the environmental yield in terms of freight mode shift and reduced road transport emissions;
 - **Longer term** (2025-2050): rail reaches a new era of maturity, with mode share moving further towards (if never exceeding) the European average (currently 11% in the UK and 18% across the EU). Manufacturers, logistics companies and ports make no distinction or compromises in use of rail alongside road and sea transport. The existence of a diverse national network of rail freight routes (core and secondary / diversionary) and regional rail freight interchanges, handling maximum-length trains, provides customers with a robust, efficient and flexible service, backed by an equally well-developed ICT network integrated into other modes of transport and further up / down the supply chain. Government pump-priming schemes have largely disappeared, having served their original

purpose. Revenues from rail freight services allow train operators to fully cover the marginal (variable) cost of using the rail network, in some cases being able to make additional contributions towards specific freight-related infrastructure and capacity-related charges. The scale of the direct and indirect benefits of rail freight to business and society are now beyond question, such that any major policy shift away from rail freight would be considered unthinkable. As in present-day North America, policies may then be needed in due course to prevent train operators from achieving or exploiting market dominance on certain corridors (eg to/from the ports).

- 5.4.9 The latest announcement from Government in *Building on Recovery: Infrastructure and Capital Investment 2016-2021* suggests that the resurgence of rail freight has now secured official recognition, which bodes well for achieving at least part of the vision outlined above. Should the support for rail freight falter once more, the implications for achieving any measure of relief for the environment, or delivering more diverse and resilient supply chains to support the economy and encourage further FDI, could be both significant and long-lasting. Rail will not be the only solution to environmental and economic challenges, but there is now an urgent need to correctly define the role of rail, from which to ensure suitable resources are in place to unlock rail's potential, drawing on best practice from other EU Member States and other parts of the world.

Appendices

Appendix A Types of rail freight service

A.1 Services and equipment

A.1.1 Rail freight services can be used in several ways:

- Movement between rail-served production and/or distribution sites – UK examples include the flow of traffic for Danone from a rail-served factory in France direct to a rail-served warehouse at DIRFT for storage, added-value processing and onward distribution, or the movement of cars from Ford, Jaguar Land Rover, Mini and Honda plants to ports and continental distribution centres;
- Movement between ports and inland interchanges – rail moves around one-third of the containers passing through the main UK deepsea container ports, the main source of intermodal rail growth;
- Movement between non rail-served premises, using rail transport for the primary ‘trunk’ haul – UK examples include the flows of containerised supermarket deliveries Tesco between distribution centres in the West Midlands and Scotland, with road haulage used for ‘last mile’ deliveries.

A.1.2 Three principal forms of rail freight operation are used for such movements, namely:

- **Deepsea intermodal**, where standard shipping containers (with end loading doors) are carried by ships, lorries and trains, using sea and rail for long-distance haulage, and road for local distribution. Units can be transferred in minutes between modes at intermodal terminals;
- **Domestic and European intermodal**, where ‘swap bodies’ of similar dimensions to containers (some with side curtains as well as end doors) are moved by road and rail;
- **Conventional wagons** are used for carrying palletised and other unitised products directly between rail-served sites, with goods typically transferred between rail and road vehicles or warehouses by fork lift or pallet truck, with no intermediate road haulage required. Conventional wagons also carry cars between production and distribution sites, vehicles being driven on and off the wagons at each end.

Figure 24 Intermodal equipment



Deepsea container with reachstacker. These containers, available in 20-45' lengths, can be carried on ships, trains or trucks, and are lifted from the top



Swap body (refrigerated) with overhead gantry crane. These units are available in 7-13.6m lengths and can also be carried on ships, trucks or trains, and can be lifted from the top or the bottom depending on the type of unit



Piggyback trailer with overhead gantry crane. These units are available in 13.6m lengths and can be carried on trains as well as travelling on the road (or RoRo ships). These have yet to become mainstream in the UK due to rail height restrictions

Figure 25 Conventional wagon equipment



Conventional wagon (newsprint) with fork lift trucks. The doors of the wagons slide to one side to allow access into the wagon. The forklift trucks use clamps to load and unload newsprint rolls between the train and the adjacent warehouse under a canopy



Conventional wagon (pallets) with pallet trucks. In this case the rail sidings come into the warehouse itself, set around 1.2m below warehouse floor level to enable direct access between the warehouse and the floor of the wagon



Conventional wagon (cars) with end loading ramps. These wagons have hoods which fully enclose the cars during transit. During loading and unloading, the hoods and the upper car decks are raised to help access the vehicles. Cars are individually driven on and off the trains

Appendix B **Review of incentives for intermodal (combined) transport**

B.1 Introduction

- B.1.1 A recent report for the European Commission DG-MOVE⁶² looked at the use and promotion of “Combined Transport” (CT), ie the use of road, rail and/or at least one other mode to move freight, in most cases involving rail. The study reviewed a wide range of incentives to help promote use of CT at EU and Member State (MS) level. The executive summary noted:

It is possible to identify a relatively small number of incentives which could be material to CT growth moving forward. Two measures may not only deliver strong growth effects for CT operations but could be applied in every MS as well: aids (direct grants) for CT operations; and direct grants for the construction of CT terminal infrastructure. Both can reduce the total costs of CT operations considerably and thus enhance the competitiveness of service offerings when the size of the support is appropriately high. Existing programmes in MS cut terminal-to-terminal transport costs by up to 50%, or reduce transshipment cost by €30 or more per load unit handled at CT terminals.

B.2 Incentives in EU Member States

- B.2.1 In the EU, 4 other MS (BG, CZ, DK, PL), provide discounted track access charges, either just for CT trains or for all freight trains (BG) compared to the standard tariffs. The level of support varies considerably between MS. In Poland rail network access charges are reduced by 25%, in Bulgaria by 30-37%, and by 45% in the Czech Republic. Train operators in Denmark can even recover the total access charges if they achieve the required amount of tonne-km.
- B.2.2 The scale of impact of this incentive on CT operations primarily depends on the general level of access charges and its relationship with taxes and fees charged on road freight transport. If the track access charges were high prior to the reduction, even a strong cutback may not contribute to increase CT volumes notably. In Bulgaria and Poland, for instance, the rail infrastructure access charges for all freight train services were at a high level compared to the majority of MS. Therefore CT operators, although welcoming the measure, are concerned that the scale of reduction may not be sufficient to capture more cargo. This appraisal, however, must also be considered against the background of low road haulage rates across Europe at present. Conversely, when the general track access rates are more of the average across the EU, a moderate reduction can already take CT services below the breakeven point. This is even more so if charges can be completely reduced, as in the case of Denmark (albeit concerns remain in Denmark about the viability of rail services, as discussed later in this section).
- B.2.3 On the downside, a potential distortion of competition with “conventional” rail freight services can occur. It will also be important to ensure, as far as possible, that (as anecdotal evidence in the UK suggests) train operators do not deliberately inflate their haulage prices, so as to capture the benefits that would otherwise be passed onto the users.
- B.2.4 Beyond reductions in track access charges, a wide range of other measures have been implemented in other MS to promote greater use of rail freight and/or CT, with most of these having secured State Aid clearance from the European Commission. In our recent study for DG-MOVE we assessed the various measures and compared them as follows.
- B.2.5 In addition to the obligatory provision of the CT Directive to reimburse road vehicle taxes for CT

⁶² Analysis of the EU Combined Transport Final Report, KombiConsult, Internmodality, Planco and Gruppo CLAS for EC DG-MOVE

operations, other measures designed to support CT in the EU can be attributed to one of the following types of CT incentives:

- Exemption from road vehicle tax (extending the scope of Article 6.2 of the CT Directive);
- Exemption from or reimbursement of road infrastructure charges;
- Derogation from Directive 96/53/EC allowing higher weights or dimensions of heavy good vehicles in CT operations;
- Exemptions from driving bans for road vehicles;
- Reduced rail network access charges;
- Aids (direct grants) for CT operations;
- Aids (direct grants) for investments in CT terminal infrastructure;
- Aids (direct grants) for investments in CT equipment;
- Measures specifically targeted at accompanied CT rail/road services.

B.2.6 In terms of the split of measures between MS:

- 3 MS have not implemented any incentive for CT operations. Ireland, Lithuania and Malta have not even transposed the provisions of Article 6.1 of the CT Directive on the reduction of road vehicle tax into national legislation;
- 17 out of 28 MS fully comply with Article 6.1 of the CT Directive and have adopted schemes for the reimbursement of vehicle taxes. This is also the type of incentive mostly applied in the EU. Moreover Romania has prepared a vehicle tax incentive but has not yet implemented this, due to public budget constraints;
- 7 MS (Cyprus, Estonia, Finland, Greece, Luxembourg, Romania, and Sweden) have not enforced any other incentive for CT operations except for the measure provided under the CT Directive.

B.2.7 Beyond the provisions of the CT Directive itself, more than 40 other CT incentives are used by MS to promote alternative modes of transport to road haulage (rail, inland waterway, maritime). Of these, 5 expired recently and 4 have been legally prepared but not enforced due to financial constraints. The following analysis primarily refers to the 42 schemes currently in place. They are distributed by types of incentives as follows, in descending order of popularity:

- 10 MS have funded investments in CT terminal infrastructure through implementing programmes or supporting projects on a discretionary basis;
- 7 MS have given derogations from the Directive 96/53/EC on the weights and dimensions of lorries and exemptions of CT operations from road driving bans;
- 5 MS currently grant aids to CT operations, while programmes in three other countries recently expired;
- 3 MS apply a vehicle tax exemption scheme, which extends the scope of Article 6.2 of the CT Directive;

- 1 MS allows the pre- and post-rail road legs to be exempted from road tolls;
- 1 MS has implemented specific measures designed to promote accompanied CT services.

B.2.8 All of these relate to CT rail/road operations. 4 schemes are designed to reduce track access charges. 21 of the remaining 38 schemes also support CT inland waterway/road operations. Most of these relate to grants for operations and terminal investments, exemptions from driving bans and the derogation from Directive 96/53/EC.

B.2.9 Austria is the leading MS in terms of the scale and diversity of CT incentives, with 8 measures directly targeting the promotion or facilitation of CT services. Germany has 5 whilst the Czech Republic has 4. Most of the other MS support CT services with up to 3 different measures in each MS.

B.2.10 Specific measures are applied as follows:

Exemption from road vehicle tax

B.2.11 Three MS (AT, CZ, DE) allow road hauliers to exempt their road vehicles from vehicle tax if they are exclusively used in initial or final road legs of CT operations. The measure is clearly aimed at unaccompanied CT services as it is specified that the vehicles must move containers, swap bodies or semi-trailers. The measure applies to every CT sector in Germany, but is limited to CT rail/road in Austria and The Czech Republic. Though the haulier is exempted from 100% of the tax to be paid this incentive is likely to have only small positive impacts on CT operations.

B.2.12 The level of the road vehicle tax level is fairly low in MS. Therefore the benefit may amount to just €1-2 per CT shipment, assuming 250 working days and 2-4 daily rotations per lorry.

B.2.13 The exclusive use of vehicles for CT constrains the flexibility for road hauliers. They can only dedicate vehicles to CT operations if they have identified sufficient volumes. Otherwise, the incentive has little or no apparent disadvantages.

Exemption from road infrastructure charges

B.2.14 Only Bulgaria provides this incentive. It specifies that vehicles are exempted from the road toll on sections between the border to Romania and the nearest CT terminal in Bulgaria. This incentive currently has little or no effect. There are only a few CT services, and the length of haul to the nearest terminal in Sofia is so long that the costs are likely to be prohibitive.

B.2.15 Irrespective of the situation in Bulgaria, the incentive could significantly assist CT operations in situations where road charges are high. This incentive, however, has a major systemic flaw. Tolls are supposed to be charged to recover the costs for the wear and tear of the road infrastructure caused by the lorry and possibly allocate external costs to the causer. The respective impacts of a lorry operating in initial and final legs of CT operations do not differ from any other lorries. Therefore the reimbursement of a road toll, though effectively promoting CT, may not be in conformity with the “user-pays” and “polluter pays” principles of the White Paper.

Derogation from Directive 96/53/EC (vehicle weights)

B.2.16 7 MS (AT, DE, ES, HU, PT, SI, SK) which have adopted the 40 tonnes weight limit of the Directive 96/53/EC for national road traffic, permit road vehicle to operate at up to 44 tonnes in the initial and final leg of CT operations. The national legislation generally relates to the transport of all kinds of CT load units and thus extends the provision of the Directive, which otherwise confines 44 tonnes to the

movement of 40' ISO containers.

- B.2.17 An increased maximum gross weight is permitted in every country for CT rail/road operations. The national laws, in part, specify different requirements on the initial and final road legs. While some MS adopt the definitions of the CT Directive, Hungary limits the distance to 70km.
- B.2.18 This incentive has a large effect on CT services, not only in the home country where it is implemented but also on intra-EU operations with MS that also apply gross weights of 44 tonnes or more for inland haulage.⁶³ The incentive is relevant for the high percentage of goods with high density (eg chemicals, metal products, paper, recycling products). The additional gross vehicle weight helps overcome the significant combined additional tare weight of a road trailer and intermodal unit compared to the equivalent standard trailer. Depending on the type of CT load unit deployed and the axle load provisions the vehicle can have 5-15% more payload capacity. A higher payload entails increased freight revenues for the operator compared to road-only transport, although the benefit is likely to be shared between operator and shipper. A potential downside of this incentive is an increased strain on road infrastructure particularly if vehicles travel on longer distances from and to terminals.

Exemptions from driving bans for road vehicles

- B.2.19 7 MS have applied this incentive (AT, CZ, DE, HR, IT, SI, SK). The initial and final road legs of CT operations are exempted from driving bans imposed on road freight traffic on Sundays, weekends and/or public holidays.
- B.2.20 The conditions as regards the length of haul from and to CT terminals vary between MS. They conform to the CT definition in the CT Directive in some countries but are more constrained in others, for example, limiting the benefit to the use of a terminal in the home country. Only Germany applies a wider definition for CT rail/road operations: the haulier can operate between the place of loading/unloading and the nearest possible CT terminal within a distance not exceeding 200km.
- B.2.21 Exemptions from driving bans provide small positive impacts on CT operations - the road vehicles deployed for initial and final legs of CT operations can be employed more hours per week. They achieve more rotations and thus ensuring slight economies of scale. The benefits, however, remain limited when many logistic sites (warehouses, DCs) may not open on weekends or public holidays. Furthermore, the road driving bans are being watered down as hauliers increasingly seem to obtain exceptional approvals for road-only movements. A potential downside of this measure is increased road vehicle traffic on weekends or public holidays in urban areas. But as the scale of this kind of traffic seems to be comparatively low in MS applying this measure, it is considered reasonable.

Aids (direct grants) for CT operations

- B.2.22 5 MS (AT, FR, IT, LV, UK) currently grant aids for CT operations while support programmes in three other countries (BE, ES, HU) expired in recent years. The rationale of the operational aids is to remunerate train, barge or vessel operating companies or CT operators for moving a certain amount of CT load units on CT services during a defined period. The grant is predicated on the environmental benefits and/or economic disadvantages of CT operations.
- B.2.23 In Austria, the aid is related to the number of load units or lorries moved by CT over rail. The scale of grant depends on length and weight of load units, the type of traffic (domestic, transit, export/import)

⁶³ Since 1st April 2013 six axle (3+3) articulated vehicle combinations have been allowed operate at a gross combination weight of 46 tonnes. The provisions are contained in the Road Traffic (Construction and Use of Vehicles) (Amendment) Regulations 2013 (S.I. No. 43 of 2013).

and the rail distance undertaken in Austria. A supplement is paid for mountainous rail sections. For the Brenner corridor, for instance, the grant for using day trains is twice as high as for night trains.

- B.2.24 In France the programme rewards modal shift impacts according to the amount of throughput at CT terminals in France. Hence, operators obtain twice as much financial support for units carried on inland than on cross-border CT services. Transit shipments are not rewarded by this scheme unless they are transhipped in the course of gateway services at terminals in France.
- B.2.25 In Latvia, the aid relates to the costs of the CT operator for train operation, infrastructure access, terminal and administration and is paid in proportion to the days annually spent on CT services by rail within Latvia. CT service providers must commit to pass on the benefits to clients
- B.2.26 The UK scheme of aids for CT operations provide grants up to 50% of the external costs saved in the modal shift from road to rail, inland waterway or sea. The size of grant also depends on the competitive situation of the respective CT sector in relation to road on the trade lane in question (see UK analysis later in this section).
- B.2.27 The level of aid ranges from €10-100 per CT unit carried. Even if the financial benefit is in the lower range it enhances the competitiveness of CT operations as margins are small in the freight transport business. The positive impact on CT is significant if the grant is in the upper range; costs of the non-road leg may be cut by half. Yet, such aids for operations are only effective (ie have a modal shift impact) if the benefit is passed on to users of CT services upfront or if the users can be confident in obtaining the remuneration afterwards. They can then be in a position to recalculate the costs of logistics services planned to be supplied to shippers and effectively compete with other operators.
- B.2.28 Direct grants for CT operations are ambivalent. On the one hand, they can boost the shift of road traffic to CT services by rail. On the other hand, there are several potential drawbacks. CT services benefiting from grants are then under threat of suspension when the aid expires. If the service does not become economically viable during the period of funding, the users will likely shift volumes back to road once the higher, non-subsidised freight rate enters into force. In this respect the Belgian programme of operational aid for CT rail/road services is a case in point. When it expired in 2013, IFB, the major beneficiary of this aid scheme, lost the majority of its inland container hinterland traffic and was forced to shut down Antwerp Mainhub, the largest CT terminal in Belgium. Direct grants tend to be maintained permanently to avoid the “rebound” effect as experienced in Belgium (a recent report to the UK Department for Transport highlighted the risk of a major loss of intermodal traffic were rail freight grants to be withdrawn⁶⁴). However, this then provides no incentive for the CT operator to enhance the efficiency of the CT service. This negative impact can be mitigated if the funding is designed to decline over the years. Aid for CT operations can distort competition. This is the case when CT operators serving the same or a similar trade lane receive a different funding rate, or when a start-up CT service benefits from a grant while an existing service must be operated without support. The financial support of CT operations can also strengthen the existing structure of the CT industry. If big, market leading service providers obtain the largest overall contributions they can provide a financial boost to impede competition from smaller companies or new entrants.

Aid (direct grants) for investments in CT terminal infrastructure

- B.2.29 10 MS (AT, BE, CZ, DE, DK, FR, NL, PL, SK, UK) provide direct grants for investments in CT infrastructure. Belgium, Denmark and the Netherlands have mainly funded individual projects, whilst the

⁶⁴ Department for Transport Review of Revenue Support Freight Grant Schemes Summary Report, Arup 2014

majority of the MS have set up broader programmes. Under these programmes private investors may receive financial support for constructing a new CT terminal or for enlarging or enhancing existing facilities.

- B.2.30 The funding conditions vary among the national support measures. This, first of all, relates to the “positive” and “negative” lists of components that are eligible for being funded. The evidence (eg business plan, cost statement) which an investor has to submit may be as different as the requirement on when an investment must become viable. Authorities commonly request investors to commit to a minimum period of operation of the facility. For instance, the period is 11 years in Austria and, in most cases, 20 years in Germany.
- B.2.31 The most crucial differences, however, are in the funding rates. They range from 10% to 80% of the eligible costs of an individual component or the entire investment. In some MS the intensity of the aid further is coupled with the expected environmental benefits of the planned measure. The magnitude of impacts of direct grants for investments in CT terminals is strongly linked to the intensity of the aid. Cost analyses suggest that the transshipment cost can be reduced by €30 or more per load unit (which in most cases is more than the actual cost of transshipment itself). In some CT operations the cost reduction would add up to €60 to €70 per unit moved. But even if the benefit is smaller, the aid enables prices to be reduced for terminal handling and the terminal-to-terminal transport, and thus strengthens the competitiveness of CT services.
- B.2.32 This type of incentive has some further advantages: the aid contributes to create handling capacity by reducing the economic risks of a private investor; the investment in handling facilities has a long-lasting effect of reducing the costs of CT supply chains; and where the support programme requests investors to guarantee a non-discriminatory access to the terminal, the aid then also fosters greater competition between users of the facility and may contribute to strengthen the entire industry.
- B.2.33 On the downside, this type of incentive carries the risk of a misallocation of funds. The CT terminal may not match the planned transshipment volume and misses the modal shift objective due to an insufficient market analysis or business plan, or owing to a poor performance of terminal operations or external factors (eg poor rail service quality). An example of this is given later in this section. Moreover, market changes can evaporate market potential, for example, when a manufacturer closes a production site or when a key CT user is acquired by a “road-oriented” competitor. In all cases the CT terminal will remain idle or under-utilised. Investments in the infrastructure will be lost or devalued, while cranes or reachstackers might then be sold on.

Aid for investments in CT equipment

- B.2.34 Whilst no such programme is currently in place in the EU, two programmes that recently finished provide an example of good practice:
- France defined 25 energy-saving actions in the freight transport sector, which were eligible for so-called “energy saving certificates”. The programme explicitly related to CT operations. The beneficiaries were road hauliers operating CT load units in pre- and post-rail road legs, barge operators and operators of wagons for rolling motorways. Hauliers who purchased new CT load units (excluding ISO containers) and deployed them on CT services at least for 12 months would be rewarded with energy saving certificates for every single trip. The certificate amounted to 16,000 kWh in the case of load units of more than 9m length and 8,000 kWh for shorter load units. The energy certificates were tradeable on a market. The maximum value was €0.02 per

kWh CUMAC⁶⁵, a specific estimate of the number of kWh saved during the life cycle of the investment, actualised at the investment date. The characteristics of this incentive were distinctive. The programme coupled two policy objectives, saving of energy and modal shift, via the investment into CT equipment. Furthermore, the support of CT operations was not conveyed as a direct grant. Instead, it was a bill of exchange for the future. Depending on the development of the trade for energy saving certificates, the investor might then win a large or small financial return on its investment. This risk, however, could be a major barrier for hauliers or barge operators unless they had not planned to buy CT equipment, in which case they could gain windfall profits;

- o The Czech Republic implemented a programme in recent years aimed at stimulating continental CT rail/road services in the country. Investors obtained a direct grant when they bought CT load units. Bohemiakombi, the Czech operator of CT rail/road services, reported that this programme had been successful, though small due to the size of the budget. For the first time, forwarders established in the Czech Republic purchased piggyback semi-trailers and deployed them on intra-EU CT services.

B.2.35 The analysis of both of these programmes suggests that the overall impacts on CT operations were likely to be moderate. This is particularly because CT load units are not the most costly components of CT operations. Yet grants may bring down the market access barriers for new CT users, especially in countries where low-cost road operators dominate the market environment.

B.2.36 It is anticipated that aids for the procurement of rolling stock would have a stronger impact on CT as the economic risks are much larger. The absolute financial volume is higher for every piece of equipment, for example, €25,000 for a piggyback semi-trailer against €50-75,000 for a new rail wagon and over €2m for a new locomotive. Moreover assets deployed on rail services have a significantly longer economic lifetime of 15-50 years compared to 5-8 years for road vehicles. Such aids, however, are not permitted under EU law.

⁶⁵ Final energy savings CUMulated over the lifespan of an action and annually discounted with a 4% ACtualization rate : 1 WC = 1 kWh CUMAC

Appendix C UK public policy framework for promoting rail freight

C.1 Summary

C.1.1 Since 1999, the UK Government has set out a strategy for addressing climate change by promoting more sustainable means of development and distribution, through a policy framework for land use and transport planning, which spans both national and regional agendas. These policies have been the subject of intense review in recent years, through pivotal reports produced by Sir Nicholas Stern, Kate Barker and Sir Rod Eddington.

C.1.2 Government policy acknowledged the emerging challenge on 'sustainability' concerns raised at the Kyoto summit in 1997 about the wider effect of greenhouse gases on climate change. Since then, a comprehensive framework of policies has developed to create conditions favourable to, and fundamentally in support of, the planning and development of rail freight services and infrastructure.

C.1.3 National policies have included:

- Sustainable Distribution, A Strategy (1999) first acknowledged the critical importance of distribution and logistics to the wider economy but identified that, unchecked, the current approach to the distribution of goods would create unacceptably high social, economic and environmental impacts. When intensively used, railways could offer a substantially more energy-efficient means of distribution and help to reduce congestion on the road network, with a better safety record;
- Transport 2010, The 10 Year Plan (2000) further developed the themes of the previous policies into quantifiable targets, re-affirming support for rail freight;
- Strategic Rail Authority Strategic Agenda (2001) responded to the Government's 10 Year Plan for transport to set the framework for the delivery of the rail component of the 10 Year Plan. The agenda adopted the "challenge of freight" as one of its nine guiding principles. The agenda highlighted the decline in British heavy industry, limiting growth in the bulk freight sector, concluding that the focus of the strategy must be placed on switching non-bulk traffic from road to rail, particularly to and from Britain's major ports and the Channel Tunnel;
- SRA Freight Strategy (2001) developed the objectives of the Agenda, providing a detailed strategy designed to promote the development of rail freight. It highlighted the benefits of rail freight, particularly with regard to reducing congestion and yielding environmental benefits, notably via reductions in CO₂ emissions. The SRA suggested that track access charges for rail freight should be considerably reduced (a point subsequently accepted and implemented by the Rail Regulator) and oversaw the introduction of a series of grant schemes to support the set-up and operation of rail freight services, extending the scope of the former (and largely little-known) Section 8 grants. The SRA also intervened in the planning process in support of a number of applications for major rail freight interchanges;
- Planning Policy Guidance Note 13, Transport (2001) set out Government priorities for the development of transport, highlighting the key role of land use planning in delivering an integrated transport strategy. The document identified key objectives, including the promotion of more sustainable transport for both people and freight. In order to deliver these objectives, local authorities should give consideration to protecting sites and routes which could be critical in developing infrastructure or transport choices for passenger and freight. The land use planning system should promote sustainable distribution, including movement of freight by rail where feasible;

- Strategic Rail Freight Interchange Policy (2004) developed by the Strategic Rail Authority (SRA) set out the need, form, function and operating characteristics of Strategic Rail Freight Interchanges (SRFI), identified as being “key features of national rail infrastructure necessary to promote a shift from road to rail freight”;
- Ports Policy Review Interim Report (2007) acknowledged the crucial contribution of ports to sustaining the economy and that the UK’s success in globalised markets depends, in part, upon the ability of ports to adapt and operate efficiently as gateways to international trade. The report confirmed that demand for port capacity will grow, which in time will require a significant increase in capacity, beyond that which has already been approved in recent years. The report stated that a crucial aspect of port policy is inland connections, and that Government would seek to ensure that the road and rail improvements needed to serve future major port developments are brought on stream effectively;
- Delivering a Sustainable Railway (2007) set out a long-term ambition for a railway able to handle double today’s level of freight and passenger traffic. It confirmed the importance of rail freight as a means of access to and from ports, delivering significant environmental benefits over other modes. The White Paper quoted industry forecasts of 30% growth in traffic (tonnes lifted) between 2004/5 and 2014/5 as being realistic. Noting constraints on the rail network (including existing rail freight interchanges), the report committed £200m towards the development of a Strategic Freight Network;
- Towards a Sustainable Transport System (2007) set out the priorities for transport policy to 2015 and beyond. It confirmed the commitment to a high-quality Strategic Freight Network and emphasised the importance of ensuring effective rail access to the ports;
- Delivering a Sustainable Transport System (2008) outlined the key goals for transport, including to support national economic competitiveness and growth, by delivering reliable and efficient transport networks, and to reduce transport’s emissions of carbon dioxide and other greenhouse gases. The importance of logistics was acknowledged in a separate ‘daughter’ report;
- The Planning Act 2008 acknowledged considerable lobbying by the freight industry to include major rail-linked freight interchanges in the list of nationally significant infrastructure projects (NSIPs) covered by the Act, for which a new fast-track planning process was introduced (through a new Development Control Order) to improve the delivery of critical infrastructure projects. Qualifying rail freight interchanges need (inter alia) to be on sites in England in excess of 60 Ha, capable of handling goods for more than one consignor / consignee and at least 4 goods trains per day, with warehouses to which goods can be delivered from the railway network directly or by means of another form of transport;
- Strategic Freight Network: The Longer-Term Vision (2009) set out the Government’s proposals for creation of a core network of trunk freight routes, capable of accommodating more and longer freight trains, with a selective ability to handle wagons with higher axle loads and greater loading gauge, integrated with and being complementary to the UK’s existing mixed-traffic network;
- National Policy Statement for National Networks (2014) sets out the policy “need” for NSIPs, covering the road and rail networks and Strategic Rail Freight Interchanges. The document attempts to further streamline the planning process for major projects, by helping avoid individual planning inquiries being slowed down by arguments about policy need.

Appendix D Table of previous rail services / commodities⁶⁶

Route/Station	Products / Clients / Last moved by rail	Current arrangements
Dublin-Sligo		
Sligo	Timber (Coillte) 2001	Road
	Bagged cement (Irish Cement)	Road
	Tar 2001	Road
Dromod	Molasses 2000	Road
Longford	Fertiliser status 2001	Road
	Bagged cement 2001	Road
Mullingar	Bagged cement 2000	Road
	Molasses 2000	Road
	Fertiliser 1995	Road
Enfield	Molasses 1999	Road
Dublin – Westport/Ballina		
Ballina	Fertiliser 2000	Road
	Coal 1997	Road
	Acrylonitrile (Asahi) 1997	Company closed
Westport	Timber 2001	Road
Castlebar	Timber	Road
Roscommon	Timber 2001	Road
Dublin - Galway		
Athenry	Timber 2001	Road
	Mail 1994	Road
	Fertiliser 2000	Road
	Bulk cement May 2001	Road
Tullamore	Fertiliser 2000	Road
Limerick - Claremorris		
Ennis	Timber 2001	Road
	Containers 1993	Road
Gort	Fertiliser 1996	Road
	Bagged cement 1996	Road

⁶⁶ Source: Irish Railway News 2002.

Appendix E **List of market research interview contacts**

Ballina Beverages	Baxter Healthcare	Brian Cunningham Transport
Burke Shipping	Coillte	Dept of Transport, Tourism & Sport
DFDS	Dublin Port	Eddie Stobart
Fleet Transport Magazine	Hollister	Irish Exporters Association
Irish Rail	IWT	Liebherr
McGraths Quarry	Port of Cork	Port of Waterford
Rosderra Irish Meats Group	Rosslare Europort	Samskip
Shannon Foynes Port	Vistakon	West On Track

Appendix F

Population by NUTS3 region, local authority and Western Region

NUTS 3 Region	Composition	Population 2011	Western Region as % NUTS3 Region
Border	<i>Cavan</i>	73,183	
	Donegal	161,137	31%
	Leitrim	31,798	6%
	<i>Louth</i>	122,897	
	<i>Monaghan</i>	60,483	
	Sligo	65,393	13%
	Total	514,891	50%
Midland	<i>Laois</i>	80,559	
	<i>Longford</i>	39,000	
	<i>Offaly</i>	76,687	
	<i>Westmeath</i>	86,164	
	Total	282,410	
West	Galway City	75,529	56%
	Galway County	175,124	
	Mayo	130,638	29%
	Roscommon	64,065	14%
	Total	445,356	100%
Dublin	<i>Dublin City</i>	527,612	
	<i>Dun Laoghaire-Rathdown</i>	206,261	
	<i>Fingal</i>	273,991	
	<i>South Dublin</i>	265,205	
	Total	1,273,069	
Mid-East	<i>Kildare</i>	210,312	
	<i>Meath</i>	184,135	
	<i>Wicklow</i>	136,640	
	Total	531,087	
Mid-West	<i>Limerick City</i>	57,106	
	<i>Limerick County</i>	134,703	
	Clare	117,196	31%
	<i>North Tipperary</i>	70,322	
	Total	379,327	31%
South-East	<i>Waterford City</i>	46,732	
	<i>Waterford County</i>	67,063	
	<i>Carlow</i>	54,612	
	<i>Kilkenny</i>	95,419	
	<i>South Tipperary</i>	88,432	
	<i>Wexford</i>	145,320	
	Total	497,578	
South-West	<i>Cork City</i>	119,230	
	<i>Cork County</i>	399,802	
	<i>Kerry</i>	145,502	
	Total	664,534	
Ireland	Total	4,581,269	18%

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