Irish Academy of Engineering

BREXIT

Implications for Transport Infrastructure Investment

THE IRISH ACADEMY OF ENGINEERING

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THE IRISH ACADEMY OF ENGINEERING

The Irish Academy of Engineering is an all-island body, concerned with long-term issues where the engineering profession can make a unique contribution to economic, social and technological development.

Its members are Irish Engineers of distinction, drawn from a wide range of disciplines, and membership currently stands at 145.

Drawing on the experience and knowledge of its distinguished members, the Academy works to facilitate communication and dialogue on engineering-related matters. It regularly publishes reports and analyses, some jointly with other learned and professional bodies.

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Section of European Commission Ten-T Core Transprot Network Corridors

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Disclaimer

The members of the Taskforce and the contributors participated in extensive discussions in the course of a series of meetings, and submitted comments on a series of draft reports. Its contents convey the general tone and direction of the discussion, but its recommendations do not necessarily reflect a common position reached by all members of the Taskforce, nor do they necessarily reflect the views of the organisations to which they belong.

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EXECUTIVE SUMMARY

Foreword

The Irish Academy of Engineering has completed a series of reports on important topics with a significant engineering dimension. Normally these reports focus on longer term issues. But on occasions, particularly when external developments introduce near term problems or issues the Academy undertakes an analysis designed to help identify appropriate solutions. These reports follow the normal pattern of the Academy's work viz. quantifying problems, examining alternatives, proposing cost effective solutions.

Summary

The United Kingdom's Government stated Brexit strategy is to leave both the (EU's) Single Market and Customs Union. Given Ireland's geographic location, the fact that it is one of the most open economies in the world and that a very high proportion of our goods trade, in volume terms, is either with the UK or passes through the UK, the outurn of the Brexit negotiations is clearly of critical importance. But at present while hoping for the softest possible Brexit prudence demands that we plan for a hard Brexit.

Except for fuels, ores, grains and transport equipment the vast bulk of our goods exports and imports are transported in trailers on roll on roll off ferries (Ro-Ro) or in containers on load on load off vessels (Lo-Lo), which together are described as unitised freight. In the case of Ireland's unitised trade with Continental Europe much of this passes through Dover. But the port estate in Dover is very small, in relation to the volume of traffic handled and is unsuited for handling a customs regime with the EU. Thus alternative transport routes may be essential.

The Brexit problem is made more difficult by the fact that almost 85% of Ireland's unitised trade now passes through Dublin Port, in contrast no port in the UK handles over 20% of such traffic. This adds to traffic congestion on the M50 and its approaches and the considerable employment created in the supply chain management, transport and logistics sectors in the Greater Dublin Area adds to housing demand and unbalanced regional development. It also raises significant issues as to supply security.

With appropriate and timely investment in the South Coast ports and the transport infrastructure serving them, a significant portion of the unitised trade now using Dublin Port could be diverted to those ports, with their shorter sailing times to Continental Europe. This would benefit Dublin itself, the regions along the Atlantic Corridor and Irish exporters and importers.

Achieving this will however require a significant change in Government policy, in relation to port development and funding. It will also require considerable investment, as was made on the routes serving Dublin Port in the past and in additional shipping capacity. But given the potential disruption posed to Ireland by Brexit and the changes it implies for the EU's Trans European Transport Networks, EU and EIB funding may well be available provided the required integrated plans are developed and submitted, as soon as possible.

1. INTRODUCTION

The United Kingdom's Government stated Brexit strategy is to leave both the (EU's) Single Market and Customs Union. But the recent joint report from the negotiators of the European Union and the United Kingdom Government on progress during phase 1 negotiations states, inter alia, that

- "The United Kingdom will maintain full alignment with those rules of the Internal Market and Customs Union which, now or in the future, support North-South cooperation, the all-island economy and the protection of the 1998 (Good Friday) Agreement".
- "In all circumstances the United Kingdom will continue to ensure the same unfettered access for Northern Ireland's businesses to the whole of the United Kingdom internal market".

At present it is unclear how these contradictory positions can be resolved.

Given Ireland's geographic location and the fact that it is one of the most open economies in the world, Ireland's external goods and services trade equate to 175% of GDP and a very high proportion of our goods trade, in volume terms, is either with the UK or passes through the UK, then the outurn of the Brexit negotiations is clearly of critical importance. But at present while hoping for the softest possible Brexit prudence demands that we plan for a hard Brexit.

Except for fuels, ores, grains and transport equipment the vast bulk of our goods exports and imports are transported in trailers on roll on roll off ferries (Ro-Ro) or in containers on load on load off vessels (Lo-Lo), which together are described as unitised freight.

On an all-island basis Ro-Ro is the dominant mode, accounting for almost 75% of unit shipments and over 95% of those movements are to and from Great Britain. Thus, in the context of Brexit, it raises very serious issues as to how this traffic will be affected in the event of the UK leaving the Customs Union. In addition an estimated two thirds of our unitised freight traffic to and from Continental Europe uses the GB land bridge to access that market and could thus face four sets of customs barriers to reach its market, in the event of a hard Brexit, based on existing transport patterns.

The position is made even more difficult by the fact that much of that Ro-Ro traffic uses the port of Dover to reach the Continent. Dover is not just by far the busiest Ro-Ro port in the Britain, handling almost 40% of GB's Ro-Ro freight units; it is also the busiest in Europe. But the port estate at Dover, dedicated to Ro-Ro operations, is only 45ha, one fifth the size of the port estate in Dublin Port, though Dover's Ro-Ro freight volumes are over two and a half times those of Dublin. Thus, in the event of any disruptions to the 24hr Cross Channel ferry services at Dover, Ro-Ro traffic is queued on the M20, under a procedure known as Operation Stack. This happened on 32 days in 2015, as a result of refugee problems at Calais.

To highlight the problems posed by Brexit the Port of Dover mounted a display at the 2017 Conservative Party conference which advised that "If every one of the 10,000 trucks passing through Dover each day had a 2 minute delay, for passport checks, it would result in a 17 mile tailback". It should also be noted that despite the very significant traffic volumes using the roads in Kent, the M20 has not been extended the final 8 miles to Dover.

Thus it is recognised by both the port authority and UK authorities in general that Dover port is incapable of operating any form of customs inspection regime, for traffic to and from the EU. The Prime Minister, in a recent speech, recognised the very limited land areas available at some UK ports and proposed the creation of customs zones remote from the ports. In the case of Dover this facility could possibly be located near Stanford West in Kent, approximately 15 miles from Dover, where Highways England plans a £250m lorry parking area with capacity for 3,600 vehicles, to relieve queuing on the M20. But this proposal has faced significant local opposition and has yet to commence development.

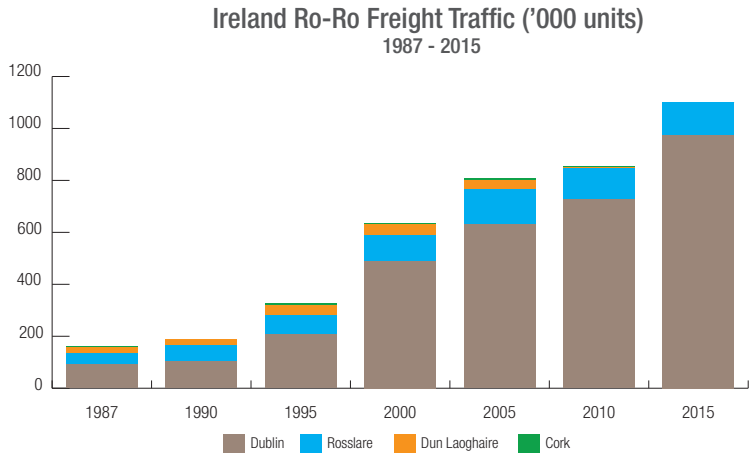
Thus it is clear that Irish exporters and importers face very significant challenges should the UK leave the Customs Union.

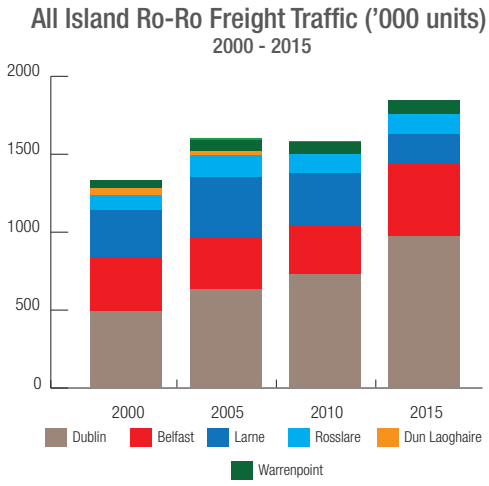
2. DUBLIN PORT'S DOMINANCE OF IRISH UNITISED FREIGHT

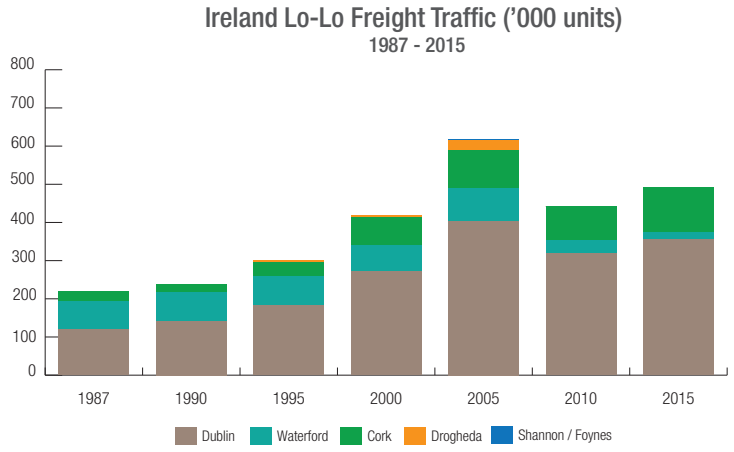
The problem, created by Brexit, of accessing EU or third country markets is made more difficult by the fact that Dublin Port now totally dominates unitised trade into and out of Ireland and indeed the island as a whole. This was not always the case, as is clear from the following figures and the table in **Appendix 1**. Dublin Port's dominance of both the Ro-Ro & Lo-Lo unitised freight traffic has been achieved during the past thirty years. The key factors were the development of Ireland's national motorway network, radiating from Dublin, the M50 and the Dublin Port Tunnel, the upgrading of the A55 in N.Wales, significant investment in Dublin Port itself and the deployment of very large Ro-Ro vessels on the Dublin-Holyhead route, viz the MV Ulysses, the largest Ro-Ro vessel in the world when launched and the MV Stena Adventurer, which is not much smaller, together with improved management and productivity at Dublin Port.

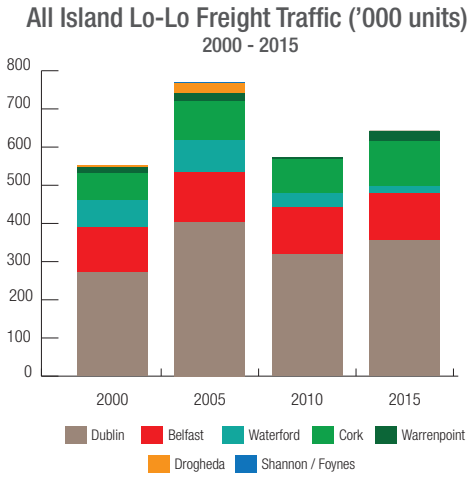
The result is that Dublin Port's share of Ireland's Ro-Ro traffic increased from just over 55% in 1987 to almost 90% in 2015, at the same time Dublin's share of Ireland's Lo-Lo traffic increased from almost 55% in 1987 to 72.5% in 2015. As is evident from **Appendix 2**, Dublin is now the second busiest Ro-Ro port in Britain & Ireland and the third busiest in terms of unitised freight traffic. Indeed Dublin's share of national unitised freight, 83.5% in 2015, far exceeds that of any UK port, where the maximum is 20%. This over-dependence on a single port raises serious supply security issues.

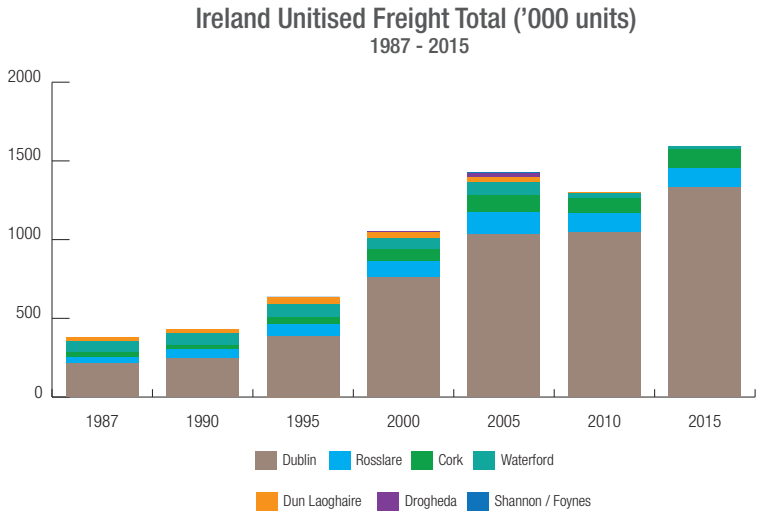
Thus Dublin Port's dominance of Ireland's unitised freight traffic is undesirable, both in the context of Brexit and in the interest of balanced regional development, as the very significant warehousing and distribution employment associated with this traffic is concentrated in the Dublin area, thus adding to traffic congestion, particularly on the M50 and its approaches and to housing demand. The means by which that might be changed are assessed in the following.

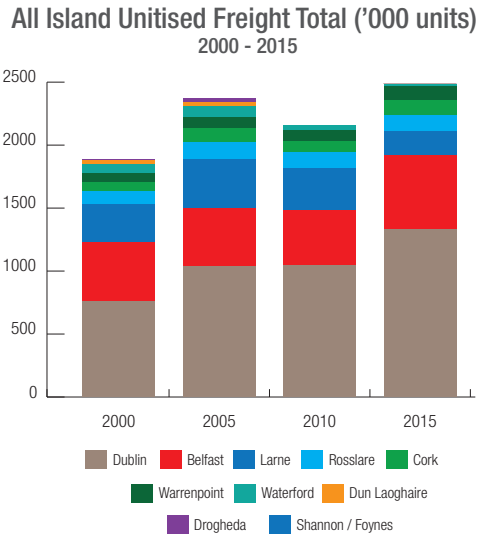





Ireland Lo-Lo Freight Traffic ('000 units)
1987 - 2015
800
700
600
500
400
300
200
100
0
1987
1990
1995
2000
2005
2010
2015
Dublin
Waterford
Cork
Drogheda
Shannon / Foynes


All Island Lo-Lo Freight Traffic ('000 units)
2000 - 2015
800
700
600
500
400
300
200
100
0
2000
2005
2010
2015
Dublin
Belfast
Waterford
Cork
Warrenpoint
Drogheda
Shannon / Foynes


Ireland Unitised Freight Total ('000 units)
1987 - 2015
2000
1500
1000
500
0
1987
1990
1995
2000
2005
2010
2015
Dublin
Rosslare
Cork
Waterford
Dun Laoghaire
Drogheda
Shannon / Foynes


All Island Unitised Freight Total ('000 units)
2000 - 2015
2500
2000
1500
1000
500
0
2000
2005
2010
2015
Dublin
Belfast
Larne
Rosslare
Cork
Warrenpoint
Waterford
Dun Laoghaire
Drogheda
Shannon / Foynes

IRISH FERRIES

3. NEED FOR ALTERNATIVES

In the 2009 report Dublin Port National Development Plan Study, prepared by Indecon for the Dept. of Transport, the Government's policy in relation to Ireland's ports was characterised as **"The present ports policy is essentially market led and does not attempt to implement an interventionist policy"**. It is highly questionable whether this approach is now appropriate given the existential threat to Ireland's trading patterns posed by Brexit.

If the UK leaves the Customs Union, as currently proposed, then three areas need to be urgently addressed.

- The arrival & departure pattern of Ro-Ro vessels at Dublin Port
- The risk to trade now using the GB landbridge route to the Continent, particularly trade through Dover. The associated requirement to significantly increase direct Ro-Ro and Lo-Lo shipping capacity to the Continent, where possible from South Coast ports offering shorter sailing times
- The requirement to improve both capacity at the South Coast ports and land transport access to those ports, as quickly as possible

These issues will be examined in more detail in the following.

4. ARRIVAL & DEPARTURE PATTERNS OF RO-RO VESSELS AT DUBLIN PORT

As shown in Appendix 3 the pattern of Ro-Ro sailings at Dublin Port is extremely uneven at present. Indeed twice each day vessels with an aggregate lane capacity of in excess of 10km arrive or depart within a 60min interval and these account for over 55% of the daily Ro-Ro freight ferry capacity. This bunched sailing pattern will clearly not be tenable if vessels serving GB ports are subject to customs inspection and other administrative procedures in the future.

But this trading pattern is also undesirable because of the impact it has on M50 traffic and on the demand it makes on space in the port. It is also in marked contrast to the present pattern of traffic at Dover Port, where Ro-Ro sailings are spread right throughout the 24 hrs. Fortunately this problem will be relatively easy to address.

5. RISK TO TRADE NOW USING THE GB LANDBRIDGE

This trade is made up of two elements

- Hauliers travelling to or from Continental Europe via GB, who are estimated to account for over two thirds of our unitised trade with Continental Europe.
- Hauliers ferrying containers to or from the deep sea container ports of Felixstowe, London Gateway and Southampton.

In both cases the additional administrative procedures following Brexit would place a significant time and cost burden on shippers, thus the need for alternatives.

In the case of shipments to Scandinavia geography dictates that there is probably no practical alternative. Thus hauliers will, of necessity, have to continue to use the ports of Immingham and Hull. However for other trades the alternatives need to be rapidly developed.

For shippers demanding Ro-Ro deliveries there are three options;

- With the delivery of the MV W.B.Yeats next summer, which will be slightly larger than the MV Ulysses, Irish Ferries will be in a position to offer much increased Ro-Ro capacity on the Dublin-Cherbourg route. In 2018 Irish Ferries plan to deploy this vessel on the route during the holiday season only, its large passenger carrying capacity makes it less suitable for year round freight operations between Dublin and Cherbourg.
- Rosslare Europort has sufficient reclaimed land to accommodate a very significant increase in the number of sailings to Continental Europe, from its three existing berths, though it could not accommodate larger vessels than are currently using the port. This could be a significant constraint as larger vessels are increasingly being used on the longer sea crossings, to Continental Europe, to reduce crewing costs. There would be a need for significant investment in the road infrastructure at the port, to suitably segregate arriving and departing traffic.
- The Port of Cork handles the Ringaskiddy-Roscoff Ro-Ro ferry at present at its Ringaskiddy deep water facility. It is primarily used by tourists rather than freight operators, but this service and a possible Ro-Ro service to Northern Spain could be developed for freight traffic in the future. However the Brittany Ferries MV Pont- Aven, with its 2400 passenger capacity, deployed on this route makes it less suitable for all year round freight operations.

  Thus there may be a requirement to deploy vessels similar to the Finnlines Star Class vessels, used on the Finland/Sweden-Germany Ro-Ro freight services, to provide a year round Ringaskiddy-France freight service, with Cherbourg, rather than Roscoff, perhaps being the French terminal, due to its better road connections to Paris and beyond. The Star Class vessels have a similar lane length to the MV Ulysses, but have only one fifth of the passenger carrying capacity of the MV Pont-Aven.

However it also seems likely that Brexit will alter the current 70:30 split between Ro-Ro and Lo-Lo freight traffic to and from Ireland to closer to the 50:50 split seen in the past, as more freight movements are shipped directly to Continental Europe without drivers i.e. unaccompanied freight, due to the much longer sailing distances. Furthermore the current 70:30 split of Lo-Lo traffic between Dublin and the South Coast ports could potentially change significantly, in favour of the latter, provided the required infrastructural investment in both the ports themselves and access to them is put in place, as was done in Dublin in the past thirty years.

For containerised freight there are a number of alternatives

- The recent announcement that a Con-Ro vessel, the MV Celine, will be deployed on the Dublin-Zeebrugge route is of major significance. This vessel is a new type of vessel, a cross between a container ship and a Ro-Ro vessel. In operation containers, stacked two high, are loaded onto low wheeled trailers, called cassettes and towed onto the vessel using tugmasters. The cassettes travel with the vessel and are hauled off at the receiving end, where the containers are then transferred to conventional road trailers or rail wagons.
- The significance of this development is that the vessel has a total capacity equivalent to a Ro-Ro vessel of 8km lane capacity i.e. almost twice the capacity of the MV Ulysses. It will thus substantially

increase Ireland's direct freight connectivity with Continental Europe and will, from Zeebrugge, provide direct access to the motorway network serving some of the most populous areas in Europe and the European rail network, for containers being delivered to more distant destinations. However because it is effectively a container ship it will not create the same surge loading on the road network as a Ro-Ro vessel of equivalent capacity.

But because of the much longer sailing distances from Dublin to Zeebrugge, 590nm and Cherbourg, 380nm, compared to Holyhead, 60nm, these much enhanced Ro-Ro and Con-Ro services from Dublin to Continental Europe will only provide approximately one fifth of the capacity currently provided on the Dublin-Holyhead route. Thus additional Lo-Lo capacity to Continental Europe may be essential.

Waterford was for many years the second most important Lo-Lo port in the country and accounted for one third of national Lo-Lo traffic in the 1980's. But Lo-Lo traffic through Waterford collapsed after 2008 and has, to date, not recovered. In part this was due to the model of Lo-Lo operations at Waterford, where container storage capacity was always limited. Thus for successful operation the port required a very high degree of integration between ship movements and onshore transport providers. In the past this was provided by the Waterford based Bell Lines, which unfortunately went into receivership in 1997. But the port also suffers from draught restrictions caused by shifting sands or sedimentation and thus has frequent but unpredictable dredging requirements. Therefore while the port could clearly increase Lo-Lo traffic levels to early 2000 levels, if needed, it is not clear that market conditions will facilitate that.

The Port of Cork's Lo-Lo traffic has increased steadily during the past thirty years. Today it is concentrated at Tivoli in the Upper Harbour. But in 2015 the port received planning permission to develop a new Lo-Lo terminal at its Ringaskiddy deep water facility in the Lower Harbour. The plan is to relocate Lo-Lo operations from Tivoli to Ringaskiddy, thus freeing up the Tivoli site for re-development and facilitating the use of larger Lo-Lo vessels.

But the Stage 1 development at Ringaskiddy is only designed to cater for 260,000 TEU's (twenty foot equivalent units), compared with the 210,000 TEU's handled in Tivoli in 2016. The permitted Stage 2 development would bring Ringaskiddy Lo-Lo capacity to 300,000 TEU's. This relatively restricted expansion was dictated by the fact that, in 2009, An Bord Pleanala refused planning permission for a substantially larger facility, because of the inadequate road infrastructure serving Ringaskiddy and its lack of rail connectivity. Given that there is no prospect of connecting Ringaskiddy to the rail network any larger development is thus contingent on the development of the M28, from Cork to Ringaskiddy.

Therefore if the Port of Cork is to make a significant contribution to increasing Lo-Lo capacity from the South Coast to Continental Europe by 2020 it can only be achieved by operating both the Tivoli and Ringaskiddy terminals for a period, until the M28 is complete, when a major expansion of Ringaskiddy is potentially possible, though operating both Lo-Lo terminals simultaneously is not currently envisaged.

But the switch from Ro-Ro to Con-Ro and Lo-Lo and from Dublin Port to the South Coast ports would also of potentially major benefit the Dublin city, as it would reduce peak freight traffic volumes on the M50 and reduce space requirements in Dublin Port. Specifically it opens the possibility of redeveloping the 20ha of land used for the Lo-Lo terminal and associated storage facilities on Poolbeg Peninsula for residential and commercial purposes.

6. IMPLICATIONS OF BREXIT FOR TRANSPORT INFRASTRUCTURE INVESTMENT

If the South Coast ports and particularly Ringaskiddy are to play a much expanded role in Ireland's unitised freight transport, post Brexit, then it is essential that their connections with the mid-west and west are improved.

But the development of a high speed transport corridor linking Cork, Limerick and Galway is also essential if the three cities, co-operating together, are to have the capability of acting as a counterweight to Dublin, thus fostering balanced regional development. On their own it is clear that none would have the scale to do so. But in the context of Brexit and the need to improve national connectivity to those South Coast ports, capable of material expansion, its rapid development is even more critical.

Given the alignment of the existing rail network it is evident that rail services cannot deliver the objective of delivering a one hour travel time between Cork and Limerick and Limerick and Galway. Thus a road solution is both essential and unavoidable.

The required road development is now partially complete but requires the development of significantly improved road connections between Galway City and the motorway network and the provision of a Limerick-Cork motorway connection.

However there have been several significant developments since the original motorway order for the latter was sought.

- As noted earlier, in 2015 An Bord Pleanala has approved the development of a road fed Lo-Lo terminal at Ringaskiddy, despite its earlier rejection in 2009 of such an application, due to inadequate road infrastructure and the lack of rail connectivity. This development is scheduled for completion in 2020.
- The Government has included provision for the re-development of the Dunkettle Interchange, serving the M8 and N25 and the Cork South Ring Road, as a freeflow junction, in the Capital Programme 2016-2021, thus reducing congestion at this key junction and improving access to the Lower Harbour and South Ring Road, from the M8.
- The Oral Hearing relating to the development of the M28 has taken place.
- Ireland is now required to reduce GHG emissions in the Non-ETS sector by 2030 to an extent that will be very difficult to achieve, given the scale of agriculture and road transport emissions.

Thus it is timely that consultants are being appointed to review potential motorway alignments. The key issues in this regard are that

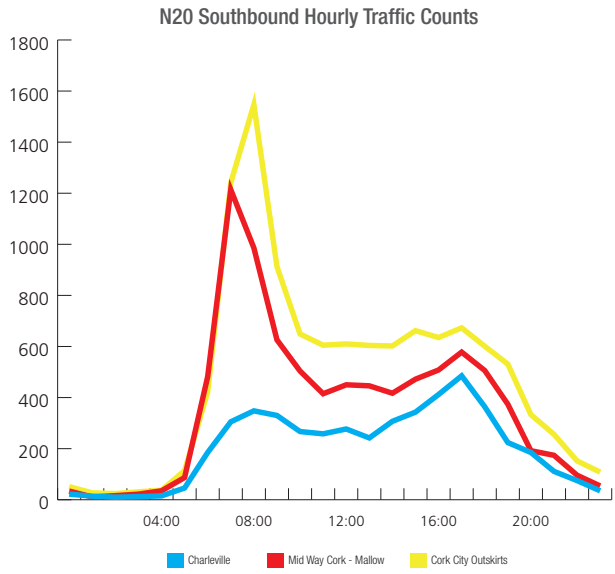
- With the notable exception of Apple, whose "product" is now primarily shipped out by wire, virtually all the significant industrial employers in the Cork area are located in the Lower Harbour, or accessed from the South Ring Road.
- The third level institutions in Cork, viz. UCC, CIT, CUH and NMCI are also most readily accessed from that road, for those travelling from Limerick or Galway.
- The port facilities at Ringaskiddy and Whitegate Refinery are also accessed from Dunkettle.

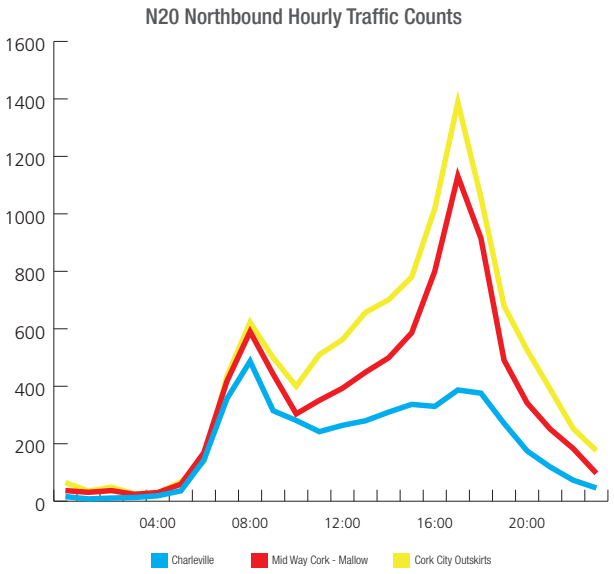
Thus the development of high speed road access from Galway to Limerick to Cork will not be complete without significantly improved road infrastructure in Galway and the development of a Limerick-Dunkettle motorway connection.

But most importantly, in the context of Brexit and the concomitant need to develop the M28/N28, at a projected cost of €180m in the same time period, it is essential to develop and deliver the required road infrastructure in the shortest possible time and as cost effectively as possible.

But the above does not mean that rail has no part to play in the solution. The Southbound and Northbound weekday hourly traffic volumes on the existing N20 at three locations, as reported by TII, are shown in the following figures.

- At Charleville, 60km from Cork City
- At Lissavoura, between Blarney and Mallow
- Between Blarney and Blackpool, on the outskirts of Cork City





From these it is clear that commuter traffic from Mallow accounts for over 55% of daily traffic on the N20 and 75% of peak time traffic. But the Mallow - Cork route is served by a rail line, which the relatively recently constructed N20 parallels. However, despite the commuter volumes this rail line is neither designated, nor developed by Iarnrod Eireann as a commuter route. Thus there is an urgent requirement to develop this route as a commuter service, to reduce commuter traffic on the N20 by 2020 and provide a more environmentally sustainable solution.

7. CONCLUSIONS

- The Government's current policy in relation to port development appears wholly unsuited to the problems posed by Brexit. Furthermore the current model of ownership and financing of the commercial ports does not appear to be capable of implementing the structural changes that a hard Brexit requires.
- Up to 500,000 unitised freight movements each year could potentially be re-routed from Dublin to South Coast ports by 2020 or soon thereafter. Were this to happen it would reduce Dublin's share of unitised freight to over 50%, the level obtaining in the 1980's and a level consistent with the Greater Dublin Area's share of the population. But achieving that would require a very significant change in inland distribution and logistics chains, which are now concentrated in the Dublin area. A key factor in this regard is the volume of Ireland's loaded Ro-Ro and Lo-Lo imports significantly exceeds those of our exports.
- This would help overcome the impact of Brexit, improve national supply security, facilitate balanced regional development and benefit the Dublin region, by reducing M50 traffic and possibly making 20ha of land available in the Poolbeg Peninsula for residential and commercial purposes.
- The required re-routing of freight traffic could potentially be achieved at capital investment levels less than previously envisaged, provided alternative solutions are adopted for the provision of a motorway route connecting Galway-Limerick-Cork.
- EU or EIB funding may be available to support the required infrastructural development and the requirement for significant additional shipping capacity, given the potentially very adverse impact of Brexit on Ireland and a consequent need to reconfigure the EU's TEN-T network, should the UK leave the Customs Union. However obtaining such funding will require the development of a fully integrated transport plan, addressing road, rail, port and shipping requirements.

APPENDIX 1:

Irish Port's Ro-Ro Freight Traffic 1987-2015							
	Units '000						
Port	**1987**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**
Dublin	91	102	206	489	630	727	974
Belfast				349	338	313	465
Larne				301	386	335	192
Rosslare	43	62	74	101	138	122	127
Dun Laoghaire	25	24	41	39	31	1	0
Warrenpoint				53	70	80	85
Cork	3	3	6	4	8	4	1
Total Ireland	**162**	**191**	**327**	**633**	**807**	**854**	**1102**
Total N.Ireland				**703**	**794**	**728**	**742**
All Island Total				**1336**	**1601**	**1582**	**1844**
Dublin % Ireland	56.2	53.4	63.0	77.3	78.1	85.1	88.4
Dublin % All Island				36.6	39.4	46.0	52.8
N.Ireland % All Island				52.6	49.6	46.0	40.2

Irish Port's Lo-Lo Traffic 1987-2015							
	Units '000						
Port	**1987**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**
Dublin	120	142	182	272	404	319	356
Belfast				119	129	124	123
Waterford	74	74	77	69	86	36	19
Cork	25	22	38	73	100	88	117
Warrenpoint				15	23	6	28
Drogheda	0	0	4	5	24	0	0
Shannon Foynes	0	0	0	0	5	0	0
Total Ireland	**219**	**238**	**301**	**419**	**619**	**443**	**492**
Total N.Ireland				**142**	**135**	**152**	**123**
Total All Island				**553**	**771**	**573**	**643**
Dublin % Ireland	54.8	59.7	60.5	64.9	65.3	72.0	72.4
Dublin % All Island				49.2	52.4	55.7	55.4
N.Ireland % All Island				24.2	19.7	22.7	23.5

Irish Port's Unitised Freight Traffic 1987-2015							
	Units '000						
Port	**1987**	**1990**	**1995**	**2000**	**2005**	**2010**	**2015**
Dublin	211	244	388	761	1034	1046	1330
Belfast				468	467	437	588
Larne				301	386	335	192
Rosslare	43	62	74	101	138	122	127
Cork	28	25	44	77	108	92	117
Warrenpoint				68	93	86	113
Waterford	74	74	86	69	86	36	19
Dun Laoghaire	25	24	41	39	31	1	0
Drogheda		0	4	5	24	0	0
Shannon Foynes		0	0	0	5	0	0
Total Ireland	**381**	**429**	**633**	**1047**	**1402**	**1297**	**1593**
Total N.Ireland				**837**	**946**	**858**	**893**
Total All Island				**1889**	**2372**	**2155**	**2486**
Dublin % Ireland	55.4	56.9	61.3	72.7	73.8	80.6	83.5
Dublin % All Island				40.3	43.6	48.5	53.5
N.Ireland % All Island				44.3	39.9	39.8	35.9

APPENDIX 2:

Unitised Freight Traffic UK & Irish Ports 2015 000's Units								
Port	**Lo-Lo Containers**	**Port to Port Trailers**	**Road Goods Vehicles**	**Unaccompanied Trailers**	**All R0-Ro Freight Units**	**All Freight Units**	**Ro-Ro Rank**	**All Freight Units Rank**
UK								
Belfast	123	0	154	311	465	588	**6**	**8**
Cairnryan	0	0	122	69	191	191		
Dover	0	0	2,565	45	2,610	2,610	**1**	**2**
Felixstowe	2,397	0	8	222	230	2,627		**1**
Forth	142	22	0	5	27	169		
Grimsbey & Immingham	153	144	87	577	808	961	**3**	**6**
Harwich	1	18	180	166	364	365	**8**	**10**
Heysham	0	0	27	263	280	280	**9**	
Holyhead Note 1	0	0	286	108	394	394	**7**	**9**
Hull	130	54	66	60	181	311		
Larne	0	0	122	69	192	192		
Liverpool	405	15	126	362	502	908	**5**	**7**
Loch Ryan	0	0	123	68	190	190		
London	698	214	13	325	551	1,249	**4**	**4**
Portsmouth	29	0	157	81	238	266	**10**	
Southhampton	1,154	9	0	0	9	1,163		**5**
Tees & Hartlepool	189	81	4	36	121	309		
Warrenpoint	28	0	6	81	88	116		
All UK Major Ports	**5,731**	**567**	**4,199**	**2,926**	**7,692**	**13,423**		
Ireland								
Cork	117	0	na	na	1	118		
Dublin	356	0	na	na	974	1,330	**2**	**3**
Rosslare	0	0	na	na	127	127		
Total RoI	**492**	**0**	**na**	**na**	**1,102**	**1,593**		
%UK								
Dover	**0.0%**				**33.9%**	**19.4%**		
Felixstowe	**41.8%**				**3.0%**	**19.6%**		
% Ireland								
Dublin	**72.4%**				**88.4%**	**83.5%**		
Note 1	Holyhead only report loaded freight vehicles Other ports report loaded and empty units. Thus Holyhead Figure is understated							

Dublin Ro-Ro Freight Ferry Arrival Times & Capacity 30/08/2017														
			Scheduled Arrival Time & Vessel Lane Length m											
Vessel	**Operatpr**	**From**	**00.00-00.59**	**01.00-01.59**	**02.00-02.59**	**03.00-03.59**	**04.00-04.59**	**05.00-05.59**	**06.00-06.59**	**07.00-07.59**	**08.00-08.59**	**09.00-09.59**	**10.00-10.59**	**11.00-11.59**	**Total**
Seatruck Pace	Seatruck	Heysham			1735										**1735**
Norbank	P&O	Liverpool				2040									**2040**
Seatruck Progress	Seatruck	Heysham						2166							**2166**
Stena Adventurar	Stena	Holyhead						4220							**4220**
Ulysses	Irish Ferries	Holyhead						4100							**4100**
European Endevour	P&O	Liverpool										1735			**1735**
Clipper Point	Seatruck	Heysham											1700		**1700**
Epsilon	Irish Ferries	Holyhead Tue-Sat											2860		**2860**
Superfast X	Stena	Holyhead												1890	**1890**
Total am			**0**	**0**	**1735**	**2040**	**0**	**10486**	**0**	**0**	**0**	**1735**	**4560**	**1890**	**22446**
			12.00-12.59	**13.00-13.59**	**14.00-14.59**	**15.00-15.59**	**16.00-16.59**	**17.00-17.59**	**18.00-18.59**	**19.00-19.59**	**20.00-20.59**	**21.00-21.59**	**22.00-22.59**	**23.00-23.59**	
Clipper Ranger	Seatruck	Heysham	1275												**1275**
Seatruck Power	Seatruck	Heysham					2166								**2166**
Stena Adventurar	Stena	Holyhead					4220								**4220**
Norbay	P&O	Liverpool					2040								**2040**
Ulysses	Irish Ferries	Holyhead						4100							**4100**
Epsilon	Irish Ferries	Holyhead Tue-Sat											2860		**2860**
Superfast X	Stena	Holyhead												1890	**1890**
Total pm			**1275**	**0**	**0**	**0**	**8426**	**4100**	**0**	**0**	**0**	**0**	**2860**	**1890**	**18551**

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