



**'WHITE PAPER' - MARITIME AND LAND BASED  
CAPACITY CONSTRAINTS REDUCING AND  
PREVENTING THE POSSIBLE CONVERSION OF  
UNIT LOAD FREIGHT TRAFFIC FROM THE DOVER  
AND CHANNEL TUNNEL CROSSING CONNECTION  
TO THE LHOFT PORT ROUTES**

The Liverpool-Humber Optimisation of Freight Transport  
(LHOFT) Project - Transforming Northern freight flows

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## 1. Introduction

One RoRo ferry operating on the Dover / Calais route can complete five round trips in a single 24-hour period, while a similar size ship operating between Rotterdam and the Humber ports (Hull, Immingham or Killingholme) completes just half a round trip during the same period. A ferry service operating between Rotterdam and the Humber will therefore need 10 ships in operation to provide the same level of capacity that one ship provides on the Dover / Calais route, over the same 24-hour period, assuming enough vessels and terminal/berth capacity is available.

There are the equivalent of 12 daily ferry and container service calls in the Humber ports providing connections with the Continental mainland but this is only just over the equivalent capacity provided by one vessel operating between Dover and Calais and in normal circumstances there are up to 12 vessels operating between Dover and Calais and Dunkerque with the Channel Tunnel freight shuttles also providing up to 7 departures an hour.

Distance, vessel availability, terminal and berth capacity are therefore obvious constraints for the Humber ports.

The utilisation levels and earning potential for vessels serving the short Dover / Calais route are therefore much greater than they are on a longer Rotterdam / Humber routing where, in addition, there is a much reduced earning potential from passenger traffic.

There are therefore benefits for the ferry operator on the Dover / Calais route and the Dover / Dunkerque and for Channel Tunnel Freight Shuttle services and while freight carryings are restricted to driver accompanied HGVs the road haulage operator also has the advantage of meeting a ferry departure at any time of the day. The short crossing and service frequency are major advantages for the road haulage operator in gaining the maximum utilisation from vehicles while also meeting the strict delivery and collection times specified by the receiver and shipper.

These are just two of the barriers facing operators on the longer North Sea and Western Channel routes where, for the Humber ports, two high capacity RoRo vessels are required just to provide a single daily service connection with Rotterdam, usually with an early morning arrival and an early evening departure from each port.

This short report quantifies the freight capacity and volume differentials between the combined Dover ferry and Freight Shuttle services, on the one-hand, and the range of alternative RoRo ferry and short sea container service capacity that could provide an alternative routing for a proportion of the Dover and Channel Tunnel traffic. Such a partial diversion could be absorbed on available spare service capacity, or on some expanded capacity arising from schedule intensification and from new vessel capacity deployed on routes, assuming the berth and terminal capacity is available to handle the extra vessel calls and traffic volumes.

In the first instance historic and current capacity, freight volumes and capacity utilisation will be assessed for the two sectors of the market. The inherent practicalities, difficulties and impact of traffic diversion will then be assessed, followed by some assessment of the maritime, land based and supply chain constraints that are holding back any traffic diversion.

The Report will conclude with sections on the several sound reasons that can and do support the principle of maritime and land-based diversion to LHOFT connected routes going forward.

## 2. Background

The LHOFT Project and the freight optimisation model developed by the project partners aims to inform shippers and receivers (exports and importers), primarily operating in the UK / Europe market sector of the alternative routings and transport modes available for moving freight between UK and European origins/destinations, while also identifying possibilities for collaboration between cargo owners and capacity development for shipping lines and rail freight operators.

Brexit and COVID 19, potential border delays and the need for supply chain security have added some impetus to the LHOFT argument for traffic diversion.

Intuitively, the alternative routes to the Dover and Channel Tunnel crossings for traffic moving between the Continent and the midland and northern UK regions will be less costly, encounter less congestion and be more environmentally friendly. There will be lower unit transport costs per mile on the longer maritime crossings and shorter road journeys on the UK land side, with some possibility of conversion to rail. The LHOFT project is an attempt to attract more of this traffic through the Humber ports and away from the Dover and Tunnel crossings.

This report provides an overview and assessment of the practicalities, impact and issues (constraints) arising from a diversion and possible change of transport mode for freight traffic in accompanied trailers currently entering and leaving the UK via the Dover routes (Calais and Dunkerque) and the Channel Tunnel. The options for diversion are to other ferry and possibly container service routes serving the UK / Continent short sea market.

Some of the practical considerations for the diversion of unit load freight traffic (accompanied trailers) from the Dover routes and the Channel Tunnel, albeit with constraints, are as follows:

- The availability of spare capacity on existing alternative maritime service routes
- Possibilities for the intensification of schedules with existing vessels
- Additional vessels on existing service routes, if berth capacity is available and vessel turnaround times can be improved
- New routes and services
- Flexibility of port, berth, terminal and stevedoring capacity
- Hinterland transport capacity (road and rail)
- Shipper and receiver flexibility in terms of load delivery and collection timings

This report focusses primarily on the conversion to alternative RoRo ferry and LoLo container services and the shipping capacity constraints that exist.

Subsequent sections of the Report map out the UK's available short sea freight RoRo and LoLo capacity and the estimated amount of freight already carried on those routes (from DfT Maritime Statistics) that connect the UK with Continental Europe. This in turn leads to a detailed examination of the potential amount and type of spare capacity available to absorb traffic diverting from the Dover crossings and the Channel Tunnel Freight Shuttle service.

The assessment is very relevant in the context of potential for delays and queuing at the Channel ports in the event of border checks, controls and examinations being introduced after 'Brexit'. These delays might inevitably lead to a transfer of some of the 'Channel' traffic to other ferry and container routes and services linking the UK with Continental markets, where sailings are less frequent and sea crossings longer, making checks more manageable and delays less significant.

In the first instance the scale and historic development of accompanied trailer flows through Dover and the Channel Tunnel is assessed from 1992 to the present day (see Section 3 below). The development of these specific traffic flows is compared to the total amount of RoRo freight passing through the UK's ports.

### 3. The scale and development of 'Channel' RoRo freight

**Table 1: 'Channel' and UK ports' freight RoRo traffic development 1992-2020**

Year	'Channel' traffic	Total UK RoRo	'Channel' share
1992	1,087	4,386	25%
1993	1,132	4,599	25%
1994	1,246	5,012	25%
1995	1,462	5,303	28%
1996	1,583	5,487	29%
1997	1,861	6,033	31%
1998	2,204	6,570	34%
1999	2,491	6,915	36%
2000	2,758	7,354	38%
2001	2,972	7,546	39%
2002	3,087	7,819	39%
2003	3,071	7,987	38%
2004	3,263	8,256	40%
2005	3,356	8,720	38%
2006	3,621	9,091	40%
2007	3,779	9,443	40%
2008	3,553	8,953	40%
2009	3,062	7,953	39%
2010	3,157	8,219	38%
2011	3,312	8,263	40%
2012	3,428	8,356	41%
2013	3,665	8,442	43%
2014	3,897	8,760	44%
2015	4,094	9,216	44%
2016	4,284	9,591	45%
2017	4,532	9,926	46%
2018	4,236	9,656	44%
2019	4,040	9,497	43%
2020	3,676	9,651	38%

Note: UK RoRo traffic (Main Freight Units) includes domestic traffic counted in two ports, including Irish Sea traffic moving through Larne, Belfast and Warrenpoint. The Channel traffic share of international traffic is therefore even larger than the percentages indicated. 2020 figures estimated with Channel Tunnel traffic as an actual

In 1992 the Port of Dover handled just over a million accompanied trailers entering and leaving the UK on ferries linking primarily with the French port of Calais. At the time this amounted to 25% of the total freight RoRo traffic (main freight units) being handled through all UK ports.

The Channel Tunnel opened in 1994 and in that first year the Freight Shuttle services handled 65 thousand accompanied trailers. In 2017 the Freight Shuttle service handled 1,637,280 vehicles, a figure surpassed in 2018 when 1,693,462 trailers were handled (a new record), before falling back in 2019 and 2020.

The Dover ferry services have experienced similarly strong growth over the period from 1992 and in 2017 the Port of Dover handled 2.9 million trucks (DfT Maritime Statistics, Table PORT0203) before falling back to 2.4 million trucks in 2019, resulting in a total of 4.5 million accompanied trailers being handled over the short Channel crossings in 2017, a fourfold increase since 1992 (see Table 1 above and Graph 1 below).

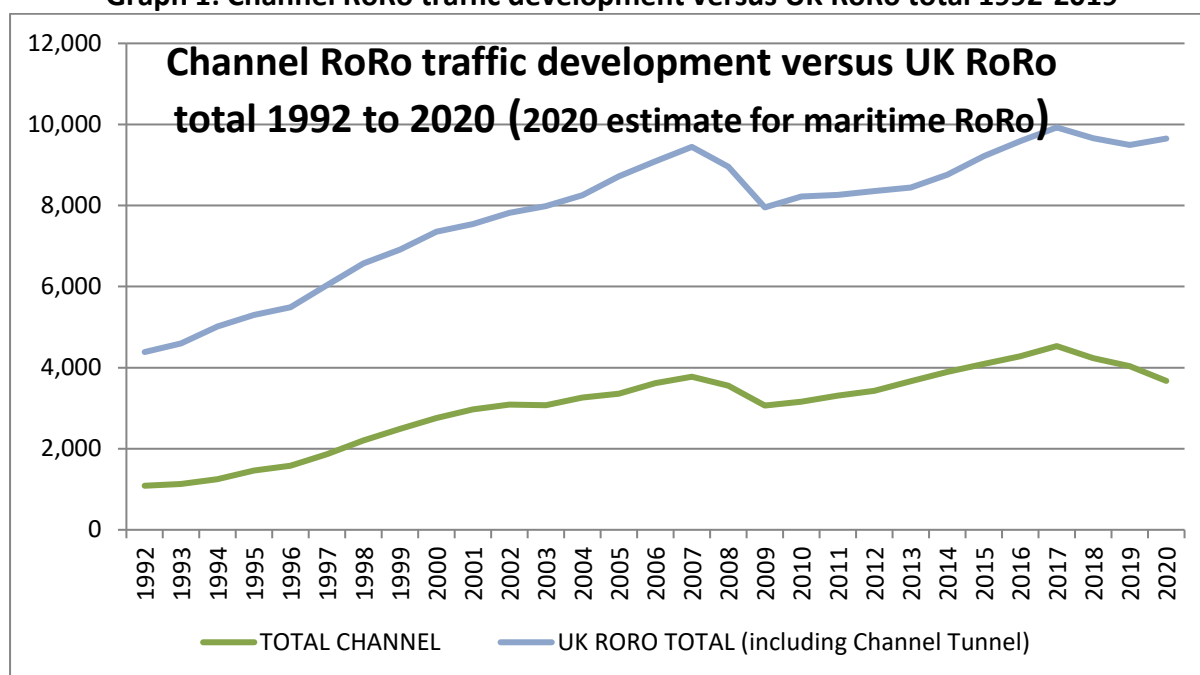
Rather than losing out to the threat of Channel Tunnel Freight Shuttle competition, as was feared, the ferry services from Dover have responded to the challenge and benefitted from the close proximity of a 'complementary' short Channel connection, with shippers supplying the freight and benefitting from the pricing competition on the routes.

While the UK's total freight RoRo traffic growth has been strong overall it has not matched the growth in freight traffic on the Channel crossings and over the period from 1992 to 2019 the overall number of units handled (including Channel traffic) has increased from 4.4 million units to 9.5 million units.

Much of the overall growth therefore can be attributed to the Channel traffic growth and the stronger growth in freight flows across the Channel routes has led to a rise in overall 'Channel' market share from 25% in 1992 to 43% in 2019, peaking at 46% in 2017.

In the peak year of 2017 while overall UK RoRo freight traffic grew by 2.6% Channel traffic grew by 5.8%. UK RoRo freight traffic between 2017 and 2019 shows no growth when the Channel figures are excluded, but there was no significant decline either.

**Graph 1: Channel RoRo traffic development versus UK RoRo total 1992-2019**



#### 4. Options and practicalities for route change / traffic diversion

The issues (constraints) surrounding traffic diversion, aside from pricing and timing, concern the feasibility and practicality of transferring Continental traffic from the Channel routes currently being used to longer ferry and container service routes over the North Sea, Western Channel and Irish Sea.

What are the levels of capacity available on which routes? Is spare capacity available to be utilised and how and over what time period can capacity be increased or demand smoothed to accommodate any transfer? Just a 10% transfer from the Channel routes in 2019 equates to **404,000 units** (202,000 each way) requiring alternative RoRo and LoLo service capacity that is already handling 3.8 million units (see Table 2).

In addition to the Short Sea freight RoRo capacity availability and its potential development a second factor determining the freight flows that could potentially divert from the short Channel crossings to longer routes is the growing capacity being provided by Short Sea container LoLo operators serving routes between the UK and the Continent. In 2019 the number of containers (FEU) carried by 'Short Sea' LoLo service operators amounted to 1.319 million units (FEU), as broken down in Table 2.

After a decade of static growth between 2000 and 2010, when the traffic level reached 0.836 million units (FEU), Short Sea LoLo container traffic between the UK and the Continent has since grown by 58% to 1.319 million units in 2019.

**Table 2: UK Short Sea unit load traffic 2019 (excluding Dover)**

Country origin / destination	LoLo units ('000 Forty Foot Equivalent units FEU)	RoRo main freight units ('000)	Total main freight units ('000)
Denmark	4	105	109
Germany	187	73	260
Netherlands	582	1,376	1,958
Belgium	292	671	963
France (excluding Dover traffic)	66	197	263
Spain	122	43	165
Portugal	66	1	67
<b>TOTAL</b>	<b>1,319</b>	<b>2,466</b>	<b>3,785</b>

Source: DfT Port Freight Statistics, Table PORT0204

The major operators in the Short Sea LoLo sector (UK/Continent) that could be vying for this traffic are A2B-online, Samskip, BG Freight Line, I-Motion, P&O Ferries, Unifeeder, Mediterranean Shipping Company (MSC), SCS Multiport, MacAndrews, WEC Lines and X-Press Feeders.

There has been little change in the overall numbers of freight units moved in 2019 on routes outside of the Dover Corridor (as defined in Table 2) compared to 2016.

In summary, the 'Channel' services currently (2019) carry 4.0 million accompanied trailers annually (Table 1) and Short Sea ferry and container services linking the UK with ports on the European Continent (Denmark-Portugal range) – the alternative routes - carry 3.8 million units (Table 2).

The equivalent estimated 'non-Channel' capacity available to carry unit load freight between the UK and the Continent (Denmark-Portugal range) amounts to 5.4 million units (Table 3, as at end of

2018) measured in terms of deck space, without provision for double stacking capacity on freight ferry services and also taking a conservative view on container service capacity (i.e. loaded container capacity, not nominal capacity).

Given freight carryings of 3.8 million units and an equivalent capacity to carry 5.4 million units there is currently an estimated capacity utilisation level of approximately 71% and notional spare capacity on Short Sea freight RoRo and LoLo services to carry a further 1.6 million units between the UK and the Continent.

**Table 3: Freight RoRo and LoLo capacity (excluding double stack capacity) on ‘alternative’ routes from UK, at end of 2018 (‘000 units)**

Country destination	RoRo capacity (trailers)	LoLo capacity (FEU)	Total
Denmark	126		126
Germany	116	7	123
Netherlands	2,041	865	2,906
Belgium	933	365	1,298
France	431	83	514
Spain	89	153	242
Portugal		154	154
<b>Total</b>	<b>3,736</b>	<b>1,627</b>	<b>5,363</b>

Source data: The 2018 UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report with analysis in Excel file ‘Potential transfer of Channel freight traffic after Brexit – January 2019 – Contestable traffic’

Note: Capacity serving France excludes Channel Tunnel and Dover services

For illustrative purposes the relative impact of 5%, 10%, 15% and 20% traffic diversions from the ‘Channel’ routes, amounting the 202, 404, 606 and 808 thousand units respectively (see Table A in next section) is to take up a respective further 4%, 8%, 11% and 15% of existing capacity on the alternative routes, taking up spare capacity that is currently theoretically available.

Market capacity indications for 2018, included in Tables 4 and 5 below, are that UK Short Sea service capacity serving the Denmark-Portugal range has increased by 445 thousand units (3.6%) in 12 months with the greatest increase in capacity occurring in the UK / Belgium market (+25.4%). These 2018 capacity indications are compared with the DfT’s 2019 Maritime Statistics figures for freight movements in the tables below, with detailed 2020 figures not due to be published by the DfT until August 2021. (2021 UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report due to be published by PRB Associates Limited in June 2021)

In the UK / Belgium Short Sea sector RoRo capacity had increased by 12.3% and LoLo capacity had increased by 67.1% between December 2017 and December 2018 (before adjustment for I-Motion Ghent/Thamesport closure in 2018). Conversely indications are (i.e. utilisation above 100%) that direct traffic movements between the UK and Germany will have fallen in 2019, compared to 2017, although capacity on these route sectors may be under-stated as a result of some multi-port LoLo service capacity not being correctly apportioned.



**Table 4: Estimated freight RoRo and LoLo capacity utilisation on Short Sea routes from UK in 2019 ('000 units)**

Country destination	Short Sea RoRo, LoLo and Channel Tunnel traffic (2019)	RoRo, LoLo and Channel Tunnel capacity (FEU)	Average utilisation
Denmark	109	126	86%
Germany	260	124	210%
Netherlands	1,958	2,906	67%
Belgium	963	1,298	74%
France	4,288	6,829	63%
Spain	165	242	68%
Portugal	67	154	44%
<b>Total</b>	<b>7,810</b>	<b>11,679</b>	<b>67%</b>

Source data: The 2018 UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report with numbers adjusted to reflect no double stacking and reduced LoLo capacity to account for deadweight restrictions (-30%). Traffic figures from DfT Maritime Statistics 2019

Note: Capacity serving France includes Channel Tunnel and Dover services

**Table 5: Traffic v Capacity (net as above) - Dover Corridor & Rest of UK/Continent Short Sea ('000 units)**

Market sector (UK/Continent)	Traffic units (2019)	Capacity (Trailers & FEU)	Average utilisation
Short Sea RoRo and LoLo	3,522	5,363	65.7%
Dover Corridor	4,288	6,316	67.9%
<b>Total</b>	<b>7,810</b>	<b>11,679</b>	<b>66.9%</b>

More detailed information on service capacity by route and mode is provided in Appendix I (Page 13) summarised in the table below. Further detail as to how 'diverted' freight might be spread to alternative routes and other UK ports, depending on the capacity available, is examined in Section 4 below, with more detailed analysis provided in Appendix II (Page 17).

For example (see Table C in next section), a 10% shift from the Channel routes could lead to 148 thousand more units moving through the Humber ports, equivalent to the annual capacity on a single daily, high capacity, freight RoRo service.

Transferring the freight carried in accompanied trailers via the Short Channel routes to containers on LoLo container and RoRo ferry routes across the North Sea, Western Channel and Irish Sea requires a supply chain 'step-up' from the change from accompanied to unaccompanied trailer, but the capacity options are there if the supply chain can adapt.

The difficulties lie in transforming and 'smoothing' the supply chain demand in order to accept the unaccompanied trailer and container mode on less frequent and longer sailings leading to possibly longer lead times, at the expense of the more 'time certain' accompanied mode.

**Table 6: Spread of UK / Near Continent capacity, split between Channel routes and 'alternative' routes**

Market sector served	Mode	Capacity (Trailers / FEU)
<i>'Alternative' routes / services</i>		
Near Continent	RoRo	3,769,527
	LoLo	1,767,991
France / Spain	RoRo (excluding Dover and Channel Tunnel)	521,305
	LoLo	557,739
<b>TOTAL</b>		<b>6,616,562</b>
<i>'Channel' routes / services</i>		
France	RoRo (Dover/Calais and Dover/Dunkerque)	3,975,504
	Shuttle (Tunnel)	2,323,218
	Through train (Tunnel)	16,640
<b>TOTAL</b>		<b>6,315,362</b>

## 5. Indicative traffic diversion according to capacity available

The short ferry routes across the English Channel between Dover and Calais and Dunkerque and the Freight Shuttle and intermodal services through the Channel Tunnel employ 37% (6.3m units) of Great Britain's gross short sea unit load capacity that totals 17.1 million units (trailers and FEU containers), according to the 2018 UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report produced by PRB Associates.

The schedule intensity and flexibility of the short Channel crossings attract high volumes of freight traffic and since the Channel Tunnel opened the route has grown in popularity to satisfy the rising supply chain demands for 'Just-in-Time' deliveries and timed deliveries and collections, utilising the accompanied trailer mode.

Channel traffic (Dover and Channel Tunnel) in 2019 amounted to over 4.0 million units (51% of the freight units shipped on the relevant short sea market in the Denmark-Portugal range totalling 7.8 million units (see Table 5 above) at a relatively low level of capacity utilisation, estimated at 60% for the ferries (depending on the balance of passenger vehicle utilisation) and 68% for the Freight Shuttle services.

Elements of this Channel traffic for the purposes of this study are regarded as the 'contestable' traffic that could be diverted to other UK / Continent routes if disruption occurred at the Channel ports (quantified for illustrative purposes in Table A below).

**Table A: 'Contestable' Channel traffic 2019 ('000 units)**

Port	Total traffic	'Contestable' element of Channel traffic			
		5%	10%	15%	20%
Dover	2,445	122	244	367	489
Channel Tunnel	1,595	80	160	239	319
<b>Total</b>	<b>4,040</b>	<b>202</b>	<b>404</b>	<b>606</b>	<b>808</b>

Note: Source traffic data from Channel Tunnel web site and DfT data table PORT0203

Recorded freight unit traffic on the Dover ferry crossings fell in 2018 and 2019 from a peak in 2017 and traffic volumes are likely to have fallen again in 2020. Between 2017 and 2019 volumes fell by 15.5% while Freight Shuttle services have experienced a decline of 11.3% over the three years from 2017 to 2020.

With border controls being implemented after Brexit and the possibility of delays at the Channel ports and Eurotunnel, transport operators (all accompanied trailer operators), shippers and forwarders will be considering the options to use alternative ferry and container service routes to move goods between the UK and Continental Europe, providing supply chain demands can be maintained, or adapted.

Current (end of 2018) gross freight RoRo and LoLo capacity employed on these alternative routes between the UK and Danish, German, Dutch, Belgian, French, Spanish and Portuguese ports amounts to 6.6 million units of which 4.3m is RoRo and 2.3m FEU LoLo (see Appendix I below).

Basic indications of capacity utilisation on the different alternative routes will vary but spare capacity does exist and at a notional 70% utilisation that spare capacity amounts to 1.98 million units, significantly more than the 808,000 units that could transfer from the Dover Corridor routes, given a 20% shift of 'contestable' traffic. (3.5m units moved in 2019 and even at the most conservative

estimate for capacity indicated in Tables 4 and 5 the current overall estimated utilisation is no more than 70%).

However, the shift from the Channel routes to alternative ferry and container service routes will inevitably require a change of transport mode, from accompanied trailer to either unaccompanied trailer or container.

The analysis carried out for this study and Report has concluded that the impact of various amounts of traffic diversion from the Channel routes – ‘Contestable’ traffic (5%, 10%, 15% and 20%) – can, in theory, be accommodated on other freight RoRo and LoLo routes to the following extent (Table B below), with freight ‘spread’ according to the overall capacity available on alternative routes.

These ‘shifts’ of freight from the Channel routes of 5%, 10%, 15% and 20% will lead to similar levels of uplift in capacity utilisation on the alternative RoRo and container routes, i.e. 4%, 8%, 11% and 15% (see Table B below). For each of the percentage diversionary impacts the corresponding additional capacity utilisation implied for the receiving services amounts, respectively to **4%, 8%, 11% and 15%**, additions that, in theory, could be absorbed on existing services if currently operating at 70% utilisation levels.

**Table B: Spread of ‘Contestable’ traffic by country of overseas service connection (‘000 units)**

Country	Spread of ‘contestable’ traffic			
	5%	10%	15%	20%
Denmark	5	9	14	19
Germany	5	9	14	19
Netherlands	109	219	328	438
Belgium	49	98	147	196
France	19	39	58	77
Spain	9	18	27	36
Portugal	6	12	17	23
<b>Total</b>	<b>202</b>	<b>404</b>	<b>606</b>	<b>808</b>
Current net capacity on alternative routes	5,364	5,364	5,364	5,364
% increase in utilisation	4%	8%	11%	15%

Note: France excludes Dover services and the Channel Tunnel

The UK’s short sea service capacity concentration, aside from the short Channel services is concentrated on routes to the Netherlands and Belgium and by deduction, this is where the majority of the diverted traffic could be accommodated, linking primarily with the UK’s east coast ports. However, goods from a range of country origins that are currently transported via Dover or the Channel Tunnel could be accommodated on other routes served by ports potentially closer to the goods origin and destination in the UK and on the Continent.

Just as the ports in the Netherlands and Belgium are the most likely alternatives for Calais, Dunkerque and Channel Tunnel traffics so are the UK ports on the east coast of England likely to be the main beneficiaries of a traffic transfer from the Channel routes, simply by virtue of the capacity available (see Table C).

**Table C: Spread of ‘Contestable’ traffic by UK port group (‘000 units)**

Port group	Net available capacity (2018)	Spread of ‘contestable’ traffic			
		5%	10%	15%	20%
Scotland east coast	105	4	8	12	16
North East	404	16	30	46	61
Humber	1,963	74	148	221	296
Haven & Thames	1,992	74	150	225	300
South coast	550	21	41	62	83
West coast	350	13	26	40	53
<b>Total</b>	<b>5,364</b>	<b>202</b>	<b>404</b>	<b>606</b>	<b>808</b>

Note: ‘Contestable’ traffic spread according to net capacity available (no double stack and practical LoLo capacity)

The ‘alternative routes’ gross capacity increased by 542 thousand units (8.2%) between December 2017 and December 2018, with LoLo capacity (+23.9%) increasing at a higher rate than RoRo capacity (+2.2%), although more clarity is now required through an analysis of current (January 2021) capacity.

## 6. Maritime capacity constraints and opportunities for expansion

Although spare capacity may be available on existing services it will be important to assess how easily and how quickly ‘spare’ capacity can be used more efficiently (matching demand with supply) and how more capacity could be made available to accommodate this increased demand on services and ports away from Dover and the Channel Tunnel. Some possible short term and longer term options for increasing capacity are listed below:

- Additional sailings added to existing schedules where there is current down time, without effecting the current schedule pattern (immediate short term action but with impact on vessel maintenance and stevedoring overtime)
- Increased schedule intensity and more sailings, shorter time in port / less layover time – downside; ‘rolling’ schedule rather than fixed time and shorter maintenance periods for vessels (short term action but with added impact on vessel maintenance, stevedoring shift patterns, terminal opening hours, road haulage collection and delivery timings and supply chain adaptation)
- Increased supply chain flexibility to avoid daily, weekly and annual peaks and troughs in demand that in turn cause unavoidable demand fluctuations and low capacity utilisation (redundancy) during certain periods of the RoRo and container service schedule cycle (short, medium and long term actions depending on individual supply chain flexibility)
- Larger vessels in service and possible retention of older vessels that would otherwise be replaced – CLdN roro, Stena Line, DFDS and A2B-online currently introducing new and larger vessels into fleets (existing fleet renewal is a medium to long term action but in the short term the vessels that are scheduled to be replaced could be retained in service alongside the new vessels)
- New vessel orders (long term action requiring planning and design time before lengthy build time, up to two years)
- Review of matching terminal and road haulage capacity and utilisation to match increasing demands through UK ports away from the Dover Corridor (medium term action that requires some research – ongoing and potential expansion of haulier’s truck fleets)

**Appendix I: Routes and services that 'Channel' freight traffic could divert to at January**

**2019** (Notional Capacity measured in trailer equivalent units for RoRo and Forty Foot equivalent units FEU for LoLo, includes double stack capacity estimate on RoRo and full nominal container capacity on LoLo – ref. PRB Associates UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report)

PORT	OPERATOR	DESTINATION PORT	DESTINATION COUNTRY	SERVICE TYPE	SAILINGS / WEEK	NOTIONAL CAPACITY
Grangemouth	Samskip	Rotterdam	Netherlands	LoLo	1	19,500
	BG Freight	Rotterdam	Netherlands	LoLo	2	25,168
	BG Freight	Antwerp	Belgium	LoLo		25,168
	MSC	Antwerp	Belgium	LoLo	1	13,468
	Unifeeder	Rotterdam	Netherlands	LoLo	2	32,058
	Unifeeder	Antwerp	Belgium	LoLo	1	10,413
	Unifeeder	Dunkerque	France	LoLo		10,413
	MSC	Le Havre	France	LoLo	1	6,734
	MSC	Dunkerque	France	LoLo		6,734
	Blyth	A2B-online	Moerdijk	Netherlands	LoLo	2
Tyne	DFDS	Amsterdam	Netherlands	RoPax	7	40,748
	BG Freight	Rotterdam	Netherlands	LoLo	1	15,721
Teesport	P&O Ferries	Rotterdam	Netherlands	RoRo	3	48,672
	P&O Ferries	Zeebrugge	Belgium	RoRo	6	142,599
	P&O Ferries	Zeebrugge	Belgium	LoLo	2	77,896
	MSC	Antwerp	Belgium	LoLo	1	13,468
	BG Freight	Rotterdam	Netherlands	LoLo	1	12,584
	BG Freight	Antwerp	Belgium	LoLo		12,584
	Unifeeder	Rotterdam	Netherlands	LoLo	1	10,686
	Unifeeder	Antwerp	Belgium	LoLo	1	10,413
	Unifeeder	Dunkerque	France	LoLo		10,413
	A2B-online	Moerdijk	Netherlands	LoLo	2	26,416
	A2B-online	Rotterdam	Netherlands	LoLo	3	79,248
	MSC	Le Havre	France	LoLo	1	6,734
	MSC	Dunkerque	France	LoLo		6,734
Hull	P&O Ferries	Rotterdam	Netherlands	RoPax	7	212,940
	P&O Ferries	Zeebrugge	Belgium	Pax	7	67,315
	P&O Ferries	Zeebrugge	Belgium	LoLo	3	102,648
	Samskip	Rotterdam	Netherlands	LoLo	5	183,768
	Samskip	Amsterdam	Netherlands	LoLo	3	53,040
	Samskip	Antwerp	Belgium	LoLo	2	52,832
	I-Motion	Ghent	Belgium	LoLo	3	79,248
	Killingholme	Stena Line	Hook of Holland	Netherlands	RoPax	7
Stena Line		Rotterdam	Netherlands	RoRo	6	91,997
CLdN ro-ro		Rotterdam	Netherlands	RoRo	6	202,800
Cobelfret		Zeebrugge	Belgium	RoRo	6	326,346
Immingham	DFDS	Cuxhaven	Germany	RoRo	5	128,985
	DFDS	Esbjerg	Denmark	RoRo	6	150,072
	DFDS	Vlaardingen	Netherlands	RoRo	9	253,116

PORT	OPERATOR	DESTINATION PORT	DESTINATION COUNTRY	SERVICE TYPE	SAILINGS / WEEK	NOTIONAL CAPACITY
	Sea-Cargo	Rotterdam	Netherlands	RoRo	2	5,824
Immingham	Sea-Cargo	Esbjerg	Denmark	RoRo	2	10,062
	A2B-online	Moerdijk	Netherlands	LoLo	10	232,544
	BG Freight	Rotterdam	Netherlands	LoLo	1	25,168
	Unifeeder	Rotterdam	Netherlands	LoLo	1	10,634
	Unifeeder	Hamburg	Germany	LoLo		10,634
	Unifeeder	Rotterdam	Netherlands	LoLo	1	21,372
Felixstowe	DFDS	Vlaardingen	Netherlands	RoRo	16	307,111
	Unifeeder	Rotterdam	Netherlands	LoLo	1	10,686
	BG Freight	Rotterdam	Netherlands	LoLo	1	15,721
Harwich	Stena Line	Hook of Holland	Netherlands	RoPax	14	451,360
	Stena Line	Rotterdam	Netherlands	RoRo	10	199,583
	Mann Lines	Bremerhaven	Germany	RoRo	1	4,117
London Gateway	ONE	Rotterdam	Netherlands	LoLo	1	4,033
	ONE	Lisbon / Leixoes	Portugal	LoLo	1	4,033
Tilbury	Samskip	Rotterdam	Netherlands	LoLo	3	125,268
	Transfennica	Antwerp	Belgium	RoRo	1	13,690
	P&O Ferries	Zeebrugge	Belgium	RoRo	12	272,252
	Finnlines	Bilbao	Spain	RoRo	1	6,006
	MacAndrews	Iberia	Iberia	LoLo	2	16,004
	MacAndrews	Spain	Spain	LoLo	1	19,383
	WEC Lines	Portugal	Portugal	LoLo	1	17,472
	SCS Multiport	Amsterdam	Netherlands	LoLo	3	108,888
	MacAndrews	Bilbao	Spain	LoLo	1	20,878
	MacAndrews	Bilbao	Spain	LoLo	1	19,500
	MacAndrews	Leixoes / Setubal	Portugal	LoLo	1	14,520
Purfleet	Cobelfret	Zeebrugge	Belgium	RoRo	17	291,170
	CLdN ro-ro	Rotterdam	Netherlands	RoRo	6	251,000
	CLdN ro-ro	Santander	Spain	RoRo	2	10,400
Dagenham	CLdN ro-ro	Flushing	Netherlands	RoRo	10	118,768
Thamesport	A2B-online	Moerdijk	Netherlands	LoLo	3	101,400
	I-Motion	Ghent	Belgium	LoLo	3	53,040
Dover	P&O Ferries	Calais	France	Pax / Ropax	189	2,301,936
	DFDS	Dunkerque	France	RoPax	78	973,440
	DFDS	Calais	France	Pax	99	700,128
Eurotunnel	Eurotunnel	Calais	France	Shuttle	698	2,323,218
	Transfesa	Valencia	Spain	Intermodal	4	16,640
Newhaven	DFDS	Dieppe	France	RoPax	14	92,479
Portsmouth	Brittany Freight	Caen	France	Pax	20	147,238
	Brittany Freight	St Malo	France	Pax	6	20,291
	Brittany Freight	Santander	Spain	Pax	3	25,646

PORT	OPERATOR	DESTINATION PORT	DESTINATION COUNTRY	SERVICE TYPE	SAILINGS / WEEK	NOTIONAL CAPACITY
	Brittany Freight	Bilbao	Spain	Pax	3	24,184
Portsmouth	Brittany Freight	Le Havre	France	RoPax	7	87,702
Southampton	X-Press Feeders	Le Havre	France	LoLo	2	21,372
	BG Freight	Rotterdam	Netherlands	LoLo	2	42,744
Poole	Brittany Freight	Cherbourg	France	RoPax	7	44,877
	Brittany Freight	Bilbao	Spain	RoRo	2	20,800
Plymouth	Brittany Freight	Roscoff	France	Pax	8	38,379
	Brittany Freight	Santander	Spain	Pax	1	3,303
Bristol	MacAndrews	Bilbao	Spain	LoLo	1	20,878
	MSC	Antwerp	Belgium	LoLo	1	28,080
	MSC	Bilbao / Gijon	Spain	LoLo	1	28,080
	BG Freight	Rotterdam	Netherlands	LoLo	1	26,104
	WEC Lines	Portugal	Portugal	LoLo	1	77,246
Liverpool	MacAndrews	Bilbao	Spain	LoLo	2	41,756
	MacAndrews	Bilbao	Spain	LoLo	1	39,000
	MacAndrews	Setubal / Leixoes	Portugal	LoLo	1	21,779
	BG Freight	Rotterdam	Netherlands	LoLo	1	26,104
	WEC Lines	Portugal	Portugal	LoLo	1	77,246
	MSC	Antwerp	Belgium	LoLo	1	21,414
	MSC	Le Havre	France	LoLo	1	21,414
Greenock	MSC	Antwerp	Belgium	LoLo	1	21,414
	MSC	Le Havre	France	LoLo	1	21,414
	MacAndrews	Bilbao	Spain	LoLo	1	20,878
	X-Press Feeders	Le Havre	France	LoLo	1	7,124
						<b>12,931,924</b>
<b>SUMMARY SPREAD OF 'ALTERNATIVE' FREIGHT RORO AND LOLO CAPACITY COMPARED TO DOVER/CALAIS AND CHANNEL TUNNEL CAPACITY</b>						
Near Continent	RoRo					3,769,527
	LoLo					1,767,991
France/Spain	RoRo	(excluding Dover and Channel Tunnel)				521,305
	LoLo					557,739
						<b>6,616,562</b>
France	RoRo	Dover/Calais and Dover/Dunkerque				3,975,504
	Shuttle	Tunnel				2,323,218
	Tunnel	Tunnel				16,640
						<b>6,315,362</b>

Note: RoPax is primarily a freight ferry but with accommodation and certification to allow for more than 12 drivers / passengers. Passenger / driver accommodation typically around 250



**Appendix II: Estimated spread and dispersal of 'Channel' traffic (2019) based upon the alternative capacity available serving other UK ports (i.e. UK/Continent services in the Denmark/Portugal range) in 2018**

SECTOR	PORT	RORO SERVICE CAPACITY '000	LOLO SERVICE CAPACITY '000	TOTAL CAPACITY	Spread of Contestable traffic			
					5%	10%	15%	20%
East coast	Rosyth	0	0	0	0	0	0	0
	Grangemouth	0	105	105	4	8	12	16
	Blyth	0	18	18	1	1	2	3
	Tyne	41	11	52	2	4	6	8
	Teesport	147	187	334	13	25	38	50
	Hull	231	330	561	21	42	63	85
	Killingholme	743	0	743	28	56	84	112
	Immingham	448	210	659	25	50	74	99
	Felixstowe	276	18	294	11	22	33	44
	Harwich	622	0	622	23	47	70	94
	London Gateway	0	6	6	0	0	1	1
	Tilbury	228	239	467	18	35	53	70
	Purfleet	398	0	398	15	30	45	60
	Dagenham	97	0	97	4	7	11	15
	Thamesport	0	108	108	4	8	12	16
		<b>3,231</b>	<b>1,233</b>	<b>4,464</b>	<b>168</b>	<b>336</b>	<b>504</b>	<b>673</b>
South coast	Newhaven	92	0	92	3	7	10	14
	Portsmouth	305	0	305	11	23	34	46
	Southampton	0	45	45	2	3	5	7
	Poole	66	0	66	2	5	7	10
	Plymouth	42	0	42	2	3	5	6
		<b>505</b>	<b>45</b>	<b>550</b>	<b>21</b>	<b>41</b>	<b>62</b>	<b>83</b>
West coast	Bristol	0	126	126	5	10	14	19
	Liverpool	0	174	174	7	13	20	26
	Greenock	0	50	50	2	4	6	7
		<b>0</b>	<b>350</b>	<b>350</b>	<b>13</b>	<b>26</b>	<b>40</b>	<b>53</b>
<b>Total</b>		<b>3,736</b>	<b>1,628</b>	<b>5,364</b>	<b>202</b>	<b>404</b>	<b>606</b>	<b>808</b>

Share of existing capacity (is spare capacity available?):

3.8% 7.5% 11.3% 15.1%

Note: RoRo capacity excludes double stacking capacity and LoLo capacity is reduced by 30% from nominal capacity to represent realistic capacity for laden containers