



**DEFRA PROJECT FO0108**

**RESILIENCE OF THE FOOD SUPPLY TO  
PORT DISRUPTION**

**FINAL ANNEX REPORT 5:  
IMPORT CORRIDOR: THAMES & MEDWAY  
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## 1. EXECUTIVE SUMMARY

The range of deep water berths and terminals, found on both banks of the river Thames and Medway, plus the enclosed dock system at Tilbury, offer a range of facilities for food imports. Unlike the concentration of accompanied trailer traffic served by Dover and the Channel Tunnel and the dominance of deep sea container operations at Felixstowe and to a lesser extent at Southampton, the Thames and Medway facilities serve a whole range of shipping mode sectors.

Significant RoRo ferry, short sea and deep sea container services and associated feeder services and dry bulk and liquid bulk operations are all undertaken on the estuary. There are alternative RoRo ferry and container vessel berths within the river system if one berth or terminal is put out of action and instances, such as at Dartford where a whole RoRo terminal that has been 'mothballed' could be brought back into action at short notice. There are bound to be common size characteristics for vessels operating in the same river system, making transferability easier.

In the event of total closure there is no single flow of shipping and freight (RoRo, short sea container, deep sea container) that could not feasibly be transferred to other routes, although certain capacity issues would have to be overcome on other routes and at other ports.

The exception to the flexibility and resilience 'rule' in the Thames and Medway is in dealing with raw cane sugar imports. In this instance the discharge, storage and refining capabilities of the terminal at Silvertown are not replicated elsewhere on the river. The sugar could be discharged at another berth on the river, although the lack of purpose-built conveyors would delay the process, but then it would have to be transported to Silvertown by road for refining and the availability of trucks and reception and discharge operations at Silvertown would be an issue. In any case, the proximity of the storage and refining facilities to the berths at Silvertown could also disrupt those operations if the port disruption (i.e. flooding) was severe enough.

There is also some 'inflexibility' and dependency in the way that the London Container Terminal has developed specialised container storage facilities for refrigerated containers. The number of electrical connection points (reefer points) on the London Container Terminal is not matched at any other terminal on the Thames and some kind of temporary system able to handle a large number of containers would have to be set up and installed.

From a commercial point of view the London Container Terminal has done well to carve a niche operation and supporting infrastructure that is difficult to replicate elsewhere, although this does create a resilience issue if similar numbers of reefer points are not available at alternative ports, should Tilbury be forced to close (see Section 5).

Ports and terminals in the Thames and Medway handle over 40 million tonnes of imports, roughly 17% of all UK foreign imports and the amount of food import (roughly 4.7m tonnes) is also equal to 13% of the UK's total food imports. Ports in the Thames and Medway handle higher volumes of food commodity input than Felixstowe and Southampton combined but less than the Dover and Channel Tunnel corridors.

For deep sea services calling at Tilbury, ports in South America and South Africa are important for the loading of containers carrying frozen meat and citrus fruit and Zeebrugge is the main port of call for short sea ferry and container services calling at Tilbury and Purfleet.

Any blockage of the deep water approach channels would cause severe disruption to activities in the Thames and Medway, just as it would with any estuary and river based port cluster and access to and from river berths, by road and rail is also an issue in such a heavily populated area in the South East of England.

## 2. INTRODUCTION & ACKNOWLEDGEMENTS

The Thames and Medway Case Study subjects relevant to food imports, along with the Humber Case Study subjects are more diverse in nature compared to the RoRo ferry and accompanied trailer concentration through Dover and the Channel Tunnel Case Study and the deep sea container concentration at Felixstowe and Southampton.

The Dover and the Channel Tunnel routes are almost entirely dominated by the accompanied trailer mode linking the UK and Continental markets, moving on the Dover ferries or the Eurotunnel Freight Shuttles. For Felixstowe and Southampton the key transport mode is containers carried on high capacity, deep drafted container vessels.

If disruption occurs on these two routes the problems amount to identifying alternatives for RoRo ferries and accompanied trailers, or the freight carried in those trailers, in the case of Dover and the Channel Tunnel; or finding alternative ports and secondary transport modes for the containers that would otherwise discharge and load at either Felixstowe or Southampton.

Neither of these disruption scenarios is any the easier for being a 'single mode' issue but in the Thames and Medway and the Humber, disruption will impact upon a range of RoRo ferry operations, deep sea, short sea and deep sea container feeder operations and both dry and liquid bulk operations, all carrying significant volumes of food commodity imports. The same features apply for other key UK estuarial gateways, such as the Tees, Tyne, Forth, Clyde, Mersey and Severn.

The question for the Thames and Medway is whether alternative facilities and capacity exists within the estuary if the disruption is restricted to a single port or terminal, or whether alternative capacity is available at different ports for the range of traffic modes being catered for, if the whole estuary is disrupted. The reverse situation, for both the Thames and Medway and the Humber estuaries, is whether and how the available RoRo ferry and container vessel capacity can contribute towards handling re-directed traffic should disruption occur at either the primary accompanied trailer corridor across the Channel or the key deep sea container corridors through either Felixstowe or Southampton.

This Case Study, through research and consultation, identifies the food import terminals on the Thames and Medway and quantifies the scale of their operations. Specific food commodity concentrations are exposed and the security of supply in the face of disruption is examined.

The range of ports and terminals handling food commodities, either in bulk, or in trailers and containers, is examined in Section 2 and the available vessel and cargo handling capacity is assessed and compared in Section 3. For RoRo and container handling operations the available capacity is compared with the alternative infrastructure at other UK ports and the new capacity being installed at the London Gateway terminal is put into context.

Capacity, resilience and transferability issues surrounding the raw sugar cane import facility at Tate & Lyle Sugars' Silvertown terminal and reception and storage facilities for edible oils at Dagenham, Erith, Purfleet and West Thurrock are assessed in more detail in the respective sugar and palm oil food commodity case studies (see **Annexes 9** and **10**).

The importance of the Thames and Medway food import terminals in terms of volumes and commodity breakdown is assessed in Section 4 and Section 5 examines the whole question of port flexibility, based upon research results and feedback from consultations. Issues and concerns about supply and potential disruption scenarios will be assessed and the practicality and feasibility for vessel and cargo transfer to other ports will be assessed, by broad commodity type.

A general food supply resilience assessment for the Thames and Medway is signalled in Section 6 but the detail behind the assessment will appear in the four food commodity Case Study Annex reports.

A concluding, Section 7, summaries the Messages and Findings arising from the research and consultation, highlighting particular facts, issues, potential responses and requirements for further investigations.

### 3. SECTOR OVERVIEW

Unlike at Dover and the Channel Tunnel, or at Felixstowe and Southampton, in the Thames and Medway estuaries no one shipping mode dominates and there are a range of food import facilities and terminals, albeit with specialist facilities for cane sugar and edible oils, incorporating vessel handling and cargo discharge, storage, processing and onward distribution. These particular specialist facilities have a strategic importance for UK food supply because of throughput volumes and the shortage of suitable alternative facilities at any other UK port.

There are three concentrations of operational RoRo berths, for general commercial traffic, in the Thames: at Purfleet (2 river berths); Dagenham (1 river berth); and Tilbury (6 in-dock berths and 1 river berth). There are also currently four redundant river berths, two at Dartford and two at Sheerness, along with RoRo berths in Chatham Docks (for forest products) and at Sheerness (for trade cars).

The annual throughput at the rail-linked CdMR Purfleet terminal is 250,000 trailers and 200,000 containers, all carried on RoRo vessels.

Deep Sea, Deep Sea feeder and Short Sea container trades are served by a total of 23 container gantry cranes, with a further 8 soon to become operational as part of the London Gateway Phase 1 development. Deep Sea services and feeder vessels are handled at the London Container Terminal (Tilbury) and Thamesport, while there are Short Sea terminals in-dock at Tilbury.

These RoRo and container terminals receive food imports in unit load mode and the London Container Terminal in particular specialises in handling food imports from South and Central America and South Africa. (See **Table 4.3** for full details of RoRo berths and container cranes on Thames and Medway).

**Image 3.1: Key ports and terminals on Thames and Medway estuaries**



There are three specialised liquid bulk terminals on the river; handling, refining and storing food grade edible oils and the ADM terminal at Erith also handles oil seed in dry bulk form. Tank storage is situated adjacent to the liquid bulk berths.

There is a high capacity grain terminal on the river, within the Tilbury Dock estate, handling imports and exports; and other dry bulk facilities, handling food products at Dagenham, West Thurrock and Tilbury.

In addition there is a dedicated Fresh Produce Terminal at Sheerness that handles reefer vessels from various origins, carrying fresh produce, loaded on pallets, ready for immediate discharge, direct

into cold store on the quayside. There are signs however that this facility is being wound down as the container mode of transport is replacing the bulk reefer mode.

**Table 3.1: Relevant ports and terminals on Thames and Medway estuaries handling food commodities**

Port	Terminal	Cargo types	Services	Overseas origins
Silvertown	Tate & Lyle, Thames Refinery	Dry bulk – Raw sugar	(Agent – Kentships)	Mauritius, Caribbean, Africa, Central and South America
Dagenham	TDG	Liquid bulk – vegetable/edible oils – 135,000 m <sup>3</sup>		
	Van Dalen	Dry bulk		
	Dagenham (Ford) Jetty	Trailers (RoRo)	Cobelfret Ferries	Flushing
Erith	ADM	Dry bulk (rapeseed), liquid bulk (vegetable oil)		
Purfleet	CdMR Purfleet	Trailers (RoRo)	Cobelfret Ferries, CLdN RoRo	Rotterdam, Zeebrugge
	Pura Foods, Jurgens Jetty	Liquid bulk – edible oils		
Dartford	CdMR Dartford	Trailers (RoRo)		
West Thurrock	Vopak Terminal	Liquid bulk – vegetable oils		
	Industrial Chemicals, West Thurrock jetty	Dry bulk, bulk powders		

Tilbury	Short Sea Terminal	Containers	Samskip, MacAndrews, UCI, Delta Shipping	Bilbao, Moerdijk, Baltic
	33-34 berth	Trailers (RoRo)	P&O Ferries	Zeebrugge
	Enterprise Distribution Park	Trailers (RoRo)	DFDS Seaways	Gothenburg
	London Container Terminal	Containers (specialising in refrigerated containers)	Hamburg Sud, Maersk, CMA-CGM, Hapag Lloyd, Delmas, Borchard Line, MSC, SITOS, Transfennica	South America, India /Pakistan, Australia /New Zealand /Pacific, Caribbean, Nigeria, Eastern Med., Spain, Amsterdam
	Grain terminal	Cereals		
	Bunge UK	Dry bulk – animal feedstuff		
Shell Haven - London Gateway	London Gateway	Containers		
Sheerness	No. 6 or 7 berth	Containers	Containerships	Baltic
	Fresh Produce Terminal	Reefer vessels – pallet carrying		
Thamesport	Thamesport	Containers	Evergreen, Grand Alliance, Hapag Lloyd, MOL	China, Far East, North America, West Africa

The Tate & Lyle Sugars terminal at Silvertown stands out as a key import facility for a single commodity (raw cane sugar in dry bulk form) on the Thames and as virtually the only such facility handling the UK import supply. Although the access channel up to Silvertown will have some tidal restrictions there is a dredged pocket on the outer berth with a minimum depth of 10 metres and vessels from Brazil, Fiji and Mauritius, of up to 40,000 deadweight tonnes, regularly berth at the terminal.

The volumes of unit loads and bulk food commodities handled are quantified in Section 4 so that the potential to transfer vessels and/or traffic can be assessed in Section 5.

<b>Port</b>	<b>Tankers</b>	<b>Dry bulk vessels</b>	<b>RoRo vessels</b>	<b>Container vessels</b>	<b>Other vessels</b>
London	2,498	2,130	2,992	996	1,509
Medway	179	1,667	248	599	321
<b>Total</b>	<b>2,677</b>	<b>3,797</b>	<b>3,240</b>	<b>1,595</b>	<b>1,830</b>
UK total	21,192	30,416	69,623	8,356	12,837

Note: Passenger vessels not included

The ports and terminals on the Thames and Medway handle 9% of all commercial ship arrivals into the UK (13,139 out of 142,424) and 19% of all container vessel calls (deep sea and short sea). RoRo appears to be less significant in terms of vessel calls, but this comparison is biased by the high number of ferry arrivals in Dover and Ramsgate. In fact the RoRo berths in Purfleet and Dagenham are the most heavily utilised in the UK (in terms of vessel calls per berth) behind Dover and Ramsgate.

## 4. PORT DESCRIPTION

### 4.1 Port infrastructure

Tilbury and Thamesport provide significant additional container handling capacity for the UK market, although both are located in the south east of England, serving the same immediate hinterland as Felixstowe and Southampton. With the development of London Gateway just downriver from Tilbury on the north bank of the Thames the concentration of infrastructure will be even more pronounced.

Between them Tilbury and Thamesport report a combined handling capacity of 1.55m TEU per annum, only 25% of the combined capacity available at Felixstowe and Southampton. If Tilbury and/or Thamesport were forced to close transfer of vessels to Felixstowe or Southampton is possible but the range of implications are considered in Section 6.3.

Crane numbers and capacities reflect the capacity limitations in terms of vessel size and quay length, although at Thamesport management are exploring options to add a further 100m of quay and already boast a minimum depth of water of 15.0m on the existing quay.

There are effectively only two deep water berths at each terminal because the two in-dock berths at Tilbury are restricted by lock access and the depth of water in the dock. The minimum depth of water over the outer sill of the lock gates at Tilbury is only 7.3m.

In addition to existing deep sea vessel and container handling capacity in the Thames and Medway estuaries, at Tilbury and Thamesport, there is a major new development underway on the north bank of the Thames, approximately 10 miles down river from Tilbury. Phase I of the new London Gateway development is due to open during quarter 4 2013 and the full Phase I development is planned to have a capacity to handle 1.6m TEU per annum.

	<b>Tilbury</b>		<b>Thamesport</b>	<b>Total</b>
Terminal	Riverside	In-dock	Riverside	
Area (ha)	TBA		71 (with further 16 ha available for development)	
Stack capacity TEU	TBA		26,000 (plus 11,000 TEU empty storage)	
Handling capacity million TEU p.a.	0.70		0.85	<b>1.55</b>
Current volume million TEU	0.50		0.30	<b>0.80</b>
Length of quay (m)	600	575	655	<b>1,830</b>
Deep sea vessel berths	2	2	2	<b>6</b>
Depth of water	600m @ 13.5m	575m @ 10.7m	655m @ 15.0m	
Quayside cranes	6	3	8	<b>17</b>
	4 x 18 containers wide	3 x 13 containers wide	1 x 22 containers wide	
	2 x 15 containers wide		1 x 21 containers wide	
			1 x 18 containers wide	
			5 x 17 containers wide	
Reefer points	1,400		435	<b>1,835</b>

Phase I at London Gateway will ultimately comprise 3 deep water berths with a minimum depth of water on the berth of 17.0m. With river dredging deepening the Thames access Channel to 14.5m the very largest deep sea container vessels with deep draft will have access to the berths for 72% of the day during tidal 'windows'.



**Image 4.1: Aerial photograph of London Container Terminal (Tilbury)**



When Phase II of the development is completed, as demand dictates, London Gateway will have a planned handling capacity of 3.5m TEU per annum, more than twice the current handling capacity of Tilbury and Thamesport combined.

Furthermore, the development is being ‘future-proofed’ by installing the largest container gantry cranes possible, offering an outreach over 24 containers wide. Eight such cranes are already on order for installation on berths 1 and 2.

Terminal	London Gateway		Total
	Phase I - berths 1,2 & 3	Phase II – berths 4,5,6 & 7	
Scheduled opening	Berth 1 Q4 2013 Berth 2 Q2 2014 Berth 3 Q4 2014		
Area (ha)	75	101	<b>176</b>
Stack capacity TEU	53,650	67,000	<b>120,650</b>
Handling capacity million TEU p.a.	1.6	1.9	<b>3.5</b>
Current volume million TEU	N/A	N/A	<b>N/A</b>
Length of quay (m)	1,250	1,500	<b>2,750</b>
Deep sea vessel berths	3	4	<b>7</b>
Depth of water	1,250m @ 17m	1,500m @ 17m	<b>2,750m @ 17m</b>
Quayside cranes	8+	16-	<b>24</b>
	8 x 24 container wide	16 x 24 container wide	<b>24 x 24 containers wide</b>
	8 cranes on order for berths 1 and 2 only	Less cranes ordered for Phase I berth 3	
Reefer points			<b>TBA</b>

In addition to these high capacity deep sea container handling facilities on the Thames and Medway there are a range of RoRo facilities (Purfleet, Dagenham, Tilbury, Dartford, Sheerness) and short sea container handling operations that are all summarised in **Table 4.3**.

<b>Port</b>	<b>Terminal</b>	<b>Location</b>	<b>RoRo berths</b>	<b>LoLo cranes</b>
Tilbury	Short sea Container Terminal	In-dock		5
	Finnish Terminal	In-dock	2	
	Common user	In-dock	2	
	London Container Terminal	Riverside		6
		In-dock		2
	RoRo Riverside berth	Riverside	1	
	Enterprise Distribution Centre	In-dock	2	
Purfleet	CdMR Purfleet	Riverside	2	
Dagenham	Dagenham Jetty	Riverside	1	
Dartford	CdMR Dartford	Riverside	2	
London Gateway	Phase 1	Riverside		8
Chatham	Berths 2, 3, 4 & 8	In-dock	3	
	Nordic Forest Terminal	In-dock	1	
Sheerness	Berths 1 & 2	Riverside	2	
	Car Terminal	Riverside	3	2
	Passenger Terminal	Riverside	2	
Thamesport	Container Terminal	Riverside		8
<b>Total</b>			<b>23</b>	<b>31</b>

There are a total of 23 RoRo ferry berths available in the estuary compared to just eight at Dover but none of the Thames and Medway berths are designed to handle the Dover class ferries. Ferries calling into the Thames and Medway terminals will be of the conventional type, having their own 'hoistable' ramps that can be lowered onto a RoRo pontoon platform or dockside.

When the eight gantry cranes are commissioned at London Gateway it will provide the Thames and Medway port complex with 31 cranes in total, three less than the total number already in operation at Felixstowe. Thamesport could already handle the size of most of the vessels currently calling at Felixstowe, but not the numbers. The London Gateway development promises to add much greater flexibility for UK imports.

In addition to RoRo ferry and container vessel handling operations there are also a range of liquid bulk and dry bulk handling facilities on the Thames and Medway (see Section 3 and **Table 3.1**). There are facilities for simple 'over the quay' operations but the food handling operations all involve specialised vessel unloading systems (conveyors, pipelines etc.), with supporting storage, processing, refining and dispatching operations on the adjacent quays. The particular features of the sugar (dry bulk) and palm oil (liquid bulk) food commodities are explained in **Annexes 9 and 10**.

#### **4.2 Services calling at the port(s)**

The numbers in **Table 3.2** provide an indication of the full range of vessel types that call at berths in the Thames and Medway. The estuary is well served by RoRo, container, dry bulk and liquid bulk shipping services. Container services are an important feature and that importance will increase as the London Gateway terminal develops. There are significant RoRo terminals, especially at Purfleet and a number of specialist bulk handling facilities for dry bulk carriers and liquid bulk tankers.










Virtually all of the UK's deep sea container 'back-up' facilities to the Felixstowe and Southampton operations are located in the Thames and Medway (Bristol, Liverpool and Teesport having less capacity and being located further from the main trade lanes).

At the London Container Terminal there are currently 14 deep sea vessel calls per week on the Riverside deep sea berths. The approximate berth utilisation level is 70%, suggesting a well supported terminal with little scope for expansion unless new customers or services require berths during the periods when berths are available.

Berth utilisation in-dock is less intense but the in-dock size restrictions, in addition to the delay of lock gate entry, render the berths unsuitable for deep sea services, although potentially useful for container feeder services.

London Container Terminal handles a range of operators covering a broad range of routes. There are seven calls per week from South American services as well as weekly South African, Nigerian, India/Pakistan, Australia/New Zealand, Pacific, Caribbean and Mediterranean services.

Activity at Thamesport, owned by the Hong Kong based Hutchison Group that also owns Felixstowe, is currently relatively slack and the port could provide a ready outlet for shipping line customers if problems arose at Felixstowe. It currently handles six deep sea calls per week. Overall berth utilisation on the two berth terminal is currently only approximately 34% and the deep water berths and fully automated container terminal provide significant spare capacity in current trading conditions, before any new developments come on line at London Gateway.

Day	Riverside Upper	Riverside Lower	In-dock				Key
	600m @ 13.5m		575m @ 10.7m				
Mon	EPIC (with Hapag Lloyd) India, Pakistan	REX					 Hamburg Sud  Maersk  CMA CGM  Hapag Lloyd  Delmas  Borchard.  MSC  SITOS  Transfennica
	SAMBA Maersk East Coast S. America	SAWC (with Hapag Lloyd) S.America West Coast					
Tue	SAECS Maersk, MOL, DAL, South Africa		SITOS Amsterdam				
Wed		Borchard, East Mediterranean					
Thu	ANDEN Maersk W. Coast S. America		SITOS Amsterdam				
Fri	NEMO Hapag Lloyd, CM CGM, Aust./NZ	MSC La Plata, S. America East Coast (via feeder to Antwerp)					
Sat	SAEC Hamburg Sud South America East Coast	MSC Andes, S. America West Coast	PAN Panama Direct CMA CGM, Marfret, NZ/Pacific FGNB, French Guyana, North Brazil, CMA CGM/Marfret				
Sun	Nigeria Express, Delmas	CRX Maersk Caribbean	SITOS Amsterdam				
			Transfennica, Spain				
	EPIC	REX - SEACS seasonal back-up					
	<b>79%</b>	<b>61%</b>	<b>70%</b>	<b>43%</b>		<b>21%</b>	

Evergreen and Hapag Lloyd are big container line customers at Thamesport and the G6 Alliance of major container lines also uses Thamesport as a UK port of call on Loop 5 of its Asia / Europe services. Evergreen also serves the Asia market while Hapag Lloyd offers connections to North

America and the Gulf of Mexico. Thamesport's other service connection is a West African service and the port is also served by regular container feeder services.

Day	655m @ 15.0m			Key:
Mon	Evergreen (AEX 10) - China			Evergreen (& China Shipping Container Line)
				G6 - NW Europe/Asia and Far East
				Hapag Lloyd
Tue				MOL
Wed	G6 LOOP 5 - Asia / Far East			
Thu		HL - PAX		
	HL - GMX			
Fri	MOL Europe / West Africa			
Sat	HL - GAX			
Sun				
	Evergreen (AEX 10) - China			
				34%

The typical size of vessel calling at Tilbury is in the 3,000 to 5,000 TEU range while at Thamesport the Asia service employs vessels with capacity of around 8,000 TEU, but on the Hapag Lloyd Atlantic services vessel sizes are below 5,000 TEU. Typical approximate container turnaround for deep sea services at Tilbury is in the range of 350 TEU off/on, while at Thamesport it is nearer 500 TEU on/off.

The prospect of six and potentially seven deep sea container berths at a fully developed London Gateway terminal provides almost double the combined number of deep sea berths already available at Tilbury and Thamesport and significantly increases capacity in terms of the size of vessel that can be handled.

### **Short sea services**

The key short sea ferry links from the Thames are with Zeebrugge (Cobelfret Ferries and P&O Ferries), Rotterdam (CLdN RoRo) and Flushing (Cobelfret Ferries), but there are also regular ferry services to Sweden and Finland. In total there are 67 short sea ferry sailings every week from ports in the Thames (Purfleet, Tilbury) and Medway (Sheerness). The Continent (Rotterdam and Moerdijk) is also well served by the Samskip and United Container Intermodal LoLo services.

Tilbury's status in the fresh produce sector (see **Annex 8**) has led to developing container service links with Bilbao (MacAndrews and Samskip). There are also weekly container and RoRo ferry service to the Baltic from Tilbury and Sheerness.

**London Gateway**

Table 4.6: Indicative berthing arrangements at London Gateway															
Day	Berth 1 400m @ 17m		Berth 2 400m @ 17m		Berth 3 400m @ 17m			Berth 4 400m @ 17m		Berth 5 400m @ 17m		Berth 6 400m @ 17m		Berth 7 400m @ 17m	
Mon															
Tue															
Wed															
Thu															
Fri															
Sat															
Sun															

**Short sea services**

Table 4.7: Key continental port destinations for short sea container and RoRo services from Thames and Medway ports		
Continental destination	Capacity employed on route (trailer / 40' container equivalent units)	% share
Zeebrugge	658,020	55%
Rotterdam	189,098	16%
Flushing	104,172	9%
Sweden	75,733	6%
Baltic	57,815	5%
Moerdijk	57,096	5%
Spain	48,672	4%
Norway	2,773	0%
<b>Total</b>	<b>1,193,378</b>	<b>100%</b>

### 4.3 Port hinterland

Ports have historically developed and grown in the Thames and Medway estuaries, taking advantage of the deep water channels and riverside berths. Subsequent population growth, port infrastructure growth and shipping service development have developed in unison. However, population density and traffic congestion around the ports in the Thames and Medway has caused its own problems.

The ports are still close to their main markets and a range of road; rail, barge and coastal feeder shipping services have developed to support the port infrastructure. Rail is important for the Port of Tilbury and there is significant scope for expansion from Thamesport. Rail will be an important feature for the London Gateway development, as will maritime coastal feeder operations.

Commercial traffic movements between terminals and berths on the river has been superseded by road transport over the years but there have been some initiatives to revive the use of barges for the movement of containers upriver from Thamesport and Tilbury, sponsored by the large supermarket chains. Such initiatives are being restricted by the loss of riverside wharves upriver, being taken over for housing and commercial development.

The importance of hinterland transport connections was highlighted during the winter of 2010 / 2011 when heavy snow caused road and rail blockages and traffic congestion in the south east of England. A positive development arising from this disruption was the expansion of the Thames Resilience Group into a Kent Resilience Group and the recognition of the importance of hinterland connections to and from the ports in the region.

Historically, as described in **Annex 2** fresh produce (fruit and vegetables) packhouses have been established in Kent, served from Continental suppliers via the Dover Corridor and on a worldwide basis through Sheerness (reefer vessels) and Tilbury (containers). Kent is a vital service area for fresh produce for the whole of the UK.

## 5. PORT TRADE & TRAFFIC

### 5.1 Overall trade and traffic mix

The combined amount of foreign import freight being handled through London (Thames) and Medway ports, including Tilbury and Thamesport, is over 40 million tonnes (17% of UK Major Ports total). London's unit load import traffic is channelled mostly through Tilbury (deep sea container, short sea container, RoRo ferry and trade cars) and Purfleet (RoRo ferry and trade cars) while in the Medway traffic mainly comprises containers through Thamesport and trade cars through Sheerness.

Port	Dry bulk	Liquid bulk	General	Unit load <sup>1</sup>	Total
London	3,541	14,959	1,940	10,847	<b>31,287</b>
Medway	1,532	5,002	1,750	2,146	<b>10,430</b>
<b>Total</b>	<b>5,073</b>	<b>19,961</b>	<b>3,690</b>	<b>12,993</b>	<b>41,717</b>
UK Major Ports Total <sup>2</sup>	72,382	129,878	12,634	89,524	304,418

Source: Department for Transport, *Maritime Statistics 2010*

Note 1: Unit load import includes trade cars, amounting to 845,000 tonnes. Total export volume 9,704,000 tonnes compared to 41,717,000 tonnes import

Note 2: Foreign and domestic traffic total for Major Ports, not including Channel Tunnel

In addition to unit load imports there are substantial liquid bulk handling facilities and specialist riverside terminals and dry bulk and general cargo imports. Over 20 million tonnes of the bulk imports are bulk fuels, but London handles over 1.4 million tonnes of agricultural product in dry bulk format. Food imports in dry bulk and liquid bulk form arrive through specialist facilities such as at Silvertown (sugar); Erith (edible oils); and Purfleet (edible oils).

Port	Containers	Trailers RoRo	Trade cars	Total
London	209	305	434	<b>948</b>
Medway	135		255	<b>390</b>
<b>Total</b>	<b>344</b>	<b>305</b>	<b>689</b>	<b>1,338</b>
UK Major Ports Total*	2,304	2,763	1,995	7,062

Source: Department for Transport, *Maritime Statistics 2010*

Notes: Passenger cars and passenger buses not included

\* Foreign traffic only

The container traffic handled through Tilbury and Thamesport amounts to 15% of the UK's total container imports and the combined estuaries are also significant in terms of RoRo freight and new trade cars. Imports from the EU carried on RoRo ferries into Purfleet and Tilbury and short sea container services into Tilbury also carry substantial volumes of foodstuff, as identified in Section 5.2.

### 5.2 EU and non-EU food imports

Using a combination of trade data obtained from HMRC via DEFRA statisticians and the DfT's *Maritime Statistics* it is possible to begin to profile the amount of food being imported through the Thames and Medway estuaries. Their importance is evident in terms of non-EU food imports, with over 3.5 million tonnes entering the UK, through a range of container, RoRo, liquid and dry bulk modes. Terminals on the Thames and Medway account for 26% of the UK's total non-EU food imports.

Tilbury and Thamesport are significant gateways for food shipped in containers from worldwide origin and Tilbury, in particular, specialises in refrigerated container imports (fresh, chilled and frozen meat; fish; fruit and vegetables). Trade data confirms the high volumes of frozen and chilled meat and citrus fruit (**Table 5.3**). More significant for this project however are the bulk imports of palm oil and sugar

that are concentrated through import terminals on the Thames. Together, the Thames and Medway and the Humber ports account for 82% of all UK palm oil imports from non-EU sources.

Commodity	Non-EU	EU est.	Total
Frozen and chilled meat (#0201, 0202, 0203, 0204, 0206, 0207)	78.052	1,215.000 (Estimated food via RoRo and short sea LoLo through Purfleet, Tilbury and Dagenham, plus dry bulk food imports)	
Fresh and frozen fish (#0302, 0303, 0304)	5.841		
Citrus fruit, fresh or dried (#0805)	235.946		
Palm oil (#1511, 1513)	99.557		
Sugar (#1701, 1702, 1703)	938.631		
Other commodities	2,152.560		
<b>Total food import</b>	<b>3,510.587</b>		
<i>Total foreign import, EU estimated</i>	<i>21,846.623</i>	<i>19,871.377</i>	<i>41,718.000</i>

Source: DEFRA bespoke analysis of data feed from HMRC for non EU traffic and DfT *Maritime Statistics* coupled with Border Agency analysis for EU imports and estimated food element

Estimates for the volume of EU imports entering the country through the Thames and Medway ports, based purely on the volume of short sea RoRo and container traffic and Border Agency sample analysis, suggest that 915,000 tonnes of food import arrive in trailers and containers from EU origins. In addition to this the DfT *Maritime Statistics* indications are for a further 300,000 tonnes of bulk agricultural product import from the EU. The total amount of food import coming through the Thames and Medway is therefore at least 4.7 million tonnes, 13.5% of the UK's total food import.

The import commodity profile for ports in the Thames and Medway shows more pronounced volumes of sugar; citrus fruit; palm oil and frozen; and chilled meat being handled from non-EU origins and a slightly higher overall amount of food import from non-EU countries compared to Felixstowe and Southampton.

Fruits other than citrus are prominent among other non-EU imports through the Thames and Medway ports and these volumes will be supplemented by fresh produce imported from EU countries through Thames and Medway ports and through Dover and the Channel Tunnel, supplying the many consolidation centres ('pack houses') located in Kent.

Ports in the Thames and Medway (Tilbury, Thamesport, and Sheerness) handle 60% of all the UK's citrus fruit imports from non-EU origins. More information is provided in **Annex 8**.

Port of Clearance	Non-EU	EU	Total
Dover / Channel Tunnel	7.960	275.835 (Mostly through Dover / Channel Tunnel in trailers from Spain)	
Felixstowe / Southampton	110.369		
<b>Thames / Medway</b>	<b>235.946</b>		
Humber ports	0.060		
Other UK ports and airports	39.994		
<b>Total</b>	<b>394.330</b>		
<i>Check:</i>	<i>394.330</i>	<i>275.835</i>	<i>670.165</i>

Source: DEFRA bespoke analysis of data feed from HMRC for non EU traffic and DfT *Maritime Statistics*

The Tate & Lyle terminal at Silvertown on the north bank of the Thames handles virtually all of the UK's imported cane sugar, shipped in bulk vessels and discharged direct into store before being processed and packaged on site for UK wide distribution. Further information is provided in **Annex 9**.



<b>Table 5.5: Sugar imports (#1701, 1702, 1703), tonnes k</b>			
<b>Port of Clearance</b>	<b>Non-EU</b>	<b>EU</b>	<b>Total</b>
Dover / Channel Tunnel	0.015	<b>1,001.437</b> (Mostly RoRo traffic)	
Felixstowe / Southampton	58.326		
<b>Thames / Medway</b>	<b>938.631</b>		
Humber ports	57.594		
Other UK ports and airports	359.669		
<b>Total</b>	<b>1,414.236</b>		
<i>Check:</i>	<i>1,414.236</i>	<i>1,001.437</i>	<i>2,415.672</i>

Source: DEFRA bespoke analysis of data feed from HMRC for non EU traffic and DfT Maritime Statistics

It should be noted that food imports from non-EU countries fell consistently between 2008 and 2010 for London, Thamesport and Medway ports.

<b>Table 5.6: Food imports (EU and non-EU) by port 2008-2010, tonnes k</b>						
<b>Port</b>	<b>2008</b>		<b>2009</b>		<b>2010</b>	
	<b>EU</b>	<b>Non-EU</b>	<b>EU</b>	<b>Non-EU</b>	<b>EU</b>	<b>Non-EU</b>
London		3,209		3,132	1,215	2,998
Thamesport		612		533		371
Medway		315		146		142
<b>Total</b>		<b>4,136</b>		<b>3,811</b>	<b>1,215</b>	<b>3,511</b>

Source: DEFRA bespoke analysis of data feed from HMRC / DfT

## 6. PORT FLEXIBILITY

### 6.1 Issues and concerns / potential disruption scenarios

The port and terminal operators consulted in the Thames and Medway estuaries (Port of London Authority; Port of Tilbury; CdMR Purfleet; Thamesport; and London Gateway) had no specific concerns regarding port disruption, but the bad weather and snow experienced during the winter of 2010/2011 seemed to have heightened awareness and led to additional investment in snow clearing equipment at the ports and among the local authorities responsible for clearing the roads.

The Port of London Authority (PLA) and its pilotage and tug services, supported by electronic vessel tracking services (VTS) is responsible for the safe navigation of vessels in the river and the wider estuary. When the London Gateway terminal opens it is going to attract even larger container vessels and raise the levels of responsibility still further. While channel dredging is being carried out to cater for these larger vessels the implications of vessels grounding, or collisions blocking the river are huge in terms of port disruption.

However, the safe navigation of vessels entering and leaving ports is a challenge for all port authorities and the opening of London Gateway will be seen as a new challenge to overcome.

On riverside facilities the threat of damage caused by vessels in collision with infrastructure is always there, as is the possibility of lock gate damage at Tilbury preventing access to the enclosed docks. Such incidents are very rare but the port is likely to have contingency plans in place to deal with such incidents, starting with plans to get facilities operational again as quickly as possible while vessels awaiting a berth may be found alternative lay-by berths or simply anchor at specified safe anchorage locations in the river.

The range of facilities and operations in the Thames and Medway means there are specific disruption scenarios for RoRo ferry, container and bulk handling operations, as well as 'global' scenarios, such as a tidal surge affecting all terminals and berths.

In the next two sections of the report there is an examination of the impact of disruption at RoRo and container handling facilities, from the perspective of freight traffic diversion and vessel diversion. The specific impact of disruption at the Tate & Lyle Sugars facility, for dry bulk (sugar) imports is dealt with in **Annex 9**. Similar scenarios raise questions about provision of alternative shipping or port capacity.

### 6.2 Traffic diversion

Although still significant the combined Continental freight capacity provided by ferries calling into Tilbury, Purfleet and Dagenham is still less than a quarter of the scale of capacity employed on the Dover ferry routes. The Cobelfret Ferries, CLdN RoRo and P&O Ferries' services that link the Port of London with Zeebrugge, Rotterdam and Flushing provide capacity for the movement of over 800,000 freight units a year. The type of ferry operations using the Port of London terminals is mostly designed for unaccompanied trailers, rather than driver accompanied units, as is the case at Dover.

If it is assumed that these ferry services operate at 70% capacity utilisation levels the estimated number of freight units carried could be dispersed relatively easily, if disruption occurred, by taking up the spare capacity that is estimated to be available on Continental ferry services operating from Harwich and Ramsgate (equipment and manning permitting). However, there will be issues to be dealt with, such as dealing with unaccompanied trailers on the Ramsgate services that are mostly carrying accompanied units.

This issue does not arise at Harwich, where there is also open storage area available to handle additional throughput and in any case estimated spare capacity serving Harwich is based upon recorded traffic in 2010 from DfT and a capacity evaluation at the beginning of 2011, just after appreciable additional vessel capacity had been introduced by Stena Line Freight.

If the current ferry utilisation level at Harwich is under-estimated the overflow could be accommodated on other routes to the Continent from Ipswich, Felixstowe and Humber ports. In all alternative

scenarios another issue will be the availability of sufficient road haulage capacity to move the additional numbers of unaccompanied trailers, but the alternative options for freight units do exist.

<b>Table 6.1: Indicative spread of trailer traffic if Thames terminals closed</b>						
<b>Port</b>	<b>Available ferry capacity Jan 2011</b>	<b>Actual unit volume 2010*</b>	<b>Approx. capacity utilisation</b>	<b>Total spare capacity</b>		<b>Closure of Thames/Medway traffic spread</b>
Tyne	40,748	22,000	54%	18,748		
Teesport	194,316	128,000	66%	66,316		
Hull	280,555	208,000	74%	72,555		
Killingholme	539,736	377,815	70%	161,921		
Immingham	413,995	289,797	70%	124,199		
Felixstowe	308,775	180,000	58%	128,775		
Ipswich	45,448	33,000	73%	12,448		
Harwich	741,242	243,000	33%	498,242		490,141
Tilbury	194,466	136,126	70%	58,340		-136,126
Purfleet	509,704	356,793	70%	152,911		-356,793
Dagenham	104,172	72,920	70%	31,252		-72,920
Ramsgate	235,698	160,000	68%	75,698		75,698
Dover	3,320,480	2,068,000	62%	1,252,480		
Channel Tunnel	1,493,881	1,089,051	73%	404,830		
Newhaven	69,432	38,000	55%	31,432		
Portsmouth	242,794	240,000	99%	2,794		
Poole	99,840	37,000	37%	62,840		
Plymouth	57,356	9,000	16%	48,356		
<b>Total</b>	<b>8,892,638</b>	<b>5,688,502</b>	<b>64%</b>	<b>3,204,136</b>		<b>-0</b>

Note: \*More accurate unit volumes (UK/Continent), by port and EU origin, could be obtained through a specific enquiry and analysis of DfT *Maritime Statistics*

Freight moving on ferries operating from Tilbury to Sweden and Finland will, most likely, be able to transfer to other Scandinavian services from Harwich and Immingham.

Another alternative for RoRo freight, if the Thames terminals are closed, is to switch to the container mode. However, if Tilbury is closed it is also going to affect the Samskip short sea container service link with Rotterdam (along with container services to the Baltic and the Iberian Peninsula).

The Tilbury / Rotterdam short sea container route employs more capacity than any other UK route and finding spare capacity on alternative routes will not be easy. Indications are that virtually all current spare LoLo capacity would need to be utilised on services from the Continent to the UK east coast (see **Table 6.2**).

A full, separate analysis of deep sea container service capacity would be required to make a similar assessment of alternative capacity utilisation if the deep sea container berths at Tilbury and Thamesport were put out of action. The analysis is made more difficult by the fact that such services are not single port to port voyages, unlike short sea operations, with vessel capacity allocated for several different north-west European ports on a single round trip voyage. The question would be whether containers could be switched to other services from the same part of the world that either call at a different UK port, or could call at a different UK port.

Port	Available container capacity Jan 2011	Est. unit volume 2010*	Approx. capacity utilisation	Total spare capacity	Closure of Thames/Medway traffic spread
Grangemouth	176,336	129,000	73%	47,336	2,177
Blyth	21,684	15,179	70%	6,505	6,505
Tyne	36,949	30,000	81%	6,949	6,949
Teesport	151,760	106,232	70%	45,528	45,528
Hull	142,948	100,064	70%	42,884	42,884
Killingholme		0	70%	0	0
Immingham	50,600	35,420	70%	15,180	15,180
Felixstowe	24,845	17,392	70%	7,454	7,454
Ipswich		0	70%	0	0
Harwich		0	70%	0	0
Tilbury	200,044	140,031	70%	60,013	-140,031
Purfleet		0	70%	0	0
Dagenham		0	70%	0	0
Ramsgate		0	70%	0	0
Dover		0	70%	0	0
Channel Tunnel	44,512	31,158	70%	13,354	13,354
Newhaven		0	70%	0	0
Portsmouth		0	70%	0	0
<b>Total</b>	<b>849,678</b>	<b>604,475</b>	<b>71%</b>	<b>245,203</b>	<b>-0</b>

Note: \*More accurate unit volumes (UK/Continent), by port and EU origin, could be obtained through a specific enquiry and analysis of DfT *Maritime Statistics*

Having a wider range of services, using different shipping modes, delivering lower concentrations of traffic flow makes it easier to transfer individual flow types. However, for sugar, edible oils and grain imports into the Thames, carried in bulk vessels to specialised bulk berths, the alternative options are not so readily available. The sugar and palm oil Case Studies (see **Annexes 9 and 10**) examine the alternative options and the feasibility to transfer freight and/or vessels in more detail.

### 6.3 Vessel diversion

Faced with specific port disruption shippers will initially resort to other services and routes into the UK that will best match the ultimate destination for their goods. If the transport operators already have accounts with shipping lines on other routes the transfer is made easier, provided there is sufficient capacity on the alternative services.

If the disruption lasts, the vessel operators will need to seek alternative ports, if there is sufficient port capacity (berths, terminal infrastructure, labour, equipment and storage) to enable a move. Systems will also need to be put in place to link discharge and load information with the stevedores at the new port and additional road, or rail transport resources will need to be put in place.

Several RoRo ferry and short sea container operators and some deep sea container operators run services on multiple routes and therefore already serve other UK ports from the same European or worldwide markets. P&O Ferries for instance, in addition to its Dover / Calais services, also operates from Zeebrugge into Tilbury, Hull and Teesport, and from Rotterdam into Hull and Teesport.

If Tilbury is closed for P&O Ferries or Samskip, or Purfleet is closed to Cobelfret Ferries and CLdN RoRo they can utilise capacity on their other routes and potentially transfer vessels to these other

routes, if there is sufficient berth capacity available. **Tables 6.3** and **6.4** give a provisional indication of berth and crane usage and availability and revised scheduling can create more intense use of berths at any given port (say, up to 2 calls per day per berth).

The issue surrounding such a move, however, would then be the availability of sufficient labour, equipment, land and inland transport resources to handle the additional cargo coming over the quay. (There is a need for more detailed scenario planning to assess service re-scheduling and resource availability, use and utilisation).

<b>Table 6.3: UK East Coast and South Coast RoRo berth alternatives</b>					
<b>Port</b>	<b>RoRo Berths</b>	<b>Berth restrictions (L / D) metres</b>	<b>Ferry calls per week</b>	<b>Average calls per berth per week</b>	<b>Indicative berth slots available per week</b>
Tyne	5	185 / 7.5	7	1	63
Teesport	4	200 / 8.0	9	2	47
Hull	12	196 / 10.4	17	1	151
Killingholme	6	247 / 9.3	19	3	65
Immingham	11	198 / 10.4	34	3	120
Felixstowe	2	250 / 9.8	16	8	12
Ipswich	2	150 / 7.0	5	3	23
Harwich	6	300 / 9.5	32	5	52
Tilbury	7	250 / 10.5	15	2	83
Purfleet	2	200 / 7.5	26	13	2
Dagenham	1	241 / 8.0	13	13	1
Dartford	2	236 / 10.1	-	-	28
Sheerness	7	230 / 9.0	1	-	97
Ramsgate	3	160 / 6.5	39	13	3
<b>Dover</b>	<b>8</b>	<b>200 / 7.8</b>	<b>365</b>	<b>46</b>	<b>N/A</b>
Newhaven	2	145 / 6.0	14	7	14
Portsmouth	5	200 / 7.0	39	8	31
Southampton	5		-	-	70
Poole	2	7.0	8	4	20
Plymouth	1	200 / 8.5	12	12	2

Source: PRB Associates *UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report 2010*

Note: Assuming maximum of 2 calls per day per berth possible and all available berths can be put to use

The size and design of ferries and short sea container vessels currently calling at Tilbury, Purfleet and Dagenham is not likely to preclude their suitability for other ports (other than Dover, Ipswich and Newhaven for RoRo ferries and selected ports for container vessels) but there would need to be a vessel by vessel assessment for confirmation.

There are currently 55 RoRo ferry calls per week into RoRo berths on the Thames and aside from considerations of vessel fit, the question is whether there are available ferry berth slots elsewhere.

The estimate for available berth space in the final column of **Table 6.3** would suggest that there is sufficient berth availability at Harwich and Felixstowe to the north and Portsmouth to the south to accommodate the additional calls.

However, schedules would be disrupted considerably, causing as yet indeterminate disruption to the UK food supply chain, working under the constraints of 'Just in Time' deliveries.

Port	LoLo Cranes	Berth restrictions (L / D) metres	Estimated short sea and feeder calls per week	Average calls per crane per week	Indicative crane 'slots' available per week
Grangemouth	3	160 / 7.7	11	3.67	10
Blyth	1	154 / 6.7	2	2.00	5
Tyne	1	300 / 11.1	4	4.00	3
Teesport	4	294 / 9.9	14	3.50	14
Hull	3	199. / 10.4	6	2.00	15
Goole	3	100 / 6.0	6	2.00	15
Immingham	3	198 / 10.4	15	5.00	6
Boston	1	120 / 5.5	-		7
Felixstowe	27	400 / 15.0	8	N/A	N/A
Ipswich	4	150 / 7.0	0	0.00	28
Harwich	2	180 / 9.5	0	0.00	14
Tilbury	13	250 / 12.8	10	N/A	39
Purfleet		200 / 7.5			
Dagenham		241 / 8.0			
Dartford		236 / 10.1			
Sheerness	2	230 / 9.0	1	0.50	13
Thamesport	8	350 / 13.5	N/A	N/A	N/A
Ramsgate		160 / 6.5			
<b>Dover</b>		<b>200 / 7.8</b>			
Newhaven		145 / 6.0			
Portsmouth	4	200 / 7.0	N/A	N/A	
Southampton	13	420 / 15.0	2	N/A	

Source: PRB Associates *UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report 2010*

Note: The dual handling of both deep sea and short sea services at Felixstowe, Tilbury, Thamesport and Southampton make it impossible to assess short sea vessel calls per crane

Note: Assuming maximum of 1 call per day per crane possible

For the 10 short sea container service calls per week in Tilbury there are available slots at Harwich and Sheerness and other ports further afield.

The indicators for deep sea container berth and crane utilisation in the south east of England highlight the scale and importance of Felixstowe and Southampton, the relatively poor utilisation at Thamesport and the first indications for additional capacity at London Gateway.

Port	Deep sea berths	Slots available per week	Slots used per week	Spare slots
Felixstowe	9	63	35	28
Southampton	4	28	13	15
Thamesport	2	14	5	9
Tilbury	2	14	10	4
<i>London Gateway (Phase I)</i>	3	21	N/A	N/A
<b>Total (ex London Gateway)</b>	<b>17</b>	<b>119</b>	<b>63</b>	<b>56</b>

Note: Assuming 24-hour slots

If operations at Tilbury and Thamesport are disrupted it takes a total of four berths and roughly 28 weekly berth slots out of action (24 hours per vessel per berth required). Indications are that Felixstowe and Southampton could meet this additional demand, having sufficient spare berth slots to handle the 15 slots per week currently required, providing schedules can be maintained.

However, higher berth utilisation is likely to lead to increasingly inefficient handling operations on the terminals, trying to meet large increases in demand for vessel working and train and truck loading and discharge for hinterland movements.

<b>Table 6.6: UK South East ports deep sea berth utilisation</b>		
<b>Port / Terminal</b>	<b>Deep Sea berths</b>	<b>Estimated utilisation by deep sea vessels</b>
Felixstowe Trinity Terminal	7	66%
Felixstowe Berths 8 & 9	2	20%
Southampton	4	48%
Thamesport	2	34%
Tilbury	2	70%
<i>London Gateway (Phase 1)</i>	3	<i>N/A</i>
<b>Total (ex London Gateway)</b>	<b>17</b>	

For liquid and dry bulk operations flexibility has to be judged on a case by case basis, according to the size and type of vessel in use, and the scale and sophistication of the discharge, storage and processing infrastructure on the quay. **Annex 9** provides the insight required for the Tate & Lyle Sugars facility on the Thames.

## 7. FOOD SUPPLY RESILIENCE ASSESSMENT

This Thames and Medway Case Study assesses the disruption scenarios, the resilience and the flexibility among ports and shipping services to handle the transfer of traffic flows. The implications for specific food commodity flows and supply chains in the event of port disruption are illustrated in the four food commodity Case Studies:

- Frozen meat and fish (**Annex 7**)
- Citrus fruit (**Annex 8**)
- Sugar (**Annex 9**)
- Palm oil (**Annex 10**)

The importance of Tilbury and Sheerness, and the packhouses in Kent, are assessed in **Annexes 7 and 8**, dealing with frozen meat and fish, and citrus fruit respectively.

In **Annexes 9 and 10** the importance of key import facilities in the UK for the handling of raw cane sugar (Silvertown, Thames) and palm oil (Hull, Humber) are assessed.

Alternative port options are considered where suitable berth, discharge, storage and processing / refining capacity are available. In these instances there is also the option to import more processed material from Continental suppliers, although this places additional burdens upon the Short Sea ferry and container service linkages.



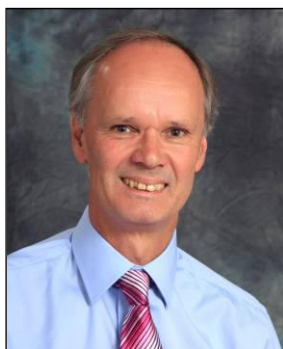
## 8. MESSAGES & FINDINGS

Key messages and conclusions and suggestions for further work arising from the Case Study, concentrating on the ports in the Thames and Medway are summarised in bullet point format below:

- There are a range of deep sea and short sea **container services** and strong **ferry links** with the Continent and Scandinavia. Zeebrugge stands out as the key ferry connection port on the Continent
- Current **deep sea service capacity** at Tilbury and Thamesport could, in theory, be transferred to Felixstowe and Southampton but operational efficiency will be compromised. The same could not be said in reverse
- Current **short sea RoRo ferry and container traffic** through the Thames could be diverted onto spare capacity on other routes and vessels could be diverted
- Space constrained at CLdN RoRo terminal in **Purfleet** but capacity could be released by reopening the Dartford terminal
- Major part of **Tilbury Port** and port-based facilities served via the dockside berths accessed via a single lock, albeit with three pairs of gates
- Increasing **containerisation** of freight (and foodstuff) leading to higher dependency on container services and infrastructure, i.e. more fruit being transported in containers and fewer reefer vessels in operation
- Major disruption to import activities if there are problems with the M25 and/or Thames Crossings at **Dartford**
- **London Container Terminal (Tilbury)** is a key port of entry for food imports from the southern hemisphere (South America and South Africa). Terminal facilities (electrical connection points) in place to handle significant numbers of reefer containers
- Major dredging work is ongoing around the berths, in the river channel and in the estuary approaches to the new **London Gateway** container terminal. Vessels up to 400m in length, with a draft of 16m will have access to the terminal but with larger vessels comes a greater threat of groundings and collisions that could block access to the Thames
- Towage, pilotage and vessel tracking services (VTS) are vital for maintaining **safe access** to the Thames terminals and berths
- Threat to **Sheerness** import facilities (Capespan already given notice) due to Peel Ports' plan to develop the port to serve the renewable energy sector (turbine manufacture, shipment and subsequent maintenance).
- **Thamesport** could benefit by receiving containerised produce for transit to packhouses in Kent (port currently operating at much reduced capacity)
- **Key threats** seen to be from public sector strikes (customs, border agency, port health) and key computer systems ('Chief') used for the processing and custom clearance of goods and containers
- Shipping and port efficiency, and cost, are key in a market where food resources from South America and South Africa could easily be diverted to **growing markets in China and Asia**
- **Border Inspection, Customs and Port Health facilities** are key for Tilbury (cannot be moved easily), as is local haulage capacity and expertise. The temporary transfer, or longer term development of alternative Border Inspection Posts should be considered, along with the transferability and flexibility of road haulage capacity, in the event of disruption

- There will be an increasing need for efficient **rail freight services** from Tilbury and London Gateway in future
- There is a specialist terminal, landside storage and processing plant operated by Tate and Lyle Sugars at **Silvertown** (alternatives considered in **Annex 9**)
- Causes for concern at **Thamesport**, leading to disruption, would be bad weather preventing the workforce from getting to the port, high winds and general reliance on a single road access (A228), a tidal surge cutting off road and rail access and deep drafted vessels grounding in the Medway and Thames approaches
- The **London Gateway** development will introduce significant additional deep sea container vessel handling capacity for the UK. Furthermore if scale can be developed as a transshipment hub port it will not create as much of a threat to the longer term future of Tilbury and Thamesport and enhance UK resilience
- Further work is required to assess the UK's dependence on **grain imports** through the Tilbury Grain Terminal

## ABOUT THE AUTHORS



**Peter Baker**, the founder and owner of PRB Associates, specialises in operational, financial and market analysis in the ports and shipping sectors; with working experience in the ports sector and in RoRo ferry operations.

In addition to a range of project commissions in the UK and internationally, Peter has researched and produced the '*UK Short Sea Freight RoRo and LoLo Capacity Analysis and Report*' every year since 2000 and for the first time in 2009 produced an Irish equivalent. The report and database information provide a detailed analysis and assessment of the capacity provision and spread in the market, with comprehensive route, service, vessel and port information contained in detailed appendices.

**PRB Associates Limited** specialises in providing shipping and transport consultancy and analysis services for private and public sector organisations. Founded in 1998, PRB Associates has successfully completed commissions for freight generators, freight transport service providers (shipping lines and road transport operators), port operators and various public sector organisations. Assignments have ranged from service analyses, feasibility studies, financial modelling and economic impact studies, to market research and appraisal and national transport strategy formulation.



**Andrew Morgan**, the founder of Global 78, has extensive international business and logistics experience gained in projects across many industrial sectors, including food supply projects in Europe, Brazil and India. These advisory and implementation projects have ranged in scope from agri-business, through manufacturing and processing, to wholesale and retail distribution in final consumer markets.

A Chartered Member of the Chartered Institute of Logistics and Transport (UK), Andrew is the author of '*Making the Brazil Connection – managing risk in the international food supply chain*' and also co-author of the UKIBC Report '*India Agri-Food Supply Chains: Overview and Opportunities*'.

**Global 78 Limited** is focused on helping commercial clients discover new perspectives for success in local and international markets and for delivery of real bottom-line improvements. It also undertakes research for public sector policy-making. Food supply chains are complex. Innovation, resilience and sustainability are all vital elements for successful policy, strategy, and operations. The Global 78 team therefore provides clients with quality research, specialist advice, and support for implementation.

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