SAFEGUARDED WHARVES REVIEW 2011/2012

Further Consultation Draft – July 2012

MAYOR OF LONDON

Table of Content

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Front Cover Photo - James Trimmer, Port of London Authority

Executive Summary

Introduction

0.1 In January 2005 the Mayor published the London Plan Implementation Report Safeguarded Wharves on the River Thames (Safeguarded Wharves Implementation Report – SWIR). It reviewed the suitability of maintaining the safeguarding for 28 wharves upstream of the Thames Barrier and assessed the appropriateness of safeguarding additional wharves eastward. The Mayor conducted this review in consultation with the Port of London Authority (PLA) and riparian boroughs. Fifty wharf sites were subsequently safeguarded by the Secretary of State through an Article 10 (3) Direction (which requires the Mayor to be consulted before planning permission on a safeguarded wharf is granted) based on the Mayor's recommendations.

Methodology

0.2 London Plan Policy 7.26 and paragraph 7.76 indicates that the SWIR would be updated every five years. The Mayor has now, with support from his project partners - the PLA, British Waterways (BW) and Transport for London (TfL) - reviewed the safeguarding of wharves along the whole Blue Ribbon Network (BRN) in London.

0.3 In order to provide an evidence base for this review, the Mayor commissioned URS/Scott Wilson to prepare long term water freight trade forecasts for London's BRN, together with associated wharf capacity requirements and distribution to 2031, equating to the lifespan of the London Plan. The work on capacity is complemented by assessments of existing wharves based broadly on the viability test set out in paragraph 7.77 of the London Plan. It takes into account operational space, land and water based access, planning and surrounding uses, market areas, etc.

0.4 The assessments, undertaken by the project partners, were informed by individual meetings with all relevant boroughs and an event with landowners/developers organised by London First. The boundaries of the individual safeguarded land areas have also been looked at so they reflect operational need and land ownership.

0.5 As far as the potential of trade freight on the canals is concerned, this has been explored in accordance with the criteria in paragraph 7.76 of the London Plan. It has been established that its scale and circumstances do not warrant any formal safeguarding. However, the Mayor will work with key stakeholders to explore opportunities for canal freight trade where they arise (see paragraph 4.2.2).

0.6 The consultancy study that formed the basis for this review includes the following aspects:

- Demand forecast: They started with a top-down approach covering historic trends based on PLA data as well as available policies and forecasts and combined this with a bottom-up approach using operator/stakeholder input to identify potential scale of modal shift towards water transport. The consultants created scenarios recognising the uncertainly regarding future market trends and scale of modal shift that can be achieved. In recognition of geographical differences London has been divided into three sub-region (West, North East and South East) with the north-south divide through the Thames and the City of London westwards representing the West.

- Wharf capacity: The broad capacity estimates set out in the current SWIR was reviewed by making assumptions about potential capacity of vacant wharves and making further adjustments based on operator/stakeholder input.
- Spatial gap analysis: On the basis of the above surplus/deficit capacity was identified for the three sub-regions.

Addressing capacity surpluses / deficits in the sub-regions

0.7 The following paragraphs provide an overview of proposed ways (a – l) to address the identified capacity surpluses and deficits individually for the three different sub-regions and broad cargo groups (construction material, waste, other cargo[1] and vacant – including road served) for 2031. A map with the individual wharves mentioned is in **Annex 4**, and further details about the individual assessment sheets are in **Annex 5**.

0.8 West:

Construction material (deficit of 0.2 Mt

a) Pursue reactivation of vacant and/or road served wharves in sub-region

Waste (deficit of 0.3 Mt)

b) Pursue reactivation of vacant and/or road served wharves in sub-region

Other cargo - not applicable

Vacant (0.5 Mt)

c) Pursue reactivation of vacant and/or road served wharves in sub-region to meet in part capacity gaps for construction material and waste

0.9 South East:

Construction material (surplus of 1.3 Mt)

d) No release required in the light of the very large capacity of Angerstein Wharf and Murphy's Wharf in LB Greenwich, which disproportionately increases this sub-regional capacity figure

Waste (deficit of 0.2 Mt)

e) No action as deficit comparatively insignificant within scale of freight handled within sub-region

Other cargo (surplus of 0.1 Mt)

f) No action as surplus comparatively insignificant within scale of freight handled within sub-region

Vacant (0.7 Mt)

g) Propose the release of the road served Mulberry Wharf and the vacant Railway Wharf and Town Wharf in LB Bexley as conditions at these wharves are considered less

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1 Covers all cargo groups except construction material and waste – see Annex 1.

favourable to reduce surplus capacity. Some vacant capacity will remain but all other vacant wharves have better potential for reactivation

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0.10 North East:

Construction material (deficit of 0.8 Mt)

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h) Facilitate the implementation of the reactivation of Orchard Wharf and Peruvian Wharf in LB Newham

Waste (surplus of 0.3 Mt)

i) Safeguard Alexander Wharf in LB Barking & Dagenham, which is operational and has support from borough[2]

j) No release as all wharves that handle waste are viable

Other cargo (surplus of 1.3 Mt)

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k) No release required in the light of the very large capacity of Ford Dagenham Terminal in LB Barking & Dagenham and Thames Refinery in LB Newham, which disproportionately increase this sub-regional capacity figure

Vacant (2.4 Mt)

l) Propose the release of the road served Priors Wharf, Mayer Parry Wharf and vacant Sunshine Wharf (all in LB Newham), road served Welbeck Wharf and De Pass Wharf (all in LB Barking & Dagenham) and road served Phoenix Wharf (in LB Havering) as conditions at these wharves are considered less favourable to reduce surplus capacity. Some vacant capacity will remain but all other vacant wharves have better potential for reactivation.

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0.11 Overall, nine safeguarded wharves are recommended for release and one additional wharf is proposed for safeguarding. **Table 7.1** provides an overview of the proposed safeguarding or release of all wharves.

Next steps

0.12 The six-week consultation period for the changes only as highlighted in this further consultation draft document will end on 28 August 2012. Comments on other parts of the document will not be considered. The document will then be reviewed in the light of the comments received and the final new safeguarded wharves document will be produced and is expected to be sent to the Secretary of State with the recommendations for the required changes to the Directions by autumn 2012.

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2 This is small-scale additional demand not covered in the forecast and is being met locally

1 Introduction

1.1 Background

1.1.1 Wharf safeguarding on the river Thames was initiated with the Thames Strategy (1995) and appeared in formal planning guidance for the first time within RPG3B (1997). The intention was to retain the remaining commercial wharves and to protect them from changes of use. - In July 2000, the Mayor assumed the responsibility for assessing planning applications affecting safeguarded wharves from the Secretary of State for Environment.

1.1.2 In January 2005 the Mayor published the London Plan Implementation Report Safeguarded Wharves in the River Thames (referred to here as the Safeguarded Wharves Implementation Plan – SWIR). It reviewed the suitability of maintaining the safeguarding for 28 wharves upstream of the Thames Barrier and assessed the appropriateness of safeguarding additional wharves eastward. The Mayor conducted this review in consultation with the Port of London Authority (PLA) and riparian boroughs. A total of 50 wharf sites were safeguarded by the Secretary of State through a Direction made under Article 10(3) of the Town and Country Planning (General Development Procedure) Order 1995. This requires the Mayor to be consulted before planning permission can be granted.

1.2 Policy drivers

1.2.1 The demand for water freight and the need to facilitate this through the safeguarding of wharves is driven by policies at National and London wide level. At the national level, guidelines encourage local authorities to promote sustainable development in their planning decisions. As road freight is a major contributor of CO2 emissions, waterways should be considered as part of a solution to reduce dependency on road haulage. On the regional level, these aims are translated into spatial planning as well as transport, minerals and waste policies. Overall, this sustainability agenda and related planning policy have the potential to increase future freight volumes.

National policy context

Spatial Planning

1.2.2 In March 2012 the Government issued a National Planning Policy Framework to replace Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPG). Paragraphs 29 and 30 generally promote sustainable transport modes. Paragraph 41 says that 'local planning authorities should identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice. In particular within the context of minerals planning paragraph 143 states that 'existing, planned and potential rail heads, rail links to quarries, wharfage and associated storage, handling and processing facilities for bulk transport by rail, sea or inland waterways of minerals' should be safeguarded by local planning authorities. Concrete batching and the handling, processing and distribution of substitute, recycled and secondary aggregate material should also be safeguarded.

Minerals Planning

1.2.5 Until the recent publication of the NPPF the *Minerals Policy Statement 1 (MPS1)* was the overarching planning policy document for all minerals in England. It existed to ensure that

Deleted: <#>Currently, Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPG) outline the Government's national policies on different aspects of land use planning in England. PPS1 sets out key principles that promote sustainable development. In broad strokes, it gives support to the use of waterborne freight in order to reduce dependency on road haulage. In particular, PPS1 supports policies that 'reduce the impact of moving freight' (p.6). Furthermore, PPS4 states that local authorities should protect and promote key distribution networks, including 'including by rail and water transport where feasible' (Policy EC2, p.9). ¶
<#>Planning Policy Guidance note 13 (PPG13) states that in their development plans and decisions on planning applications, local authorities should safeguard sites and routes for transport related development. Local authorities are encouraged to identify and protect 'both existing and potential' transport sites and routes critical in developing infrastructure for the movement of freight (Paragraph 45). Moreover, local authorities should 'promote opportunities' to serve freight- generating development by rail or waterways, and enable the use of rail or water through partnerships with extractors and rail and water operators (ibid.). Regarding disused prior to other uses.¶

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construction industry is supplied with materials taking into account social, environmental, and economic cost. Aggregates such as sand, gravel, and crushed rock are central to the industry, and they also form a significant portion of the cargo arriving at London wharves. MPS1 stated that mineral planning needs to contribute to sustainable development, and one of its objectives was to 'promote the sustainable transport of minerals by rail, sea or inland waterways' (p.5). Furthermore, the use of marine dredged aggregates was encouraged: before considering the extraction of primary materials, authorities are encouraged to take account of the contribution that substitute or recycled materials, mineral products and marine dredged aggregates would make to the supply of materials (p.9). Whilst following the publication of the NPPF, which is less specific about the above issues, MPS1 has been abolished; it can – in the absence of alternatives – still serve as a valuable source for this review.

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Marine Planning

1.2.6 A significant development since previous reviews of safeguarded wharf policy in London is the introduction of a marine planning system for English waters. The UK Government's Marine Policy Statement (MPS) was adopted in March 2011 and now forms a material consideration in both land use and marine planning.

1.2.7 There is no requirement for land use policy directly to be in conformity with the MPS. However, all authorisation and enforcement decisions made by planning authorities, including those made under policies aimed at safeguarding wharves, are now required to have regard to the MPS. It is therefore prudent to ensure that all marine-related policies are formulated in the light of the MPS's policies on relevant sectors (in this case, shipping and marine aggregates). Marine Plans apply the MPS to eleven different regions of English sea. They take into account and seek harmonisation with the land use plans and policies that they overlap with at the coast and on tidal rivers. - There is currently no Marine Plan adopted for the tidal Thames within Greater London, which falls within the South East Inshore Marine Plan Area.

London wide policy context

1.2.8 The Mayor, within the Greater London Authority Act 1999, has a statutory duty to have regard to the desirability of promoting and encouraging the use of the River Thames safely, in particular for the provision of passenger transport services and for the transportation of freight.

The London Plan

1.2.9 A new London Plan, representing the Mayor's Spatial Development Strategy for the capital, was published in July 2011. Most relevant is Policy 7.26, which concerns the increase of use of the Blue Ribbon Network for freight transport. It includes the following aspects:

- Development proposals should protect existing facilities for waterborne freight traffic, in particular safeguarded wharves should only be used for waterborne freight handling use.
- Redevelopment of safeguarded wharves for other land uses should only accepted if a wharf is no longer viable or capable of being made viable for waterborne freight.
- The re-activation of safeguarded wharves, which are currently not handling freight by water, should be supported.
- Adjacent/opposite developments should designed to minimise potential conflicts.

- Water transport for demolition/construction material should be maximized for development close to navigable waterways.
- Boroughs should identify in their LDF locations suitable for additional waterborne freight.

1.2.10 Existing wharf capacity and its safeguarding for potential future uses is taken to be essential, especially given the pressures for redevelopment along the Thames. The viability test in the supporting text (paragraph 7.77) refers to the following criteria to determine the viability of a wharf:

- Its size, shape, navigational access, road access, rail access (where possible), planning history, environmental impact and surrounding land use
- Its connections to market areas
- Its contribution towards reducing road based freight and its relationships with other freight handling sites
- Capacity at comparable alternative wharves

1.2.11 Other relevant polices in the new London Plan include:

- The waste management policies (5.17 and 5.18), which emphasise that waterborne transport of waste should be maximised.
- The aggregates policy (5.20) highlights that the movement of aggregates on the Blue Ribbon Network (BRN) should be maximised.
- The freight policy (6.14) promotes the use of the waste for freight transport.
- Policy 4.10 supports emerging sectors including innovative research and green industries.

The Mayor's Transport Strategy

1.2.12 The Mayor's Transport Strategy (MTS) published in 2010, is committed to maintaining the safeguarding policy and states that the Mayor 'will seek to ensure that existing safeguarded wharves are fully utilised for waterborne freight (including waste), and will examine the potential to increase the use of the Thames and London's canal network for waterborne freight transport' (Proposal 38, p.167).

1.2.13 Road freight is responsible for 23% of all CO2 emissions from London's transport, and is a major contributor to congestion. The Mayor recognises that growth in freight requires modal shift from road and consolidation of residual road freight movements. There is potential to make further use of the Blue Ribbon Network for some freight movements. MTS policy 12 aims to seek to improve the distribution of freight through the provision of better access to/from Strategic Industrial Locations alongside other efficiency measures. Policy 24 aims to deliver the required contribution from ground-based transport to achieve a 60 per cent reduction in London's CO2 emissions by 2025 from a 1990 base.

Waste Management Plans

1.2.14 London's need for strategic waste management results from the rising cost of landfill, growing concerns over energy and climate change, and the emergence of new commercially available

waste technologies. The Mayor of London has produced a city-wide waste management strategy for municipal and business waste. Furthermore, most London boroughs are grouped into several waste authorities that each have their own waste management plans. The relevant waste plans are briefly introduced as follows.

1.2.15 Currently, approximately 22 per cent of household waste is recycled. As this figure is expected to rise, the Mayor's Municipal Waste Management Strategy identifies the need to ensure that the quantity of waste transported by barges will not decline. Barges are used to transport about 11 per cent of waste to landfills, but their modal share in recycling operations is small. The strategy encourages transferring more recyclable material by water; for instance, paper can be shipped to recycling plants in Kent. The Mayor recognises that a more efficient use of waterways requires, among other things, locating waste transfer stations and processing facilities near navigable waterways.

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1.2.16 Regarding sustainable transport, the North London Waste Plan identifies the need to find alternatives to road transport. Indeed, at the draft stage the report looks favourably on sites which enable rail or water use: 'Our preferred option is to prioritise sites which have access to alternative transport. We have done this by positively weighting the scores relating to railheads and navigable waterways within the site assessment' (p.37).

1.2.17 The North London Waste Authority intends to use contractors to handle waste disposal in the future. It remains to be seen how far contractors will make use of waterborne transport. Regarding developers of waste sites, the NLWP requires that they should demonstrate having given consideration to alternative modes of transport (p.42).

1.2.18 The West London Waste Authority shares this interest in using waterways where possible to transfer waste and recyclable material. The WLWA and the constituent authorities state that they will liaise closely with the Mayor to ensure that their contracts comply with the Mayor's Strategy.

1.2.19 In the Western Riverside Waste Authority the constituent boroughs have formed a Join Municipal Waste Management Strategy, which includes the aim to maximise sustainable river transport. In detail, this means utilising the transport opportunities along the River Thames, including the support of river based collection schemes for waste generated on the Thames's piers and pleasure boats. In addition, the plan aims to explore the possibilities of transferring recyclables by river to new processing facilities being developed in the Thames Gateway.

1.2.20 South London is composed of several independent waste Authorities. They have jointly drafted the South London Waste Plan, now at consultation stage. Through the plan the participant boroughs aim to reduce the climate change impacts of waste management by encouraging waste to be managed close to its source and moved by sustainable forms of transport.

1.2.21 The Mayor's Business Waste Strategy further points out that London needs to make better use its rivers and canals for freight. Proposal 3.6 in particular suggests that the waste industry should view water-borne transport as an opportunity to reduce its environmental impact (p.96).

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Industrial Land Release Benchmarks

1.2.22 The Mayor's Industrial Land Release Benchmarks 2012 (published in draft as supplementary planning guidance (SPG) to the London Plan 'Land for Industry and Transport') provide evidence for policy making on 'low-value' industrial land uses including wharves. The 2012 draft SPG benchmarks are based on assessments of the short, medium and long-term demand and

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supply dynamics for industrial land and related uses in London to 2031. It is intended that the Final SPG Land for Industry and Transport will be published in August 2012.The SPG will include indicators and benchmarks of industrial land release to other uses and once published can be used in conjunction with the findings of this study to inform decisions on the safeguarding of industrial land for waterborne freight handling use.

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1.3 Major projects

1.3.1 Major construction projects can result in significant demand for freight transportation by water that cannot be captured by the kind of macro-economic forecasts used as the basis for this document. As mentioned above, the London Plan encourages the use of sustainable transport, i.e. rail and water. Therefore, major developments that could potentially use waterborne transit in future are specifically considered below. There are also 33 Opportunity Areas and a further 9 intensification areas identified in the London Plan where substantial development is planned. However, it is assumed that they are contained within the demand forecast set out in MPS1.

Crossrail 1 and 2

1.3.2 Crossrail 1 is a new high frequency railway crossing central London from Maidenhead and Heathrow in the west to Shenfield and Abbey Wood in the east. Crossrail's estimated benefit to the UK economy is at least £42 billion (TfL figures, Aug 2010). Construction is now under way, and is expected to be completed in 2018.

1.3.3 Crossrail is collaborating with the PLA and British Waterways to promote and maximise the use of water transport for delivery of construction materials and remove excavated material and waste. It has signed an Memorandum of Understanding with the PLA to work together to maximize the use of the River Thames for the project's logistics. Crossrail aims to ensure 85% of the transport for excavated material is by rail or water. Crossrail are also exploring further opportunities to use water transport to support construction.

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1.3.4 Crossrail 2 is a proposal to build an underground link between Chelsea and Hackney (it is also known as the Chelsea-Hackney link). An area of underground has been safeguarded for this purpose. It is unlikely that this will be constructed during the study period but could create additional demand for construction materials that could possibly be transported by water.

Thames Tideway Tunnel

1.3.5 The Thames Tideway Tunnel is a Thames Water project to construct a new tunnel under the Thames to link numerous sewerage outflow pipes and send this sewage to the Beckton treatment works further down the river. It is one the largest infrastructure projects in the UK and is likely to generate a large amount of spoil that has the potential to be used as a secondary aggregate. As the tunnel runs under the Thames, there is the general expectation that tunnel spoil and a large proportion of construction materials will be transported by barge using existing wharves. It is an objective to use river transport over road where this is economically viable and practical.

1.3.6 This is already underway with the Lee Tunnel element of the Thames Tideway Tunnel project. In addition to the transport of tunnel arising by water from Abbey Mills and Beckton, and as a result of a condition placed on the permission for the Lee Tunnel scheme, all the concreting

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aggregates required for the project are being transported by water to safeguarded wharves near Beckton. This has already - and is expected to continue to - increase volumes handled at a number of wharves in Greenwich, Newham and Barking & Dagenham. The aggregates for the tunnel's secondary lining will also be transported by water directly to the worksite at Beckton.

Thames Gateway Regeneration

1.3.7 The Thames Gateway is a nationally and locally designated central growth area for residential housing and commercial development in the south east of England with proposed development of at least 120.000 new dwellings across the area. The London Thames Gateway Development and Investment Framework (TGDIF) concentrates land allocated for these developments on areas with high levels of existing and future transport access. It is possible that construction materials could be transported by barge.

Belvedere Energy from Waste facility

1.3.8 The River Thames is being used to transport material to this new facility. Existing safeguarded wharves are serving the waste incinerator, from Western Riverside Waste Authority boroughs and the City of London and also new commercial waste streams. The incinerator is receiving waste that was formerly shipped to Mucking landfill in Essex (see also section 3.3).

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London Gateway Port

1.3.9 The London Gateway is a new deep-water port and proposed large distribution centre approximately 50 km from Central London on the Thames Estuary. It is currently under construction by DP World and is scheduled to open in 2013. When completed, it has the potential to increase demand for wharf handling activities in London.

Silvertown Crossing

1.3.10 The Silvertown Crossing is a new Thames river crossing proposed to supplement the existing Blackwall Tunnel, this crossing will join the Greenwich Peninsula with West Silvertown. It is intended to ease traffic congestion around the Blackwall Tunnel. The details of the construction of the crossing are still under investigation, however, it is possible that it could create an element of additional demand for wharf uses.

Olympics Legacy

1.3.11 The overall objective of the Olympics Legacy Programme is to 'lock in' the benefits of the 2012 Olympic and Paralympic Games for the local and wider community. This will include the construction of numerous new leisure, recreation, retail and community facilities and thousands of new dwellings and additional business space. This will inevitably create demand for construction materials and this in turn could increase the demand for a wharf for the transportation of the construction materials or waste.

High Speed 2 (HS2)

1.3.12 High Speed 2 (HS2) is a proposed high-speed railway between London and the Midlands, the North of England, and potentially at a later stage the central belt of Scotland. Although supported by the Government, it has not been formally approved. The project's development is

dependent on the results of public consultation and the passage of enabling legislation through Parliament. If the HS2 plan is approved, construction could begin in 2017 with the first trains running by 2025. If the scheme does proceed it is likely to create additional demand for construction materials. - Given the proximity of Old Oak Common to the canal network, there may be the possibility to use canals for transport of materials and waste and early discussions on the potential of using the canal network in this way are being held. HS2 Ltd will consider its feasibility as further details of this major infrastructure project emerge.

1.4 Purpose of Review of Safeguarded Wharves Implementation Report

1.4.1 The London Plan policy on water freight and the Safeguarded Wharves Implementation Report (SWIR) has been successful in protecting London's wharf capacity. In line with London Plan policy 7.26 Ba, the safeguarded wharves should be reviewed and updated approximately every five years (paragraph 7.76).

Brief overview of current Report

1.4.2 In 2005 the Mayor, the PLA and riparian local authorities produced a comprehensive assessment of wharves in London. The objective of the work was to assess the supply and demand of wharf activities so that viable wharves could be safeguarded against redevelopment for other uses.

1.4.3 While The London Plan's viability test was intended to determine whether or not an individual Wharf was suitable for redevelopment, the approach of the SWIR was to generate a strategic pan-London view by the means of a periodic review of national and regional policy developments and trade forecasts.

1.4.4 To this end methodology of the study comprised (1) 'the national and regional policy context, including the London Plan and other Mayoral strategies, and (2) PLA's trade forecasts, associated port capacity requirements, and general changes in cargo handling since 1996/97' (p.8).

1.4.5 Based on 2005 PLA trade forecasts, the report sought to estimate likely demand for wharf operations to 2016 and, based on those estimates, it set policy to safeguard the most suitable wharves against future redevelopment. The document concludes with a definitive list of 50 recommended safeguarded wharves (p.173 - 174), along with advice on implementing the safeguarded wharves policy and or how the London Development Agency (LDA), Port of London Authority (PLA), and Greater London Authority (GLA) would work to bring disused wharves to back into use. Since the 2005 document was published, Middleton Jetty, Erith Wharf, Pier Wharf and Debden Wharf all now handle waterborne cargo, with further proposals for reactivation underway or in planning at, Convoys Wharf, Orchard Wharf and, Peruvian Wharf. There are proposals for the reactivation of further currently road served and/or vacant wharves currently under discussion.

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Key aspects for revision

1.4.6 Keys aspects of the revision of the current SWIR are:

- Forecast up to 2031 – in line with the timeframe of the new London Plan
- Consideration of major projects as part of the demand forecast
- Update of detailed information about the individual wharves

- Consideration of opportunities for consolidation given the significant development pressure in many areas along the waterways and therefore the need to use land effectively
- Consideration of the appropriateness of safeguarding any wharves on London's canals in line with paragraph 7.76 of the London Plan

2 Methodology

2.1 Overview

2.1.1 URS was commissioned by the Mayor in collaboration with its project partners the PLA, Transport for London (TfL), and British Waterways (BW) to carry out a review of freight trade forecasts and broad wharf capacity estimates for London's waterways to inform the review of the SWIR. The estimated future demand, i.e. the forecasting result, for different areas of London and for specific commodity groups, is then compared with the theoretical capacity. This comparison leads to a capacity surplus or a capacity deficit for these different areas.

2.1.2 The work on capacity is complemented by detailed assessments setting out the key characteristics of all existing wharves based broadly on the viability test criteria in paragraph 7.77 (Policy 7.26) of the London Plan covering in particular operational space/status, land and water based access, planning and surrounding uses and market areas. These were carried out by GLA officers in co-operation with the project partners and key stakeholders including all relevant boroughs (see also section 2.5). The site assessments are instrumental in identifying wharves that could potentially be considered for consolidation or release if a capacity surplus is identified in an area. Where a capacity deficit is established it is necessary to consider meeting the additional demand through expansion/upgrading of existing wharf facilities and/or the identification of additional wharves.

2.1.3 This consultation draft brings together the results from the URS work and the detailed site assessments; concluding with proposals for safeguarding and release including recommendations for actions to facilitate, where necessary, more effective future use of individual safeguarded wharves.

2.1.4 In the following sections the methodology for the trade forecast and the capacity estimates is described in more detail. Details about the involvement of key stakeholders are also highlighted.

2.2 Water freight trade demand forecast for the River Thames

2.2.1 The demand for water based transport is extensively covered in this report to provide a transparent insight into the methodology and the assumptions that led to the resulting demand figures. It was approached by means of two principal steps: First the market level was investigated, assessing the factors that determine the performance of the overall market (economic, regulatory, etc.). Second, the modal level was examined, assessing the factors that determine the mode of transport (i.e. road, rail, waterborne) and consequent potential demand for waterborne transport. As a means to gather data, a survey method was used combining top down (historical data, economic forecasts, policy drivers) and bottom up (operator, major project, and stakeholder consultations) technique. The study focused particular attention on the forecasting of construction materials and waste as they form approximately 75% of all cargo uses on the Greater London wharves and are commodities that have characteristics that enable them to be recycled.

2.2.2 Before the demand forecasting methodology is explained, water freight and wharves are categorised.

Demand assessment levels

2.2.3 The fundamental level of analysis to assess demand for waterborne cargo handling activities at safeguarded wharves in the GLA should be carried out on two different levels. These are as follows:

a) Market level – assessment of the factors that determine the performance of the overall market including demand for key commodities – e.g. economic, regulatory, etc

b) Modal level – assessment of the factors that determine the mode of transport (i.e. road, rail, waterborne) and therefore specific demand for wharves in the GLA.

2.2.4 Within this model of the market there is recognition that in addition to inward and outward flows of cargo via marine modes of transport, there is also potential for intra-market moves of cargo that could generate additional demand for wharf facilities. The quantification of intra-market flows was therefore also an element of the URS study.

Cargo types

2.2.5 There are a number of ways waterborne cargo can be categorised. To facilitate the analysis cargo was grouped into the following groups, which have been determined to share common drivers. (for more details see **Annex 1**)

1. Petroleum Products
2. Other Liquid Bulks
3. Agricultural Bulks
4. Construction Materials
5. Waste
6. Sugar
7. Other Dry Bulks
8. Steel
9. Vehicles
10. General Cargo

Wharf typology and demand drivers

2.2.6 To capture the specific character of demand drivers, the ten commodity groups are further divided into single, multi and project commodities depending on the number of wharves involved in their handling. These types of wharf are now discussed in more detail:

Specific Operations and Single-Site Commodities

2.2.7 Some of the commodities handled within GLA safeguarded wharves relate to specific industrial activities. The outlook for these commodities is related to the business decisions of the operator rather than to general trends in the market.

2.2.8 Future demand for these commodities has principally been explored through stakeholder interviews (i.e. a bottom-up technique) exploring the following:

a) Market level: likely continuation or cessation of activities at these sites;

b) Modal level: likely decisions of operators regarding their use of waterborne modes of transport

2.2.9 Typically sugar, vehicles and agricultural bulks generate demand only at specific sites, which specialise in handling these particular goods. Although these industries are currently viable, if the companies running them were to move out of London, it may be unlikely that the market could be sustained by another operator. In these cases any future use of the wharf may only require a smaller area as the value added process within the wharf area takes up a large proportion of the site.

Multi-site Commodities

2.2.10 Two major commodity groups - construction materials and waste – are handled over a number of wharf facilities within the GLA study area.

2.2.11 Projections for these commodities have been based upon a combination of top-down and bottom-up forecasting techniques to explore the following:

a) Market level: economic, market and regulatory trends influencing these sectors; business decisions of key operators regarding continuation or cessation or activity at specific sites;

b) Modal level: decisions regarding use of waterborne modes of transport

Project Commodities

2.2.12 It is recognised that major infrastructure and construction projects could introduce new wharf demand into the market. Typical project commodities are construction materials or excavated material.

2.2.13 Projections for these commodities are based upon primarily bottom-up forecasting techniques to explore the following:-

a) Market level: identification of major projects, the timing and quantity of cargo movements associated with the project;

b) Modal level: decisions regarding use of waterborne modes of transport.

2.2.14 A total of 70% of wharves in the GLA area (34 wharves) handled multi site commodities (construction materials and waste) in 2010. This demonstrates the importance of understanding the key demand drivers at both the market and modal levels for construction materials and waste as the safeguarding of wharves for these activities is crucial to ensure their continued ability to operate on the BRN. The forecasting section will therefore focus particular attention on these multi-site commodities; they also play an important role in the light of the sustainability drivers as both construction materials and waste are commodities that have characteristics that enable them to be recycled.

Sub-regional aspects of wharf demand

2.2.15 The type of wharf activity and demand could vary depending on the location of the site. Therefore London has been divided into the three following sub-regions: West, North East and South East. This is also shown in **Annex 3**.

- West – wharves location on either north or south bank of the River Thames upstream of Tower Bridge
- North East – wharves located on the north bank of the River Thames downstream of Tower Bridge (including tidal tributaries)
- South East – wharves located on the south bank of the River Thames downstream of Tower Bridge (including tidal tributaries)

In general, import and export to London occurs more frequently in the north-eastern and south-eastern sites and wharves in the western region generally handle internal cargo movements to and from other wharves.

Past forecast

2.2.16 The 2005 SWIR was based mainly on data collected in 2001. It made projections of expected future freight flows to 2015. These suggested that overall trade at wharves in the Greater London area would increase by approximately 4% per annum. In fact, trade has declined by approximately -4% per annum between 2001 and 2010. Again, while the SWIR expected trade at safeguarded wharves in 2010 would be approximately 13.5 million tonnes, it has actually been 7.8 million tonnes. This significant difference can be attributed to a variety of factors, including the recent global recession, higher than expected rates of de-industrialisation and unachieved assumptions within Mineral Planning Guidance 6 (MPG6).

2.2.17 Methodologically, the forecast used in the 2005 SWIR was predominantly based on top down data and it may have also not fully taken account of optimism bias by wharf operators who expressed an interest in reactivating wharves but who subsequently did not fulfill these intentions[3].To take account of these two issues the methodology for estimating future demand has been revised as part of this review.

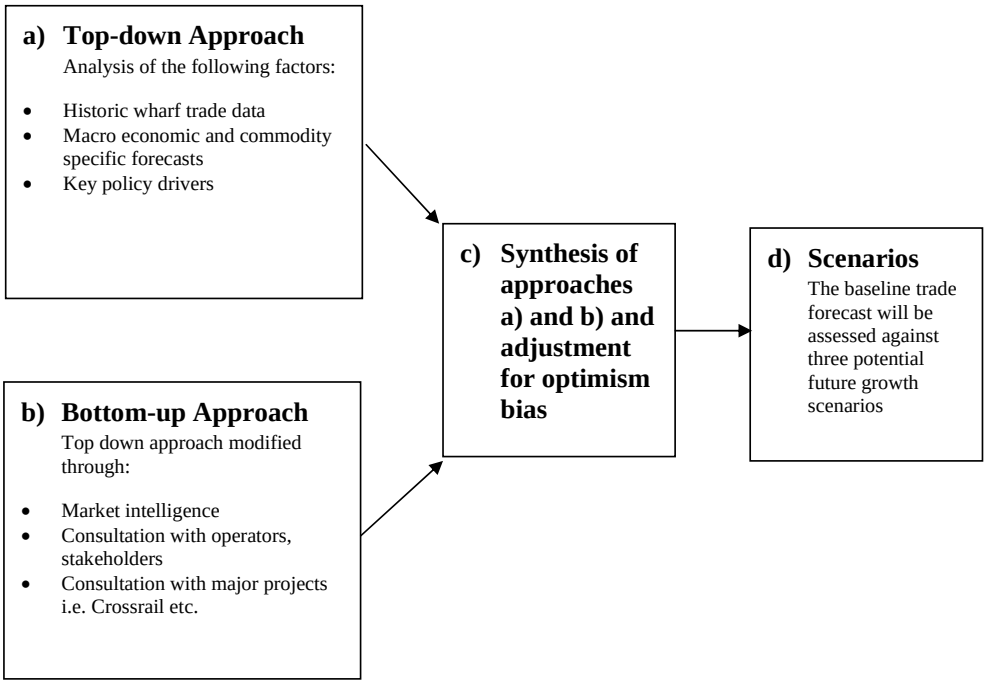
Top-down and bottom up approach

2.2.18 The overarching method for assessing demand is driven by two different levels of analysis. These are termed the 'top down' and the 'bottom up' approach. This overall method ensures that the specific impacts of key developments and initiatives (gained through the bottom up approach) are integrated with the underlying macro trends in the national/regional freight market (top down approach) in the most robust, logical and transparent way. This approach also allows adjustments to be made for optimism bias.

2.2.19 The demand methodology is shown in **Figure 2.1** and each stage is explained further below:

3 GLA Safeguarded Wharf Study (2005) paragraph 2.52 p24

Figure 2.1 Demand Forecasting Methodology



Source: URS 2011

2.2.20 The sources of data used to define trends for the different commodity types in the top down approach are shown in **Table 2.1** below. The relative value of each of these different elements are considered and then combined accordingly to form a balanced view of future demand for the different commodity types.

Table 2.1 Top-Down Demand Data

Historic Demand Data			*Forecast Demand Data*		
Source	*Period*	*Notes*	*Source*	*Period*	*Notes*
1) PLA Imports and Exports	2001 - 2010		4) GLA GVA Forecasts	2008 - 2031	
2) PLA Intra-port data	2001– 2010	Compulsory information provided by all wharf operators	5) DfT Trade Forecasts	2007-2030	
3) PLA Unitised data	2001– 2010	Voluntary information.	6) GLA Employment Forecasts	2010-2030	
			7) Mayor Draft Municipal Waste Plan	2010-2030	
			8) MPS1 Aggregates Forecasts	2005-2020	

Source: URS 2011

2.2.21 Once the demand trends (both historic and future) for each commodity have been analysed through the top down macro approach, it is necessary to test these assumptions through the bottom up approach. This principally involves gaining an understanding of the micro level factors that could influence future demand. This has been achieved through either direct consultation with relevant wharf operators or key stakeholders who have information or intelligence on future activities at wharves or through an assessment of the relevant policies or plans of key organisations. This process and the organisations contacted are explained at section 2.5.

Synthesis of Top-Down and Bottom-Up approaches

2.2.22 As explained above, the most effective balance of the two different approaches for building up a picture of future demand is different for each commodity. For example sugar, which forms an element of the total freight volume of the London market, is only handled at two wharves and so it is appropriate to predict future demand based mainly on historic and future trends. This will also be adjusted where possible and appropriate in the light of bottom up consultation responses. However, multi-site commodities such as waste and construction materials are more complex and so require a synthesis of the top down demand forecasting method which predicts general market trends and bottom up intelligence on the specific plans of operators and impacts of local policy. How the top down and bottom up approaches are synthesised for each commodity is explained throughout this section.

Scenarios

2.2.23 It is important that this study allows the GLA to make flexible long-term plans that can adapt to unforeseen changes that could occur in the future. It is also necessary, due to the possibility of structural change, tighter environmental, health, safety and planning restrictions, and the fact that wharves are unlikely to be re-created once lost; for the Mayor to take a precautionary approach to release and potentially to retain an appropriate degree of capacity on currently projected demand.

2.2.24 A comparison of actual freight volumes that have occurred against the forecasts of the SWIR gives an example of the limitations of forecasting. The most robust way of addressing these and to ensure future uncertainty is taken into account is to develop different potential scenarios. The scenarios developed in this study will use the best available information to create assumptions on alternative economic outcomes, the degree to which modal shift from road to water will occur and alternative development scenarios such as the varying potential scale of specific major projects. This leads to three different scenarios; high, medium and low being shown for each commodity. The high scenario could be seen as optimistic on economic growth, the scale of future projects and modal shift. The medium includes a more balanced and realistic view and the low scenario could be seen as pessimistic baseline scenario.

2.3 Water freight trade on London's canals

2.3.1 The fundamental difference between transporting freight on the River Thames and on London's canal network is that the physical capacities of vessels on inland waterways is smaller and thus the size of vessels able to use them are often restricted, and locks are often required for passage. Moreover, vessel speeds are slower. All this often results in longer journey times in comparison with other modes. The potential for double handling[4] of cargo is also high due to the fact that the final destination for many cargoes is not always a waterside. This further increases costs and reduces viability. However, given the context of the sustainability agenda and increasing pressures for modal shift it is necessary to assess whether there is potential for the canal network to be reactivated to accommodate some of London's future freight handling needs.

2.3.2 There are no independent demand forecasts specifically for canals and assessments of historic data on freight flows show minimal activity. Therefore the most appropriate methodology for assessing canal demand is bottom-up surveying.

2.3.3 A survey questionnaire was sent to canal freight operators and organisations, waste authorities, organisations running major projects, and other water freight industry stakeholders. The results formed the basis of further discussions with consultees. Information was also gained from attending a session of the All Party Parliamentary Maritime and Ports Group concerning short sea shipping and use of internal waterways for shipping of goods. Finally, a review of any relevant literature fed into the analysis.

4 The need to use an additional mode of transport

2.4 Broad wharf capacity estimate

2.4.1 The capacity estimate has been prepared solely for the purpose of this study and to provide a high level estimate of the total theoretical wharf capacity in London. Although it has been prepared in part from a bottom-up approach in which stated capacities for individual wharves have been aggregated together, the high level capacity estimate is not intended to provide a precise definitive capacity for each wharf, as this will vary depending on cargo type and the level of investment in infrastructure that the river freight market can support. Instead, it is intended to provide a higher-level overview of total capacity. This high level estimate is complemented by the GLA's detailed assessment of each wharf concerned.

2.4.2 In order to prepare this estimate of the overall capacity of wharves in London, three approaches have been used and the results assimilated into a single estimate. The three approaches are:

1. Consideration of the historic capacities and cargo throughput figures stated in the SWIR, and updating these for known significant relevant changes to wharf parameters;

2. Consultation with present operators of the wharves, and with other stakeholders in order to obtain their views;

3. Assessment of the reasonableness, for the present purpose, of the figures derived from 1 and 2 above and their assimilation into a high-level capacity estimate. This includes a high level consideration of the various capacity drivers and the application of wharf planning parameters such as typical vessel unloading times, crane capacities, and cargo storage densities.

2.4.3 In each case, capacities have been prepared based on cargo type handled, these have then been disaggregated into the three sub-regions described in paragraph 2.2.15 in order to be compatible with the outputs of the freight trade forecasts:

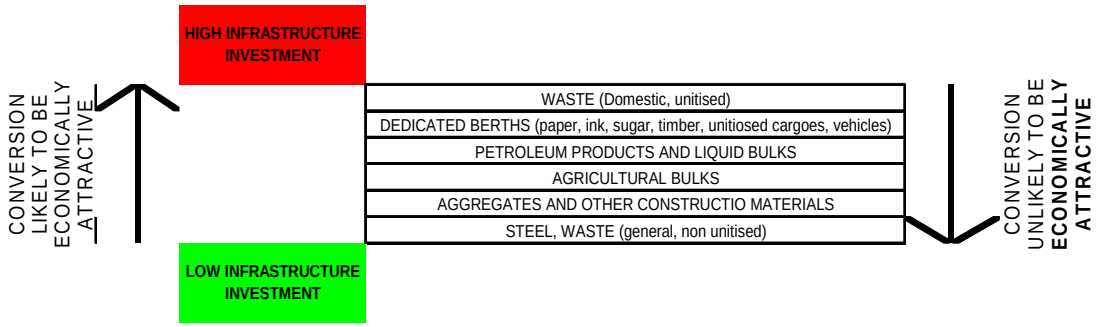
Allocation of wharves to cargo types

2.4.4 The same cargo types as for the forecasting (see paragraph 2.2.6) have been used for the capacity estimate. Most active wharves in London handle only one type of cargo, or at most a limited group of related cargoes. This is not surprising given that the type of vessel handling equipment and on-site processing is different for each type of cargo. In some cases the reason for selection of the cargo type is clear as the wharf is either co-located with the industrial facility with which the cargo is linked (for example agricultural bulk cargoes at the ADM processing plant in Erith) or the wharf has been provided with high fixed cost specialised equipment to handle the cargo (e.g. for liquid bulks). In other cases however, the wharf could, if considered beneficial, be converted to handle a different cargo with higher demand. This gives rise to how overall wharf capacity is allocated to each cargo type in this capacity assessment. It has therefore been assumed that generally each wharf will continue to handle the same cargo as at present. This is likely as investment will have been made in the past to support this cargo and a change of cargo may require new investment. This is particularly so when the related on-site processing requirements are taken into account.

2.4.5 It is anticipated that presently inactive wharves could be commissioned to serve the cargo with the highest un-satisfied demand in that region. However, it is possible that future demand to service a particular cargo may be so high as to lead to some re-allocation of cargoes.

2.4.6 Hence the wharves least likely to change cargoes are therefore those dedicated to serving an adjacent industrial plant, or handing high investment cargoes such as domestic waste. Those most likely to change would be wharves handling miscellaneous minor cargoes or industrial or demolition waste. This is illustrated in the **Figure 2.2** below.

Figure 2.2 Wharf Capacity Typology



Source: URS (2011)

2.5 Involvement of key stakeholders

2.5.1 The methodology in the URS study was designed to complement and adjust the historical and projected trade volumes and policy drivers (top-down) with relevant business intelligence about capacity and demand (bottom-up). This meant collecting and analysing data from wharf operators, organisations running major projects, waste authorities, and river and canal stakeholders. For this purpose, tailored questionnaires for each group were created. The questionnaires were emailed to contacts and followed by a series of phone calls. **Table 2.2** shows the consultees that responded to the questionnaires. The data received has been treated confidentiality and it has been aggregated to inform the conclusions of this study.

Table 2.2 Consultee Respondents

Operators			
European Metal Recycling	J.J. Prior Transport Ltd	McGrath Group	Ford Motor Company
Tarmac Ltd.	Daygroup	Hanson	TDG
Van Dalen UK	Tilda Rice	F M Conway	Brett
Cory Environmental Ltd	Cemex UK	Keltbray	ADM
Fuel (Oil) Holdings Ltd	Powerdays	Aggregate Industries	Euromix
Major Projects			
Crossrail	London 2012	Thames Gateway Regeneration	
Thames Water/ Thames Tideway Tunnel			
Stakeholders			
Crown Estate	Freight by Water	Tom Chaplin – Member of Parliamentary Waterways Group	London Waterways Commission Freight sub-group
London Aggregates Working Party	Sainsbury's	RAFT - (River Association for Freight & Transport)	Inland Waterways Freight Group and Inland Waterways Association
Waste Organisations			
North London Waste Authority	Western Riverside Waste Authority	West London Waste	Cory Environmental

2.5.2 The detailed site assessments were informed through a pre-consultation process of meetings with all the relevant boroughs individually as well as an event for landowners and developers organized by London First. The London Waterways Commission's Freight Sub-Group was also given significant opportunities to inform the work.

3 Water freight trade demand forecast for the River Thames

3.1 Historic demand

3.1.1 Historic trade data can be analysed to give an indication of historic demand trends, as these can be useful indicators of future trends. The PLA collate the following freight data from wharf operators:

- Import and Export data in net tonnes for all freight coming in and out of all wharves within Greater London
- Intra-port data in net tonnes for all freight between wharves in Greater London and those within the rest of the Port of London
- Unitised data in net tonnes for all unitised freight coming in and out of wharves within Greater London

3.1.2 Each of these data sources and the trends they describe are now assessed.

PLA import and export data

3.1.3 **Table 3.1** and **Figure 3.1** below show the historic trade volumes through GLA safeguarded wharves for the ten different commodity types in the period 2001 to 2010. The total percentage rate change and the compound annual growth rate (CAGR) are also shown.

Table 3.1 Historic Import and Export Trade Volumes in GLA safeguarded wharves by Commodity (excludes unitised traffic) (tonnes)

		Year		Change		
Commodity	*2001*	*2005*	*2010*	*Total no.*	*Total %*	*CAGR (%)*
Petroleum products	4,000	71,879	396,688	392,688	9817%	40.7%[5]
Other liquid bulks	216,631	381,687	263,116	46,485	21%	2.2%
Agricultural bulks	972,704	383,636	314,763	- 657,941	-68%	-11.8%
Construction materials	4,667,959	3,942,991	3,135,620	-1,542,339	-33%	-4.3%
Waste	274,600	367,831	149,427	- 125,173	-46%	-6.5%
Sugar	1,279,621	1,174,068	1,014,034	- 265,587	-21%	-2.6%
Other dry bulks	-	70,087	85,447	85,447	n/a	n/a
Steel	412,556	194,681	-	- 412,556	-100%	n/a
Vehicles	272,119	286,625	289,516	17397	+6%	0.7%

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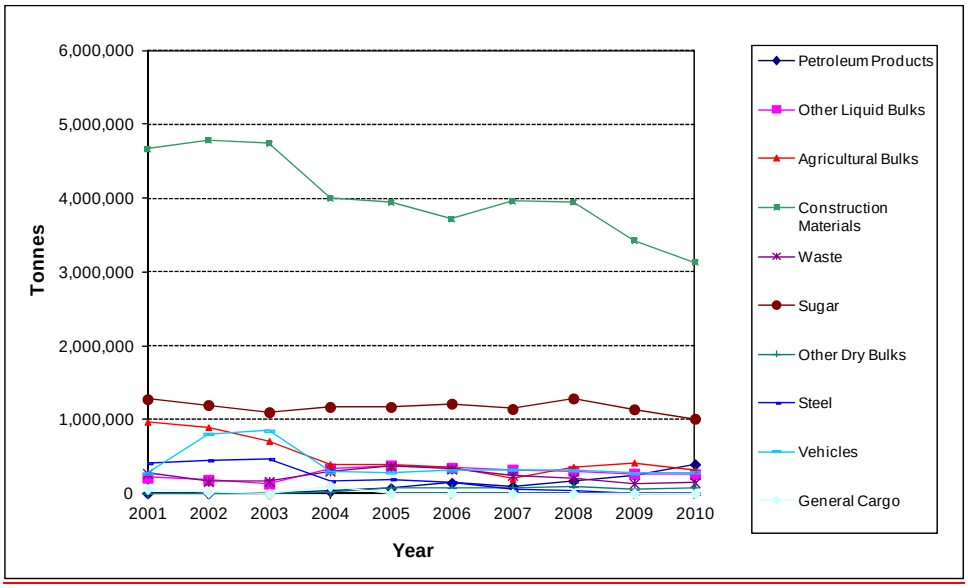
General cargo	63,282	254	215	-63,067	-100%	-46.8%
TOTAL	**8,163,472**	**6,873,739**	**5,648,826**	**-2,514,646**	**-31%**	**-4.5%**

Source: PLA (2010)

Figure 3.1 Historic Import and Export Trade Volumes in GLA safeguarded wharves by Commodity



3.1.4 The most noticeable long-term decline has been in construction materials, although the choice of 2001 as the base year is significant in this context. In terms of volumes of construction materials handed in Greater London between 1991 and 2011, volumes in 2001 are only exceeded in 1999 and 2002, and then by less than 0.5 Mt in both years. Most other commodities exhibit a more stable trend. It should also be noted that in the period 2003 to 2008, construction materials were relatively stable and only declined since the recent downturn. However, in 2011 volumes of construction materials (excluding intra-port volumes) handled at wharves within Greater London increased by 35% above that handled in 2010 to over 4.2 Mt. The only other commodity that has declined markedly in demand since 2001 has been agricultural bulks, although the decline has been less notable than that in construction materials. Petroleum products are the only commodities that have increased markedly in demand with a further increase shown in 2011. This is due to a recent increasing importation of mineral oils, which could be used for a variety of commercial processes, although they still represents a small absolute value.

PLA intra-port data

3.1.5 In this analysis of historic intra-port trade volumes, the information provided to the PLA is optional and therefore may not reflect all intra port trade. Also, the data between 2001 and

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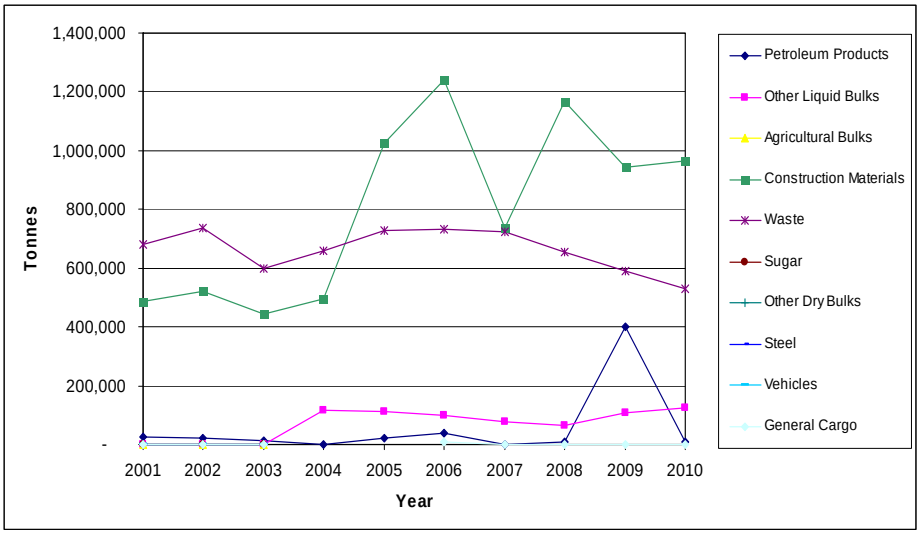
2003 are not fully disaggregated by intra port or external and so there may be some minor discrepancies.

Table 3.2 Historic Intra-Port Trade Volumes by Commodity (tonnes)

	Year			Change		
Commodity	*2001*	*2005*	*2010*	*Total no.*	*Total %*	*CAGR (%)*
Petroleum products	26,304	22,000	7,823	-18,481	-70%	
Other liquid bulks		109,932	126,398	126,398	n/a	
Agricultural bulks					n/a	
Construction materials	488,106	1,024,016	966,628	478,522	98%	
Waste	680,106	730,057	528,657	-151,449	-22%	
Sugar					n/a	n/a
Other dry bulks					n/a	n/a
Steel					n/a	n/a
Vehicles					n/a	n/a
General cargo			66		66	n/a
TOTAL	**1,194,516**	**1,886,005**	**1,629,572**	**435,056**	**36%**	

Source: PLA (2010)

Figure 3.2 Historic Intra-Port Trade Volumes by Commodity



3.1.6 The key conclusion gained through analysing the intraport data set out in **Table 3.2** and **Figure 3.2** is that there appears to have been an increase in the movement of construction materials. However, this conclusion should be tempered with the understanding that there were uncertainties about data collection prior to 2004 and that the submission of intraport data by operators is voluntary.

PLA unitised data

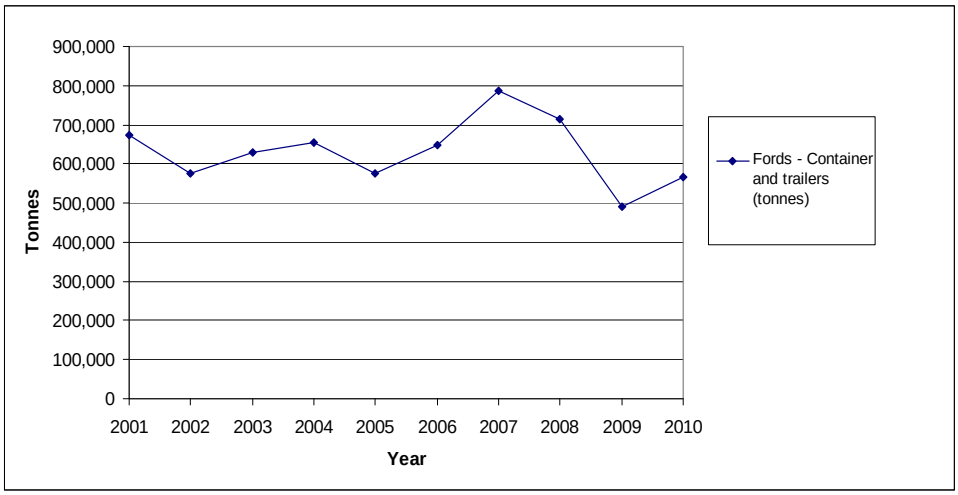
3.1.7 In the analysis of historic trade volumes for unitised trade from 2001 to 2010 the only unitised cargo in the GLA portion of the PLA relates to trade of vehicles at Fords in Dagenham.

Table 3.3 Historic Trade Volumes in GLA safeguarded wharves by Unitised Trade

	Year			Change		
Commodity	*2001*	*2005*	*2010*	*Total no.*	*Total %*	*CAGR (%)*
Vehicles (tonnes)	675,000	576,000	567,000	-108,000	-16%	

Source: PLA (2010)

Figure 3.3 Historic Trade Volumes in GLA safeguarded wharves by Unitised Trade



3.1.8 **Table 3.3** and **Figure 3.3** above show that demand has been relatively flat until 2008 when there was a gentle decline due to the recession and more recently a recovery in 2010.

Waste and construction materials

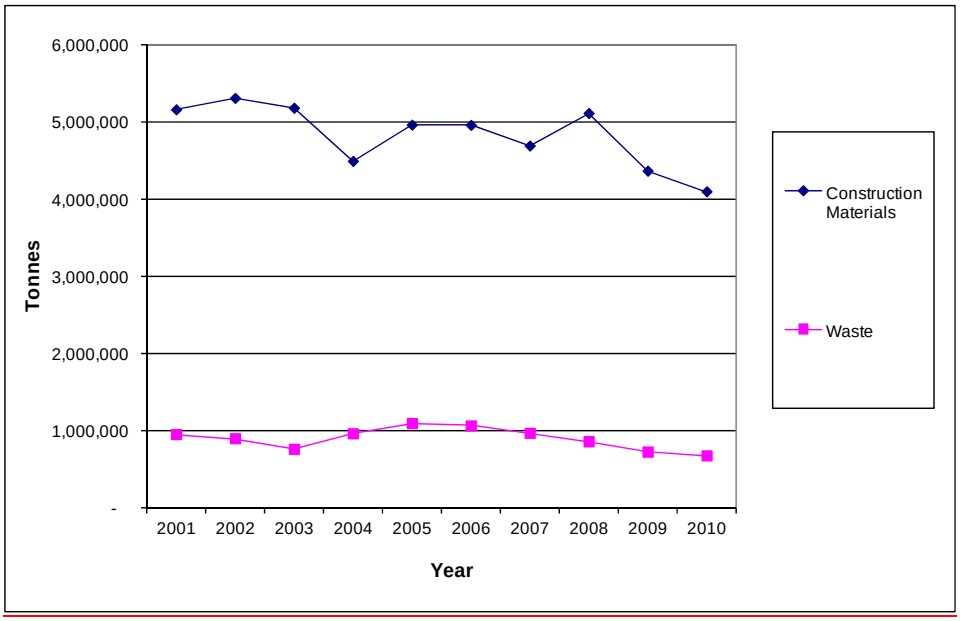
3.1.9 **Table 3.4** and **Figure 3.4** below show the historic trade volumes within GLA safeguarded wharves for waste and construction material over the period 2001 to 2010.

Table 3.4 Historic Trade Volumes for Waste and Construction Material (Tonnes)

		Year		Change		
Commodity	*2001*	*2005*	*2010*	*Total no.*	*Total %*	*CAGR (%)*
Construction Materials	5,166,065	4,967,007	4,102,248	-1,063,817	-21%	-2.5%
Waste	954,706	1,097,888	678,084	- 276,622	-29 %	-3.7%
TOTAL	**6,120,771**	**6,064,895**	**4,780,332**	**-1,340,439**	**-22%**	**-2.7%**

Source: PLA (2010)

Figure 3.4 Historic Trade Volumes for Waste and Construction Material



3.1.10 Although the volume of waste has remained relatively stable, the volume of construction material has declined by about one million tonnes over the last decade, although as noted above, volumes appear to be again increasing.

Total historic demand

3.1.11 **Table 3.5** and **Figure 3.5** below show the historic trade volumes within GLA safeguarded wharves for the ten different commodity types in the period 2001 to 2010.

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Table 3.5 Total Historic Greater London Trade (tonnes)

	Year			Change 2001 to 2010		
Commodity	*2001*	*2005*	*2010*	*Total.*	*Total %*	*CAGR (%)*
Petroleum Products	30,304	93,879	404,511	374,207	1234.8%	33%
Other Liquid Bulks	216,631	491,619	389,514	172,883	79.8%	7%
Agricultural Bulks	972,704	383,636	314,763	- 657,941	-67.6%	-12%
Construction Materials	5,166,065	4,967,007	4,102,248	-1,063,817	-21%	-2.5%
Waste	954,706	1,097,888	678,084	- 276,622	-29.0%	-4%
Sugar	1,279,621	1,174,068	1,014,034	- 265,587	-20.8%	-3%
Other Dry Bulks	-	70,087	85,447	85,447	21.9%	n/a
Steel	412,556	194,681	-	- 412,556	-100.0%	n/a
Vehicles/Unitised	947,119	862,625	856,516	-90,603	-9.6%	-1%
General Cargo	63,282	254	281	- 63,001	-99.6%	-45%
TOTAL	**10,042,988**	**9,335,744**	**7,845,398**	**-2,197,590**	**-22%**	**-3%**

Source: PLA (2010)

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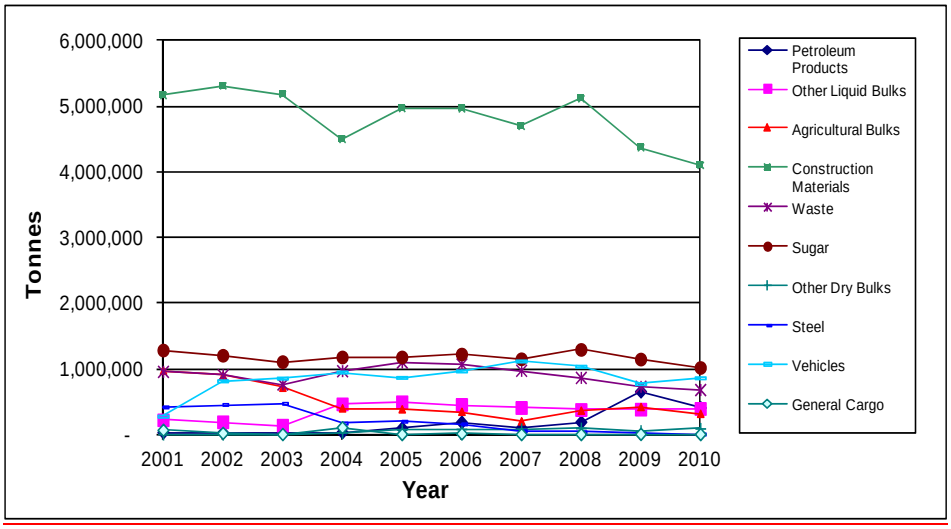
Figure 3.5 Total Historic Greater London Trade



3.1.12 Since 2001 there has been a 21% decline in trade on the GLA portion of the River Thames. The Compounded Annual Growth Rate (CAGR) is approximately -3% which indicates a relatively significant decline. However, there have been significant differences by cargo type with a limited decline in construction material and a more stable but varying picture for other cargoes

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at a much lower level. Given that the overall total decline in cargo has been occurring in a relatively consistent way since 2001, it is debatable whether this is entirely due to structural reasons as opposed to being due to the recent downturn. It should also be noted that trade appeared relatively stable in the period 2003 to 2008 during the period the UK and global economy was in a period of relative boom. If freight is to increase on the BRN in the future it would therefore seem necessary for a degree of structural change to occur. How likely this is to occur can be suggested by forecasting future freight volumes. This is the subject of the following section.

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3.2 Forecast demand

3.2.1 A variety of different independent/third party forecasts can be analysed to give an impression of what future demand at the market level could be for the ten different cargo types. These different sources of data are described in **Table 2.1** above and each of these is described more fully in this section. Where possible, historic forecast data and actual historic wharf tonnage trends are correlated to help understand how relevant each forecast is for predicting future use. This exercise will enable each forecast to be prescribed a relative weighting, and that relative weighting will feed into the demand synthesis exercise.

Gross Value Added (GVA) forecasts (GLA Economics)

3.2.2 GLA Economics use a standard GVA economic growth assumption of 2.5% per annum for use in their long term economic forecasting. This can be said to represent the long tem view of economic growth in London taking account of the cyclical nature of economy i.e. across upturns and downturns.

Correlation to historic wharf trade

3.2.3 There is some correlation between water freight and macro economic trends - when the economy is booming, trade will relatively increase. However, overall water freight within Greater Londonhas declined since 2001, whereas GVA has increased. The correlation between the historic GVA of London specifically between 2004 and 2010 and the historic trade at wharves is 0.3. This indicates a weak correlation and suggests that GVA is not an accurate predictor of future demand for wharves. This would be expected given that London has seen an expansion of service sectors which have seen particularly rapid growth, while manufacturing, which may be expected to make particular use of wharves, has continued to decline.

Greater London Employment Forecasts (GLA Economics)

3.2.4 **Table 3.6** and **Figure 3.6** below show the long term employment forecasts for the GLA between 2011 and 2031 by sector. **Figure 3.7** shows the long term employment forecasts for the sectors most relevant to Wharf activities; Primary and Utilities, Manufacturing, Construction and Transport and Communications.

Table 3.6 Long Term Employment Forecasts for the GLA by Sector

	Year			Change		
Employment Category	*2011*	*2021*	*2031*	*Total no.*	*Total %*	*CAGR (%)*
Primary and Utilities	25,000	18,000	12,000	-13,000	-52.0%	-3.8%
Manufacturing	192,000	130,000	89,000	-103,000	-53.6%	-4.0%
Construction	230,000	203,000	179,000	-51,000	-22.2%	-1.3%
Wholesale	211,000	201,000	191,000	-20,000	-9.5%	-0.5%
Retail	407,000	422,000	437,000	30,000	7.4%	0.4%
Hotels and restaurants	336,000	426,000	540,000	204,000	60.7%	2.5%
Transport, and communication	335,000	318,000	302,000	-33,000	-9.9%	-0.5%
Financial Services	335,000	336,000	338,000	3,000	0.9%	0.0%
Business Services	1,323,000	1,522,000	1,646,000	323,000	24.4%	1.2%
Public Administration	218,000	194,000	173,000	-45,000	-20.6%	-1.2%
Health and Education	740,000	762,000	785,000	45,000	6.1%	0.3%
Other Services	446,000	582,000	760,000	314,000	70.4%	2.8%
TOTAL	**4,798,000**	**5,114,000**	**5,452,000**	**654,000**	**13.6%**	**0.7%**

Source: Working Paper 38 Employment projections for London by sector and trend based projections by borough, GLA Economics (2010)

Figure 3.6 Long Term Employment Forecasts for the GLA by Sector

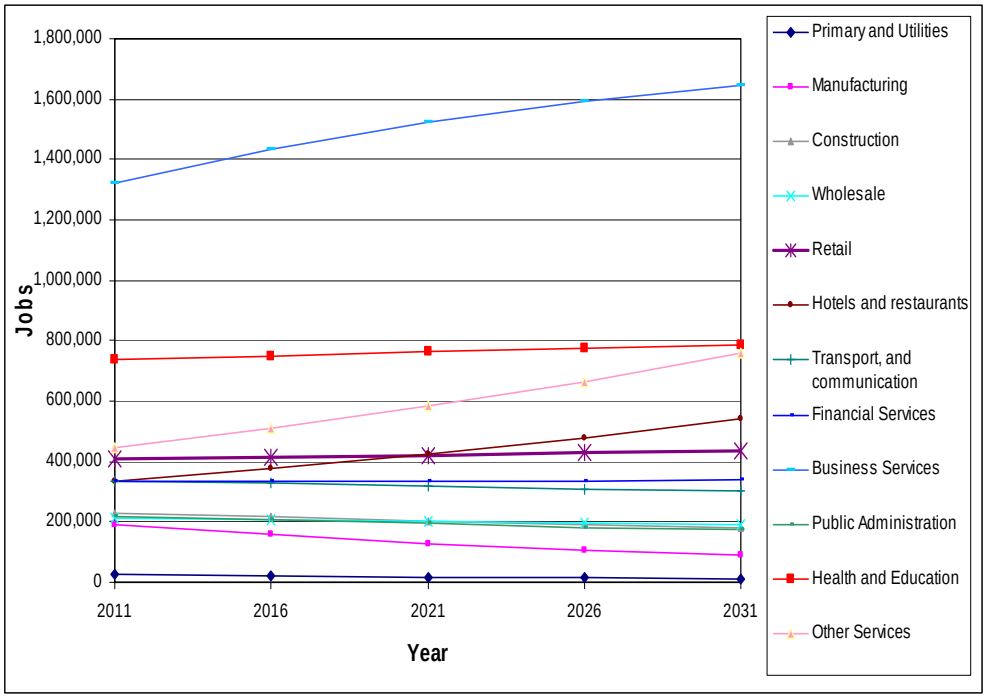


Figure 3.7 Long Term Employment Forecasts for the Sectors most Relevant to Wharf Activities

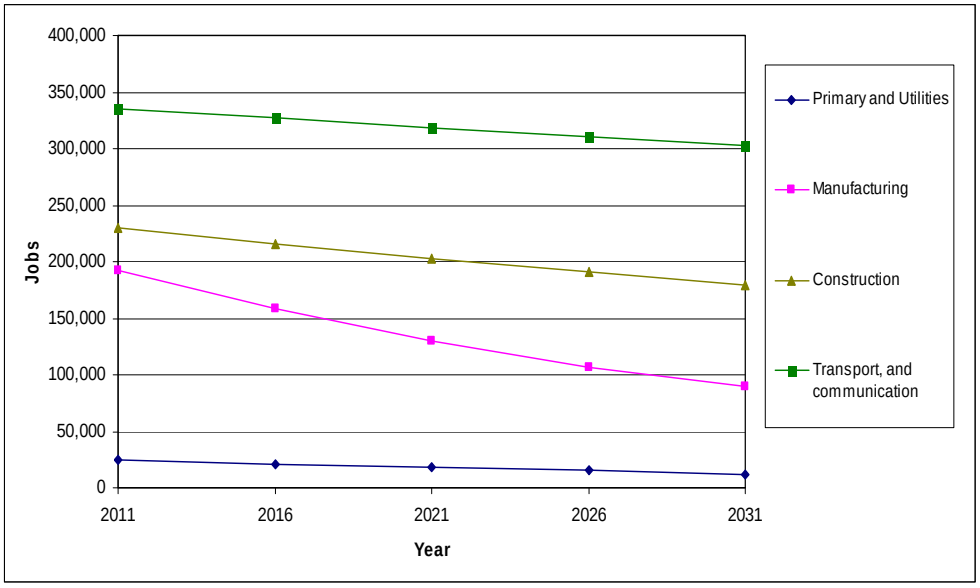


Figure 3.6 and **Figure 3.7** show that although total employment growth is forecast to grow this is mainly driven by employment in non-wharf related sectors such as Business Services, Other Services and Hotels and Restaurants. The sectors that have most relevance to wharf usage are expected to decline between 2011 and 2031.

Correlation to historic wharf trade

3.2.5 The correlation of historic wharf trade between 2003 and 2010 with historic total GLA employment forecasts (published by GLA Economics in 2007) for the same year is -0.8. The correlation of historic wharf trade between 2003 and 2010 with historic GLA employment forecasts for the relevant sectors i.e. primary and utilities, manufacturing, construction and transport for the same year is 0.9.

3.2.6 This shows that total GLA employment forecasts has a strong negative correlation to historic wharf trade. The 2003 to 2010 period forecasted employment increasing across GLA, while wharf trade decreased. When relevant sector forecasts are isolated the picture is different. The predicted decline in employment in primary utilities, manufacturing, construction and transport correlates strongly with the historic decline in wharf trade. Therefore, the historic trend for individual cargo types are taken into considerations (see section 3.7).

Department for Transport (DfT) Long Term Waterborne Trade Forecasts

3.2.7 **Table 3.7** and **Figure 3.8** below show the UK long term waterborne trade forecasts 2005 to 2030 by the main cargo types. These were published by the DfT in 2005. **Table 3.8** and **Figure 3.9** shows the same forecasts for the GLA region.

Table 3.7 UK Long Term Waterborne Trade Forecasts (Million tonnes)

	Year			Change		
Commodity	*2010*	*2020*	*2030*	*Total no.*	*Total %*	*CAGR (%)*
Bulk Traffic						
Liquid Bulk	276	277	282	6	2%	0.1%
Dry Bulk	109	105	111	2	2%	0.1%
Other General Cargo	34	35	36	2	6%	0.3%
Total UK non unitised	**419**	**417**	**429**	**10**	**2%**	**0.1%**
ro-ro	**99**	**133**	**171**	72	73%	2.9%
lo-lo	51	71	94	43	84%	3.3%
Total UK unitised	150	204	265	115	77%	3.0%
TOTAL	**569**	**621**	**694**	**125**	**22.0%**	**1.1%**

Source: DfT (2009)

Figure 3.8 UK Long Term Waterborne Trade Forecasts (Million tonnes)

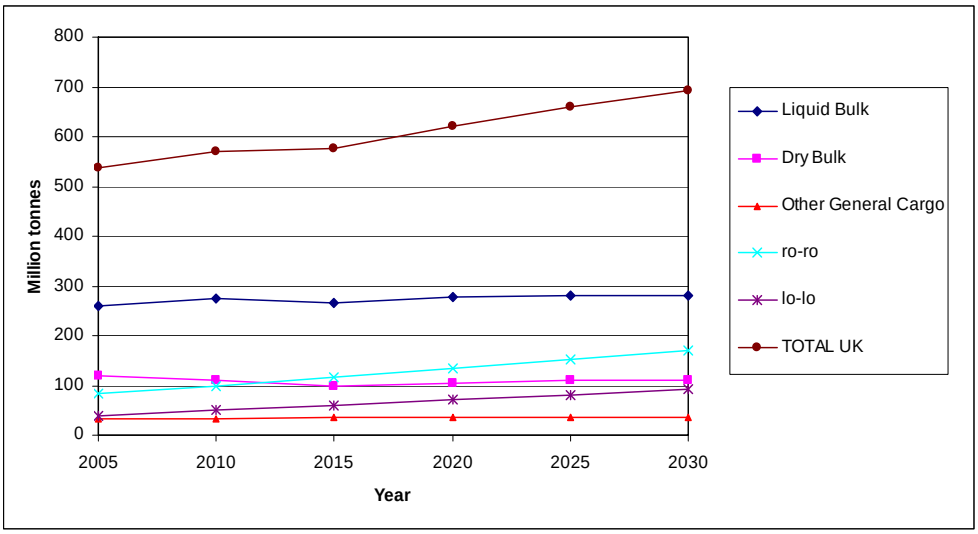
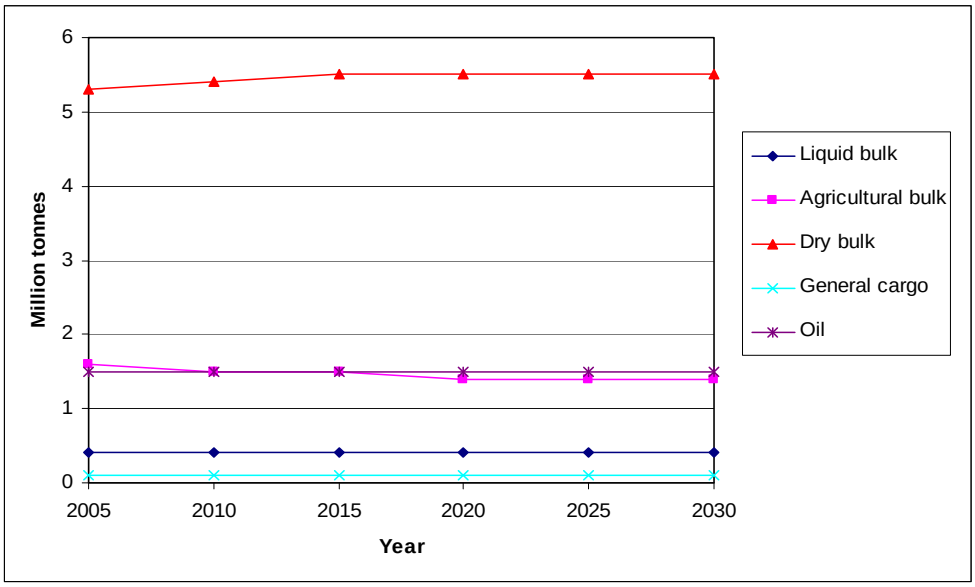


Table 3.8 Greater London Long Term Waterborne Trade Forecasts (Million tonnes)

	Year			Change		
Commodity	*2010*	*2020*	*2030*	*Total no.*	*Total %*	*CAGR (%)*
Liquid bulk	0.4	0.4	0.4	0	0.0%	0.0%
Agricultural bulk	1.5	1.4	1.4	-0.1	-6.7%	-0.8%
Dry bulk	5.4	5.5	5.5	0.1	1.9%	0.2%
General cargo	0.1	0.1	0.1	0	0.0%	0.0%
Oil	1.5	1.5	1.5	0	0.0%	0.0%
TOTAL	**8.9**	**8.9**	**8.9**	**0**	**0.0%**	**0.0%**

Source: DfT (2009)

Figure 3.9 GLA Region Long Term Waterborne Trade Forecasts (Million tonnes)

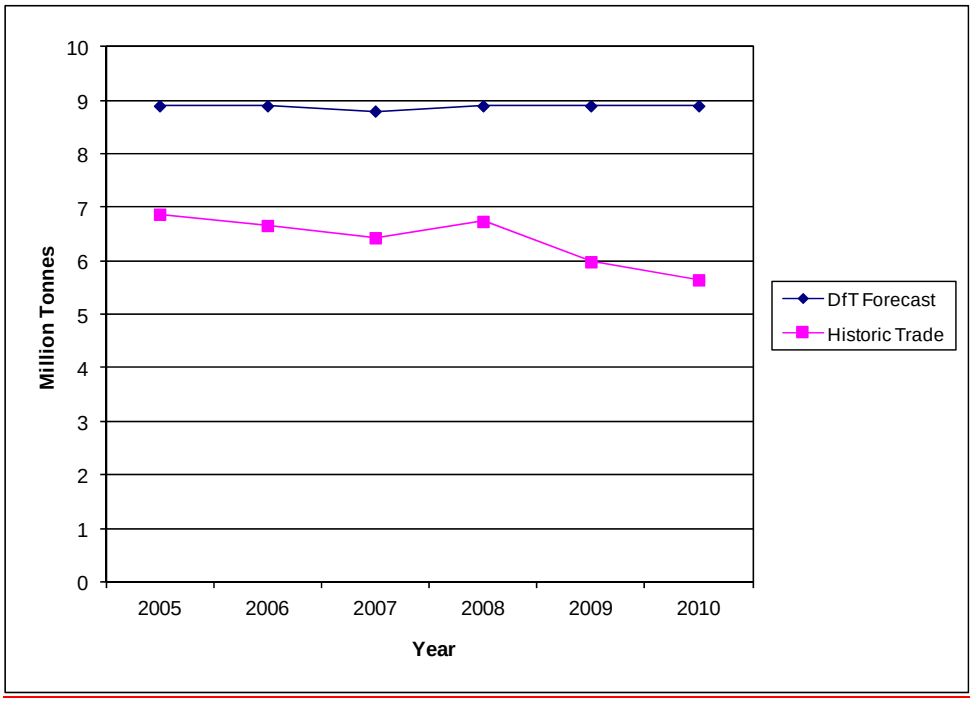


3.2.8 **Figures 3.8** and **3.9** show relatively flat levels of growth in long term waterborne trade forecasts for the UK and for the GLA region. Compound annual growth 2010-2030 in the GLA is lower than the expected rate for the UK, at 0% and 1.1% respectively

Correlation to historic wharf demand to DfT Port Demand Forecasts

3.2.9 The correlation of historic wharf trade between 2005 and 2010 with historic DfT Port Demand Forecasts (published by DfT in 2007) for the same year is - 0.05. This shows that there is no correlation between the flat trend of the forecast and the trend of steadily declining freight on the wharves. This is shown in **Figure 3.10** below.

Figure 3.10 Correlation Historic Wharf Trade (2005 and 2010) with Historic DfT Forecasts



3.3 Waste demand forecasting

3.3.1 As described in Chapter 2, a combination of the top down and bottom up approaches has been employed to forecast future demand for waste transported by water in London. Historically there has been a relatively consistent flow between approximately 0.7m to 1.0m tonnes of waste transported from London to landfill sites further down the river (mainly Mucking in Essex with scrap metal to sites in the Medway). However, the sustainability agenda and increasing rates of recycling means that domestic, commercial and industrial waste transported by river to processing plants is likely to become an increasingly important feature of the London river freight market. The sustainability agenda could also be expected to have an influence on the mode of transport used to transfer this waste to processing plants, as freight by water is seen as the most sustainable mode.

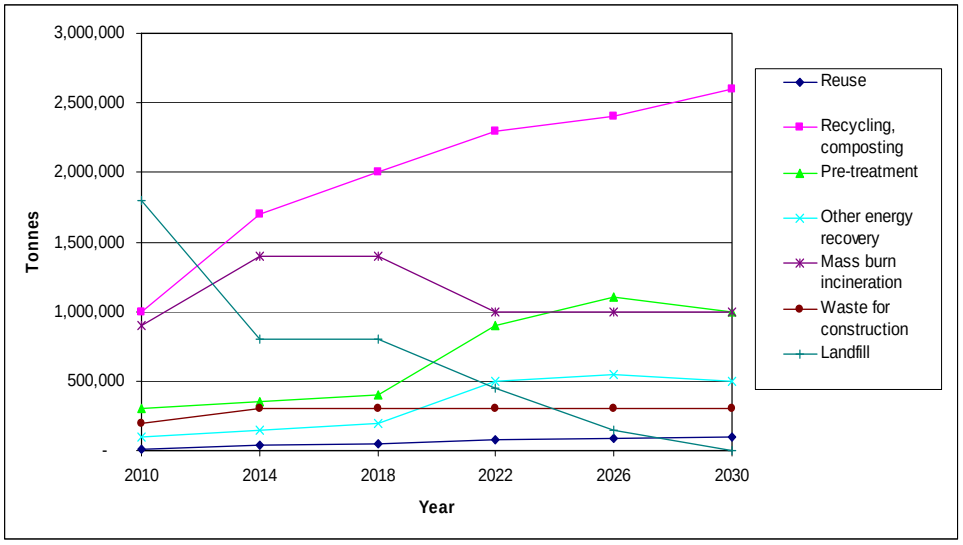
3.3.2 Historic data is not likely to provide a sufficient indicator of future trends in the light of the sustainability agenda. Therefore, the primary source of information on future waste flows is the Mayor's Draft Municipal Waste Strategy (2010) (DMWS). The DMWS, at page 27 (Figure 6), sets out a preferred approach to managing London's waste to 2030. It describes and quantifies the amount of waste to be processed by various methods. This is shown in **Table 3.9** and **Figure 3.11** below:

Table 3.9 Mayors Draft Municipal Waste Strategy (tonnes)

	Year			Change (2014-2030)		
Waste Processing Type[6]	*2014*	*2018*	*2030*	*Total no.*	*Total %*	*CAGR (%)*
Reuse	40,000	50,000	100,000	60,000	150%	6.30%
Recycling, composting	1,700,000	2,000,000	2,600,000	900,000	53%	2.87%
Pre-treatment	350,000	400,000	1,000,000	650,000	186%	7.25%
Other energy recovery	150,000	200,000	500,000	350,000	233%	8.36%
Mass burn incineration	1,400,000	1,400,000	1,000,000	-400,000	-29%	-2.22%
Waste for construction	300,000	300,000	300,000	0	0%	0.00%
Landfill	800,000	800,000	-	n/a	-100%	-99.9%
TOTAL	**4,740,000**	**5,150,000**	**5,500,000**	760,000	16%	1.00%

Source: GLA Draft Municipal Waste Strategy (2010)

Figure 3.11 Mayors Draft Municipal Waste Strategy 2010 - 2030



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6 'Pre-treatment' includes processes such as mechanical biological treatment and autoclave that recover materials for recycling and prepare a solid recovered fuel (SRF) from remaining waste for energy generation. 'Other energy recovery' refers to advanced conversion technologies including anaerobic digestion, gasification and pyrolysis. 'Mass burn incineration' refers to incineration of mixed untreated waste generating electricity only (i.e. not using waste heat).

3.3.3 **Figure 3.11** shows that there is expected to be a significant change over the next 20 years to the way waste from the GLA area is processed. For example, waste to land fill is expected to be reduced to zero by 2030 whilst recycling is expected to grow by 62% between 2014 and 2030, when it would form approximately half of waste processed in the GLA..

Deleted: while recycling, which forms approximately half of all the waste processed in the GLA, is expected to grow by 62% between 2014 and 2030

3.3.4 However, it is not clear from these figures what proportion of waste is likely to be transported by water. Historically the majority of waste transported by water was either processed at incinerators or sent to landfill. The DMWS shows that both these modes of processing are expected to remain consistent or decline respectively. The other forms of processing such as recycling, reuse and pre-treatment are less likely to use the river as they are generally micro processes that will involve transport of waste from domestic and commercial premises to processing plants close to the source of the waste. Despite this, there is scope for recycled materials being exported out of London by water. Therefore, if the total tonnage of waste transported by water and using GLA safeguarded wharves is to increase it is likely to occur in the following processing modes:

- Recycled material (recyclates) exported by river
- Landfill
- Mass burn incineration
- Other energy recovery (waste to energy)
- Waste for construction

3.3.5 Assuming the total tonnage figures as given in the DMWS for each of these different modes, estimates can be made of the proportion that might be transported by water. These estimates are shown as three different scenarios; high, medium and low and are based on 'bottom up' consultation with waste authorities. The detailed assumptions are now described for each of the waste processing modes with the potential to affect future demand for wharves.

Recyclates exported by river assumptions

3.3.6 Although the DMWS forecasts that an increasingly large amount of waste will be recycled, with approximately 2.6 million tonnes being recycled per annum by 2030, waste authorities and operators suggest that only a relatively small proportion of this waste has the potential to be exported by water to recycling centres. Currently the major waste products that can be commercially recycled are:

- Paper
- Plastics
- Metals
- Cullet (crushed glass)

3.3.7 However, only a small proportion of recyclates are currently transported by water. According to PLA data in 2010 only 150,000 tonnes of scrap metal were transported by water. Recycled metal is predominantly subject to initial sifting and recycling close to source due to its weight. No paper or plastics were transported by water in 2010. Paper and plastics are the most likely products to be exported overseas for recycling. Currently the majority of recycled paper and

plastics is containerised and then transported to Southampton for onward passage to the Far East. Given that there are 57 types of paper and 26 types of plastics and that it is more cost effective to sort and package these at source, it is likely to be uneconomical to move these materials by barge on the BRN for transhipment to an international container port, although the development of the London Gateway port in Thurrock may provide a stimulus to this trade. Despite this, assumptions can be made on the amount of recyclates that could be transported in the future based on policy changes that will make transportation by water more attractive and viable, potentially through greater subsidies. These assumptions are shown in **Table 3.10**.

Table 3.10 Recyclates Exported by River

			Estimated volumes by year (tonnes)		
Scenario	*Assumption*	*Source*	*2011*	*2021*	*2031*
High	10% via water	Consultation with Waste stakeholders and URS assumption	100,000	200,000	260,000
Medium	5% via water	As above	50,000	100,000	130,000
Low	0% via water	As above	0	0	0

Source: URS consultation 2011

Landfill assumptions

3.3.8 According to the DMWS approximately 1.8m tonnes of London's waste currently goes to landfill. The DMWS states that waste sent to landfill sites will reduce to 800,000 tonnes by 2014 and then taper off to zero by 2030. In 2010 approximately 550,000 tonnes of waste was transported by river to Mucking landfill site in Essex. However Mucking closed in 2010 and so in this study it is assumed that in the future no waste will be transported via river to landfill.[7]

Waste to incinerators assumptions

3.3.9 According to the DMWS, waste sent to mass burn incineration plants will initially increase to 1.4m tonnes by 2014 before reducing to 1m tonnes per annum by 2022. There are three incinerators receiving waste in London. These incinerators and their capacities are as follows:

7 although the jetty at Mucking is still receiving CE&DW from the Lea Tunnel for restoration.

Table 3.11 Waste Incinerators in London

Incinerator	*Borough*	*Access to water (inc wharf)*	*Capacity (tonnes p.a.)*	*Current proportion by water*
SELCHP	LB Lewisham	Not direct. Approximately 1 mile via road	420,000	0%
Belvedere	LB Bexley	Direct to Thames – Middleton Jetty	670,000	90%
Edmonton	LB Enfield	Direct to canal	550,000	0%
			1,640,000	34%

Source: GLA Draft Municipal Waste Strategy (2010)

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3.3.10 The proportions of the expected 1.4m tonnes that will be sent to incinerators for the three different scenarios is based on information gained through the bottom up consultation method as described earlier in this report. The assumptions and the expected annual volumes are as follows:

Table 3.12 Waste to Incinerators by Water Scenarios 2011-2031

			Estimated volumes by year (tonnes)		
Scenario and Incinerator	*Assumption (% by water)*	*Source*	*2011*	*2021*	*2031*
High					
GLA to Belvedere	95%	Cory, LRWA	636,500	636,500	636,500
GLA to SELCHP	25% to 50% after 2022[8]	Consultation responses & URS assumption	105,000	105,000	210,000
GLA to Edmonton	50% from 2016[9]	NLWA	0	275,500	To close 2022
Total			**741,500**	**1,017,000**	**846,500**
Medium					
GLA to Belvedere	90%	Cory, LRWA	603,000	603,000	603,000
GLA to SELCHP	10%	Consultation responses & URS assumption	42,000	42,000	42,000
GLA to Edmonton	10% from 2016	NLWA	0	55,000	To close 2022
Total			**645,000**	**700,000**	**645,000**
Low					
GLA to Belvedere	85%	Cory, LRWA	569,500	569,500	569,500
GLA to SELCHP	0%	Consultation responses & URS assumption	0	0	0
GLA to Edmonton	0%	Consultation responses & URS assumption	0	0	0
Total			**569,500**	**569,500**	**569,500**

Source: URS consultation 2011

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Waste to energy assumptions

3.3.11 According to the DMWS, waste to energy (or other energy recovery) will increase from its current level of 100,000 tonnes per annum to approximately 0.5m tonnes per annum by 2022. Most of the waste currently turned to energy is treated at the waste incinerators described above (SELCHP, Edmonton and Belvedere). However there is a significant opportunity for much

8 The transportation of waste via water to the SELCHP plant would involve an element of 'double handling' as the plant is approximately 1 mile from the river. Although this may appear to make the option unviable, there is a possibility with subsidy and proactive policy making that some waste could be transported by river to the plant. Also, there is an element of double handling for any plant as there will be handling involved in moving the waste from the barge, then some travelling to the plant and finally a second handling of the waste into the processor.

9 The scenarios for an element of waste to be transported to Edmonton incinerator is based on consultation with NLWA and other key stakeholders (see Table 2.2).

of this targeted future waste figure to be transported by water to new waste to energy plants. These potential future waste to energy plants are not necessarily confirmed yet but it is assumed that proposals could come forward as pressures for modal shift increase[10]. Following bottom up consultation with relevant stakeholders the following assumptions are made for what proportion of DMWS targets could be transported by water. This is shown for three different scenarios.

Table 3.13 Waste to Energy by Water Scenarios 2011 – 2031

			Estimated volumes by year (tonnes)		
Scenario	*Assumption*	*Source*	*2011*	*2021*	*2031*
High	100% via water from 2014	North London Waste Authority (NLWA)	0	200,000	550,000
Medium	50% via water from 2014	NLWA	0	100,000	275,000
Low	0% via water	NLWA	0	0	0

Source: URS Consultation (2011)

Construction waste assumptions

3.3.12 According to the DMWS waste from construction is expected to be approximately 300,000 tonnes per annum. This figure corresponds almost directly to the current flow of construction waste from the GLA to Medway as shown by the PLA intra-port data. However there could also be some increase in construction waste by water as London Plan policy is more consistently applied. Therefore it is assumed for the low and medium scenarios that 300,000 tonnes per annum of construction waste is transported by water and 400,000 for the high scenario. It should be noted that this figure does not include construction waste used as a secondary aggregate as per Mineral Planning Statement 1 (MPS1) as this is dealt with separately in the demand for aggregates section (Section 3.4) below[11].

Conclusions – waste forecasting

3.3.13 The assumptions on the relative proportions of the DMWS targets for each different processing mode as described above can be aggregated to provide a total figure for expected future demand for waste transported by water for the three different scenarios. This is shown in **Table 3.14** below:

10 Examples of some known potential schemes include a proposal for a waste to energy plant at Convoys Wharf, a waste to energy plant in Bexley proposed by Orchid Environmental Ltd and a 19MW gasification plant in Dagenham, which is expected to be opened in 2013.

11 The waste process category referred to in this study as 'Construction Waste' is referred in the DMWS as waste used for land reclamation or as a building material. This does not include MPS1 secondary aggregates.

Table 3.14 Total GLA Forecast Waste Transported by Water Scenarios 2011-2031

		Estimated volumes by year (million tonnes)		
Scenario	*Assumptions*	*2011*	*2021*	*2031*
Low	Known future and existing flows but no allowance for future modal shift	0.9	0.9	0.9
Medium	Known and existing flows + 10% shift to waste to energy and 5% of total GLA recyclates exported via water	1.0	1.2	1.4
High	Known and existing flows + 25% shift to waste to energy and 10% of total GLA recyclates exported via water	1.1	1.7	1.9

Source: URS (2011) Note: Some figures may not sum due to rounding

3.4 Aggregates forecasting

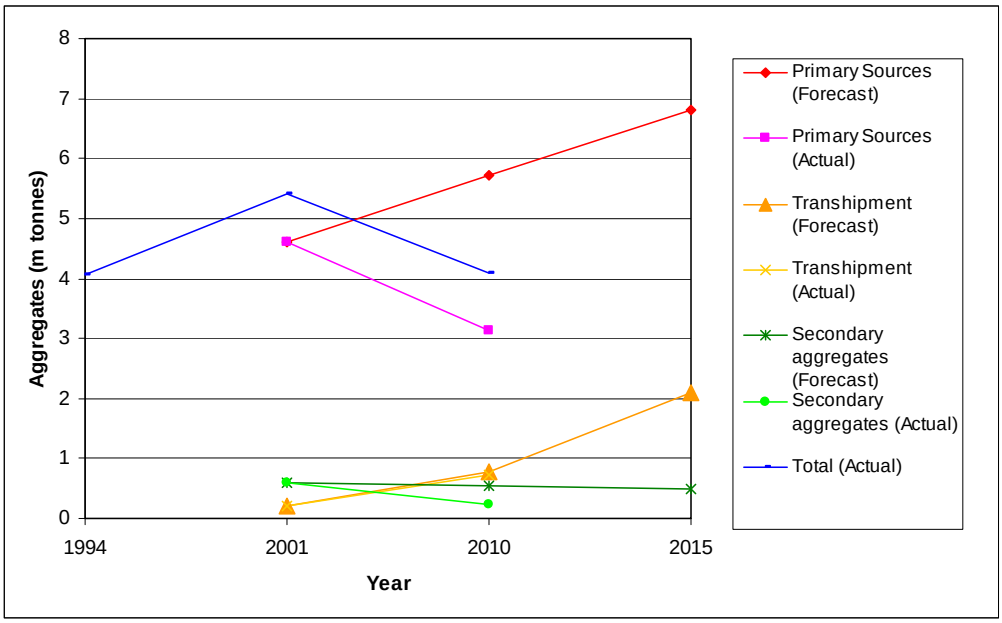
3.4.1 The SWIR forecast demand for aggregates was based on top down MPG6 assumptions for primary aggregates and bottom up discussions with operators for transhipment and secondary aggregates. The assumptions were then discussed with the technical secretariats of the South East of England Regional Aggregates Working Party (SEERAWP) and the London Aggregates Working Party (LAWP). It is now possible to check how the 2005 SWIR forecasts made in 2001 compare to actual PLA data. This is shown in **Table 3.15** and **Figure 3.12** below.

Table 3.15 Forecasts and Actual Demand for Aggregates from the GLA and PLA

	Million tonnes				
Aggregate Source (Actual and Forecast)	*1994*	*2001*	*2010*	*2015*	*CAGR*
Primary Sources (PLA Forecast)		4.6	5.7	6.8	2.8%
Primary Sources (Actual)		4.6	3.1	n/a	-4.2%
Transhipment (PLA Forecast)		0.2	0.8	2.1	18.3%
Transhipment (Actual)		0.2	0.7	n/a	15.4%
Secondary aggregates (PLA Forecast)		0.6	0.5	0.5	-1.3%
Secondary aggregates (Actual)		0.6	0.2	n/a	-9.6%
Total Aggregates (Actual)	4.1	5.4	4.1		0.0%

Source: GLA (2005), MPG6, MPS1, PLA (2010)

Figure 3.12 Forecasts and Actual Demand for Aggregates from the GLA and PLA



3.4.2 **Table 3.15** and **Figure 3.12** show that apart from transshipment actual aggregates trade is significantly less than that forecast in the SWIR. The PLA data from 1994 shows that aggregates increased from the mid 1990's to 2001 due to a period of high construction work in London with the building of many offices/developments during this period, especially at Canary Wharf. The difference between the forecast and the actual volumes is partly due to MPG6 targets for aggregates demand not being met[12] and also due to over optimistic assumptions based on operator expressions of interest. Therefore, this study revises the SWIR methodology and makes assumptions on national mineral planning guidance based on bottom up consultation responses with key relevant stakeholders and observations of historic trends. This allows the development of three different scenarios of waterborne aggregate trade between 2011 and 2031. These assumptions are now discussed in more detail.

MPG6 and MPS1 Assumptions for Primary Aggregates

3.4.3 Mineral Planning Statement 1 (MPS1) was published in 2009 and revised the guidance and aggregate targets of MPG6 which the SWIR was based on[13]. These revisions include a lower overall figure for aggregates (discounting secondary aggregates which are discussed further below).

3.4.4 **Table 3.16** below shows the MPG6 assumptions that were the basis of the SWIR aggregate demand forecasts. It should be noted that although MPG6 did forecast alternative materials this

12 Based on the pro rata 2005 study forecast rate.

13 As shown at table 5 (p. 24) of the 2005 Safeguarded Wharf Study (GLA)

was not considered in the SWIR because the study considered that the market was still emerging and trends were not possible to predict[14]. The average annual aggregate tonnage assumption was 6.8 million tonnes.

Table 3.16 MPG6 (2003) Assumptions on Primary Aggregates used in SWIR[15] (million tonnes)

	Guidelines for land-won production			*Assumptions*		
	Land–won Sand & Gravel	*Land-won Crushed Rock*	*Marine Sand & Gravel*	*Alternative Materials*	*Net Imports to England*	*Total*
London	22.4	0	72	Not assessed	14	108.8
Average Annual	1.4	0.0	4.5	Not assessed	0.9	**6.8**

Source: ODPM (2003) National and regional guidelines for aggregates provision in England, 2001–2016 (MPG6)

Table 3.17 below shows the updated MPS1 guidance for aggregate demand for London 2005 – 2020 (million tonnes). The guidelines are based on outputs from an econometric model of the relationship between construction and aggregate consumption to predict future aggregate need. Amongst other aspects that model takes into account predictive GVA growth in the construction sector (Cambridge Econometrics) and annual construction statistics (ONS). It should be noted that the output differs markedly from the MPG6 guidance used for the SWIR in that it projects 5.9 tonnes per annum for alternative materials taking the total annual figure to 12.3 million tonnes. If alternative materials are taken out, as shown in **Table 3.18** below, it can be seen that the average annual figure is 6.4 million tonnes. This is 0.4 tonnes less than the MPG6 assumptions used in the SWIR. Separate assumptions will be made on alternative materials as set out below.

Table 3.17 MPS1 (2009) (million tonnes)

	Guidelines for land-won production			*Assumptions*		
	Land–won Sand & Gravel	*Land-won Crushed Rock*	*Marine Sand & Gravel*	*Alternative Materials*	*Net Imports to England**	*Total*
London	18	0	72	95	12	197
Average Annual	1.1	0.0	4.5	5.9	0.8	12.3

Source: CLG (2009) National and regional guidelines for aggregates provision in England, 2005–2020 (MPS1)

14 GLA Safeguarded Wharf Study (2005) paragraph 2.53 p25

15 It should be noted the LAWP 2009 AMR states that total aggregates consumption in London in 2009 was 9.4 m t. However only 3.4Mt is marine dredged aggregates landed at wharves (para 8.1). 0.4 Mt is crushed rock landed at wharves (para 4.4), 0.4 is transhipped from SE (para 4.2) and 0.2 is land won sand and gravel (para 4.6). This equals 4.4Mt tonnes, which equates to the 2009 PLA figures as shown in table 4.6 (although only the 2010 figures are actually shown).

Table 3.18 MPS1 Without Alternative Materials (million tonnes)

	Guidelines for land-won production		*Assumptions*			
	Land–won Sand & Gravel	*Land-won Crushed Rock*	*Marine Sand & Gravel*	*Alternative Materials*	*Net Imports to England**	*Total*
London	18	0	72	0	12	102
Average Annual	1.1	0.0	4.5	0	0.8	6.4

Source: CLG (2009) National and regional guidelines for aggregates provision in England, 2005–2020 (MPS1)

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New London Plan revisions

3.4.5 In July 2011 the Mayor published his replacement London Plan. Policy 5.20 sets out his approach to aggregates. It sets a 7 year landbank figure of 5 million tonnes (0.7 Mt pa) for the period 2011-2031 and reiterates the Mayor's support for the safeguarding of wharves to ensure sustainable distribution. The Mayor decided to revise the 1.1 Mt guideline figure in the light of the monitoring evidence set out in the Aggregates Annual Monitoring Report showing a continuing fall in the length of the landbank and boroughs' concerns over the deliverability of the guideline figure. This lower figure of 0.7 Mt pa proposed by the Mayor was endorsed by the EiP Panel. This revision is shown in **Table 3.19** below. Also, at the London Plan EiP the LAWP stated that there was likely to be an increasing reliance on sea dredged and water imported aggregates (as indicted in the increased figure of 16 million tonnes p.a. for net imports) as the supplies from inland quarries in the UK was likely to reduce over the plan period due to difficulty in getting new planning permissions for extraction. This leads to a revised annual figure (not including alternative materials) of 6.2 million tonnes p.a This is 0.6 million tonnes p.a. less than the figure used in the SWIR.

Table 3.19 MPS1 Further Adjusted by New London Plan Revisions (million tonnes)

	Guidelines for land-won production		*Assumptions*			
	Land–won Sand & Gravel	*Land-won Crushed Rock*	*Marine Sand & Gravel*	*Alternative Materials*	*Net Imports to England**	*Total*
London	12	0	72	0	16	102
Average Annual	0.7	0.0	4.5	0	1.0	**6.2**

Source: DCLG (2009) National and regional guidelines for aggregates provision in England, 2005–2020 (MPS1) revised by New London Plan

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Alternative materials assumptions

3.4.6 MPS1 describes alternative materials as predominantly construction and demolition waste that can be re-used for aggregates in building projects. This category can also be compared to secondary aggregates as per the SWIR definition. To set the context, according to the PLA data in 2010 there was 200,000 tonnes of secondary aggregates transported using GLA safeguarded wharves. MPS1 increased the national forecast for alternative materials from MPG6 by 16%

mainly in light of the sustainability agenda[16]. Because it could be expected that much of this construction and demolition waste would be either reused at the site or transported to a nearby site by road it is necessary to make separate assumptions on what proportion of the total of 5.9 million tonnes of alternative materials per annum in London could be transported by water. These assumptions which are based on the bottom up consultation with relevant stakeholders are now discussed.

Aggregates stakeholder consultation – major projects

3.4.7 Major projects have the potential to increase projected demand for alternative materials (secondary aggregates). The major projects that have the potential to be delivered within the timeframe of this study that were investigated include; Crossrail; Thames Tideway Tunnel; Olympics Legacy; Thames Gateway Regeneration, Silvertown Crossing, HS2 and Crossrail 2. The only robust quantitative information gathered through the research was from Crossrail and Thames Tideway Tunnel. It should be noted that operators and stakeholders felt that these two projects have the greatest likelihood of increasing demand for waterborne construction materials and, as previously noted, it appears that the effect of the Lea Tunnel project on volumes of construction materials is currently being experienced at wharves in north east and south east London. The consultation with Crossrail Thames Tideway Tunnel and relevant stakeholders suggested the following amounts of spoil would be generated and transported by water as secondary aggregates:

- **Crossrail** – approximately 4.5 to 5m tonnes in total (0.3m tonnes p.a.) to wharves in the North East region. This figure is revised downwards to 0.2m tonnes p.a. for the medium scenario and 0.1m tonnes p.a. for the low scenario to reflect the potential for optimism bias.
- **Thames Tideway Tunnel** – approximately 4m tonnes in total (0.2m tonnes p.a. high scenario, 0.15m tonnes p.a. medium, 0.05 tonnes low scenario). To and from wharves mainly in the West region but also potentially some in the South East and North East[17]

3.4.8 Based on the information gathered in the consultation with the various stakeholders and operators, an assumption about the expected alternative materials transported by water for the other major projects listed above and other smaller projects can be made. It is assumed that approximately 0.2, 0.1 and 0.0 million tonnes of alterative materials per annum for each of the scenarios respectively could be transported by water and this is added to the overall demand figure. If all these assumptions are added together it can be assumed that approximately 0.7m, 0.5m and 0.2m tonnes of alternative materials respectively for the high, medium and low scenarios will be transported by water. These figures are then used to form the basis of an assumption on the percentage of the total MPS1 target for alternative materials in London (5.9m tones p.a) for the various scenarios. These percentages are shown in **Table 3.20** below. To arrive at the final total estimate for alternative materials these percentage of MPS1 target

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16Annex A p1. CLG, MPS1 (2009)

17 High scenario assumes 100% material transported by water, medium 80% and low 50%. It should also be noted that Thames Tideway Tunnel 1 is already underway (construction period 2010-2014) and is using the river via wharves in Barking.

assumptions are added to the known existing flow of alternative materials which is 0.2m tonnes p.a.

3.4.9 Based on this information as well as intelligence gained in the consultation with the LAWP and Crown Estates the following scenarios for the modal share of alternative aggregates being transported by water are developed to inform the final demand model.

Table 3.20 Alternative Construction Materials Assumptions

Scenario	*Assumption of % of total MPS1 alternative materials target (5.9Mt pa)*	*Source*	*Average Annual Tonnes (million) (from MPS % + known existing flow of alternative materials (0.2 p.a.))*
High	12%	Major project and operator consultation and LAWP	0.9
Medium	9%	As above	0.7
Low	3%	As above	0.4

Source: Source: MPS1 (2009, and URS calculations (2011) based on consultation with relevant stakeholders

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Aggregates conclusions – scenarios

3.4.10 Combining the above assumptions on the revisions to mineral planning guidance i.e. MPG6 to MPS1, assumptions on alternative materials and increasing trends of intraport transhipment based on consultation responses and factoring in the changing baseline position since the SWIR, a revised forecast for each element of aggregates has been estimated[18]. This is shown in **Table 3.21**. It should be noted that because MPS1 only forecasts to 2020 and because there is a high degree of uncertainty after that point the forecasts in this study for the years 2020 and 2031 are flat i.e. the same values are repeated. Also, it should be noted that there is an element of supra-regional demand because aggregates are exported from certain wharves, particularly Murphy's, Angerstein and Hanson's Dagenham terminal, to sites in the South East region. This element of demand is deducted at the gap analysis stage.

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18 The figures in Table 3.21 and how they are derived from Table 3.19 and 3.20 can be described as follows: The figures for Primary Sources are based on the actual 2010 figures (3.1Mt) adjusted in the future by a CAGR of 2.6%, 1.4% and -4.2% respectively for the three different scenarios. The high scenario CAGR is based on the CAGR for primary sources of the SWIR (2.8%) adjusted by the falling MPS1 target (6.2 Mt as shown in Table 3.19) compared to MPG6 (6.8Mt as shown in Table 3.16). The CAGR of the SWIR is used as a basis for this forecast as it is considered robust because it was formed through consultation with the LAWP and is based on MPG6 methodology. It also assures there is a degree of consistency between the two studies. The medium scenario CAGR follows the same methodology but is then further adjusted by the proportional change between the falling baseline position as known now (3.1Mt) compared to that predicted in the SWIR (5.9Mt). The low scenario CAGR is based on the actual CAGR of primary materials between 2001 (4.6Mt) and 2010 (3.1Mt) i.e. -4.2%. The figures for Transhipment are based on the actual 2010 figures (0.7Mt) adjusted in the future by a CAGR of 16.7%, 9.3% and 7.1% respectively for the three different scenarios. The method employed for transhipment uses the same logic as that described above with the exception of the low scenario where the historic actual CAGR (15.4%) is adjusted proportionally by the change between the MPG6 guidance (6.8Mt as shown in Table 3.16 and 6.2Mt as shown in Table 3.19) and the total proportional change between the falling baseline position as known now (3.1Mt) compared to that predicted in the SWIR (5.9Mt).

Table 3.21 –Aggregates Forecast 2011 to 2031 - Scenarios

Scenario & Aggregate Type	*Assumption*	*Estimated volumes by year (tonnes) 2011*	*2016*	*2021*	*2031*
Low					
Primary Sources	Based on the historic trend (SWIR CAGR) for primary sources.	3.0	2.4	2.0	2.0
Transhipment	Transhipment adjusted by MPS1 downgrade and lowered baseline	0.8	1.2	1.5	1.5
Secondary aggregates	No allowance for MPS1 alternative materials	0.4	0.2	0.2	0.2
Total		**4.2**	**3.8**	**3.8**	**3.8**
Medium					
Primary Sources	For primary sources and transhipment follows the SWIR CAGR revised downwards proportionally by revised MPS1 guidance and changing baseline	3.2	3.4	3.6	3.6
Transhipment		0.9	1.4	1.9	1.9
Secondary aggregates	10% of alternative materials by water based on Major Projects consultation	0.8	0.8	0.8	0.8
Total		**4.9**	**5.6**	**6.4**	**6.4**
High					
Primary Sources	Follows the SWIR CAGR revised downwards proportionally by revised MPS1 guidance	3.2	3.7	4.0	4.0
Transhipment		1.0	2.1	3.9	3.9
Secondary aggregates	15% of alternative materials by water based on Major Projects consultation	1.0	1.0	1.0	1.0
Total		**5.2**	**6.8**	**8.9**	**8.9**

Source: MPS1 (2009) and URS Source: MPS1 (2009) and URS calculations (2011) – Note: Figures may not add due to rounding.

3.4.11 The LAWP was consulted and asked to provide its estimate of demand for aggregates using GLA safeguarded wharves in the short term (to 2016) and the long term (to 2031). They suggested that demand had been negatively affected by the downturn, but estimated that in the short term it could recover to approximately 5 million tonnes. And as noted previously, aggregate volumes in Greater London increased in 2011 by 35% to over 4.2 million tonnes over that handled in 2010. This corresponds approximately to the medium scenario as shown in **Table 3.21** above. In the long term the LAWP felt that demand could reach approximately 6 million tonnes, which also relates approximately to the forecast of the medium scenario.

3.5 Demand for other commodities

3.5.1 The URS study has focused primarily on demand for construction materials and waste as these are the most common commodities transported by water in London. However, given the potential for increasing modal shift of products brought to the London market via water as a result of sustainability policies, it is possible that other commodities such as containers, vehicles

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and specialised liquid bulks such as aircraft fuel could increasingly become an element of the waterborne freight market.

3.5.2 An investigation of top down freight trade forecasts suggest that there is unlikely to be increasing demand for either containers, vehicles or liquid bulks. The DfT forecasts project a limited and flat demand between 2011 and 2030 for each of these categories at 0.0, 0.1 and 0.4 million tonnes for containers, vehicles or liquid bulks respectively[19].

3.5.3 Although the DfT forecasts suggest increasing demand from the London market for goods brought into the UK in containers, the specific forecast for containers handled in GLA wharves is zero. This is primarily because there are no major deep water container terminals in London with most goods from containers currently arriving in London via Southampton, Felixstowe or Tilbury. The majority of additional demand for imported containers bound for the London market is likely to be met by the London Gateway port in Thurrock, due to open in 2013.

3.5.4 URS investigated through bottom up consultation with operators, waterway stakeholders and potential container handlers such as Sainsbury's whether transshipment of these other commodities into GLA wharves would be cost effective. Members of the project team also attended and contributed to a session of the All Party Parliamentary Maritime and Ports Group concerning the future potential of short sea shipping and use of internal waterways for shipping of goods. The overall conclusion combining the top down and the bottom up approaches is that transshipment of these other commodities to safeguarded wharves was unlikely to be viable if left to the market and would therefore require an element of cross subsidy. One view expressed by stakeholders was that potential operators would be unwilling to invest in the extensive and expensive infrastructure required to enable transshipment of containers and commodities such as aircraft fuel. One solution would be to have common user berths similar to the rail network. However, it was felt that as a potential cargo type, it should not be discounted.

3.6 Bottom up forecasts

3.6.1 Each wharf operator was contacted and asked in relation to their operations how they felt demand would develop in the short term in terms of expected tonnage. They were also asked whether in the long term they had plans to expand their operations and if so either within their own site or if demand was particularly high on an alternative site. These questions were asked to give an indication of long-term demand.

3.6.2 Operators are very optimistic that freight volumes will increase significantly in the short term although they are less optimistic in the long term as demonstrated by the relatively small proportion of operators that have intentions to expand operations beyond their existing site (although this could be due to the difficulties and constraints of neighbouring uses). The extremely high overall increase could perhaps be mainly explained by a combination of expectations of a recovery after the recent recession but also should also be treated with caution because of optimism bias. This is especially important given the past historic divergence between forecasts based on operator responses and reality as explained in chapter 2 above. It also suggests that a short term increase in demand could be seen as a correction to trade volumes that fell significantly during the recent downturn but that in the long term the trend is to the

19 DfT, 2007, Update of UK Port Demand Forecasts to 2030, Table 4.3 p70, Table 3.2, p59 and Table 2.42 p54.

norm. Despite this, it is clear that operators are optimistic about future growth. This information from operators has helped to inform the assumptions used above on future aggregates and waste forecasts and will therefore feed into the following synthesis exercise.

3.7 Freight forecasting conclusions - synthesis

3.7.1 Synthesising the assumptions on the various commodity types described in this section with the bottom up consultation demand estimates, total forecast estimates for each cargo type are made for the three different scenarios. These forecasts are shown in **Tables 3.22-3.24** and **Figures 3.13-3.15** and include the relevant assumptions. **Figure 3.16** compares the three scenarios.

Table 3.22 Low Growth Scenario Freight Forecast

		Year		
Commodity	*Assumption*	*2011*	*2021*	*2031*
Petroleum Products	Historic trend displays large spike and DfT forecasts flat so follows long term GVA forecast	373,161	477,678	611,468
Other Liquid Bulks	Historic trend displays large spike and DfT forecasts flat follows historic trend (-50% p.a.)	363,253	431,988	616,474
Agricultural Bulks	Historic trend	255,010	89,098	31,130
Construction Materials	As per 3.4 above	4,216,935	3,752,824	3,752,824
Waste	As per 3.3 above	879,300	885,000	885,000
Sugar	Historic trend	899,770	780,719	677,419
Other Dry Bulks	Historic trend	84,211	173,989	431,372
Steel	Historic trend	3,784	107	107
Vehicles	Historic trend	760,841	670,590	591,044
General Cargo	Historic trend	171	11	11
TOTAL FREIGHT		7,836,445	7,262,007	7,596,855

Source: URS Calculations (2011)

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Figure 3.13 Low Growth Scenario Freight Forecast

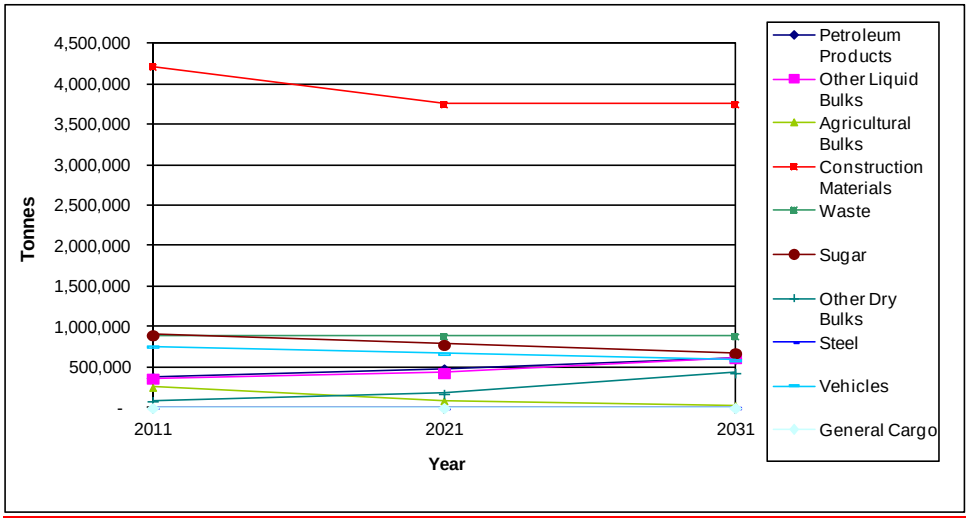

Table 3.23 Medium Growth Scenario Freight Forecast

		Year		
Commodity	*Assumption*	*2011*	*2021*	*2031*
Petroleum Products	Historic trend displays large spike and DfT forecasts flat so follows long term GVA forecast	414,623	530,753	679,409
Other Liquid Bulks	Historic trend displays large spike and DfT forecasts flat follows historic trend (-50% p.a.)	403,615	575,984	821,966
Agricultural Bulks	Historic trend	283,345	98,998	34,589
Construction Materials	As per 3.4 above	4,823,975	6,335,748	6,335,748
Waste	As per 3.3 above	977,000	1,182,000	1,374,000
Sugar	Historic trend	999,744	867,465	752,688
Other Dry Bulks	Historic trend	93,568	231,985	575,163
Steel	Historic trend	4,205	119	119
Vehicles	Historic trend	845,379	745,100	656,716
General Cargo	Historic trend	190	12	12
TOTAL FREIGHT		8,845,653[22]	10,568,169	11,230,414

Source: URS Calculations (2011)

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22 The large increase in predicted demand between the known 2010 total freight volumes (7.8 Mt as shown in Table 3.5) and the predicted 2011 volume as shown in the table above is mainly due to the predicted rebound in trade since the recession. This increase mainly relates to construction materials and reflects the views of operators.

Figure 3.14 Medium Growth Scenario Freight Forecast

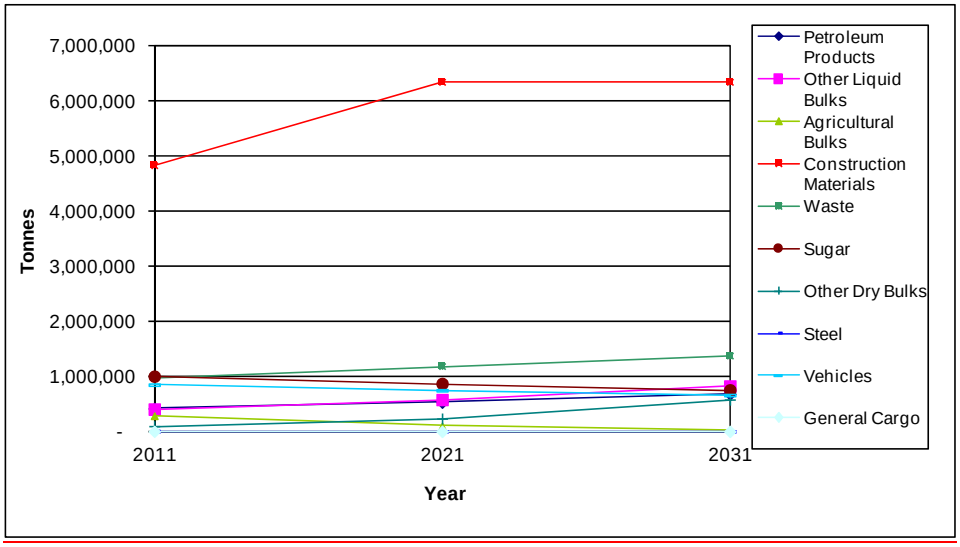

Table 3.24 High Growth Scenario Freight Forecast

		Year		
Commodity	*Assumption*	*2011*	*2021*	*2031*
Petroleum Products	Historic trend displays large spike and DfT forecasts flat so follows long term GVA forecast	456,086	689,979	747,349
Other Liquid Bulks	Historic trend displays large spike and DfT forecasts flat follows historic trend (-50% p.a.)	443,976	633,582	904,162
Agricultural Bulks	Historic trend	311,679	108,898	38,048
Construction Materials	As per 3.4 above	5,157,146	8,948,393	8,948,393
Waste	As per 3.3 above	1,090,000	1,665,000	1,905,000
Sugar	Historic trend	1,099,719	954,212	827,957
Other Dry Bulks	Historic trend	102,925	255,183	632,679
Steel	Historic trend	4,625	4,625	4,625
Vehicles	Historic trend	929,917	819,610	722,388
General Cargo	Historic trend	209	209	209
TOTAL FREIGHT		9,596,292[24]	14,079,700	14,730,820

Source: URS Calculations (2011)

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24 The large increase in predicted demand between the known 2010 total freight volumes (7.8 Mt as shown in Table 3.5) and the predicted 2011 volume as shown in the table above is mainly due to the predicted rebound in trade since the recession. This increase mainly relates to construction materials and reflects the views of operators.

Figure 3.15 High Growth Scenario Freight Forecast

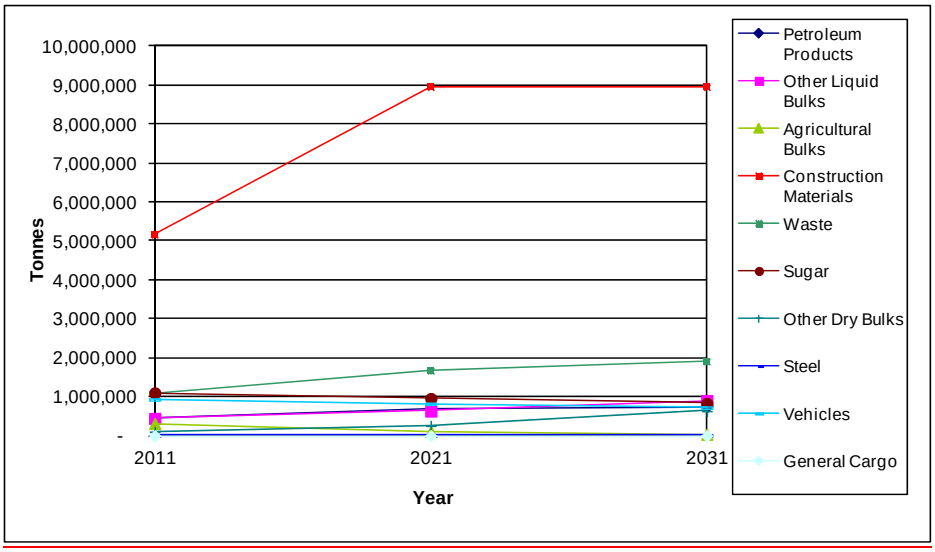
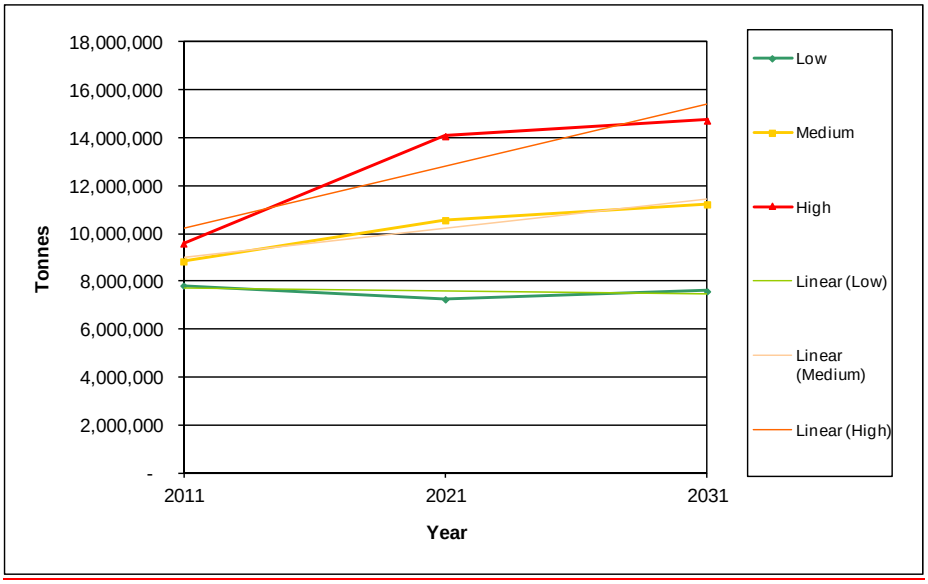


Figure 3.16 Total Freight Forecasts – Scenarios



Low growth scenario

3.7.2 Total tonnage over the period is expected to fall from over 7.8 million to 7.6 million. Petroleum, Other dry bulks and other liquid bulks are the only commodities forecast to see an increase in tonnage; vehicles see a relatively modest decline and all other commodities are expected to see a relatively substantial decrease. The biggest loser as a percentage change is steel, but in terms of quantum it is construction materials.

Medium growth scenario

3.7.3 Total tonnage is expected in increase steadily from 8.9 million to 11.2 million. Construction materials and waste join those forecast to see an increase in tonnage in the low growth scenario. However, agricultural bulks, sugar, steel and general cargo are still forecast to see a decrease in tonnage. The biggest loser as a percentage is still steel but for overall quantum vehicles replaces construction materials.

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High growth scenario

3.7.4 Total tonnage is expected to increase from 9.6 million to 14.7 million. The commodities forecast to increase in tonnage remain the same as those in the medium growth scenario; these are other liquid bulks, construction materials, waste, and other dry bulks.

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3.7.5 However, the only commodities that expected to see a decrease are agricultural bulks, vehicles and sugar.

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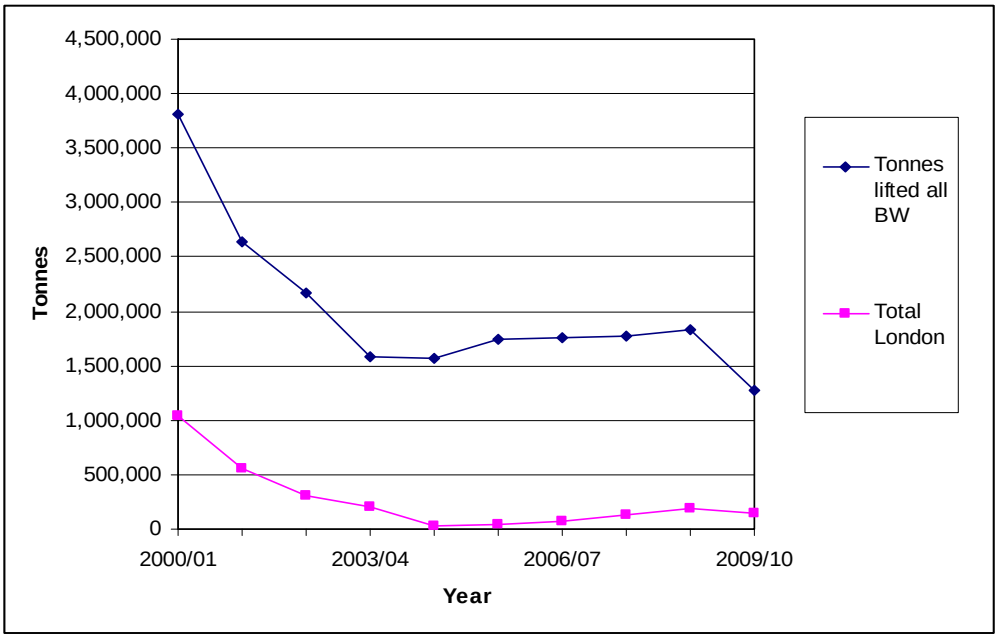
4 Water freight trade on London's canals

4.1 Historic demand

4.1.1 This section focuses on an assessment of demand on London's canal and inland waterway network. The canal network was mainly developed during the earlier part of the industrial revolution for the purpose of transporting freight by water. However since the advent of different modes of transport such as rail and road, the canals have become largely redundant for freight use. In London this decline has been hastened by high land values and consequent pressure from other uses such as housing. The remaining canal network infrastructure is predominantly retained for leisure purposes and is managed by British Waterways.

4.1.2 Data on freight volumes on London and the UK's inland waterway network are collected by British Waterways (BW). BW is a public corporation responsible for managing 2,200 miles of canals and rivers in England, Scotland and Wales. Below is a summary of historic freight flow data from BW for London and the UK. **Figure 4.1** displays the historic trend from 2000/01 to 2009/10 for all British Waterways' managed UK canals and for London's canal.

Figure 4.1 Historic Freight Volumes on UK and London Waterways



Source: British Waterways (2011)

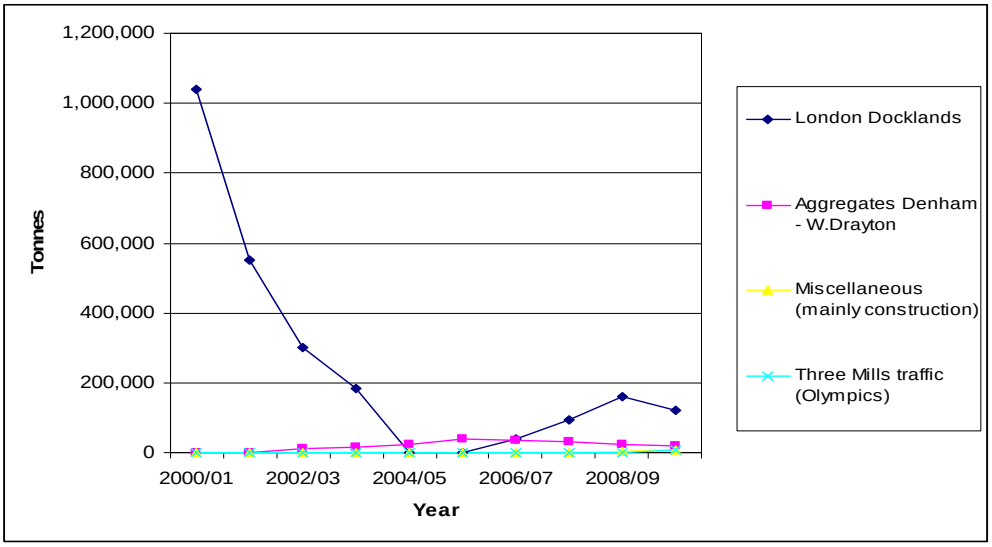
4.1.3 **Table 4.1** and **Figure 4.2** illustrate the historic trend from 2000 to 2010 for London.

Table 4.1 Historic Freight on London's Canal Network

Fiscal Year	Tonnes Lifted: All BW waterways	London Docklands[25]	Aggregates Denham - W.Drayton	Miscellaneous (mainly construction)	Three Mills traffic (Olympics)	Total London
2000/01	3,811,237	1,040,000	-	-	-	1,040,000
2001/02	2,643,751	550,000	-	-	-	550,000
2002/03	2,167,305	300,000	10,284	-	-	310,284
2003/04	1,586,187	181,800	16,683	-	-	198,483
2004/05	1,564,010	-	23,093	-	-	23,093
2005/06	1,745,082	-	38,806	-	-	38,806
2006/07	1,761,518	40,000	36,841	-	-	76,841
2007/08	1,778,640	95,237	30,165	-	-	125,402
2008/09	1,829,412	162,025	21,771	2,045	-	185,841
2009/10	1,277,193	122,678	18,163	6,250	6,435	153,526

Source: BW (2011)

Figure 4.2 Historic Freight on London's Canal Network



4.1.4 These historic figures illustrate a significant decline in freight volumes over the last decade. The current use of the canal network for freight is not significant. The peak volumes for London, recorded at the beginning of the ten-year period, largely resulted from major building projects involving London Docklands. If freight connected to construction at the Docklands is taken out there was only approximately 30,000 tonnes

25 The figure for London Docklands will include a large element of construction materials that have already passed through wharves on the River Thames and combining the total figures with the River Thames figures could cause issues of double counting.

transported on the canal network in 2009/10. This is 0.4% of the freight volume transported on the River Thames in the GLA area. The majority of freight is handled at London Docklands. This freight consists largely of construction materials, principally aggregates.

4.1.5 The main regular flow of freight on the canal network since 2002/03 related to Hanson Aggregates at West Drayton. This site is on the Grand Union Canal and received primary aggregates (sand and gravel) via the canal from a site in Denham, Buckinghamshire. The flow of materials by water was discontinued when the contract ended in July 2010. The flow at London Docklands is not considered to represent a typical flow of freight on the canal network as it concerns the temporary importation of construction materials for Canary Wharf from the River Thames. The small flow at Three Mills traffic also provides a temporary flow of construction materials for the Olympics through Three Mills lock, although given that work for the Olympics Legacy and Stratford City will continue for several years there is potential that this flow could increase. It should also be noted that Three Mills Lock was only completed in 2008-9, which was after most of the main construction contracts for the Olympics were awarded.

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4.2 Potential future demand

Construction materials and waste

4.2.1 The main commodity currently and potentially handled over the canal network is construction materials for specific projects. It can be argued that the destination related to this freight flow is temporary and would therefore not require permanent safeguarding of wharves. However there is also potential for construction material consolidation and transfer centres elsewhere on the canal network to serve as a source of origin for the construction materials bound for these new canal side developments. The other potential uses are for waste and recycling centres on the canal network and some potential for other bulk goods. The key question consultees were asked was whether they could provide evidence that these potential future uses of the canal network were viable without subsidy and, if not, to identify the key barriers to viability. The reactivation of the canal network for freight use is an aspiration held by many stakeholders, especially in light of the sustainability agenda. However, it is important given the context of public expenditure cuts and the competing demands for the scarce resource of land that a realistic and evidence-based assessment of the likelihood of freight being transported on the waterway network in the future is made.

4.2.2 The consultees identified the following key opportunities for future use of waterways to transport mainly waste and construction materials.

Construction materials

- Spoil from the Crossrail project at Paddington could be shipped out by canal although Crossrail has confirmed it will be transported by rail.
- There is potential for construction materials and demolition waste to be transported by barge in connection with major waterside development sites such as Southall Gas Works, Fish Island, Sugar House Lane, Meridian Water and Kensal Gas Works, subject to it being practical, economic and environmentally desirable to do so.

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- There is potential for aggregates and raw materials consolidation centres, for example at Bulls Bridge on the M4, to serve destinations such as the Park Royal industrial area. However it is doubtful this would be viable without subsidy as it is likely to involve doubling handling costs with lorries arriving at the centre and then loading cargo onto barge to be transported a short distance to the destination.
- There is potential for delivery of aggregates to waterside concrete batching plants such as Hanson's loading and unloading facility at West Drayton on the Grand Union Canal (see paragraph 4.1.5).
- The site of the London 2012 Olympic Games is located within the Lower Lea Valley, which benefits from a network of waterways, including the Bow Back Rivers, River Lee Navigation and Bow Creek. In 2007, British Waterways' contractors built a lock and water control structure at Prescott Channel and Three Mills Wall River to support regeneration of the area, which also opened up safe navigation for large (350-tonne) barges accessing the Olympic Park and Stratford City developments. The Olympic Delivery Authority committed to transporting 50 per cent (by weight) of construction materials by sustainable modes, i.e. rail or water. Now that the construction of the Olympic Park is close to completion, it can be concluded that the aspiration to move substantial amounts of construction materials by water before 2012 has not been realised due to the preferred use of rail as a more cost effective transport option. In the longer term the built canal capacity will create a potential transport route for the movement of waste and construction materials into and out of the area for the Legacy Development. Consultees felt that there was potential in an optimistic scenario for up to 100,000 tonnes per annum. The Three Mills Lock can accommodate two 350 tonnes barges. The consultees felt that there was potential for up to approximately 50,000 to 100,000 tonnes per annum of waste and on-going building materials.
- Spoil and materials from the High Speed Two (HS2) infrastructure project could be transported by water, particularly in relation to the proposed Crossrail interchange station at Old Oak Common.

Waste

- Potential need for permanent wharf facilities at the Edmonton incinerator for flows of waste, recyclates and waste derived fuel. As dealt with in more detail at section 3.3 this could account for up to c 250,000 tonnes per annum. The River Lee Navigation at this point can accommodate 100 tonne barges so for the high scenario this would equate to approximately 7 barges a day. - The Waste by Water Initiative had between 2003 and 2004 assessed the potential for moving municipal waste from sources adjacent to water to the waste facility in Edmonton. This trial relates to a TfL led working group aiming to develop a prototype Multi-Modal Refuse Collection Vehicle (MMRCV), which may facilitate movement of containerised waste between road and water.
- Powerday's Material Recovery Facility on the Paddington Arm of the Grand Union Canal at Old Oak Common includes a 75-metre quay and deals with waste delivered by barge on an ad hoc basis. It has a licence to handle approximately 600,000 tonnes per annum by water although currently it handles only a small fraction of this. Powerday is currently in negotiations to remove approximately 5,000 to

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10,000 per annum of demolition waste from the Ocean Estate in Tower Hamlets to their waste processing plant in Old Oak Common . Powerday also investigated the potential for transporting waste wood and combustible materials to Slough Heat and Power Station, but because the power station is approximately one mile from the canal the issue of double handling, which involves the transferring of cargo from a barge onto a lorry, made the proposal unviable.

- There is potential for the delivery of waste and recyclates to waterside waste handling facilities such as the Millfields Depot on the River Lee Navigation and Bywaters Materials Recovery Facility on Bow Creek, subject to it being practical, economic and environmentally desirable to do so.

Other bulk goods

- There is potential to transport diesel to TfL bus depots, although consultees felt this was unlikely to be viable without subsidy.
- There is potential for containers and other bulk goods to be transported from the London Gateway Port to West London via the Thames and potentially onto the canal network. However consultees, including a major potential operator, felt this was unlikely to be viable in the short to medium term without significant subsidy.

4.2.3 A list of potential opportunity loading and unloading sites, intended for awareness raising and consideration with the boroughs locally through inclusion in this document, but not for safeguarding or protection as part of this report, has been prepared by members of the Freight Sub-Group of the Mayor's London Waterways Commission as part of their response to the consultation draft. The list is being updated in agreement with the relevant boroughs and the following preliminary identified sites could be considered further at the local level in terms of their realistic prospects. It has to be stressed that this will take place separately from this report, which leads specifically towards safeguarding through the Secretary of State.

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Table 4.2 Potential loading and unloading sites on London's canal network

Borough	Location	Road/ Rail Modes	Canal
Brent	Northfields Industrial Estate	Beresford Ave to N Circular	Paddington Arm
Brent	Twyford Tip, Park Royal	A406 to A40	Paddington Arm
Ealing	Southall Gasworks	A3005	Paddington Arm
Enfield	Ash Wharf, Edmonton	North Circular A406	Lee Navigation
Hackney	Millfields Road Depot	Millfields Rd off A107	Lee Navigation
Hammersmith & Fulham	Powerday Old Oak Wharf	Rail & Road, A219	Paddington Arm
Hammersmith & Fulham	Old Oak Common Sidings	Rail & Road, A4000	Paddington Arm
Haringey	Tottenham Hale Wharf	A503 and A1055	Lee Navigation
Hillingdon	Uxbridge Boat Centre	Waterloo Rd off A4007	Grand Union

Hillingdon	Hanson, West Drayton	Rail & Road, A408	Grand Union
Hillingdon	F M Conway Site, Southall	A312 to M4	Grand Union
Kensington & Chelsea	Kensal Green Gasworks	Harrow Rd to A40	Paddington Arm
Newham	Cody Dock, Cody Road	A12 & A1011	Bow Creek
Newham	Sugar House Lane	A11	3 Mills Wall River
Newham	Bow East Rail Depot	Rail	Lee Navigation
Newham	Olympic Park Wharf	A115	Waterworks River
Newham	Pudding Mill Lane	A11	Bow Backs
Tower Hamlets	Ocean Estate	A11	Regents Canal
Tower Hamlets	Bow Free Wharf	A11	Lee Navigation
Westminster	Stone Wharf, Paddington	Harrow Road	Paddington Basin

British Waterways maintenance operations

4.2.4 To maintain the network of canals and rivers in London, British Waterways require loading and loading sites at easily accessible locations across London. Such sites are used to remove wind-blown litter, weed and dredged silts, which build up on the river bed over time causing a hazard to navigation. These sites are also used to load and unload materials needed for general repair and maintenance e.g. river walls (steel sheet piles) and bridges, towpath repair and lock gate replacement etc.

4.2.5 British Waterways own and manage a number of loading and unloading sites throughout London's waterways which have sufficient capacity to meet its operational requirements. British Waterways also uses other sites with the owner's permission.

Common user wharves

4.2.6 Common use arrangements have been acknowledged by operators, stakeholders, and canal organisations as a potential way to stimulate modal shift from road use to water-based transport. In principle, a common user site could be run either by a public sector owner or a private owner.

4.2.7 Private or public site owners have so far not generated a common use model, which suggests that common user wharves are not a viable option without a subsidy bearing in mind the disruption and cost which may arise e.g. availability of loading and unloading equipment, environmental licensing standards for different cargoes, repair and refurbishment of the site, insurances, staffing etc. This view was backed up by the majority of consultees contacted.

4.2.8 However, British Waterways have identified one public common user wharf, known as Bow Free Wharf, and located on the River Lee Navigation at Bow near to the A11. This wharf has around 90 m of quay face for mooring of barges but has very little associated land. Hence it would potentially be suitable for transhipment of freight from road to water, but would not be suitable for handling any cargo that required either storage or processing at the wharf.

Examples from elsewhere

4.2.9 Leeds City Council has proposed to safeguard six wharves in order to encourage use of the canal network for the importation of aggregates. The main purpose of the move is to take pressure off the road network as the Leeds area of Yorkshire is a net importer of aggregates. The Aire and Calder Navigation can accommodate 600 tonne barges. However, it is not clear whether this indicates any significant underlying demand and the Council's evidence base is likely to be challenged at the forthcoming public examination. It is also not necessarily relevant to the London context. However it demonstrates that a local planning authority is considering safeguarding canalside wharves to address sustainability objectives.

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4.2.10 A pilot project transporting freight along the canal will allow an Inverness manufacturer to increase production while reducing haulage. With public subsidy from Transport Scotland and Highlands and Islands Enterprise, a six-month pilot project will take thousands of log lorries off Highland roads. The operator is Norbord, an international manufacturer of wood-based panels with a production site in Inverness.

4.2.11 Tesco have run a scheme to transport wine from Liverpool to Manchester on the Manchester Ship Canal. This scheme claims to transport up to 50,000 tonnes of wine per year in 20-foot containers saving 80% carbon emissions.

4.3 Indicative future demand

4.3.1 Although given the varying uncertainties it is difficult to quantify robust future demand for freight use on the canal network discussed in the potential opportunities above, it is possible to give approximate guidelines. These are shown in **Table 4.2** below:

Table 4.3 Indicative Future Demand for Transportation of freight on the Canal Network

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	Estimated Tonnes per annum			
	High Scenario	**Medium Scenario**	**Assumptions**	**Source**
Construction Materials	710,000	55,000	Estimates from bulleted list at 4.2.2 above	Consultation responses
Waste	700,000	200,000	Estimates from 4.2.2 above + 75% and 25% of 0.6m t p.a waste. at Powerdays	
Total	**1,410,000**	**255,000**		

Source: URS Consultation (2011)

4.4 Challenges to viability

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4.4.1 There are however numerous challenges that have to be overcome to realise the potential explored above, however catalysts to improving opportunities for water freight can include the availability of revenue grants from the Department of Transport. The consultees considered that the main challenges to viability were as follows:

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- Old stock of barges. Investment in new stock required.

- Potential for double handling of cargo which further increases costs and reduces viability.
- Size and weight of vessels is often restricted due to the navigable dimensions of the waterways. Where locks are required to be passed through, delivery time can be increased.
- Lack of barge operators compared to road hauliers dissuades potential customers.
- A perception that transporting freight by water is not viable in the light of the significant investment required.
- The geographical location of existing waterways and canals in relation to sources of origin and destination for materials such as quarries and other aggregate operating sites.
- The availability or cost of developing wharf access and handling equipment

4.4.2 Consultees also suggested that three significant conditions are required to be met in order to enable the realisation of potential opportunities:

- Long term contracts e.g. 20 years for waste contracts
- Positive local planning conditions i.e. new build on canalside designed to accommodate direct disposal of construction and domestic waste to barge
- Source/destination should be a perfect match to reduce costs and avoid double-handling of goods.

4.5 Conclusion for water freight on London's canals

4.5.1 Past publicly subsidised projects to encourage modal shift have largely been unsuccessful. From assessing the case studies, it is generally clear that once subsidies finish the operator reverts to a cheaper alternative transport mode. This along with the historically very low levels of freight movements suggests that there is negligible demand for the transportation of freight on the canal network.

4.5.2 However, it is also suggested by some consultees that a more proactive approach to encourage water transport is required. They consider long-term factors regarding the availability and cost of fuel and critical environmental factors make the need for modal shift more important. Canals could help to meet that need in the future and potential wharves sites could therefore be identified. This argument assumes that future planning should build in an assumption that subsidies will be available for freight by water as occurs presently for rail, bus and underground services. However, the evidence suggests that public subsidy of freight by water is a low priority at a national level and thus the step change that would required to increase demand is unlikely to occur in the short to medium term.

4.5.3 On balance, it appears that due to the importance of exact origin-destination matches on the canal network to achieve viability, the only realistic demand on the canal network will be for small niche markets such as occurs presently at Powerdays and potentially from Edmonton EcoPark. Also, specific development projects that are occurring alongside the canal network have the opportunity to be supplied with construction materials and have demolition waste removed. However this would be on a temporary basis so would not require safeguarding of specific wharves. These new canal side developments could also be encouraged through local planning decisions to allow domestic waste produced by the developments to be transported by barge to waste transfer and processing centres elsewhere on the canal network, for example at Edmonton or Powerdays. However it is questionable at this stage whether the collection of this domestic waste by barge would be viable.

4.5.4 Overall, it would therefore be inappropriate to safeguard or protect any canal wharves in the way the wharves on the Thames are protected in the light of the highlighted viability issues and lack of tangible and considerable demand that requires a strategic approach. However, opportunities to use the canals for freight trade, as set out above, should be explored further where there is a realistic prospect of a viable use. This also applies to the opportunity loading and unloading sites members of the London Waterways Commission's Freight Sub-Group have provided (see Table 4.2).

4.5.5 British Waterways has agreed to work with local stakeholders to ensure that relevant boroughs recognise the potential opportunities for modal shift to the canals when formulating spatial planning policies and making planning decisions on major waterside developments.

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5 Broad wharf capacity estimate

5.1 Assessment of wharf characteristics and constraints

5.1.1 The capacity of a cargo-handling wharf on a tidal inland waterway such as the River Thames within Greater London is influenced by a wide variety of drivers and constraints. They have particular significance when assessing the reasonableness of the capacities.

Navigational

5.1.2 The depth of water available alongside the wharf, together with the length of waterside quay available naturally limits the size of vessel that can use the berth. Dredging can improve the depth of water available alongside a wharf.

5.1.3 Capacity can also be limited by the equipment available for loading or unloading vessels at the wharf. If cranes, conveyor belts etc are of insufficient capacity, loading and discharge times will be prolonged. The cost of establishing/replacing cargo-handling infrastructure varies and, for example equipment to handle containerised waste generally tends to be more expensive than for construction materials.

5.1.4 For the vast majority of the wharves the theoretical maximum capacity of the berths, and where appropriate the cargo handling equipment taking into account the above factors, is higher than the stated wharf capacity and the wharf capacity is therefore constrained by other factors – see sections below. However, there is a general correlation between the size of a wharf site and the navigational characteristics to its berth or jetty: Restrictive navigational conditions may make it difficult to maintain cargo-handling operations on large sites.

Site constraints

5.1.5 The site area and shape can constrain the wharf capacity. A certain amount of land is required to receive and store the cargo until it is either transported onward, or until it is used in the associated on-site processing activities. While the land area available may be sufficient to receive a vessel load of cargo, the theoretical maximum amount of cargo that can pass through the site per year is directly linked to the dwell time – i.e. the average amount of time the cargo remains on site. The longer this is, then the lower the annual capacity of the site. However, there are also many other factors that can reduce the practical site capacity below this theoretical maximum. These are discussed briefly below.

5.1.6 For some cargoes the shape of the site can be important for efficient storage. However, more typically the total site area available is sufficient not to constrain the overall site capacity.

Processing constraints

5.1.7 The vast majority of the wharves undertake some on-site processing activity in addition to performing the transfer of cargo from water to road or rail. Typically this might be washing of sea-dredged aggregates, batching of concrete using the aggregates, or compacting and stowing of domestic waste into ISO containers for transport on the

river. While, strictly speaking, separate from the transport function of the site, co-location of these processing activities on the wharf site is generally considered to be critical to the economic viability of both the wharf itself and also the river transport itself.

5.1.8 The processing activities can constrain wharf capacity in two ways. First, they take up land, hence reducing the amount of land available for receipt and storage of the cargo itself. Secondly, the capacity of the process itself may be less than the theoretical capacity of the other elements of the wharf operation. - Certain wharves are operated only to serve a specific industrial plant located nearby. In such cases the capacity of the wharf is limited to the level of demand arising from that industrial plant. - Overall, the processing constraints determine the capacity of many of the safeguarded wharves.

Transport

5.1.9 The availability and capacity of land-based transportation – road or rail – can constrain wharf capacity. Sites with rail access may be limited by the number of rail paths available and road access may limit the type or size of vehicles that can be used or may limit the number or timing of vehicle movements. This may be due to the only available access route entailing use of residential streets.

Working restrictions

5.1.10 Some wharves may be subject to limitations placed on their hours of operation, or on their method of operation, in order to limit the impact of noise or dust on nearby residents or other sensitive receptors. In some cases, such as Peruvian Wharf, these may have been imposed by conditions attached to planning consents granted by the relevant local planning authority.

Vacancy of wharves

5.1.11 Of the existing safeguarded wharves, 13 were not active at the time the SWIR was prepared and some of these remain non-active. Data available for each of these sites have been reviewed and it appears that – subject to the detailed site assessments - they are still suitable for use as wharves.

5.1.12 Publicly available aerial photographs have been reviewed to consider the proximity of residential development and the availability of adequate road access to the wharf site. In the absence of detailed information it does not appear to be likely that such constraints are of a scale that would have a material impact on the sub-regional capacity estimate as a whole.

5.1.13 For the vacant Peruvian Wharf the capacity identified reflects land use consents granted in 2008 and conditions attached to those consents.

5.2 Wharf operator and stakeholder consultation

5.2.1 The consultation questionnaire issued to all wharf operators requested information regarding the operator's own assessment of the throughput capacity of the wharves for which they are responsible, and also asked whether there had been any changes to key parameters that might impact on present or future capacity. The responses received have been reviewed and, where appropriate, an updated capacity has been incorporated

into the updated capacity estimate set out below. The PLA has also made available the responses they had received during their consultation with operators undertaken in 2010 and, where appropriate, these have been taken into account in the updated capacity estimate.

5.2.2 The capacity estimate for the following wharves has been revised as a result of views expressed or data provided in consultation responses:

- Pier Wharf
- Kirtling Wharf
- Orchard Wharf
- Pinnacle Terminal
- Pinns Wharf
- No 4 Jetty
- Thames Refinery
- Steel Wharf
- Ford Dagenham Terminal
- Albion Wharf
- Brewery Wharf
- Angerstein Wharf
- Murphy's Wharf
- Riverside Wharf
- Pioneer Wharf
- Town Wharf

5.3 Capacity conclusions

5.3.1 The current 2005 SWIR has been used as the starting point of the capacity calculations. It states capacities or throughputs for all of the active safeguarded wharves and some of the non-active safeguarded wharves. This implies a total capacity across London of 13,907,450 tonnes - excluding the following five wharves for which data were not provided.

- Cremorne Wharf
- Rippleway Wharf
- De Pass Wharf
- Middleton Jetty
- Railway Wharf

5.3.2 In the light of the parameters and constraints applicable to these wharves an estimate of their capacities has been prepared based on the capacities of similar wharves. This increases the total capacity across London to approximately 15,000,000 tonnes.

5.3.3 Middleton Jetty is now operational as a waste transfer station to receive waste by river from other wharves located upstream to feed the Belvedere Energy from Waste Facility and the capacity estimate is based upon throughput volumes stated in the planning application for that facility. This wharf will play an important role in unloading waste material loaded at upstream wharves.

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5.3.4 The other sites would be suitable for handling a variety of cargo types, with aggregates or alternatively construction waste handling the most likely. For these sites the estimate reflects the size of the berth size and land area available. As it is not possible at this time to determine the precise nature and extent of ancillary or value adding activities that a future operator would consider necessary on the site (given the variation occurring across existing aggregate handling sites) typical throughput rates have been applied to these parameters.

5.3.5 The consultation process resulted in the receipt of updated data for some, but not all, wharves. In some cases opinions regarding the capacity of the wharf were offered while in other cases details of changes to the wharf parameters or constraints on the wharf capacity were advised. The capacity estimate has been modified to reflect these changes.

5.3.6 The resulting capacity figures were analysed on their reasonableness and in some cases have been adjusted to remove undue influence of particularly highly efficient wharves where the high efficiency is due to factors that are not replicated more widely. Also, for many wharves it has been concluded that the marine components of the wharf are capable of handling a substantially increased capacity. In many cases similar conclusions were reached regarding the cargo handling and temporary storage activities directly related to the receipt or dispatch of the cargo by river. In these cases, the wharf capacity is limited by other constraints – either capacity of the associated on-site processing or by other site constraints such as working hour limitations.

5.3.7 It is estimated that the total capacity across London is 18.1 million tonnes, with 1.6 million of this located in the West London sub region, 9.5 million located in the North East sub region and 7 million located in South East sub region. For the purposes of the gap analysis as described in the following chapter it is assumed the capacity will be the same until 2031.

6 Broad spatial distribution of demand and capacity

6.1 Spatial distribution of demand

6.1.1 **Table 6.1** below show the historic trade volumes within GLA safeguarded wharves by West, North East and South East sub-regions for all trade between 2001 and 2010 in tonnes. It shows similar levels of reduction in demand as a percentage of each sub-region's base situation, with the West and the South East sub-regions having a slightly lower reduction than the North East. Reasons for the decline in each sub-region may relate to evolving site supply constraints or circumstances as well as or instead of demand changes.

Table 6.1 Historic Demand by Sub-Region (2001 – 2010)

	Year			*Change*		
Sub-region	*2001*	*2005*	*2010*	*Total change*	*Total %*	*CAGR (%)*
West	904,353	1,184,473	691,350	-213,003	-23.6%	-2.9
North East	5,251,213	4,454,817	4,248,238	-1,002,975	-19.1%	-2.3
South East	3,887,422	3,696,455	2,905,810	-981,612	-25.3%	-3.4
TOTAL	**10,042,988**	9,335,744	**7,845,398**	**-2,197,590**	**-21.9%**	-2.7

Source: URS Calculations (2011)

6.1.2 The estimated future demand from Chapter 3 has been divided into the sub-regions. This is based on the current split as shown in **Table 6.1** adjusted by the following assumptions gained through information from the bottom-up consultation process:

- It is known that Crossrail and Thames Tideway Tunnel will produce higher than normal amounts of construction material flows and so the regional demand estimates for the north east and west sub regions respectively have been adjusted to reflect this additional flow.
- Middleton Jetty in Belvedere will receive an increased flow of waste in the future from the new incinerator so the demand estimate for waste in the South East sub region has been adjusted upwards accordingly.

6.1.3 Projected future demand by sub-region for the medium scenario is shown in **Table 6.2** below. **Figure 6.1** shows this historic demand combined with the estimated demand for 2001 to 2031 for each sub-region.

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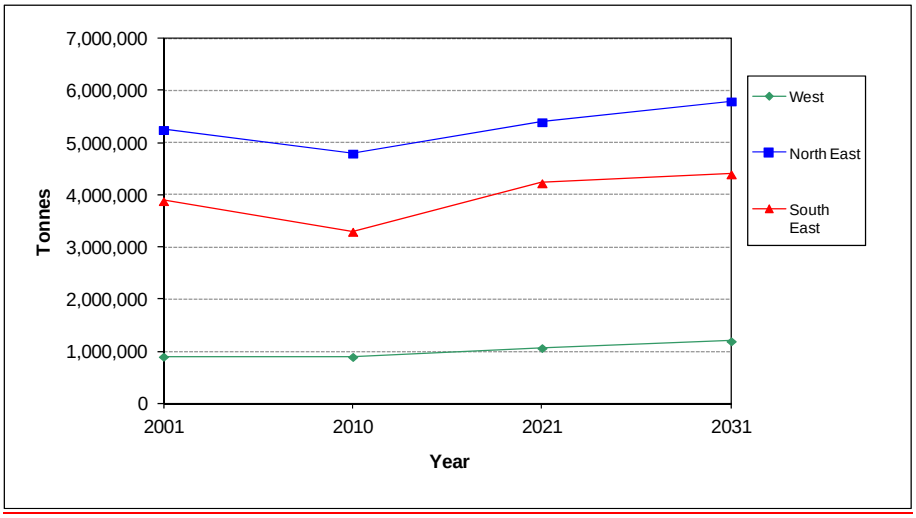
Table 6.2 Estimated Demand (Medium Scenario) by Sub-Region (2011 – 2031)

	Year			Change		
Sub-region	*2011*	*2021*	*2031*	*Total no.*	*Total %*	*CAGR (%)*
West	900,000	1,070,000	1,200,000	300,000	33.3%	1.5%
North East	4,700,000	5,300,000	5,700,000	1,000,000	20.8%	1.0%
South East	3,300,000	4,230,000	4,400,000	1,100,000	33.3%	1.5%
TOTAL	**8,900,000**	**10,600,000**	**11,300,000**	**2,00,000**	**26.7%**	**1.3%**

Source: URS Calculations (2011) Note: figures may not sum due to rounding

Figure 6.1 Historic and Estimated Demand by Sub-Region (2001 – 2031)



Source: PLA Data (2010) & URS Estimates (2011)

6.1.4 **Figure 6.1** shows that demand in the West sub-region has remained relatively steady since 2001 and is projected to show modest to stable growth in the future. The North East sub-region has historically had the highest freight volumes but has also shown the largest historic decline. It is estimated to grow based mainly on the increasing amounts of construction materials being transported. A similar picture is apparent for the South East sub-region.

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6.2 Gap analysis

6.2.1 Gap analysis is a comparison of the estimated demand with the capacity by sub-region and commodity type. It highlights whether there is either a deficit or surplus of capacity to handle the expected demand. A gap analysis is performed for each of the demand scenarios although the commentary that follows relates to the medium scenario as this is seen as the most likely to occur. The gap analysis is shown in **Table 6.3** below and for reference **Tables 6.4** and **6.5** show the estimated gaps at respective high and low scenarios.

6.2.2 It should be noted that for all three tables figures may not add due to rounding. 10% has been added to each demand estimate to take account of frictional vacancy. Moreover, 0.6 Mt of waste demand related to the transshipment flow between the West sub region and South East (Middleton Jetty) have been added to both regions but then 0.6 Mt have been deducted again from the final total to avoid double counting. Finally, 0.2 Mt of demand for construction materials has been added (made up or 0.15 Mt in the South East and 0.05 Mt in the North East) in the medium scenario (double for high and half for low scenario) to take account of supra-regional demand, i.e. exportation of aggregates out of Murphys, Angerstein and No 4 Jetty (formerly Hanson Aggregates). This information is based on consultation with operators and LAWP AMR 2009 section 5.

Table 6.3 Future Demand, Capacity and Gap Analysis by Commodity and Sub-Region (Medium Scenario – million tonnes) (July 2012)

	Year								
	2011			2021			2031		
Sub-region & Commodity	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*
West									
Construction materials	0.3	0.4	0.1	0.6	0.4	-0.2	0.6	0.4	-0.2
Waste	0.7	0.7	0.0	0.9	0.7	-0.2	1.0	0.7	-0.3
Other cargo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vacant	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5
Sub total	1.0	1.6	0.6	1.5	1.6	0.1	1.6	1.6	0.0
North East									
Construction materials	2.1	2.4	0.3	3.2	2.4	-0.8	3.2	2.4	-0.8
Waste	0.3	0.6	0.3	0.2	0.6	0.4	0.3	0.6	0.3
Other cargo	2.7	4.1	1.4	2.5	4.1	1.6	2.8	4.1	1.3
Vacant	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	2.4
Sub total	5.1	9.5	4.4	5.9	9.5	3.6	6.3	9.5	3.2
South East									
Construction materials	3.1	4.8	1.7	3.5	4.8	1.3	3.5	4.8	1.3
Waste	0.0	0.7	0.7	0.8	0.7	-0.1	0.9	0.7	-0.2
Other cargo	0.6	0.9	0.3	0.7	0.9	0.2	0.8	0.9	0.1
Vacant	0.0	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7
Sub total	3.7	7.1	3.4	5.0	7.1	2.1	5.2	7.1	1.9
TOTAL	9.8	18.2	8.4	11.8	18.2	6.4	12.5	18.2	5.7

Source: URS calculations (2011) - Note: See paragraph 6.2.2 for explanation

Table 6.3 Future Demand, Capacity and Gap Analysis by Commodity and Sub-Region (Medium Scenario – million tonnes) (October 2011)

	Year								
	2011			2021			2031		
Sub-region & Commodity	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*
West									
Construction materials	0.3	0.4	0.1	0.7	0.4	-0.3	0.7	0.4	-0.3
Waste	0.7	0.7	0.0	0.9	0.7	-0.2	1.0	0.7	-0.3
Other cargo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vacant	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5
Sub total	1.0	1.6	0.5	1.6	1.5	0.0	1.7	1.5	-0.1
North East									
Construction materials	2.2	2.4	0.2	3.3	2.4	-0.9	3.3	2.4	-0.9
Waste	0.3	0.6	0.3	0.2	0.6	0.4	0.3	0.6	0.3
Other cargo	2.7	4.1	1.4	2.0	4.1	2.1	2.3	4.1	1.8
Vacant	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	2.4
Sub total	5.2	9.5	4.3	5.5	9.4	3.5	5.9	9.4	3.1
South East									
Construction materials	3.2	4.8	1.6	3.5	4.8	1.3	3.5	4.8	1.3
Waste	0.0	0.7	0.7	0.8	0.7	-0.1	0.9	0.7	-0.2
Other cargo	0.6	0.9	0.3	0.7	0.9	0.2	0.8	0.9	0.1
Vacant	0.0	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7
Sub total	3.8	7.0	3.3	5.0	7.0	2.1	5.2	7.0	1.9
TOTAL	9.9	18.1	8.2	11.4	18.1	6.3	12.2	18.1	5.6

Source: URS calculations (2011) - Note: See paragraph 6.2.2 for explanation

Table 6.4 Future Demand, Capacity and Gap Analysis by Commodity and Sub-Region (High Scenario – million tonnes) (July 2012)

	Year								
	2011			2021			2031		
Sub-region & Commodity	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*
West									
Construction materials	0.3	0.4	0.1	0.7	0.4	-0.3	0.7	0.4	-0.3
Waste	0.8	0.7	-0.1	1.0	0.7	-0.3	1.0	0.7	-0.3
Other cargo	0.0	0.0	0.0	0.2	0.0	-0.2	0.2	0.0	-0.2
Vacant	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5
Sub total	1.1	1.6	0.5	1.9	1.6	-0.3	1.9	1.6	-0.3
North East									
Construction materials	2.3	2.4	0.1	4.3	2.4	-1.9	4.3	2.4	-1.9
Waste	0.4	0.6	0.2	0.6	0.6	0.0	0.7	0.6	-0.1
Other cargo	2.9	4.1	1.2	2.8	4.1	1.3	3.0	4.1	1.1
Vacant	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	2.4
Sub total	5.6	9.5	3.9	7.7	9.5	1.8	8.0	9.5	1.5
South East									
Construction materials	3.4	4.8	1.4	5.1	4.8	-0.3	5.1	4.8	-0.3
Waste	0.0	0.7	0.7	1.0	0.7	-0.3	1.1	0.7	-0.4
Other cargo	0.7	0.9	0.2	0.7	0.9	0.2	1.0	0.9	-0.1
Vacant	0.0	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7
Sub total	4.1	7.1	3.0	6.8	7.1	0.3	7.2	7.1	-0.1
TOTAL	**10.8**	**18.2**	**7.4**	**15.8**	**18.2**	**2.4**	**16.5**	**18.2**	**1.7**

Source: URS calculations (2011) - Note: See paragraph 6.2.2 for explanation

Table 6.4 Future Demand, Capacity and Gap Analysis by Commodity and Sub-Region (High Scenario – million tonnes) (October 2011)

	Year								
	2011			*2021*			*2031*		
Sub-region & Commodity	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*
West									
Construction materials	0.3	0.4	0.1	0.8	0.4	-0.4	0.8	0.4	-0.4
Waste	0.8	0.7	-0.1	1.0	0.7	-0.3	1.0	0.7	-0.3
Other cargo	0.0	0.0	0.0	0.2	0.0	-0.2	0.2	0.0	-0.2
Vacant	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5
Sub total	1.1	1.6	0.4	2.0	1.5	-0.4	2.0	1.5	-0.4
North East									
Construction materials	2.4	2.4	0.0	4.4	2.4	-2.0	4.4	2.4	-2.0
Waste	0.4	0.6	0.2	0.6	0.6	0.0	0.7	0.6	-0.1
Other cargo	2.9	4.1	1.2	2.3	4.1	1.8	2.5	4.1	1.6
Vacant	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	2.4
Sub total	5.6	9.5	3.8	7.3	9.5	1.7	7.9	9.4	2.0
South East									
Construction materials	3.5	4.8	1.3	5.1	4.8	-0.3	5.1	4.8	-0.3
Waste	0.0	0.7	0.7	1.0	0.7	-0.3	1.1	0.7	-0.4
Other cargo	0.7	0.9	0.2	0.7	0.9	0.2	1.0	0.9	-0.1
Vacant	0.0	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7
Sub total	4.2	7.0	2.8	6.8	7.0	0.2	7.2	7.0	-0.2
TOTAL	**11.0**	**18.1**	**7.3**	**15.7**	**18.1**	**2.7**	**16.4**	**18.1**	**2.0**

Source: URS calculations (2011) - Note: See paragraph 6.2.2 for explanation

Table 6.5 Future Demand, Capacity and Gap Analysis by Commodity and Sub-Region (Low Scenario – million tonnes) (July 2012)

	2011			*2021*			*2031*		
Sub-region & Commodity	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*
West									
Construction materials	0.3	0.4	0.1	0.3	0.4	0.1	0.3	0.4	0.1
Waste	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7	0.0
Other cargo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vacant	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5
Sub total	1.0	1.6	0.6	1.0	1.6	0.6	1.0	1.6	0.6
North East							0.0		
Construction materials	1.8	2.4	0.6	2.0	2.4	0.4	2.0	2.4	0.4
Waste	0.3	0.6	0.3	0.2	0.6	0.4	0.2	0.6	0.4
Other cargo	2.4	4.1	1.7	2.4	4.1	1.7	2.6	4.1	1.5
Vacant	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	2.4
Sub total	4.5	9.5	5.0	4.6	9.5	4.9	4.8	9.5	4.7
South East							0.0		
Construction materials	2.7	4.8	2.1	1.8	4.8	3.0	1.8	4.8	3.0
Waste	0.0	0.7	0.7	0.7	0.7	0.0	0.7	0.7	0.0
Other cargo	0.6	0.9	0.3	0.7	0.9	0.2	0.7	0.9	0.2
Vacant	0.0	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7
Sub total	3.3	7.1	3.8	3.2	7.1	3.9	3.2	7.1	3.9
TOTAL	**8.8**	**18.2**	**9.4**	**8.2**	**18.2**	**10.0**	**8.4**	**18.2**	**9.8**

Source: URS calculations (2011) - Note: See paragraph 6.2.2 for explanation

Table 6.5 Future Demand, Capacity and Gap Analysis by Commodity and Sub-Region (Low Scenario – million tonnes) (October 2011)

	2011			*2021*			*2031*		
Sub-region & Commodity	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*	*Demand*	*Capacity*	*Gap*
West									
Construction materials	0.3	0.4	0.1	0.4	0.4	0.0	0.4	0.4	0.0
Waste	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7	0.0
Other cargo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vacant	0.0	0.5	0.5	0.0	0.5	0.5	0.0	0.5	0.5
Sub total	0.9	1.6	0.7	0.9	1.5	0.6	0.9	1.5	0.6
North East							0.0		
Construction materials	1.9	2.4	0.5	2.1	2.4	0.3	2.1	2.4	0.3
Waste	0.3	0.6	0.3	0.2	0.6	0.4	0.2	0.6	0.4
Other cargo	2.4	4.1	1.7	2.0	4.1	2.1	2.2	4.1	1.9
Vacant	0.0	2.4	2.4	0.0	2.4	2.4	0.0	2.4	2.4
Sub total	4.6	9.5	4.9	4.3	9.4	4.8	4.5	9.4	4.6
South East							0.0		
Construction materials	2.8	4.8	2.0	1.8	4.8	3.0	1.8	4.8	3.0
Waste	0.0	0.7	0.7	0.7	0.7	0.0	0.7	0.7	0.0
Other cargo	0.6	0.9	0.3	0.7	0.9	0.2	0.7	0.9	0.2
Vacant	0.0	0.7	0.7	0.0	0.7	0.7	0.0	0.7	0.7
Sub total	3.4	7.0	3.6	3.1	7.0	4.0	3.1	7.0	4.0
TOTAL	**8.7**	**18.1**	**9.2**	**8.1**	**18.1**	**10.2**	**8.3**	**18.1**	**10.0**

Source: URS calculations (2011) - Note: See paragraph 6.2.2 for explanation

6.2.3 The gap analysis for the medium scenario[26] shows that in total there is an over capacity of wharf space to meet the existing and expected demand. This is estimated to decrease from 8.4 million tonnes to 5.7 million tonnes between 2011 and 2031. There are also examples of under capacity for particular regions, commodities and years. In these areas there may be the need for additional safeguarding. To inform this process, the Mayor's Industrial Land Release Benchmark study, which is currently underway, could potentially be used to help guide decisions on the release or protection of suitable land.

6.2.4 The negative figures in the tables demonstrate a relative deficit of capacity for particular commodities in particular sub-regions at certain points in the future. These predicted capacity deficits and any surpluses over 1 million tonnes are highlighted below for the medium scenario (**Table 6.3**).

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West Sub-Region

- Between 2011 and 2031 there is estimated to be a deficit of approximately 200,000 tonnes p.a. of capacity at wharves in the West sub-region to handle construction materials. There is currently approximately 500,000 tonnes capacity of vacant wharves in the west sub-region that could potentially take up this deficit, subject to further review.

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- Between 2011 and 2031 there is estimated to be a deficit of approximately 300,000 tonnes p.a. of capacity at wharves in the sub-region to handle waste.

North East Sub-Region

- Between 2011 and 2031 there is estimated to be a deficit of approximately 0.8 million tonnes p.a. capacity at wharves in the North East sub-region to handle construction materials. This is mainly related to the additional demands of major projects such as Crossrail and Thames Tideway Tunnel and the increasing use of secondary aggregates for building projects. However, there is currently approximately 2.4m tonnes capacity of vacant wharves that could take up this deficit, subject to further review.

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- The significant spare capacity in the other cargo category is due to the fact that cargoes such as sugar and vehicles are forecast to decline leaving spare capacity at their wharves. However, it should be noted that not all of that resulting space capacity may be necessarily available for other cargoes such as construction materials and waste.

South East Sub-Region

- The South East sub region appears to have a relatively better balance of capacity to meet demand with no limited deficits and few significant surpluses. There is forecast to be a small deficit of capacity to handle waste between 2021 and 2031 of 200,000 tonnes. There is also forecast to be a relative overcapacity to handle

[26] Selected as preferred scenario as explained in paragraph 7.2.1.

construction materials of approximately1.3m tonnes although this is mainly due to the very high capacity of wharves to handle aggregates in the South East of almost 5m tonnes and should be considered in the context of the high demand for construction materials of approximately 3.5 m tonnes per annum.

6.3 Spatial assessment - conclusion

6.3.1 According to the capacity assessment, the SWIR has left a legacy of wharves across the area with capacity to accommodate approximately 18.2 million tonnes of cargo per annum. The demand forecast concluded that there would be demand under the medium scenario for approximately 12.5 million tonnes pa on average. This demonstrates an over capacity of approximately 5.7 million tonnes. However, due to the fact that more uncertain times may lie ahead where climate change, modal shift and associated policy changes could create additional demands on the water freight infrastructure it is appropriate to follow a precautionary principle and also consider the higher scenario as the basis to assess the safeguarding of wharves. This would mean the surplus is approximately 2.0 million tonnes.

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6.3.2 It is also important to consider the spatial dimension with the gap analysis. The majority of the estimated growth is expected to occur in construction materials and waste. Growth in construction materials is expected to occur in the North East and South East sub-regions where there is generally spare capacity if vacant wharves are taken into account. However, the Thames Tideway Tunnel project will also create additional demand for construction materials in the West sub-region that will lead to a relative deficit of capacity if appropriate vacant wharves are not reactivated to handle this cargo or further wharves are released to alternative uses during the construction phase of the project.

7 Detailed site assessment of safeguarded wharves

7.1 Overview of site assessments

7.1.1 The viability test in the supporting text (paragraph 7.77) of the London Plan Policy 7.26 forms the basis of the site assessment sheets for each wharf that seek to improve and update the information sheets in the current SWIR. The viability test refers to the following criteria to determine the viability of a wharf:

- Its size, shape, navigational access, road access, rail access (where possible), planning history, environmental impact and surrounding land use
- Its connections to market areas
- Its contribution towards reducing road based freight and its relationships with other freight handling sites
- Capacity at comparable alternative wharves

7.1.2 The new site assessment sheets for all existing safeguarded wharves are included in **Annex 5.** The level of detail of the information available for the different wharves varies. The sheets cover the following aspects:

- Name and location of wharf – for some wharves name changes are proposed in order to move away from (past) operator names.
- Size and shape on a map – as well as the boundaries and changes – the latter is a new criterion adopted for this report to deal with cases where the current boundaries do not reflect the land required for the operational use; marine infrastructure such as jetties and campsheds are now consistently included. The map shows current and proposed new boundaries for these wharves. The sizes for the areas currently safeguarded through Government Direction have been updated and in some cases differ slightly from the figures in 2005 SWIR. Where a boundary change is proposed the figures from the current Direction are included in brackets.
- Road access, congestion and rail access – Transport for London has provided desk-based information and boroughs have added to this based on local information. The glossary **(Annex 2)** provides explanation/background.
- Navigational access including depth, length and vessel size – provided by the PLA; the depths on berths are taken from the most recently available chart and from anywhere on the berth; these depths may not fully reflect the general conditions at the berth. The glossary **(Annex 2)** includes an explanation of some technical terms used.
- Planning status and land use context – provided by GLA planners. Boroughs in particular were asked to add to this based on local information.
- Operational status including current use, historic tonnage, processing, environmental impact – largely provided by the PLA, except for the environmental impacts (mainly noise and pollution resulting from the wharf operation), where boroughs provided most of the available information. 1997 is taken as the baseline year for past operations as safeguarding was established in that year.

- Market interest and alternative wharves – provided by the PLA, where recent information has been available. In addition it is necessary to see also section 6.2 (gap analysis) of this report.
- Safeguarding recommendation (retention/release) and justification – this is based on the performance/conditions of a wharf in terms of the aspects set out above.
- Implementation including actions required to ensure waterborne use – this is a new criterion to ensure that, where necessary, the use of a safeguarded wharf can be improved by proposing actions to overcome any weaknesses in terms of land or water based access, the mitigation of environmental impacts, planning or operational constraints. Actions to facilitate the reactivation of a vacant or road-served wharf may also be included.

7.2 Safeguarding recommendations and their implementation

7.2.1 In line with URS advice the safeguarding recommendations are based on the medium demand scenario (see chapter 3). This is considered the most balanced and realistic scenario taking into account the impacts of the various policy drivers and the opportunities presented by a range of major construction projects towards a modest growth in freight trade demand in particular for construction material. The low growth scenario would not reflect these aspects and also not recognise the precautionary principle acknowledging that wharves do not revert to cargo-handling once they are lost and allowing for the accommodation of potential unforeseen future water freight demand and relocation opportunities for existing temporary cargo-handling uses currently located on non-safeguarded wharves. The high scenario currently appears too optimistic on the scale of potential modal shift.

Methodology for addressing capacity deficit and surplus

7.2.2 Identified capacity surpluses and deficits set out will be dealt with as part of this review as follows:

7.2.3 Close cooperation with relevant boroughs will be required to address potential deficits. Vacant wharves should be looked at to accommodate deficits, although it should be noted that a vacant wharf may not always be suitable for the cargo type with excess demand. Opportunities for capacity increases at existing wharves or through consolidation/reconfiguration should also be explored. Alternatively, opportunities for additional safeguarding may have to be considered. The review of the Mayor's Industrial Land Release Benchmark study, which is currently underway, may be helpful to identify potentially suitable industrial land.

7.2.4 Addressing capacity surpluses also requires close cooperation with relevant boroughs. Opportunities for capacity reduction at existing wharves or through consolidation/reconfiguration should be explored. In addition, the scope for potential release of individual wharves as part of this review has to be identified through an equal and transparent process. At the centre of this process are the site assessments of existing wharves. Those wharves with significant constraints in terms of planning conditions, surrounding uses, operational space, water and land based access, etc as well as within an area identified by the consultancy study as in surplus could potentially become initial candidates for release.

7.2.5 The release of a wharf from safeguarding could present a small addition to the land value where the land is set to remain in industrial land uses – e.g. within Strategic Employment Locations. However, where a wharf is outside such a location and it may be suitable for residential development, the increase in land value can be expected to be substantial.

Scale of land areas required

7.2.6 The consultancy report does not address land areas, and whilst the tonnage capacity is not strictly proportionate to the land area of a wharf, it may be valuable to give a rough illustration of the scale of how the tonnage surpluses and deficits roughly translate into land areas involved. It is important to note that these average figures do not take into account detailed site-specific aspects.

- The total area of land currently safeguarded wharves is 224 ha - 7 ha in the West, 68 ha in the South East and 149 ha in the North East, 70 ha of which are at one site - Ford Dagenham.
- The land area for the safeguarded wharves individually varies roughly between 0.1 and 10 ha with Ford being the exception. There may be scope to reduce the land area of large sites. However, the URS study does highlight the benefits of on-site processing opportunities.
- Average land areas of a wharf appear to vary from sub-region to sub-region with 0.7 ha in the West, 3.3 ha in the North East (excluding Ford) and 4.5 ha in the South East.

Addressing capacity surpluses / deficits in the sub-regions

7.2.7 The following provides an overview of proposed ways (a – l) to address the identified capacity surpluses and deficits for a medium scenario in the three different sub-regions and broad cargo groups (see **Table 6.3**). A map with the individual wharves mentioned is provided as **Annex 4.** For further details about individual wharves mentioned please see **Annex 5**.

West

- Construction material (deficit of 0.2 Mt)
  - a) Pursue reactivation of vacant and/or road served wharves in sub-region
- Waste (deficit of 0.3 Mt)
  - b) Pursue reactivation of vacant and/or road served wharves in sub-region
- Other cargo[27] - not applicable
- Vacant (0.5 Mt)
  - c) Pursue reactivation of vacant and/or road served wharves in sub-region to meet in part capacity gaps for construction material and waste

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Deleted: Hurlingham Wharf and Swedish Wharf

Deleted: Hurlingham Wharf and Swedish Wharf

Deleted: Hurlingham Wharf and Swedish Wharf

27 Covers all cargo groups except construction material and waste – see Annex 1.

South East:

- Construction material (surplus of 1.3 Mt)

  d) No release required in the light of the very large capacity of Angerstein Wharf and Murphy's Wharf, which disproportionately increases this sub-regional capacity figure

- Waste (deficit of 0.2 Mt)

  e) No action as deficit comparatively insignificant within scale of freight handled within sub-region

- Other cargo (surplus of 0.1 Mt)

  f) No action as surplus comparatively insignificant within scale of freight handled within sub-region

- Vacant (0.7 Mt)

  g) Propose the release of the road served Mulberry Wharf and vacant Railway Wharf and Town Wharf as conditions within these wharves are considered less favourable than others to reduce surplus capacity. Some vacant capacity will remain but all other vacant wharves have better potential for reactivation

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North East:

- Construction material (deficit of 0.8 Mt)

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  h) Facilitate the implementation of the reactivation of Orchard Wharf and Peruvian Wharf

- Waste (surplus of 0.3 Mt)

  i) Safeguard Alexander Wharf, which is operational and has support from LB Barking and Dagenham[28]

  j) No release as all wharves that handle waste are viable

- Other cargo (surplus of 1.3 Mt)

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  k) No release required in the light of the very large capacity of Ford Dagenham Terminal and Thames Refinery, which disproportionately increases this sub-regional capacity figure

- Vacant (2.4 Mt)

  l) Propose the release of the road served Priors Wharf, Mayer Parry Wharf and vacant Sunshine Wharf, road served Welbeck Wharf, De Pass Wharf and road served Phoenix Wharf as conditions within these wharves are considered less favourable than others to reduce surplus capacity. Some vacant capacity will remain but all other vacant wharves have better potential for reactivation.

Deleted: on viability grounds

28 This is small-scale additional demand not covered in the forecast and is being met locally

7.2.8 Overall, nine safeguarded wharves are recommended for release and one additional wharf is proposed for safeguarding. Based on the above **Table 7.1** provides an overview of the proposed safeguarding or release of individual wharves. For further details covering all aspects of the individual assessments please consult the assessment sheets in **Annex 5**.

Table 7.1 Proposed safeguarding or release of individual wharves

No	Wharf name	Proposed safeguarding or release and justification	Proposed implementation Actions
West Sub-region			
	Hammersmith and Fulham		
1	Hurlingham Wharf	Retain - Site is viable and long-standing interest has been expressed in it by a range of cargo-handling operators. The wharf can contribute to the shortfall of capacity in West London.	• GLA and PLA consider working with relevant stakeholders to bring forward the re-activation of the site for river freight handling. The reactivation may require the use of a Compulsory Purchase Order (subject to resources) if a negotiated lease/sale cannot be achieved. • Highways authorities should ensure the proposed highway works retain suitable HGV access to the site. • GLA and PLA consider working with relevant stakeholders, including the Council and local developers to ensure that any re-development of adjacent sites does not reduce the viability of this site as a river freight wharf. • The site has been identified as a potential construction site for the Thames Tideway Tunnel. If the site is selected, the proposals should ensure that this wharf is used to transport bulk construction/excavation materials by water and that the site can be used as a viable wharf following completion of the Tunnel.
2	Swedish Wharf	Retain - Site is viable and long-standing interest has been expressed in it by a range of cargo-handling operators. The wharf can contribute to the shortfall of capacity in West London.	• GLA and PLA consider working with relevant stakeholders to bring forward the use of the site for river freight handling. The reactivation may require the use of a Compulsory Purchase Order (subject to resources) if a negotiated lease/sale cannot be achieved. • Highways authorities should ensure that the proposed highway works retain suitable HGV access to the site. • GLA and PLA consider working with relevant stakeholders, including the Council and local developers to ensure that any re-development of adjacent sites does not reduce the viability of this site as a river freight wharf.
3	Comley's Wharf (formerly RMC Fulham)	Retain - Site is in active use, with the benefit of planning permission to increase throughput.	• The operator is encouraged to implement the recent planning permission to increase throughput on the site. • Highways authorities should ensure that the proposed highway works retain suitable HGV access to the site. • GLA and PLA consider working with relevant stakeholders, including the Council and local developers to ensure that any re-development of adjacent sites does not reduce the viability of this site as a river freight wharf.

	Wandsworth		
4	Smugglers Way (formerly Western Riverside Transfer Station)	Retain – Site is in active use, with dedicated infrastructure to serve the current user.	• GLA and PLA consider working with relevant stakeholders, including the waste authority and operator, to explore options for increasing the use of river transport for materials, including recyclates, through this site.
5	Pier Wharf	Retain – Site is in active use, with a particularly high throughput for a small wharf.	• None, site is in active use.
6	Cringle Dock	Retain – Site is in active use, within specialist infrastructure, which enables the waste transfer activities to take place in a covered dock.	• GLA and PLA are working with relevant stakeholders, including the Council and local developers, to ensure that the redevelopment of the wider Battersea/Nine Elms areas provides a suitable road network to service this wharf and does not reduce the viability of the site as a river freight wharf.
7	Kirtling Wharf (formerly RMC Battersea – Metro Greenham)	Retain – Site is in active use, within the benefit of planning permission to increase throughput of the wharf.	• The operator is encouraged to implement the recent planning permission to increase throughput at this site. • GLA and PLA are working with relevant stakeholders, including the Council and local developers, to ensure that the redevelopment of the wider Battersea/Nine Elms areas provides a suitable road network to service this wharf and does not reduce the viability of the site as a river freight wharf. • The site has been identified by Thames Water as a potential construction site for the Thames Tideway Tunnel. If the site is selected, navigational access will need to be maintained during the construction period. The proposals for this wharf should also ensure that it is used to transport bulk construction/excavation materials by water.
8	Middle Wharf (formerly RMC Vauxhall)	Retain – Site may be required by Thames Water for the Thames Tideway Tunnel for the medium term, following that it should be able to contribute to the shortfall in wharf capacity in West London.	• The site has been identified as a potential construction site for the Thames Tideway Tunnel. If the site is selected, the proposals should ensure that this wharf is used to transport bulk construction/excavation materials by water and that the site can be used as a viable wharf following completion of the Tunnel.
	Kensington and Chelsea		
9	Cremorne Wharf	Retain – Site may be required by Thames Water for the Thames Tideway Tunnel for the medium term, following that it should be able to contribute to the shortfall in wharf capacity in West London.	• The site has been identified as a potential construction site for the Thames Tideway Tunnel. If the site is selected, the proposals should ensure that this wharf is used to transport bulk construction/excavation materials by water and that the site can be used as a viable wharf following completion of the Tunnel.

Deleted: The site has been identified by Thames Water as a potential construction site for the Thames Tideway Tunnel. If the site is selected, a suitable replacement facility will need to be provided during the construction period. The proposals for this wharf should also ensure that it is used to transport bulk construction/excavation materials by water. The site should be returned to its current viable use following construction. If this is not possible, a permanent alternative site must be found.

	City of London		
10	Walbrook Wharf	Retain - Site is in active use, within infrastructure designed to meets its current use. The Corporation regards the wharf as an essential part of the infrastructure in managing the City's waste contributing to reductions in traffic on London's busy road network, and thus reducing airborne pollutants and carbon emissions.	• GLA and PLA consider working with relevant stakeholders to encourage the increased use of the wharf, including the transport of recyclates by water. • Highways authorities should ensure that vehicular access to and from Upper Thames Street in eastbound and westbound directions is ensured.
South East Sub-region			
	Lewisham		
11	Convoys Wharf	Retain - A reduction in safeguarding area is proposed as part of the current planning application. The wharf's location close to central London remains valuable for a range of cargo-handling uses and the site will need to retain flexibility to meet a range of operational needs.	• GLA and PLA are working with relevant stakeholders to bring forward the use of part of the site for river freight handling at an early stage of the site's development • The current proposals are for a reduction of the wharf area to 2.6 ha (2.3 ha of land and a 0.3 ha jetty). If the current planning application is permitted and implemented, the safeguarding direction would need to be changed at a suitable point during the development construction. • Adequate access to the wharf area through the wider site and compatibility of the surrounding uses with a working wharf should be ensured.
	Greenwich		
12	Brewery Wharf	Retain - Site is in active use and is one of the closest to central/inner London markets.	• None, site is in active use.
13	Tunnel Wharf (formerly Tunnel Glucose)	Retain a safeguarded wharf in the general area, but reduce site area in view of the excess of capacity in SE London and adjust boundaries to the north to cluster with other marine related infrastructure and ensure it remains within the Strategic Industrial Location.	• GLA and PLA consider working with relevant stakeholders including the Council and landowner to bring forward the use of the site for river freight handling, this may include the use of a Compulsory Purchase Order (subject to resources) if a lease/sale cannot be negotiated.

14	Victoria Deep Water Terminal	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA consider working with relevant stakeholders including the Council and the operator to ensure that a suitable Thames Path route is provided through/around the site.
15	Angerstein Wharf	Retain - Site is in active use, within an industrial area and has infrastructure and a railhead to enable large-scale operation.	• None, site is in active use.
16	Murphy's Wharf	Retain - Site is in active use, within an industrial area and has infrastructure and a railhead to enable large-scale operation.	• GLA and PLA consider working with relevant stakeholders, including the site operator, to implement the consented barge loading facility, in conjunction with operator's proposals for barge-fed sites.
17	Riverside Wharf	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
	Bexley		
18	Middleton Jetty (formerly Borax Wharf/Manor Wharf)	Retain - Site is in active use, within an industrial area and benefits from new infrastructure to fulfil its waste to energy role.	• None, site is in active use
19	Mulberry Wharf	**Release** - in view of surplus capacity in SE London. The current and potential conditions at the wharf are less favourable than other wharves in this sub-region	N/A
20	Pioneer Wharf	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
21	Albion Wharf	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
22	Erith Wharf (formerly RMC Erith)	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.

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23	Railway Wharf	**Release -** in view of surplus capacity in SE London. The current and potential conditions at the wharf, in particular the approaches to the berth, are less favourable than other wharves in this sub-region.	N/A
24	Town Wharf (formerly EMR Erith – Mayer Parry Recycling)	**Release -** in view of surplus capacity in SE London. The current and potential conditions at the wharf, in particular the approaches to the berth, are less favourable than other wharves in this sub-region.	N/A
25	Standard Wharf	Retain - Site is in active use, which is viable to use water transport, is within an industrial area and retains flexibility to meet a range of operational needs, although its infrastructure requires investment.	• GLA and PLA are working with relevant stakeholders, including the operator, to further explore the feasibility of constructing new cargo-handling infrastructure to enable the handling of waterborne aggregates.
North East Sub-region			
	Tower Hamlets		
26	Northumberland Wharf	Retain - Site is in active use, with loading infrastructure to serve the current operational use.	• GLA and PLA consider working with relevant stakeholders, including the Council and operator, to increase the use of the wharf for river freight, for example through handling recyclate material.
27	Orchard Wharf	Retain. - Site is viable, well located to serve central and inner London locations and can satisfy an element of the forecast shortfall of aggregate supply in the sub-region.	• GLA and PLA are working with relevant stakeholders, including the operator, to secure and implement planning permission for cargo-handling, and a subsequent reactivation of the wharf, including the use of Compulsory Purchase Order if a negotiated lease/sale cannot be achieved.

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	Newham		
28	Priors Wharf	**Release** - in view of surplus capacity in NE London. The site is less favourable than other wharves due to its location along Bow Creek and the presence of uses and extensive buildings on site, which were not designed to handle or accommodate riverborne cargo.	N/A
29	Mayer Parry Wharf (formerly EMR Canning Town)	**Release**- in view of surplus capacity in NE London. The site is less favourable than other wharves due to its location along Bow Creek and the associated navigational issues limiting the dimensions of the barges required to transport the heavy bulk cargo handled at the wharf.	N/A
30	Thames Wharf	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA consider working with relevant stakeholders, including the operator, to encourage the increased use of the wharf for river freight. • Part of the safeguarded wharf is to be used for waterborne logistics in connection with Crossrail construction for the medium term. • Opportunities to consolidate wharves in the Thameside West area are under consideration and will be progressed, if appropriate, with relevant stakeholders.
31	Peruvian Wharf	Retain - Site is viable, within an industrial area and retains flexibility to meet a range of operational needs. It has the benefit of planning permission for aggregates wharf use and can satisfy an element of the forecast shortfall of aggregate supply in this sub-region.	• GLA and PLA are working with relevant stakeholders, including the landowner and operator to bring forward the use of the site for river freight handling. This may include the exercise of an option to purchase the site from its current owners in 2012. • GLA and PLA also consider working with relevant stakeholders, including the Council and local developer, to ensure that the redevelopment of the land to the immediate north of the site will not compromise the operation of the wharf and provide a suitable HGV access to it. • Opportunities to consolidate wharves in the Thameside West area are under consideration and will be progressed, if appropriate, with relevant stakeholders.

32	Manhattan Wharf	Retain - Site is within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA consider working with relevant stakeholders to bring forward the use of the site for river freight handling. • Opportunities to consolidate wharves in the Thameside West area are under consideration and will be progressed, if appropriate, with relevant stakeholders. • Options may include the use of Compulsory Purchase Order (should resources permit) if a negotiated lease/sale of land cannot be secured.
33	Sunshine Wharf	**Release** in view of surplus capacity in NE London. The site is less favourable than other wharves in the sub-region due to its navigational characteristics restrictive to maintain cargo-handling operations on such a large site area.	N/A
34	Thames Refinery	Retain - Site is in active use, within an industrial area and has infrastructure in place specifically to meet the current operator's requirements. It is recognised that the large extent of the wharf area is a particular reflection of Tate & Lyle's business, handling a unique cargo type..	• None, site is in active use.
	Barking and Dagenham		
35	Welbeck Wharf	**Release** - in view of surplus capacity in NE London. The site is less favourable than other wharves due to its navigational characteristics,its location furthest up the creek, the large site area and the presence of extensive specialised buildings on site which were designed for a previous user and which could not easily be adapted or modified.	N/A

36	Alexander Wharf (new)	**Safeguard** – Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
37	Pinns Wharf	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
38	Steel Wharf (formerly Kierbeck & Steel Wharves)	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA consider working with relevant stakeholders to encourage greater use of the wharf facility at this site.
39	Rippleway Wharf (including Debden Wharf)	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA consider working with relevant stakeholders to encourage greater use of the wharf facility at this site.
40	Docklands Wharf	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• Designs for the DLR extension to Dagenham Dock will need to ensure that the wharf remains viable in terms of operation and access..
41	Victoria Stone Wharf	Retain - Site is in active use, which is viable to use water transport, is within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA are working with relevant stakeholders, including the operator, to secure use of water transport. • Designs for the DLR extension to Dagenham Dock will need to ensure that the wharf remains viable in terms of operation and access.
42	DePass Wharf	**Release -** in view of surplus capacity in NE London. The site is less favourable than other wharves in this sub-region due to the poor condition of the jetty infrastructure, which would be costly to replace particularly for the cargo handled. This, together with the water conditions and the potential impact of the proposed DLR extension to Dagenham Dock, affects the wharf's viability.	N/A
43	Dagenham Wharf (formerly RMC Roadstone)	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• GLA and PLA are working with relevant stakeholders, including the operator, to encourage the increased use of the wharf for river freight.

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44	Pinnacle Terminal (formerly Thunderer Jetty)	Retain - Site is in active use, within an industrial area and has infrastructure for handling large-scale petro-chemical goods.	• None, site is in active use.
45	No 1 Western Extension (White Montain Roadstone)	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
46	East Jetty (formerly Van Dalen – Hunts Wharf)	Retain - Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs.	• None, site is in active use.
47	No 4 Jetty (formerly Hanson Aggregates)	Retain- Site is in active use, within an industrial area and retains flexibility to meet a range of operational needs, with the added benefit of a rail head for inter-modal transfers.	• None, site is in active use.
48	Ford Dagenham Terminal	Retain - Site is in active use, within an industrial area and is set up particularly to service the Ford plant and business, handling a unique cargo type.	• None, site is in active use.
	Havering		
49	Phoenix Wharf	**Release -** in view of surplus capacity in NE London. The site is less favourable than other wharves in the sub-region due to the presence of fixed flood defence walls and the lack of the jetty infrastructure, which would be costly to replace, particularly for the cargo handled. This, together with the water conditions, affects the wharf's viability.	N/A
50	Halfway Wharf (formerly Tilda Rice)	Retain - The site is currently in limited use, however the site's infrastructure means that increased wharf use should be viable.	• GLA and PLA consider working with relevant stakeholders, including the operator, to encourage the increased use of the wharf for river freight.

8 Consultation and next steps

8.1 Consultation process

8.1.1 The six-week public consultation period on the changes only highlighted in this further consultation draft safeguarded wharves review document will end on 28 August 2012. Comments on other parts of the document will not be considered.

8.1.2 Consultation responses and any questions about the review process should be sent to

Jörn Peters,
Senior Strategic Planner
Development & Environment
GREATERLONDONAUTHORITY
City Hall, The Queens Walk, London SE1 2AA

E-mail: jorn.peters@london.gov.uk

Please note that any comments received will be publicly accessible.

8.2 Next steps

8.2.1 This draft document will be reviewed in the light of the comments received and discussions during the further consultation period. The final new safeguarded wharves document will be produced and is expected to be sent to the Secretary of State with the recommendations for the required changes to the Directions by autumn 2012.

8.2.2 The process for the required changes to the Government's Safeguarding Directions will be explored with the relevant civil servants during the consultation period.

8.2.3 Once the new Directions have been issued by the Government, the wharves, for which release is confirmed, will be available for redevelopment and to meet other pressing needs of Londoners, including housing, and river related uses, for which a specific need has been identified. Improvements to the riverside could protect and enhance the local environment.

8.2.4 Finally, it is acknowledged and recognised that considerable discussions have taken place with the boroughs and developers/landowners to explore the potentials for changes to individual safeguardings through consolidation, reconfiguration and/or relocation. These have not progressed to a degree that they can be reflected in changes to the recommended safeguarding Directions. However, the Mayor will continue to work with these stakeholders exploring such potential changes in the interest of the most effective use of these waterfront locations. Such potential changes could be translated into changes to safeguarding if the proposed solutions are demonstrated to be viable and deliverable.

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Deleted: During the consultation period there is the opportunity for the boroughs and other stakeholders to have further discussions with GLA officers and their partners about these recommendations and ways to implement them.

Deleted: Key aspects on which consultation responses are sought in particular are:¶
<#>The demand forecast and capacity estimate ¶
<#>The accuracy of the site assessments¶
<#>The justification for safeguarding/release of individual wharves¶
<#>Actions to facilitate improvements to the effective use of safeguarded wharves¶

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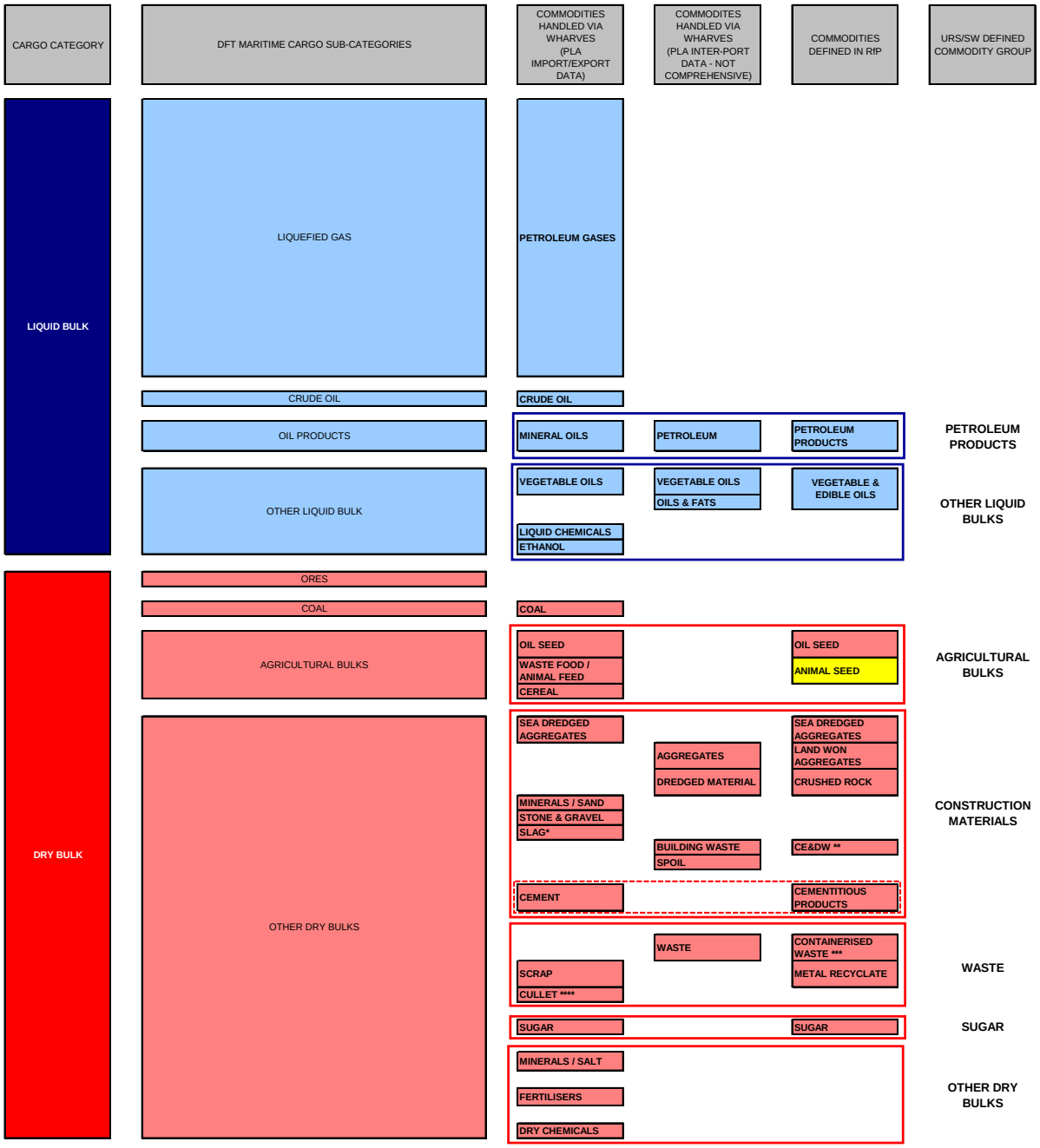
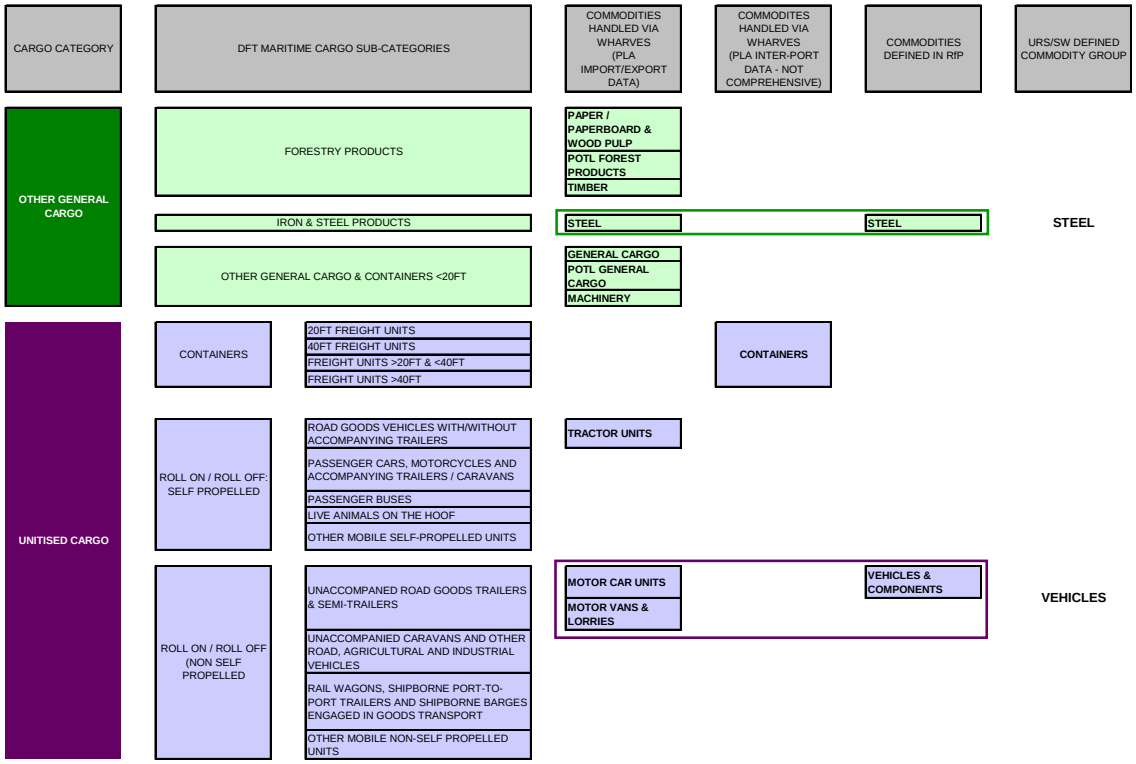
Annex1 Commodity groups



Annex 1 Commodity groups (continued)



* *BY-PRODUCT OF METAL MANUFACTURE, PRIMARY USES IN CONSTRUCTION SECTOR*

** CE&DW = CONSTRUCTION, EXCAVATION & DEMOLITION WASTE

*** IF CONTAINERISED WOULD BE CATEGORISED BY DFT AS "AS OTHER GENERAL CARGO & CONTAINERS <20FT"

**** *CULLET = GLASS TO BE RECYCLED*

Annex 2 - Glossary

Transport

Congestion figures: Interpeak congestion figures are taken from Traffic Master data for the year 2008-09 held by TfL Road Network Performance and Research. They generally cover links and junctions as the data is often not presented with enough granularity for individual junctions. However for some links, typically those which are grade-separated, queues caused by junctions can be identified (e.g. on A13). Significant variation in delay also suggests junctions are 'gating' traffic and then releasing it, resulting in faster link speeds after congested junctions have been passed. The interpeak period covers 10:00-16:00 and has been chosen as this is likely to reflect typical conditions in which deliveries are made to/from sites. It does not capture conditions in the AM and PM peak, flows over this period are less tidal than in the peaks, where one direction may be experiencing congested conditions with spare capacity in the counter-peak direction. - Other congestion assessments for a local road network may also be applicable.

Transport for London Road Network (TLRN): Described in the GLA Act 1999 as the Greater London Authority Road Network. The Mayor has decided to call this the Transport for London Road Network. It comprises 580km of London's red routes and other important streets. The TLRN carries approximately a third of all London's traffic and a greater proportion of freight traffic.

Strategic Road Network (SRN): Strategically significant roads in London for which TfL has a Network Management Duty, comprising the 580km TLRN and 500km of borough roads.

J/w: Junction with. In describing stretches of road, this may also include roundabouts.

Delivery and Servicing Plans (DSPs) and Construction Logistics Plans (CLPs): boroughs, wharf operators and their contractors could prepare a Delivery and Servicing Plan (DSP). A DSP could help establish patterns of delivery which minimise vehicle movements and use a combination of effective transport management, driver training and use of technology to reduce the effects of residual activity. Construction Logistics Plans (CLP) employ similar methods during the construction phase of new development.

The London Plan gives policy support in 6.3 and 6.14 enabling planning authorities to request one as a planning condition when consent is being sought. A voluntary DSP could be considered as part of a corporate social responsibility strategy too.

Navigation

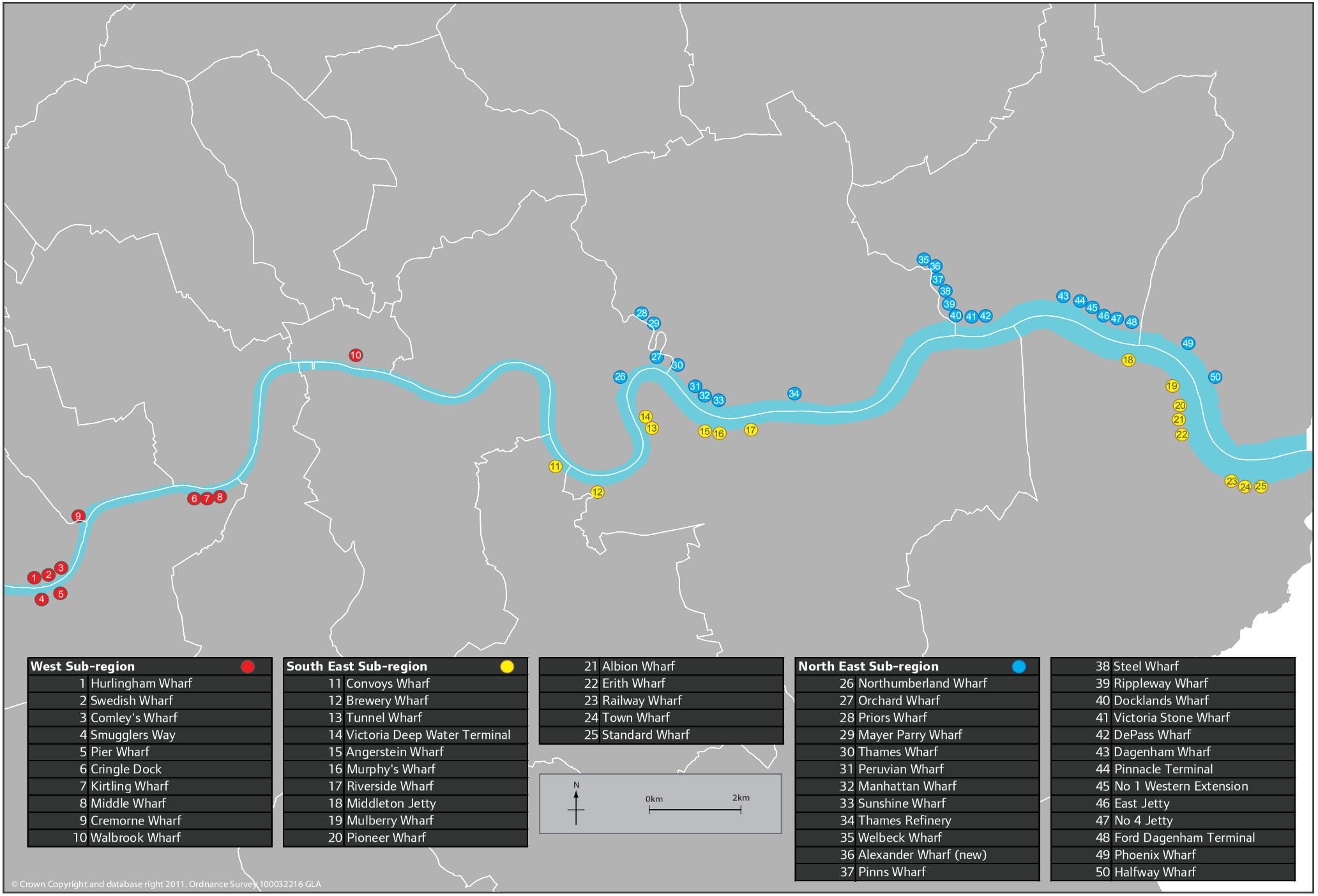
Chart Datum: The level of water that depths are displayed on the PLA's charts. It is a datum that equates approximately to the level of Lowest Astronomical Tide

Campshed: A structure built on the foreshore and filled with chalk or other material that enables barges to sit level at low tide

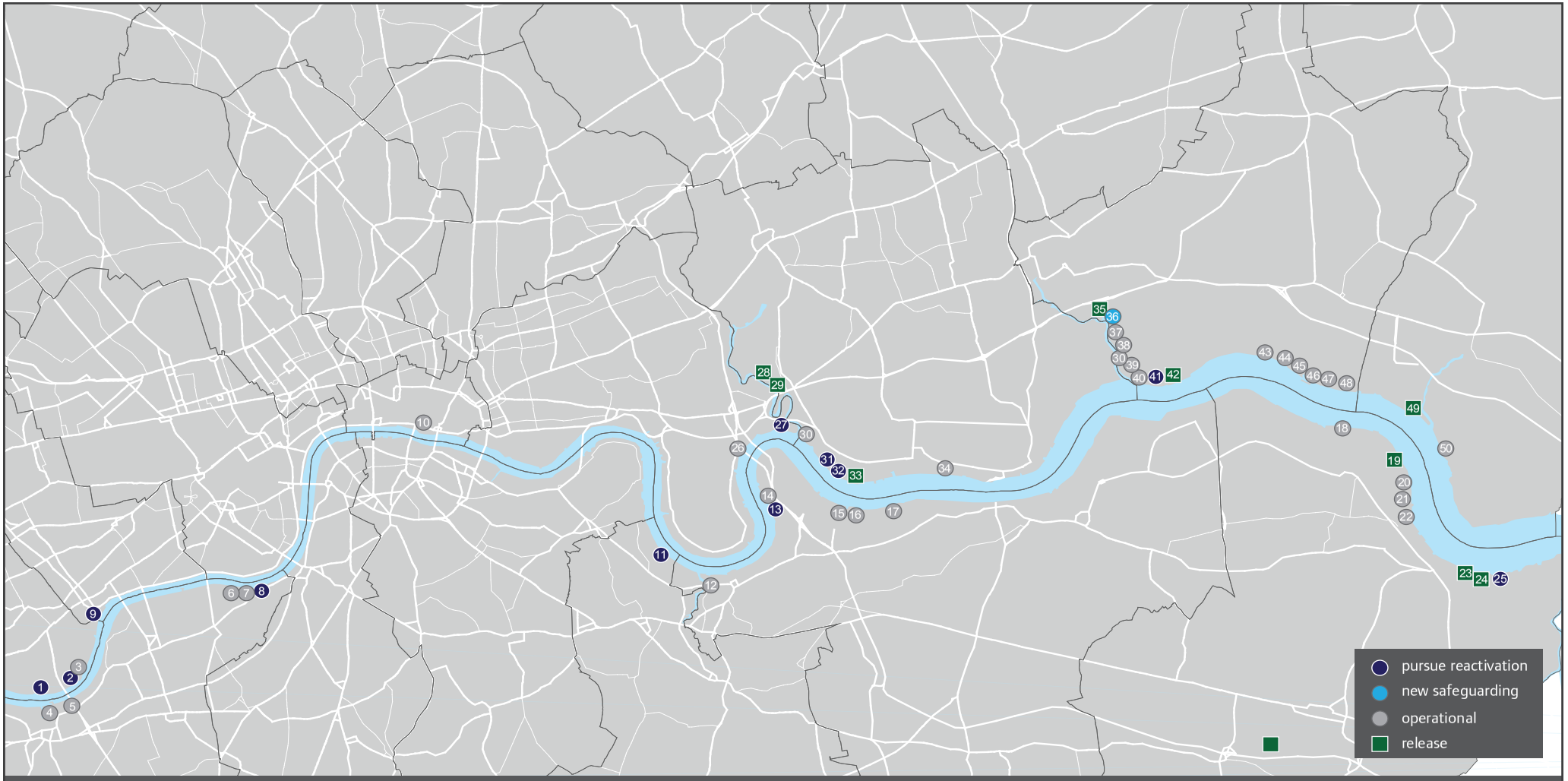
LOA: Length Overall.

Drying berth: A berth at a wharf that dries out at low tide, meaning vessels rest on the riverbed or, where appropriate, on a campshed, to discharge cargo. Also referred to as NAABSA (not always afloat but safely aground)

Annex 3 Distribution of Safeguarded Wharves by sub-region



Annex 4 (July 2012) Addressing capacity surpluses / deficits in the sub-regions

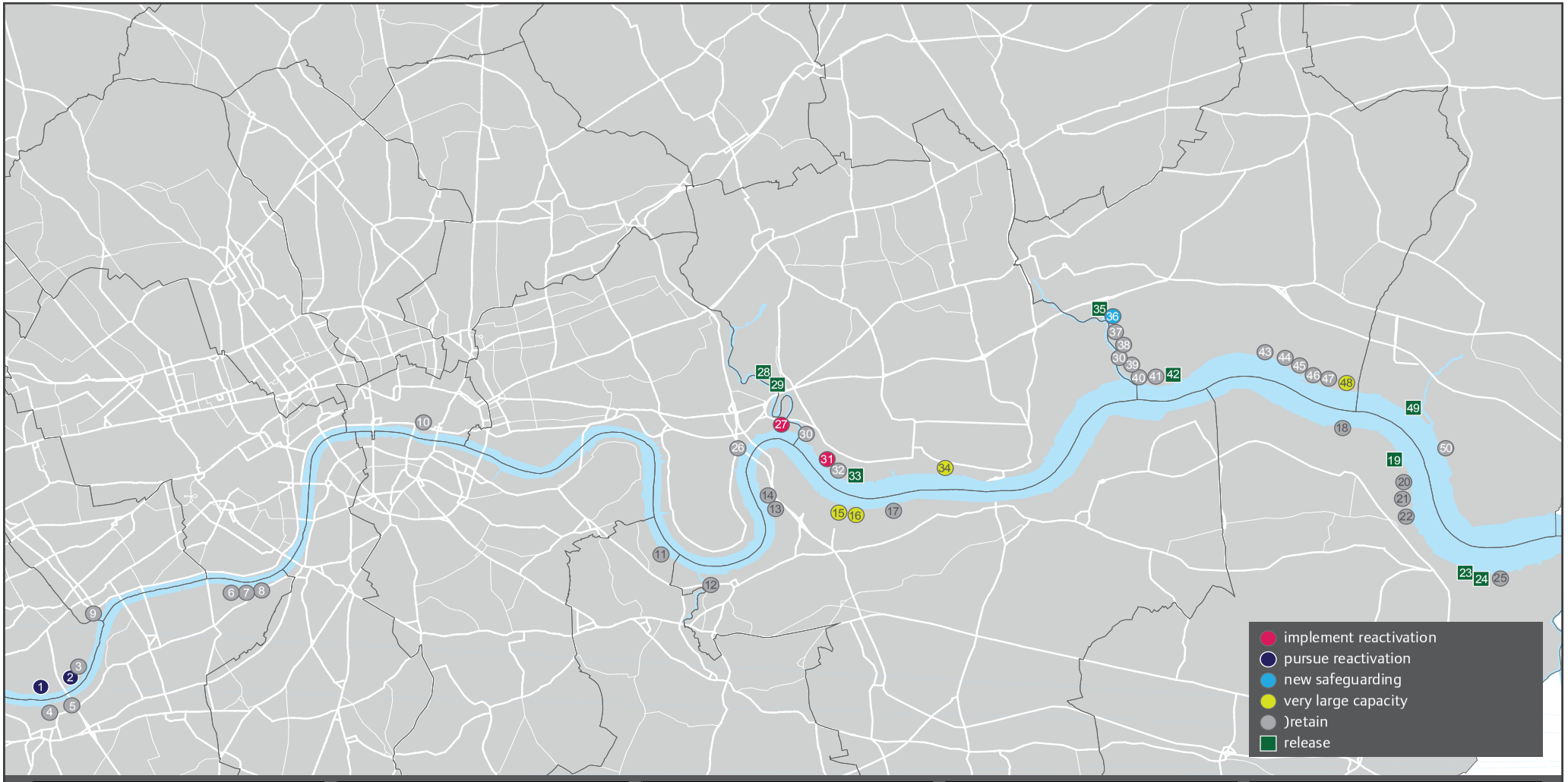


West Sub-region	
1	Hurlingham Wharf
2	Swedish Wharf
3	Comley's Wharf
4	Smugglers Way
5	Pier Wharf
6	Cringle Dock
7	Kirtling Wharf
8	Middle Wharf
9	Cremorne Wharf
10	Walbrook Wharf

South East Sub-region	
11	Convoys Wharf
12	Brewery Wharf
13	Tunnel Wharf
14	Victoria Deep Water Terminal
15	Angerstein Wharf
16	Murphy's Wharf
17	Riverside Wharf
18	Middleton Jetty
19	Mulberry Wharf
20	Pioneer Wharf
21	Albion Wharf
22	Erith Wharf
23	Railway Wharf
24	Town Wharf
25	Standard Wharf

North East Sub-region	
26	Northumberland Wharf
27	Orchard Wharf
28	Priors Wharf
29	Mayer Parry Wharf
30	Thames Wharf
31	Peruvian Wharf
32	Manhattan Wharf
33	Sunshine Wharf
34	Thames Refinery
35	Welbeck Wharf
36	Alexander Wharf (new)
37	Pinns Wharf
38	Steel Wharf
39	Rippleway Wharf
40	Docklands Wharf
41	Victoria Stone Wharf
42	DePass Wharf
43	Dagenham Wharf
44	Pinnacle Terminal
45	No 1 Western Extension
46	East Jetty
47	No 4 Jetty
48	Ford Dagenham Terminal
49	Phoenix Wharf
50	Halfway Wharf

Annex 4 (October 2011) Addressing capacity surpluses / deficits in the sub-regions



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Annex 5 Assessment sheets of all wharves

This is provided as a separate volume.