

Part B: Barging In – getting freight moving by canal



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Context:

The report was prepared as part of a UCL Masters programme, Community Participation in City Strategies alongside community groups in Just Space network.

Part A of the report outlined the opportunity the canal offers to alleviate HS2's impact in Old Oak Common (OOC) on local communities by taking freight by water. The report also highlighted discrepancies between the Blue Ribbon Network (BRN) policies of the London Plan and local authority plans.

Ambiguity in feasibility and responsibility stifles the modal shift to freight by water which this paper explores in more detail, drawing a number of recommendations (depicted **R**) which are expanded upon in Appendix A. Those eager to ensure the benefits of canal freight are re-visited, might find it useful to address these areas. It is recognised many are already being pursued by various interest parties, such as the Regents Canal Network, Freight Group of the Waterways Commission, Freight by Water, IWA, TfL, Canal and River Trust; in these cases it is hoped the report reinforces their efforts. There are great opportunities to alleviate costs to local people which deserve full consideration.

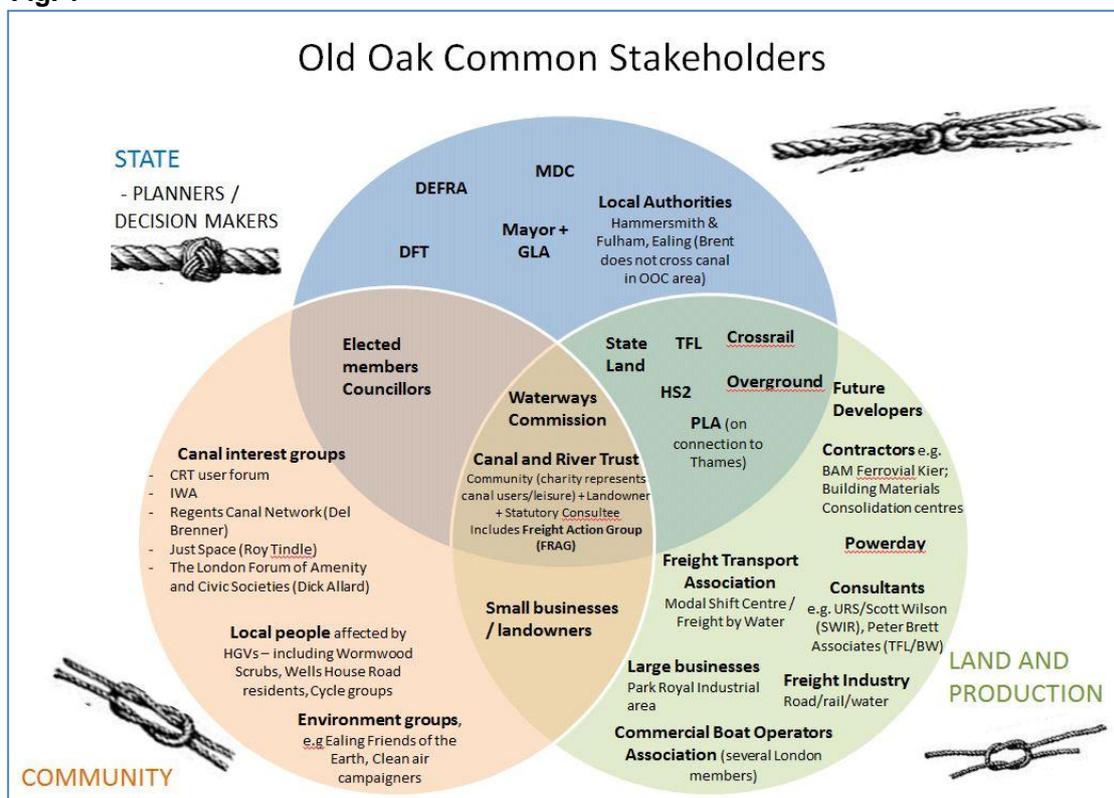
Contents

- 1. Stakeholders in Canal Freight in Old Oak Common**
- 2. Demand-side Factors**
 - 2.1 Uptake of National and Regional Policy**
 - 2.2 Safeguarding Wharves**
 - 2.3 Monitoring the Blue Ribbon Network (BRN) Policies**
 - 2.4 Major public-funded projects**
 - 2.5 Community**
- 3. Supply-side Factors**
- 4. Concluding remarks - Ambiguity of responsibility**
- 5. Further Investigation**

1. Stakeholders in Canal Freight in Old Oak Common

There are proponents of canal freight across the private, public and community spheres. Fig.1. shows parties relevant to the OOC area. The challenges for waterborne freight can be surmised two-fold: Firstly, *demand-side factors* (section 2) – it is recognised demand from those needing to move freight is weak (British Waterways 2005a:5; DEFRA 2002:22) but demand comes from the public sector and community. Secondly, an assortment of practical hindrances are cited for why canal freight is either logistically unfeasible or economically unviable. These *supply side factors* (section 3) must be allayed in order for policy to be executed. For this reason Fig.1 forgoes the ‘private sector’ in the tripartite in favour of ‘land and production’ to illustrate where influence from the community and state needs to be placed. Transport for London (TfL) are conscious of the need to “make the figures stack up and try to educate both sides: to make boroughs be more demanding, and make developers think about barges” (2014). The paper concludes by exploring the actors able to support these recommendations (Section 4), and areas warranting further investigation (Section 5).

Fig. 1



2. DEMAND-SIDE:

2.1 Uptake of National and Regional Policy:

The National Planning Policy Framework promotes use of sustainable freight (DCLG 2012) and regional policy strengthens this, with the London Plan Blue Ribbon Network (BRN) and Transport Policies referring to the specific opportunities for waterborne freight numerous times. As evidenced in Part A, local authority interpretation of the BRN policies however is weak. Ealing Borough Council (EalingBC) point out “there are no local Ealing policies covering canal freight as we consider the coverage in the London Plan (principally Policy 7.26) to be adequate for development management purposes. We would test any applications that we receive against 7.26” (2014a). Nevertheless if policies were interpreted locally it would provide much more confidence of implementation.

2.2 Safeguarding Wharves

Policy 7.26.C states LDFs should identify locations for water freight (GLA 2011:243). EalingBC confirmed it has not identified sites (2014) and there is no indication Hammersmith and Fulham Borough Council (H&F) has either. Contravening information has also been released by the Greater London Authority (GLA) in the Safeguarding Wharves Implementation Report (SWIR) suggesting canal freight's "scale and circumstances to not warrant any formal safeguarding" of wharves (GLA 2013). The report offers rigorous data analysis for the Thames, but states: "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" (GLA 2013:18).

Objectors (including Crown Estates, London Waterways Commission Freight Group, and Regent's Network) note SWIR's negative feel and were successful getting 'barriers' changed to 'challenges' which is important given conclusions drawn are not backed up by evidence. The report repeatedly dismisses waterborne freight as impossible "without significant subsidy" without quantifying this. Weakly it states potential is "subject to it being practical, economic and environmentally desirable to do so" despite earlier justifying the environmental benefits (GLA 2013:58). Positively, SWIR does explicitly state "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" (GLA 2013:59).

R1. The Waterways Commission should demand supporting evidence including sample size, detailed analytics and sector responses to support the Freight Group's understanding and action planning.

2.3 Monitoring the Blue Ribbon Network (BRN) Policies

The Mayor sets out to "Plan-Monitor-Manage" (8.8) and seeks "a 50 per cent increase in passengers and freight transported on the Blue Ribbon Network from 2011–2021" (GLA 2011:295-9) but the mechanism for reviewing this is not clear. As early as 2006, a rapporteur, Tony Arbour AM, reported progress on BRN policy implementation "has been neglected" (London Assembly 2006:3). Decreeing "with the help of the Commission, the Mayor should take a proactive and ambitious role – moving from treating the Blue Ribbon Network as largely a development control issue, to taking a key role in the brokerage of solutions" through "smarter working with other organisations" (London Assembly. 2006:43). It also suggested: "the GLA's new development database could in future be used to help manage this monitoring of waterside schemes" (London Assembly. 2006:44). Great hope was placed on the potential of the Olympics.

R2. In light of the second Mayoral Development Corporation (MDC) proposed at OOC, the low uptake at the Olympics should provide a motive to address the possibility of canal freight at OOC sooner. Delay was the reason most cited why it did not happen (Ealing 2014; Construction Manager, 2010; Brenner 2014; GLA 2013:58; Hewitt 2014). *See also Appendix A, C. 14.*

R3. An action plan for getting freight on water should be devised, with progress tracked. This exercise could reveal a need for extra dedicated resources. The London Plan indicates two relevant transport planning schemes 1) to "Promote the use of Thames and other waterways for freight movement" and 2) use of "Construction and Logistics Plans and promotion of collaborative approaches such as consolidation centres". Each is indicated at having "low funding... £0 - £100 million" between 2013-22 (GLA 2011:183-4). It would be useful to understand where on this huge continuum of investment it lies.

2.4 Major public-funded projects

Environmental Statements, Transport Impact Assessments and Construction Logistics Plan can ordinarily be used to explore the opportunity for using canal freight. Large-scale public-funded projects like HS2 and Crossrail have extra tiers of decision making but have potential to be the catalyst (Construction Manager 2010; AINA 2004:26; TFL 2014; Hewitt 2014 – see also Appendix A, O.6). EalingBC (2014) advised they are building evidence for “ten items the Council is petitioning on” against HS2. “It’s only a draft but I’m 99% sure canal freight will be mentioned in there. HS2 will have to say why they can’t do it”.

However both EalingBC (2014) and H&F suggest scope is limited, citing a number of constraints but particularly that “potential is however likely to be heavily constrained by Crossrail’s requirements for the Old Oak Sidings Site” (GLA 2012:4). Yet, local authorities can lack sufficient in-house knowledge to technically assess niche areas like waterborne freight. For this reason “the GLA’s proposal to have an MDC might help because it’s got greater focus and greater access to canal experts at the GLA” (Ealing 2014). Information made available by BAM Ferrovial Kier (2014) regarding their assessments for the Crossrail tunnel segments site suggests canal freight was rejected in terms of logistical feasibility rather than cost competitiveness, with loading speed a constraining factor (see Appendix B). Doubts are sometimes expressed at the validity of client-side assessments, and whether they give “proper justification” why freight is judged unfeasible (London Assembly, 2006:47). It is interesting to note the initial assessment was done by Peter Brett Associates (PBA) who are currently working with TfL/Canal and River Trust (CaRT) on the Demystifying Canal Freight initiative. PBA also produced detailed West London scenarios and models used to justify the Powerday wharf (PBA 2005; 2005a; 2005a:1;).

R.4. Lobbying and providing clearer information sources for local authorities would be useful. OOC gives the opportunity for targeted work since the precedent of the Olympics suggests many staff will transfer (Canal and River Trust 2014b; IPB 2014:202-4).

R.5 Interested parties can call for open-book assessments into the feasibility of canal freight at OOC. This could be ratified by organisations like CBOA, and endorsed by TfL or the Waterways Commission, with comparison to PBA’s scenarios (2005a). Closer links between the Waterways Commission Freight Group and PBA could be fostered given their substantial body of knowledge. It is recognised consultants may charge for their time but may be in their interests for reputation and business development.

2.5 Community

Canal freight offers local residents an olive branch for alleviating some impact of HS2 and the later developments. The wider community consists of canal interest groups and environmental groups and Londoners who recognise costs from road haulage; the Department for Transport recognizes the highest costs as congestion, depreciation of infrastructure and noise (2009:19). Despite mode-shift policies, and much public benefit (Appendix A O.1-O.10) there is no consideration of canal freight in HS2’s environmental statement. It is all the more surprising given HS2 have considered the sites’ logistics to the extent of detailing use a conveyor system.

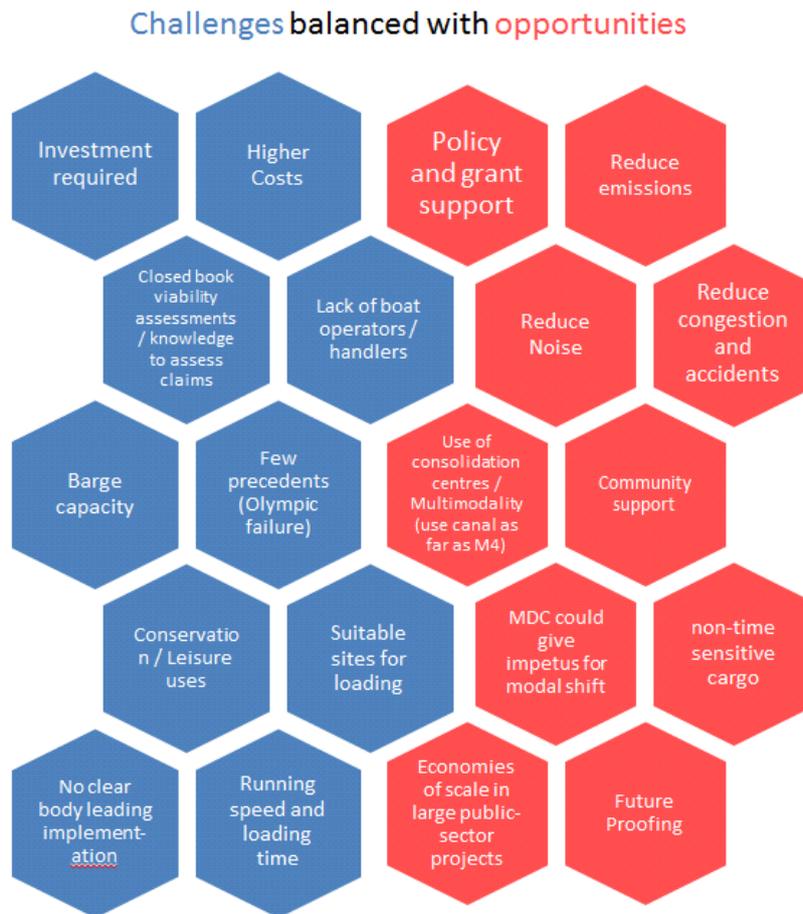
Alongside Local Authorities and statutory consultees, local people affected by HS2 can submit petitions to a public enquiry (HS2 2014). A key gain would be if assessments were made available publically to allow parties with the capability to review the estimates produced. There appears to be potential for 25 barges carrying 90 tonnes which, on the presumption of operating 252 working days a year, could relieve 567,000 tonnes per annum from roads; equivalent to 28,350 20-tonne trucks. As there is potential for 270-360 HGVs at peak for the Atlas Road site alone, presuming 20-tonne trucks, there might be in the region of 1,814,400 tonnes moved per annum; clearly the canal can go some way to alleviating this.

R.6 Suggested wording has been drafted in Appendix C that could be used to support stakeholders petitioning HS2 on this matter.

R.7 TfL recommend local lobbying could have some effect (2014). The community can canvas their local MP and councilors, and The Waterway Commission, chaired by Murad Qureshi who also sits on the Transport Commission to show strength of opinion for giving canal freight due consideration (Parliament 2014; GLA 2014).

3. SUPPLY-SIDE

Fig.2, further information and sources available each in Appendix A.



“It is the right thing to do. It takes a sixth of the energy, emissions are lower - but it is hard to do” (Canal and River Trust 2014).

“There are limitations on how much policy alone can achieve” (AINA 2004:26).

There are many imaginations and much misinformation which contribute to the negative perception of canal freight’s economic and logistical viability. These are summarised in Fig.2 and a separate Appendix A summarises information sources found, stressing any ambiguity, and with further recommendations drawn. Rarely are costs and benefits presented together in a balanced, detailed way. The research found many claims and presumptions are made with vague statements without evidence or understanding, thus potentially highlighting a need for “the enlightenment of logistics professionals” (DEFRA 2002:60).

There is much to suggest that OOC provides some of the best conditions for canal freight. A West London Canal Report published in 2005, prior to the OOC vision, estimated the amount of freight the canal could realistically carry, and placed Construction Materials and Demolition Waste (C&D) as second to Municipal Collected Waste. Further finding C&D waste “can be cost effective” (PBA 2005:2). Non-time sensitive cargo like aggregates, waste and recyclates present the biggest opportunities. A further advantage of this site is that it already suffers from congestion, making road haulage less economically viable. It is also lock free which reduces costs (PBA 2005:5).

However it is recognised developers are “not bothered how it gets there, just A to B. They’re not going to commission it”. “It puts a lot of load onto the barge operators” but “there are barriers we can’t get over because we don’t have the authority to do it” (Hewitt 2014). A public-sector client or broker can achieve economies of scale, offering two conditions pertinent to waterborne freight: long term contracts and positive planning conditions. A third condition which may fail is that “source/destination should be a perfect match to reduce costs and avoid double-handling of goods”. Yet it would be worthwhile the MDC exploring use of consolidation centres on the canal side since London’s roads are a high-cost stretch, which could make it viable (GLA 2013:63). “You can encourage people not to use cars but you can’t get freight off road... If you want to, you use water – it’s under-utilised for efficient multimodal...It makes much better use of lorries going up and down the M4 rather than sitting in traffic in London” (Hewitt 2014).

A large public sector project or facilitated approach has its critics; Powerday in this sense is a white elephant; despite planning gains and subsidy it has barely been used which deserves further study (PBA 2005:7). Ray Payne, the ODA’s head of logistics, said: “We’ve had industry days, we’ve advertised the advantages to Tier One contractors of using water, but it’s up to them to decide. It has to be a balance between reducing the carbon content of the transport route and the economics. To a large extent, the construction is driven by economic factors, because the taxpayer is paying for the Olympics.” However it is important to remember grants which close the cost margin between road and rail/water are justified because they reflect the costs that would be placed on society by road-haulage (DfT 2009). Going back to the estimated 567,000 tonnes per annum the canal could carry, some crude calculations give an indication of the amount of subsidy that could be made available by presumption of Mode Shift Benefit (MSB) values (Table 1).

Table. 1 MSB values for moving freight from Atlas Road to West Drayton M4 Junction. MSB = “the valuation of the environmental and other social benefits of removing one lorry mile of freight from the road and transferring it to rail or water” in pence per mile (DfT 2009:6).

Tonne-miles = 7,371,000 567,000 tonnes x 13 miles from Atlas Road to West Drayton	Cost to society (estimated from MSB values)
7 miles by A road at 74p per tonne-mile	£2,937,060
6 miles by 'High Benefit' Motorway at 86p per tonne-mile	£2,925,720
Total cost to society by road	£5,862,780
Total cost to society by water 13 miles by water at 5.7p per tonne-mile	£420,147
Total saving to society of freight-by-water	£5,442,633

R.8 TfL and the Mode Shift Centre support creation of accurate estimates of grants available for the OOC scenario to be publicised by interest parties.

4. CONCLUDING REMARKS - AMBIGUITY OF RESPONSIBILITY

The paper concludes by highlighting ambiguity in the responsibility amongst stakeholders which compounds the difficulty getting into the supply chain. There exists a “‘fragmentary’ decision making structure” and “consequently, a coordinated and prioritised plan of action to implement policy has failed to emerge” (Jaijee, London Rivers Association in London Assembly 2006:42).

If anyone, CaRT are first port of call given their canal specialism. CaRT “are a statutory consultee and we always respond suggesting the possibility to move freight by water” (CaRT 2014). However their remit has noticeably switched over time to a ‘facilitator’ (CaRT 2014) over a practical role, particularly since moving from Quango to a Trust: British Waterways declared themselves “effectively the principal operator” for Hanson’s aggregates contract (2005a:3). As depicted in Fig.1, CaRT fulfils a number of roles from landowner and navigation authority, to the protectors of the canal and voice of canal users. In this sense CaRT is not necessarily best placed to give an assessment in interests of the wider public, for example alleviating emissions, road safety concerns and congestion (DEFRA 2002:8; 60).

A window for negotiation with HS2 is still open. Whilst HS2 advises no formal assessments have taken place TfL, local authorities and CaRT are in discussions about feasibility and these informal discussions will impact upon the perceived feasibility: “TfL’s influence is greatest now. Once the main environmental statement for certain section of the line has been proved, it becomes more difficult for TfL to influence the bigger picture” (TfL 2014).

There are several active partnerships including Freight by Water (FTA), FRAG (CaRT), IWA’s Freight Group, CBOA and the Freight Group at the Waterways Commission. Multiple parties help to enact the recommendations could have great impact.

R.9 No party speaking to HS2 has indicated a strong understanding of the feasibility of canal freight in this report’s investigations. It would be wise for other partnerships, particularly the Freight Group of the Waterways Commission to have some insight into the detail of these assessments, drawing upon their wide range of expertise to judge the case. Even if agreed unfeasible, this information would help partnerships align their resources most effectively, e.g. to other industries like waste.

R.10 The Rapporteur suggested “waterways interest groups are a locus for precisely the type of expertise and local knowledge that could add value to the pre-application stage of new waterside developments” (London Assembly 2006:45) however did not recommend how this knowledge could be linked with developers. CBOA can offer knowledge on freight logistics and feasibility, which can be endorsed by the state, for example by The Waterways Commission or TfL.

R.11 It would be useful to identify someone working for a developer who could sit on partnerships like the Freight Group of the Waterways Commission to help disseminate information amongst their sector. A discussion with networks such as BRE or Business in the Community (BITC) could reveal other innovations which have succeeded to break through and elucidate the supply chain.

R.12 Partnerships could agree a Terms of Reference that if approached to help in feasibility assessments, they will follow an agreed approach. Organisations like TfL and CaRT can also issue a policy note to their staff/volunteers on how to respond to enquiries. CaRT has a policy in development by FRAG but at time of print it is unknown whether it will issue guidance to support cases such as OOC (Freight Group 2014).

5. FURTHER INVESTIGATION:

Inevitably we haven’t managed to foreclose all avenues under our short research period. Another UCL research will be continuing this line of enquiry. It would be an excellent subject for PHD research, and one that the Engineering and Physical Sciences Research Council might financially

support. Detailed multi-disciplinary assessments can elucidate Actor-Networks; Engineers and Logistics researchers can explore freight practicalities and the validity of developer-led impact assessments; Business/economics researchers can assess demand-side factors for several industries, not just construction freight but also waste and industries in the Park Royal area.

Further focus groups are being held by CRT and TfL and items in the appendix which will be circulated alongside the report can be used to test knowledge and produce better publicity materials.

Appendix A – Challenges balanced with Opportunities

OPPORTUNITIES AND BENEFITS		Supporting sources	Potential actions / areas for further clarity
O.1	<p>Policy and grant support</p> <p>Policy (NPF and London Plan) is supportive and encouraging of modal shift to sustainable transport options. "TFL take our cue from Mayor's Transport Strategy and London Plan and look at elements of HS2 which would not be compliant with these. TFL's responsibility is to make sure that construction programme and day to day operation of HS2 is compliant" (TFL 2014).</p> <p>Government Grant/levies from the Department for Transport (DfT 2014) via bidding process.</p> <ul style="list-style-type: none"> • Mode Shift Revenue Support (MSRS) scheme: assists with operating costs (where rail/inland waterways are more expensive than road) • Waterborne Freight Grant scheme (WFG): applies only to coastal/shipping • HGV road user levy (DfT 2014a) <p>"After a long fought battle it will also include foreign hauliers. The revenue will go towards repair and maintenance of the roads as HGVs cause great damage and wear. The daily cost will be £2 to £10, with reductions for long periods (up to 50% for a year). Failure to pay will be a criminal offence!" (Brenner 2014a)</p> <p>Subsidies: Powerday were awarded significant subsidy, though it does seem they were encouraged to take the wharf rather than demanding it (Brenner 2014; Canal and River Trust 2014). "Powerday was awarded £562,400 through the London Development Agency's Economic Development Infrastructure Building project, via the London Recycling Fund"... "London Remade interviewed five of Powerday's key stakeholders as part of a communications audit. This resulted in recommending a comprehensive communications strategy, including a detailed plan for the launch and opening of the plant" (London ReMade 2013).</p> <p>"British Waterways secured £374,000 of funding from TfL with other minor grants taking the total to £414,000. BW has contributed £57,000. This project has been developed through business case studies and assessments using models supplied through reports</p>	<p>CBOA 2014; DfT 2014; Brenner 2014a; DfT 2014a; London Remade 2013; TFL 2014; British Waterways 2003:10; Construction Manager, 2010; GLA 2013:62; DEFRA 2000:15; DfT 2007:17; British Waterways 2005a:5;</p>	<p>Policy: Explore possibility for a new rapporteur report (London Assembly 2006). "The Committee recommends that the London Plan be revised to introduce a requirement that development proposals alongside the Blue Ribbon Network include an assessment of how publicly accessible water-related uses could be incorporated into the development, with proper justification if it is judged to be unfeasible to include such uses" (London Assembly, 2006:47). It should also monitor whether Local Authorities are interpreting BRN policies and waterborne freight increases.</p> <p>"The [Waterways] Commission should also help waterways groups to engage with Boroughs and ensure they have the relevant knowledge to interpret and apply the policies on the ground" (London Assembly 2006:45). It is also suggested "the London Waterways Commission support the proposed watchdog role of the London Rivers Association in relation to the Blue Ribbon Network implications of decisions by planning authorities" (London Assembly 2006:45). Does The Waterways Commission have the resources to do this, if not who?</p> <p>"Despite the generally supportive statements in current planning guidance, more needs to be done through the planning system to promote the transport of freight by water and to safeguard waterside sites for freight purposes" (DEFRA 2002:8).</p> <p>Monitoring: "Unpublished information e.g. on origins and destinations should be made available provided this does not breach confidentiality agreements" (DEFRA 2002:14).</p> <p>Grants/levees: Examples published showing how grants/levees have been used to make canal freight affordable. Review of uptake of DfT grants, with consideration whether canal-freight needs separate treatment; "sympathetically financial support" (DEFRA 2002:13). DEFRA (2002; forward) suggested it needs "further pump priming...to get the industry back into a position to compete successfully". "They didn't get a lot of grant applications so kept reducing the grant on the basis no one was using it. On trains it works better – a straight grant per box. With shipping containers the subsidy is an easy calculation. That doesn't work on water quite so well" (Hewitt 2014).</p> <p>Subsidies: "It is essential that the development of the [powerday] site is</p>

		undertaken by BW/TfL & Peter Brett Associates" (British Waterways 2005a:5)		closely monitored to ensure its canal potential is fully exploited" (Peter Brett Associates 2007:7). Review of monitoring for Powerday by TfL, LDA and CaRT funds. London Remade would be useful point of contact for further investigation. It is anticipated Powerday may be relocated in the future.
0.2	Emissions / Carbon	<p>Reduced carbon footprint (CBOA 2014); Lower emissions and external costs calculated per Euro/Kton.km: "The VITO research in May 2004 reported that for inland navigation, total external costs of environmental impacts, accidents and congestion are 7 times lower than in road transport. Except for the costs of sulphur dioxide (reduced to zero in 2009) and for nitrogen oxide (removable by special catalyst), all categories of external costs have a better score in inland navigation than in other modes of transport" (CBOA 2014b).</p> <p>"Barge engines are roughly 30-40 horsepower, and a modern lorry is around 350hp, so fuel consumption and carbon emissions are proportionately much less," says Heward. In one example cited by lobby group Freight by Water, an HGV carrying 25 tonnes burns 0.5 litres of diesel per kilometre. A river barge capable of carrying up to 1,000 tonnes – or 40 lorry loads – burns 5 litres of diesel. Expressed against freight capacity, the river barge is 2.5 times more fuel efficient" (Construction Manager 2010).</p> <p>94% less carbon by water than HGV (TfL 2007:20).</p> <p>"There could also be a modal switch within London to canal and river. A five per cent modal shift to water of the 55m tonnes of road freight moved within London could achieve about a 4,000 tonne CO2 saving per year... In terms of municipal waste, the London Plan sets out the policy that, as far as is possible, waste is managed locally⁶⁸, thus minimising transport impacts. Initial estimates for the CO2 saving arising from this policy are included in the 4,000 tonnes of CO2 saving identified for modal switch to river and canal" (TfL 2007:.54)</p>	<p>CBOA 2014; British Waterways 2003; Freight by Water 2012; Construction Manager, 2010; GLA 2013; Canal and River Trust 2014; AINA 2004:28; TfL 2007:20; 54; DfT 2007:17; British Waterways 2005a:1; DEFRA 2002:23-24;</p>	<p>Make use of detailed study of environmental savings (CBOA 2014b)</p> <p>Strengthen links with Clean Air in London, in relation to recent Breach of EU rules</p> <p>Ahead of OOC house building contact should be made with BRE to assess support that could be made via BREEAM; "although the sustainability advantages are clear, these aren't yet enshrined in BREEAM assessments, contractual terms or client expectations" though it could count towards 'innovation credit' (Construction Manager 2010).</p>

0.3	Congestion and Road Closure	<p>Lorry congestion in areas like OOC makes traffic also slow and unreliable; "We might consider the social-economic implications, but it affects other Boroughs more. However it does affect Wells House Road who are going to be in midst of a lot of road closure" (Ealing 2014).</p> <p>In terms of congestion "the scale of problem's so much bigger in London - so there's 15 people at TFL with a freight remit. The team is trying to influence the wider agenda where possible to realise that freight matters!" (TFL 2014).</p> <p>"In terms of predictability, we're better – there's no congestion," (Heward in Construction Manager 2010).</p> <p>"Improve the efficiency of distribution" (DfT 2007:17).</p>	CBOA 2014; Ealing 2014; TFL 2014; Canal and River Trust 2014; GLA 2013; Construction Manager 2010; DfT 2007:17; British Waterways 2005a:1;	SWIR's forecasts for future demand for canal freight with a high forecast of 1,410,000 tonnes per annum and a medium scenario at 255,555 tonnes per annum (GLA 2013:62). Even the medium scenario would take 12,778 20-tonne lorries off the roads a year.
0.4	Safety	"Reduces accidents" (CBOA 2014); "On canals and rivers in Flanders, some 7 accidents are counted per billion ton-kilometres; on the Rhine there are 11 accidents per billion ton-kilometres. By contrast, an average of 150 accidents per year is counted per billion ton-kilometres in road transport" (CBOA 2014b);	CBOA 2014; Canal and River Trust 2014; DfT 2007:17; British Waterways 2005a:1;	Obtain UK figures from DfT (as used in Mode Shift Benefit Value calculations (DfT 2009).
0.5	Noise	Significantly lower costs association with noise pollution, measured in Euro/Kton.km (CBOA 2014b).	CBOA 2014b; DfT 2007:17;	

0.6	Planning Concessions; Transport / Environmental Impact Assessments	<p>The Mode Shift comes some way at highlighting cost on roads 143 pence per tonne mile, where by rail or water it is estimated at 5.7 pence per tonne mile (19). It looked at costs to society: Congestion; Accidents; Noise; Pollution; Climate Change; depreciating infrastructure; Up and downstream processes; Soil and water pollution; Nature and Landscape; Driver frustration / stress; Fear of accidents; Restrictions on cycling and walking and Community severance; Visual intrusion (DfT 2009:19).</p> <p>"Powerday were forced as part of Section 106 agreement to say would carry a third by canal" (Ealing 2014). "There was a condition placed on Powerday, a capacity limitation on how much they can bring in by road, then can't go further, they have to use rail or water to go over" (Canal and River Trust 2014).</p>	Canal and River Trust 2014; DfT 2009:19;	<p>It would be useful to produce a detailed, favourable cost benefit analysis for e.g. HS2 or a large development project. This would act as an exemplar and could be used by local authorities and other parties when assessing accuracy and methods employed to calculate other Environmental/Transport Impact Assessments.</p> <p>Lobby for water transport to be a compulsory "feature of any Transport Assessment for waterside developments" (AINA 2004:19).</p> <p>"The feeling we got from [developers] was that if they had a clearer understanding of what was required of them, they would be more likely to satisfy it" (Jaijee, London Rivers Association, in London Assembly 2006:45).</p> <p>"They [developers] say if someone tells us to use it, we will use it. If planners tell us...It's only half the story if not backed up by local planning. You only get to those who want to do it for CSR but that isn't significant" (Canal and River Trust 2014).</p> <p>"Policy should say you will do this. Three Mills only happened because we said it must use water. It needs a real push. If it's marginal they must do it, there needs to be an instruction saying must do it. The Cross rail Thames estuary was forced. Jobs and skills training are higher up the agenda, water freight was slightly lower down the agenda" (Canal and River Trust 2014).</p>
0.7	Community support	<p>Individuals and local groups can play a role in scrutinising local plans and "should expect the planning application to show that the applicants have fully investigated, and are making all reasonable use of, more sustainable and less disruptive modes of operation" (London Forum 2011:17).</p>	London Forum 2011:17;	<p>"Since commenting on the freight aspects of applications would, for most of us, be a new venture we need to consider how we can best develop our ability to make the most effective observations" (London Forum 2011:17). Better guidance issued to community groups and Civic Societies on canals on issues to address relating to the Blue Ribbon Network, including canal freight. Online, government endorsed figures that community groups can point to in their planning responses.</p>

0.8	Economics of Scale / public sector projects	<p>In practice there is a need for further efforts beyond planning policy to encourage a shift towards water transport. This Guide describes two such practical aspects: Forming partnerships; Encouraging public sector use of water transport" (AINA 2004:26).</p> <p>"If government wishes people to use water, then they should write that into the tender documents for public sector projects – in other words, show the way. Just as people have had to price and understand rail freight, they'll learn to understand water" (Milnes, British Waterways in Construction Manager 2010).</p> <p>"When trying to convince private sector that it's a good idea, planning system and public sector procurement is a good way of influencing planning" (TFL 2014).</p>	<p>Construction Manager 2010; AINA 2004:26; TFL 2014; Hewitt 2014; Peter Brett Associates 2005:5;</p>	<p>The disadvantage with large infrastructure projects like HS2 is that they are taken out of the local planning process, e.g. via HS2 Hybrid Bill (Ealing 2014a). Petitioning needs to take place to ensure its consideration, recommending that the assessment is not only based on client's judgement but that an independent assessment takes place.</p> <p>"On a mega-project, you can absorb the costs, but it's not so easy if you're building houses. If it's difficult to make it financially viable in the good years, it'll be a major struggle now" (Sullivan in Construction Manager 2010).</p> <p>"It it's a small scale job or short period then becomes a potentially prohibitive thing. It's easier to put on a lorry and drive it straight there. It needs some government intervention if you want to stop things going down the road, to help and support it to go another way" (Hewitt 2014).</p>
0.9	Consolidation centres and common wharfs	<p>Construction Logistics Plans and Consolidation Centres are supported by the London Plan policies 6.49 and 6.50 (GLA 2011). "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" (GLA 2013:58)</p> <p>However they do not currently exist and "economics of road to canal transfer are poor" (Peter Brett Associates 2005:7).</p>	<p>Canal and River Trust 2014; London Forum 2011:17; GLA 2013:58; AINA 2004:8; Peter Brett Associates 2005:4; 7;</p>	<p>Explore subsidy for consolidation centres: "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" (GLA 2013:59).</p> <p>Need investment in sector - whilst Power Day wharf exists and is intended for multi-use it is not accessible except for Power Day customers. "It can't be a public wharf, there are health and safety issues and it's private land... You might want a bus stop outside your house but it doesn't mean you'd use it. There till needs to be a competitive advantage. Being fit and healthy is the right thing to do but you don't do it" (Canal and River Trust 2014).</p> <p>"In principle, a common user site could be run either by a public sector owner or a private owner...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" (GLA 2013:61).</p> <p>There is still the opportunity to explore potential for consolidation centres for Park Royal Industrial area</p>

				<p>"I've spoken to Park Royal on many occasions...They're certainly not against the idea. They've got a serious traffic problem. It would need Park Royal Partnership to be proactive. To say it all must go to this point and then we will run an internal distribution system and we want you to sign up. Individual businesses just want a service" (Hewitt 2014).</p>
0.10	Types of cargo	<p>Canal freight can be used for a range of cargo.</p> <p>"Household and other names already using water freight include Tesco, Rank Hovis MacDougall, Capespan fruit, aggregate companies like Lafarge, Cemex, Hanson. Waste/recyclables companies like Cory Environmental" (CBOA 2014)</p> <p>"Cardboard waste is an opportunity - nearly agreed supermarkets would move waste. Working over tow path but things cross paths all the time" (Brenner 2014).</p> <p>"The bigger opportunity for mode shift, as you've identified, is likely to be in terms of construction freight" (TFL 2014). Peter Brett Associates use example scenario of Southall Gas Works aggregates (2005:4).</p> <p>Waste is also recognised as opportune (TfL 2007:51). "In encouraging sustainable distribution through the development of water transport, local authorities are often able to lead by example. There are particular opportunities for this in the movement of waste and recyclable materials, as whilst much of the waste disposal is managed by the private sector, the entire industry is public sector-led and, as a result, subject to influence and direction. Waste and recyclables can be suitable for water transport and fulfil the high-bulk and low-value criteria. Movement of waste by water currently takes place in London and there are many opportunities for other local authorities to follow" (DfT 2007:57).</p> <p>British Waterways (2005a:2-3) felt aggregates, waste, construction and demolition waste and containers had most potential.</p>	<p>CBOA 2014; Brenner 2014; TfL 2007:51; DfT 2007:57; British Waterways 2005a:2-3;</p>	<p>Case studies can be used to demonstrate different sectors use and testimonials.</p> <p>Interested parties should identify which industries have the highest opportunity for canal freight according to costs and logistics.</p> <p>"Waterside source and waterside destination is very rare in London and will always be thus. Either it doesn't start at water, or don't end there. To me, to use the infrastructure it is best to get into the supply chain somehow. Stopping the traffic on M4 or M25 by moving it onto a boat into Paddington, Kings Cross etc. then sticking it back on the road. Then you'd get into the bulk of the supply chain" (Hewitt 2014).</p> <p>"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" (GLA 2013:64).</p> <p>"In LB Ealing there was an application for the Willesden Junction Energy Recovery Centre (ref PP/2012/3267) and I believe we asked them to consider waterborne freight, but I don't think they were planning to. It's still in the planning stage as far as I know" (Canal and River Trust 2014b).</p> <p>It would be worth exploring other industries in Park Royal in further study, and noted that British Waterways used to be on the Park Royal Freight Partnership (British Waterways 2005a:6)</p>

ADDITIONAL CLIENT BENEFITS			Supporting sources	Potential actions / areas for further clarity
0.11	Barge capacity	<p>Powerday "has a licence to handle approximately 600,000 tonnes per annum by water" which indicates the volume it was perceived possible to carry (GLA 2013:60). "The company's wharf can take three 90ft barges at any one time, carrying up to 80 tonnes of waste each" (Powerday 2010)</p> <p>In the case of Hanson, on the Grand Union Canal in West London to Drayton "About 70 tonnes - over three lorry loads – were taken in each barge" (CBOA 2013).</p>	CBOA 2013; CBOA 2014; GLA 2013:62;	Barge sizes vary hugely. Would be useful to verify the size of barge that can be carried on canal near OOC. It is believed that it can accommodate at least 90 tonne barges which would relieve 4.5 20-tonne lorries from London's roads. Appendix B compares this to freight estimates for OOC.
0.12	Fuel Efficiency	Barges are more efficient fuel users – less friction to overcome – and can use as little as one-quarter of the fuel of lorries (CBOA 2014)	CBOA 2014;	Include information in publicity materials.
0.13	Corporate Social Responsibility / Public Relations	"Local media, in particular regional Television news, have a record of covering items combining both local businesses and waterways". "Be seen by the public. It provides a unique opportunity to float your advertising slogan past thousands of people in a most memorable way"(CBOA 2014).	CBOA 2014; British Waterways 2003; AINA 2004:28;	Obtain case studies and testimonials from existing users across the sector. For example
0.14	Reliable	"Remember the Hare and the Tortoise. Provided goods arrive when they are wanted it is less important how long they take to arrive" (CBOA 2014)	CBOA 2014;	Include information in publicity materials.
0.15	Storage	"smooth service for delivery and act as floating warehouses in the supply chain" (CBOA 2014)	CBOA 2014; British Waterways 2003; Construction Manager 2010;	<p>Include information in publicity materials.</p> <p>"Sir Robert McAlpine used barge company Wood Hall & Heward and the Regent's Canal to deliver and store materials for the award-winning King's Place development after the London Borough of Camden refused it a licence to unload from the road. Originally, the arrangement was set up to deliver steel beams for the superstructure. "But after McAlpine set up the system, each subsequent contractor followed suit," says Hewden" (Construction Manager 2010).</p>
0.16	Vehicle Life Cycle	"The benefits of inland navigation are even greater if the external costs of the total life cycle are taken into account. Total life cycle costs include production and maintenance of the infrastructure and of the vehicles. This finding is a consequence of the relatively longer life span of infrastructure and vessels in	CBOA 2014b;	Make use of detailed study of environmental savings (CBOA 2014b)

		inland navigation" (CBOA 2014b).		
O.17	Lock-free area	Locks are cited as a barrier (GLA 2013:63) but this area is a 26 mile lock-free stretch (Powerday 2010). This means there is no 17' by 4' restriction (Hewitt 2014).	Brenner 2014; Powerday 2010; Hewitt 2014; Peter Brett Associates 2005; 2005a:5;	Include information in publicity materials.
O.18	Future Proofing	"Oil prices. Road congestion. Infrastructure tolling. Carbon taxes. EU regulation. There are few certainties for what will come for the European supply chain but many threats. So it is good business practice to have answers ready for potential problems that that can be anticipated. Utilising water freight today allows companies to have a system in place to prevent adverse consequences if any future issues should make traditional networks less viable" (Mode Shift Centre 2014).	Mode Shift Centre 2014; GLA 2013:64; Construction Manager 2010;	Investigate other innovations in supply chains, particularly logistics. Construction Manager (2010) suggests local authorities shifted behaviour "with micro-generation and the Merton Rule" which could find lessons. Business in the Community and Building Research Establishment (BRE) might also provide exemplars.

CHALLENGES / MISINFORMATION		Supporting sources	Potential actions / counter information
C.1	<p>Perceived higher cost / need for investment</p>	<p>Investment required as elaborated in specific points below, also running costs. "unlikely to be viable without public subsidy" (GLA 2013:60).</p> <p>"Waterborne freight will only be successful where it is an economically viable transport option". "Water is a realistic option; it should be taken as seriously as rail and road for freight movements" (AINA 2004:46). TFL expressed a "need to be able to make the economics stack up" (2014).</p> <p>"It is clear that the economics are difficult and the biggest potential exists in niche markets" and "mindful of the significant costs associated with this revival" (British Waterways 2005a:5).</p>	<p>CBOA 2008; TFL 2014; GLA 2013:60-63; AINA 2004:46; Peter Brett Associates 2005:2; British Waterways 2005a:3; DEFRA 2002;</p> <p>Elaborating on SWIR (GLA 2013) it would be useful to know specifics of how much subsidy respondents felt canal freight would require.</p> <p>CBOA appear to have the most diligent information sources on feasibility which is understandable given their remit (2014). "Woodhall and Hewitt help, I put them in touch with Gerry to price up. He can identify restrictions" (Canal and River Trust 2014). For credibility it would be helpful to create Government-backed assessments on canal freight costs, particularly for a large public funded project like HS2.</p> <ul style="list-style-type: none"> • "Water is a realistic option; it should be taken as seriously as rail and road for freight movements" (AINA 2004:46). • "Price Stability: Oil typically makes up 35% of road freight costs, but only around 17% of water freight costs. This means that whilst road freight costs will fluctuate substantially with changes in oil prices, water freight gives greater price stability, allowing better business planning" (Mode Shift Centre 2014). • In the case of woodchip "Consultants PB Energy Solutions had claimed that barge transport costs would be £38 per tonne compared with lorry costs just £6 per tonne (before the recent price hikes). CBOA estimated the barge costs would be £3 per tonne" (CBOA 2008). • "Where the necessary loading and marshalling infrastructure exists – as at the Olympics – there tends to be cost neutrality between water and road transport, and little economic incentive to switch" (Construction Manager 2010). • "Feasibility's okay, but need to show advantage to potential customers; no one's saying you can save X amount of money" (Canal and River Trust 2014).

C.2	Investment in lifting equipment and containers and making Wharves suitable	<p>Lack of infrastructure (Canal and River Trust 2014) and clarity what infrastructure exactly is needed to ensure safe loading/unloading. "challenges are to: Secure funding for waterways and infrastructure development" (TfL 2007:41).</p> <p>CBOA reports of woodchip transportation example "they assumed an unloading gantry for containers would need to be built. The expert on mechanical handling contacted by CBOA said that by far the easiest and cheapest method of transporting the woodchip, with the least impact on the environment, would be to blow it into tanks in a barge from a hopper near the water and then blow it out into a hopper at the other end" (CBOA 2008).</p> <p>"There is military hardware that allows you to unload without a wharf or jetty, but it's not so easy for a Balfour Beatty to get hold of," (Sullivan in Construction Manager 2010).</p> <p>Crossrail tunnel segment manufacturing site found the canal was higher than the sites so "complex sloping gantry cranes" would be needed and require lifting over the towpath disrupting pedestrians. Further "the presence of 400kv cables in the towpath is an additional risk". Noise, double handling and risk to damaging segments was also cited and lack of flexibility to vary at short notice were also cited reasons. Finally, it was thought barges could not move enough segments in a day with maximum six barges that were assessed possible (BAM Ferrovial 2014).</p> <p>"Dredging; Lock Refurbishments; Lock Automation; Wharf development; New fleets and barge operations, etc." (British Waterways 2005a:5).</p> <p>"Pinch points" include: adequate lay by moorings, dredging, wharfage; upgrading of aids to navigation and ageing technology and infrastructure (DEFRA 2002:60).</p>	<p>CBOA 2008; Brenner 2014; London Assembly 2006:20; GLA 2013:63; TfL 2007:41; BAM Ferrovial 2014; Peter Brett Associates 2005:2; 5;</p>	<p>Costly gantry cranes are not always needed, loose bulk is typically conveyor and excavator / grab or vessel mounted cranes are more common for loose bulk (2007a:45). Release concrete information showing range of options that can be used and a statement of availability of equipment (standard or bespoke). The most thorough information identified including technicalities and costs is in TfL/Peter Brett Associates MMRCV Loading and Unloading report (2007a).</p> <p>"There's no damage to edges because you can lift a tonne at 4-5m" (Hewitt 2014).</p> <p>"You wouldn't need to invest in new infrastructure to do it...just to get to the canal side. access points (loading/unloading points) and don't need a wharf for this these days. as long as a lorry can get along side it can be loaded straight onto the barge. Containerisation and hydraulic lifts have revolutionised the possibilities for freight" (Brenner 2014).</p> <p>"On the sourced side if you are working on an excavation if you can get a barge alongside and tie it that's all you need. Unloading is an issue as you need somewhere solid enough to stand a machine to unload. Powerday's is nice.... If you go to Bulls Bridge, Southall or somewhere you would need concrete to take the weight of the lorry and machine" (Hewitt 2014). For example British Waterways (2003:7-8) demonstrated "Trial of the OMB Translift chain lift side loading refuse vehicle transshipping waste container to barge in London".</p> <p>"If it's raw material like aggregate you can use conveyors to feed barges. It's standard gravel pit type equipment. You can use a long reach excavator to lift it up at the other end. Hyabs, like grab lorries you see driving in streets use to take cars away can be used the same with a hydraulic crane on a barge. Skips work well. A skip lorry is its own crane. You would lorry it to the barge and lift the skip in and out. A hooklift lorry, just roll on/ roll off. The Lorry drives up with its own crane. All you need is access...If you want to ship containers you need container handling equipment. Then it is expensive and becomes a bit prohibitive. A waste transfer site is likely to have equipment but not many other places. A conveyor one end, and an excavator other end is easiest of all.... it's all standard available equipment. Normal stuff as it were" (Hewitt 2014).</p>
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C.3	Barge modernity	<p>"There's no modern barge fleet, only 50-60yrs old barges. No one is improving the quality" (Canal and River Trust 2014).</p> <p>"weight of vehicles" (GLA 2013:63)</p> <p>"support an increase in waterborne freight with new barges and barge design, capacity and availability" (TfL 2007:41).</p>	<p>CBOA 2014; GLA 2013:63; TfL 2007:41; Peter Brett Associates 2005:2;</p>	<p>Agree and publically disseminate Government-backed information on what barge size can be accommodated and whether such barges are readily available, and the cost of buying new barges if needed (available in TfL 2007a:6-16).</p> <ul style="list-style-type: none"> • "New 85 tonne barges have been built for use on London's canals" (CBOA 2014). • On Powerday "Now it is looking at commissioning new barges to take 120 tonnes per trip in place of the ageing barges they are currently using. These can only handle 50 tonnes. New barges would also help by reducing maintenance and running costs and have a useful life of some 50 years" (CBOA 2014). • "All our boats are licensed, insured, Canal and River Trust certificated. They meet current requirements. But you'd build new to meet the requirements of the economy as it is now like Hanson when they secured the long-term contract for aggregates. Most craft were built to handle bulk cargos...coal, gravel, sand. That's not the market anymore. You would need barges to handle boxes in some way. If you look at the urban environment and poor infrastructure of roads...There's an opportunity for an efficient inter-modal solution. You'd make the hulls a bit more open, a bit squarer. Nearly always when we refurb we make it so we can get a skip in by squaring off the hold" (Hewitt 2014). Boats are built to last many years and have a considerably longer lifespan than lorries so are a sound investment (Hewitt 2014).
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C.4	Critical Path / Double Handling	<p>"I don't think HS2 themselves know where the waste will go" (Ealing 2014)</p> <p>"Critical path is an issue for Powerday. They use dock to sell on product. They are a construction sorting site, and they sell on the waste. They need to turnover as quickly as possible." (Ealing 2014).</p> <p>"For building materials the modelling demonstrates that movement by barge can be cost effective solution to move consignments from canal side sources of material to canal side development sites" (Peter Brett Associates 2005:2). "movement by barge can be the most cost effective solution for certain commodities over short distances where both ends of the journey are alongside the canal. This is an important conclusion because it suggests that transport economics are not the main constraint on canal freight movement, but rather the location of origins and destinations. We believe the policy focus should be on creating new origins and destinations, or supporting the provision of canal transfer facilities at existing origins and destinations" (Peter Brett Associates 2005:5).</p> <p>"High transshipment costs" (DEFRA 2002; forward).</p>	<p>Ealing 2014; London Assembly 2006:20; GLA 2013:60-63; H&F 20014; Peter Brett Associates 2005:2-5; TFL 2014; British Waterways 2005a:5; DEFRA 2002:61;</p>	<p>Close discussions with HS2 to establish end destination for excavated waste.</p> <p>"Double handling has become a mantra - though it is the same problem for rail and a bit of a myth as even on the roads, if you get something transported into London it's probably been transferred 2-3 times. Can triple/quadruple handle on road" (Brenner 2014).</p> <p>Double Handling is rarely quantified though Peter Brett Associates scenarios come some way (2005a).</p> <p>Barge handling can be cheaper than road "for short distance flows" (Peter Brett Associates 2005:5).</p>
C.5	Charges for use of canal	<p>"Canal and River Trust as navigation authority have a say over canal and towpath with various infrastructure. They can charge access fees for use of locks. They need to make use of their assets and bring in some income" (TFL 2014).</p> <p>Unclear tariffs (DEFRA 2002; forward and 10).</p>	<p>TFL 2014; DEFRA 2002;</p>	<p>Obtain costs.</p>
C.6	Speed	<p>Speed of moving and loading. "Loss of water through more intensive use of locks, slow manual locks" (TfL 2007:41).</p>	<p>CBOA 2014; TFL 2014; Freight by Water 2012; Crossrail Appendix A; TfL 2007:41;</p>	<p>Counter argument of reliability and dispel myths about speed of loading. London Plan 7.75: "Water transport is recognised as one of the most sustainable modes, particularly for low value, non time-critical bulk movements" (GLA 2011:241)</p> <ul style="list-style-type: none"> • For example "400,000 tonnes of waste a year – 25% of capacity. Each will unload in just 15 minutes when the plant is fully operational" (CBOA 2008). • "A 500 tonne load can get there more quickly than the same man doing 25 lorry trips" (CBOA 2014).
C.7	Lack of Boat	<p>"You can have lorries there instantly but barges are limited. There's no big players, no Stobarts...Really need big logistics company and PLA to invest" (Canal and River Trust 2014).</p>	<p>London Assembly 2006:20; H&F</p>	<p>Several boat operators exist in London region (CBOA 2014a); Point people to CBOA. "The two most prominent companies are Land and Water, and Wood, Hall and Heward, which between them own and</p>

	Operators		2014;	operate the most barges and tugs" (TfL 2007:3).
C.8	Lack of trained barge operators	<p>"I think part of the issue is that no one really does it at moment so that creates a circle because then you have a lack of trained operatives. The GLA found there is a lack of trained operators in Olympics".... "Ealing are part of the West London Waste Authority which uses water freight but on Thames but not sure the skills are the same" (Ealing 2014). Powerday "also said there is a lack of barge operators" (Ealing 2014).</p> <p>"Sector under skilled and in decline" (Canal and River Trust 2014)</p> <p>"Bridge a significant skills gap amongst those required to operate barges and boats on the waterways" (TfL 2007:41)</p>	Ealing 2014; Canal and River Trust 2014; GLA 2013:63; TfL 2007:41;	<p>Issue counter information.</p> <p>"There's a fairly good group of people who'd like to work on canal, if anything there's not enough regular work to keep them going. If you suddenly needed 20 skippers, tomorrow might stretch it, though there are quite a few up north who might come down to do it for regular work. It's different now as comes under the MCA - Maritime Coastal Agency. A boat master's license's required for those working. It's difficult to turn a tap on but if knew it was coming I wouldn't have difficulty finding skippers" (Hewitt 2014).</p> <p>Government could consider supporting development of employability/ Social Enterprise programmes to create employment encourage new market entrants and transfer of skills.</p>
C.9	Size of wharves, canals and handling capacity	<p>Depth: "Canals would have to be dredged to prepare for this. Canals are very shallow - there would need to be work done on this. The section where we went has been spot dredged - get a lot of silt coming in from side rivers and rubbish from the bridge" (Brenner 2014); "Dredging" (TfL 2007:41).</p> <p>Width: "It's perceived that the canals aren't big enough, barges you can fit on the canal are too small to make it economically efficient" (TfL 2014). Complexity arises as there is "no standard gauge - all canals were built to suit their own needs. Even with the railways there wasn't a standard until Brunel" (Hewitt 2014).</p> <p>"Unlike continental Europe, much of the country's inland waterways system is unsuited to carrying significant volumes of freight. Most canals have not changed significantly from when they were built around 200 years ago and cannot take boats wider than seven feet (2.13 metres) in the case of narrow canals or about 14 feet (4.26 metres) in the case of historic broad canals. The amount of freight carried by these canals is negligible and in today's world they cannot be expected to play a significant role in freight carrying, though they remain suitable for niche markets such as coal distribution... In contrast, the larger river navigations and canals still carry some freight and could take more traffic. They are particularly suited to bulk cargoes such as coal, fuel oil, aggregates, steel, and</p>	Brenner 2014; TfL 2014; London Assembly 2006:20; Canal and River Trust 2014; DEFRA, 2000:15; TfL 2007:41; TfL 2007a:5; Peter Brett Associates 2005:2;	<p>Specific costs and responsibility of Canal and River Trust as Navigation Authority needs to be reinforced if cited as a barrier.</p> <p>"It is a problem with dredging – it adds enormously to the cost as it has to go contaminated waste site....It'd be nice if it was dredged. But it would dredge itself as it's soft silt, you carve a tunnel! It was only 5ft deep for the aggregate barges and didn't take long to get it flowing. It was a bit slow but we got two barges down there. We'd have found shallow places but they'd have ground out. They never used to dredge it as the canal was in movement. Hard things like trolleys, tree trunks etc. need to be lifted out but I suspect if I went down that stretch of the canal I could identify areas where it is for some reason shallow and would help if it was dredged. Spot dredging would be nice...it's always nice if someone takes the bulk of it out for you" (Hewitt 2014).</p> <p>Interactive map with dimensions (Canal and River Trust 2014 / TfL 2014). "An inventory of waterways including authority and capacity in terms of dimensions by each section, with all physical 'pinch points' and constraints, and operating hours, clearly identified and quantified" (DEFRA 2002:79). This may be too much information for customers to navigate but TfL report (2005) comes some way</p> <p>Paddington Arm dimensions: length 21.95m (72ft), beam 4.2m (14ft), height 2.8m (7ft 6in), draught 1.06m (3ft6in) (TfL 2007a).</p>

		<p>timber whose origins and destinations are directly accessible by water" (DEFRA 2000:15).</p> <p>Height: bridges can be a hindrance to containers (British Waterways 2003:7), "Low Bridges" (TfL 2007:41).</p>		<p>In a West London study prior to OOC plans by Peter Brett Associates found development sites identified have "a potential to handle 186,000 tonnes per annum at 2006 levels. If 50% of this tonnage was attracted to the WLCN then nearly 40,000 lorry miles would be saved each year" (2005:4).</p>
C.10	Availability of wharves	<p>Wharves protection is weakening, availability of accessible loading/unloading points (Construction Manager 2010). Ealing Borough Council has not yet identified wharves in their LDF. "There are no local Ealing policies covering canal freight as we consider the coverage in the London Plan (principally Policy 7.26) to be adequate for development management purposes. We would test any applications that we receive against 7.26" (Ealing 2014a).</p> <p>Site location and restrictions, e.g. HS2: "Space is the biggest constraint, there's very little space on the side - offloading freight would be difficult according to early discussion with CRT" (TfL 2014). "The site could put dock entrance by Cross Rail but the depot is complicated. It looks easier to use rail" (Ealing 2014). "It's a nice to have. You don't fully adhere to every line of policy. But also the strategy for OOC until recently was to 'leave it is as an industrial area'. Only HS2 changed it. So the policy documents take some time to progress to that. There hasn't been much potential until now" (Ealing 2014). Hammersmith and Fulham echo the feeling scope is limited - "The potential is however likely to be heavily constrained by Crossrail's requirements for the Old Oak Sidings Site" (in GLA 2012:4).</p> <p>It is perceived that Canal and River Trust have a veto over moorings, wharfs, handling/transfer facilities (TfL 2014).</p> <p>"Low bridges, loss of water through more intensive use of locks, slow manual locks and dredging to support</p>	<p>Ealing 2014; TfL 2014; GLA 2012:4; Construction Manager, 2010; British Waterways 2005a:5;</p>	<p>The London Plan only states that 'should' identify sites, not must (London Plan). The Mayor should strengthen the requirement and monitor this is done.</p> <p>Campaigning should also ensure BRN policies are interpreted in the Old Oak Common Supplementary Planning Documents, including identification of wharves as per London Plan policy 7.26.C: "Within LDFs boroughs should identify locations that are suitable for additional waterborne freight" (GLA 2011:243). Sites have already been identified in SWIR (GLA 2013). The Mayor Development Corporation could play a role enabling this. "Thee GLA's proposal to have an MDC might help because it's got greater focus, and greater access to canal experts at the GLA" (Ealing 2014). "Under an MDC TfL is one step closer to the decision makers. if it was just left to the boroughs this would be harder to mitigate construction traffic and make it more sustainable. It is easier to make the case to the MDC than to local borough councils" (TfL 2014).</p> <p>The preferred option is that the Mayor confers some or all of local planning authority powers onto MDC in this case (IPB 2014:202-4). It is likely local authority staff may TUPE across under transfer rights, so helpful to continue to inform local authority planners during the interim period. Particularly as there was continuity in the other MDC precedent: "With regard to the MDC element of it, the officers who worked on the planning applications for the ODA were transferred across to the LLDC, so there was good continuity and it hasn't felt much different from my point of view" (Canal and River Trust Area Planner 2014b).</p> <p>"Where there are restrictions on moving freight by road to and from a particular site, it could effectively be land-locked, and so remain undeveloped. If such sights are alongside navigable waterways capable of carrying freight, the waterways could be the key that unlocks development potential" (British Waterways 2003). Examples like this,</p>

				<p>such as King's Cross Guardian building show it can be done, and their cost assessments might be useful to influence others, or use it again where it isn't essential.</p> <p>"Developers should be encouraged to plan developments in a way which will allow waste to be transferred to the canal in the future, where economically feasible to do so" (British Waterways 2005a:5).</p>
C.11	Client-led feasibility studies	<p>Lack of knowledge how to accurately do cost/feasibility studies.</p> <p>"Some ask for a feasibility study but then clients commission a study to prove it's not economic. We need more than just lip-service" (Dodwell, CBOA in Construction Manager 2010).</p> <p>Need for people assessing to be able to judge costs-benefits and accuracy of statements. "Planners are not up to speed on general impact on London" of HGVs (Canal and River Trust 2014).</p> <p>When asked how they would judge an environmental impact statement about canal freight: "We would speak to someone like the British Waterways Board" (Ealing 2014)... "Councils are a jack of all trades but we also have to be bespoke and specific. Some [councils] have miniscule amounts of land on the canal and potential for canal freight. So we do talk, but it isn't possible for each council to have that knowledge in house. It would help if there was something Nationally or Regionally" (Ealing 2014).</p> <p>"we have talked to the developers and asked them about the Blue Ribbon policies, and they say, 'What policies?' " (London Assembly 2006:41 citing 'Del Brenner, Regents Network, transcript of London Rivers Association meeting 13 December 2005')</p> <p>"GLA officers have pointed out that with the demands on their time, the variety of issues needing consideration and the need for detailed local knowledge, it may not be feasible to test the assumptions made by developers if they dismiss the possibility of a pier, or a boating club" (London Assembly 2006:40).</p>	Ealing 2014; TFL 2014;	<p>Issue information to up skill local authorities and the community to respond to canal freight assessments.</p> <p>Speaking of Crossrail's assessments and doubts whether they were correct Brenner commented the "only way that we can go generally is through the high court" (2014). Losing means the community must pay the costs (though there are caps on this) but it does limit the community's ability to challenge decisions. What role can Government play in ensuring assessments are accurate and tested?" (2014).</p> <p>No clear remit for canal freight and "a lot of buck passing where this is concerned" (TFL 2014). Given British Waterways no longer exists, TfL/CarT's Demystifying Freight work should assist. Organisations like TfL and Canal and River Trust would benefit from issuing policy statement to staff.</p>

C.12	Conservation and leisure	<p>"Disruption to nature" (Ealing 2014); "You don't want to detract from one of it's main purpose of boat homes. You want to make sure it's a nice area for people to come and enjoy" (TFL 2014).</p> <p>"Canals are for leisure now. Times have changed. But we'll support it where it's possible" (Canal and River Trust 2014a).</p> <p>"competition with leisure use and regeneration-related development" (DEFRA 2002:69).</p>	<p>Canal and River Trust 2014; AINA 2004; H&F 2014; DEFRA 2002:8;</p>	<p>Issue counter information and pictures of freight boats:</p> <p>"Freight on inland waterways produces low emissions with low noise, and is visually unobtrusive – a powerful combination of the environmentally friendly and the socially acceptable....Purpose-Built for Freight...They still fulfil this role today, working in harmony with pleasure craft" (British Waterways, 2003:02).</p> <p>"conflicts between different users of the waterways – particularly the relationship of some waterside residents to their commercial or industrial neighbours – can contribute to activities being stifled. A vibrant waterways environment is part of London's heritage, and the sounds and sights of the water today should be more than an echo of its past as the city's commercial heart" (London Assembly 2006:8).</p> <p>"The Environment Agency don't like it in river because of the invertebrates. But the canal is quite contaminated, all the businesses on the canal edge and boats that were quite contaminating. It's never been a blocker" (Hewitt 2014).</p> <p>"Manage development pressures on the landscape - both natural and man-made" (DfT 2007:17).</p>
C.13	Additional benefit of water vs. rail unidentified	<p>"From the Council's perspective either is equally good" (Ealing 2014).</p> <p>TFL review environmental statements in terms of "how they mitigate development and try to get them to make use of rail and water" (2014).</p>	<p>Ealing 2014; TFL 2014.</p>	<p>If there are additional benefits of water then would be useful to distribute information on this. For example there are indications emissions are still lower by Euro/Kton.km (CBOA 2014b). Alternatively, if rail can achieve the same benefits.</p> <p>"Rail only works over distances of around 150-200 miles or more and then depends on the quantity carried" (TFL 2014).</p>
C.14	Lack of precedent and missed opportunity of Olympics	<p>"the issue was not having a model to go on" (Brenner 2014).</p> <p>"People aren't prepared to take risks with a waterway that isn't proven. But people will become more aware of the waterways, and will start to look into it," predicts British Waterways' sustainable transport manager Kim Milnes (Construction Manager 2010).</p> <p>The Olympics does not give confidence in feasibility.</p> <p>"TFL funded a scheme in 2007 that would allow bigger barges to go to</p>	<p>Ealing 2014; Construction Manager, 2010; Brenner 2014; GLA 2013:58; Hewitt 2014;</p>	<p>Issue counter information for reasons, for example that infrastructure (locks) was not completed before rail took a stronghold (Brenner 2014).</p> <p>"Three Mills Lock was only completed in 2008-9, which was after most of the main construction contracts for the Olympics were awarded" (GLA 2013:58).</p> <p>The missed opportunity highlights the need to begin putting actions in place at OOC at the earliest opportunity.</p>

	<p>Olympic park and upgraded the canal in the area but the scheme hasn't brought a great deal of success. Stratford has a very good rail connection so this had most of the construction material"</p> <p>"Three Mills Lock was delivered 10 months late by British Waterways, allowing a road-and-rail mind-set to become entrenched. The ODA did dredge the waterway upstream of the lock and complete a wharf on the Olympic Park, but only after the lock had opened. Meanwhile, a sewage pipe elevated above the canal restricts the height of the loaded barges, and a tricky tight corner restricts their size to 100 tonnes" (Construction Manager 2010).</p> <p>"Potentially, the waterways could help deliver a sustainable Olympic Games, as well as providing a high-profile demonstration of water-based freight. For these reasons the Mayor should, as a priority, secure the necessary resources to make water-based transport viable, and fully exploit this opportunity wherever sustainable and affordable. As British Waterways has said, 'if it can't work here it can't work anywhere'" (London Assembly 2006:22 citing New Civil Engineer, 15 December 2005).</p> <p>"Now that the Olympic Park is close to completion, it can be concluded that the aspiration to move substantial amounts of constructions materials by water before 2012 has not been realised due to the preferred use of rail as a more cost effective transport option" (GLA 2013:59).</p>	<p>Identify most appropriate examples via CBOA.</p> <p>"MTV Camden town used canal freight...all the maintenance and demolition they did was done by barge. It went to power days but in barges...it only just finished 6-8 months ago" (Brenner 2014).</p> <p>For example, "Hanson awarded London Water a seven-year contract with a three-year extension to move aggregates at Denham...They invested in two new barges because they saw it was big enough. However the pit's life came to an end" (Hewitt 2014).</p> <p>"Hadleys ran a trial run from Reading. They were convinced it was worth their while to have material brought to Junction 3 of the M4 at Southall so they didn't have to drive into London. If they went into central London to get the material it wouldn't be economically viable. It saved them £2.50 a tonne from Paddington to Southall. That £2.50 was worth it. Hadleys built a big facility which would handle a million tonnes in Reading and needed material to put through it. They didn't have a specific consumer in mind, just a destination of material. A lot of material starts in London but it's the most expensive place to get it from. They may have got enough material from outside London or from West London without having to go in" (Hewitt 2014).</p> <p>TfL (2007a) also highlight Hanson exemplar, 10,000 tonnes of steel anticipated in Kings Place development and 'probable removal of 12,000t of demolition material from Paddington Basin to Powerday in the second half of 2007"</p>
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C.15	Complex Supply Chain	<p>"gets subbed to contractors and companies - construction companies take things through regular channels. Danger is that Old Oak will start off in exactly the same way" (Brenner 2014).</p> <p>Need for "seamless door-to-door journeys" (Freight by Water 2012:2).</p> <p>Connections to Thames and worldwide shippers with support of PLA: "MAERSK could spend a lot of money on something like this"... "DB port has been financed by Saudi money (will be biggest port in country) to take large containers. The Chief Exec of Port is looking for a way to transport containers inland" (Brenner 2014).</p> <p>Bovis Lend Lease used canal freight at MediaCityUK on Manchester Ship Canal and found it economically viable and the carbon footprint significant. It is perceived it helped that "the client for MediaCityUK is Peel Media, a subsidiary of Peel Group, the company which in fact owns Mersey Docks and the Manchester Ship Canal. It was already running a regular freight service along the canal, meaning that Bovis did not have to contract its own barge operator" (Construction Manager 2010).</p>	<p>Brenner 2014; Freight by Water 2012; Ealing 2014; Freight Group 2014; Peter Brett Associates 2005:2; DEFRA 2002;</p>	<p>The most likely way to enforce use would be insistence from the local authority of MDC. For this to happen the planners need to be confident judging feasibility statements.</p> <p>Opportunities for multi-modality should be promoted. Connection to railway cited by Ealing (2014). Connection to M4 cited (Freight Group 2014; Hewitt 2014; CBOA 2013). Actively consider these opportunities as will relieve central London congestion and canal freight is deemed more cost effective for short distances. Use of consolidation centres if located near the canal could also assist (Canal and River Trust 2014).</p> <p>"The draft Further Alterations to the London Plan stress that an efficient logistics network and related infrastructure are essential to London's competitiveness. The Mayor will work with a range of partners to secure adequate provisions, including multi-modal freight transfer capacity" (TfL 2007:18).</p> <p>"At a regional level, adequate and suitably located facilities for inter-modal freight interchanges (i.e. facilities for transfer between road vehicles and rail, sea, inland waterways and air freight) are vital to fulfilling relevant policy objectives" (DfT 2007:19).</p>
C.16	Use of consultants	<p>Consultants can offer a very process-driven approach to assessments and an independent endorsement, however there is some negativity from members of the canal community because they charge extortionate amounts of money but still rely on canaling community and Commercial Boat Operators to answer all their questions. "It should be people who are involved leading it, then facilitated by consultants/accountants etc." (Brenner 2014). For example the Safeguarding Wharves Implementation Report (GLA 2013) judged canal freight negatively, despite being funded by the GLA, thus contradicting the positivity of the London Plan towards it as a viable option. "It didn't really go into all the evidence on the basis of the canals - evidence exists on the Thames, but not for canals" (Brenner 2014).</p> <p>British Waterways and TfL funded "a major study by Peter Brett Associates on the freight potential of west London canal network, including business opportunities, locations for modern wharf sites and other recommendations for reviving commercial canal traffic (at a cost of £140,000)" (British Waterways 2005).</p>	<p>Brenner 2014; British Waterways 2005;</p>	<p>If the GLA does not have capacity in-house to conduct assessments and needs to make use of consultants could they also offering funding to organisation like CBOA for their role in the process as they supply a lot of information to the consultants. A consultant might still be warranted to verify information supplied. Peter Brett Associates have conducted a number of studies on behalf of TfL and therefore become very knowledgeable on the sector but that knowledge by consultants isn't retained unless consultants are willing to attend partnership meetings unfunded, some might to assist reputation and new-business opportunities.</p> <p>Speaking of the SWIR, "Safeguarding Wharves is the closest thing we have to an official line" (TFL 2014).</p>

C.17	<p>No clear ownership/responsibility</p>	<p>"Buck passing" (TFL 2014).</p> <p>Canal and River Trust have interests of canal as leisure to consider and water freight is perceived to conflict with this. "Local Authorities should retain an open mind even when the Navigation Authority has a wharf audit or wharf strategy in place, especially if the Navigation Authority is the owner of the wharf in question" (AINA 2004:18).</p> <p>"if you want to understand more and have not started a commercial discussion with a provider, please get in touch" (Mode Shift Centre 2014).</p> <p>Changing remit of British Waterways/ Canal and River Trust. British Waterways was chaired by DETR in 1999 to "Fulfil statutory navigation functions' and 'Facilitate water transport' amongst other charges. The BW corporate mission set "The business is to manage the inland water system efficiently for increasing public benefit of the United Kingdom" reflecting its broader remit than CaRT focusing on canal/ canal users (British Waterways 2005a:1).</p> <p>British Waterways (2005a:3) declared themselves "effectively the principal operator" for Hanson aggregates contract and played a key role waste by water trials. "British Waterways' teams in marketing, water resource, and waterways operations are ready to help you take advantage of the tremendous capacity of our waterways, and to 'carry more weight with waterways freight'. We can also provide extra support from civil and mechanical engineering and estate management specialists to answer questions or help with development projects" (British Waterways 2003).</p> <p>"Lack of effective representation" (DEFRA 2002:13). Weak marketing (DEFRA 2002; forward and 12) to "convince potential freight customers" (DEFRA 2002:69). Plus "there are factors prohibiting" water freight "such as...the approach adopted to freight by some navigation authorities" (DEFRA 2002:8). Limits to "trailing of innovative services" (DEFRA 2002:12).</p>	<p>Mode Shift Centre 2014; AINA 2004:18; British Waterways 2005a:1-3; DEFRA 2002;</p>	<p>partnerships "provide a proactive means of encouraging examination of the potential for waterborne freight" (AINA 2004:46). Great efforts are going into multiple working parties: Waterways Commission Freight Group, Freight by Water (part of Freight Transport Association), Freight Action Group (Canal and River Trust); Demystifying Canal Freight working group (TfL / CaRT collaboration); Inland Waterways Freight Group. Commercial Boat Operators Association has a more specific remit. Some are National/Regional. It would be useful if all groups shared membership/committee lists and ensure there are representatives feed into the other groups. Where they have the same remit it might be more effective to rationalise. Partnerships should establish "the main issue intended to be addressed by the partnership" and "clarity on the delivery mechanism of the partnership" (AINA 2004:27). A clear communications plan is needed which might be addressed by TfL and CaRT with Demystifying Freight. Construction Manager (2010) ran a very thorough balanced article on the Olympic opportunity and would be a good place to do a follow up article on opportunities at OOC.</p> <p>The London Canals Committee (LCC) disbanded in 2004 leaving in region of £20,000 funds. This was attended by local authorities with canal routes through them who funded its existence (£4,000 per year). Up to 4 local authorities were invited to sit on the replacement Waterways Commission (London Councils 2006). Three councillors are on the current Membership list (LDA 2014) but no local authority planning officers which might be something to recommend to encourage implementation.</p> <p>HS2 are already in liaison Canal and River Trust (TFL 2014, Canal and River Trust 2014a). Canal and River Trust is a statutory consultee, but waterborne freight is not their priority. The Mode Shift Centre could provide advice or Freight Group of Waterways Commission or Freight by Water.</p> <p>"Freight should be an explicitly recognized responsibility in the objectives of navigation authorities, who should be encouraged to adopt policies of positive support for freight traffic, allocating management responsibility to give a higher profile to freight where necessary" (DEFRA 2002:forward and 8).</p> <p>Need for a brokerage service as "potential customers are generally</p>
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				<p>unaware of what the industry might be able to offer, as there is little marketing effort" (DEFRA 2002:69)...consider "co-operative marketing between waterway authorities and operators" (DEFRA 2002:70).</p> <p>Consider best representative body or a "one-stop-shop" (DEFRA 2002:72).</p>
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APPENDIX B: CROSS RAIL FEASIBILITY STUDY:

In 2010, Construction Manager magazine reported Crossrail “commissioned a feasibility study from consultant Peter Brett Associates to use the Slough-to-London Grand Union Canal to transport tunnel linings to Westbourne Park. However, the final decision on this aspect of the scheme depends on where the linings are cast, which in turn is the decision of the yet-to-be-appointed tunnelling consortium....Much of the industry’s imported materials – such as cladding from the continent, or stone from China – already arrives at one of the UK’s 100 coastal ports. From there, loading onto a river-barge is no more problematic than to an HGV”.

Hewitt (2014) offers an interpretation of why this did not happen: “They did look at it as a potential, but weren’t keen from the beginning. When Crossrail Central appointed BFK they were going to take segments by rail; they got planning consent on that basis. Then when they got the job they discovered problem as they couldn’t get the signalling done for the sidings for two years so had to take by road. Hammersmith and Fulham gave them road access disappointingly; especially after we lobbied them...It ends up at some poor council who say we’d better let them. We don’t want to be seen to be the ones to hold up cross rail” (Hewitt 2014). “It would be useful to know how many tunnel segments. They often come up with a fantastic set of figures assuming nothing goes wrong but actually movement is 50% of what they say. It’s never as smooth as planned on paper”.

Transport by Canal Barge

The segment manufacturing plant will be located adjacent to the Grand Union Canal and this waterway also runs adjacent to our site at WBP where the segments are to be delivered. It therefore made sense to carry out a feasibility study to move the segments by barge.

It was found that in both locations the canal is considerably higher than the sites and so complex sloping gantry cranes will be needed to lift the segments into barges from the stockpiles. The segments will have to be lifted over the towpath which will cause disruption to pedestrians and the presence of 400kv cables in the towpath is an additional risk.

The gantries will be substantial structures at both sites and little can be done to mitigate any noise from their operation due to the proximity of the water. The double handling of the segments that this method entails will take extra time and adds to the risk of damaging the segments.

A scheduling exercise was carried out to see how many rings could be delivered in a day. Each barge would take two hours to complete the 1.1 mile journey and with allowing one hour to load or offload gives a round trip of 6 hours. A tug can only take two barges safely on the canal and with every trip taking 6 hours each barge could manage two round trips in a day. Assuming that one set of barges will be loading while another set is travelling and a third set is unloading, we can run six barges a day.

The mode of transport should also be as gentle as possible and this is where a road trailer has an advantage over a railway wagon.

The delivery programme of tunnel rings to WBP has to be carefully controlled and may need to be varied at short notice due to perhaps delays in manufacturing or tunnel boring. This requires a flexible mode of transport that can be increased or decreased at will. Road transport provides this as well as reliability as there are fewer risks than with a large train that may be affected by strikes, availability of train paths or breakdowns.

Loading segments onto vehicle trailers is quick and does not require double handling thus reducing potential damage. Each vehicle will be able to carry eight segments i.e. one complete ring and so approximately 34 lorries will be required each day to feed the TBM with segments.

To reduce impact on the local community, BFK also propose transporting segments out of peak and school hours where children are being picked up or dropped off.

APPENDIX C:

Suggested text petitions to the HS2 Hybrid Bill for the full consideration of canal freight

HS2's Environmental Statement gives a detailed explanation of the logistics of HS2's construction including use of conveyors raised 3m above the canal. Despite this, no consideration has been made to the potential of canal freight, despite the development's canal-side advantage (particularly the Atlas Road site where conveyors will run from other construction sites). This contravenes NPPF guidance that "29. The transport system needs to be balanced in favour of sustainable transport modes" (p.9) and "35. Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people" (p.10).

It also goes against the London Plan: Policy 6.14 encourages development proposals which "increase the use of the Blue Ribbon Network for freight transport" and 7.73: "the Mayor wishes to ensure that uses of the water and land alongside it are prioritised, within sustainable limits, for transport purposes – both passenger and freight" (p.241).

This stretch of the canal is capable of accommodating 90ft barges carrying 80 tonnes each (Powerday 2010), with capacity for up to 25 barges per day (London Assembly 2006:20). On a presumption of 252 working days a year this enables a capacity of 567,000 tonnes to feasibly be carried by water, greatly reducing impact on local roads by approximately 28,350 lorries (assuming 20 tonne capacity).

Canal freight deserves a fair assessment as has scope to greatly alleviate concerns of local people, and serves interests of Londoners as reflected in Mode Shift Benefit (MSB) values proposed by DfT (2009:19). There is potential to decrease emissions, noise, road deaths and congestion caused by HGVs which is already problematic in the area. As a major public funded project HS2 provides an opportunity to use more sustainable transport options.

We demand a thorough, open book assessment of canal freight feasibility which can be ratified by bodies such as the Freight Group of the Waterways Commission.

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