

Unite Submission to the Defra Consultation ‘A New Era for the Waterways’

1 Introduction

- 1.1. Unite is the UK’s largest trade union with 1.5 million members across the private and public sectors. The union’s members work in a range of industries including manufacturing, financial services, print, media, construction, transport, local government, food, agriculture, education, health, not for profit and, of particular relevance to this submission, the docks, rail, ferries and waterways sectors.
- 1.2. Unite’s docks, rail, ferries and waterways sector has just under 19,000 members and is continuing to grow. Unite represents a wide range of employees at British Waterways and has members who are tug boat operatives and masters in companies like Svitzer. Unite also organises ferries and in ports around the UK. Unite is also the biggest maritime union in British waters, uniting masters and ratings. Unite is, in addition, the largest union at the port of Dover.
- 1.3. Unite also looks after members who are employed by the Environment Agency in addition to its members in the docks, rail, ferries and waterways sector. Our members also encompass a wide range of individuals who utilise the services provided by the network in their leisure time.

2 Executive Summary

- 2.1. Unite does not believe that the best interests of the nation are served by transferring the ownership of the canal network into a charity. The network provides the opportunity to provide the most environmentally friendly method of moving goods around the country but this potential has been ignored and left to wither on the vine.
- 2.2. The maintenance of the network has been underfunded for decades and staffing levels reduced so that now only a core is left. The network is now in a safety critical state with many assets on the verge of collapse. Canals have been left to silt up so that the depth has progressively been reduced in some cases to just over half a metre deep.
- 2.3. Unite believes that the maintenance of the canals themselves are best served by moving it under the influence and control of the Department for Transport as a solution to the growing freight movement capacity problem.

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- 2.4. The leisure benefits of the network should be viewed as secondary to this goal despite their importance to the communities through which these waterways pass.
- 2.5. The waterway network provides drainage and flood prevention for vast areas of land around the UK, but equally it provides a growing threat to the people and businesses that neighbour these waterways.
- 2.6. Unite believes that one avenue which has not been explored is the use of bio materials as a source material for the generation of bio fuel and electricity similar to those being built in East London and Sydney Australia.
- 2.7. Unite also realises that the waterways, provide housing for a growing population of residential boat owners. Unite believes therefore that they are a captive market and should not be exploited by raising excessive additional capital from the marina divisions fees.
- 2.8. Unite also opposes clearly stated plans in the impact assessment which condones the substitution of employed staff positions with volunteer labour. Despite assurances to the contrary, this is already happening around the network and is totally unacceptable.

3 Consultation questions

Question 1: Do you agree that, over time, the charity should work towards including other navigations, including the EA Navigations in the next Spending Review?

- 3.1. Unite believes that EA navigations or any other waterways should only be added to the portfolio of assets operated by the new body if, and only if, it brings with it enough funding and staff to enable these assets to be fully maintained.
- 3.2. Unite notes that the potential of a mutual body part government owned and partly in the third sector, has been dismissed even though it would provide funding guarantees should the current donation projections prove to be flawed.

Question 2: Do you think that the proposed requirements of the Trust Declaration are the right ones? Are they sufficient/are there others which should be considered?

Question 3: Do you agree that the suggested charitable purposes for the NWC are broadly the right ones? Can you think of other necessary requirements?

- 3.3. Unite believes that whilst all of the proposed Trust Declaration and requirements of the Trust are laudable, two key areas is missing.
- 3.4. The key challenge for all governments globally should be the preservation of the planet and to put into place measures that promote the environmental goal of reducing and if possible reversing the level of climate change.

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- 3.5. Consequently one key goal should be to ensure the promotion of the environment and sustainable development practices. This would encompass the promotion of freight transport in order to reduce congestion on our other transport networks. The movement of freight by water is the most environmentally friendly way of moving goods from A to B and hence needs to be encouraged.
- 3.6. According to data collected by satellite navigation manufacturer Tom Tom from 800 billion pieces of data collected automatically from their devices, the UK has 8 entries in the top 20 European cities with the highest percentage of regularly congested roads. Birmingham, for example, is ranked 15th with 27.5 per cent of roads regularly congested adding at least 20 minutes extra to complete a journey which should take an hour. Birmingham has more canals than Venice providing an ideal congestion free alternative. 16 UK cities feature in the top 50 - making the UK 2011's most gridlocked European country.

Ranking	City	Percentage Congested 2011	Increase over 2010	Navigable waterway miles ¹
1	Brussels	38.9	1.2	
2	Warsaw	38.1	0.5	
3	London	34.5	-0.2	115.5
4	Wroclaw	33.1	-2.6	
5	Toulouse	33.0	-1.9	
6	Lyon	32.6	0.2	
7	Edinburgh	31.7	-2.8	
8	Marseille	30.4	-0.8	
9	Paris	29.9	-0.5	
10	Manchester	29.5	0.1	79.4
11	Bradford	29.4	0.0	No waterways²
12	Belfast	29.0	-2.8	
13	Oxford	29.0	0.3	15.4
14	Milan	28.2	-1.2	
15	Birmingham	27.5	-1.0	126.8³
16	Zurich	27.4	0.4	
17	Oslo	26.9	0.5	
18	Rome	26.8	-1.2	
19	Aberdeen	26.3	-0.4	
20	Naples	26.2	0.1	
29	Nottingham	23.1	-0.6	25.9

Source Tom Tom

- 3.7. Unite believes that it is only fitting that the network that made the industrial revolution possible, should be utilised to reduce the impact of its' effect on today's environment.

¹ In England and Wales - For more information see Appendix 3

² In Bradford but is within 4 miles of a large stretch of the Leeds and Liverpool Canal

³ Birmingham's canal network has lost over 40 miles of navigations.

Question 4: Do you agree with the proposed 'mission statement'? How could it be improved?

3.8. Unite suggests the following to reflect points made earlier:-

“NWC exists to protect and promote our inland waterway network so that our unique waterway heritage will always be a valued part of the environment, local landscapes, transport network and communities.”

3.9. Replacing network with environment expands upon the extent of the body's suggested brief, but only in so far that it is expanded enough to encompass the full range of assets which will be cared for by the new body. The word “environment” in this context also promotes an effort to work with nature to enhance the atmosphere of the network and not just erect concrete and steel embankments when natural and less polluting alternatives could be utilised.

3.10. The term environment would also encompass the promotion of the natural habitat of plants and animals which has always been part of the role of the parent bodies.

Question 5: Do you agree with the proposed 'belief' statement? How could it be improved?

3.11. Unite would suggest:-

“Our unique waterways belong to us all, and we believe that they should be nurtured, enjoyed and utilised for all our tomorrows. Waterways are part of our local communities, history and environment. They refresh the spirit and provide a haven for wildlife and people amid an otherwise fast-paced and pressured world, while providing a potential solution to our transport needs.”

3.12. Such a change in wording better reflects the multiple tasks which are provided by the waterways. To nurture suggests that there should be an effort to promote, sustain, grow and develop the waterways. Enjoyment of the natural environment and the need for leisure and pleasure to escape from the high pressure world is equally important. Full utilisation of the network not only helps pay for the upkeep of the network, it also assists in exploiting the environment for the better.

3.13. According to the Office of National Statistics the UK population is projected to increase by 4.3 million by 2018. This increase is equivalent to an average annual rate of growth of 0.7 per cent. If past trends continue, the population will continue to grow, reaching 71.6 million by 2033. With the growth of the UK population expanding at such a pace the existing network of road and rail will not be able to cope with the demands put upon it.

3.14. Environmentally the country has to reduce its carbon footprint in an effort to reduce the effects of climate change. Transport's emissions are one of the areas where emissions are currently growing. 92 per cent of these domestic transport emissions are from road modes. Commercial road transport in HGVs are alone responsible for 23 per cent of carbon dioxide emissions from

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all domestic transport. Road freight now accounts for 8% of UK carbon dioxide emissions. Whilst efforts are being made to divert some of the growth in freight traffic to the rail network, there are limits on what can realistically be transferred, principally due to competition for capacity from passenger traffic.

- 3.15. The waterways of the UK offer a solution to both non time critical loads as a last mile solution to waterside locations especially in places like Birmingham⁴. As the movement of freight on water uses one fiftieth of the fuel needed to move an equivalent weight by road, this should be encouraged.

Question 6: Do you agree with the proposed 'vision' statement? How could it be improved?

- 3.16. Whilst the sentiments stated in the proposed vision statement describe the key objective it should be remembered that the new charity will also take on the role of managing the reservoirs, aqueducts, bridges and the third largest collection of historic buildings, not just canals and rivers. Consequently Unite would suggest:-

“We want the waterways and their historical transport heritage to be enjoyed, valued, used and cared for by everyone.”

Question 7: Do you agree that the New Waterways Charity should enjoy the same powers and be subject to similar legal duties to maintain the waterways as British Waterways currently is?

- 3.17. Unite believes that the new body will also need to take on the powers and legal duties of the Environment Agency in relation to their River and Canal assets should they merge with the new body if these powers and legal duties go beyond that of British Waterways currently in England and Wales.

Question 8: Do you agree with the proposed governance model for the new charity?

What improvements could be made?

- 3.18. Unite does not agree with the currently proposed governance model as there is no provision to take into account the interests of the freight operators. If the government is serious about climate change adaptation, these operators need to have a voice in these groups.

Question 9: Should funds raised locally by the Local Partnership be spent on local priorities? Why?

- 3.19. Unite believes that funds raised should not always be used for the benefit of local priorities.
- 3.20. The first priority of the new body should be to prevent breaches of the network and damage to neighbouring property. If there are adequate funds to

⁴ There are more canals in Birmingham than can be found in Venice.

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ensure this primary responsibility is met then the funds raised locally should be used for local priorities.

- 3.21. Unlike the National Trust properties, the assets to which donations relate do not end after a few hectares, but are spread over kilometre after kilometre of an interconnecting network. The loss of one section of this network could adversely affect the viability of other neighbouring sections and properties.
- 3.22. If funds are dependant on the generosity of the local community in an area, funding for the maintenance of critical issues in areas that pass through more deprived areas will go unmet. As the network can travel for miles without encountering a lock, the failure of that lock or the bank can cause the entire stretch to empty of water.

Question 10: Who do you think should be encouraged to sit on Local Partnerships? How should the nominations panel be constituted; who are the essential parties?

- 3.23. Unite believes there are three clear categories of individuals who should be encouraged to sit on any Local Partnership:-
 - Workplace representatives who represent the practical implications behind any proposals that may be considered;
 - Representatives of the users of the waterways, be that from the fishing or boating communities;
 - Representatives from businesses which utilise the waterways such as freight operators and boat hire companies.
- 3.24. In addition, representation should also be required from the local authorities who neighbour the path of the canals.
- 3.25. Unite believes that there are considerable administrative barriers created by British Waterways themselves which have weakened the level of contact between the local authorities, councils and British Waterways to breaking point. The quantity of red tape is considerable and would require a significant overhaul to break down this obstacle.
- 3.26. Unite believes there should be an environment of mutual co-operation rather than the current territorially adversarial approach.

Question 11: Is between 8 and 12 the right size for a Local Partnership?

- 3.27. Unite believes that the size of the local partnership is not as important as ensuring that the group is representative of all interested parties. It is also important that each representative takes an active part in the debates. Consequently Unite believes that the size of the Local Partnership should be determined by the level of interest not a set number.
- 3.28. Unite believes participation should be qualitative rather than quantitative with meaningful participation finding its own level over time.

Question 12: Which are the particular subjects or activities you think may require the attention of a specific sub-committee of a local partnership?

- 3.29. The promotion of freight by water needs special attention if it is not to cause any conflicts with other parties that utilise the waterways. The movement of freight by water has been recognised by environmental groups and strategists throughout Europe as one of the main pillars in the struggle toward reducing the level of freight transit emissions.
- 3.30. A growing population are using the canals as places of residence due to the rapid and spiralling cost of housing, particularly in cities. This population needs to have a strong voice as they are often living on these boats out of necessity as opposed to choice and therefore need to ensure that their homes are secure.

Question 13: How best can the New Waterways Charity strike the right balance between local needs and the needs of the waterways network as a whole?

- 3.31. Unite believes that, as highlighted previously, the priorities should be determined by need and, wherever possible, long term solutions found rather than short term fixes. At no point should the priorities be determined by which community has the deepest pockets, be that in terms of local or business interests. Unite believes that when faced with projects of equal urgency, the priority may be influenced by the support given on a local level only. In such a manner urgent jobs would not be sidelined by projects of lesser value to the integrity of the infrastructure.
- 3.32. If donations cannot be earmarked for a specific project, it encourages physical participation which might be of greater value.

Question 14: How could the charity encourage effective working between different communities and partnerships who share the same waterway?

- 3.33. As with any body engaged in dealing with differing community priorities, there will be conflict and hence there is a role to play by any party, with ownership of the network, to act as a mediator between rival groups. Unite believes the key is to identify grounds of mutual interest and build upon them.
- 3.34. Equally the key to encouraging participation is to ensure there is active involvement by the interested parties in the decision making process through to resolution.

Question 15: In what ways could people be helped to become more involved and take more responsibility for their local waterways? What might the barriers be, and how could they be overcome?

- 3.35. Unite believes that the general public often does not realise there is a canal or waterway anywhere near them, especially in urban areas, as they are frequently hidden behind hedges and buildings.

- 3.36. The simplest way to involve individuals is to engage with them, and promote local waterways for example with the publication of an annual or biannual journal through their door to make them aware of what the waterway has to offer and the challenges it faces especially when it comes to maintenance. Such a journal could be supplemented with the provision of a website.

Question 16: In what ways could more people be encouraged to volunteer for the waterways? What might the barriers be, and how could they be overcome?

- 3.37. Volunteers normally only come forward if they have an interest in the subject and they have the time, inclination and support to get involved.
- 3.38. The first barrier is therefore making people interested in the welfare of the waterways. One obvious way in which people become interested is for them to be a person who uses the network, e.g. for fishing, walking their dog etc. Another far less positive way to encourage interest is for them to be concerned over the security of their own neighbouring property from flooding.
- 3.39. The second barrier in today's climate of shrinking family incomes is one of time, especially if people are trying to take on second jobs to make ends meet. Others are worried about hanging on to their jobs given the high number of job losses particularly in the public sector. The number of people competing for a job has quadrupled with six applicants for every vacancy.
- 3.40. Volunteers are by definition providing their services for free, but there has to be some 'reward'. The reward in question need not be financial, but has to be sufficient to encourage further involvement. Without this reward there will be no incentive to continue participation. This situation will persist in being a barrier until such time as there is an improvement in the level of household disposable income and potential for increased leisure time. Charity after all begins at home.

Question 17: What would a successful volunteer programme look like? What would it achieve?

- 3.41. Unite believes that a successful volunteer programme is not one where the role of full or part-time employed positions are replaced by volunteers as has been the case recently at British Waterways.
- 3.42. One of the prime issues concerning Unite in this programme is the issue of safety not only of the staff who are being asked to resolve incidents in all weathers but also the safety of the users of the network.
- 3.43. Inexperienced boat operators, such as those who take their holidays on the waterways, often only receive very basic training in basic lock operation. In Leighton Buzzard, for example, holidaying boat users may be trained on the use of the Tolbert's lock⁵ only then to be faced with a flight of three locks only a few miles further on in their journey as their first practical experience of unsupervised lock operation. This situation could lead to the flooding of the

⁵ Just down stream from the Wyvern Shipping Company

lock side Grand Union Three Locks gastro-pub⁶. Whilst a trained lock keeper would be able to take boat users through locks swiftly and safely, inexperienced individuals may take more than twice the time needed and more importantly can cause significant damage.

- 3.44. The absence of lock keepers, particularly during the summer months, does create significant risk to neighbouring properties and the potential for loss of life. Even in the winter months the security of the network in that area benefits from their presence. If the network is to be used as an alternative freight transfer option then there is a need to ensure that locks are going to be operated safely and reliably.
- 3.45. If boats are not correctly positioned or paddles lifted at the wrong time, boats can easily be swamped or become jammed in a lock as happened in August 1998 when four people with learning difficulties, drowned on a canal holiday. In August 2009 a woman died in a lock on the Oxford Canal as a result of the narrow-boat she was steering hitting the lock gates. This accident occurred as a result of the rush of water created when paddles were lifted too rapidly by her husband and daughter.
- 3.46. Thankfully, such situations are rare but, none the less, preventable, if experienced staff are used.
- 3.47. Often by the time British Waterways staff are alerted to problems at locks and issues with canal bank problems, it is far too late to prevent the incident escalating into something more major. As a result, staff are having to be far more reactive in resolving these issues often at the expense of the ongoing maintenance programme.

Question 18: Do you agree that the new charity should initially focus on securing fair representation, and move towards a greater element of direct membership over time?

- 3.48. Unite agrees that the design of the governing body of the new body should incorporate the views of all parties with an interest in the network. As they will be directly affected by any decisions made, it is important that the skills, knowledge and experience of the staff are taken into account.
- 3.49. Unite believes that with membership comes, not only income, but also a sense of ownership which therefore encourages participation and volunteering in the activities of the network. Proportionate representation is key.

Question 19: Do you agree with the proposed make up of the Council? Which interests should be represented?

- 3.50. Unite believes that the Council should represent the interests of all users, operators and workers (be they employed or voluntary) that are involved with the waterways together with representatives of the local authorities.

⁶ Stoke Hammond, Buckinghamshire MK17 9DD

Question 20: Should a proportion of the Council be directly elected? If so, who should be entitled to vote?

- 3.51. Unite believes in democracy and hence would suggest that there should be elections where there are sufficient nominations from the communities. The parties eligible to vote should be those who are members of that community, i.e. someone to represent the anglers should be elected from the angling community that use the waterways.
- 3.52. To ensure continuity, however, Unite would suggest that elections should be staggered so that the whole council is not replaced in one go. Unite believes that by doing so it removes the necessity for Council members to be appointed unless no nominations can be found.

Question 21: Should the independent chair of the Appointments Committee be chosen by Committee members or the Council? What skills would they need?

- 3.53. Unite believes by definition an independent chair has to be independent. Consequently, if the chair is chosen by either group they would not be independent. Unite therefore believes that the chair of the committee should be selected from outside both groups.
- 3.54. The Chair of a committee is a very powerful position as they set the agenda, call meetings and control the flow of the meeting. Therefore to ensure impartiality the individual needs to be acceptable to both parties.

Question 22: Are there other topics that you consider would benefit from Council scrutiny committees?

- 3.55. Unite believes that the promotion of freight on the waterways needs significant support, not only to encourage freight operators to consider the use of the network but also to ensure that the waterways are fit for purpose. The promotion of freight has for some time been left to wither on the vine and the obligation to maintain the network to a minimum required standard resented.
- 3.56. Dredging is critical to ensure there is clearance for freight and access for pleasure and leisure craft. If there is a sufficient volume of movements along the network, it reduces the need for dredging, simply to keep routes open. To make the routes accessible, however, will require significant investment.
- 3.57. When the Prescott Locks went in Stratford for the Olympic village its aim was to encourage the movement of freight by water to the site. No effort was made, however, to dredge the route to these locks to enable deep drafting freight transport either side of the lock making the investment into the network next to useless.
- 3.58. On other parts of the network there is significant capacity to carry freight⁷. On the stretch between Goole Dock to the centre of Rotherham there is enough

⁷ See Appendix 1

clearance to move 700 tonne cargos on this waterway from the Humber port into the heart of industrial Yorkshire and vice versa.

- 3.59. Freight shipment by rail now accounts for 11 per cent of all freight movements and the government aims to increase this percentage by 140 per cent by investing in over £200 million. Even if a small proportion of this was diverted toward canal improvements it could increase capacity dramatically.

Question 23: Are there any other activities of British Waterways that would be best placed in the CIC?

- 3.60. The provision of freight on the network holds significant potential from the shipment of traditional Waterborne freight but will only be successful where it is an economically viable transport option. While this may be obvious, land use allocations and the necessity to dredge can do much to influence economic viability.
- 3.61. Marina activities, such as the provision of fuel and water and disposal of waste, together with mooring fees provide a steady stream of income. As stated previously, there is a growing population living on the waterways and these individuals are a captive market. Consequently there needs to be some oversight to ensure they are not exploited.
- 3.62. If investment was obtained into the generation of electricity and bio fuel from the waste plant and other bio material removed from the canal and waterways this should also be set up as a CIC. In July 2010, Solena Group - an advanced Bio-Fuel and Bio Energy company - and partner British Airways (BA), unveiled their GreenSky Project, aimed at establishing Europe's first sustainable jet-fuel plant in east London. The facility will produce a low carbon fuel which will be used by the entire airline to power part of its fleet from 2014. The new fuel will be derived from waste biomass and manufactured in a state-of-the-art-facility which converts a variety of waste materials normally destined for landfill, into aviation fuel.
- 3.63. The self contained plant will convert 500,000 tonnes of waste biomass feedstock into 16 million gallons of bio jet fuel, more than twice the amount required to make all of BA's flights at nearby London City Airport carbon neutral. In addition, the process will produce eight million gallons of Bio-Naphta and 40 MW of clean electricity, 20 MW of which will be exported to the National Grid. The process offers lifecycle greenhouse gas savings of up to 95 per cent compared to fossil-fuel derived jet kerosene.
- 3.64. A second Solena plant is also planned in Sydney, Australia after a deal was struck between BA and Qantas to support another joint venture there. It is estimated that 1200 jobs could be created at each of these facilities once opened.⁸
- 3.65. Currently this and other plant matter which hampers transport and wildlife is cleared and left on the canal bank to rot or British Waterways have to pay for

⁸ <http://www.news.com.au/travel/news/qantas-hopes-rubbish-burning-biofuel-plant-will-fly/story-e6frfq80-1225981703495#ixzz1A4ZtoLHv>

its disposal. As it rots this material produces heat and methane which is a highly flammable greenhouse gas in its own right, thought to be 27 times as damaging to the atmosphere as CO₂. Even if this material was collected and this gas burnt off it would reduce the environmental impact of this practice.

- 3.66. The Fisher Troupe process used by Solena can be used to create bio diesel or any other petro-chemical, instead of aviation fuel, creating a ready source of fuel for boat operators. Such an investment could make the network more sustainable whilst providing additional power back to the national grid to offset the volume consumed by the new charity.

Question 24: Government policy is to support the movement of freight on inland waterways, where it is economically sustainable. Do you agree that the status quo is no longer an option?

- 3.67. Unite agrees that the status quo is no longer an option when examining transport policy. Waterborne movement of freight is the most environmentally friendly option available and frees up capacity on the roads and rail. The network particularly comes into its own when handling oversize or bulk shipments.
- 3.68. The capacity of the network could hold the potential to increase traffic flow by up to 35 times its current level⁹. On the lower reaches of the Thames, barges are currently used which can carry 2,700 tonnes a time. On areas like the Trent and Aire & Calder, a two person crew can move 500 tonnes by barge. In more urban areas, one person could move 160 tonnes by using a tug to push one 80 tonne load while pulling another. Within cities like Birmingham, London, Liverpool and Coventry there are a considerable number of stretches of canal that do not have locks, enabling tugs to manoeuvre up to 4 barges in a single voyage.
- 3.69. The planning process should ensure that future property and transport network connections do not cut off sections of canal or navigable stretches of waterway by diverting them via drainage ditches and through pipelines. Such actions results in these areas and those further upstream being lost forever to the network. Where there is no option but to intersect these water courses, provision should be put into place to allow for the navigation of freight traffic past this point.
- 3.70. One major barrier to freight movement on the network is the level of draft and air clearance. Due to the level of underfunding and eventual reduced use, the network has become heavily silted. If the government is serious about maximising the network and ensuring their future for future generations, a programme of dredging is urgently required. As shown by the last study readily available¹⁰ some canals have draft clearances of just 2 feet.
- 3.71. Wind turbine manufacturers have clearly overlooked the transport capabilities of larger canals and rivers when deciding on where to site manufacturing

⁹ calculations based on a 500 tonne barge taking 50 minutes to pass through a lock on the Aire & Calder canal, multiplied out over a twenty four hour period would result in a capacity of 14,400 tonnes per hour.

¹⁰ See Appendix 1

facilities. Danish wind turbine manufacturer Vestas has recently decided to develop a 70ha area near the port of Sheerness.

- 3.72. This location was chosen as they claim *“the sheer size of the turbines that are 80m in length, means it is impossible for them to be manufactured at an inland location, due to transport difficulties”*¹¹.
- 3.73. River estuaries could have provided a solution to this dilemma, opening up new locations with better transport connectivity for the location of such facilities than are to be found at Sheerness. The Humber, for example, is navigable without interruption from the sea as far inland as Goole, and using the Aire & Calder canal to Pollington over 66km inland without encountering any locks. This is only a few kilometres from the manufacturing centres in York, Doncaster and Leeds. The Thames can handle boats of 80m long as far as Sunbury-on-Thames near Hampton Court.
- 3.74. Expanding locks could also make them more attractive, providing the canal and river network with additional freight transport revenue. The length of canal locks, and the width of the channel can both be increased if funding is made available.

Which of the 5 options do you prefer?

- 3.75. Unite would prefer Option 1 where there is no possibility of reducing the obligations on the new body to maintain the commercial network for freight operations. To do so would be enable reductions in the freight carrying network worse than those made by Beeching on the rail network. If a section is removed from the freight network it prevents the transit of freight not only on the closed section but on both ends of that segment. Such a move potentially makes a route which was only marginally viable into one which cannot continue.

What other options should we consider?

- 3.76. One of the key goals of the European Commission Transport white paper 2011¹², is a 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport by 2050. In keeping with this goal there should be funding from the Department for Transport to support the upkeep of the freight network. Defra funding is still vital to utilise the network as a drainage and flood prevention measure, but this obligation has not been channelled toward the full maintenance of the freight capacity on the network. Too many canals have been left to silt up until they have become unusable to all but the shallowest draft boats.
- 3.77. The only transport network that currently operates without government subsidy is aviation. All the rest receive some financial assistance in maintaining the network.
- 3.78. If Europe is to achieve its goal, freight transport on the inland waterways has got to be taken seriously by the government in a truly multimodal solution to freight transport emissions.

¹¹ As reported in Lloyd's List – Friday May 13 2011

¹² http://ec.europa.eu/transport/strategies/2011_white_paper_en.htm

Question 25: What measures of the effectiveness of NWC's use of public funds (through the Government Funding Contract) would be appropriate?

- 3.79. Unite believes that given the answer to question 24, an effective measure should be the volume of freight and increases in freight movements on the network. As an incentive to concentrate efforts toward freight expansion, the rate of growth in senior management salaries could reasonably be linked to the growth in revenue generated from freight operations.
- 3.80. Unite would also suggest that the level of breach incidents on the network and quantity of accidents should also be taken into account. With the focus on funding requiring vital repairs to be left almost until the last minute, this results in an increased risk a breach and the potential for injury.

Question 26: Are there other areas where you think NWC could:

- **Increase its commercial income**
- **Its voluntary income**
- **Its third party income?**

- 3.81. Unite believes that the ownership of the waterways should not leave the governance of the public sector and that funds for its operation and maintenance should be obtained from a mixture of government subsidy and commercial income from freight movement and leisure activities.
- 3.82. Unite believes that there needs to be the funding available to plug gaps caused by declines in canal and river usage. Over the past decade, charities' income has grown by £10bn largely through increases in public sector contracts, trading and individual giving¹³. All these income sources are now showing signs of decreasing especially as a result of government cuts. In the past year alone we have seen 1,600 charities disappear and pressure on available funds increase.
- 3.83. The NVCO¹⁴ Charity forecast show that charity leaders are mainly expecting the financial situation of their organisation to worsen over the next twelve months and are concerned they will not be able to provide the same level of service as they have previously over the next three months. They are also almost unanimous in thinking that the financial conditions within the voluntary sector will be negative over the next 12 months.
- 3.84. One in four charities' incomes are already experiencing a year-on-year fall before the budget cuts, with voluntary donations experiencing a particular squeeze. They fell from an average of 35 per cent of total income to 32.5 per cent, making the sector more reliant on income from endowments and public sector grants, and leaving it especially vulnerable to cuts.
- 3.85. With funding being cut from central government, Unite fears that the new charity will exhaust its funding before all the safety critical maintenance jobs are completed. Recent research by the University of Bristol and Cass Business School which tracked 30 years of data, established that fewer

¹³ http://www.ncvo-vol.org.uk/sites/default/files/A4_Funding_Commission_Final_Report.pdf

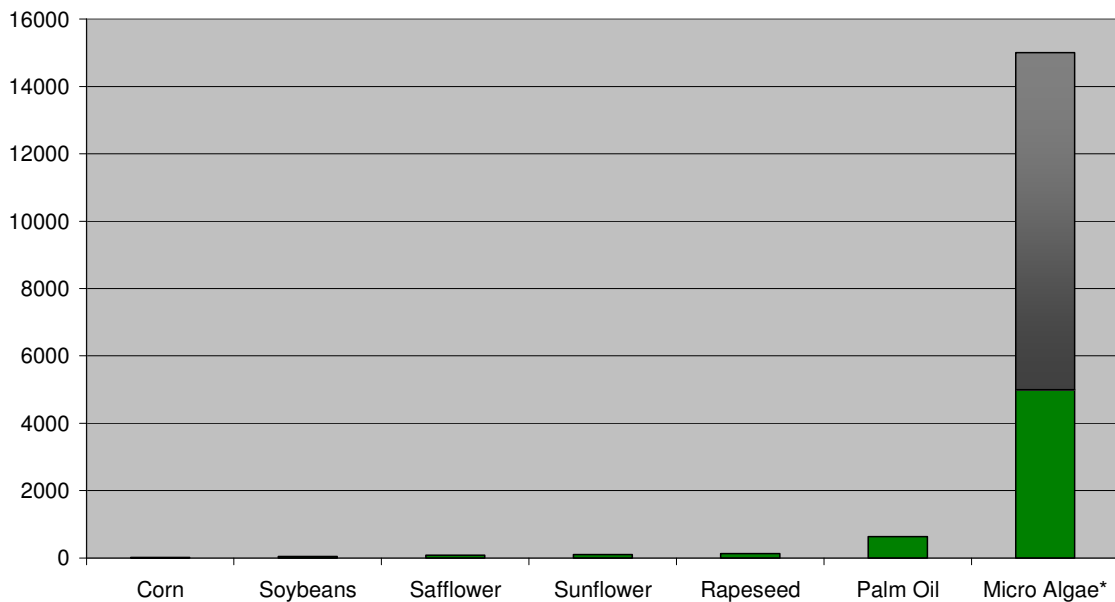
¹⁴ National Council for Voluntary Organisations

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households than a generation ago donate. Also troubling for those trying to foster a giving culture in British society is the age profile of donors: older people are substantially more likely to donate and the share of donations from over 60s rose from 33% to 44% between 1978 and 2009. With pressure being brought on pensions and future increases linked to CPI as opposed to RPI, Unite is concerned that funding the future of the New Waterways Charity will be far below the predicted levels.

- 3.86. One area which could be explored is the utilisation of the weed and algae that currently infests the banks of the waterways to produce biofuels, electricity and heating for communities' neighbouring facilities and to process this waste as outlined earlier.
- 3.87. This material has huge potential as the source material for the production of drop-in direct replacement for fossil fuels. Initial investigations by the aviation sector into the potential of algae has suggested that per hectare, it is significantly more productive than currently available alternative organic feed stock sources¹⁵ and in test flights has shown to provide a slight increase in efficiency over conventional aviation fuel¹⁶.

Gallons of Oil per Acre per annum



* results vary dependant on variety and growing conditions.

Source:- http://www.oakhavenpc.org/cultivating_algae.htm.

- 3.88. Understandably, considerable interest has currently been generated within aviation circles in commercial algae production, but it is thought that there may be considerable difficulty at the moment in obtaining the volumes needed to meet the growing demand. It is unlikely that on its own the current level of biomaterial found on the network would be sufficient to meet this demand, but properly farmed the network has enormous untapped potential.
- 3.89. The additional benefit of algae production is its potential to cleanse contaminated water supplies of harmful pollutants making it possible to turn

¹⁵ See graph below

¹⁶ Source: Boeing and Airbus flight test results

the water into a quality suitable for agriculture and possibly even consumption¹⁷ by animals or in time humans. Algae also grows at an increased rate when grown in a Carbon Dioxide (CO₂) rich atmosphere making it an ideal candidate to scrub this waste greenhouse gas from industrial production.

- 3.90. British Waterways has the responsibility to maintain around 1,800 18th and 19th century historic bridges designed by engineers such as James Brindley. Every week it seems that at least two of these bridges are struck by vehicles, which are much faster and often larger than the horse and cart traffic these bridges were originally designed for. As a result, British Waterways had to divert up to £2.5 million¹⁸ of its limited resources towards fixing the damage receiving only limited compensation from insurance companies and the drivers themselves.
- 3.91. Often these bridges are far narrower than modern roads allowing only single direction traffic. Unite believes that funding should be diverted from the capital raised by the Highways Agency and local authority budgets to maintain necessary traffic calming measures to reduce the number of these incidents. Divesting maintenance responsibility of the canal road bridges to the highways agency would also ensure funds are not diverted elsewhere due to the carelessness of motorists.

Question 27: Are there other areas where you think NWC could save more money/make greater efficiencies?

- 3.92. Unite believes that standardising the company car fleet to a single model would provide significant savings in terms of maintenance and purchase price. There can be no justification for models utilised by senior management to be any different to those used by other staff unless such vehicles are needed in order to carry equipment, etc. This is particularly true in an organisation where funding is scarce.
- 3.93. Unite is also concerned about pay inequality and the damaging consequences of excessive and unaccountable increases in executive pay. Unite believes pay ratios between executive and the lowest paid employee within the organisation should be publicised for public accountability purposes. In a situation where the network has been allowed to degrade to its current level and staff cuts have been made resulting in the remaining staff working that much harder, it is perverse to see salaries of the top executives apparently unaffected.

Question 28: We would welcome any views you have on the analysis in the Impact Assessment and relevant evidence that we could draw upon in finalising the assessment.

- 3.94. Unite believes that the impact assessments statement relating to the replacement of employed positions with volunteers is neither morally nor legally viable.

¹⁷ Source : http://www.nasa.gov/centers/ames/news/features/2009/clean_energy_042209.html

¹⁸ British Waterways Press release 11/02/2010

- 3.95. In the impact assessment at page 21 it states *“Greater efficiencies which come with the model and the greater use of volunteers (based on existing operational spend being substituted by volunteer labour) are estimated to generate additional charity resources of approaching £3m a year by 2021/2”*¹⁹.
- 3.96. This would suggest that the authors believe that all staff including bank side staff positions could be replaced by voluntary labour. Unite does not believe that it is reasonable for the network to rely on voluntary workers to be called out in an emergency to repair a breach in the midst of winter in adverse weather conditions. Canals are often inaccessible by road for significant stretches resulting in significant obstacles to be overcome.
- 3.97. Equally, unless there is some real sense of fulfilment and support for the volunteers, they will be reluctant to provide their services again after the first instance. You only get one chance to make a good impression.

Question 29: New Waterways Charity (NWC) is just the working title for the new charity. Which of the following suggestions for the name of the new charity do you prefer, and why?

- a) National Waterways Trust
- b) Waterways Trust for England and Wales
- c) Waterways Trust
- d) National Canals and Rivers Trust
- e) Canals and Rivers Trust
- f) National Waterways Charity
- g) [your suggestion]?

- 3.98. Unite does not have any preference over the name of the new charity, but would not wish to see excessive funding being directed into market research, rebranding, etc, especially when these funds are so desperately needed elsewhere.

4 Conclusion

- 4.1. Unite is extremely concerned over the future of the waterways and the staff who maintain them. Unite does not believe the forecast levels of donations or volunteering will be forthcoming to enable the New Waterways charity to prevent breaches and substantial damage to neighbouring properties.
- 4.2. Unite believes that the waterway networks of England and Wales provide significant potential for the movement of freight which is being ignored or downgraded as a priority by this consultation. The use of the waterways can assist the Department for Transport and local authorities to reduce the congestion and damage to road surfaces by the movement of freight. It also holds the potential of reducing carbon emissions from transport.

¹⁹ <http://www.defra.gov.uk/consult/files/NWC-IA-FINAL.pdf>

- 4.3. Unite believes that there is potential to provide the network with its own source of fuel and electricity from bio waste making the network even more sustainable.
- 4.4. This asset to the nation has been left to wither on the vine rather than flourish from inward investment in the environment and jobs.

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Appendix 1 WATERWAY GAUGES (Revised 17 Jan 01)*

Waterway	Length	Width	Draft	Air Draft	Theoretical Tonnage per barge**	Potential number of lorry loads per barge****
Aire & Calder	142ft	17ft 8ins	7ft 6ins	12ft 3ins	298.7 - 482.0	19.9 - 32.1
Ashby Canal***	No Locks	7ft	3ft 6ins	6ft 6ins	0.389 to 0.63 tonnes per ft of canal barge length	1 lorry load requires 21.0 to 38.5 feet of barge length
Avon River (Stratford)	70ft	13ft 6ins	4ft	10ft	60.0 - 96.9	4.0 - 6.4
Basingstoke Canal	72ft 6ins	13ft 6ins	2ft 6ins	7ft 6ins	38.8 - 62.8	2.5 - 4.1
Bridgewater Canal (PrestonBrook-Leigh, Castlefield-Waters Meeting)	70 ft	14ft 9ins	4ft	8ft 6ins	65.6 - 105.9	4.3 - 7.0
Calder & Hebble Navigation	57ft 6ins	14ft 2ins	5ft	9ft	64.7 - 104.4	4.3 - 6.9
Caldon (Etruria-Hazlehurst Junction)***	70ft	7ft	3ft 4ins	5ft 9ins	25.9 - 42.0	1.7 - 2.7
Chelmer & Blackwater Navigation***	60ft	16ft	2ft	6ft	30.5 - 49.3	2.0 - 3.2
Chesterfield***	72ft	7ft*	3ft 6ins	7ft	28.0 - 45.2	1.8 - 3.0
Coventry***	72ft	7ft	3ft 6ins	6ft 6ins	28.0 - 45.2	1.8 - 3.0
Forth & Clyde Canal (Scotland)	70ft	19ft 6ins			21.6 to 34.9 tonnes per ft of draft	1.4 to 2.3 per foot of draft
Fossdike Canal (Torksey-Lincoln)	74ft 6ins	15ft 2ins	5ft	8ft 10ins	89.7 - 144.8	5.9 - 9.6
Grand Canal (Ireland)	60ft	13ft			12.38 to 14.4 tonnes per ft of draft	0.82 to 1.3 per foot of draft

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Waterway	Length	Width	Draft	Air Draft	Theoretical Tonnage per barge**	Potential number of lorry loads per barge****
Grand Union (Slough Branch)	No locks	14ft	3ft 6ins	7ft 6ins	0.78 to 1.2 tons per ft of canal barge length	1 lorry load would require between 11.9 and 19.2 feet of barge length
Grand Union Canal (Braunston-Birmingham)	72ft	12ft 5ins	3ft 6ins	7ft 6ins	49.7 - 80.2	3.3 - 5.3
Grand Union Canal (London-Braunston)	72ft	14ft	3ft 6ins	7ft 6ins	56.0 - 90.4	3.7 - 6.0
Grand Union Canal (Northampton Branch)	72ft	7ft	3ft 6ins	7ft 6ins	28.0 - 45.2	1.8 - 3.0
Grand Union Canal (Norton Junction-Leicester)incl Mkt Harborough Arm	72ft	7ft	3ft 6ins	7ft 6ins	28.0 - 45.2	1.8 - 3.0
Huddersfield Broad Canal	57ft 6ins	14ft 2ins	2ft 9ins	9ft 3ins	35.6 - 57.4	2.3 - 3.8
Kennet & Avon Canal	72ft	13ft 10ins	3ft 6ins	7ft 6ins	55.3 - 89.4	3.6 - 5.9
Lee, River	88ft	15ft 9ins	6ft 9ins	7ft 10ins	148.5 - 239.8	9.9 - 15.9
Leeds & Liverpool Canal (Including Rufford & Leigh Branches)	62ft	14ft	3ft 9ins	8ft	51.7 - 83.5	3.4 - 5.5
Llangollen	70ft	6ft 10ins	2ft	7ft 6ins	15.2 - 24.6	1.0 - 1.6
Lower Peak Forest	70ft	7ft	3ft		23.3 - 37.7	1.5 - 2.5
Macclesfield Canal (Marple-Kidsgrove (incl Bosley Locks))	70ft	7ft	3ft		23.3 - 37.7	1.5 - 2.5
Medway (Allington Lock - Maidstone)	180ft	20ft	6ft 6ins	10ft 6ins	371.5 - 599.5	24.7 - 39.9
Medway (Maidstone - Tonbridge)	80ft	18ft 6ins	5ft 6ins	8ft 6ins	129.2 - 208.5	8.6 - 13.9
Middle Level: Twenty Foot River	72ft	14ft	3ft 6ins	7ft	56.0 - 90.4	3.7 - 6.0

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Waterway	Length	Width	Draft	Air Draft	Theoretical Tonnage per barge**	Potential number of lorry loads per barge****
Montgomery***	72ft	7ft	3ft 6ins	7ft 6ins	28.0 - 45.2	1.8 - 3.0
Nene, River***	13ft	4ft	4ft		3.3 - 5.4	0.2 - 0.3
Ouse, River Great (Earith - Denver)	70ft	12ft 6ins	3ft	12ft	41.7 - 67.4	2.7 - 4.4
Ouse, River Great (St Neots - Earith)	100ft	10ft 6ins	3ft	9ft	50.0 - 80.8	3.3 - 5.3
Ouse, River Yorkshire (Naburn-York)	150ft	25ft 6ins	8ft 6ins	25ft 6ins	516.2 - 832.8	34.4 - 55.5
Ouse, River Yorkshire (Trent Falls - Naburn)	150ft	12ft	8ft 6ins		242.9 - 392.0	16.1 - 26.1
Oxford –North***	72ft	7ft	3ft 6ins	7ft	28.0 - 45.2	1.8 - 3.0
Oxford-South***	72ft	7ft	3ft 3ins	7ft	26.0 - 42.2	1.7 - 2.7
Regents	78ft	14ft 6ins	4ft 6ins	8ft 10ins	80.8 - 130.5	5.3 - 8.6
Rochdale (Sowerby Bridge-Todmorden)	74ft	14ft 2ins	4ft	9ft	66.6 - 107.5	4.4 - 7.1
Selby Canal	78ft 6ins	16ft 6ins	6ft	10ft	123.4 - 199.2	8.2 - 13.2
Sheffield & South Yorks. Navigation (Keadby - Sheffield)	61ft 6ins	15ft 6ins	6ft	10ft	90.8 - 146.6	6.0 - 9.7
Shropshire Union Canal (incl Middlewich Branch)***	70ft	7ft	3ft 4ins	8ft	25.9 - 42.0	1.7 - 2.7
Soar, River	72ft	14ft	3ft 6ins	7ft 6ins	56.0 - 90.4	3.7 - 6.0
Staffs & Worcs (Great Heywood-Autherley Junct)***	72ft	7ft	3ft	7ft 6ins	24.0 - 38.9	1.6 - 2.5
Stort, River	88ft	13ft 4ins	4ft	6ft 3ins	74.5 - 12.2	4.9 - 8.0
Thames, River	109ft	14ft	3ft	7ft 6ins	72.7 - 117.3	4.8 - 7.8

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Waterway	Length	Width	Draft	Air Draft	Theoretical Tonnage per barge**	Potential number of lorry loads per barge****
Trent & Mersey Canal***	70ft	7ft	3ft 4ins	5ft 9ins	25.9 - 42.0	1.7 - 2.7
Trent & Mersey Canal (Shardlow - Burton, Preston Brook-Croxtan)***	70ft	13ft 6ins	3ft 4ins	5ft 9ins	50.0 - 80.8	3.3 - 5.3
Trent, River	237ft	19ft 6ins	7ft 3ins	11ft	531.9 - 858.3	35.4 - 57.2
Upper Peak Forest (Marple - Whaley Bridge & Buxworth)***	70ft	7ft	3ft		23.3 - 37.7	1.5 - 2.5
Wey River***	73ft 6ins	13ft 10ins	2ft 6ins	6ft	40.4 - 65.2	2.6 - 4.3
Witham Navigable Drains	72ft	18ft	3ft 6ins	8ft	72.0 - 116.3	4.8 - 7.7

* most recent available

** Theoretical tonnage assumes the use of a barge based on the Poseidon I or Poseidon II design & one with flat sides and bottom using the formula (draft x length x width x n) / 2204.6 = metric tonnage capable of passing through the narrowest, shallowest sections of canal and through the shortest lock. Larger volumes could be carried on wider and deeper sections. For example a 20' x 10' x 5' barge will float 17,500 lbs = 7.96 metric tonnes dead weight at 2ft 6ins draft ∴ n = 35 displacement factor. source : <http://www.poseidonbarge.com/faqs/> The displacement factor will change depending on the design of the barge. A flat bottomed flat sided barge shape would sit significantly higher in the water requiring less draft than a barge with angled sides. Consequently n = 64 but in this case n would also include the weight of the barge. Consequently the higher figure assumes the barge requires 2 tonnes of structure to carry 15 tonnes of cargo reducing the theoretical tonnage by two tonnes per lorry load.

*** these navigations cannot support the transit of 20 ft containerised freight due to the height and width dimensions of the containers (20ft x 8ft 6" x 9ft 6")

**** based on the replacement of a 15 tonne load hauled by a full 40 tonne HGV. A 40 tonne HGV requires 25 tonnes of that weight for the tractor unit, leaving a payload maximum of 15 tonnes. In reality only 30 per cent of this maximum capacity is utilised on the UK roads.

All of the above calculations assume that there has not been any reduction in the draft of these waterways due to the build up of silt. Unite acknowledges that this assumption is not based on reality given the lack of dredging and regular traffic flow on some of these routes. None the less, capacity could return to the levels highlighted above and even increased if there were additional dredging operations.

Appendix 2 ANALYSIS OF THE POTENTIAL OF THE WATERWAYS

Category	Characteristics	Other Roles	Management	Examples
Estuaries and tidal rivers	<ul style="list-style-type: none"> • Channel size determines size of vessel • Seagoing traffic extending journey inland, reducing length of road journey • Traffic moving between tidal and non-tidal water • Suitable for bulk carriage and containers • Suitable for abnormal indivisible loads 	<ul style="list-style-type: none"> • Maritime and port uses • Land drainage • Aggregate extraction • Some leisure use 	<ul style="list-style-type: none"> • Generally port and harbour authorities 	<ul style="list-style-type: none"> • River Thames • Mersey Estuary • River Trent • River Yare • River Ouse • River Medway
Large non-tidal waterways	<ul style="list-style-type: none"> • Lock size determines craft size • Lock size considerably larger than broad waterways • Vessel payload in hundreds of tonnes • Seagoing traffic extending journey inland, if lock size sufficient • Traffic moving between tidal and non-tidal water • Suitable for bulk carriage, may be suitable for containers • Suitable for abnormal indivisible loads 	<ul style="list-style-type: none"> • Land drainage • Some leisure use 	<ul style="list-style-type: none"> • British Waterways • Manchester Ship Canal Company • Environment Agency 	<ul style="list-style-type: none"> • Aire & Calder Navigation • River Weaver • River Severn • Manchester Ship Canal • River Thames • Gloucester & Sharpness Canal
Broad Waterways	<ul style="list-style-type: none"> • Locks approx 4.5 metres wide and up to 30 metres long • Vessel payload 50 to 100 tonnes • Suited to specialist markets, e.g. aggregates, waste • Not suitable for abnormal indivisible loads • Unlikely to be suitable for containers 	<ul style="list-style-type: none"> • Significant leisure use which may restrict capacity for freight • Land drainage • Leisure use of towpath 	<ul style="list-style-type: none"> • British Waterways • Environment Agency 	<ul style="list-style-type: none"> • Grand Union Canal • Leeds & Liverpool Canal • River Great Ouse
Narrow Canals	<ul style="list-style-type: none"> • Locks approx 2.1 metres by 21 metres • Vessel payload typically 20-25 tonnes • Long lock free lengths may accommodate larger vessels • Not suitable for abnormal indivisible loads or containers 	<ul style="list-style-type: none"> • Significant leisure use which may restrict capacity for freight • Land drainage • Leisure use of towpath 	<ul style="list-style-type: none"> • Mostly British Waterways 	<ul style="list-style-type: none"> • Trent & Mersey Canal • Oxford Canal • Monmouthshire & Brecon Canal • Birmingham Canal Navigations

Source :- Planning for Freight on Inland Waterways - The Association of Inland Navigation Authorities (AINA) commissioned guide on behalf of the Department for Transport and the Department for Environment, Food and Rural Affairs. - April 2004. GPG2122

Appendix 3 WATERWAYS AND CANALS

LONDON

Croydon Canal	9.25 miles	Closed
Dartford & Crayford Navigation	2.75 miles	
Grand Junction Canal	Now part of Grand Union	
Grand Surrey Canal	3.75 miles	Closed
Grand Union Canal	40.9 miles	
Grand Union - Regents Canal	8.6 miles	
Grosvenor Canal	0.5 miles	Refuse barges ceased using the canal in the late 1990s
Hertford Union Canal	1.1 miles	
Isle of Dogs Canal	0.5 miles	Now part of west India Docks
Kensington Canal	1.75 miles	Closed
Millwall Canal	0.5 miles	Now Millwall dock
Old River Lee	0.375 miles	
River Lee	12 miles within London	27 miles are navigable
River Lee Bow Creek	2.25 miles	
River Roding	1.75 miles	
River Thames	44.8 miles within London	The navigation runs 211 miles from Cricklade Bridge to the Open Sea
Romford Canal	Never completed	Authorised by an Act of 1875, work started on a lock and a tunnel under the London, Tilbury & Southend Railway line. Work stopped in 1877
London Total	115.5 miles	

MANCHESTER

Aston Canal	6.8 miles	
Bridgwater Canal	27.4 miles	
Manchester Ship canal	13.2 miles within Manchester	36 miles of canal linking to Liverpool
Rochdale Canal	32 miles	
Manchester Total	79.4 miles	

OXFORD

Dukes Cut	0.8 miles	
Oxford Canal	3.6 miles	77 miles of canal connects Oxford to the grand union Canal and on to Coventry
River Thames	11.0 miles	
Total	15.4 miles	

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BIRMINGHAM

Birmingham & Warwick Junction Canal	2.5 miles	
Birmingham Canal Navigations (BCN)		Originally 160 miles
• Anston branch	1.1 miles	
• Birmingham and Fazeley Canal	20.5 miles	
• Crannock Extension	1.8 miles	
• Dudley Canal No 1	4.5 miles	
• Dudley Canal No 2	5 miles	
• Digbeth Branch	0.8 miles	
• Gower Branch	0.5 miles	
• BCN Main	15.5 miles	Was 22.5 miles long
• Netherton Tunnel Branch Canal	2.5 miles	
• Old Main line	6.5 miles	
• Rushall Canal	2.8 miles	
• Soho Branch Loop Line	1.3 miles	
• Spon Lane Locks Branch	0.4 miles	
• Tittford Canal	1.8 miles	
• Tame Valley Canal	8.5 miles	
• Walsall Branch Canal	0.9 miles	
• Wednesbury Old Canal	1.3 miles	
• Wyrley and Essington Canal	23.5 miles	
○ Anglesey Branch	1.5 miles	
○ Daw End Branch Canal	5.3 miles	
• Walsall Canal	7.0 miles	
• Wednesbury Oak Loop Line	1.9 miles	
Grand Union Canal	11.9 miles	Continues on to London
Birmingham Total	126.8 miles	

NOTTINGHAM

Grantham Canal	3.5 miles	33 miles of canal closed in 1936
Nottingham Canal	14.75 miles	Abandoned in 1937
River Trent	7.7 miles	
Nottingham Total	25.9 miles	

Source <http://www.jim-shead.com/waterways> and www.waterscape.com