



Introduction

In the light of the interest generated by the Government's Integrated Transport White Paper, *A new deal for transport: better for everyone*, there has been a significant demand for a strategic analysis of the ways in which the UK inland waterways network could be developed to carry more freight. In so doing, it may be possible to ascertain what could be achieved by transferring 3.5 per cent of road freight movements to water - an aspiration of the Government. AINA believes it should be accepted that a major portion of this shift would be as a result of growth in estuarial and coastal traffic, with approximately 1 per cent of freight movement on the inland waterways.

This strategy is based on the assessment of the existing inland waterway network and its potential development. It does not examine the case for new waterways, which if proposed would be at European Class Vb standard. However, the impact of proposed links within the existing broad beam network are considered where appropriate.

Background

History has left the current inland waterways network with a diversity of navigation authorities with varying levels of skills, powers and resources. The largest part of the network (3,250 km) is owned and operated by British Waterways, a public corporation partially funded by Government. A further 875 km is operated and managed by the Environment Agency which is a Non Departmental Public Body partially funded by Government. The remaining 1,000 km or so of navigable waterways are owned and operated by a wide range of navigation authorities including development companies (e.g. the Manchester Ship Canal Company); drainage commissioners (e.g. the Middle Level Navigations); the National Trust (the River Wey Navigations); port authorities (e.g. the Port of London Authority on the tidal Thames); charitable trusts (e.g. the Upper Avon Navigation Trust); local authorities (e.g. the Basingstoke Canal Authority); and even original canal companies (e.g. the Chelmer & Blackwater Navigation Limited).

UK Government Policy

In *A new deal for transport: better for everyone* research indicates a potential to divert about 3.5% of the UK's road freight traffic to water by the following means:

- ships re-routing to ports nearer to origin and destination
- bulk and unit loads shifting to coastal traffic
- greater use of the UK's estuaries and inland waterway network.

The paper encourages greater use of inland waterways where there is a practical option and economic benefit. The rules of the Freight Facility Grant (FFG) regime are to be re-examined with a view to encouraging more applications for inland waterway projects. It is the Government's intention to see the best use made of inland waterways for transporting freight and consequently to reduce the number of heavy goods vehicles (HGV's) on UK roads. Recognition is given to the fact that the inland waterways also have an important role to play in providing leisure and tourism opportunities and can provide a catalyst for urban regeneration.

In *Waterways for Tomorrow*, the Government acknowledges that the inland waterways still carry some freight but only a small amount in national terms. Most freight traffic is found on the tidal inland waterways. On the non tidal system, freight carrying survives on only a few waterways, mainly river navigations managed by British Waterways; and the Manchester Ship Canal.

The revision of the Department of the Environment, Transport and the Regions' (DETR) Planning Policy Guidance Note on Transport (PPG 13) will encourage more freight to be carried by water. Local authorities, through their Local Transport Plans (LTPs), will be expected to consider opportunities for new developments that are served by waterways.

The DETR Guidance on Full Local Transport Plans confirms the Government wish to see better use made of inland waterways for the carriage of freight, thus reducing HGV movements and distances travelled. The guidance encourages the business community to work with Government, through freight grants, to protect the environment and tackle road congestion. Consideration is being given to extending the Freight Facility Grant Scheme, which is available to inland waterways, to coastal and short sea shipping.

Inland waterways can be part of strategies for walking and cycling and providing a safe environment for travelling to school or work. It is clear that local authorities need to maximise this potential for waterways and set out their proposals in their transport planning.

The Government guidance states that LTPs will be assessed against criteria which will include showing "clear evidence of effective partnership with navigation authorities, rail infrastructure providers and freight operating companies to promote greater use of alternative modes for freight distribution". Planners will also need to show evidence that they are taking account of greater use of water and rail freight in their land use planning decisions.

A recent Government Task Force has produced a foresight report, Actions for sustainable transport: Optimisation across modes, which sets out the need to maximise the benefit of transport assets over the next 20 years and also indicates the steps that should be taken to improve the capacity of the existing transport infrastructure to cope with the expected growth in demand within the UK. It was particularly concerned that the scale of congestion on the UK's road network is a major national problem leading to significant infrastructure stress throughout the system.

The most urgent need in the transport sector is to find ways of making more effective use of the existing infrastructure, including improving operational management and finding publicly acceptable ways to reduce demand and increase capacity. It is only through these measures that the transport sector can play its part in maintaining the UK's competitive position. The Task Force also recognised that the many environmental concerns including congestion, air pollution, climate change and noise should be properly considered within future transport policy development.

To achieve these, some of the following high level policy objectives were identified:

- Making more effective use of the existing infrastructure to reduce the direct and indirect cost of congestion.
- Making better use of regional transport infrastructure to promote the development of regional economies.
- Improve transport integration and inter-modality and making transport more accessible to all.
- Promoting sustainable development by reducing the environmental impact of transport, including improving the local urban environment.

Below these high level objectives there were several secondary objectives:

- Developing better integration and inter-modality so that demand can be managed more effectively.
- Improving maintenance and construction technology to make better use of the existing infrastructure assets.

To assist in these, various policies are likely to be drawn up which will include:

- Establishment of improved management and control systems throughout all transport networks and making better use of coastal shipping and inland waterways.

Within the policies there is a requirement for research and development as follows:

- Information provision - communication system monitoring and real time forecasting.
- Sustainable freight distribution, logistics and supply chain management.
- Inland waterway and coastal shipping, development of transshipment facilities and improved operational management.
- Development of handling techniques for freight transport, transfer between road/rail/water transport systems.

On studying all current UK Government advice as mentioned above, it is clear that there is a considerable amount of positive thinking in favour of waterborne freight. Achieving the stated aspiration to divert 3.5 per cent of all freight traffic would indicate that some 60.4 million tonnes per annum should be lifted and that some 5.6 billion tonne kilometres should be moved from road to water. In defining this strategy AINA has investigated the feasibility of achieving such a shift and this is summarised within.

Geography Opportunities

The main inland waterway network in Britain lies within a box, the four corners of which are London, Bristol, Liverpool and Leeds, with the heart of the system located in the West Midlands. For the purpose of this review it is assumed that east-west links could take place via the Kennet and Avon Canal and the Leeds-Liverpool Canal, both of which are broad beam (4.27m). Diagonal routes across the box exist from London to Birmingham and then to Northwich; from Worcester and Stourport to Birmingham and then across to Nottingham and the Humber; and from London to Birmingham and then to Leicester and Nottingham all at narrow beam (2.13m).

The large river and commercial navigations are also considered on their own merits, namely the River Severn, River Weaver, River Mersey, River Ouse (Yorkshire), the Aire and Calder Navigation, Sheffield and South Yorkshire Navigation, the River Trent, River Lea, River Thames, River Nene, the River Great Ouse and the Manchester Ship Canal. Approximate payload capacities of selected navigations are shown in Table 1.

No assessment is carried out of the coastal/one-way/short sea shipping opportunities associated with the estuarial routes or ship canals where the bulk of any increase in traffic would occur. With regard to Scotland, the Caledonian and Crinan Canals are considered, along with the Millennium Link between Edinburgh and Glasgow currently under restoration.

Current Situation

Statistics from the DETR indicate that in 1998 1,727 million tonnes of goods were lifted for road traffic within the UK, whilst at the same time 149 million tonnes were lifted for transportation by water as sea-going traffic (Table 2).

The corresponding figures, in terms of goods moved, were: for road 159.5 billion tonne kilometres (65 per cent of the total moved), with water being responsible for 57.2 billion tonne kilometres (representing 23 per cent of the total).

Conclusions

The tonnage that could be carried by working a standard 40 hour week using the existing navigation network is 12 million tonnes per annum or 0.33 per cent of the total freight carried within the UK. To maintain this level of activity throughout the network, an abnormal use of water supplies would be required which would result in a significant number of routes being depleted of water by August within any year. This level of tonnage could only be achieved by stopping recreational use of the waterways during the working week. In addition, recreational use at weekends would probably need to be reduced due to far more maintenance being required to keep the network open during working days. It also is likely that, at such density of traffic, the environmental, ecological and heritage value of the network would be irreparably damaged.

The current level of critical arrears and other arrears is some £83 million and £150 million respectively for the British Waterways part of the network and £12 million and £17 million respectively for the Environment Agency part of the network. These levels would increase dramatically with the increased freight traffic with little expectation of being able to recover sufficient income from tolls etc, to address the additional maintenance required, except by means of further significant Government grants. AINA believes that it would not be worth the loss of all that is currently valued about the waterway network to achieve such a small shift in freight transport from road to water.

With regard to the large commercial waterways and the ship canals it is fortunately a different story. These have been modernised over the last 50 years and, whilst they have suffered a decline in traffic, the infrastructure is in a reasonable condition to allow more or less immediate reuse hence providing significant opportunities for freight carriage. The historic and geographic reasons for these navigations being created still hold true in that they all service the various estuaries of the UK where deep water ports continue to exist and currently thrive, especially on the east coast of the UK. If adequate wharves and inland ports were available, these routes, which parallel the existing motorway and trunk road networks,

e.g. the M4, M5, A1, M6, M62 etc, could be used to divert traffic from road to water and approximately 15 million tonnes, representing 1 per cent of road tonnage, could be carried. Further analysis is required to assess channel capacities and investigate markets.

A considerable amount of work has been done within the European Union, especially on the development of the Trans European Network Strategy (TENS) which suggests the main sea links from Europe to the UK could be much improved by a liner service. This would "port hop" around the coast to provide short sea shipping links between mainland Europe and the east and west coasts of the UK. By providing such a service, cargoes could be loaded or discharged nearer to the point of origin or use and as a consequence the actual percentage moved by road could be reduced, and could be reduced further by transfer to the large river navigations and commercial waterways.

The commercial waterways, being of much larger scale, have the ability to carry cargo from coastal and estuarine ports inland to service appropriate import and export markets. These markets need to be reviewed prior to any development of commercial waterways and various research exercises like British Waterways' North East Inland Ports Project, may well be an acceptable way forward. However, the total tonnage that can be moved by such commercial waterways is in the order of 20 million tonnes and is likely to be achieved only as a result of increased development of coastal and short sea shipping rather than generated in its own right.

Niche Markets

Within the inland waterway network, there are opportunities for niche markets to be created which may, for example, involve the movement of gravel from quarry to processing plant, transfer of waste from collection point to incinerator or landfill site or other schemes. Careful consideration of the effects on navigational structures of intensive traffic associated with such operations needs to be taken into account. It is likely that specialist equipment will be required which may necessitate the design of purpose built containers, craft and handling equipment for efficient loading and unloading. This is particularly pertinent in the case of waste transport where the need for appropriate disposal or other treatment facilities make such cargoes unique.

Schemes such as the waste transfer proposals for Edmonton in East London and Coventry University's design of purpose-built containers for moving goods within inner city areas from one wharf to another using simple handling techniques such as forklift trucks are valid. Any scheme may be specifically justified in its own right and could attract funding either in the form of sponsorship by manufacturers or retailers for demonstrating good environmental practice, or by the provision of Freight Facilities Grants by the Government.

Intraport trade which, as in the case of the tidal Thames is exempt from port charges, is particularly suited to the movement of high volume, low value goods which are not unduly time sensitive. These factors mean that the economics of the trade are not prejudiced by double-handling at terminals. However, the safeguarding of strategic wharf sites is vital in order for such trade to be developed.

On the larger waterways of Britain opportunities exist for the movement of abnormal indivisible loads (AIL's) which can be used to move very heavy components of greater than 200 tonnes from a coastal port to inland sites such as power stations. The former Central Electricity Generating Board owned a special craft capable of such movements and a new multi-purpose pontoon is currently being designed for the power industry to move loads of up to 1,200 tonnes which is expected to be operational in 2002. Its beam is such that it requires a navigational width of 18 metres and a draft of only 2 metres which therefore limits its use to the larger ship canals and estuary type navigations. Relevant navigation authorities should ensure that, where there are any dimensional reductions that preclude the use of this pontoon, all possible steps are taken to enlarge capacity so as to permit its passage. Funding should be sought from Government and other sources for the necessary enhancement to the network.

Recommendations

AINA believes that the use of the inland waterways network is no longer economically or environmentally suitable for the significant transfer of goods between the major cities within mainland Britain. However, it is eminently suitable for short-hauls, the transport of waste and other high volume, low value products and also for addressing niche market goods where it can provide a cost effective alternative to the local road network. Navigation authorities should be proactive in identifying such opportunities and, where appropriate, work with local authorities and businesses to realise any freight carrying potential.

The physical nature of suitable bulk cargoes means that short-hauls, particularly on the tidal river or commercial waterways through large cities, can have a disproportionately large impact on reducing both the number of HGV movements on roads and the lengths of journey travelled. This sustainable transport message should be encouraged by all concerned.

To achieve the aspired diversion of 3.5 per cent of freight traffic from road to water it is recommended that significant investment is made in developing short sea links. These links could be made either directly between the UK's east coast ports and the Continent, or by means of a liner port-hopping service complemented by using the large commercial waterways and ship canals to lift approximately 20 million tonnes, or 1 per cent of freight.

Commercial waterways and ship canals should be maintained as such within the demands of current use. They do have the ability to be increased in capacity to accommodate longer-term development of estuarial and coastal shipping needs created by market forces or Government fiscal and grant policies.

AINA will support the various port operators and their representative organisations in encouraging Government to recognise the benefits of coastal/short-sea shipping which can provide a significant carrying capacity around the UK coast. It is believed that only by the use of such facilities will the aspiration of a 3.5 per cent shift from road traffic to water be realised.

Navigation authorities should be proactive. They should have input to LTPs and, where opportunities for coastal/short sea shipping or niche market movement of freight by waterways exist, they should identify and quantify the potential and highlight specific information needs. For example, navigation authorities can help in promoting partnerships for the acquisition and safeguarding of strategically important wharf sites.

Freight Facility Grant allocations for waterways should be increased and the scheme should be extended and made applicable to coastal/short-sea shipping routes. AINA will continue to lobby for this.

AINA should continue to foster partnerships between its members in order to create synergies and facilitate good practice guidance leading to the development and exploitation of opportunities to increase freight transport by water.

It is not recommended that new inland waterway links be built to support strategic freight opportunities. However, new links may be supported on the basis of local or niche markets to meet a significant, sustainable regional demand.

**Table 1
Payload Capacity of Selected Navigations**

Navigation	Payload (Tonnes)
72ft Narrow Beam Canal	25
56ft Broad Beam Canal	45*
72ft Broad Beam Canal	50
River Severn – Stourport	350 to Worcester
River Weaver – Winsford	350
Crinan Canal	100
Caledonian Canal	400
Millennium Link	60
River Ouse – York	200
Howden Max	3000
Selby Max	1200
Aire and Calder, Leeds	600
Aire and Calder, Wakefield	250
South Yorkshire Navigation	700
River Trent – Nottingham	200
River Nene	50
River Great Ouse	50
River Lee	150
River Thames (down stream of Oxford)	500
River Thames (up stream of Oxford)	60
River Medway	60
Manchester Ship Canal	10,000
Gloucester and Sharpness Ship Canal	

The above figures are approximate. Actual capacities are dependent on limiting dimensions of each waterway and should be checked with the appropriate navigation authority.

Table 2
UK Domestic Freight Transport

	Goods Moved Billion Tonne Kilometres	Good Lifted Million Tonne Kilometres
Petroleum Products		
Road	5.1	59
Rail		
Water	45.5	76
Coastwise	36.4	55
Pipeline	11.2	148
All Modes	61.8	283
Coal and Coke		
Road	1.4	22
Rail	4.5	45
Water	0.5	3
All Modes	6.4	70
Other Traffic		
Road	153.0	1,648
Rail	12.9	57
Water	11.2	70
All Modes	177.1	1,773
All Traffic		
Road	159.5	1,727
Rail	17.4	102
Water	57.2	149
Pipeline	11.2	148
All Modes	245.3	2,126
Percentage of all Traffic		
Road	65%	81%
Rail	7%	5%
Water	23%	7%
Pipeline	5%	7%
All Modes	100%	100%

References

1. A New Deal for Transport: Better For Everyone. DETR, July 1998
2. Waterways for Tomorrow. DETR, June 2000
3. Guidance on Full Local Transport Plans. DETR, March 2000
4. Actions for Sustainable Transport: Optimisation Across Modes. DTI, August 1999

Glossary

European Class Vb Standard

Broad beam

Narrow beam

Tonne kilometre

Commercial navigation

Payload

TEU

Foreword

By Dave Fletcher

Association of Inland Navigation Authorities

The Association of Inland Navigation Authorities (AINA) provides a single voice on waterway management issues. Our broad purpose is to facilitate the management, maintenance and development of inland waterways as an economic, environmental, recreational and social resource. AINA members comprise 28 navigation authorities in the UK and Ireland who, between them, own, operate and manage more than 5,000 km of inland waterways.

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