Worcestershire Minerals Local Plan Background Document

Water Transport

Background Document

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Executive Summary

1.1. Mineral products are generally used within a 30-mile radius of a quarry and so tend to be transported by road.[1] However, the impacts of road transport, including traffic congestion, carbon emissions and road noise are important issues[2], and we need to consider alternative ways to transport minerals in order to minimise these impacts.

1.2. In the UK, every year fewer than a million tonnes of aggregates are transported by inland waterways, but this has the potential to rise.

1.3. The concept of moving aggregate minerals by water has already been established in Worcestershire, with Cemex using water-borne vessels to deliver excavated material two miles along the River Severn from the company's Ripple quarry to its processing plant two miles away at Ryall.

1.4. All the bodies responsible for managing the waterways in Worcestershire are supportive of increasing movement of freight by water transport where possible, where environmental and social impacts can be managed, and where this can be achieved alongside the continued use of the waterways by leisure craft.

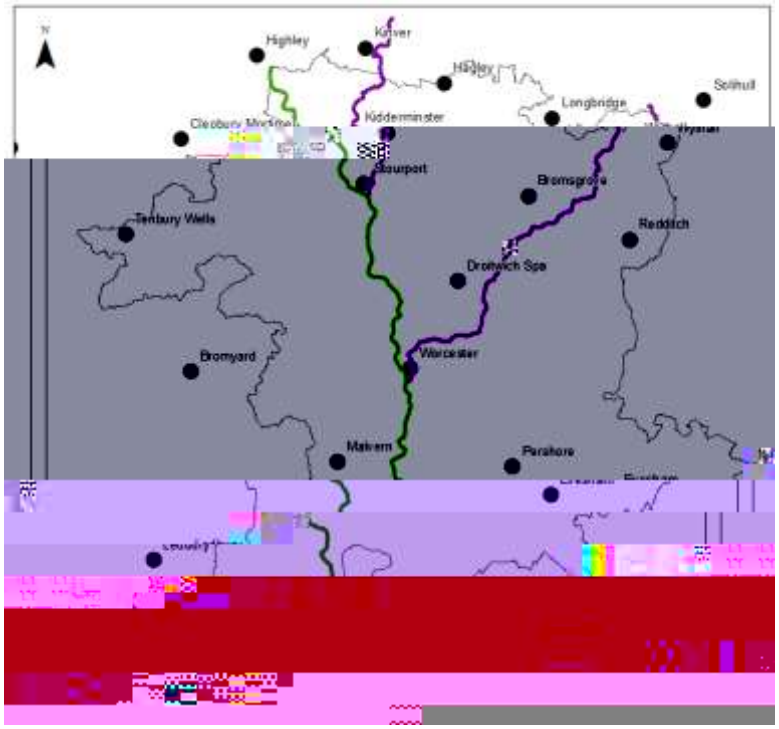
1.5. The Transport Act 1968 divides waterways into three categories[3]:

Commercial Waterways principally available for the commercial carriage of freight;
Cruising waterways principally available for cruising, fishing and other recreational purposes; and
The remainder (Remainder Waterways).

1.6. The Commercial and Cruising Waterways in Worcestershire are listed below and shown in Figure 1.

Commercial Waterways:
the River Severn from Stourport Act 1River icarb-2(e)4(r)-1(C)3(e)4(m)-20(e)41 135

Figure 1. Commercial and Cruising Waterways in Worcestershire



1.7. Experiences elsewhere in Europe and examples of successful waterway traffic in the UK show that inland waterways can provide viable and environmentally friendly freight transport. However, there are a number of barriers to the rapid development of waterborne freight in the UK, including a perceived lack of suitable vessels, a planning system that fails to address water freight transport needs, and inadequate promotion of waterway freight.

1.8. When considering waterways for freight transport, there is a need to take account of the availability and suitability of wharves for loading and unloading vessels and for onward distribution of cargo. Another important issue to consider is that, once cargo is on a waterway, there are generally no ready alternatives if the main route is temporarily or permanently blocked. The predominance of leisure uses on inland waterways means that careful management is required to ensure the co-existence of freight and leisure craft.

1.9. Inland waterways have the potential to reduce congestion and to reduce the impact of road transport. Aggregates form the greatest volume cargo transported by inland waterway, and there is the potential for further growth in this area. Planning can influence this through protecting existing wharves and freight traffic facilities, promoting new wharves, and encouraging new land uses to make use of water transport.[4]

1.10. Where movement by inland waterways is proven to be unviable, grants may be are available through the government's Mode Shift Revenue Support grant scheme for 'Bulk and Waterways', which is designed to support the movement of all freight on inland waterways where it would otherwise be moved by road.

[4] Association of Inland Navigation Authorities on behalf of the Department for Transport and the Department for Environment, Food and Rural Affairs (2004) *Planning for Freight on Inland Waterways* [accessed 30.08.2018 from https://canalrivertrust.org.uk/media/library/1265.pdf]

1.11. Some care may be needed when considering planning conditions to secure water transport, as such conditions may prevent developments from being eligible for grant aid and therefore put at risk the viability of water transport, although without a planning condition, there would be little ability to ensure that water transport takes place or will not revert to road transport.

1.12. The Minerals Local Plan should include a positive policy framework to encourage and enable movement of freight by water and to safeguard any associated facilities during the life of the plan.

Contents

2. Introduction

Context

2.1. The Council has a statutory duty to produce a Minerals Local Plan (MLP) to deliver minerals development. The current Hereford and Worcester MLP was adopted in 1997 and needs to be updated to reflect current policy, practice and guidance. The new Minerals Local Plan will replace the existing Minerals Local Plan and will be a Development Plan Document which is used to guide new development and determine planning applications.

2.2. The Minerals Products Association states that "Mineral products are generally used within a 30-mile radius of a quarry and so tend to be transported by road."

3. Responsible Bodies

Canal & River Trust

3.1. The Canal & River Trust is a charitable trust with responsibility for 2,000 miles of waterways in England and Wales.

3.2. Canals were originally built to transport goods around the country and although the carriage of freight is no longer the main purpose of the waterway network, there continues to be a role for freight by water[10]. The Trust states that "*There has been growing interest in the potential for freight traffic as fuel costs have risen and awareness of the environmental benefits of freight by water has increased. Wherever we can do so cost effectively, the Canal & River Trust endeavours to facilitate freight on our larger waterways. In recent years we've focused on aggregates, container, waste and recycling sectors in particular.*" [11]

3.3. The Canal & River Trust responded to the First Stage Consultation on the Minerals Local Plan, setting out their interests in Worcestershire, including the Staffordshire and Worcestershire Canal, the Worcester and Birmingham Canal, the Droitwich Canal[12] and the River Severn Navigation. The Trust stated that: "*while the scope for transporting freight on waterways may be limited due to the size of the navigations and the available navigation routes, where it is appropriate to move freight by water this option should not be disregarded. [The]*

Avon Navigation Trust

3.5. The Avon Navigation Trust is the statutory navigational authority for the River Avon. The navigable River Avon runs from Alveston Weir, above Stratford-upon-Avon, for 46 miles (74km) through Warwickshire, Worcestershire and Gloucestershire, to Tewkesbury, where it joins the River Severn[15].

3.6. The River Avon was one of the first natural rivers to be 'improved' by the construction of weirs and locks to allow the regular passage of barges transporting goods up and down the waterway, although the river is currently only used by non-commercial traffic. The Avon Navigation Trust is strongly in favour of developing and promoting the use of the River Avon Navigation for commercial carrying[16].

Association of Inland Navigation Authorities

3.7. The Association of Inland Navigation Authorities (AINA) was set up in 1996 to provide a single voice for waterway management and operation. The broad purpose of the AINA is to facilitate the management and development of inland waterways as an economic, environmental, and social resource[17].

3.8. The AINA defines 'inland waterways' as including all navigable and operational, non-tidal channels including rivers, canals and lakes, and all associated land and assets such as lock sites, towpaths and amenity areas - in other words any land which has an impact on, or relationship with an operational waterway. These inland waterways may be in public ownership, have public access, or be privately owned[18].

The AINA reports that "there is scope to increase the use of the traditional narrow and broad canals for freight movement"[19]. However, due to the fact that only a very small minority of AINA members have any interest in water freight, AINA took a policy decision in 2006 to exclude water freight issues from its future work programme[20].

[15] Avon Navigation Trust Weblink to Avon Navigation Trust website

Inland Waterways Association

3.9. The Inland Waterways Association is a registered charity that works to

4. Policy context

European policy

4.1. The European Commission supports

4.4. Schedul

volumes of freight. The broad waterways and narrow canals are less suitable but may nevertheless be capable of accommodating localised, specialist markets.[33]

4.11. The document divides waterways into four categories and describes some of their characteristics and other roles[34]:

Estuaries and tidal rivers
- Seagoing traffic extending journey inland
- Suitable for bulk carriage and containers
- Also used for land drainage, aggregate extraction (dredging) and some leisure use

Large non-tidal waterways (e.g. River Severn)
- Lock size determines craft size, but considerably larger than broad waterways
- Vessel payload in hundreds of tonnes
- Suitable for bulk carriage, may be suitable for containers
- Also used for land drainage and some leisure use

Broad waterways
- Locks approximately 4.5m wide and up to 30m long
- Vessel payload 50-100 tonnes
- Suited to specialist markets such as aggregates
- Also used for land drainage, leisure use of towpath and significant leisure use of waterway which may restrict capacity for freight

Narrow canals
- Locks approximately 2.1m by 21m
- Vessel payload typically 20-25 tonnes
- Also used for land drainage, leisure use of towpath and significant leisure use of waterway which may restrict capacity for freight.

4.12. Characteristics of waterways which need to be taken into account when considering freight transport include the need for wharves for loading and unloading vessels and for onward distribution of cargo, the fact that waterways are usually single routes with no alternative waterway route if the main route is temporarily or permanently blocked, and the predominance of leisure uses on inland waterways which means that

[33] Association of Inland Navigation Authorities on behalf of the Department for Transport and the Department for Environment, Food and Rural Affairs (2004), *Planning for Freight on Inland Waterways* [accessed 03.09.2018 from https://canalrivertrust.org.uk/media/library/1265.pdf]

[34] Association of Inland Navigation Authorities on behalf of the Department for Transport and the Department for Environment, Food and Rural Affairs (2004), *Planning for Freight on Inland Waterways* [accessed 03.09.2018 from https://canalrivertrust.org.uk/media/library/1265.pdf]

careful management is required to ensure that freight and leisure uses can co-exist[35].

4.13. The good practice guide states that inland waterways have the potential to reduce congestion and to reduce the impact of road transport. Aggregates form the greatest volume cargo transported by inland waterway and there is further potential for growth in this area. Planning can influence this through protecting existing wharves and freight traffic facilities or promoting new wharves, and encouraging new land uses to make use of water transport[36]. Some care may be needed when considering planning conditions to secure water transport, as such conditions may prevent

4.17. This grant would not be paid if the service could be commercially justified without the support of the grant, or would proceed in any event without it, or where use of inland waterways is a planning or other legal requirement on the site from where the freight is to be carried. This means, therefore, that a planning condition requiring water transport might prevent a grant application being approved and could jeopardise the viability of the development. However, there may be some flexibility in this if the freight would move by road to or from a different site rather than the one restricted to waterway[38].

4.18. In calculating the benefits of moving to water transport, the Department for Transport has identified specific values, known as 'mode shift benefits', which quantify the value of taking a lorry off different categories of road. In some cases there may also be onward road journeys from the end rail or water destination. These journeys are classed as disbenefits and will need to be subtracted from the calculated benefits.

Waterborne Freight Grant (WFG)

WFG can assist a company with the operating costs associated with running waterborne freight transport instead of road, where transport by water is more expensive[39]. However, the grant only applies to coastal and short sea shipping and is therefore unlikely to be applicable to minerals sites in Worcestershire.

National Planning Policy

National Planning Policy Framework (NPPF)

4.19. The National Planning Policy Framework (NPPF) seeks to focus

unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe[41].

4.21. The NPPF states that, when assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location; that safe and suitable access to the site can be achieved for all users; and that any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree[42]. It also states that applications should minimise the scope for conflicts between pedestrians, cyclists and vehicles[43].

4.22. The NPPF also requires the safeguarding of existing, planned and

Local policy

Local Transport Plan 2018-2030

4.24. Worcestershire County Council's Local Transport Plan (LTP4) is primarily focussed on passenger transport

4.31. Core Policy CP03 "Promoting Transport Choice and Accessibility" requires development proposals to have regard to the traffic impact on the local highway network and major development proposals to demonstrate that they have fully considered access by all modes of transport. It also expects impacts on air quality to be considered.

South Worcestershire Development Plan (2006-2030)

4.32. The rivers Severn, Avon and Teme, the Worcester and Birmingham Canal and the Droitwich Canal run through one or more of the three districts in South Worcestershire

background document[46], Dudley MBC noted that none of the major waterways identified in the document run from Worcestershire into Dudley borough.

4.38. Dudley MBC supports the principle of transporting minerals by other than the road network, although opportunities for this are very much limited within the Black Country[47].

Birmingham

4.39. The Worcester and Birmingham Canal links Worcestershire with Birmingham and the Stratford-upon-Avon Canal crosses a small part of Worcestershire between Solihull borough and the city of Birmingham.

4.40. The Birmingham Development Plan includes policy TP38 'A sustainable transport network' which promotes improvements and development of water freight routes to support the sustainable and efficient movement of goods.

4.41. The plan suggests that the existing network of canals in Birmingham offers some potential for freight transport, and policy TP42 'Freight' expects developments which involve the transport of bulk materials to make use of rail or water for freight movements wherever practical. It also protects sites which are used or are suitable for inter-modal transfer facilities, including water-borne freight facilities for these uses.

Gloucestershire

4.42. Worcestershire and Gloucestershire are linked by the rivers Severn and Avon which meet at Tewkesbury in Gloucestershire.

4.43. Gloucestershire County Council has developed a technical evidence base document on transport to inform its minerals and waste planning policy[48]. This document states that the Sharpness Docks on the Bristol Channel provide extensive cargo-handling facilities and port-related services, accommodating vessels of up to 6,000 tonnes, handling cargoes including minerals. The River Severn and the Gloucester and Sharpness canal provide Gloucestershire with the possibility to develop sustainable waterborne transport. Additional wharfage potential may also exist on the opposite bank of the River Severn at Lydney Docks in the Forest of Dean.

[46] Email (04.02.2014) from David Piper, Senior Planning Policy Officer, Dudley MBC, in response to initial consultation on Worcestershire's draft *Water Transport* background document.
[47] Email (04.02.2014) from David Piper, Senior Planning Policy Officer, Dudley MBC, in response to initial consultation on Worcestershire's draft *Water Transport* background document.
[48] Minerals & Waste Core Strategies, Joint Technical Evidence Paper WCS-MCS-1 Transport, Living Draft, January 2008, available from https://www.gloucestershire.gov.uk/planning-and-environment/planning-policy/minerals-local-plan-for-gloucestershire/evidence-base-for-the-minerals-local-plan-for-gloucestershire/

4.44. The document states that Sharpness Docks potentially has an advantage over larger docks such as Bristol, as it is cheaper for smaller operators who may be put off using larger, more expensive docks. It has the potential to service specific local needs including the transportation of minerals and waste in Gloucestershire.

4.45. Gloucestershire's publication Minerals Local Plan is supportive of water transportation within and beyond Gloucestershire, and includes policy DM03 part (a) 'Alternatives to road transport', which states that "Mineral development proposals will be permitted that use more sustainable, alternative modes of non-road transport". The supporting text states that "Gloucestershire still contains numerous rail links, navigable waterways and canals that under the right circumstances could be used as an alternative to the movement of minerals by road" and that "Ideally using existing transport infrastructure that supports non-road modes of transport such as rail and inland waterways within and beyond the county, and port facilities for more strategic journeys, should occur wherever possible".

4.46. Neither the plan nor the transport evidence paper make any reference to the constraints for vessels at Tewkesbury locks (discussed further in chapter 5 below). The Worcestershire Minerals Local Plan will need to be developed in close discussion with Gloucestershire County Council and Tewkesbury Borough Council if works to Tewkesbury Locks are required to enable minerals development in Worcestershire.

Herefordshire

4.47. There are no navigable waterways with direct links between Worcestershire and Herefordshire.

Shropshire

4.48. The River Severn links Shropshire with Worcestershire, but is not navigable north of Stourport.

Staffordshire

4.49. Worcestershire and Staffordshire are linked by the Staffordshire and Worcestershire Canal.

4.50. Staffordshire's Minerals Core Strategy does not provide any specific support for the transport of minerals by waterways.

4.51. Staffordshire's Local Transport Plan[49] identifies that the county's navigable inland waters primarily consist of the canal network, with over 200km of canal and canal towpath. These are important resources for recreation, tourism and commuting as well as providing safe off-road transport links between and within urban and rural areas. However, although the Local

[49] Staffordshire County Council, 2011, *Staffordshire Local Transport Plan 2011: Strategy Plan*

Transport Plan's appendix L (Freight Strategy) notes that the canal network also plays a modest role in moving freight in particular sectors, this is not discussed further and there is no indication of whether this could or should be developed.

Solihull

4.52. A very short length of the Stratford-upon-Avon Canal – less than 1km – passes through the north-east of Worcestershire, continuing either side into Solihull borough. The Solihull Local Plan states that the movement of freight by sustainable modes will be encouraged, particularly via rail and canal networks, but emphasis is given to developing the tourism, leisure and heritage aspects of the canal network, and there is no policy statement encouraging the use of canals for freight transport.

recognise that some small-scale niche market opportunities are likely to be available[52].

5.2. Although environmental benefits can be gained by moving minerals by water, through relieving road congestion and considerably reducing carbon emissions, the use of inland waterways is limited by the proximity of rivers and canals to minerals sites and onward markets/freight hubs[53]. Waterway dimensions also vary considerably, affecting the size of vessel that can be accommodated[54,55].

5.3. Proposals to increase the navigability of Worcestershire's waterways could have environmental impacts and may need planning permission, although some works may be classed as permitted development. The number of locks on a waterway may also impact on viability of water transport due to the increased time and manpower required to navigate through them.

5.4. There can also be environmental risks from water transport, such as from materials inadvertently entering the water during loading or unloading or whilst in transit. There is also a need to prevent unacceptable impacts on the in6(y)10( )a4(cks BT1 0 0 1 125.42 57i3.78 Tmm[(u)4(n)4(l)-(l)-(l)Tm[(i)3(n)4(4521.11 T

Figure 3. Major waterways in Worcestershire

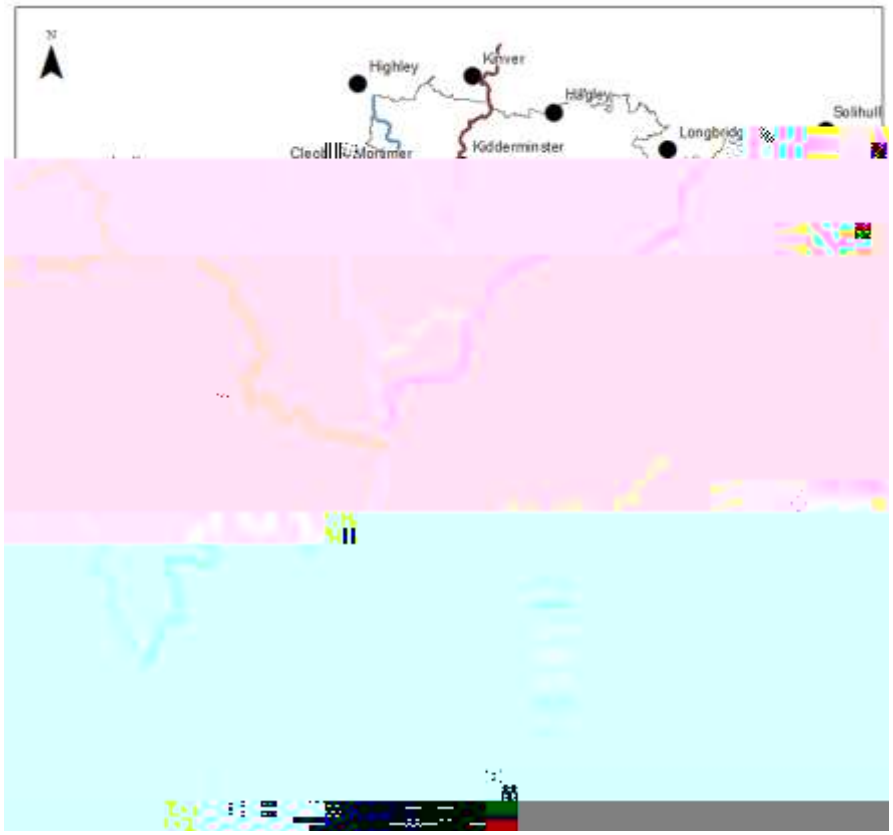
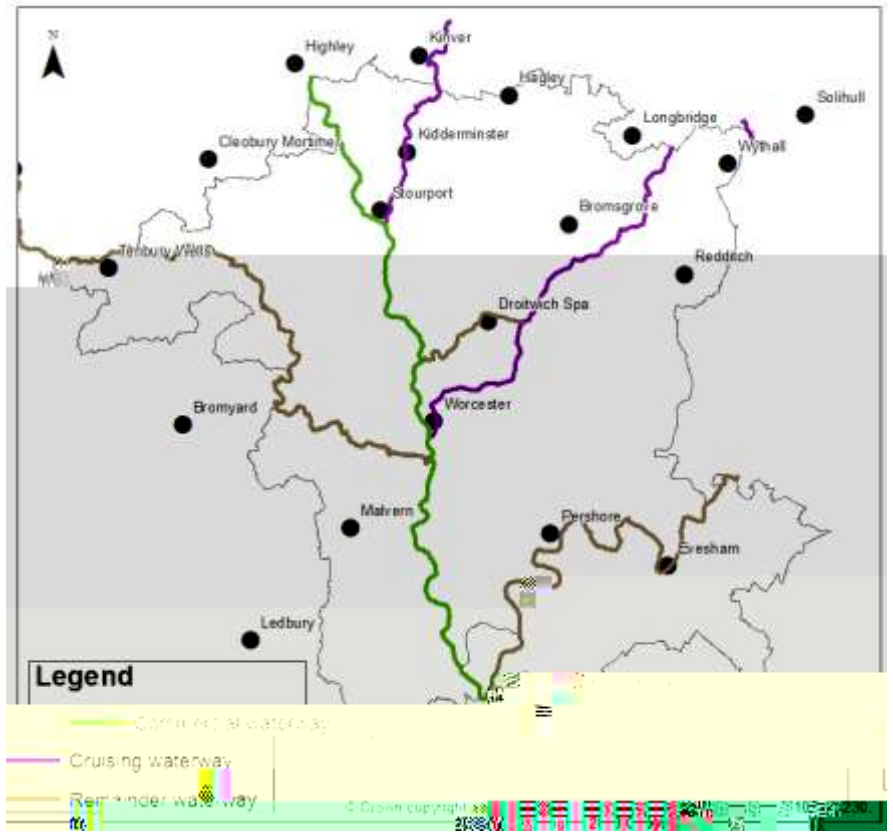


Figure 4. Waterway classification



5.6. The Maritime and Coastguard Agency categorise inland waterways in four categories:

Category A - narrow rivers and canals where the depth of water is generally less than 1.5 metres

Category B - wider rivers and canals where the depth of water is generally 1.5 metres or more and where the significant wave height could not be expected to exceed 0.6 metres at any time

Category C - tidal rivers, estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2 metres at any time

Category D - tidal rivers and estuaries where the significant wave height could not be expected to exceed 2 metres at any time[57]

Categories A and B are shown in Figure 5.

Figure 5. Maritime and Coastguard Agency categories

River Severn

5.7. According to the West Midlands Regional Freight Study, the only 'commercial waterway' in the West Midlands is a 38km section of the River Severn from Stourport to Gloucester[58]. Much of this commercial section is in Worcestershire.

[57] Maritime and Coastguard Agency, Weblink to Maritime and Coastgurad Agency's categorisation of inland waterways [accessed 23/12/2013]

[58] MDS Transmodal Limited and Mott Macdonald (2005) *A Recommended West Midlands Regional Freight Strategy Final*

5.8. The Inland Waterways Association states that the River Severn is managed as a navigation from Gladder Brook, upstream of Stourport, down to Gloucester where it connects to the Gloucester and Sharpness Ship Canal. It connects to the Staffordshire and Worcestershire Canal at Stourport, the Droitwich Barge Canal at Hawford, the Warwickshire Avon at Tewkesbury, and the Worcestershire and Birmingham Canal at Worcester. There is a right of navigation upstream of Gladder Brook as far as Pool Quay, Welshpool, and the former Severn Navigation Restoration Trust worked for many years to encourage improvement for navigation of this part of the river. The river below Gloucester is navigable but tidal. The navigable river has five locks which are operated by lock-keepers with restricted hours[59].

5.9. Historically, a significant amount of commercial traffic was seen on the river, peaking in the mid-18th century with coal being delivered to the saltworks at Droitwich and other riverside towns, pig iron from the Forest of Dean and Ironbridge Gorge going to forges and various other traffic such as salt, timber and other goods being carried[60]. Today, the River Severn is popular with leisure and tourist boaters. The River Severn has previously been acknowledged as the most underutilised waterway in the country for freight north of Gloucester[61] although minerals are now carried commercially on the river (see case study below).

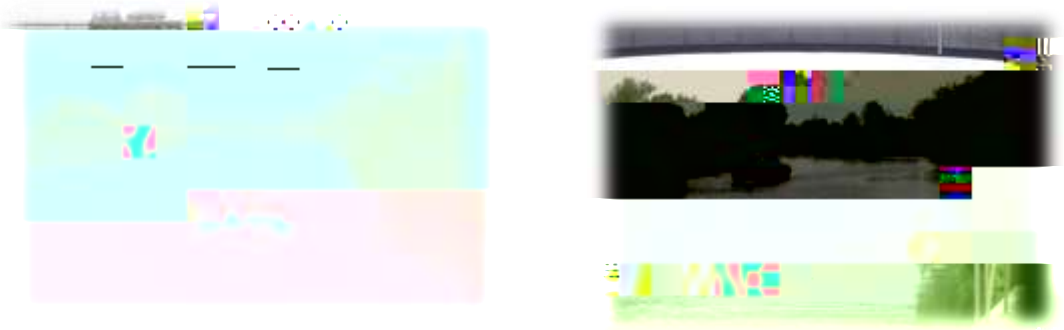
5.10. The maximum boat size that can navigate the river (between Gladder Brook and Gloucester) is[62]:

length: 93' 6" (28.49 metres) - Bevere Lock
beam: 20' 0" (6.1 metres) - Worcester Bridge
height: 20' 3" (6.2 metres) - Worcester Bridge (at summer level - river levels can fluctuate)
draught: 6' 1" (1.85 metres) - cill of Lincomb Lock.

[59] The Inland Waterways Association, *River Severn*, Weblink to the IWA's River Severn webpage [accessed 04.09.2018]
[60] Canal & River Trust, *River Severn*, https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network/river-severn-navigation [accessed 04.09.2018]
[61] Email (07.02.2014) from Sustainable Schemes Team at Worcestershire County Council Highways in response to initial consultation on Worcestershire's draft *Water Transport* background document.
[62] The Inland Waterways Association, *River Severn*, Weblink to the IWA's River Severn webpage [accessed 04.09.2018]

CASE STUDY: MINERALS MOVEMENT ON THE RIVER SEVERN

Minerals are transported by barge on the River Severn in Worcestershire. 180-tonne capacity vessels are used to carry raw materials along the Severn from CEMEX's Ripple quarry near the M50 to its processing plant two miles away at Ryall House Farm Quarry, near Upton upon Severn. The company also trialled barge deliveries of processed aggregate a further 14 miles along the Severn from Ryall to its ready-mixed concrete plant at Gloucester, but this was not continued.



Fully laden barge leaving Ripple Quarry and empty barge returning. © Worcs. County Council

The project was made possible by a Department for Transport freight facilities grant towards wharves and access roads.

Barge being loaded at Ripple Quarry (left) and unloaded at Ryall House Farm Quarry. © CEMEX UK Limited

Although this operation may have had some positive effect on carbon emissions, the primary purpose of the water transport was to enable the mineral deposit to be worked and prevent unacceptable impacts on the road network around the quarry, as the road network was not capable of supporting HGV movements.

River Avon

5.11. The River Avon joins the R

Upper Avon

Length: 70ft (21.3m)
Beam: 12ft 6in (3.8m)
Draught: 3ft (0.9m)
Headroom: 8ft (2.4m)

The Avon Navigation Trust has work barges of this size which can carry 40-

connection with the Stafford Branch or Sow Navigation at Baswich is the subject of restoration proposals as the Stafford Riverway Link[74].

5.21. Historically, the southern section of the Staffordshire & Worcestershire Canal served several ironworks, with coal from Ironbridge Gorge brought down the River Severn and then up the canal. The last regular commercial traffic was coal from Cannock to Stourport power station, which ceased in 1949[75].

5.22. The maximum size of boat that can navigate throughout the Staffordshire & Worcestershire Canal is:

length: 74' 8" (22.75 metres) - Awbridge Lock
beam: 7' 0" (2.12 metres) - Awbridge Lock
height: 7' 0" (2.12 metres) - Whittington Horse Bridge
draught: 3' 7" (1.09 metres) - Rodbaston Lock

Figure 6. Mineral resources and waterways in Worcestershire

5.30. There are large deposits of terrace and glacial sand and gravel associated with the Rivers Severn and Avon. Solid sands in the north of the county are close to the Staffordshire & Worcestershire Canal and the Worcester

5.32.

6. Safeguarding

6.1.

7. Conclusions

7.1. Using inland waterways to transport minerals can bring a number of benefits. of

7.6. The Minerals Local Plan must also ensure that any plans for transporting minerals on the county's waterways will not have an unacceptable impact on the recreation and tourist uses of the waterways which are well established. Equally, consideration will need to be given to ensuring that the risk of materials entering the watercourse is minimised, both during loading and unloading, and during the journey.