Minerals and Waste Joint Plan

Cross-Cutting Issues Evidence Paper

July 2015

City of York Council
North York Moors National Park Authority
North Yorkshire County Council

Contents

1. Introduction

As minerals and waste planning authorities, North Yorkshire County Council, the City of York Council and the North York Moors National Park Authority are producing a Minerals and Waste Joint Plan which will set out the planning policies for minerals and waste developments up until 2030.

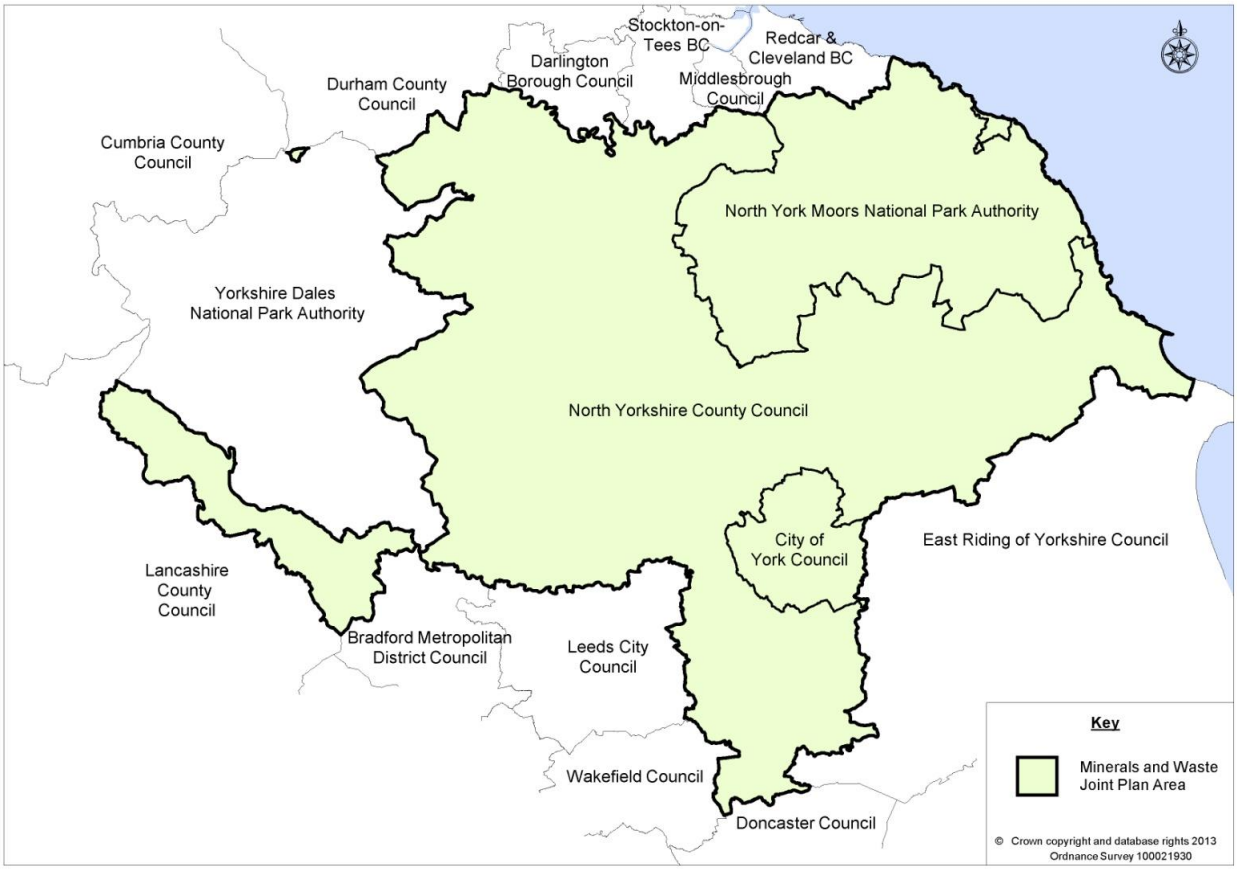

Figure 1: Minerals and Waste Joint Plan area

This Paper forms part of the Evidence Base which will support the preparation of the Minerals and Waste Joint Plan. The full list of evidence papers is available at www.northyorks.gov.uk/mwevidence and, alongside this paper, also includes an Environmental Evidence Paper, Demographic and Economic Evidence Paper and minerals and waste technical papers for each of the three authorities.

These Papers will help to provide a robust evidence base which will contribute to the justification of policy choices within the Minerals and Waste Joint Plan.

The National Planning Policy Framework (NPPF), which was published in March 2012 and replaces a wide range of national planning policy, requires Local Plans to be justified and 'based on proportionate evidence'[1]. In addition the NPPF also requires Local Plans to be based on 'adequate, up-to-date and relevant evidence'[2]. Therefore, the key aim of this report is to present evidence which is;

- Proportionate
- Adequate
- Up-to-date, and

[1] DCLG, National Planning Policy Framework, March 2012 (para 182)
[2] *Ibid (para 158)*

- Relevant to the Joint Plan area

The Joint Plan area is shown in Figure 1. The Minerals and Waste Joint Plan will cover up until 2030, therefore, where possible any data projections will be up to this year.

Please note that data relating to the Joint Plan area is not readily available. Data in this report commonly relates to either North Yorkshire county (including both the North York Moors and Yorkshire Dales National Parks) or to North Yorkshire (as above) and York. The reason for this is the availability of specific data at varying levels. Part of the western boundary of the Plan area is defined by the eastern boundary of the Yorkshire Dales National Park, whilst the north eastern boundary of the Plan area follows that of the North York Moors National Park. However, these boundaries do not follow ward boundaries, which are often the lowest spatial level of data, especially economic, provided by the Office of National Statistics. Similarly the National Park boundaries do not tie in with district, borough or county boundaries, which are also frequently used for data reporting. As most of the North York Moors National Park is covered under 'North Yorkshire' data it has not been considered appropriate to add in Redcar and Cleveland data in relation to most topics as only a small part of the Park is within this borough. The geographical coverage of data is specified throughout the report where it is not immediately clear.

The content of this report is derived primarily from factual sources, and is an 'evolving document' which will be updated as more contemporary evidence and legislation emerges. The interpretation of this evidence base and how it is represented in the Joint Plan is to be consulted upon as widely as possible. This will be carried out through a number of consultation exercises.

This Paper is not intended to be a fully detailed account of every item of relevant information and every policy that will be relevant to the Minerals and Waste Joint Plan. Instead, it highlights the main transport, climate change and cumulative impact factors that will need to be taken into account along with a summary of any relevant policy and legislation. As stated above, the document is 'evolving' and will be updated and added to as work on the Joint Plan progresses.

Although in many cases common data is used, the Paper is distinctly different to the 'baseline' which underpins the Sustainability Appraisal. The baseline specifically identifies the sustainability issues which will inform the development of sustainability objectives and will set the basis for the identification of sustainability indicators. This Paper considers data and policies in terms of issues the Joint Plan itself may need to consider. There are clear interrelationships between the two, but for the purposes of presenting evidence it is considered preferential to distinguish between these.

If you consider that there are additional or alternative sources of information which would be of benefit to the production of the Minerals and Waste Joint Plan we welcome your comments and these will be utilised in future updates of the Evidence Base Papers.

Please note that with effect from 22nd February 2013 the Government formally revoked the Regional Strategy for the Yorkshire and Humber Region (RSS), with the exception of Green Belt policies relevant to York. From the 22nd February 2013 development plans across the former government office region, with the exception of York, will comprise the relevant local plan, and where they exist, neighbourhood plans. In York, the development plan will continue to include the Regional Strategy's Green Belt policies.

2. Characteristics of the Joint Plan area

The Minerals and Waste Joint Plan (MWJP) area comprises the three Minerals and Waste Planning Authorities of North Yorkshire County Council (which is the area of the county outside of the North York Moors National Park and the Yorkshire Dales national Park), the North York Moors National Park Authority and the City of York Council. The total size of the Joint Plan area is 6,718 square kilometres.

There are 7 district planning authorities within the boundary of North Yorkshire County Council:

- Craven District Council
- Hambleton District Council
- Harrogate Borough Council
- Richmondshire District Council
- Ryedale District Council
- Scarborough Borough
- Selby District Council

The North York Moors National Park Authority and the City of York Council are unitary planning authorities.

The Joint Plan area is bordered by the county of Lancashire and the Yorkshire Dales National Park to the west and County Durham and the unitary authorities of Darlington, Stockton on Tees, Middlesbrough and Redcar & Cleveland to the north. The City Councils of Bradford and Leeds lie to the south west. To the south and east are the metropolitan areas of Wakefield and Doncaster, together with the East Riding of Yorkshire. The North Sea borders the Joint Plan area to the north east.

The three authorities cover distinctly different areas and therefore there is a diverse character to the Joint Plan area. North Yorkshire (outside the National Parks) is a largely rural county containing a number of small market towns plus the larger towns of Harrogate and Scarborough, along with two Areas of Outstanding Natural Beauty. The A1 and A1(M) run north-south through the centre of the area. The City of York area is mostly urban, focused upon the historic city of York itself. The North York Moors National Park was designated due to its ‘intrinsic merits as an area of beautiful and unspoilt country and magnificent coast with a wealth of architectural interest’. It is largely rural, and the settlements in the Park are comparatively small.

The entire Joint Plan area is parished with the exceptions of Harrogate and Scarborough. There are approximately 605 parishes within or partly within the Joint Plan area with an average parish area of approximately 11.1 square kilometres.

3. Transport

Introduction

The Transport System plays an important role in supporting the economy. The Joint Plan area is generally well served by transport links. Motorways and Trunk roads include the A1 which dissects the County running north to south through the districts of Richmondshire, Hambleton and Harrogate. The A168/A19 links the A1 to the conurbation of Teesside and the A64 connects Leeds and the A1 to Scarborough on the east coast. In addition the M62 passes through the southern part of Selby District. The County has key transport and employment linkages with the developing "City Regions" of Leeds and Tees to the south and north respectively. The Plan area is an important supplier of minerals into the Leeds City Region, as well as the adjacent North East Region.

The diagram below identifies the major transport links within the Joint Plan area. Each of the modes of transport highlighted is discussed below.

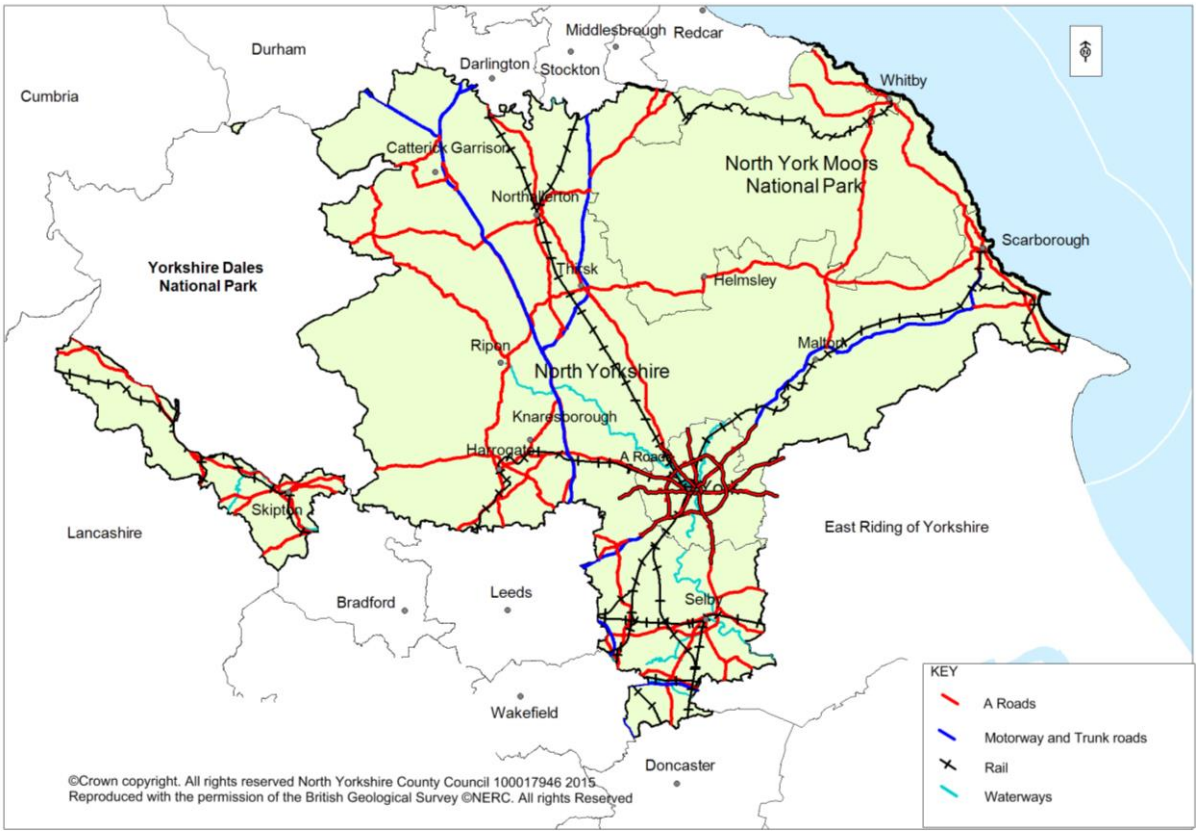

Figure 2: The transport network in the Joint Plan area

3.1 Road

The Primary Route Network (PRN) forms the main network of highways in the country for longer distance journeys, linking primary destinations. The highest level is the motorway and trunk road network administered by Highways England (HE) and funded by the Government. The next level down is the 'green-backed' sign network maintained by

highway authorities but approved by the Government. Together these form the Primary Route Network.

Due to the rural nature of the plan area there are also high proportion of narrow country roads and rural lanes.

Congestion

There are a number of locations across the Joint Plan area that experience regular significant congestion issues. These are as follows.

- Harrogate / Knaresborough town centre
- Skellgate area of Ripon town centre
- Scarborough town centre
- Kildwick Level Crossing A6068 Skipton Road, Crosshills
- Whitby town centre
- A167 North End Northallerton level crossing
- Butcher Corner- Malton / Norton
- A19 through Selby (including the A63 junction at Barlby)
- A170 Vivis Lane and A169 roundabout at Pickering[3]
- York city centre
- West of York city centre
- The main arterial routes into and out of York city centre
- A1237 York northern outer ring road between Wetherby Road and Strensall Road[4]

Road Freight- Routes

The major north / south routes of the A1/A1(M), A19/A168 provides key routes for moving freight in and out of the Joint Plan area. In addition the M62 corridor and A66 both have short sections in North Yorkshire which provide significant links to the surrounding areas.

In addition to the major national routes identified above, several regional and local routes are important for freight transport. These include:

- A64 Scarborough and Malton to A1(M)
- A59 cross Pennine route linking Lancashire/ Skipton / Harrogate / York
- A6068 / A629 linking West Yorkshire and North East Lancashire
- A65 Kendal to Skipton
- A174 Teesside to East Coast
- A170 Scarborough to A19

Given the rural nature of the County, freight movements also often take place along more local routes. There are three main industries which generate freight movements within the Joint Plan area; minerals production, forestry and agriculture.

It is important that this freight transport is managed and operated in a way that does not impact negatively on the natural environment or amenity of the Plan area.

3.2 Rail

[3] NYCC, Local Transport Plan 3: 2011-2016 (2011)
[4] CYC, Local Transport Plan 3: 2011-2031 (2011)

The rail network in North Yorkshire is based on two main routes, the East Coast Main Line which passes north to south through the County and the Trans-Pennine route which runs from Scarborough through Malton and south west to York. In addition there are other routes which serve, in total, 48 stations in the Joint Plan area.

Rail Freight- Routes

Rail freight routes in North Yorkshire comprise a range of high speed electrified routes, diesel worked secondary routes and rural freight only routes. The existing freight routes within the Yorkshire and Humber Region and key terminals are identified in Figure 3 below.

Existing routes are as follows:

- East Coast Main Line;
- Northallerton to Teesside, linking Teesport to the East Coast Main Line;
- Settle to Carlisle, and
- Hull to Leeds

Future developments

Network Rail identify that there are several proposals to provide gauge improvements on routes within the Joint Plan area. These include routes from Hull-Selby to the East Coast Main Line and from Teesport to the East Coast Main Line via Middlesbrough - Darlington.

Around North Yorkshire there are many sections of former railway route and sidings which have the potential to be re-instated and re-opened for rail traffic. These include sections of the Wensleydale Railway, the Skipton to Colne Line, the Harrogate, Ripon, Northallerton Line and the Embsay railway near Skipton. Through the Local Transport Plan North Yorkshire County Council recommends planning authorities protect former rail infrastructure for possible future transport use.[5]

3.3 Ports and Waterways

There are no major commercial seaports in the Joint Plan area. However, there are five international seaports located to the north and south of the County. Teesport lies to the north and Hull, Grimsby, Immingham and Goole to the south two of which are the largest of the UK. There is one remaining port within North Yorkshire, the port of Whitby, although it is not substantially used for freight.

Water freight

Historically, water transport has played an important role in freight movement within the Joint Plan area. The River Ouse, which goes up through York to the River Ure connecting to the Ripon Canal, and the Selby section of the Aire and Calder Navigation Canal form the navigable waterway network in North Yorkshire. These inland watercourses are still an asset for means of transportation and links to the rest of the Yorkshire and Humber region. The existing waterways of North Yorkshire, although underutilised, provide good links to the wider Yorkshire and Humber Region.

[5] NYCC, Local Transport Plan 3: 2011-2016 (2011)

3.4 Air

Three airports serve North Yorkshire: Durham Tees Valley to the north in Darlington, and Leeds/Bradford Airport and Robin Hood Airport Doncaster/Sheffield are located to the south of the County.

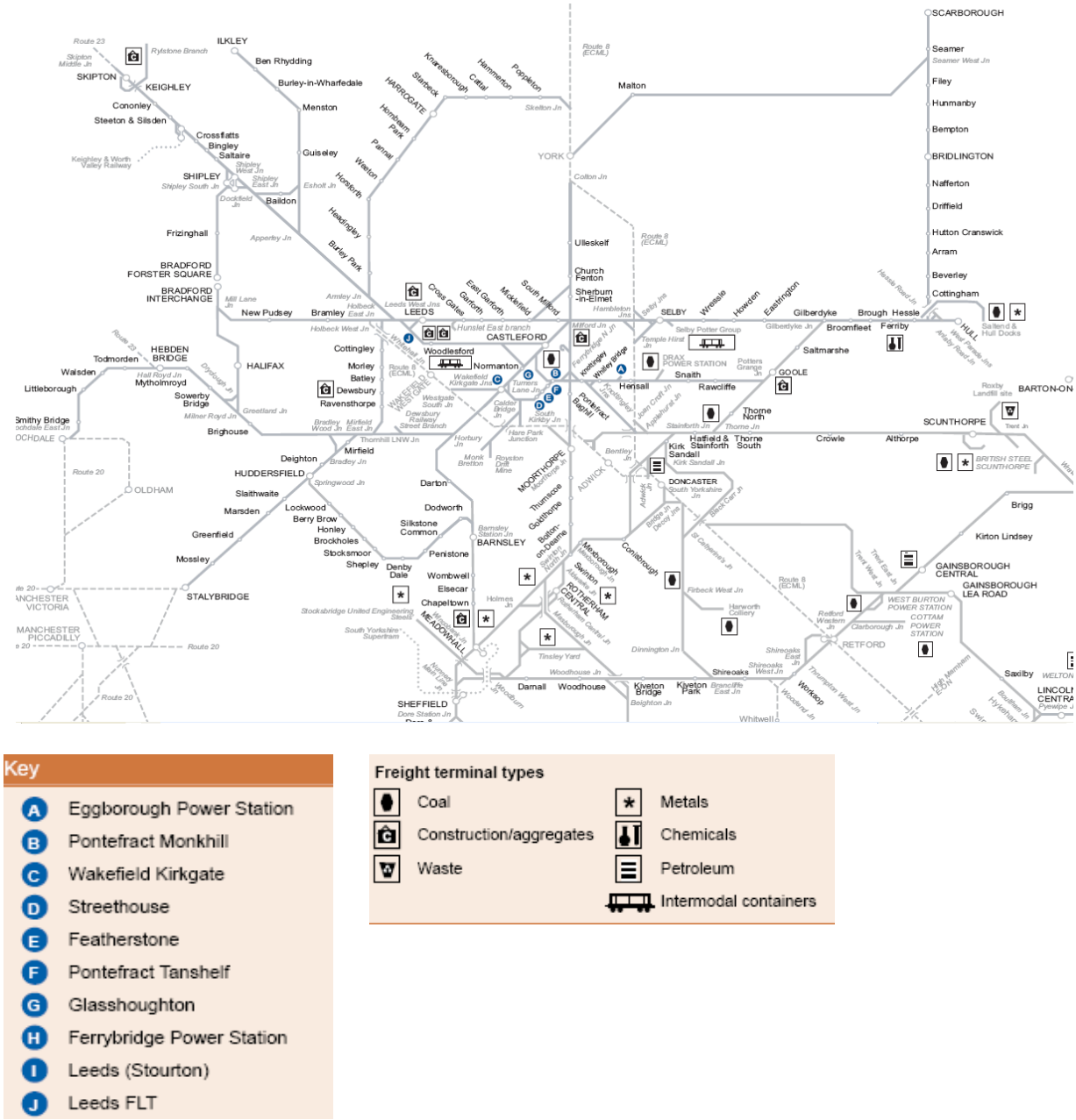

Figure 3: Freight Terminals in the Yorkshire & Humber[6]

[6] Network Rail, edited from Yorkshire and Humber Route Utilisation Strategy (July 2009)

3.5 Transport and Minerals

Nationally, transport by road accounts for 90% of all aggregate mineral movements (i.e. sand and gravel and crushed rock), with rail accounting 9.9% and waterborne transport accounting for the remainder[7].

One of the main issues affecting the transport of minerals is that they can only be extracted where they occur, often leaving transportation by road the only available option. Due to the rural nature of the plan area this can lead to a number of problems, including large vehicles on smaller narrower country lanes, impact on local amenity such as noise vibration, dust, congestion, as well as structural damage to highways network, and impact on the local environment, including carbon emissions which is discussed in more detail in a later section of this document.

The Minerals Products Association identifies average distances aggregates are transported by each transport mode and these are set out in the table below:

Transport Mode	Average Distance travelled (2013)
Road	50 km
Rail	178 km
Water (inland)	47 km*

Table 1: National average transport of aggregate by mode[8] (*2012 data)

3.6 Transport of Minerals: Current Practice in the Joint Plan area

With the exception of coal form Kellingley Colliery and potash from Boulby Mine transported by rail, the large majority of minerals worked in the plan area are transported by road. A relatively small quantity of aggregate is imported into the plan area by rail to railheads within Selby District. Historically, coal has been transported by barge.

Transport of aggregate is briefly discussed in the Annual Regional Aggregates Working Party Reports. The 2009 report for the Yorkshire and Humber region identifies that, in line with UK trends, the primary mode of transport for aggregates is road.

As part of the development of the evidence base for the Minerals Plan, North Yorkshire County Council carried out a survey of minerals operators within the Joint Plan area. One question that was asked related to the number of vehicle movements to and from active sites, both lorry movements and other movements including staff. In addition a question was asked about the potential to use alternative transport such as water or rail.

The results of the survey identified that the predominant mode of transport by far was road. Vehicle movements varied considerably, depending on the different minerals, from as little as 1-2 per week for small building stone quarries to as many as 200 for active sand and gravel sites.

The results showed that, for aggregate minerals, the average for vehicle movements to and from an active quarry is 40 movements per day. No details on the distance minerals are transported was collected as this can be very variable.

[7] Minerals Products Association, Sustainability Report, 2014
[8] *Ibid*

3.7 Rail and Minerals Transport

There are several Railheads and Aggregates Rail Depots within the Joint Plan area, and also a number within Yorkshire Dales National Park, which are currently utilised for transporting minerals. Details of these are identified in table below.

Facility	Location	Current use
Aggregate Rail Depots		
Selby Depot - Potter Group/Cemex	Selby	Transporting Aggregates
Great Heck	Selby	Transporting Aggregates
Gascoigne Wood	Selby	Transporting Coal to Drax power station
Boulby Mine	North York Moors National Park	Transport potash and other minerals from Boulby mine
Railhead		
Swinden Quarry (Settle to Carlisle Railway)	Yorkshire Dales National Park	Transports stone to Hull Dewsbury, Leeds Great Heck and Teesside
Ribblehead (Settle to Carlisle Railway)	Yorkshire Dales National Park	Occasional usage-destinations not known
Kellingley Colliery railhead	Selby	Transports coal to power stations
Drax Power Station railway sidings	NYCC, Selby District	Transportation of gypsum, coal and secondary aggregate
Hellifield railway sidings	NYCC, Craven District	Lafarge investigating creating a railhead for transporting aggregate
Milford railway sidings	NYCC, Selby District	Between Ferrybridge and Monk Fryston
Redmire railway sidings and railhead	NYCC, Richmondshire District	Previously used for minerals transport from former Redmire Quarry
Other Rail Links		
Wensleydale Railway	Crosses YDNP and NYCC boundary (Hambleton/ Richmond)	Currently used for tourism and by the army
North York Moors Railway	Ryedale/Scarborough	Currently used for tourism

Table 2: Locations and current uses of existing railway lines in the Joint Plan area[9]

The main power stations within the Selby area, Drax and Eggborough, are major destinations for inward rail freight movements. Routes are currently utilised to transport coal into the area to Drax and Eggborough from Ayrshire and Fife[10] .

Other rail freight movements within the County include stone which is transported from Derbyshire and the Yorkshire Dales National Park to rail depots in the Selby area.

[9] North Yorkshire Sub-region Authorities, Local Aggregate Assessment (Jan 2013)
[10] Network Rail, Yorkshire and Humber Route Utilisation Strategy (July 2009)

The extent to which the rail freight network is utilised for the transportation of Coal and Aggregates is identified in figures 4 and 5 below.

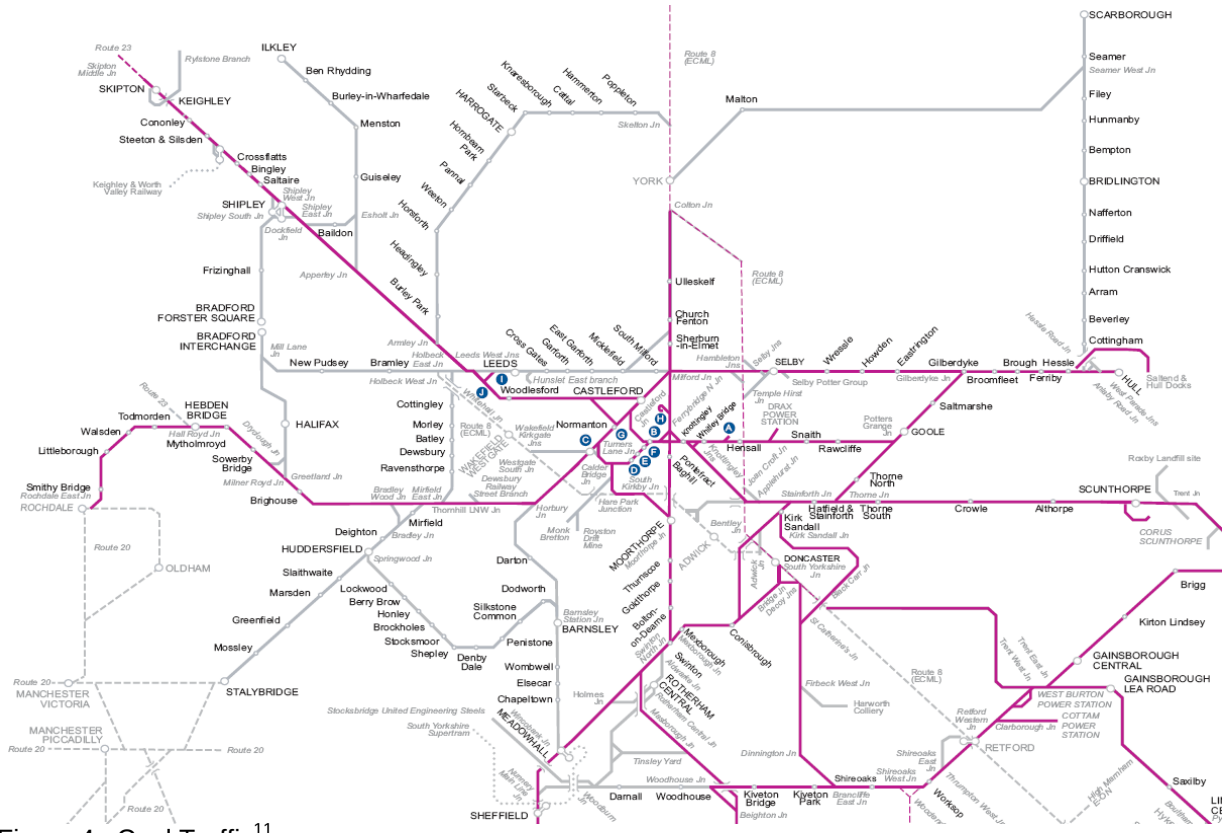

Figure 4: Coal Traffic[11]

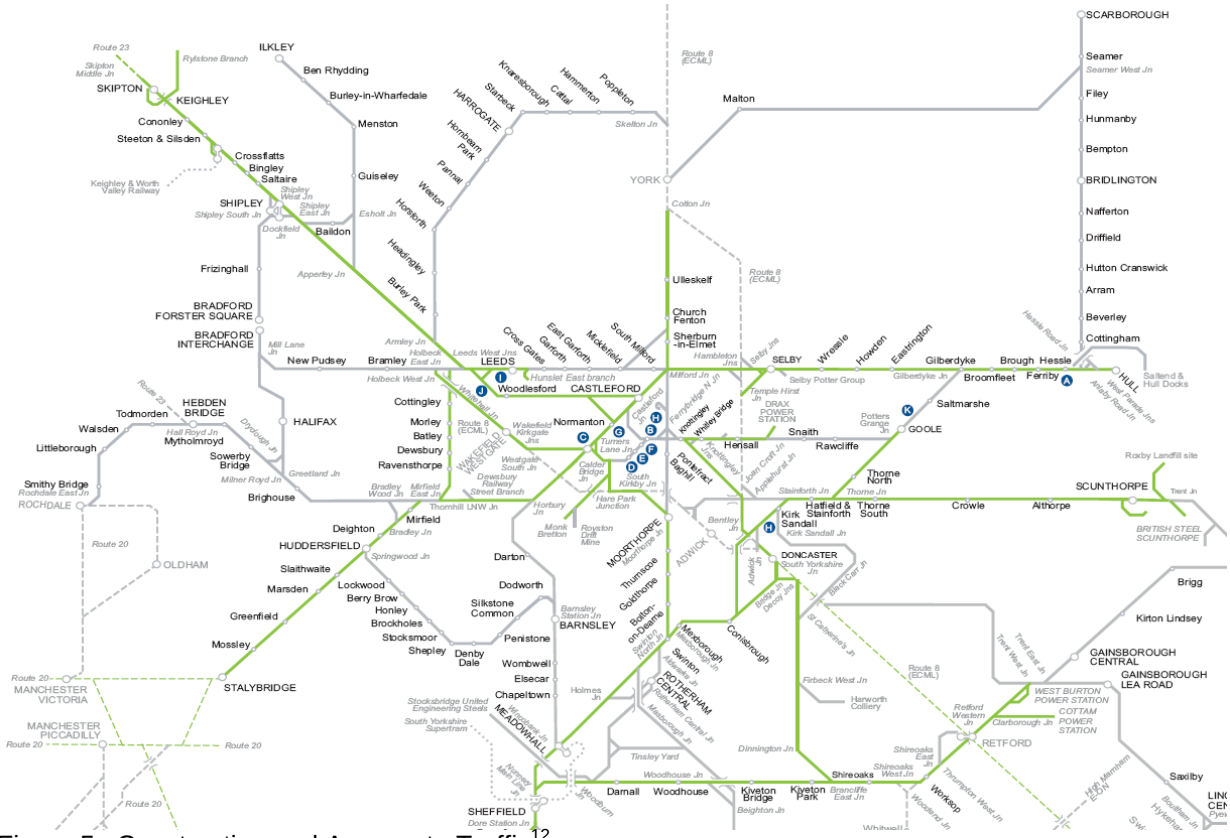

Figure 5: Construction and Aggregate Traffic[12]

[11] Network Rail, edited from Yorkshire and Humber Route Utilisation Strategy (July 2009)
[12] *ibid*

3.8 Future Potential

There are a number of limitations to the use of rail to transport minerals. These include restrictions on routes such as line speed, increased passenger capacity and signalling.

Para 143 of the NPPF states in preparing Local Plans, local planning authorities should "safeguard existing, planned and potential rail heads, rail links to quarries, wharfage and associated storage, handling and processing facilities for the bulk transport by rail, sea or inland waterways of minerals, including recycled, secondary and marine-dredged materials;"

Responses from the 2010 North Yorkshire County Council survey to minerals operators within the plan area identified that there is one quarry (Wensley Quarry) with potential to use rail for transporting minerals from the site but the extent to which existing rail infrastructure can actually be used to transport minerals is not fully understood. Due to the high operational costs of rail freight transport it may only be suitable for transporting goods longer distances. The potential to utilise such sites for minerals transport should be explored within the Minerals and Waste Joint Plan in accordance with advice in the NPPF.

3.9 Water Freight and Minerals

There are ten wharves located within the Joint Plan area, currently 5 of which are active and 5 inactive.

Facility	Location	Current use
Wharves		
River Ouse, Nr Drax Power Station	Selby District	Active
Westfield Foods Wharf, Selby	Selby District	Active
Kellingley Colliery	Selby District	Inactive
Whitby Port	Scarborough District	Inactive
Potter Group, Selby	Selby District	Inactive
BOCM, Olympia Mill Wharf	Selby District	Inactive
Heck Lane Wharf	Selby District	Inactive
Queen Staithes Public Wharf	City of York	Active
Dukes Wharf (Terrys Avenue)	City of York	Active
Viking Shipping Wharf	Selby District	Active

Table 3: Location and current use of wharves within the Joint Plan area

The majority of wharves within the Joint Plan area are located within the Selby District. The location of all wharves within the Joint Plan are shown on the map below:

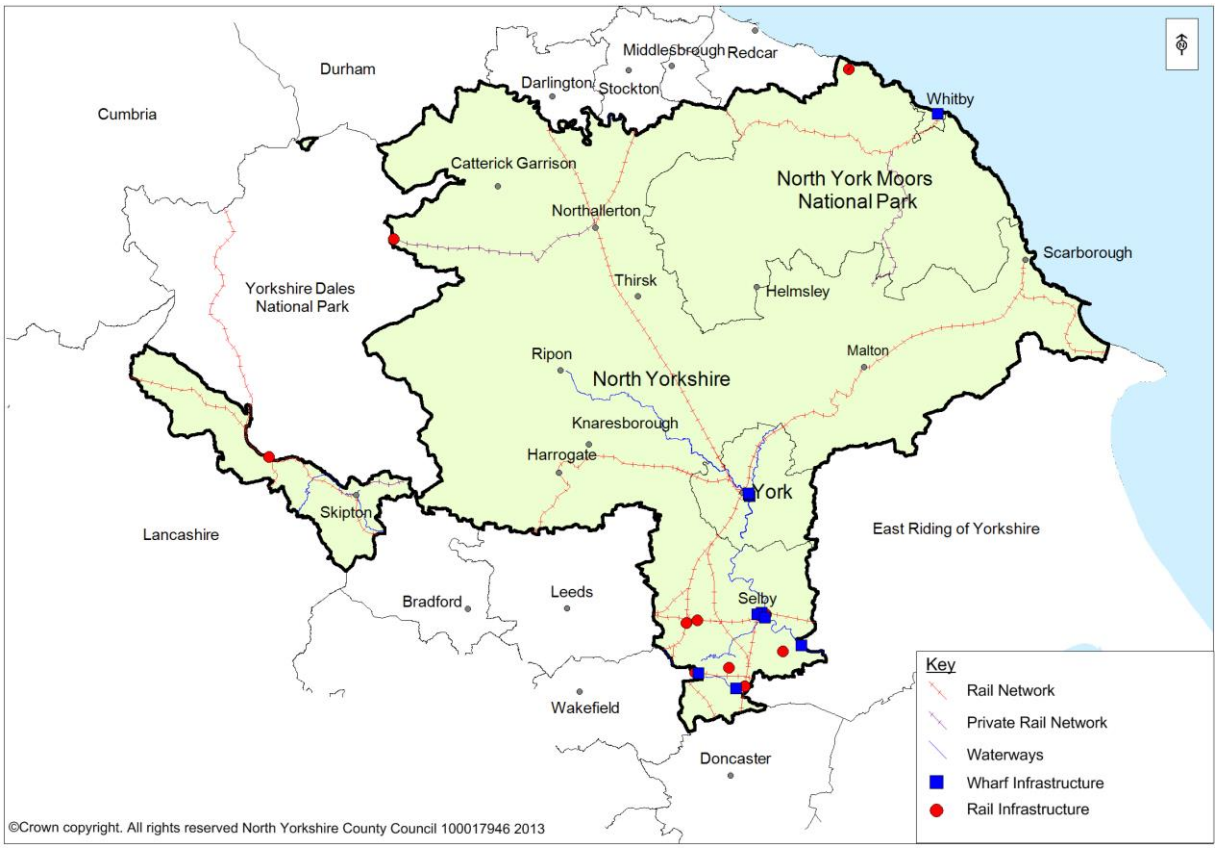

Figure 6: Rail and Wharf infrastructure within the Joint Plan area

There are a limited number of navigable inland waterways within the Joint Plan area upon which wharves are accessible limiting their use for the transportation of minerals. Waterways within the Selby area have a maximum pay load capacity of 1,200 tonnes which, if fully utilised, would reduce the amount of vehicles on the road by 49-59 per 1,000 tonnes[13].

The Department for Transport has identified a number of waterways within the Yorkshire and Humber region which offer potential of additional freight capacity. These are identified on the plan below.

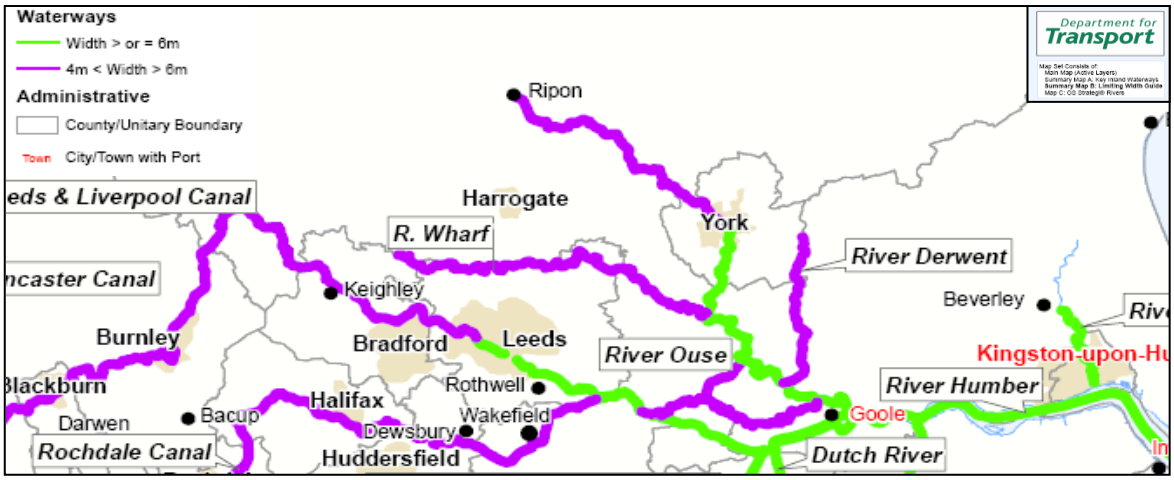

Figure 7: Waterways within Yorkshire and Humber Region with the potential capacity for additional freight movements[14]

[13] Association of Inland Navigation Authorities: A Strategy for Freight on Britain's Inland Waterways
[14] DFT, Key Inland waterways with freight potential Map, 2008

This map illustrates the waterways upon a wider regional scale which potentially could be utilised for the movement of minerals.

3.10 Road Freight and Minerals

As previously identified, road is currently the primary mode of transport for minerals. Due to the rural nature of the Joint Plan area, the predominant transport mode for minerals is likely to continue to be by road.

Freight transport can often be seen by residents and communities as having a detrimental impact on their quality of life. Residents can be disturbed by noise and vibrations of vehicles passing their homes and places of work. Pedestrians and other non-motorised transport users can also feel intimidated by the size of vehicles as they pass by. The Minerals and Waste Joint Plan will take these issues into consideration.

Freight Quality Partnerships

Freight Quality Partnerships are utilised to bring parties together, such as operators and Local Authorities and community representatives, to discuss the issues of freight movement within which the partnership operates. The groups help address the impact of freight movements on local communities and the environment. The groups identify solutions which balance the economic needs for goods and services with the needs of the community and the environment.

There are 3 established Freight Quality Partnerships within the Joint Plan area,

- Sutton Bank Freight Quality Partnership, which address localised issues,
- Settle Area Freight Quality Partnership which deal with localised issues such as impact on local community, and
- North Yorkshire Timber Freight Quality Partnership which addresses more strategic issues such as moving timber from source to the A/B road network.

Freight Quality Partnerships can be a useful tool in addressing both localised and strategic issues association with the transport of minerals. An example of the way Freight Quality Partnerships in the Joint Plan area can assist in alleviating the impact on communities from minerals transport can be seen in establishment of the Settle Sleep Zone which restricts the time quarry traffic can travel through the town of Giggleswick at night. Although the example is not within the plan area, the principle can be considered in other areas affected by minerals transport.

3.11 Policy Context

Local Transport Plan (LTP)

Like all local authorities, North Yorkshire County Council and City of York Council are required to produce a 5-year Local Transport Plan (LTP) which outlines the future of transport in the Local Authority area. The third LTP document for both the Local Authority areas was adopted in April 2011. The documents were prepared in partnership with local organisations including district councils, National Park Authorities, bus operators, those with transport related interests and members of the public. A number of major and minor transport schemes are proposed in LTP3 as part of the 5-year programme, including:

A1 Dishforth to Leeming and Leeming to Barton Improvement Schemes.

Work is currently underway on an A1 improvement scheme in North Yorkshire. Works, from Dishforth to Leeming, commenced in 2009 and were completed in 2012. A second phase of improvement began in 2014 which will improve the stretch of road between Leeming to Barton. It is currently expected that this will be completed in mid 2017.

Bedale, Leeming and Aiskew Bypass

The A684 is an important route within North Yorkshire. It provides direct access to the A1 and connections to the Yorkshire Dales National Park. The bypass scheme, which is due to open in Summer 2016, is for a 4.8 km single carriageway link between the A684 north of Bedale and the A684 east of Leeming Bar.

Both the repair of existing network systems and further development of the transport infrastructure will demand a supply of minerals.

National Planning Policy

Chapter 4 of the National Planning Policy Framework (2012) sets out the national planning policy approach to transport. With regard to policies which could affect minerals and waste developments paragraphs 31 and 32 state: “Local authorities should work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure necessary to support sustainable development, including large scale facilities such as rail freight interchanges, roadside facilities for motorists or transport investment necessary to support strategies for the growth of ports, airports or other major generators of travel demand in their areas. The primary function of roadside facilities for motorists should be to support the safety and welfare of the road user.

All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and
- improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.”

Chapter 13 of the National Planning Policy Framework (2012) sets out the national planning policy approach to minerals. Paragraph 142 states: “Minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. However, since minerals are a finite natural resource, and can only be worked where they are found, it is important to make best use of them to secure their long-term conservation.”

Within the Minerals section of National Planning Practice Guidance, under paragraph 6 it states ‘Planning authorities should safeguard existing, planned and potential storage, handling and transport sites to:

- ensure that sites for these purposes are available should they be needed; and

- prevent sensitive or inappropriate development that would conflict with the use of sites identified for these purposes.

In areas where there are county and district authorities, responsibility for safeguarding facilities and sites for the storage, handling and transport of minerals in local plans will rest largely with the district planning authority. Exceptions will be where such facilities and sites are located at quarries or aggregate wharves or rail terminals. Planning authorities should consider the possibility of combining safeguarded sites for storage, handling and transport of minerals with those for processing and distribution of recycled and secondary aggregate. This will require close co-operation between planning authorities."

The National Planning Policy for Waste (October 2014) sets out the Governments policy on waste planning. With specific regard to the transport of waste paragraph 5 states "Waste planning authorities should assess the suitability of sites and/or areas for new or enhanced waste management facilities against each of the following criteria:

- the extent to which the site or area will support the other policies set out in this document;
- physical and environmental constraints on development, including existing and proposed neighbouring land uses, and having regard to the factors in Appendix B to the appropriate level of detail needed to prepare the Local Plan;
- the capacity of existing and potential transport infrastructure to support the sustainable movement of waste, and products arising from resource recovery, seeking when practicable and beneficial to use modes other than road transport; and
- the cumulative impact of existing and proposed waste disposal facilities on the well-being of the local community, including any significant adverse impacts on environmental quality, social cohesion and inclusion or economic potential."

Appendix B of the National Planning Policy for Waste (October 2014) sets out the locational criteria when 'testing the suitability of sites and areas in the preparation of Local Plans and in determining planning applications' it goes on to state that 'waste planning authorities should consider the factors below: *f. traffic and access* - Considerations will include the suitability of the road network and the extent to which access would require reliance on local roads, the rail network and transport links to ports. "

4. Climate Change

Introduction

Climate change is recognised globally as the most urgent challenge the world is facing today. There is an overwhelming body of scientific evidence which indicates that it is a serious issue and that it requires urgent action to address this challenge. Emissions of greenhouse gases, particularly carbon dioxide (CO_2), are accelerating changes to the earth's climate and thus by reducing our reliance on the burning of fossil fuels for energy production we can directly influence the rate of climate change. The Climate Change act (2008) sets out the Government's binding agreement to cut greenhouse gas emissions by 80% below 1990 levels by 2050.

Climate change is a global issue that is relevant to North Yorkshire, as many of the actions required to tackle the problems created by climate change will need to be derived locally and every individual and business can play a part in reducing carbon emissions.

This section provides baseline information relevant to climate change considerations for the Joint Plan area. More information about carbon emissions and minerals and waste development is contained in the Minerals and Waste specific parts of the evidence base.

The 2009 Yorkshire and Humber Regional Adaptation Study: weathering the storm (2009) provides regional, sub-regional and local area climate change projections for "2050s" (2040 to 2060) based upon local modelling and a "1970s" (1960 – 1990) baseline period. The study also identifies the impact on the area and adaptation measures to ensure the area is robust to the projected climate changes.

The study identified a number of challenges the Region will have to face. The following overview is based upon the North Yorkshire sub-region (which includes the National Parks and York) and County and District local reports.

- annual average daily temperatures rising by almost 2°C;
- extreme hot temperatures will increase, with summer temperatures more regularly reaching 34°C;
- a reduction in annual rainfall of up to 6 per cent, although by less in upland areas;
- more seasonal rainfall pattern, with increases in winter and significant reductions in summer;
- an increase in the number of extreme rainfall events in northern and upland areas;
- dry spells (over 10 consecutive days without rain) are expected to increase in number;
- significant reductions in the number of days of frost and snow;
- marginal increases in winter average wind speeds (although summer and autumn speeds will reduce slightly) and a higher frequency of extreme and damaging wind events; and
- sea levels will rise by around 0.35 metres.

Minerals working can contribute to the impacts of climate changes, as well as contribute to the mitigation and adaption of its effects.

Estimates of CO_2 emissions for the Joint Plan area for the period 2009 – 2012 are shown in the table below.

	2009	2010	2011	2012
Transport	2,357	2,333	2,311	2,285
Industry & Commercial	2,360	2,511	2,290	2,361
Domestic	1,930	2,091	1,829	2,009
Grand Total	6,675	6,963	6,464	6,700
CO2 Tonnes Per Capita	8.5	8.8	8.1	8.3
Yorkshire & Humber CO2 Tonnes Per Capita	8.2	8.9	8.2	8.2
United Kingdom CO2 Tonnes Per Capita	7.3	7.5	6.8	7.1

Table 4: Estimates of CO_2 emissions in the North Yorkshire Sub-region 2009 - 2012 by sector (Kilotonnes)[15]

This data shows that emissions of CO_2 in the Joint Plan area are distributed relatively evenly across transport, industry & commercial, and domestic sectors. However, it also shows that the Joint Plan area's CO_2 emissions per capita are relatively high when compared to the United Kingdom as a whole.

4.1 Carbon Emissions and Minerals

It is estimated that the UK minerals industry produces approximately 4 million tonnes of CO_2 per annum, including 1.29 million tonnes from off-site transportation[16]. By far the greatest source of carbon emissions in the minerals industry is from processing minerals, for example cement and brick making, which are much more carbon intensive. These processes are subject to formal carbon reduction measures and are monitored thought the EU Emissions Trading Scheme and the UK Climate Change Agreements.

The Minerals Products Association produces an annual sustainability report which contains details of the progress made by members of the minerals industry against a series of sustainability objectives, one of which relates to carbon management. The table below identifies the amount of CO_2 produced by members of the Minerals Products Association in 2013 as a result of minerals processing and movement.

Product	2009	2010	2012	2013
Ready mix concrete	0.97	1.12	0.8	1
Asphalt	30.2	26.3	22.4	27.4
Sand and Gravel*	4	5	3.7	3.9
Crushed Rock*	5.27	5.5	4.4	3.7

[15] ONS, Local and Regional CO2 Emission Estimates 2005-12 (June 2014)
[16] UK Minerals Forum, carbon and proximity in minerals working group, report on the works programme 2007-2008 "Living with Minerals"

Table 5: National CO_2 emissions from minerals production (kg/tonne)[17]
*figure includes transport based on average distance travelled

Nationally, transport accounts for 21% of greenhouse gas emissions and is therefore very important in terms of its potential impacts on climate change considerations.

The transportation of minerals, which tend to be bulky, generates greenhouse gases. It is estimated that for England 1.29 million tonnes of CO_2 is the result of transporting minerals[18].

Published data in relation to carbon emissions associated with the transport of minerals vary. European commission figures estimate carbon emissions for each mode of transport based on 1 tonne per vehicle km.

Mode	Kg/CO_2 per vehicle km
Road	0.16
Rail	0.041
Water	0.025

Table 6: National Average Emissions of CO_2 by transport mode[19]

Other published estimates are available within a report produced by the UK minerals Forum, Carbon and Proximity in Minerals Working Group. Emissions estimates from the report for different modes of transport are show below.

Mode	Kg/CO_2 per vehicle km
Road	0.969*
Rail	0.021

Table 7: National Average Emissions of CO_2 by transport mode[20]
*assumptions are based on a 17tonne plus GVW rigid HGV as standard sector delivery vehicle.

The group report on the works programme 2007-2008 “Living with Minerals” looked at the issue of carbon and proximity in aggregates minerals supply. The group looked at the transport of minerals to the first customer. The report established a methodology for calculating carbon emissions from the transport of minerals. Their assessment for aggregate minerals is shown in the table below.

Product	Aggregates
Delivery Volume (tonnes)	231,000,000
Average vehicle load (tonnes)	21.3
Average delivery distance (km) return trip	58.5
Vehicle km	634,436,62
$KgCO_2$ per vehicle km	0.969

[17] MPA Sustainability Report December 2011 and 2014
[18] UK Minerals Forum, carbon and proximity in minerals working group, report on the works programme 2007-2008 ”Living with Minerals”
[19] ALSF: Reducing the environmental effects of transporting aggregate
[20] UK Minerals Forum carbon and proximity to minerals working group Report 2007-2008

kgCO_2 Total	614,769,085
kgCO_2 per tonne	2.66
Kg carbon total	167,512,012
Tonnes Carbon	167,512
Tonnes CO_2	**614,769**

Table 8: CO_2 emissions from aggregates transport 2007-2008[21]

This methodology can be used to estimate the total CO_2 arising from transport of aggregate minerals in the Joint Plan area. The table below provides a rough estimate of CO_2 for crushed rock and sand and gravel based on the production figures set out in the 2014 Yorkshire & Humber Aggregates Working Party Report, combined with using the average delivery distance of 50 km and average vehicle road load 22 tonnes as published in the Minerals Products Association Sustainability Report 2014.

North Yorkshire estimates	Sand and Gravel	Crushed Rock	Aggregates Combined
Total Sales 2013 (tonnes)	1,500,000	5,650,000	7,150,000
Average Vehicle load 22 tonnes*	22	22	22
Total vehicle loads	68,181	256,818	325,000
Average vehicle delivery distance km*	50	50	50
Total vehicle km	3,409,050	12,840,900	16,250,000
$KgCO_2$/vehicle km Emission estimates	0.969	0.969	0.969
Total estimated Kg CO_2	3,303,369	12,442,832	15,746,250
Total CO_2 tonnes	**3,303**	**12,442**	**15,746**

Table 9: Estimated 2013 CO_2 emissions from transport of aggregate extracted in the North Yorkshire Sub-region assuming transported by road. *MPA Sustainability Report (2014)

If this is considered in context of total CO_2 emissions within North Yorkshire (6.7 mt in 2012) and total CO_2 emissions from the transport sector (2.3 mt in 2012[22]) this suggests that aggregate minerals transport contributes less than 0.3% and 0.7% to CO_2 emissions respectively.

4.2 Mitigation

[21] UK Minerals Forum Carbon and Proximity to minerals working group Report 2007-2008
[22] ONS, Local and Regional CO2 Emission Estimates 2005-12 (June 2014)

Reducing the impact of Climate Change through reduction of greenhouse gases is important to ensure that impacts are minimised as far as possible for future generations. The results from any action taken now will not be recognised for many years.

Minerals working can contribute to the mitigation of climate change impacts through reducing the emissions from working practices. There is some limited guidance on reducing carbon emissions available for minerals operators. The Minerals Products Association has produced a document, Carbon Management Good Practice Guide (2008), which provides practical advice to the minerals industry on ways in which operators can reduce carbon emissions and energy usage. It is recognised that some minerals operators are currently undertaking action to reduce the impact on climate change[23], however there is no common commitment and details and monitoring is limited.

4.3 Adaptation

Tackling climate change is much more than just recognising the challenge and finding ways to reduce the impact, areas need to adapt and become more resilient to the changes.

Mineral working has the potential to provide opportunities to adapt to climate change. The greatest potential is through the restoration of former sites. Managing land to maximise benefits is essential if the impacts of climate change in the County are to be minimised. Examples of opportunities that may arise through site design and restoration are identified below.

- Flood Alleviation
- Sustainable Drainage Systems (SUDS)
- Green Infrastructure
- Habitat Creation
- Woodland Planting
- Best and Most Versatile Land and maintenance of capability for food production

The restoration of minerals working can contribute to carbon management by creation of new habitats and woodland as well as restoration to flood storage areas.

The publication “Opportunity Mapping for Woodland to Reduce Flooding in the Yorkshire & the Humber Region, Forest Research, 2009” identifies areas within the region which have potential to create new and additional Floodplain woodland. The main areas for potential improvement are located within catchments of the River Derwent, River Swale and River Ure. These areas are known to contain resources of minerals, particularly sand and gravel.

4.4 Policy Context

Climate Change Act 2008

The Climate Change Act (2008) sets a framework to help the UK achieve an 80% reduction in greenhouse gas emissions from 1990 levels by 2050.

Planning can make a significant contribution to both the mitigation of, and adaptation to, climate change. Addressing climate change is a key government objective for the Planning System. Planning policies have a major role to play in tackling climate change. However,

[23] Aggregate Industries have set themselves a target of reducing CO2 per tonne of product by 20% by 2012 form 2008 figures. This is reported annually in the company Sustainability Report. To do this Aggregate industries have employed mitigation measures such as increasing levels of fuel switching to bio fuels in asphalt business

many of the implications of climate change go far beyond the scope of issues which the planning system alone can seek to influence.

National Planning Policy

The **National Planning Policy Framework (2012)** paragraph 94 states "planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, costal change and water supply and demand considerations."

In relation to transport policy paragraph 30 of the NPPF states "Encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. In preparing Local Plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport."

Appendix B of the **National Planning Policy for Waste (October 2014)** sets out the locational criteria when 'testing the suitability of sites and areas in the preparation of Local Plans and in determining planning applications' it goes on to state that 'waste planning authorities should consider the factors below:

- *g. air emissions, including dust* - Considerations will include the proximity of sensitive receptors, including ecological as well as human receptors, and the extent to which adverse emissions can be controlled through the use of appropriate and well-maintained and managed equipment and vehicles."

Flood Risk

One of the main impacts of Climate change within the Joint Plan area is the increase of extreme rainfall which will increase the level and frequency of flooding events. Many parts of the County are already at risk from flooding. Areas within Flood Zone 3 are at higher risk of flooding (1per cent chance or greater within a year) than Flood Zone 2 which has up to 0.1 per cent chance of flooding.

Strategic Flood Risk Assessments (SFRAs)

A Strategic Flood Risk Assessment is used to assess the risk of flooding from all possible sources (rivers, sewers, groundwater, canals etc.) and the impact of climate change on flood risk. The Minerals and Waste Joint Plan will be subject to a Strategic Flood Risk Assessment to ensure that policies and strategic sites within the document do not significantly impact on flooding and flood risk. Further details on Strategic Flood Risk are available on the Sustainability Appraisal pages of the Council's website.

Catchment Flood Management Plans

Catchment Flood Management Plan (CFMP) are high level strategic plans that provide policies for sustainable flood risk management over the next 100 years. The aim is to identify the main factors which contribute to flood risk within the area and identify ways to manage future flood risk within the catchment area. By doing so Catchment Flood Management Plans aim to achieve to;

- reduce the risk of flooding and damage to people, property and the environment caused by floods;
- maximise opportunities to work with natural processes and to deliver multiple benefits from flood risk management, and make an effective contribution to sustainable development;

- support the introduction of EU directives, the delivery of Government and where possible other interested groups' policies and targets, and our environmental vision;
- promote sustainable flood risk management;
- inform and support planning policies, statutory land use plans and implementation of the Water Framework Directive (WFD).

There are six Environment Agency catchments within the Joint Plan Area, these are:

- Esk and Coast catchment
- Swale, Ure, Nidd and Upper Ouse catchment
- Derwent Humber catchment
- Wharfe and Lower Ouse catchment
- Aire and Calder catchment
- Don and Rother catchment

Local Planning Policy

The **North Yorkshire County Council Climate Change Strategy 'Delivering on Climate Change' (2009)** sets out how the County Council 'will play its part in contributing to the national target of an 80 per cent reduction in UK CO_2 emissions by 2050, with at least a 34 per cent reduction by 2018-22 (against the 1990 baseline)'. The Strategy also sets out how the Council 'will respond effectively to the risks from climate change according to the requirements of the Climate Change Act.'. With specific regard to minerals extraction the Strategy identifies a local indicator that seeks to increase the amount of recycled materials used in construction of new buildings.

The overall aim of **City of York's Climate Change Framework (2010)** and **Action Plan (2010) '**is to ensure that York is a sustainable city which tackles climate change and reduces its impact on the environment while maintaining the city's special qualities and enabling it to grow and thrive.'

5 Cumulative Impact

Introduction

Cumulative impact from minerals development is a cross-cutting issue as it can involve more than one type of mineral, or more than one site for the same type of mineral. It can be the successive, incremental or combined impacts of the activity on society, the economy or environment and can be either positive or negative. It can arise from:

- adding effects of a single operation, such as noise, dust and traffic
- Multiple mining, processing and material handling operations within a particular area and/or over a prolonged time period
- Interaction of mining impacts with other past, current and future activities that may not be related to mining.

Cumulative impact may not just affect communities but can affect landscape, natural heritage, the rural economy and regeneration, or occur as a result of successive operations over long periods of time. National planning policy for minerals indicates that cumulative impact issues should be taken into account when considering new minerals development.

5.1 Types of Cumulative Impact

The first type of cumulative impact (i.e. compounding effects of a range of impacts from a single operation) is most effectively considered at the individual project planning stage and through the development management process, when full details of the specific operation and potential impacts are likely to be available.

Cumulative impact resulting from either a succession of workings one after another, or from two or more sites operating or being restored in the same locality at the same time, is most likely to occur in areas where there is a concentration of minerals resources and a correspondingly high level of commercial interest in exploiting the resource. There are a small number of areas in the Joint Plan area with a particular concentration of minerals sites, which may include a mix of currently active and restored sites as well as areas of known further development potential. Whilst it may not be practicable to define a precise boundary within which cumulative impact issues need to be considered within any given area, those parts of the Joint Plan area within which it is considered at this stage that cumulative impact issues may be particularly important include:

- The Swale valley from the vicinity of Brompton-on-Swale down towards Great Langton, within Hambleton and Richmondshire Districts. In this area there are a number of large active sand and gravel workings, areas of former workings and areas currently of interest to industry for further development.

- The Ure valley and adjacent Magnesian Limestone ridge in the vicinity of Masham down to Ripon. In this area there are large active and restored sand and gravel and Magnesian Limestone workings, as well as areas of further interest to potential developers.

- The western and southern parts of Selby District, from Tadcaster down to Barnsdale Bar and eastwards from Knottingley to the boundary with East Riding. In this area there are Magnesian Limestone workings, building sand quarries, clay workings, Kellingley Colliery, mineral waste tips and secondary aggregate activities.

In these areas it may be particularly appropriate to give consideration to the potential for cumulative impact, for example when considering the possibility of identifying areas of search for further working, and the approach to site reclamation to ensure effective co-ordination of afteruses. Such an approach may help to minimise any harmful impacts from any future development as well as help to deliver the greatest benefits that could arise through site reclamation.

Particular cumulative impact issues arise in association with sand and gravel workings in the Swale and Ure valley areas. These areas are known to contain substantial areas of sand and gravel resource with potential for concreting aggregate and are important in maintaining supplies of sand and gravel both within and outside the Joint Plan area.

In many cases, a significant proportion of the mineral resource lies at depths below the water table, which is often relatively high in these areas. This means that site reclamation can result in the creation of one or more lakes. Whilst a small number of such sites have in the past been backfilled with inert materials to restore them back to agriculture, it is unlikely that suitable inert fill materials will be available to support this form of reclamation over the Plan period. It is therefore likely that, unless deeper minerals resources are sterilised by leaving them in the ground, water-based reclamation will continue to be proposed as part of any minerals reclamation schemes that come forward in these areas. This gives rise to a number of issues including:

- Progressive landscape change, where substantial areas of land previously in agricultural use become a series of lakes. This can also have consequential impacts on matters such as the local setting of communities and areas of historic or cultural significance, for example the complex of historic assets associated with the Thornborough Henges
- Progressive loss of agricultural land and associated capability for food production
- Potential change to ground and surface water regimes
- Potential loss of, or change to, public rights of way networks as areas of land are replaced with areas of water
- Potential for conflict with airfield safeguarding requirements – there is a relatively close correlation between the distribution of sand and gravel resources and the location of military and civil air safeguarding zones within the Joint Plan area (shown in the map below). This can impact on the design of new lakes and the potential afteruses to which they can be put. In particular, there can be tensions between the creation of areas of habitat which may attract particular types of birds and a requirement to design reclamation schemes which help minimise the risk of birdstrike hazard to aircraft. In general terms large areas of shallow water, which tends to have the greatest potential for biodiversity enhancement, are most likely to attract bird species and numbers which may pose a hazard to aircraft.
- Potential for delivery of other biodiversity, recreational and green infrastructure opportunities on a wider landscape scale than would be afforded by individual sites.

The map below shows the airfield safeguarding zones for the Joint Plan area.

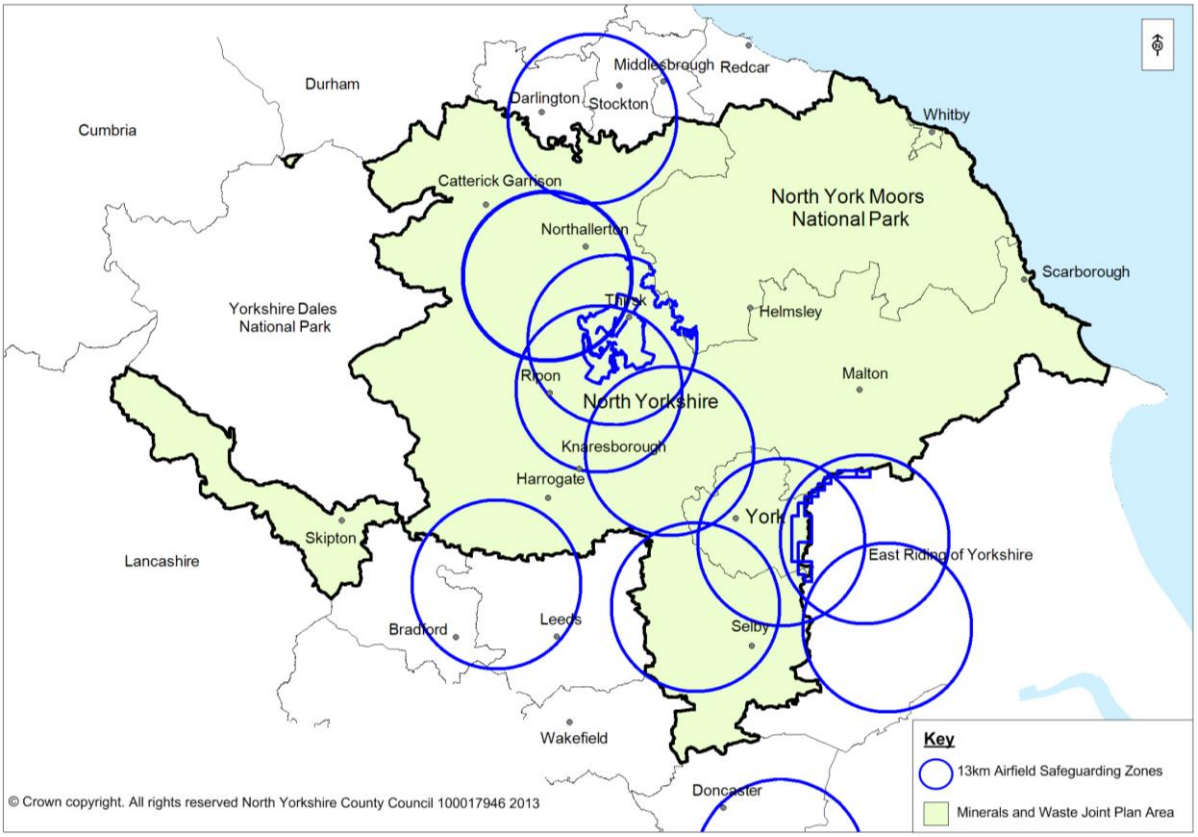

Figure 8: Map of Airfield Safeguarding Zones in the Joint Plan area

The third category of cumulative impact is potentially harder to define and identify in more detail. Most minerals development, by its nature, takes place in rural areas and the potential for cumulative effects of minerals development with other forms of development is correspondingly limited. Nevertheless, there may be specific locations where this becomes a relevant factor in helping to determine the acceptability of any proposals. As with the first type of cumulative impact discussed above, it is considered that this form is most effectively considered at the individual project planning stage and through the development management process, when full details of the specific operation and potential impacts are likely to be available.

Contact Details for the respective Planning Authorities

North Yorkshire County Council
Minerals and Waste Policy, Planning Services, North Yorkshire County Council, County Hall, Northallerton, North Yorkshire, DL7 8BR
Tel: 01609 780780
Email: mwdf@northyorks.gov.uk

City of York Council
Planning and Environmental Management, City of York Council, West Offices, Station Rise, York, YO1 6GA
Tel: 01904 552255
Email: localplan@york.gov.uk

North York Moors National Park Authority
Planning Policy, The Old Vicarage, Bondgate, Helmsley, York, YO62 5BP
Tel: 01439 772700
Email: policy@northyorkmoors.org.uk

Contact us

Minerals and Waste Joint Plan, Planning Services, North Yorkshire County Council, County Hall, Northallerton, North Yorkshire, DL7 8AH

Tel: **01609 780780** Email: **mwjointplan@northyorks.gov.uk**

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