West Yorkshire Transport Strategy 2016-2036

Integrated Sustainability Assessment

Appendices

West Yorkshire Combined Authority

July 2016

Notice

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Appendix A. Responses to the ISA Key Sustainability Issues Technical Note

Note: Tables 1, 2 and 3 in the Key Sustainability Issues Technical Note have become Tables 4, 5 and 7 in the ISA Report.

Question/Section	Representation	Response	Action
Respondent: Historic England (25 June 2015) **Ian Smith, Historic Environment Planning Adviser (Yorkshire)**			
General comments	On the whole, in terms of the historic environment, we consider that the Report has identified the key Sustainability Issues, the relevant implications/opportunities for the Transport Strategy, and that it has put forward a suitable set of Objectives. In general terms, therefore, we believe that it provides the basis for the development of an appropriate framework for assessing the significant effects which the Transport Strategy might have upon the historic environment. There are, however, a small number of areas where it is considered you might like to give further thought in developing the next stage of the Appraisal. These are as follows:-	Comments welcomed.	No action.
Table 1, No. 6, Pressure on the Historic Environment Implications/ Opportunities	Several elements of the transport infrastructure in the Combined Authority area (bridges, stations etc) are designated heritage assets. The Transport Strategy should ensure that these assets are appropriately managed.	Agree that these designated assets should be appropriately managed by the Transport Strategy.	Included the additional identified implication/opportunity in Table 1 and added a new assessment prompt question under ISA objective 9: 'Appropriately manage elements of the transport infrastructure which are designated heritage assets?'
Table 1, No. 6, Pressure on the Historic Environment ISA Objective	It would be preferable if this objective more closely reflected the terminology of the NPPF as follows:- "Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets".	Agree that terminology should be adjusted to reflect NPPF's.	ISA objective 9 wording adjusted to reflect NPPF's terminology.

Question/Section	Representation	Response	Action
Table 3, No.9, Historic and cultural heritage ISA Objective	It would be preferable if this objective more closely reflected the terminology of the NPPF as follows:- "Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets".	Agree that terminology should be adjusted to reflect NPPF's.	ISA objective 9 wording adjusted to reflect NPPF's terminology.
Respondent: Historic England (3 July 2015) **Merlin Ash, Yorkshire and Northern Lincolnshire Area Team**			
General comments	Natural England are satisfied with the approach set out in the Technical Note and in your letter and broadly welcome the key sustainability issues and proposed objectives and supporting questions set out in the tables. We have a number of comments on the Technical Note which we hope you find helpful.	Comments welcomed.	No action.
Table 1, No. 3, Air quality Implications /Opportunities	Natural England advise that ecological receptors, such as the air quality sensitive wetland and heath habitats in the South Pennine Moors and North Pennine Moors European designated sites, are considered alongside human receptors. For more information on the sensitivity of habitats and protected sites to air quality please see the Air Pollution Information System website at: http://www.apis.ac.uk/	Agree that ecological receptors should be considered alongside human receptors.	Included the additional identified implication in Table 1 and added a new assessment prompt question under ISA objective 1: 'Protect air quality sensitive wetland and heath habitats in the South Pennine Moors and North Pennine Moors European designated sites?' When undertaking assessment of proposals consider information on sensitivity of habitats and protected sites to air quality as in Air Pollution

Question/Section	Representation	Response	Action
			Information System, as appropriate.
Table 1, No. 4, Biodiversity, geodiversity and green infrastructure Implications /Opportunities	Natural England welcome the issues identified under this heading. We particularly welcome the identification of the issue of habitat fragmentation and need to consider green infrastructure networks, which were not addressed in the 2011 ISA. In relation to habitat fragmentation we suggest that you consider the impact of climate change in this regard and the need for cohesive habitat networks to help habitats and species adapt to the consequences of climate change. For more information on the vulnerability of habitats to climate change please see the National Biodiversity Climate Change Vulnerability Model report and GIS data available from our website at: Report: http://publications.naturalengland.org.uk/publication/5069081749225472 Data: http://www.gis.naturalengland.org.uk/pubs/gis/GIS_register.asp	Comment welcomed. Agree that impact of climate change should be considered in relation to habitat fragmentation.	No action. Included the additional identified implication in Table 1 and revised assessment prompt questions under ISA objective 2 to consider vulnerability of habitats to climate change as follows: • Protect and enhance green infrastructure avoiding severance of habitats' links and providing wildlife corridors, taking into account the vulnerability of habitats to climate change? • Explore opportunities for new habitat creation and enhancement through creation of or intervention in green infrastructure, taking into account the vulnerability of habitats to climate change?

Question/Section	Representation	Response	Action
	In addition we suggest that you consider the impact of the plan on designated sites sensitive to visitor and recreational pressures. I.e. the potential for policies and proposals to encourage recreation in sensitive areas through improving access. In particular we recommend that you consider the issues identified in the draft Bradford Local Plan Habitats Regulations Assessment in relation to recreational pressures on Ilkley Moor.		• Explore opportunities for creating blue infrastructure which can both help to manage localised flood risk and create new habitats, taking into account the vulnerability of habitats to climate change?' Consider vulnerability of habitats to climate change in the assessment of proposals as appropriate. Included the additional identified implication in Table 1 and added a new assessment prompt question under ISA objective 2: 'Protect designated sites sensitive to visitor and recreational pressures such as Ilkley Moor SSSI, SPA and SAC?'

Question/Section	Representation	Response	Action
		Agree that impact of the plan on designated sites sensitive to visitor and recreational pressure should be considered.	
Table 1, No. 5, Landscape and townscape Implications /Opportunities	We welcome the reference to the National Character Areas (NCA) across the region and advise that Natural England's NCA profiles have been updated since 2011 and are available from the following web page. Natural England advise that you give particular regard to the landscape and visual impact of the plan on the special qualities and setting of nationally designated landscapes including the Peak District National Park, Yorkshire Dales National Park and Nidderdale Area of Outstanding Natural Beauty (AONB).	Comment welcomed. Agree that particular regard should be given to impact on nationally designated landscapes.	Consider updated NCA profiles as necessary during the assessments. Included the additional identified implication in Table 1 and added a new assessment prompt question under ISA objective 10: 'Protect the special qualities and setting of nationally designated landscapes including the Peak District National Park, Yorkshire Dales National Park and Nidderdale Area of Outstanding Natural Beauty (AONB)?'

Question/Section	Representation	Response	Action
Table 1, No. 8, Land and contaminated land Implications /Opportunities	The assessment should give consider the potential impacts of the plan on the roles performed by the area's soils. These should be valued as a finite multi-functional resource which underpin our well-being and prosperity. Decisions about development should take full account of the impact on soils, their intrinsic character and the sustainability of the many ecosystem services they deliver, for example: Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society; for instance as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably. The Natural Environment White Paper (NEWP) 'The Natural Choice: securing the value of nature' (Defra , June 2011), emphasises the importance of natural resource protection, including the conservation and sustainable management of soils, for example: □ A Vision for Nature: 'We must protect the essentials of life: our air, biodiversity, soils and water, so that they can continue to provide us with the services on which we rely' (paragraph 2.5). □ Safeguarding our Soils: 'Soil is essential for achieving a range of important ecosystem services and functions, including food production, carbon storage and climate regulation, water filtration, flood management and support for biodiversity and wildlife' (paragraph 2.60). □ 'Protect 'best and most versatile' agricultural land' (paragraph 2.35).	Comment noted.	Key Issues updated to reflect important functions and services of soils. Added in Opportunities/Implications that the Transport Strategy must protect soils as they are essential for achieving a range of important ecosystem services and functions, including food production, carbon storage and climate regulation, water filtration, flood management and support for biodiversity and wildlife. Added new prompt question to ISA objective 8: 'Protect soil resources as they are essential for achieving a range of important ecosystem services and functions, in particular during the construction phase of schemes?' Agricultural Land Classification Maps utilised in the assessments of proposals, as appropriate, to inform decision making.

Question/Section	Representation	Response	Action
	To assist in understanding agricultural land quality within the plan area and to safeguard 'best and most versatile' agricultural land in line with paragraph 112 of the National Planning Policy Framework, strategic scale Agricultural Land Classification (ALC) Maps are available. Natural England also has an archive of more detailed ALC surveys for selected locations. Both these types of data can be supplied digitally free of charge by contacting Natural England. Some of this data is also available on the www.magic.gov.uk website. The combined authority should ensure that sufficient site specific ALC survey data is available to inform decision making. For example, where no reliable information was available, it would be reasonable to expect that developers should commission a new ALC survey, for any sites they wished to put forward for consideration in the plan. General mapped information on soil types is available as 'Soilscapes' on the www.magic.gov.uk and also from the LandIS website http://www.landis.org.uk/index.cfm which contains more information about obtaining soil data. Some of the most significant impacts on soils occur as a result of activities associated with construction activity. A Code of Practice has been developed by Defra to assist anyone involved in the construction sector to better protect the soil resources with which they work and in doing so minimise the risk of environmental harm such as excessive run-off and flooding. The aim is to achieve positive outcomes such as cost savings, successful landscaping and enhanced amenity	Comment noted.	Added in Key Issues in Table 1 that some of the most significant impacts on soils occur as a result of activities associated with construction. Added to Implications/Opportunities in Table 1 that the Transport Strategy must ensure that soil resources are protected during the construction phase of

Question/Section	Representation	Response	Action
	whilst maintaining a healthy natural environment. We advise that this code is used as part of addressing soils in development plan policies. For further information see http://www.defra.gov.uk/publications/2011/03/27/construction-cop-soil-pb13298/	Comment noted.	schemes. Added a new assessment prompt question under ISA objective 8: 'Protect soil resources as they are essential for achieving a range of important ecosystem services and functions, in particular during the construction phase of schemes?' Defra's 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' requirements considered to inform the assessments of proposals, as appropriate.
Table 1, No. 9, Water environment and pollution Implications /Opportunities	We advise that you consider ecological receptors as well as human ones in relation to impacts on the water environment and the pollution of watercourses, including consideration of the EU Water Framework Directive.	Agree that ecological receptors should be considered alongside human receptors.	Included the additional identified implication in Table 1 and added a new assessment prompt question under ISA objective 7: 'Protect water quantity/quality sensitive nature conservation designated sites?'

Question/Section	Representation	Response	Action
Table 3, No. 1 Local air quality ISA objective and questions	As with key sustainability issue 3 we expect ecological receptors, including designated sites, to be considered in relation to local air quality.	Agree that ecological receptors should be considered alongside human receptors.	Added a new assessment prompt question under ISA objective 1: 'Protect air quality sensitive wetland and heath habitats in the South Pennine Moors and North Pennine Moors European designated sites?'
Table 3, No. 2 Biodiversity, geodiversity and green infrastructure	Natural England welcome this objective and the prompt questions. In particular we welcome references to the protection and enhancement of green infrastructure avoiding severance of habitat links and providing wildlife corridors and habitat creation.	Comment welcomed.	No action.
Table 3, No. 3 European sites ISA objective and questions	Natural England were satisfied with the approach and assessment carried out under the Habitats Regulations in relation to the 2011-2026 West Yorkshire Local Transport Plan and would have no significant concerns about the adaptation of this framework for the new plan. However we advise that the assessment is updated to address the effects of the new plan and that it takes account of new evidence and any changes to site condition since the Habitats Regulations Assessment for the 2011-2026 LTP was undertaken. In this regard we would like to draw your attention to the updated conservation objectives and citations for European sites and where available the Conservation Objectives Supplementary Advice documents which are available from our website at: http://publications.naturalengland.org.uk/category/6490068894089216 In addition or more information on threats to favourable conservation status please see the published Site Improvement Plan (SIP) for each site which are available from our website at: http://publications.naturalengland.org.uk/category/5458594975711232	To be considered in the Habitats Regulations Assessment which is being undertaken separately from the ISA and which informs the ISA.	HRA team informed.

Question/Section	Representation	Response	Action
Table 3, No. 5 Climate change vulnerability ISA objective and questions	We suggest you include consideration of the vulnerability and adaptation of biodiversity to the effects of climate change as discussed above in relation to key sustainability issue 4 above.	Agree.	Revised assessment prompt questions under ISA objective 2 to consider vulnerability of habitats to climate change as follows: • Protect and enhance green infrastructure avoiding severance of habitats' links and providing wildlife corridors, taking into account the vulnerability of habitats to climate change? • Explore opportunities for new habitat creation and enhancement through creation of or intervention in green infrastructure, taking into account the vulnerability of habitats to climate change? • Explore opportunities for creating blue infrastructure which can both help to manage localised flood risk and create new habitats, taking into account the vulnerability of habitats to climate change?'

Question/Section	Representation	Response	Action
Table 3, No. 7 Water environment ISA objective and questions	As with key sustainability issue 9 we expect ecological receptors, including designated sites, to be considered in relation to the hydrological impacts of the plan, both in terms of water quality and water supply/abstraction.	Agree that ecological receptors should be considered alongside human receptors.	Added a new assessment prompt question under ISA objective 7: 'Protect water quantity/quality sensitive nature conservation designated sites?'
Table 3, No. 8 Soil resources ISA objective and questions	Natural England welcome this objective and the questions.	Comment welcomed.	No action.
Table 3, No.10 Landscape and townscape ISA objective and questions	Natural England broadly welcome this objective and the prompt questions however, as with Key sustainability issue 5 above, above we advise that you make specific reference to the consideration of impacts on the landscape and visual impact of the plan on the special qualities and setting of nationally designated landscapes including the Peak District National Park, Yorkshire Dales National Park and Nidderdale Area of Outstanding Natural Beauty (AONB).	Agree.	Added new assessment prompt question under ISA objective 10: 'Protect the special qualities and setting of nationally designated landscapes including the Peak District National Park, Yorkshire Dales National Park and Nidderdale Area of Outstanding Natural Beauty (AONB)?'
Respondent: Environment Agency (8 July 2015) **John Pilgrim, Economic Development Technical Specialist**			
Table 1, No. 1, Greenhouse gas	The Transport Strategy should seek to ensure that new schemes maximise the opportunity for increasing tree /vegetation cover, where practical, in order to absorb	Agree.	Included the additional identified opportunity in Table 1 and reworded

Question/Section	Representation	Response	Action
emissions Implications /Opportunities	increased amounts CO2, e.g. though the use of street trees.		assessment question in Table 3 concerning carbon sinks as follows: ‘ Protect and enhance green infrastructure through protecting existing and/or creating new carbon sinks, where practical, in order to absorb increased amounts CO2, e.g. though the use of street trees?’
Table 1, No. 2, Flooding Implications /Opportunities	The Transport Strategy should seek to ensure that transport infrastructure minimises any negative effect arising from flooding (e.g. by conducting flood risk assessments and using materials/techniques which reduce surface run-off) and slow the flow of water to main water courses. The Transport Strategy should also recognise that climate change is likely to worsen the risk of flooding events and increased and prolonged drought and that necessary mitigation measures are included, e.g. through review of maintenance procedures to take into account climate change factors. Ensure drainage systems are sufficiently resilient to deal with periods of intense rainfall. Ensure that where transport schemes require a landtake from the floodplain there is appropriate compensatory measures put in place.	Agree.	Included the additional identified implications /opportunities in Table 1 and reworded assessment questions in Table 3 as follows: • Plan for the successful adaptation to the predicted changes in weather conditions and frequency of extreme events, slowing the flow of water to main water courses and ensuring drainage systems are sufficiently resilient to deal with periods of intense rainfall?

Question/Section	Representation	Response	Action
			• Where transport schemes require a landtake from the floodplain are there appropriate compensatory measures put in place?'
Table 1, No. 4, Biodiversity, geodiversity and green infrastructure Implications /Opportunities	Opportunities for new habitat creation and enhancement associated with transport developments should be explored, e.g. through the use of appropriate locally native species in landscaping plans, through creation of new road verges and enhancement of the existing road verge network . The potential for biodiversity creation in brownfield sites should be also taken into account. The Transport Strategy should also seek to explore the possibilities for creating blue infrastructure which can both help to manage localised flood risk and create new habitats.	Agree.	Included the additional identified implications /opportunities in Table 1 and a new assessment question has been added in Table 3 for ISA objective 2: 'Explore opportunities for creating blue infrastructure which can both help to manage localised flood risk and create new habitats?'
Table 1, No. 5, Landscape and townscape Implications /Opportunities	There may be opportunities to slow the flow of water into river catchments through interventions at the landscape scale, for example, through upland afforestation schemes and changes to land management which could include measures such as: • Constructing low-level bunds • Planting more trees, especially along streamsides and in the floodplain • Restoring woody debris dams in small streams • Restoring wetlands. These measures can help reduce flood risk in the lower parts of a catchment and help to protect transport infrastructure from flooding.	Agree.	Included the additional identified implications /opportunities in Table 1 and a revised assessment question considered in Table 3 for ISA objective 2: 'Explore synergies with green infrastructure proposals for flood alleviation purposes such as upland afforestation schemes, restoring wetlands and planting more trees, especially along streamsides and in the floodplain?'

Question/Section	Representation	Response	Action
Table 1, No. 12, Productivity and competitiveness Implications /Opportunities	High quality green and blue infrastructure can play an important role in enhancing the visual appeal of transport infrastructure and help to encourage new inward investment, and help to retain high skilled labour.	Agree.	Included the additional identified implications /opportunities in Table 1 and a revised assessment question in Table 3 for ISA objective 12 as follows: 'Create high quality environments through the creation or enhancement of green and blue infrastructure enhancing the visual appeal of transport infrastructure and help to encourage new inward investment and retain high skilled labour?'
Table 1, No. 14, Health Implications /Opportunities	Ensure that green and blue infrastructure is used to help increase the attractiveness of sustainable transport options between communities, to make active modes of transport more popular.	Agree.	Included the additional identified implications /opportunities in Table 1.
Respondent: Wakefield Council (14 July 2015) **Neville Ford, Service Manager Planning and Transportation**			
General	1- Have all relevant Key Sustainability Issues been identified in Tables 1 and 2? Yes it appears so.	Comment welcomed.	No action.
General	3- Do you agree with the wording of the ISA, EqIA and HIA objectives that have been identified in Tables 3, 4 and 5? Yes, but is there something additional about facilitating sustainable development through spatial alignment of investment with	Spatial alignment of investment with development plans is	No action.

Question/Section	Representation	Response	Action
	development plans?	already covered under ISA objective 12 through the following assessment prompt questions: • Ensure good accessibility by sustainable forms of transport to expected major employment growth areas? • Ensure good accessibility by sustainable forms of transport to new housing development areas?	
Table 1, No. 2 Flooding Key Issues	No reference to key river catchments in Wakefield District e.g. River Calder, Don etc.	Comment noted.	Key Issues reviewed to ensure that all key river catchments in the study area are mentioned.
Table 1, No. 6 Historic Environment Key Issues	No clear reference to Conservation Areas as historic assets (unlike Listed Buildings, Ancient Monuments etc.). Only reference is in relation to potential impact which should be expanded to include listed buildings, historic gardens etc., or be general		Key Issues reviewed ensuring that Conservation Areas are mentioned. Note that Conservation areas are covered by the following assessment prompt question under ISA objective 9:

Question/Section	Representation	Response	Action
			'Conserve, protect and enhance the region's cultural and designated and non-designated historic assets (e.g. locally important buildings, archaeological remains, World Heritage Sites, SMs, Listed Buildings and structures, Registered Parks and Gardens, Registered Battlefields and Conservation Areas) and their settings?
Respondent: Public Health England (14 July 2015) **Dr Mike Gent, Consultant in Communicable Disease Control, West Yorkshire Health Protection Team, Yorkshire and the Humber Public Health England Centre**			
Table 1, No.10 High dependence on private car leading to traffic growth Opportunities/Implications	In addition 'The Transport Strategy should also promote an integrated transport infrastructure with patterns of land use which reduce the need to travel, particularly by car.' The Transport Strategy should create the infrastructure to encourage people to switch to low emission vehicles - charging points, preferential parking etc Should there also be a mention of disincentives for car use - could include congestion charging, car park charging and limiting car park spaces?	Agree	Add new text to Opportunities/Implications: 'The Transport Strategy should create the infrastructure to encourage people to switch to low emission vehicles - charging points, preferential parking etc' 'The Transport Strategy should create disincentives for car use including congestion charging, car

Question/Section	Representation	Response	Action
			park charging and limiting car park spaces.'
Table 1 No.11 Employment	With reference to Employment Implications/Opportunities there is a need to mention social value: investment needs to encourage local employment (to discourage people from travelling a long way to work) by offering training for local people and recruitment among the locally unemployed and disadvantaged population.	Agree	Add new text to Opportunities/Implications: 'The Transport Strategy must encourage local employment (to discourage people from travelling a long way to work) by offering training for local people and recruitment among the locally unemployed and disadvantaged population.
Table 1, No. 12 Levels of productivity and competitiveness Key Issue	8 million people live in Kirklees with a workforce of 3 million and 12 universities? This doesn't seem right.	Comment noted.	Kirklees figures have been corrected and updated to reflect latest situation.
Table 3, No. 1 ISA objective Air quality	Assessment prompt question 'Promote operation of the most modern vehicles, including buses and private cars' could be more specific: low emission vehicles and new vehicles. In the short term need to reduce the dieselisation of the fleet	Agree	Assessment prompt question modified as follows: 'Promote operation of low emission and new vehicles, including buses and private cars?'

Question/Section	Representation	Response	Action
	Assessment prompt question 'Instigate financial incentives and measures on the basis of the polluter pays principle? (e.g. congestion charge, road pricing)' could include car parking charges.	Agree	Assessment prompt question modified as follows: 'Instigate financial incentives and measures on the basis of the polluter pays principle? (e.g. congestion charge, road pricing, car parking charges)?'
Table 3, No 11 ISA objective	Insert new assessment prompt question: 'Promote the primacy of active travel modes (walking and cycling) over domestic car use – pedestrianisation, phasing of traffic lights, 20 mile an hour zones?'	Agree	New assessment prompt question added: 'Promote the primacy of active travel modes (walking and cycling) over domestic car use – pedestrianisation, phasing of traffic lights, 20 mile an hour zones?'
Table 3, No. 12 ISA objective	Assessment prompt question 'Help create and sustain new jobs for local people' should consider particularly high unemployment areas, providing the necessary training if needed.	Agree	Assessment prompt question modified as follows: 'Help create and sustain new jobs for local people, particularly in high unemployment areas, providing the necessary training if needed?'

Question/Section	Representation	Response	Action
Table 3, No. 14	I think the language of the assessment prompt question could be stronger throughout - change "consider the needs" to "actively promote"	Agree	Assessment prompt question modified as follows: 'Promote the health and well-being of vulnerable groups (children and adolescents; older people; disabled people and people with other health problems; low-income groups and communities with high level of deprivation; cyclists, pedestrians, commuters by public transport, drivers) and of the wider population (residents, workers, commuters, tourists and visitors)?'
Respondent: Leeds City Region Enterprise Partnership (LEP) (24 July 2015) **Nigel Guy, Head of Research & Intelligence**			
Table 1, Economic	Issues 11 and 12 are indeed the key economic questions – but 10 is not an economic issue, and I would recommend its exclusion.	Comment noted.	ISA Framework has been re-arranged so that issue 10 presented as an environmental issue rather than economic.
	The figures and analysis in the commentary on issues 11 and 12 move from Y&H to West Yorkshire to the individual authorities – I would recommend consistently using West Yorkshire as your geography of reference since this is the WY Single Transport Plan.	Comment noted	Figures and analysis on issues 11 and 12 have been reviewed.

Question/Section	Representation	Response	Action
	- in relation to a couple of specifics: o care is needed when saying that 'Leeds has experienced fast growth over recent years', since the city was hit quite badly by the recession and employment (as one measure of economic progress) has not yet returned to pre-recession levels o and the figures quoted for Kirklees under issue 12 appear to be for a much larger economy than even the mighty Kirklees!	Comment noted.	
Respondent: Public Health Bradford (16th July 2015) **Sara Ahern, Research Fellow, Air Quality**			
Table 3, Objective 1 and 12	I have made suggestions for rewording of objective 1 under Environment and objective 12 under Economic.	Comments noted.	Wording altered as suggested.

Appendix B. Policy documents reviewed for the ISA

International
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (1979)
Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1979)
Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) (1971)
EC A Sustainable Future for Transport – Towards an Integrated, Technology led and User Friendly System (2009)
EC Keep Europe Moving – Sustainable Mobility for our Continent: Mid-Term Review of White Paper (2006)
EU Action Plan on Urban Mobility (2009)
EU 2020 Biodiversity Strategy (2012)
EU 7th Environmental Action Programme (2013)
EU Air Quality Framework Directive (96/62/EC)
EU Biodiversity Action Plan (2006-2010)
EU Directive for the Promotion of Bio-fuels for Transport (2003/30/EC)
EU Directive on Ambient Air Quality and Management (1996/62/ EC)
EU Directive on Assessment and Management of Environmental Noise Directive (2002/29/EC) and associated Regulations (2006)
EU Directive on Assessment of the Effects of Certain Plans and Programmes on the Environment (2001/42/EC)
EU Directive on Environmental Impact Assessment (2014/52/EU) amending Directive (97/11/EC) amending Directive 85/337/EEC
EU Directive on the Conservation of Wild Birds (2009/147/EC)
EU Employment Equality Framework (2000)
EU Environmental Liability Directive (2004/35/EC)
EU Floods Directive (2007/60/EC)
EU Freshwater Fish Directive (78/659/EEC)
EU Groundwater Directive (GWD) (2006/118/EC)
EU Habitats Directive (92/43/EC)
EU National Emissions Ceiling Directive (2001/81/EC)
EU Race Equality Framework (2000/43/EU)
EU Rural Development Policy 2007-2013
EU Second European Climate Change Programme (2005)
EU Strategy on Adaptation to Climate Change (2013)
EU Sustainable Development Strategy (2006)
EU Sustainable Development Strategy (2006) and 2009 Review of EU SDS
EU Thematic Strategy on Air Quality, 2005
EU Waste Framework Directive (2006/12/EC)
EU Water Framework Directive (2000/60/EC)
European Convention on the Protection of the Archaeological Heritage
European Landscape Convention (91/676/EC)
European Spatial Development Perspective (1999)
European Transport Policy for 2010: A Time to Decide (2001)
UN Framework Convention on Climate Change (2008)
UN Johannesburg Declaration on Sustainable Development, 2002
UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (1998)
UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (1972)
UNFCCC Bali Road Map (2007)
UNFCCC Copenhagen Accord (2009)
UNFCCC Doha Climate Gateway (2012)
UNFCCC Kyoto Protocol on Climate Change (1997)
WHO Age Friendly Cities Guide (2007)

WHO Collaboration Between the Health and Transport Sectors in Promoting Physical Activity (2006)
WHO Guidelines for Community Noise (2000)
WHO Health Effects of Transport-Related Air Pollution (2005)
WHO Transport, Environment and Health (2000)
National
2010 to 2015 government policy: water quality (Updated 8 May 2015)
A Better Place to Play (Environment Agency, 2006)
A Safer Way: Consultation on Making Britain's Roads the Safest in the World (2009)
A Sure Start to Later Life: Ending Inequalities for Older People – A Social Exclusion Unit Final Report (2006)
Adapting to Climate Change in England (DEFRA, 2008)
Air Quality Regulations 2000 and The Air Quality (Amendment) Regulations 2002
Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)
Ancient Monuments and Archaeological Areas Act 1979
Be Active Be Healthy: A Plan for Getting the Nation Moving (2009)
Beyond Copenhagen: The UK Government's International Climate Change Action Plan (2010)
Building a Greener Future Towards Zero Carbon Development – Consultation (Dec 2006)
Building a Low-Carbon Economy – The UK's Contribution to Tackling Climate Change. The First Report of the Committee on Climate Change (Committee on Climate Change, 2008)
Building a Society for all Ages (2009)
Building Sustainable Transport into New Developments (DfT, 2008)
Carbon Pathways Analysis: Informing Development of a Carbon Reduction Strategy for the Transport Sector, Department for Transport (2008)
Carbon Pathways: Informing Development of a Carbon Reduction Strategy for Transport (DfT, 2008)
Child Road Safety Strategy (DfT, 2007)
Clean Neighbourhoods and Environment Act 2005
Climate Change Act 2008
Conserving Biodiversity – The UK Approach (Defra on behalf of the UK Biodiversity Partnership 2007)
Countryside and Rights of Way Act 2000
Delivering a Sustainable Railway, Department for Transport (2007)
Delivering a Sustainable Transport System (DaSTS), Department for Transport (2008)
Delivering a Sustainable Transport System (DaSTS): Consultation on Planning for 2014 and Beyond, Department for Transport (2008)
DfT Sustainable Development Action Plan (2007 and 2008)
Disability Discrimination Act (2005)
Draft Heritage Protection Bill (2008)
Enterprise and Regulatory Reform Act 2013
Environmental Noise (England) Regulations 2006 SI 2238
Equalities Review (2007)
Equality Act (2010)
Equality Framework for Local Government (2009)
Every Child Matters (2003)
Flood and Water Management Act (2010)
Future Water: Government's Water Strategy for England (2008)
Future water: The government's water strategy for England (2011)
Guidance on the Promotion and Creation of Physical Environments to Support Increased Levels of
Healthy Lives, Brighter Futures – the Strategy for Children and Young People's Health (2009)
Heritage Protection for the 21st Century: White Paper (DCMS, 2007)
Low Carbon Transport: A Greener Future, A Carbon Reduction Strategy for Transport, Department for Transport (2009)
Making the Connections: Final Report on Transport and Social Exclusion (2003)
Meeting the Energy Challenge: A White Paper on Energy (2007)
National Air Quality Strategy, Department for Environment, Food and Rural Affairs (2007)
National Cycling Strategy, DfT Review

National flood and coastal erosion risk management strategy for England (2011)
National Planning Policy Framework (2012)
National Waste Development Framework
Natural Environment and Rural Communities Act 2006
Noise Action Plans (DEFRA)
Older People: Their Transport Needs and Requirements (DfT, 2001)
Physical Activity (NICE) (2008)
Planning (Listed Buildings and Conservation Areas) Act 1990
Planning for a Sustainable Future (2007)
Planning for a Sustainable Future, Department for Communities and Local Government (2007)
Planning for Economic Development (ODPM, 2004)
Powering Future Vehicles Strategy, Department for Transport (2002)
Protection of Badgers Act (1992)
PSA Delivery Agreement 27 Lead the Global Effort to Avoid Dangerous Climate Change (HM Government, 2007)
PSA Delivery Agreement 28 Secure a Healthy Natural Environment for Today and the Future (HM Government, 2007)
Public Sector Equality Duty (Equality Act 2010)
Race Relations (Amendment) Act (2000)
Road Safety Act 2006
Road Traffic Reduction (National Targets) Act 1998
Road Traffic Reduction Act 1997
Rural Strategy 2004
Securing the Future: The Government's Sustainable Development Strategy (2005)
Securing the Regions' Future (2006)
Stern Review of the Economics of Climate Change (Stern, 2007)
Sustainable Communities: Building for the Future (2003)
Sustainable Distribution: A Strategy (DfT, 1999)
Tackling Health Inequalities: A Programme for Action (2003)
The Conservation of Habitats and Species Regulations (2010)
The Countryside in and Around Towns: A Vision for Connecting Town and Country in the Pursuit of Sustainable Development (The Countryside Agency/Groundwork 2005)
The Future of Transport White Paper – A Network for 2030 (DfT, 2004)
The Government's Statement on the Historic Environment for England 2010
The Low Carbon Transition Plan and Low Carbon Transport 'A Greener Future' (2009)
The Public Health White Paper: Choosing Health – Making Healthy Choices (2004)
The UK Programme on Climate Change, Department for Environment, Food and Rural Affairs (2006)
Towards a Sustainable Transport System: Supporting Economic Growth in a Low Carbon World (TaSTS), Department for Transport (2007)
UK Biodiversity Action Plan 1992-2012 (1994)
UK Climate Change Bill (2008)
UK Post-2010 Biodiversity Framework (July 2012)
Ultra-low Carbon Vehicles in the UK, HM Government (2009)
Walking and Cycling: An Action Plan (2009)
Waste Strategy for England (Defra, 2007)
Wildlife and Countryside Act (as amended) 1981
Working with the Grain of Nature: A Biodiversity Strategy for England 2002
World class places: the Government's strategy for improving quality of place (2009)
Regional
Air Quality Plan for the achievement of EU air quality limit values for nitrogen dioxide (NO2) in West Yorkshire Urban Area (UK0004) (2001)
Joint Local Authority – Yorkshire Forward Position Paper (2008)
North Yorkshire and York Staying Healthy (2008)
Strategic economic Plan, Leeds City Region Enterprise Partnership (2014)
The Humber River Basin District Management Plan (2009)
The Yorkshire and Humber Plan: Regional Spatial Strategy to 2026 (2008)

The Yorkshire and Humber Regional Economic Strategy 2006-2015 and progress update (2007)
West Yorkshire – Noise Action Plan (March 2010)
West Yorkshire Low Emission Strategy (WYLES) Working Draft, 2015-2020
Yorkshire Dales National Park Local Plan (2006)
Local
Air Quality Progress Report for Leeds City Council (Dec 2011)
A Local Area Agreement for Leeds 2006 – 2009
Barnsley Combined Local Plan (consultation draft 2014)
Barnsley Core Strategy (adopted 2011)
Barnsley Development Sites & Places (consultation draft June 2012)
Big Plan for the Bradford district 2008-2011 - our sustainable community strategy
Bradford Air quality action plan: consultation draft (Jul 2009)
Bradford Children and Young People's Plan 2011 – 2014
Bradford Core Strategy (publication draft 2014)
Bradford MDC Low Emission Strategy (Aug 2013)
Bradford Metropolitan District Council Strategic Flood Risk Assessment Level 1 (amended Feb 2014)
Bradford Metropolitan District Council: Sustainability Appraisal of the Core Strategy (Publication Draft Feb 2014)
Calderdale Local Air Quality Management Updating and Screening Assessment (2015)
Calderdale Local Area Agreement 2 2008-2011
Calderdale: Local Plan Sustainability Appraisal Scoping Report (Evidence Base Feb 2015)
Calderdale's Sustainable Community Strategy (Jan 2010)
Craven Local Plan (under development)
Developing Knowledge Communities: Wakefield District Community Strategy (Mar 2007)
Families and Neighbourhoods: Wakefield District Local Area Agreement 2008 2011
Harrogate Core Strategy (adopted Feb 2009)
Harrogate Sites & Policies DPD (under development)
Kirklees Local Air Quality Strategy (Apr 2007)
Kirklees Local Area Agreement (Mar 2009)
Kirklees Sustainable Community Strategy 2009-2012
Leeds Core Strategy (adopted Nov 2014))
Leeds Site Allocations (under development)
Local Air Quality Management Action Plan 2010
Selby Core Strategy (adopted Oct 2013)
Selby Sites and Policies Plan (under development)
The Bradford district local area agreement 2008-2011 - Connecting people and places to economic prosperity
Vision for Leeds 2004 to 2020 (April 2004)
Wakefield Core Strategy (adopted Apr 2009)
Wakefield Core Strategy DPD & Development Policies DPD (adopted Apr 2009)
Wakefield Sites Specific Policies (adopted 2009)
York Local Plan (under development)

Appendix C. Baseline data

C.1. Introduction

In this Appendix, we set out the information used to determine the baseline against which the effects of the ISA have been assessed. In this context, the baseline is taken to mean the environmental, economic and social conditions that are prevalent in West Yorkshire at the time the assessment is being carried out, taking account (as far as is possible given the time and resources available) of how these may change during the life of the Transport Strategy (i.e. up to 2036). This has been identified in a number of ways, e.g. through the use of existing data available, studies and modelling.

Most of the information contained in this Appendix has been extracted from the 2011 LTP3 ISA Report with reviews and updates being made as necessary.

The information that has been collated typically includes:

- The sources of information used;
- The extent of consultation with external bodies; and
- Any limitations pertaining to the baseline information or to the collation process.

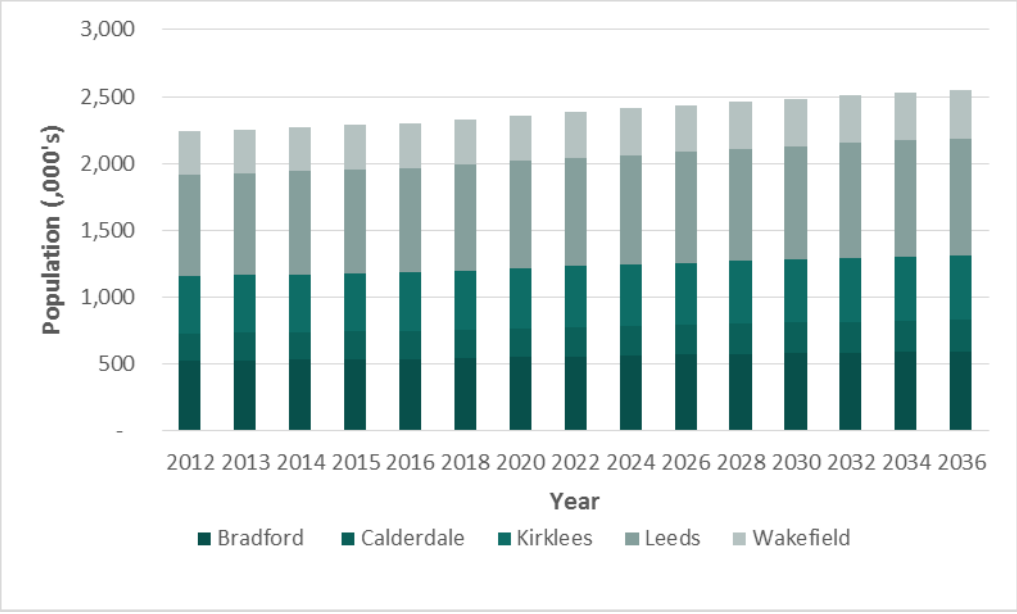
On this basis, the baseline information may still be amended throughout the ISA process as necessary, as new information may emerge from the development of the policies and proposals to be set out in the Transport Strategy and the consultation processes that will accompany this.

C.2. Environment

C.2.1. Population

Demographic forecasts for West Yorkshire indicate headline growth of some 13% over the period up to 2036, from 2.24 million presently to 2.5 million. This will be principally as a result of stronger growth of the over 60s age group (which will increase by 38%) than that of the 19 and under age group (which will only increase by 8%). This is illustrated in Figure 1.

Figure 1: Projected Population growth in West Yorkshire (2012 – 2036)



Source: Office of National Statistics 2012-based Subnational Populations Projections. Table 2: Local authorities and higher administrative areas within England (2014)

In spatial terms, there is a good deal of variation in how the population of West Yorkshire will change over the Transport Strategy period as indicated in Table 1.

Table 1: Projected Population Growth in West Yorkshire by District (2011 – 2036); thousands

District	2011	2036	Change
Bradford	522.5	596	12.3%
Calderdale	203.8	233	12.5%
Kirklees	422.5	486	13.1%
Leeds	751.5	873	13.9%
Wakefield	325.8	363	10.2%
West Yorkshire	2,226.1	2,551	12.7%

Source: Office of National Statistics

Table 1 above shows that the population of Wakefield is projected to grow more slowly than the other districts in West Yorkshire, which are all projected to grow at a similar rate over the Transport Strategy period. With a projected change of 13.9% the population of Leeds, the largest in West Yorkshire, will likely experience the most growth.

C.3. Carbon emissions

Carbon dioxide (CO_2) is the main greenhouse gas that is widely held to be responsible for recent changes to our climate. CO_2 is emitted by road vehicles through the consumption of carbon-based fuels. If traffic levels continue to increase, CO2 emissions are also likely to rise, although this may be mitigated by technical and other measures. Estimates of CO_2 emissions from road traffic in West Yorkshire are taken from Department of Energy & Climate Change data for 2010- 2012 (the most recent data available) are set out in Table 2.

Table 2: Estimates of Annual CO_2 Emissions from Road Traffic in West Yorkshire, 2010 – 2012 (K tonnes)

Local Authority	Year	I. Road Transport (A roads)	J. Road Transport (Motorways)	K. Road Transport (Minor roads)	L. Diesel Railways	M. Transport Other	Transport Total
Bradford	2010	241.6	14.1	311.9	1.6	7.7	576.9
	2011	240.5	14.1	305.2	1.6	7.5	568.9
	2012	237.1	14.0	300.2	1.6	7.3	560.2
Calderdale	2010	143.0	140.0	110.0	4.5	5.8	403.3
	2011	140.9	143.0	106.6	4.7	5.7	400.9
	2012	139.0	138.0	103.9	4.7	5.6	391.2
Kirklees	2010	213.9	241.8	199.0	11.9	5.7	672.3
	2011	211.9	244.6	194.4	12.2	5.5	668.7
	2012	209.6	239.9	190.9	12.2	5.4	658.0

Leeds	2010	510.8	538.0	463.4	18.5	18.7	1,549.4
	2011	504.5	534.0	452.5	19.4	18.6	1,529.0
	2012	499.6	528.9	449.1	19.4	18.4	1,515.4
Wakefield							
	2010	240.7	300.1	174.7	17.4	8.4	741.4
	2011	240.5	308.0	170.4	18.7	8.2	745.8
	2012	240.7	302.8	167.2	18.8	8.1	737.5

The full Department of Energy & Climate Change dataset accounts for all emissions that occur within the boundaries of a local authority. However, it is considered that local authorities would not be able to directly influence some of these types of emissions, for instance from motorways, EU emissions trading schemes sites, or diesel railways. Previously, the National Indicator 186 (NI 186) provided percentage reduction of the per capita CO_2 emissions in the Local Authority Area. However, the national indicators have been abolished by the UK Government in 2010 and data collection effectively ended in 2011.

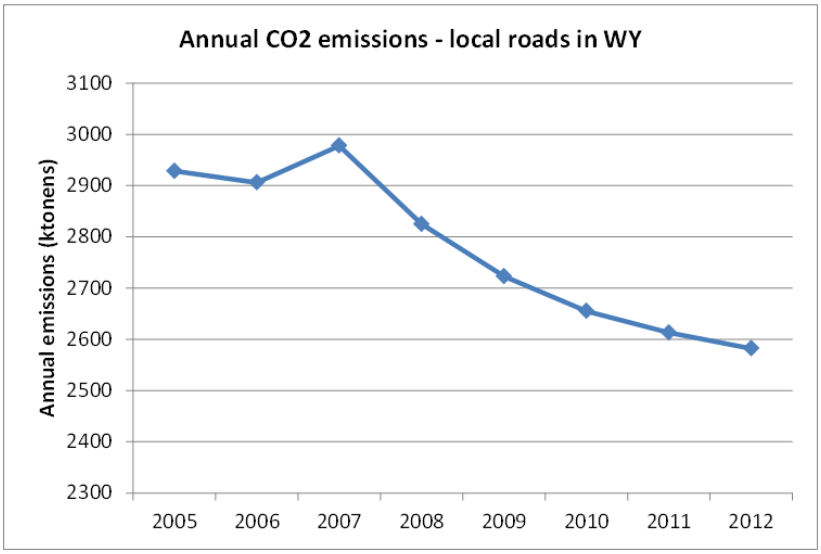
Road transport emissions of CO_2, have been predicted for the West Yorkshire trunk / principal road network, taking account of the observed annual traffic growth for all road types in each District and actual traffic count data on the Motorway network. The following table provides a summary of the road transport emissions for the West Yorkshire transport network. This indicates that emission rates continue to fall across West Yorkshire, and appear to show a long term reduction in emissions from the base year. This may be due to improvements in engine efficiency and abatement technologies.

Table 3: Annual CO_2 emissions from transport (West Yorkshire)

Year	2009	2010	2011	2012
KC2	Baseline (k tonnes)	(k tonnes)	(k tonnes)	(k tonnes)
Emisions of CO2 from transport	2723	2655	2613	2582
Target trajectory		*2675*	*2627*	*2579*

Since 2007 there has been a sustained decline in CO2 emissions in West Yorkshire of 13% which is encouraging, as seen on Figure 2, although it remains to see how much of this is linked to the wider economic situation.

Figure 2: Annual Co2 emissions from transport (West Yorkshire 2005 – 12)



C.4. Climate Change

In June 2009 the UK Climate Impacts Programme (UKCIP) published the latest generation of climate projections for the UK: UK Climate Projections 2009 (UKCP09). UKCP09 provides probabilistic projections for the UK's climate over the rest of the century and enables the user to specify projections based on high, medium and low emission scenarios at different spatial scales (e.g. national or administrative regions). The findings for West Yorkshire are specified in Table 4 below:

Table 4: Climate predictions for West Yorkshire based on medium emissions scenario

Change in…	2020s	2050s
Winter mean temperature	Central estimate of increase is 1.3ºC; it is very unlikely to be less than 0.6ºC and is very unlikely to be more than 2.1ºC.	Central estimate of increase is 2.2ºC; it is very unlikely to be less than 1.1ºC and is very unlikely to be more than 3.4ºC.
Summer mean temperature	Central estimate of increase is 1.3ºC; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 2.3ºC.	Central estimate of increase is 2.3ºC; it is very unlikely to be less than 1.1ºC and is very unlikely to be more than 3.9ºC.
Summer mean daily maximum temperature	Central estimate of increase is 1.7ºC; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 3.1ºC.	Central estimate of increase is 3.1ºC; it is very unlikely to be less than 1.2ºC and is very unlikely to be more than 5.4ºC.
Summer mean daily minimum temperature	Central estimate of increase is 1.4ºC; it is very unlikely to be less than 0.5ºC and is very unlikely to be more than 2.5ºC.	Central estimate of increase is 2.6ºC; it is very unlikely to be less than 1.1ºC and is very unlikely to be more than 4.4ºC.
Annual mean precipitation	Central estimate of change is 0%; it is very unlikely to be less than –3% and is very unlikely to be more than 4%.	Central estimate of change is 0%; it is very unlikely to be less than –4% and is very unlikely to be more than 4%.
Winter mean precipitation	Central estimate of change is 4%; it is very unlikely to be less than –3% and is very unlikely to be more than 13%.	Central estimate of change is 11%; it is very unlikely to be less than 1% and is very unlikely to be more than 24%.
Summer mean precipitation	Central estimate of change is –8%; it is very unlikely to be less than –24% and is very unlikely to be more than 10%.	Central estimate of change is –19%; it is very unlikely to be less than –36% and is very unlikely to be more than 1%.

C.5. Local Air Quality

In general terms, high levels of air pollutants are experienced in residential properties in the immediate vicinity of busy roads. Every local authority is expected to monitor local air quality under the Environmental

Act 1995. The objective of the monitoring is to determine if the National Air Quality Standards (AQSs) will be exceeded. The European Commission 1996 directive Council Directive 96/62/EC on Ambient Air Quality Assessment and Management also requires European member countries to implement appropriate measures to improve air quality. It refers to specific EU directives on limiting and monitoring ambient air pollutants.

In those cases where the AQSs are exceeded, local authorities are required to declare these areas as Air Quality Management Areas (AQMAs). Local Authorities are then required to produce an Air Quality Action Plan (AQAP). The AQAP will explain in more detail the current situation and put in place measures to improve conditions and work towards achieving the Government's objectives. There are currently 33 AQMAs in the West Yorkshire area, these are noted in Table 5 following.

Table 5: Air Quality Management Areas in West Yorkshire (2010 – 2011)

District	Number of AQMAs
Bradford	4 for NO_2
Calderdale	7 for NO_2
Kirklees	6 for NO_2
Leeds	7 for NO_2
Wakefield	9 for NO_2
West Yorkshire	33 for NO_2

Nitrogen dioxide (NO2) and suspended particles (PM2.5 and PM10) are the key air pollutants being considered in the ISA, because these pollutants are identified as being of particular concern with respect to compliance with the objectives in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland

Figures 3 and 4 following show the location of key AQMAs and sites of concern in West Yorkshire (Source DoE, 2007 The Air Quality Strategy for England, Scotland, Wales and Northern Ireland).

Figure 3: Background NO_2 Concentrations

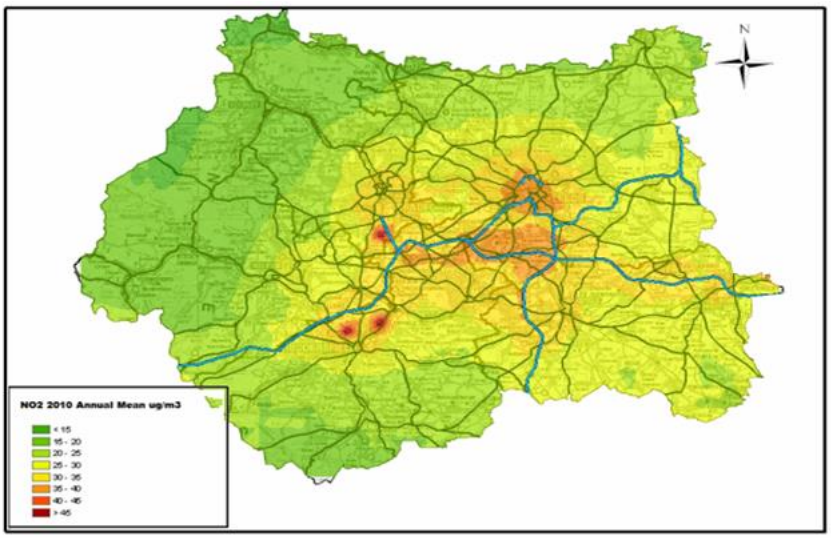
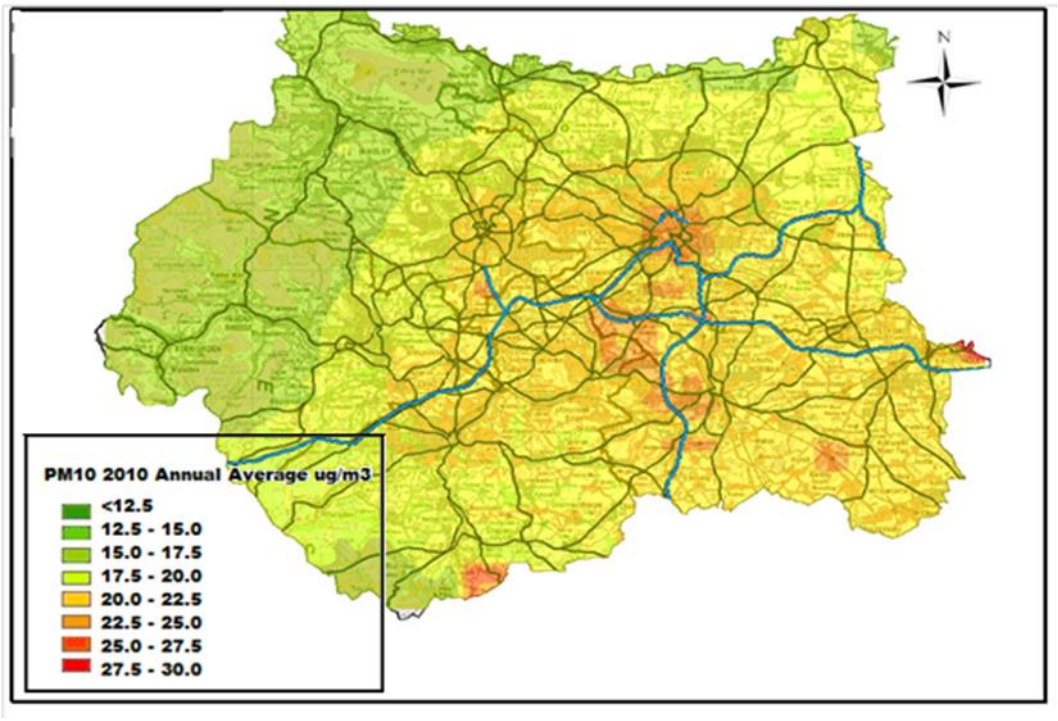


Figure 4: Background PM_{10} Concentrations

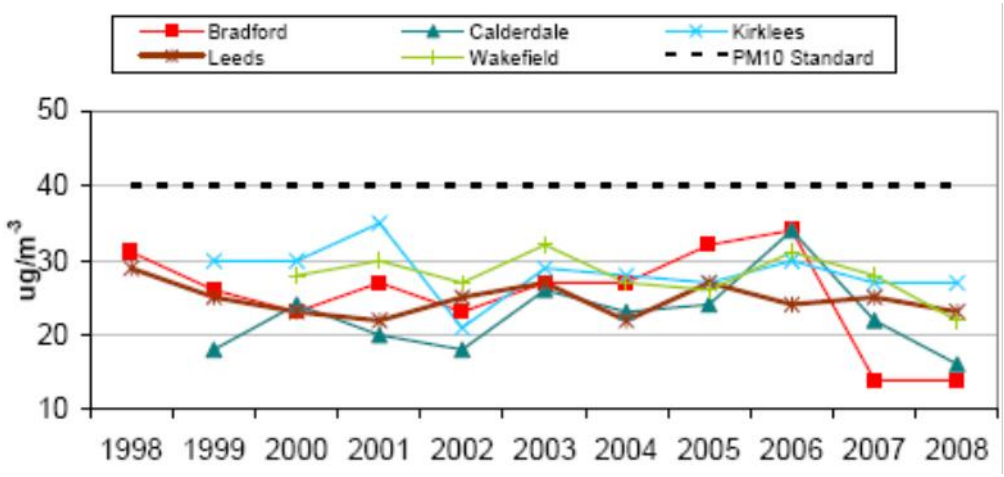


The maps above show background concentrations for the two most concerning pollutants in West Yorkshire, PM10 and NOx. These maps are for estimated background concentrations only, and will underestimate localised concentrations in heavily trafficked hotspots, at which these concentrations will be far higher. It can also be seen that there are rural parts of West Yorkshire where the air quality is exceptionally good.

Exhaust emissions from traffic on the roads within these areas is largely responsible. Heavy-duty vehicles (freight and buses) in particular contribute significantly to the emissions. However, emerging evidence from low emission zone studies suggests that passenger vehicles, particularly diesel cars, are also significant contributors.

All Districts in West Yorkshire comply with the annual average PM10 standard of 40µg/m3. However, the long-term trend in PM10 levels is unclear and there was little change in background levels over the period 2002-6. 2007 saw a general reduction in PM10 levels across West Yorkshire, with recorded levels similar to those recorded in 2004. Figures recorded in 2008 indicated that PM10 levels across West Yorkshire continue to decrease as illustrated in Figure 5.

Figure 5: Monitored Annual Average PM10 Levels in Urban Areas in West Yorkshire 1998 - 2008



C.6. Noise

In common with most urban areas in the UK, road traffic is the primary source of environmental noise experienced in West Yorkshire. The following Figure 6 indicates the levels of noise calculated in the area, expressed using the “day, evening, night level” (Lden) measure .

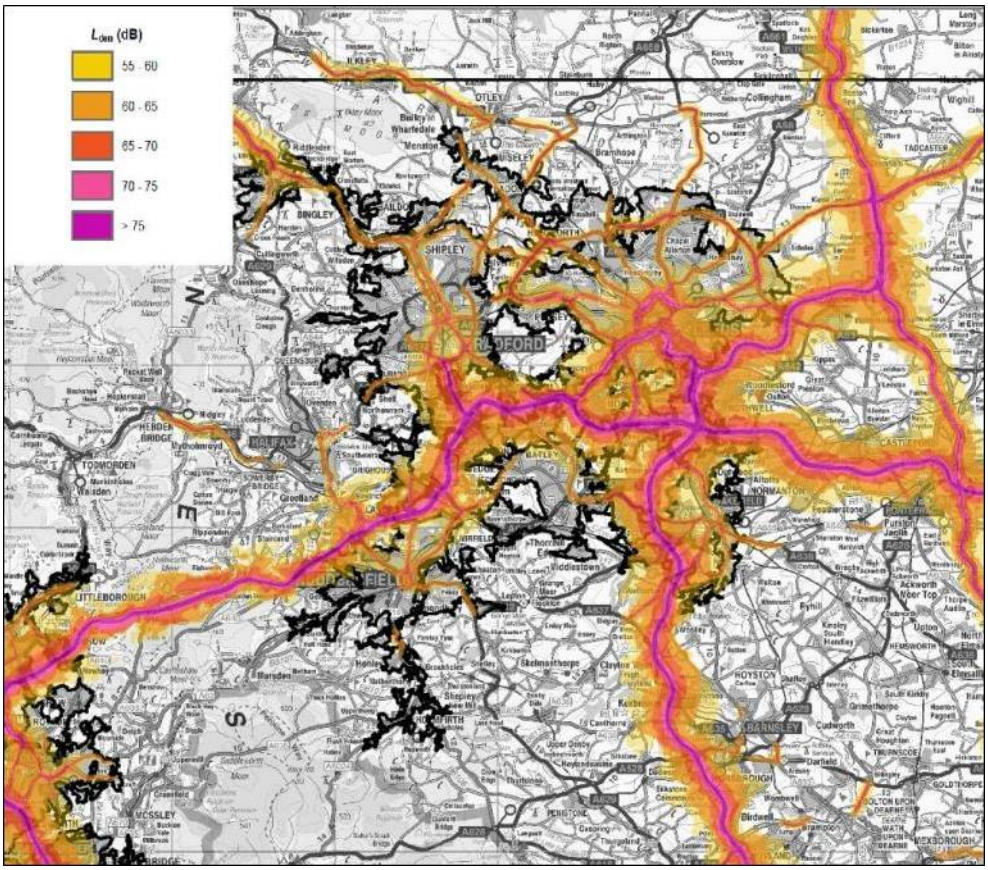
From this it may be seen that many areas of West Yorkshire already experience high levels of traffic noise, principally associated with the motorway and trunk road networks.

Leeds is the district with most km of low noise asphalt laid since 2004 (approx 105 km), followed by Bradford and Kirklees with 78km and 70 km respectively. Figure 7 compares the actual lengths of ‘low noise’ asphalt laid within West Yorkshire to approximate percentage coverage of the principal road network within each district. It could be said that as an average 35% of the principal road network within West Yorkshire is now surfaced with low noise asphalt.

The West Yorkshire – Noise Action Plan (March 2010) – Noise from Road Traffic has been designed to address the management of noise issues and effects in the West Yorkshire agglomeration under the terms of the Environmental Noise (England) Regulations. These Regulations transpose Directive 2002/49/EC relating to the Assessment and Management of Environmental Noise. This directive is commonly referred to as the Environmental Noise Directive (END).

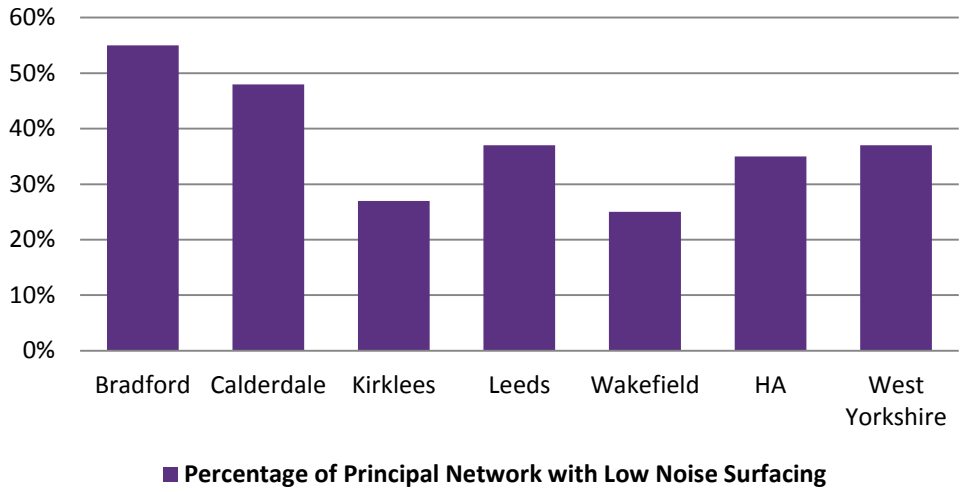
The analysis described in the West Yorkshire Action Plan has identified the approximate number of dwellings and locations in this agglomeration to be investigated to determine what measures, if any, might be taken in order to assist the management of environmental noise in the context of Government policy on sustainable development.

Figure 6: Road Traffic Noise in West Yorkshire



Source: DEFRA Noise Mapping, Crown Copyright 2008

Figure 7: % of principal Road Network with Low Noise Surfacing in West Yorkshire



Source: WYTLP2 – Monitoring Report 2009

A summary of the results of the noise mapping, including an evaluation of the estimated number of people exposed to road traffic noise are presented in Table 6. These are the number of people and dwellings (rounded to the nearest thousand) exposed above various noise levels from the strategic mapping of road traffic noise in this agglomeration:

Table 6: People exposed to road traffic noise in West Yorkshire

Noise Level	(L_{den}) (dB)		(L_{night}) (dB)		($L_{A10,18h}$) (dB)	
	No.of dwellings	No of People	No.of dwellings	No of People	No.of dwellings	No of People
≥50			266,000	603,000		
≥55	502,000	1,148,000	47,000	103,000	518,000	1,186,000
≥60	203,000	457,000	17,000	36,000	237,000	537,000
≥65	41,000	89,000	2,000	3,000	44,000	97,000
≥70	14,000	30,000	<500	<500	19,000	41,000
≥75	1,000	2,000			2,000	3,000

Source: Noise Action Plan for the West Yorkshire Agglomeration (2010)

The following table shows the approximate number of dwellings and associated population to be investigated for potential action with respect to road traffic noise in this agglomeration for any relevant local authority that is wholly or partly within this agglomeration.

Table 7: Dwelling and people to be investigated for action to reduce road traffic noise in West Yorkshire

Local Authority area	First Priority Locations		Important Areas	
	Number of Dwellings	Associated Population	Number of Dwellings	Associated Population
Bradford	200	400	2,550	5,600
Calderdale	<50	< 100	350	800
Kirklees	200	300	2,350	4,900
Leeds	400	900	3,500	7,900
Wakefield	< 50	< 100	650	1,300
Total	850	1,800	9,450	20,600

Source: Noise Action Plan for the West Yorkshire Agglomeration (2010)

The estimated number of people and dwellings (rounded to the nearest thousand) exposed above various noise levels from the strategic mapping of railway noise in this agglomeration is shown in Table 8 below:

Table 8: People exposed to railway noise in West Yorkshire

Noise Level	(Lnight) (dB)		(LAeq, 18h) (dB)	
	Number of Dwellings	Number of people	Number of Dwellings	Number of people
≥50	4,000	8,000	5,000	10,000
≥55	1,000	2,000	2,000	4,000
≥60	< 500	< 500	< 500	< 500
≥65	< 500	< 500	< 500	< 500
≥70	0	0	0	0
≥75				

Source: Noise Action Plan for West Yorkshire Agglomeration (2010)

The following table shows the approximate number of dwellings and associated population to be investigated for potential action with respect to railway noise in this agglomeration.

Table 9: Dwellings and people to be investigated for Action to Reduce Railway Noise in West Yorkshire

Local Authority area	First Priority Locations		Important Areas	
	Number of Dwellings	Associated Population	Number of Dwellings	Associated Population
Bradford	0	0	100	200
Calderdale	0	0	< 50	< 100
Kirklees	0	0	< 50	< 100

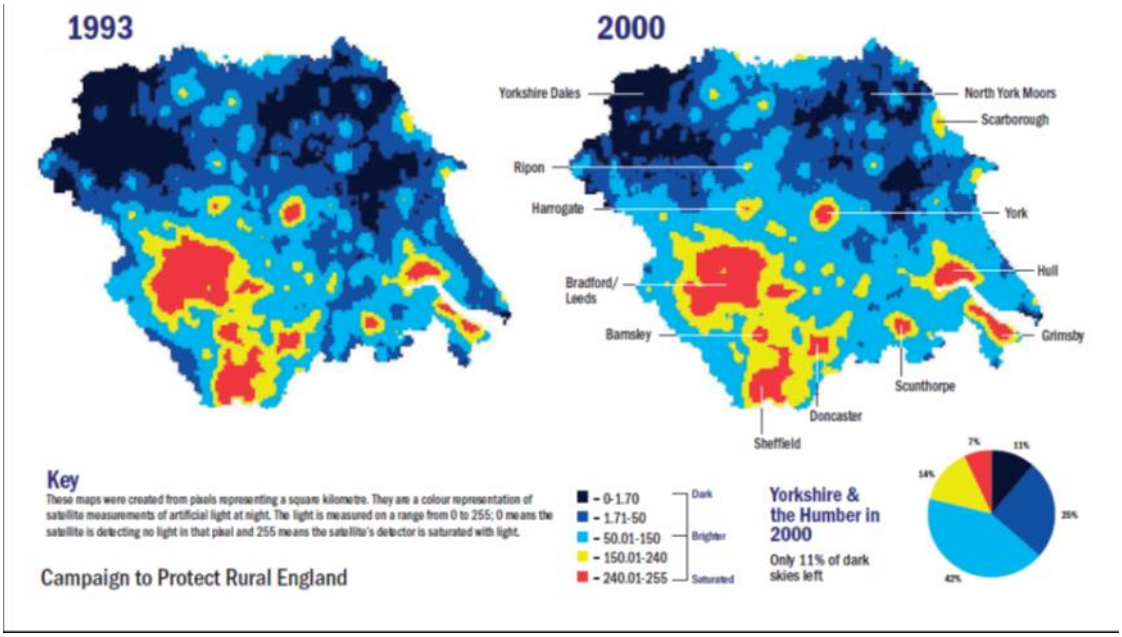
Local Authority area	First Priority Locations		Important Areas	
	Number of Dwellings	Associated Population	Number of Dwellings	Associated Population
Leeds	0	0	< 50	< 100
Wakefield	0	0	< 50	< 100
Total	0	0	200	400

Source: Noise Action Plan for West Yorkshire Agglomeration (2010)

C.7. Light Pollution

The Campaign to Protect Rural England warn that "light pollution is rapidly increasing across this country." Data for this is not current but CPRE state that between 1993 and 2000 light pollution increased 24% nationally, as demonstrated in Figure 8. Light pollution is caused by poor interior and exterior lighting design (including street and road lights), security lights and floodlights.

Figure 8: Light pollution in Yorkshire & The Humber (1993 and 2000)



Source: Campaign to Protect Rural England

C.8. Biodiversity, Flora and Fauna

Figure 9 identifies the key areas of protection for biodiversity flora and fauna in West Yorkshire.

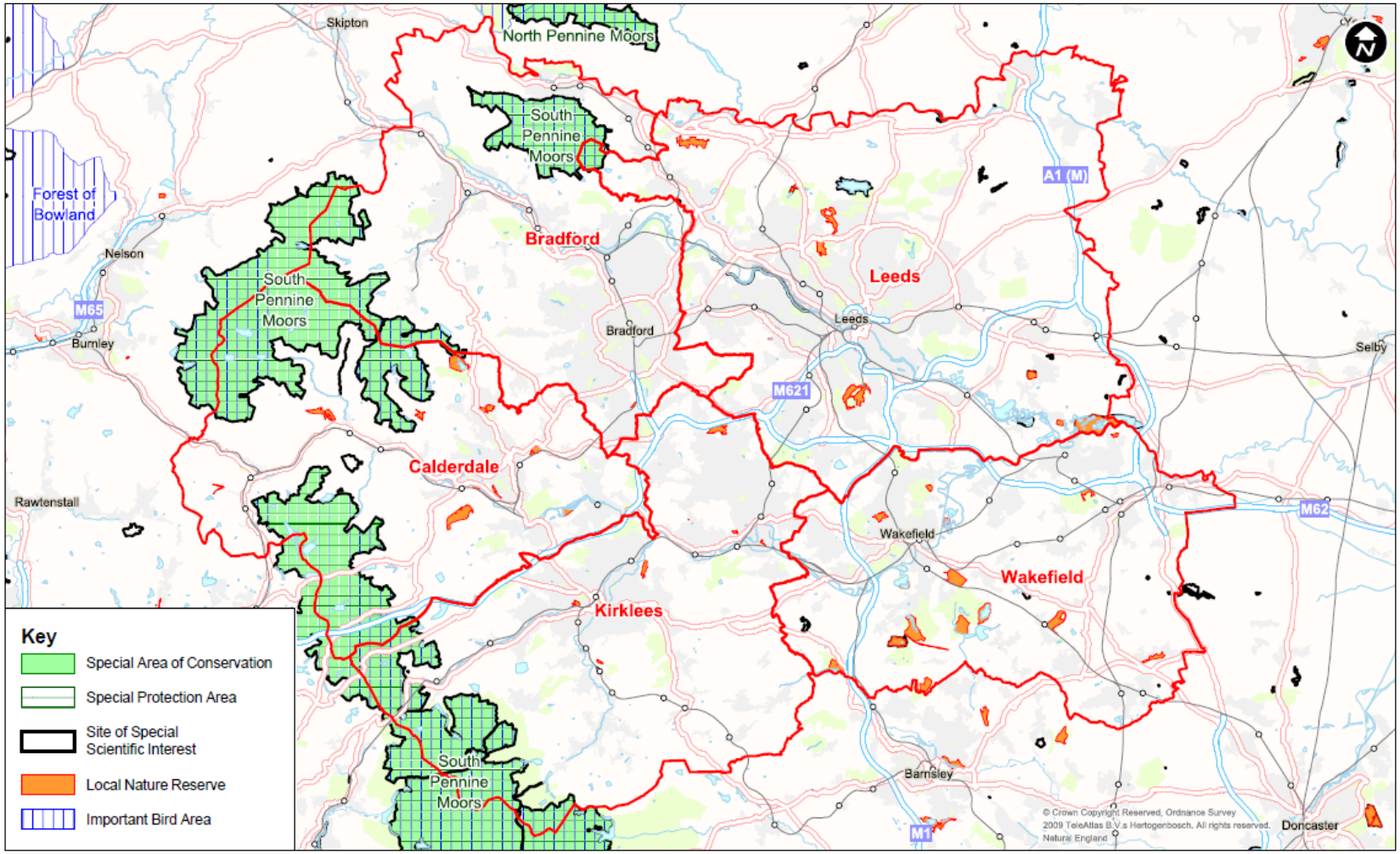
Thirty two sites in West Yorkshire have been designated as SSSIs for their wildlife or geological importance, accounting for around 26% of the land area. Whilst there are an increasing number of SSSI sites in favourable or recovering condition (18%) over the past year, the region is falling short of the Government target (95%).

In Bradford, the Sustainability Appraisal of the LDF identified the quality and variety of the landscape as a key resource for the area. There are 4 levels of designated nature conservation sites within Bradford District. In addition to the 4 SSSIs, there are 21 Sites of Ecological or Geological Importance and 16 Regionally Important Geological / Geomorphological Sites (RIGS). One of these SSSIs, the South Pennine Moors,

represented by Rombalds Moor and Haworth Moor has been designated a Special Protection Area (SPA) due to the importance of its breeding bird populations. It is also a Special Area of Conservation (SAC), under the European Habitats Directive because it contains habitats which are rare or threatened within a European context. There are also 152 sites of local nature conservation value, designated for both biodiversity interest and community benefits.

In Wakefield, the Sustainability Appraisal for the LDF identified protected sites covering just 2% of the District. There is a Special Area of Conservation (SAC) 'Denby Grange Colliery Ponds', an 18.53ha site primarily designated for its important population of great crested newts, and 6 Sites of Special Scientific Interest (SSSIs). Of these, three are in a favourable condition, two have areas in both favourable and unfavourable conditions and one (Nostell Brick Yard) has been destroyed by a landfill site. There are also 16 Local Nature Reserves and 86 'Wakefield Nature Areas', locally designated for their nature conservation value. The majority of the protected sites are in the southwest of the District or along the River Calder corridor to the east and north of Wakefield City. Woodland cover in the District is just 3.8%, compared to the national figure of 10.5%. The majority of woods in the District are in the south and west of the District. The woods in the west of the District form part of the strip of oak-birch woodland running up the side of the Pennines. Ancient woodlands are few in number making them all the more important. They may be particularly vulnerable due to disturbance by cultivation or drainage. The district has Biodiversity Action Plans for 12 habitats and species.

Figure 9: Key Environmental Constraints in West Yorkshire



Specifically in relation to the requirements of the Habitats Directive, and the potential need for an Appropriate Assessment under the Habitats Regulations, Table 10 indicates the European and Ramsar sites that are situated within West Yorkshire and depending on the policies and interventions contained within the Transport Strategy may potentially be directly or indirectly impacted by it.

Table 10: Habitats Directive Sites in West Yorkshire

Area	Brief Description
Denby Grange Colliery Ponds Special Area of Conservation (SAC)	Denby Grange Colliery Ponds (in Wakefield district) qualifies under Annex II of the Habitats Directive for supporting great crested newts (*Triturus cristatus*) in a pond created by coal mining activity and surround by wooded slopes.
South Pennine Moors SAC	The South Pennine Moors (spanning Barnsley, Kirklees and Calderdale districts) qualifies under Annex I of the Habitats Directive for supporting the habitat types Northern Atlantic wet heaths with *Erica tetralix*; European dry heaths; Blanket bogs; Transition mires and quaking bog; Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.
South Pennine Moors Phase 2 Special Protection Area (SPA)	The South Pennine Moors (spanning Barnsley, Kirklees and Calderdale districts) qualifies under Article 4.1 of the Birds Directive for supporting breeding short-eared owl (*Asio flammeus*), merlin (*Falco columbarius*) and golden plover (*Pluvialis apricaria*) and Article 4.2 for supporting an internationally important assemblage of breeding birds.
Peak District Moors (South Pennine Moors Phase 1) SPA	The Peak District Moors (in Bradford and Calderdale districts) qualifies under Article 4.1 of the Birds Directive for supporting breeding short-eared owl (*Asio flammeus*), merlin (*Falco columbarius*) and golden plover (*Pluvialis apricaria*).

Also, the following table identifies the European and Ramsar sites are situated adjacent to West Yorkshire and depending on the policies and interventions contained within Transport Strategy may potentially be indirectly impacted by it:

Table 11: Habitats Directive Sites close to the boundaries of West Yorkshire

Area	Brief Description
Kirk Deighton SAC	Kirk Deighton (approximately 350m from the Leeds City Council boundary) qualifies under Annex II of the Habitats Directive for supporting a breeding population of great crested newts in a large pond, set in a depression in grazed pasture.
Rochdale Canal SAC	Rochdale Canal qualifies under Annex II of the Habitats Directive for supporting floating water plantain (*Luronium natans*) in a botanically diverse waterplant community which also holds a wide range of pondweeds *Potamogeton spp.*
North Pennine Moors SAC	The North Pennine Moors qualifies under Annex I of the Habitats Directive for supporting the habitat types Northern Atlantic wet heaths with *Erica tetralix*; European dry heaths; *Juniperus communis* formations on heaths or calcareous grasslands; Calaminarian grasslands of the *Violetalia calaminariae*; Sciliceous alpine and boreal grasslands; Semi-natural dry grasslands and scrubland facies on calcareous

Area	Brief Description
	substrates (*Festuco-Brometalia*); Blanket bogs; Petrifying springs with tufa formation (*Cratoneurion*); Alkaline fens; Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeospsietalia ladani*); Calcareous rocky slopes with chasmophytic vegetation; Siliceous rocky slopes with chasmophytic vegetation; and Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. It also supports the Annex I habitat, species rich Nardus grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe) and Annex II species, marsh saxifrage (*Saxifraga hirculus*).
North Pennine Moors SPA	The North Pennine Moors qualifies under Article 4.1 of the Birds Directive for supporting breeding hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*) and peregrine falcon (*Falco peregrines*)

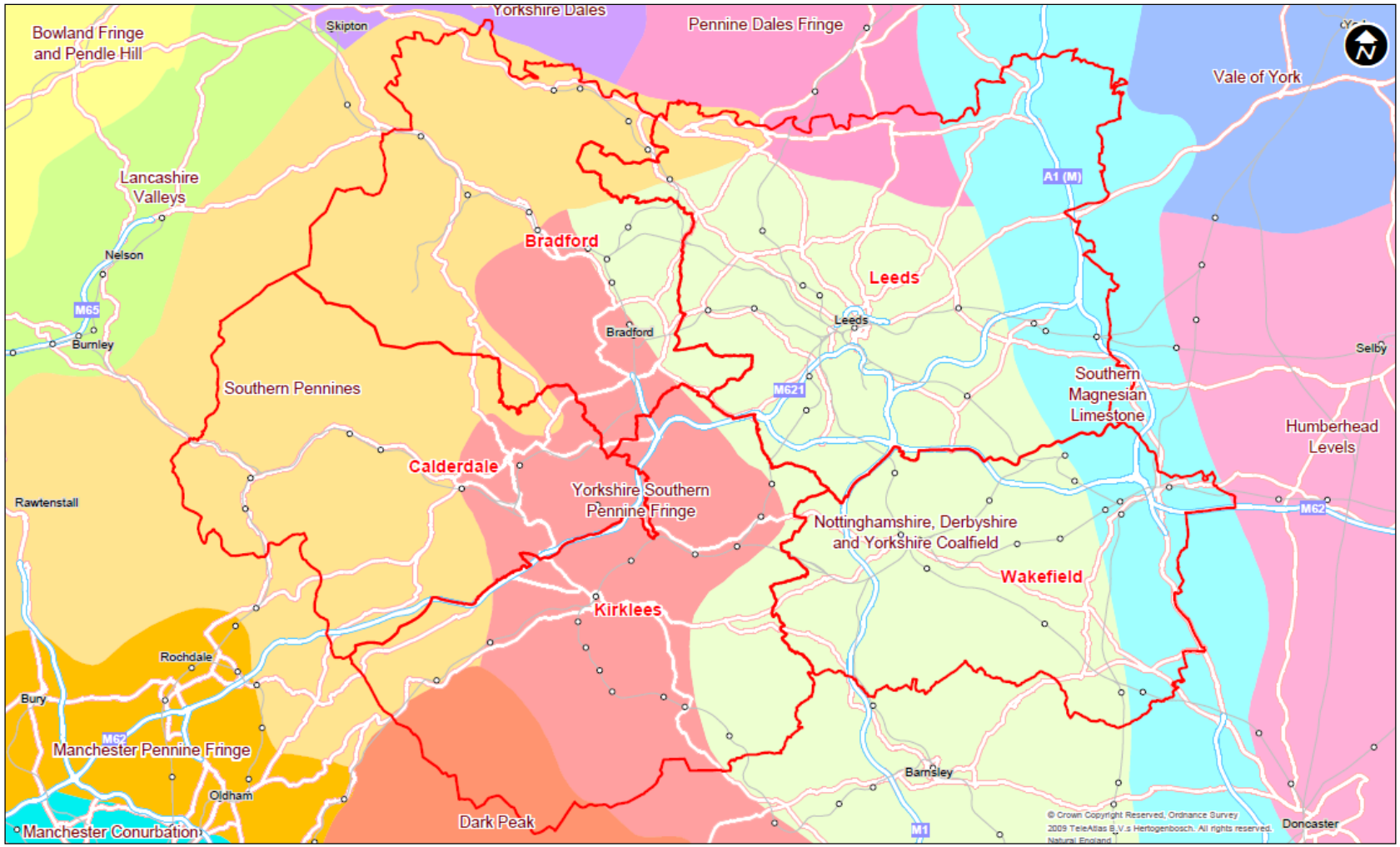
The analysis of likely effects in these areas also has been based on a more comprehensive review of biodiversity in West Yorkshire, including information on:

- data on protected species and locally designated sites from West Yorkshire Ecology;
- data from the National Biodiversity Network (NBN Gateway nbn.org.uk).
- The Regional 'State of the Natural Environment' report on Yorkshire and the Humber for more data on SSSI condition, Biodiversity Action Plans (BAPs) for terrestrial habitats, protected species, and areas of semi-natural habitats.
- Pressures and risks relating to climate change, invasive species and diseases, use and management of land and water courses, pollution identified by Natural England and others.

C.9. Landscape & Townscape

The landscape character of West Yorkshire, as defined using Natural England's Countryside Character descriptions, is illustrated in Figure 10 on the following page.

Figure 10: Landscape Character Areas in West Yorkshire



The western part of the sub-region, including most of Calderdale and Bradford districts, and small parts of Kirklees and Leeds districts, falls within the Southern Pennines area. This area is typified by large scale sweeping landforms with an open character created by exposed gritstone moors at an altitude of 400-450m, deeply trenched by narrow valleys and wooded cloughs. There are also patches of mixed moorland and blanket bog with enclosed pasture of varying qualities at lower elevations, largely defined by drystone walls. The area is home to some valuable wildlife habitats on the open moorland and the moorland fringe including semi-natural boggy mires, acid flashes and wooded cloughs. The valley bottoms are densely populated, with stone buildings extending along valley sides, set against the backdrop of the moorland tops. The area also affords extensive views from elevated locations in all directions.

East of here, most of the rest of Calderdale, Kirklees and Bradford districts come within the Yorkshire Southern Pennine Fringe. The eastern slopes of the Pennines drop from upland in the west down to the east, dissected by numerous steep-sided valleys. The area is characterised by a predominance of local sandstone and 'gritstone' as a building material, notably in large and dominant industrial buildings. The urban areas are mainly confined by valleys creating dramatic views between settlements and the surrounding hillsides. The predominant non-urban land use is pastoral farming with strong linear patterns of walled enclosures on plateaux. The rest of the area is covered with predominantly broadleaved woodlands on steep valley sides forming important backdrops to the urban areas, and this provides an impression of a well wooded landscape even though tree cover is relatively sparse overall.

The larger part of the Leeds and Wakefield districts, together with parts of Bradford and Kirklees districts fall within the ‘Nottinghamshire, Derbyshire and Yorkshire Coalfields’ character area, This is characterised by widespread evidence of industrial activity including mine buildings, former spoil tips, and iron and steel plants. The area has a complex mix of built-up areas, industrial land, dereliction and farmed open country. Many areas are affected by urban fringe pressures creating fragmented and downgraded landscapes, however there are substantial areas of intact agricultural land in both arable and pastoral use.

The eastern parts of Leeds and Wakefield Districts come within the Southern Magnesian Limestone area. This is an elevated ridge with smoothly rolling landform, dissected by dry valleys with long views over surrounding lowland. The main non-urban land use is intensively farmed arable land, reflecting the fertility of the area, characterised by large fields bounded by low cut thorn hedges creating a generally large scale, open landscape. There are a large number of country houses and estates with parkland, estate woodlands, plantations and game coverts in this area, as well as woodlands combining with open arable land to create a wooded farmland landscape in some parts. The widespread use of creamy white Magnesian Limestone as a building material often combined with red clay pantile roofing is a unifying visual element in the area.

C.9.1. Natural Character Areas

England has been divided into 159 areas with similar landscape character, which are called National Character Areas (NCAs). Natural England provides a description of the NCAs and those relevant to West Yorkshire are set out below:

- NCA 36: Southern Pennines. The Southern Pennines lie between the northern dge of the Peak District National Park and the southern boundary of the Yorkshire Dales National Park, and between the conurbations of Lancashire and Greater Yorkshire to the west and West Yorkshire to the east. 7% of the area is defined as urban, 59% is under agriculture and 4% is woodland. Most of the Southern Pennines are underlain by Millstone Grit. Layers have eroded at different rates, creating a distinctive terraced landscape, with woodland is concentrated in a number of steepside valleys. The main agricultural use is sheep grazing and stone walls enclose small to medium sized fields. Many settlements are of industrial origin, deriving power from rivers for the textile industry. Mineral working and engineering led to the further expansion of settlements such as Keighly.
- NCA37: Yorkshire Southern Pennine Fringe. This is a transitional area lying along the eastern flanks of the Southern Pennines, extending between Bradford and Sheffield. About 37% of the area is defined as urban, 66% is under cultivation and 8% is woodland. Rivers are a formative feature in the landscape and have cut the narrow valleys that dissect the hills. This constraining landform influence, together with the early influence of transport by canal and rail, resulted in a linear pattern of development within the valleys and larger industrial centres such as Bradford, Sheffield and Huddersfield. Much of the area is significantly influenced by urban areas, with transport infrastructure, residential areas, industry and quarries present in most parts of the area.
- NCA 30: Southern Magnesian Limestone. Comprising an elevated ridge with smoothly rolling landform, this area is dissected by dry valleys of predominantly Magnesium Limestone geology. It extends in a

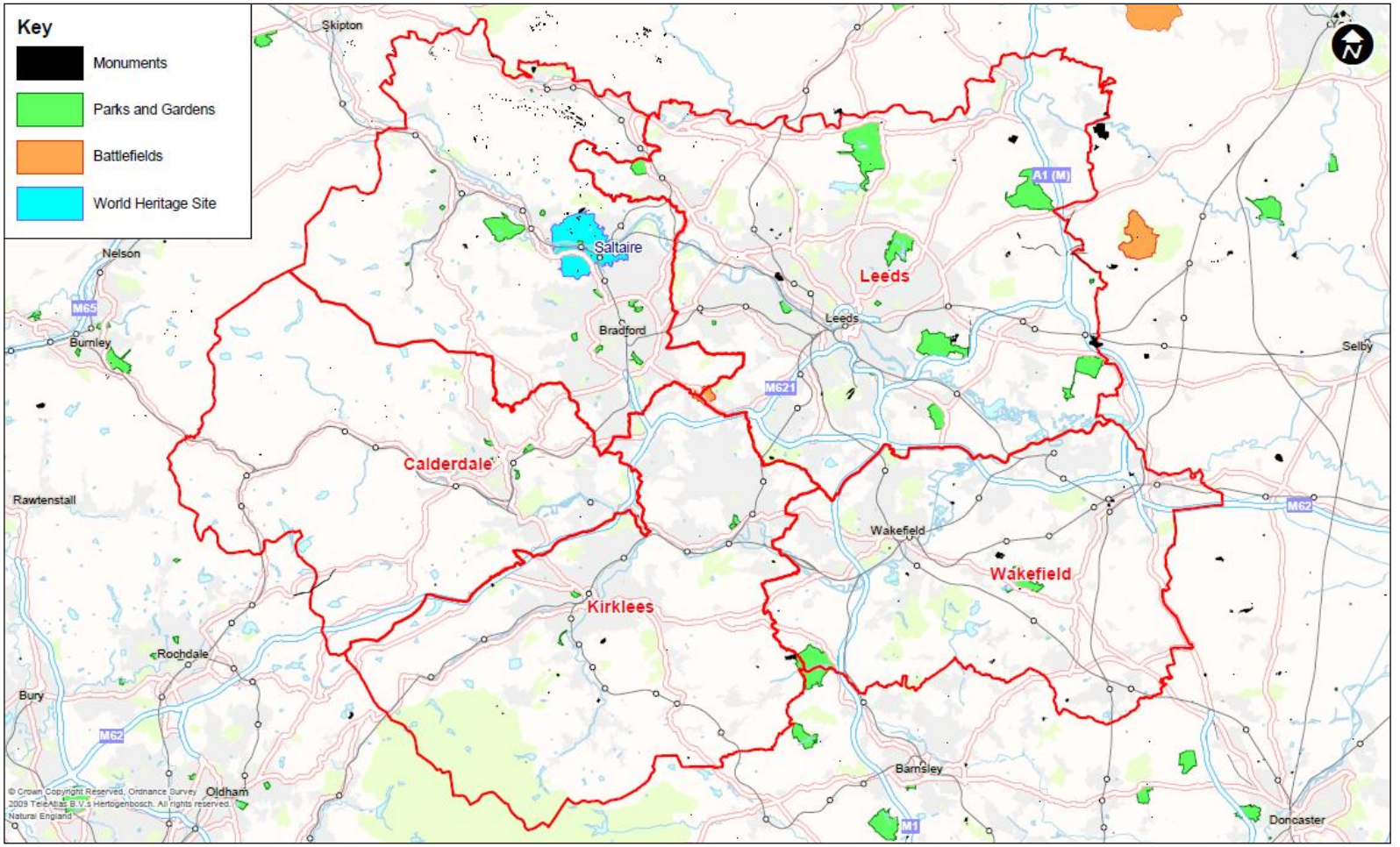
narrow band nearly the length of the Yorkshire and Humber region from near Bedale into Derbyshire. 11% of the area is urban, 7% is woodland, 73% is cultivated. The settlement pattern varies from large scattered farmsteads and small nucleated villages to larger towns on the plateau. The area is more heavily settled near Nottingham, where there is also a greater intensity of industrial activity. Limestone quarrying influences the landscape, especially in the central and southern parts of the ridge.

- NCA 38: Nottinghamshire, Derbyshire and Yorkshire Coalfield. This is an extensive tract of countryside extending from Leeds in the north to the northern edges of Derby and Nottingham in the south. It has been significantly influenced by the pattern of industrial and urban development. 34% of the area is classed as urban, 41% is cultivated and 5% is woodland. The area lies outside national landscape designations but falls within the South Yorkshire Community Forest. Industrial development, much of it based on the exploitation of coal and steel, has had a profound influence on this landscape. There is widespread evidence of past and present industrial activity in the form of mine buildings, former spoil tips and iron and steel plants. In addition to major industrial areas such as Sheffield and the Lower Don Valley, there are many smaller mining and manufacturing settlements. The influence of large urban areas is evident in the retreat of farming in some areas. Transport routes, including motorways, add further urban influences to the surrounding landscape.

C.10. Heritage

The key heritage features of the Transport Strategy area are indicated in Figure 11 on the following page:

Figure 11: Heritage Features in West Yorkshire



The most important feature is the World Heritage Site at Saltaire near Bradford, which was designated by UNESCO in 2001. The area is a purpose-built "model" Victorian industrial village that was built in the nineteenth century by the Victorian philanthropist Sir Titus Salt, to provide self-contained living space for the workers at his woollen mills.

Bradford has over 5,800 buildings, listed by the Secretary of State as being of special architectural or historic interest, these range from large industrial mill complexes to weaver's cottages and from agricultural farmsteads to stately halls and manor houses. There are also 56 Conservation Areas and a World Heritage Site.

In Wakefield, there are 23 Scheduled Ancient Monuments, 25 Grade I Listed Buildings, 57 Grade II* Listed Buildings and 663 Grade II Listed Buildings. There are 13 entries to Historic England's Heritage at Risk Register, 1 Grade I, 5 Grade II* and 1 Grade II Listed Buildings. There are 6 Scheduled Monuments on the register. This has risen from 4 assets at Risk since 2010. There are 27 Conservation Areas in Wakefield, together with 4 registered historic parks and gardens, and a locally designated site of a historic battle in the District.

C.10.1. Heritage Buildings at Risk

Historic England's Heritage at Risk programme aims to understand the overall state of England's heritage by assessing a number of different components. They aim to identify the features that are facing the greatest pressures and threats and then assess how to mitigate those pressures, estimating the level of resources that are needed to 'make safe' the UK's legacy of historic places.

The 2014 Heritage at Risk Register from Historic England includes conservation areas at risk as well as Grade I and II listed buildings, scheduled monuments, registered parks and gardens, registered battlefields and protected wreck sites. A total of 134 heritage at risk sites in the different West Yorkshire districts are shown in Table 12 below, and have increased in number since the 2010 survey.

Table 12: Number of heritage sites for West Yorkshire districts

District	Bradford	Leeds	Wakefield	Kirklees	Calderdale
No. of heritage at risk sites	36	32	13	28	25

C.10.2. Registered Parks and Gardens

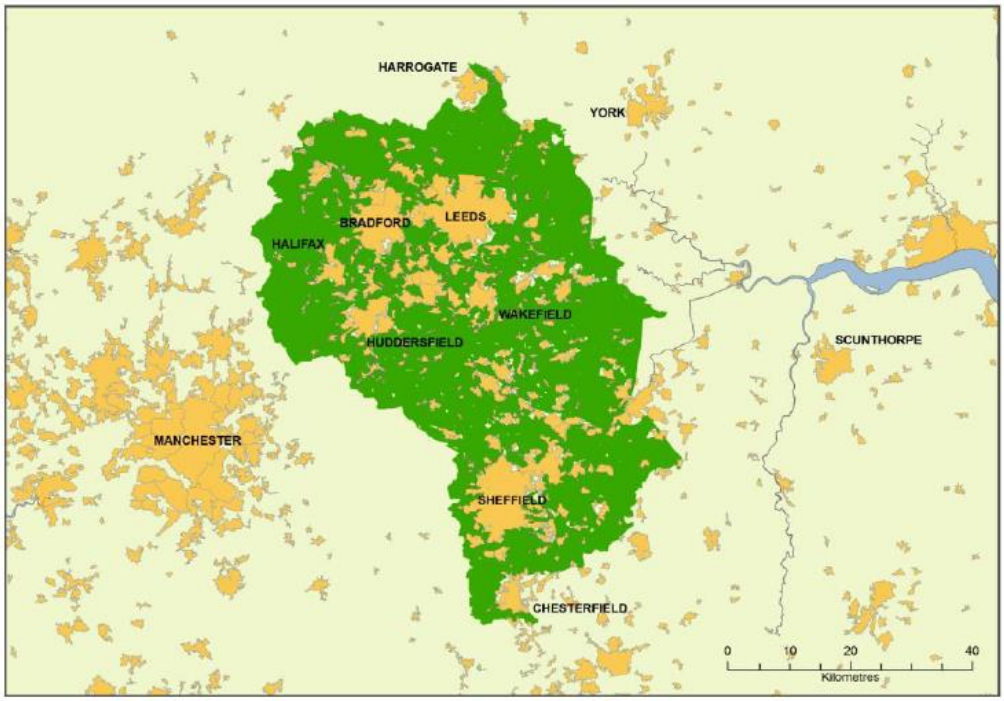
The Historic England's 'Register of Historic Parks and Gardens of special historic interest in England', established in 1983 currently identifies over 1,600 sites in West Yorkshire that have been assessed to be of national importance.

C.11. Green Belt

Green Belt land is that which has not previously been developed and which has no right of public use. The designation of Green Belt land aims to prevent urban spreading, in order to maintain the more open areas that are largely undeveloped. Each local authority designates its own Green Belt. The majority of land between the main urban areas of West Yorkshire is designated as Green Belt, including that surrounding the Leeds conurbation.

A joint report by the Campaign to Protect Rural England and Natural England (January 2010) states that 248,241 hectares in South and West Yorkshire is designated as Green Belt (out of a total area of 1.6 million hectares of Green Belt in England). A portion of this Green Belt forms part of the buffer zone that protects views of the Saltair World Heritage Site in Bradford. The following Figure 12 shows the designated Green Belts in this area. 6.4% of the Green Belt in the South and West Yorkshire region, or 15,805 hectares, is open access land; the highest amount and proportion of open access land of any Green Belt in England. The Green Belts also had 510 serious pollution incidents between 2001 and 2008, the highest number of any Green Belt and 6% of the national total.

Figure 12: Green Belt in South and West Yorkshire

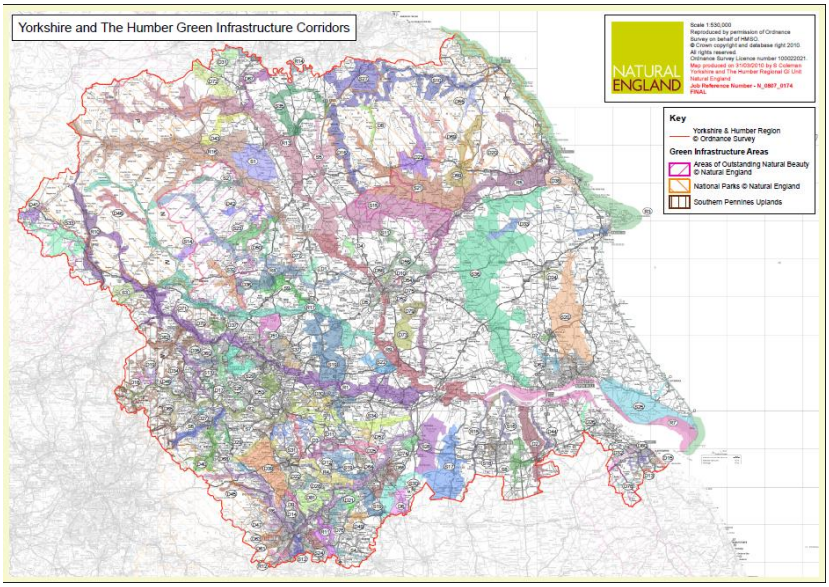


Source: CPRE and Natural England Fact Sheet (2010)

C.12. Green Infrastructure Corridors

A number of corridors in West Yorkshire have been defined as Green Infrastructure Corridors, as required by the Regional Spatial Strategy core policy YH8 which instructed local authorities to define corridors and networks of green infrastructure, to identify their functions and develop policies to protect and create new green infrastructure through their Local Development Frameworks (LDFs). One of the project aims is to establish a baseline of green infrastructure from which change can be measured. Figure 13 below maps Green Infrastructure Corridors in the Yorkshire and Humber region. This map was produced by the local authorities in partnership with Natural England, which has been responsible for ensuring a consistent approach was taken to green infrastructure mapping in such projects across the country.

Figure 13: Yorkshire and Humber green infrastructure corridors



C.12.1. Green Flag Awards for Parks

The Green Flag Award scheme is the benchmark national standard for parks and green spaces in England and Wales. It was first launched in 1996 to recognise and reward the best green spaces in the country. The number of awards for each individual district is presented in Table 13 below.

Table 13: Number of Green Flag Awards for West Yorkshire districts

District	Bradford	Leeds	Wakefield	Kirklees	Calderdale
No. of awards	5	8	2	1	6

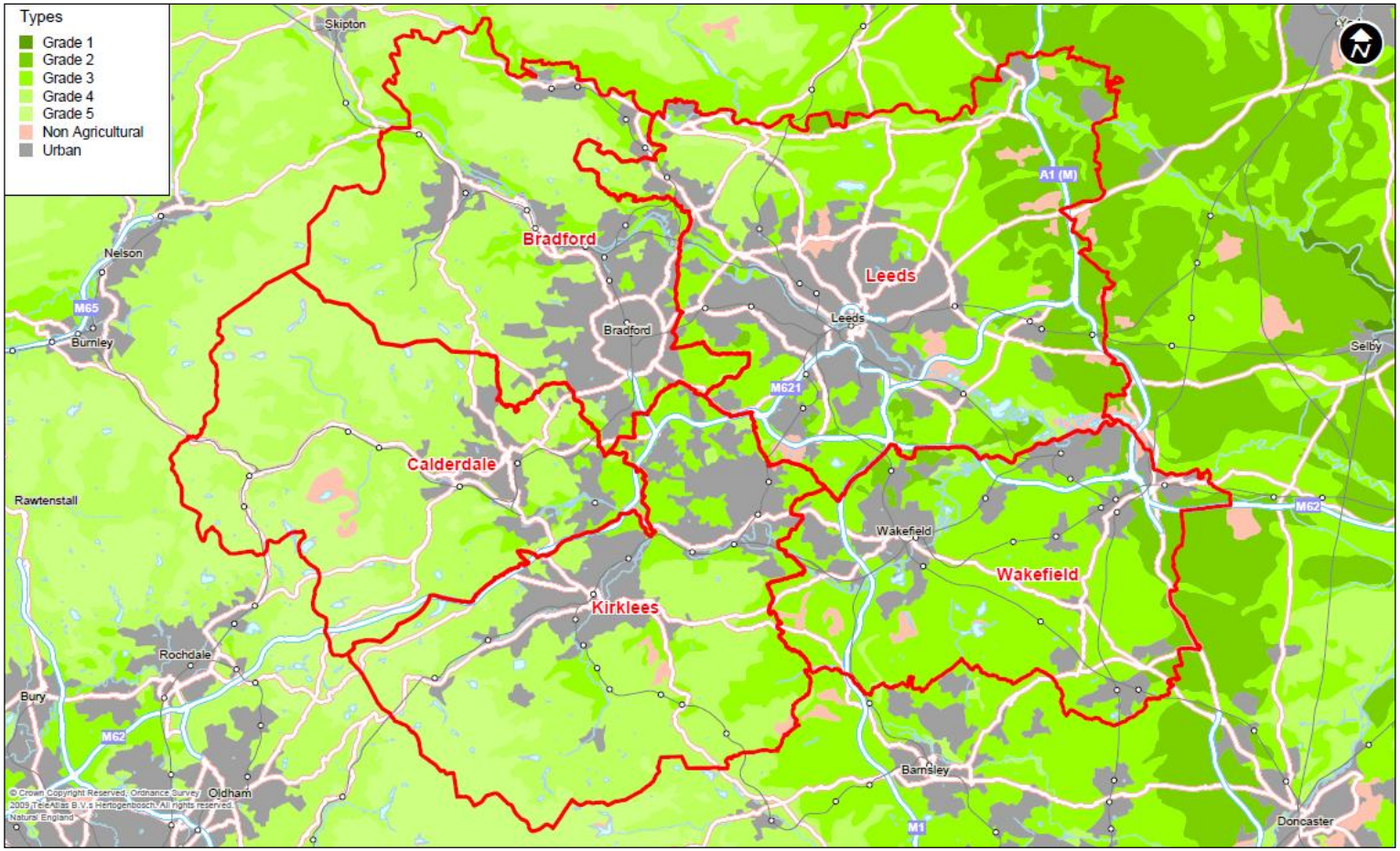
Source: http://www.keepbritaintidy.org/

C.13. Soil

Little data is available on the quality and protection of soils within the Plan area, particularly with regard to transport impacts. However a proxy indicator of soil quality is the Agricultural Land Classification (ALC) which assesses the quality of farmland based on the assessment of climate, site and soil characteristics. Figure 14 on the following page shows there is little high quality soil in the region.

2.53% of land in Yorkshire and the Humber is designated as previously developed land that has been vacant or derelict for more than 5 years. This is higher than the national average of 1.56% overall, and the third highest of the regions in England. (Source: National Indicator NI 170, latest dataset compiled 2008).

Figure 14: Agricultural Land Classification in West Yorkshire



C.14. Water

West Yorkshire falls within the Humber River Basin Management Plan (2009), within which water has played an important role in the growth of the cities and manufacturing industries. The main rivers within West Yorkshire comprise of the following:

- River Aire, which is the major river in Yorkshire and is approximately 70 miles long. Part of the river is canalised, and is known as the Aire and Calder Navigation. The Aire flows through the Bradford and Leeds districts;
- River Wharf, which flows through Bradford district;
- River Holme, which flows through Kirklees;
- Rivers Calder and Don which flow through Wakefield,
- River Laneshaw, which rises as Laneshaw Brook on the border between the counties of Lancashire and Yorkshire;
- Meanwood Beck which flows through Leeds into the River Aire in central Leeds; and
- River Worth, which is a tributary of the River Aire.

There are fifteen district catchments within the Humber River Basin. Those which West Yorkshire falls within are the Aire and Calder Catchment and the Wharfe and Ouse Catchment.

The Aire and Calder catchment covers an area from the Pennines and Yorkshire Dales to low-lying floodplains. It includes Bradford, Leeds, Huddersfield and Halifax where much of the former industrial land alongside the rivers is undergoing/has undergone regeneration. There is an extensive canal network in the catchment, including the Leeds Liverpool Canal which is the longest in Britain.

The Humber River Basin District Management Plan (Environment Agency, 2009) provides detail about the current condition of rivers and water bodies within the Aire and Calder catchment. Table 14 below sets out the current status with targets for 2015:

Table 14: Current Condition of water bodies in the Aire and Calder catchment and targets for 2015

River and lake water bodies	Now	2015
% at good ecological status or potential	12%	12%
% assessed at good or high biological status	24%	28%
% assessed at good chemical status	83%	83%
% at good status overall (chemical and ecological)	12%	12%

The Wharfe and Lower Ouse catchment covers an area from the North and South Pennine Moors and Yorkshire Dales National Park to the towns of Otley, Tadcaster and Selby. The greatest uses of water in the catchment are fish farming, public water supply, and industrial and commercial activities. The rivers are also used for recreation and leisure activities, including canoeing and angling.

Details of the current condition of rivers and water bodies within the Wharfe and Ouse catchment, and targets for 2015, are set out in Table 15 below:

Table 15: Current condition of water bodies in the Wharfe and Ouse catchment and targets for 2015

River and lake water bodies	Now	2015
% at good ecological status or potential	14%	16%
% assessed at good or high biological status	32%	35%
% assessed at good chemical status	50%	50%
% at good status overall (chemical and ecological)	14%	16%

The Humber River Basin District Management Plan states that “discharges from water industry storm systems and sewage works are key reasons for failures in the catchment.”

Urbanisation also has an impact on the status of the catchment’s rivers and lakes. Defra’s 2005 report on Soil Sealing outlines the adverse effects of covering the soil surface with impervious material which occurs whenever development takes place, such as building a new road. The impermeable surface prevents soils absorbing water and therefore increases surface runoff and flood risk. The increased rain water runoff in turn affects the water quality with added oils, heavy metals, pesticides and other chemicals that would otherwise have been absorbed and broken down by a soil substrate. More frequent occurrence of flash flooding also augments erosion along riverbanks and riparian habitats, and ultimately diminishes groundwater quality and supply as there is less opportunity for water to percolate through the soil.

The chemical and biological water indicators are used to describe water quality. Rivers in West Yorkshire are in a largely good/fair condition, and continue to improve. Also, incidence of water pollution events are improving. In the Y&H region in 2004, 3.5% of all incidents to all media were attributable to transport, which follows a declining trend (8.1% in 2001). Road transport is the most common cause of incidents when involving transport.

Strategic Flood Risk Assessments (SRFAs) have been initiated by all five districts within West Yorkshire, as follows:

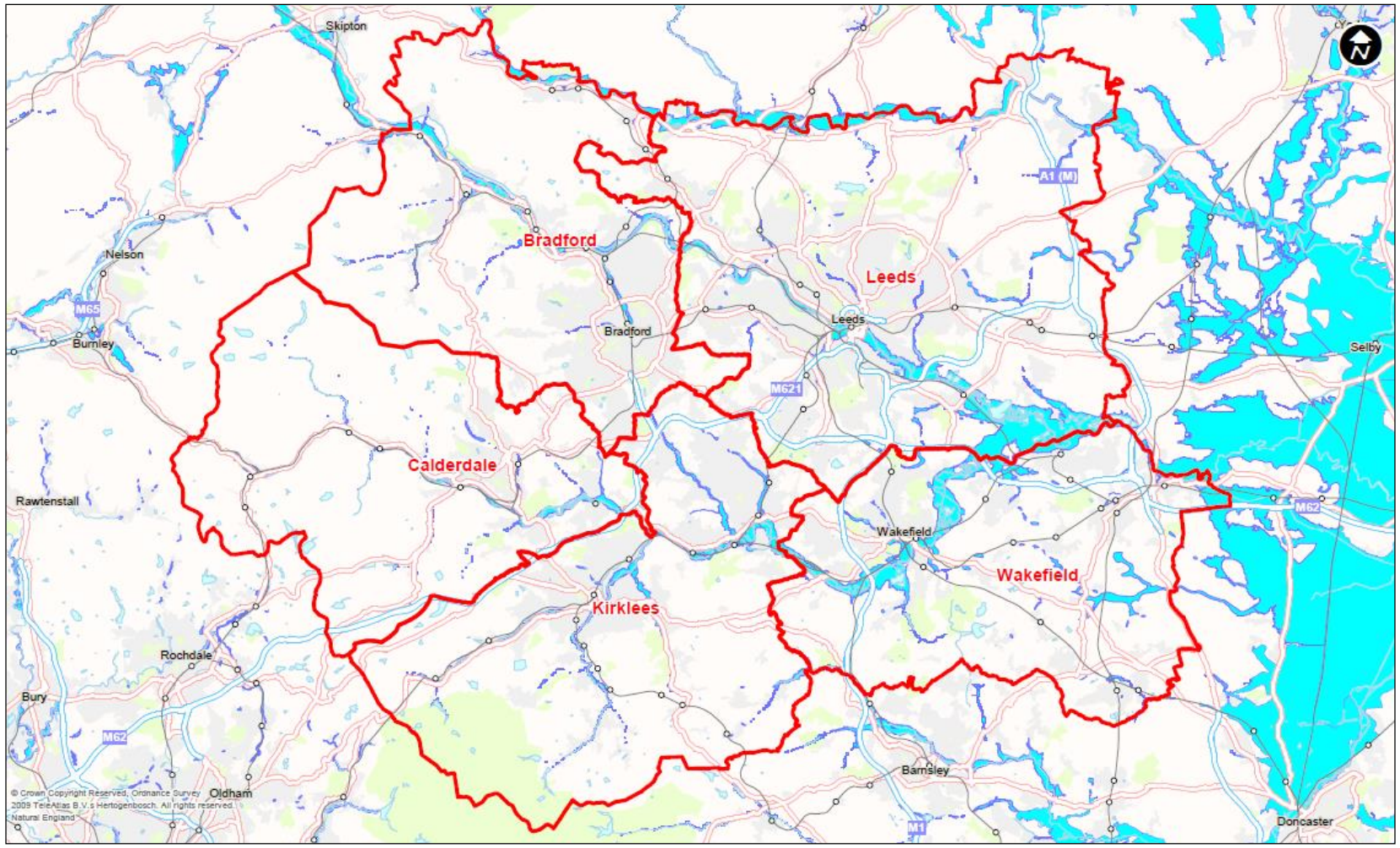
- The Level 1 Strategic Flood Risk Assessment (SFRA) for Bradford (February 2014) indicates that there are currently 25 Flood Warning Areas within the Bradford MBC area. Within those, critical infrastructure including major transport infrastructure (e.g. motorways and railways) has been included in Flood Zone 3ai areas. Flood Zone 3ai comprises developed land within Flood Zone 3 where water would flow or be stored in times of flooding if not already constrained by development. The Calderdale, Kirklees & Wakefield SFRA indicated 58km of the transport network is currently at risk of a 1% flood event in the Calder Catchment and 10% of the transport network within the river Aire Catchment is similarly at risk.
- Leeds (2007) - there are over 2,000 properties at ‘significant’ risk of river flooding within the District of Leeds, susceptible to a 1.33% chance of flooding. The River Aire via Leeds, and the River Wharfe were highlighted by DEFRA as susceptible to flooding, and this occasionally leads to flooding in the Kirkstall area and the A65 / A659. Parts of the rail network are also affected by flooding, including at Kirkstall.

Areas liable to flood are illustrated in Figure 15 following. There are particular issues from flooding in the Aire Valley to Leeds and Bradford and main urban areas in Calderdale.

In Wakefield, the solid geology over much of the district is the exposed coalfield of the Middle and Upper Coal Measures of the Upper Carboniferous Period. These deposits of alternating bands of sandstones, siltstones, mudstones, shales and coal seams dip eastwards to become the concealed coalfield beneath the later Permian Period deposits in the east. Due to the decline of coal mining and other traditional industries, the district has suffered significant environmental degradation, dereliction and (in part) potential for suspected contamination. Approximately 700 hectares of the District are derelict, however many more hectares have been or are currently being transformed by reclamation schemes.

Wakefield lies within the three major catchments of the Rivers Aire, Calder and the combined catchment of the Don, Dearne and Rother.

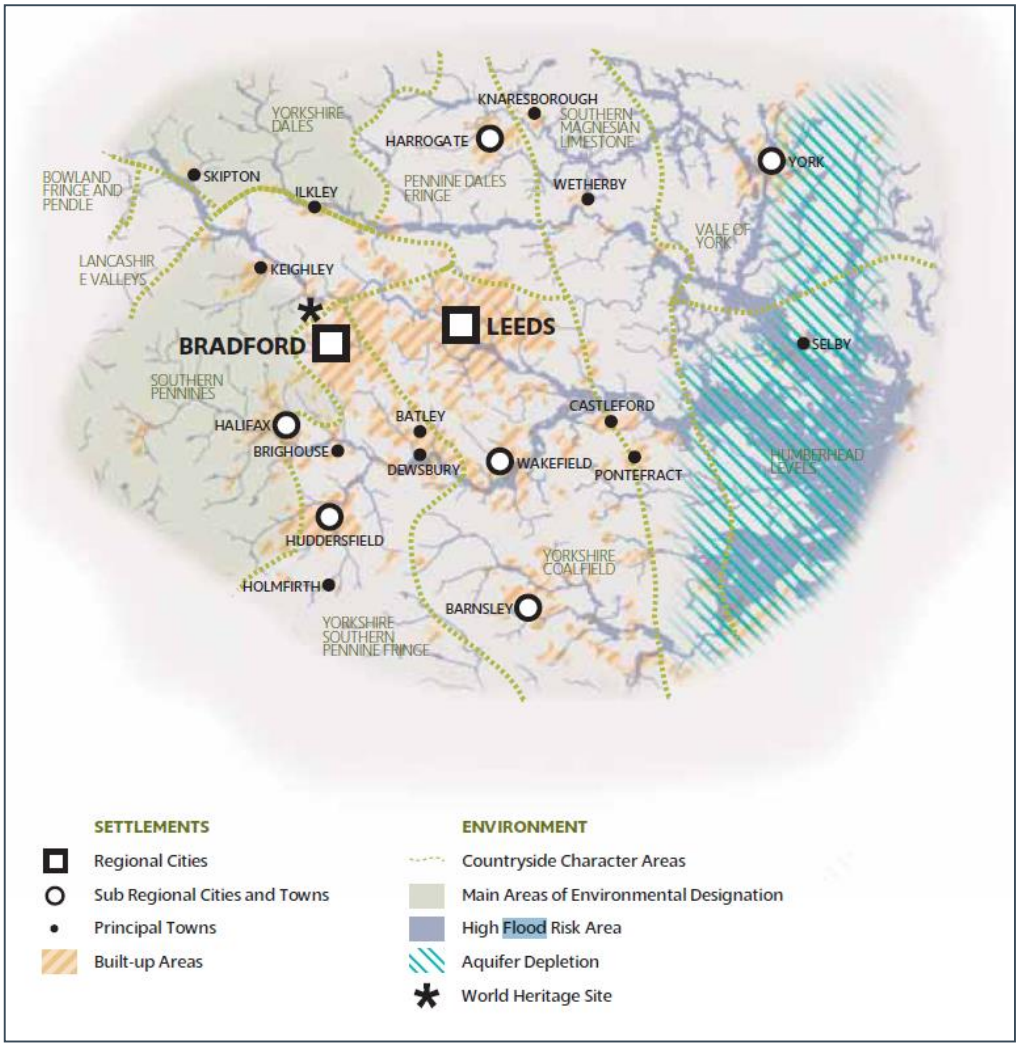
Figure 15: Areas liable to flood in West Yorkshire



Many of these are at or near maximum capacity in annual storm conditions and there are more than 40 locations in the district that flood on a regular basis. 85% of the housing allocations and 50% of employment sites identified in Calderdale, Kirklees and Wakefield are allocated in Low Risk Zone 1. 18 allocations are located in the high risk zone in these areas, but the area overall is considered sustainable. Water quality of the Aire, Calder and Dearne has improved over recent years largely as a result of improvements to sewage treatment and industrial waste discharges.

The decline of coal extraction in recent years has led to water table levels rising. This displaces gases such as methane and blackdamp, which may lead to concentrated emissions possibly in such dangerous areas as foundations of buildings and other confined spaces as explosive and/or poisonous mixtures.

Figure 16: High flood risk areas in West Yorkshire



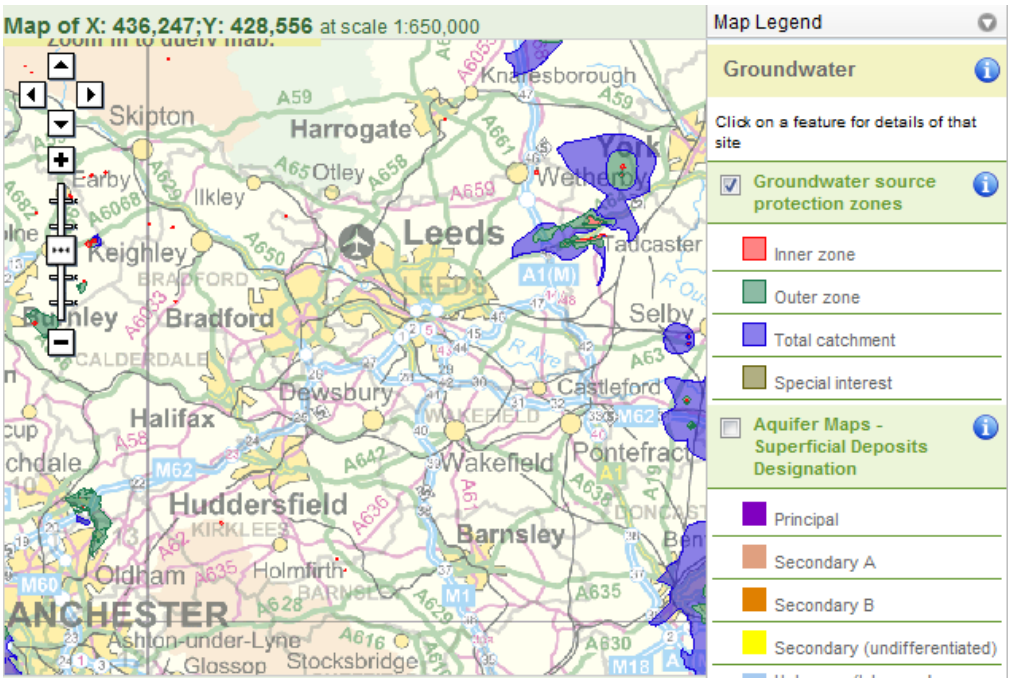
Source: Yorkshire and Humber Regional Spatial Strategy 2026 (2008)

The Humber River Basin District Management Plan states that groundwater is an important resource in the Humber River Basin District and that a significant proportion of drinking water comes from the district's groundwater. Abstraction for drinking water is one of the main pressures placed on groundwater, as is contamination with nitrates and pesticides.

The Environment Agency has defined Source Protection Zones for 2000 groundwater sources that are used for public drinking water supply. The SPZs show the risk of contamination from pollution causing activities and the closer the activity, the greater the risk. Pollution prevention measures are introduced in areas which are at a higher risk.

Figure 17 below shows the Source Protection Zones within West Yorkshire and demonstrates that there is a sensitive area in North East Leeds and no SPZs in any other part of the region.

Figure 17: Source Protection Zones in West Yorkshire



C.15. Economy

C.15.1. Overview

West Yorkshire is recognised as one of the most dynamic and significant economic areas in the UK outside of London. It is a key driver of the Yorkshire & Humber regional economy. As the main city in the region, Leeds has experienced fast growth over recently years, until this has slowed due to the recession. Nevertheless, it is firmly established as a leading UK financial services and commercial centre outside London. More generally, the head offices of many financial institutions and customer service centres are based in West Yorkshire.

Historically, manufacturing and textiles have been the primary sectors of the local economy. The area has supply chains and centres of excellence for training, technology and design supported by further and higher education expertise specifically in these sectors. Recent development has been more diverse, including expansion in e-business, digital, print, bio-sciences and chemical clusters.

Labour market skills in manufacturing are supplemented by graduates emerging from the four universities in the sub-region, which specialise in engineering, textiles and advanced manufacturing; digital media, healthcare and business/management.

Key economic statistics relating to West Yorkshire are indicated in the tables on the following page. the implications of these for each local authority area are discussed in the following paragraphs:

Table 16: Key Economic Statistics for West Yorkshire

Authority	Employment 2015	% of working age pop. Employed 2015	GVA per head (£) 2010	Total GVA (£ million) 2010	% growth GVA 2008-2010
Bradford	211,200	64.3%	£40,872	£7.0	1.6%
Leeds	354,700	70.1%	£40,494	£15.4	2.4%
Wakefield	146,600	71.5%	£43,196	£5.3	1.9%
Calderdale	97,900	75.7%	£44,903	£3.6	1.3%
Kirklees	189,300	69.8%	£38,848	£5.4	1.8%
West Yorkshire	999,800	69.4%	£39,596	£36.7	2.0%
Yorkshire & Humber	2,392,000	71%	£19,053	£101,701	1.3 %

The table below outlines population figures for West Yorkshire Local Authorities and economic activity (2014):

Table 17: Population and economic activity

	Leeds	Wakefield	Calderdale	Bradford	Kirklees
Population	761,500	329,700	206,400	226,400	428,300
Population aged 16-64	66.3%	63.6%	63.3%	62.5%	63.4%
% of population that are economically active	75.5%	76.4%	81.2%	71.4%	74.7%
% of economically active who are unemployed	8.4%	6.9%	6.4%	8.9%	7.4%
Job density	0.9	0.74	0.78	0.67	0.62

Source: Nomis, Office of National Statistics, 2014

C.15.2. Bradford

Bradford's economy is quite large in its own right, and clearly linked with that of Leeds. Bradford is in the top ten cities in England in terms of the size of its economy (as measured by GVA - Gross Value Added – the value of goods and services produced in a local area). The District also ranks among the top ten across a range of other economic indicators including total employee jobs, number of businesses and business births, for which it ranks fifth in England.

The district has seen some positive trends with a growth of 7,500 in the number of residents in employment over the year to Sept 2014. The number of businesses in the district increased between March 2014 and March 2015 by 575 following a decline that began in 2008 with the onset of recession. Bradford's employment rate has improved to 67.5 % as of Sept 2014 compared to 65.3% at Sept 2014. Long term

unemployment continues to be a concern with 4,190 or 34.2% of all Jobseeker Allowance claimants out of work for over 12 months as at October 2014.

C.15.3. Leeds

Leeds has retained its manufacturing strength as well as consolidating its position a major centre for finance and business services, despite the recent economic downturn. Total employment in Leeds in 2013 was estimated at around 360,000. During the next decade, Leeds is expected to account for 32% of net additional jobs in the Yorkshire and the Humber region (44,600 out of 137,950). Between 2013 and 2023 Leeds is expected to have the second largest increase in jobs of cities in the UK, just behind Birmingham. Net employee numbers were unchanged between 2003 and 2013 despite the recession and are expected a 39,000 increase between 2013 and 2023. In terms of productivity, Leeds MD's GVA was £20.4bn in 2013, representing around 44% of West Yorkshire's and 20% of Yorkshire and the Humber's GVA.

C.15.4. Wakefield

Wakefield is recognised as having responded well to the economic downturn. Wakefield's economic taskforce supported both individuals and businesses through a difficult period and recognises that a strong and sustainable local economy is central to a better future for all communities and people. In particular, building skills in young people will be key to a stronger more sustained economy. Facts include: 71.3% of people aged 16-64 are in employment (September 2014), 11.7% of jobs are in manufacturing and 10.2% are in transport and storage (2013); and 23.1% of employment is in the public sector (2013) .

C.15.5. Calderdale

Calderdale has the smallest population in the West Yorkshire sub-region and has the smallest economy too. However, the percentage of the population who are economically active is the highest in West Yorkshire at 81.2%. The economically active population has risen from 99,700 in 2008 to 107,500 at the end of 2014. Calderdale also has the lowest rate of economically active unemployed persons in West Yorkshire, despite rising from 4,800 in 2008 to 7,000 in 2014. 1.8% of Calderdale's population claim Jobseekers Allowance Calderdale performs above the West Yorkshire average at a number of economic indicators including qualifications, employees in senior, management and professional jobs and gross weekly pay. The National Indicator 176 –Access to Employment by Public Transport, walking and cycling - suggests that access to employment in Calderdale have experienced a decrease in percentage of people accessing a major employment centre.

C.15.6. Kirklees

Kirklees' has a population of 431,000 people, around 75% of whom are economically active. Economic activity has fallen since 2008 but has remained steady between 2011 and 2014. Its economy focuses on engineering, manufacturing and design, driven by globally leading businesses in fields such as gears, valves, pumps, turbos, chemical and textiles (with a strong "Made in Huddersfield" reputation). In terms of productivity, its Gross Value Added per head is low - £14,400 compared to £17,700 in Leeds City Region. The low but improving, employment rate is below Leeds City Region average.

C.16. Health

C.16.1. General Health Statistics

Key health statistics for West Yorkshire are set out in Table 18 below:

Table 18: Key Health Statistics for West Yorkshire

District	Bradford	Calderdale	Kirklees	Leeds	Wakefield	West Yorks	England
Live births with low birth weight (average of the ten years to 2009, this was updated in 2011)	9.6%	7.8%	8.8%	7.9%	7.6%	8.3%	7.1%

District	Bradford	Calderdale	Kirklees	Leeds	Wakefield	West Yorks	England
Infant Mortality (per 1,000)	7.7	6.7	7.5	6.0	5.5	6.7	5.1
Life Expectancy (Males) ONS	77.4	77.5	78.1	78.1	77.7	77.8	78.9
Life Expectancy (Females) ONS	81.2	81.9	82.1	82.0	81.6	81.7	82.9
People on Incapacity Benefits (Feb 2015 – NOMIS)	0.4%	0.3%	0.3%	0.3%	0.3%	n/a	0.3%
People on Disability Living Allowance benefits (Feb 2015)	8.4%	7.6%	8.2%	7.1%	11.3%	8.5%	7.2%
Admissions for Coronary Heart Disease (per 1,000 population)	21.5	24.0	17.4	15.8	20.5	18.8	19.4
Coronary Heart Disease (Age-standardised death rates/100,000. 2010-2012)	153.7	141.6	152.4	159.7	153.0	152.1	131.1
Cardio Vascular Disease (Age-standardised death rates/100,000. 2010-2012)	326.1	300.3	327.0	314.1	315.0	316.5	389.4
Obese adults (estimated, 2012 Public Health England)	26.7%	26.7%	21.8%	19.5%	27.0%	24.3%	23.0%
Mortality by cancer (per 100,000 persons) (from Cancer research)	180.7	186.4	179.4	181.3	192.8	184.1	172.0
Casualties / accidents per 100,000 persons	340.24	338.88	328.72	337.12	353.04	n/a	325.22

Other key health statistics for the area include:

- 17.0% of residents in Yorkshire and the Humber have a limiting long-term illness (LLTI) according to the 2011 UK Census, which is slightly below the England average of 17.6%;
- Life expectancy for Yorkshire and the Humber was the third lowest of the English regions for both males and females: 81.1 years for females and 76.9 years for males for 2005-7 (ONS, 2009);

As can be seen from this, West Yorkshire is typically worse than the national average across a range of indicators, although with some variation within the sub-region.

However, it should be noted that although these indicators are linked to transport and mobility, these are not the only factors influencing health. Much of the variation from national norms and between the various local authority areas in West Yorkshire is linked to the differences in socio-economic variations which are indicated in the following paragraphs and in the next9 section on Equality.

C.16.2. Accessibility

A report by the Social Exclusion Unit (ODPM, 2003) 'Making the Connections: Final Report on Transport and Social Exclusion' states that "Problems with transport provision and the location of services can reinforce social exclusion. They prevent people from accessing key local services or activities, such as jobs, learning, healthcare, food shopping or leisure." Key statistics included in the report are as follows:

- Access to work: Two out of five jobseekers say lack of transport is a barrier to getting a job. One in four jobseekers say that the cost of transport is a problem getting to interviews. One in four young people have not applied for a particular job in the last 12 months because of transport problems.
- Access to learning: 16–18-year-old students spend on average £370 a year on education related transport, and nearly half of them experience difficulty with this cost. Six per cent of all 16–24-year-olds turn down training or further education opportunities because of problems with transport.
- Access to healthcare: 31 per cent of people without a car have difficulties travelling to their local hospital, compared to 17 per cent of people with a car. Over 1.4 million people say they have missed, turned down, or chosen not to seek medical help over the last 12 months because of transport problems.
- Access to food shops: 16 per cent of people without cars find access to supermarkets difficult, compared to 6 per cent of the population as a whole.
- Access to social, cultural, and sporting activities: 18 per cent of people without a car find seeing friends and family difficult because of transport problems, compared with 8 per cent for car owners. People without cars are also twice as likely to find it difficult getting to leisure centres (9 per cent) and libraries (7 per cent).
- Impact of traffic on deprived communities: Children from the lowest social class are five times more likely to die in road accidents than those from the highest social class. More than a quarter of child pedestrian casualties happen in the most deprived 10 per cent of wards.

In February 2010, the Marmot Review Team published Fair Society, Healthy Lives. This was the culmination of a year-long independent review into health inequalities in England which Professor Sir Michael Marmot was asked to chair by the Secretary of State for Health. The review proposes the most effective evidence-based strategies for reducing health inequalities in England from 2010. The review highlights links between transport inequalities and health inequalities. Relevant findings include:

- "The survival of older people increases where there is more space for walking near their home, with nearby parks and tree-lined streets."
- "Investing public funds in measures such as active travel, promoting green spaces and healthy eating will impact positively on health as well as on carbon emissions".
- "Poorer people are more likely to live in more deprived neighbourhoods. The more deprived the neighbourhood, the more likely it is to have social and environmental characteristics presenting risks to health." These include a lack of green spaces and places for children to play and more risks to safety from traffic.
- "Children in the 10 per cent most deprived wards in England are four times more likely to be hit by a car than children in the 10 per cent least deprived wards."
- "Road deaths, especially among pedestrians and cyclists, are particularly high among children of parents classified as never having worked or as long-term unemployed."
- "Particular groups face further inequalities. Black ethnic minority groups in London were 1.3 times more likely to be injured as pedestrians and car occupants on the city's roads than those in white ethnic groups."

The report also states that improved transport infrastructure can have positive impacts on safety:

- "The provision of cycling infrastructure can lead to a long-term increase in cycling and a reduction in cycle casualties."
- "Substantial increases in the number of cyclists also leads to reductions in the numbers of cyclists killed or seriously injured."
- "Lowering speed limits improves quality and access for active travel and improves safety for pedestrians and cyclists. Lower speed limits reduce risk of death and serious injuries

C.16.3. Road Safety and Accidents

The Department for Transport releases an annual report on road casualties. The 2008 'Reported Road Casualties for Great Britain' provides figures on reported casualties by road user type, severity, and local authority, as detailed in Table 19 below:

Table 19: Reported casualties in West Yorkshire by road user type, severity and local authority (2008)

	Pedestrians		Pedal cyclists		Motorcyclists		Car users		All road users	
	KSI	All	KSI	All	KSI	All	KSI	All	KSI	All
Bradford	117	372	18	97	37	137	95	1,680	274	2,371
Calderdale	29	109	6	28	26	69	42	543	105	788
Kirklees	72	237	18	79	38	141	65	1,233	198	1,789
Leeds	114	464	31	222	67	230	139	1,943	371	3,220
Wakefield	32	151	11	59	30	92	64	864	143	1,260
West Yorkshire	364	1,333	84	485	198	669	405	6,263	1,091	9,428

C.16.4. Obesity

The NHS Health Survey for England 2008: Physical Activity and Fitness Report states that childhood obesity has increased significantly since 1995. Between 1995 and 2008, obesity levels:

- Increased in boys aged 2-15 from 11% to 17%; and
- Increased in girls aged 2-15 from 12% to 15%.

Obesity levels in boys in Yorkshire and Humber are higher than the England average, as shown in Table 20 below:

Table 20: Childhood obesity levels: Ages 2-15 with a valid BMI measurement - % obese

	Yorkshire and the Humber Strategic Health Authority	England average
Boys	19%	17%
Girls	15%	15%

Table 21 below shows obesity levels amongst adults in the Yorkshire and Humber Strategic Health Authority area compared to the England average:

Table 21: Obesity prevalence rates (%) in adults

	Yorkshire and the Humber Strategic Health Authority	England average
Men	26%	24.1%
Women	26%	24.9%

Source: The Health and Social Care Information Centre, 'Statistics on obesity, physical activity and diet: England 2010'

C.16.5. Physical activity levels in children and adults

The National Travel Survey reports decreased levels of walking to school in 2009 compared to 1995. However there has been a slight increase in cycling, which has a very small mode share overall. Table 22 sets out the key findings for 2009 and compares them to mode use in 1995:

Table 22: Travel to school data for 1995 and 2009

School Pupils	1995	2009
Aged 5 - 10		
Walk to school	53%	50%
Cycle to school	0%	1%
Travel to school by car/van	38%	42%
Aged 11 – 16		
Walk to school	42%	38%
Cycle to school	2%	3%
Travel to school by car/van	20%	22%
Aged 5 – 16		
Walk to school	47%	43%
Cycle to school	1%	2%
Travel to school by car/van	29%	31%

Source: National Travel Survey, 2010

The National Travel Survey also records the proportion of trips to and from school by main mode of travel for school children. The following table shows these proportions for Yorkshire and Humber and England overall:

Table 23: Trips to and from school by main mode

Pupils aged 5 - 16	Walk	Car	Bus	Other
Yorkshire and Humber	46%	29%	23%	1%
England	44%	32%	20%	4%

The NHS Health Survey for England 2008 includes self-reported activity levels for adults by Strategic Health Authority (SHA), as illustrated in the Table 24 below. It finds that men in the Yorkshire and Humber SHA report slightly higher levels than the England average of recommended physical activity (defined as 30 minutes or more of moderate or vigorous activity on at least 20 occasions in the last four weeks) whilst women report lower levels than the England average.

Table 24: Percentage of adults meeting recommended 30 minutes of physical activity at least 20 times in last four weeks

	Yorkshire and the Humber Strategic Health Authority	England Average
Men	41%	39%
Women	26%	29%

C.17. Equality Target Groups

C.17.1. Gender

Table 25 below indicates the gender balance in areas of West Yorkshire:

Table 25: Gender balance in areas of West Yorkshire

District	Total Population	% Males	% Females
Bradford	522,452	49.2%	50.8%
Calderdale	203,826	48.9%	51.1%
Kirklees	422,458	49.4%	50.6%
Leeds	751,485	49.0%	51.0%
Wakefield	325,387	49.0%	51.0%
West Yorkshire	2,225,608	49.1%	50.9%
England	53,012,456	49.2%	50.8%

This indicates that although there are slight variations across the sub-region, there are slightly more women living in West Yorkshire than men. This pattern persists across the sub-region, and is in line with the average across England.

C.17.2. Disability

Table 26 below indicates the number of disabled people receiving Disability Living Allowance recorded as living in West Yorkshire:

Table 26: Disabled people in West Yorkshire, Feb 2015

District	Number	% of total
Bradford	28,115	8.7%
Calderdale	10,165	7.7%
Kirklees	22,835	8.3%
Leeds	24,230	8.0%
Wakefield	36,395	11.3%
West Yorkshire	121,740	8.7%

District	Number	% of total
England	2,733,915	7.7%

As can be seen from this, there is a slight variation in the incidence of disability as recorded this way across the sub-region, Wakefield being the higher than the other authorities, the lowest was in Calderdale. The average for West Yorkshire as a whole is slightly higher than the average across England.

C.17.3. Ethnic Groups

The breakdown of the population by ethnic group in West Yorkshire is indicated in Table 27 below:

Table 27: Ethnic Groups in West Yorkshire, 2011

District	White	Mixed	Asian or Asian British	Black or Black British	Chinese or Other
Bradford	67.4%	2.2%	26.8%	1.8%	1.5%
Calderdale	89.7%	1.4%	8.3%	0.4%	0.2%
Kirklees	79.1%	2.3%	16.0%	1.9%	0.6%
Leeds	85.1%	2.6%	7.8%	3.4%	1.1%
Wakefield	95.4%	0.9%	2.6%	0.8%	0.3%
West Yorkshire	83.3%	1.9%	12.3%	1.7%	0.7%
England	85.4%	2.3%	7.8%	3.5%	1.0%

From this it may be seen that the population of the sub-region is predominantly white, although this is slightly less than the proportion for England as a whole. However, in Wakefield, there is a relatively small proportion of the population from ethnic minority backgrounds. The next largest ethnic group is Asian (including Asian British), the proportion of which is almost twice as high in the sub-region as for England as a whole. In particular, Bradford has a relatively large population in this group, representing more than 1 in 4 of the population. Kirklees also has a high proportion of Asian or Asian British, representing over twice the English proportion. The proportion of Black and Black British is lower in the sub-region than England, though in Leeds it is in line with the English proportion. Proportions of other ethnic groups are broadly in line with the average for England.

It should be noted that the Asian and Black communities in West Yorkshire typically comprise generally larger households with a younger age profile than the white population. This suggests they may become more prominent as a proportion of the overall population in the future.

Also more recently, due to the accession of Eastern European states into the European Union, there reportedly has been a significant increase in the number of economic migrants from overseas to some parts of the sub-region, e.g. Leeds. However, these people would be classified as part of the white ethnic group in terms of the statistics presented here.

C.17.4. Sexual or gender identity

There is little information regarding sexuality or gender identity typically available. However, the 2011 census included a question aimed at identifying peoples' marital status, including same sex couples. This is indicated in Table 28 below:

Table 28: People reporting living in a registered same sex civil partnership, all usual residents ages 16 and over, 2011

District	No. of People	Per 1,000 population
Bradford	80,024	0.2%
Calderdale	49,094	0.3%
Kirklees	67,262	0.2%
Leeds	122,798	0.2%
Wakefield	53,159	0.2%
West Yorkshire	355,973	0.2%
England	9,099,356	0.2%

However, clearly people may not elect to declare themselves as part of a same-sex couple and many homosexual men and Lesbians are single or not co-habiting with their partners. Therefore, this figure is likely to significantly underestimate the numbers of homosexual men and Lesbians living in West Yorkshire.

C.17.5. Age Profile

Table 29 below indicates the breakdown by age of the population in West Yorkshire from 2011 census:

Table 29: Age Profile of Residents in West Yorkshire

District	0-15 yrs	16-29 yrs	30-44 yrs	45 - Retirement	Retirement age
Bradford	23.4%	19.6%	20.7%	23.7%	12.6%
Calderdale	19.6%	16.5%	20.5%	28.5%	15.0%
Kirklees	20.4%	18.5%	20.5%	26.3%	14.3%
Leeds	18.3%	23.1%	20.8%	24.0%	13.8%
Wakefield	18.4%	17.3%	19.9%	28.5%	15.9%
West Yorkshire	20.0%	19.9%%	20.6%	25.4%	14.0%
England	18.9%	18.7%	20.6%	26.4%	15.4%

This indicates that the sub-region has a marginally younger population than for England as a whole. Within the sub-region, this is particularly the case in Bradford and Leeds. This is due to the more ethnically diverse population and the greater number of students living in these districts.

C.17.6. Faith Groups

109. Table 30 below indicates the breakdown of the West Yorkshire population in terms of the faith group to which they belong:

Table 30: Faith Groups in West Yorkshire, 2011

District	Christian	Muslim	Other	None
Bradford	45.9%	24.7%	2.5%	26.9%
Calderdale	56.3%	7.3%	1.2%	35.2%
Kirklees	53.4%	14.5%	1.7%	30.4%
Leeds	55.9%	5.4%	3.7%	35.0%
Wakefield	66.4%	2.0%	0.9%	30.8%
West Yorkshire	55.6%	10.8%	2.0%	31.7%
England	59.4%	5.0%	3.7%	31.9%

C.17.7. Multiple Deprivation

A key characteristic of West Yorkshire is the significant variation in the levels of deprivation, both between Districts and between different neighbourhoods and communities within each district.

The Government's Index of Multiple Deprivation (IMD) provides a means of measuring levels of deprivation in areas of England. The Index assesses deprivation by seven different 'domains' capture the level of deprivation relating to specific issues. It provides an overall deprivation score for small geographical areas, known as 'Lower Super Output Areas'. The summary measures of the ID that are produced at District Level are indicated for West Yorkshire in Table 31 below.

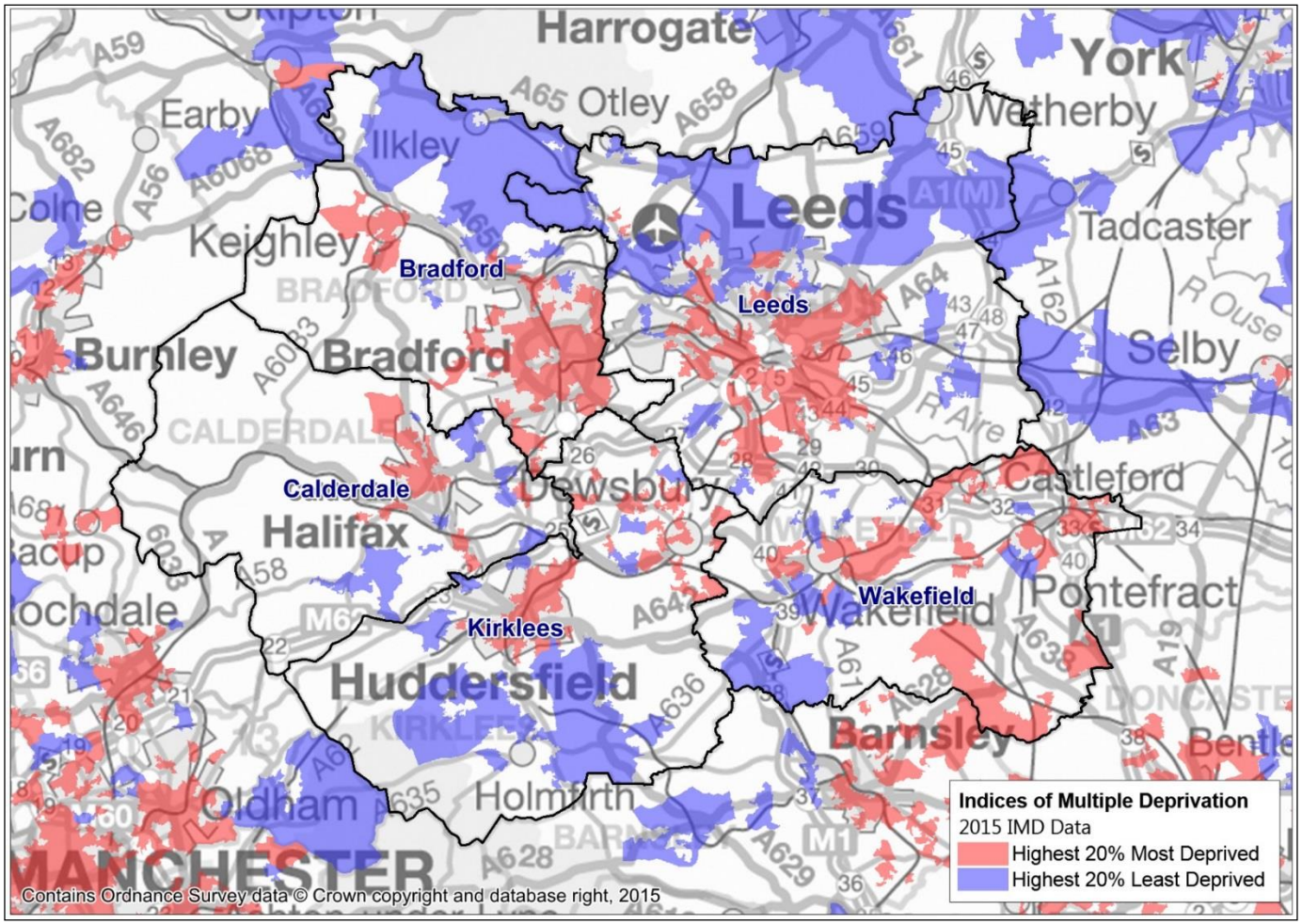
Table 31: Rank of Average Index of Deprivation Score by District in West Yorkshire

Local Authority	Rank of Average Score (Overall IMD 2015)
Bradford	30
Calderdale	96
Kirklees	101
Leeds	100
Wakefield	73

Source: Communities and Local Government, Indices of Deprivation, 2015

The spatial distribution of deprivation is indicated in Figure 18 on the following page:

Figure 18: Incidence of Multiple Deprivation in West Yorkshire



In particular, Bradford ranks 30th out of the 326 districts ranked in England. This places it within the most deprived 10% of local authorities nationally and make it the most deprived authority in West Yorkshire. Within the income and employment domains Bradford ranks 5th and 6th respectively against national scores. As also can be seen from the figure on the previous page, however, there are pockets of deprivation across the sub-region, particularly in parts of Halifax, Huddersfield, Leeds, Castleford and Hemsworth.

C.17.8. NEET Levels

NEET stands for Not in Education, Employment or Training. It is a term generally applied to describe young people and NEET statistics and trends are closely monitored by a number of organisations/Government departments including the Department for Children, Schools and Families and Connexions.

A Department for Education article on Strategies for 16- to 18-year-olds not in education, employment or training (NEET) states: “We know that being NEET at this age is associated with negative outcomes later in life, including unemployment, reduced earnings, poor health and depression. These outcomes have a cost for both the individual and the economy.”

Data shows that NEET levels in Yorkshire and Humber are higher than the England average and that the rate of increase from 2000 to 2010 has been higher in the region compared to the England average. This is illustrated in Table 32 following:

Table 32: NEET levels in Yorkshire and Humber and England average

	% of NEET 16-18 year olds, 2000 – Q2	% of NEET 16-18 year olds, 2010 – Q2	% change
Yorkshire and Humber	14.5%	16.5%	14%
England	12.8%	14.3%	12%

Source: DfE NEET Statistics – Quarterly Brief – Q2, 2010

Appendix D. Assessment of Alternatives

D.1. Description of Strategic Scenarios

Scenario 1	Scenario 2	Scenario 3
Do Minimum **Continued investment and prioritisation against the three LTP priorities as follows;** • **Economy** • **Low Carbon** • **Quality of Life** **As a 'do-minimum' this would be continued through the life of the Transport Strategy.** ***Scenario Components:*** • **Transport Hubs Programme (c. £150k p/annum)** – continued investment in multi-modal integration at district centre locations (seven centres in 2014-17). Hubs are envisaged as locations on the core public transport network easily accessible by bus, rail (where a station facility is provided), cycle, walking, taxi and car. • **Park and Ride Sites** – for example Elland Road, Leeds (£1.6m – WYCA contribution) and East Leeds Park and Ride (£9m scheme – WYCA contribution tbc) • **Improvement to Bus Stations –** for example Castleford Bus Station (£5m): improved bus station and improved pedestrian connectivity with town centre • **New Rail Stations –** a small number of new rail stations (currently Kirkstall Forge and Apperley Bridge – net cost £15.9m - and Low	**Supporting SEP economic growth through local growth deal 2 and continuation of Transport Fund schemes for targeted congestion reduction through road and rail based capacity improvement.** **WYTF – (£60m p/annum > 2036).** ***Scenario Components:*** • **Do Minimum scenario** Plus • **WYTF Corridor Schemes –** a number of transport schemes to improve public transport corridors to key regional and district centres. Schemes include – electrification of key rail lines, tram train and park and ride - eg. Calder Valley Line Enhancements, East Leeds Parkway • **WYTF Orbital Road Schemes –** projects aimed at improving road capacity for orbital moving as traffic is taken away from urban centres – eg. A650 Tong Street (Bradford), A6110 Outer Ring Road (Leeds), Castleford North Bypass. • **WYTF Key Development Areas Schemes –** improvements for rapid access to and from new development areas with a focus on road based access – eg. York Central Access, Bradford to Shipley Corridor, Glasshoughton Southern Link Road.	**Supporting SEP economic growth through local growth deal 2 priorities, continuation of Transport Fund schemes and investment in wider transport solutions, focussing on low carbon and active travel solutions.** ***Scenario Components:*** • **Do Minimum scenario** Plus • **WYTF Schemes as in Scenario 2** Plus • **Reducing car convenience** - restricting car movement on the network, reducing car convenience by improving door-to-door travel by alternative modes. • **Green Streets Investment** – Significant funding on retrospectively adapting highways towards greener streets for sustainable travel. Emphasis on sustainable travel infrastructure within new developments • **£10 p/p on cycle infrastructure** – significant investment in safe cycle routes with major impact on highway capacity. Including CCAG1 (£30m), CCAG2, (£22m) • **High density development** – existing urban development focused on brownfield sites.

Moor - £10m) delivered to improve public transport accessibility from areas of West Yorkshire. Station programme aims to reduce congestion through mode shift through park and rail sites. • **New Generation Transport (£18m) –** major low carbon transport system in Leeds transforming public transport journey time, reliability and connectivity along two corridors in Leeds. Targets congestion reduction through inclusion of park and ride facilities. • **Local road improvements and traffic management (c. £800k p/annum) –** pinch point congestion relief schemes – e.g. Horsforth and Rodley roundabouts. • **Bus Shelter Programme (£250k p/annum) –** improved bus waiting facilities. • **Transport Hubs Programme** (**c.£500k p/annum)**– pedestrian improvement at transport hubs for access to town centres e.g. Huddersfield Town Centre (£1.5m). • **Rail Station Redevelopment (c. £500k p/annum)** –station redevelopments as part of wider regeneration programmes (e.g. Wakefield Kirkgate). • **Cycle Network Improvement (c. £1m p/annum)** – funding to improve cycle network across West Yorkshire to provide junction improvements and safe routes. Combination of on-street and segregated (where possible). • **Cycle City Ambition Grant 1 and 2 schemes (CCAG1 £30m, CCAG2 £22m). -** new segregated, on-carriageway cycle facilities and/or safety improvements in the central areas of Wakefield, Bradford, York (including a bridge) and Huddersfield, connecting communities to employment locations. • **Safer Roads Programme (c. £4.4m p/annum) –** casualty reduction measures (e.g. infrastructure) in key locations, locally determined. • **Customer Information Screens (£1m) –** Improvements to passenger information at bus stops and rail stations with real time information. • **Network Management (c. £2.5m p/annum) –** Improved driver information provision through VMS signage and UTC control • **Yorcard (c.£1m p/annum) –** continued development of the Yorcard multi-modal smartcard to incorporate all public transport and shared transport modes, including car clubs, bike hire and • **Wifi on Trains (£750k)** • **Rail Station Accessibility Improvements (£250k)** –ongoing funding to improve disabled access. • **Access Bus (£1.2m)** – bus service to provide access to key services for travel restricted users.	• **WYTF Motorway Access Schemes–** provides faster and more convenient access to/from the motorway network for good vehicles and for commuters – eg New Motorway Junction 24a on the M62 (Kirklees), Harrogate Road/New Line Junction (Bradford). • **WYTF Connectivity Schemes-** such as Leeds - Bradford, and Halifax - Huddersfield to ensure high capacity, modern, fast and attractive connectivity. • **Regional Road Connectivity –** Significant investment to strengthen road capacity on trans-Pennine routes. • **Private transport supportive planning** – low density development with a focus on car related growth. • **Minimal demand management** – especially in urban centres. • **'On demand' Travel information –** major investment in instantaneous travel information to improve road based journey time re • **Autonomous car travel -** highway technology adaption to integrate systems for autonomous vehicles. • **Car Clubs -** Strengthening of car clubs to replace private car ownership • **Efficient Community Transport** – delivery of road transport projects to provide efficient community travel, especially focussed on rural and isolated areas. • **Effective Road Asset** Management - Significant expenditure on resilient road travel infrastructure, including radial and orbital road movement. • **ULEV technology** – focused investment on car travel to reducing carbon/air quality impact – charging infrastructure and schemes to smooth traffic flow in key air quality areas.	• **Mixed Use development – reducing long distance travel** Focus transport investment on the necessary infrastructure to support growth in priority growth areas through supporting and prioritising sustainable travel choices to, from and within these locations. The focus on sustainable travel at developments will be delivered through stronger co-operation with districts in the LDF processes and site allocations. • **Demand Management –** significant demand management including LEZs in all urban centres and high costs of car use. • **Smart Ticketing** - Significant investment in smart ticketing. • **Demand responsive public transport** – Significant investment in creating on demand public transport. • **Community Transport** - Strengthening non-car community transport options, especially focusing on isolated and rural communities. • **Total Transport Collaboration** – collaboration with other providers focussing on older and younger (NEETs) • **Focus on cycle and pavement maintenance** – reprofile funding allocation to prioritise pedestrian and cyclist needs. • Significant travel behavioural/travel change programme • Focused investment to tackle air quality/major low carbon transport investment • **WY Low Emission Strategy –** Robust approach to air quality improvement through infrastructure, policy and procurement measures.

• **Asset Management Efficiency (c. £30m p/annum)** – prioritised funding on road/structural maintenance schemes to ensure efficient road network management, targeting funding on heavily trafficked corridors. Collaborative work to identify efficiencies based on presumption of reduced central government funding. • **Green Bus Fleet Conversion (£tbc)** – Fleet conversion to Low Emission Vehicles. • **ULEV technology (£250k/annum) –** small scale investment on reducing carbon/air quality impact of car travel through – charging infrastructure	• **Climate Change Adaptation** – Major investment in road network climate change adaption. • **Air Quality Corridors –** Major highway works targeted on congested/air quality areas to improve traffic flow.	

D.2. Assessment of Strategic Scenarios

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives	*Strategic Scenario 1* Do Minimum Continued investment and prioritisation against the three LTP priorities as follows; • Economy • Low Carbon • Quality of Life As a 'do-minimum' this would be continued through the life of the Transport Strategy.		*Strategic Scenario 2* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 and continuation of Transport Fund schemes for targeted congestion reduction through road and rail based capacity improvement. WYTF schemes – (£60m p/annum > 2036).		*Strategic Scenario 3* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 priorities, continuation of Transport Fund schemes and investment in wider transport solutions, focussing on low carbon and active travel solutions. WYTF schemes – (£60m p/annum > 2036).	
	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
ENVIRONMENTAL						
1. Protect and enhance local air quality	**+/-**	Reductions in emissions of local air pollutant emissions would continue to occur generally as a result of the continuation of LTP type of interventions (transport hubs, park and ride sites, rail station development and improvements, low carbon transport system in Leeds (NGT), cycle network improvements and bus fleet conversion to Low Emission Vehicles) although as a result of new diesel penetration in the vehicle fleet, there could be an increase in NO2 emissions specifically and this could lead to exceedances leading to the designation of new AQMAs or to a lack of improvement in existing AQMAs.	**--**	In addition to the situation described for the strategic scenario 1 (Do Minimum) for this objective, a number of WYTF proposed schemes are aimed at improving road capacity for orbital moving and taking traffic away from urban centres. This would result in improvements in air quality in the urban centres but could also result in deteriorating air quality in new areas and contribute to an increase of air pollution overall as a result of an increase in vehicle kms. WYTF Key Development Area Schemes, through their focus on road based access, coupled with significant investment to strengthen road capacity on trans-Pennine routes and support for low density development with a focus on car related growth would also contribute to an overall increase in vehicle kms and associated air pollution in the area. This could lead to widespread exceedances leading to the designation of new AQMAs or to a lack of improvement in existing AQMAs. Some of the effects could be counteracted to some extent by the strengthening of car clubs, ULEV technology and major highways works targeted on congested/air quality areas to improve traffic flows, but overall, moderate adverse effects are predicted.	**-**	Compared to strategic scenario 2, this scenario would contain the same WYTF schemes giving rise to the air quality issues identified and potentially widespread exceedances leading to the designation of new AQMAs or to a lack of improvement in existing AQMAs. . However, this scenario places a greater emphasis on interventions which could more effectively counteract the increases in air pollution predicted, as compared to the interventions under scenario 2. Such interventions include restricting car movement on the network, adapting highways towards greener streets for sustainable travel, funding prioritising pedestrian and cyclist needs, focussing transport investment in priority growth areas so as to reduce long distance travel and focus on sustainable travel and establishment of LEZs in all urban centres and high costs for car use. In addition, the WY Low Emission Strategy would provide a robust approach to air quality improvement. Overall, slight adverse effects are predicted.

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	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
2. To protect and enhance biodiversity, geodiversity and the green infrastructure network	**-**	The type of interventions that could arise out of a continuation of LTP would likely give rise to effects on biodiversity, geodiversity and green infrastructure network, but as the interventions would mainly be in built up and city centre areas and/or associated with improvements to existing infrastructure the effects are likely to be slightly adverse.	**--**	In addition to the type of interventions that could arise out of the Do Minimum scenario which are likely to result in slight negative effects on this objective, a number of WYTF proposed schemes (orbital road schemes, road based access to new development areas) would give rise to additional adverse effects on biodiversity, geodiversity and green infrastructure network. Schemes in mainly built up and city centre areas and/or associated with improvements to existing infrastructure as in the Do Minimum scenario would be supplement by a number of WYTF schemes which would take greenfield land with biodiversity and geodiversity value potentially resulting in moderate adverse effects.	**--**	In addition to the type of interventions that could arise out of the Do Minimum scenario which are likely to result in slight negative effects on this objective, a number of WYTF proposed schemes (orbital road schemes, road based access to new development areas) would give rise to additional adverse effects on biodiversity, geodiversity and green infrastructure network. Schemes in mainly built up and city centre areas and/or associated with improvements to existing infrastructure as in the Do Minimum scenario would be supplement by a number of WYTF schemes which would take greenfield land with biodiversity and geodiversity value potentially resulting in moderate adverse effects.
3. Protect and enhance the International sites (HRA specific objective)	**0**	Continuation of LTP type of interventions, which are mainly focussed in urban areas, is unlikely to result in no effects on International sites.	**0**	The majority of the interventions under Strategic Scenario 2 will continue to be focussed in urban areas or around urban areas thus there are unlikely to be any effects on International sites.	**0**	The majority of the interventions under Strategic Scenario 3 will continue to be focussed in urban areas or around urban areas thus there are unlikely to be any effects on International sites.
4. Reduce carbon dioxide emissions from transport	**+**	By continuing investment and prioritisation against the LTP priorities, the Do-Minimum scenario would continue to deliver reductions in carbon dioxide emissions through continued investment in transport hubs, park and ride sites, rail station development and improvements,	**--**	In addition to the situation described for the Do Minimum scenario, a number of WYTF proposed schemes under this scenario are aimed at improving road capacity for orbital moving and taking traffic away from urban centres. This would result in an increase in vehicle kms and associated carbon dioxide emissions. WYTF Key	**-**	In addition to the situation described for the Do Minimum scenario, a number of WYTF proposed schemes proposed under this scenario are aimed at improving road capacity for orbital moving and taking traffic away from urban centres. This would result in an increase in vehicle kms and associated carbon dioxide emissions.

ISA Objectives	*Strategic Scenario 1* Do Minimum Continued investment and prioritisation against the three LTP priorities as follows; • Economy • Low Carbon • Quality of Life As a 'do-minimum' this would be continued through the life of the Transport Strategy.		*Strategic Scenario 2* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 and continuation of Transport Fund schemes for targeted congestion reduction through road and rail based capacity improvement. WYTF schemes – (£60m p/annum > 2036).		*Strategic Scenario 3* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 priorities, continuation of Transport Fund schemes and investment in wider transport solutions, focussing on low carbon and active travel solutions. WYTF schemes – (£60m p/annum > 2036).	
	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
		low carbon transport system in Leeds (NGT), cycle network improvements and bus fleet conversion to Low Emission Vehicles, all of which would contribute to a reduction in the rate of increase of carbon dioxide emissions by moving away from the private car as the main means of transport.		Development Area Schemes, through their focus on road based access, coupled with significant investment to strengthen road capacity on trans-Pennine routes and support for low density development with a focus on car related growth would also contribute to an overall increase in vehicle kms and associated carbon dioxide emissions. Some of the effects could be counteracted to some extent by strengthening of car clubs, ULEV technology and major highways works targeted on congested/air quality areas to improve traffic flows, but overall, moderate adverse effects are predicted.		WYTF Key Development Area Schemes, through their focus on road based access would also contribute to an overall increase in vehicle kms and associated carbon dioxide emissions. However, this scenario places a greater emphasis on interventions which could more effectively counteract the increases in carbon dioxide emissions, as compared to the interventions under scenario 2. Such interventions include restricting car movement on the network, adapting highways towards greener streets for sustainable travel, funding prioritising pedestrian and cyclist needs, focussing transport investment in priority growth areas so as to reduce long distance travel and focus on sustainable travel and establishment of LEZs in all urban centres and high costs for car use. Overall, slight adverse effects are predicted.
5. Reduce vulnerability to climate change by minimising flood risk and effects from other adverse	**-**	The type of interventions that could arise out of a continuation of LTP would likely give rise to effects on flood risk, but as the interventions would mainly be in built up and city centre areas and/or associated with improvements to existing	**+/--**	The type of interventions that could arise out of this scenario would like give rise to effects on flood risk. Orbital road schemes built on flood zones, in particular, could give rise to moderate adverse effects locally.	**--**	The type of interventions that could arise out of this scenario would like give rise to effects on flood risk. Orbital road schemes on flood zones, in particular, could give rise to moderate adverse effects locally.

ISA Objectives	*Strategic Scenario 1* Do Minimum Continued investment and prioritisation against the three LTP priorities as follows; • Economy • Low Carbon • Quality of Life As a 'do-minimum' this would be continued through the life of the Transport Strategy.		*Strategic Scenario 2* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 and continuation of Transport Fund schemes for targeted congestion reduction through road and rail based capacity improvement. WYTF schemes – (£60m p/annum > 2036).		*Strategic Scenario 3* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 priorities, continuation of Transport Fund schemes and investment in wider transport solutions, focussing on low carbon and active travel solutions. WYTF schemes – (£60m p/annum > 2036).	
	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
weather conditions		infrastructure the effects s are likely to be slightly adverse.		This scenario considers major investment in road network climate change adaptation which could result in positive effects across the existing network. A combination of effects is predicted		
6. Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	-	As there would be relatively few major schemes, it is unlikely that the continuation of LTP would lead to a significant use of resources in construction and operation, and produce substantial amounts of waste.	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, scenario 2 would lead to a significant use of resources in construction and operation, and produce substantial amounts of waste.	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, scenario 3 would lead to a significant use of resources in construction and operation, and produce substantial amounts of waste.
7. Protect and enhance the water environment	-	The type of interventions that could arise out of a continuation of LTP would likely give rise to effects on the water environment, but as the interventions would mainly be in built up and city centre areas and/or associated with improvements to existing infrastructure the effects on surface and groundwater resources are likely to be slightly adverse.	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, scenario 2 would likely give rise to moderate adverse effects on the water environment due to contaminated surface water runoff being generated.	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, Scenario 3 would likely give rise to moderate adverse effects on the water environment due to contaminated surface water runoff being generated.
8. Conserve soil resources and quality and seek to remediate contaminated land	-	As there would be relatively few major schemes, it is unlikely that the continuation of LTP would lead to substantial soil uptake, in particular of good quality agricultural land and mineral	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, scenario 2 would likely give rise to moderate adverse effects on this objective due to the use of greenfield land.	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, scenario 3 would likely give rise to moderate adverse effects on this objective due to the use of greenfield land.

ISA Objectives	*Strategic Scenario 1* Do Minimum Continued investment and prioritisation against the three LTP priorities as follows; • Economy • Low Carbon • Quality of Life As a 'do-minimum' this would be continued through the life of the Transport Strategy.		*Strategic Scenario 2* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 and continuation of Transport Fund schemes for targeted congestion reduction through road and rail based capacity improvement. WYTF schemes – (£60m p/annum > 2036).		*Strategic Scenario 3* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 priorities, continuation of Transport Fund schemes and investment in wider transport solutions, focussing on low carbon and active travel solutions. WYTF schemes – (£60m p/annum > 2036).	
	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
		safeguarding areas. Hence, a slight adverse effect would be expected.				
9. Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	-	The type of interventions that could arise out of a continuation of LTP would likely give rise to effects on heritage assets, as the interventions would mainly be in built up and city centre areas. Effects could also arise out of improvements to existing infrastructure in more rural areas. However, given that there would be relatively few major schemes slight adverse effects would be likely.	--	As there would be a significant number of major schemes, in particular WYTF Orbital Road Schemes, scenario 2 would likely give rise to moderate adverse effects on this objective due to the potential presence of heritage assets in the vicinity of the routes.	--	As there would be a significant number of major schemes, in particular WYTF Orbital Road Schemes, scenario 3 would likely give rise to moderate adverse effects on this objective due to the potential presence of heritage assets in the vicinity of the routes.
10. Protect and enhance the character and quality of landscape and townscape	-	The type of interventions that could arise out of a continuation of LTP would likely give rise to effects on the quality of townscape mainly, as the interventions would mainly be in built up and city centre areas. Effects on the landscape could also arise out of improvements to existing infrastructure in more rural areas. However, given that there would be relatively few major schemes slight adverse effects would be likely.	--	As there would be a significant number of major schemes, in particular WYTF Orbital Road Schemes, scenario 2 would likely give rise to moderate adverse effects on this objective due to interventions on greenfield land in more rural areas.	--	As there would be a number of major schemes, in particular WYTF Orbital Road Schemes, scenario 3 would likely give rise to moderate adverse effects on this objective due to interventions on greenfield land in more rural areas.
11. Reduce road traffic and congestion through reducing the need to travel by car and improve and	+	By continuing investment and prioritisation against the LTP priorities, the Do-Minimum scenario would continue investment in transport hubs, park and ride sites, rail station development and improvements, low carbon transport system in Leeds (NGT), cycle network	--	Strategic scenario 2 essentially promotes road and rail based capacity improvement. Whilst rail based capacity improvement (in particular some WYTF Corridor Schemes) may result in a shift from private car to a more sustainable mode of transport, improving road based capacity and reducing congestion (WYTF Orbital Schemes,	-	Similarly to strategic scenario 2, scenario 3 promotes road and rail based capacity improvement. Whilst rail based capacity improvement (in particular some WYTF Corridor Schemes) may result in a shift from private car to a more sustainable mode of transport, improving road based capacity and reducing congestion

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	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
promote sustainable modes of transport including public transport, cycling and walking		improvements and bus fleet conversion to Low Emission Vehicles, all of which would contribute to reducing traffic and congestion and promote a shift from car travel to more sustainable modes of transport.		WYTF Key Development Areas Schemes and WYTF Motorway Access Schemes) will likely result in increased car use overall as travelling times improve and more route options for car travel become available. It is considered that strategic scenario 2 would not result in a modal shift to more sustainable modes of transport, despite interventions such as Car Clubs, ULEV Technology. This is due to the significant investment in improving road based capacity through the WYTF schemes.		(WYTF Orbital Schemes, WYTF Key Development Areas Schemes and WYTF Motorway Access Schemes) will likely result in increased car use as travelling times improve and more route options for car travel become available. Compared to strategic scenario 2, Strategic Scenario 3 could attenuate the growth in car based transport predicted for Scenario 2 as it places a greater emphasis on interventions such as restricting car movement on the network, adapting highways towards greener streets for sustainable travel, funding prioritising pedestrian and cyclist needs, focussing transport investment in priority growth areas so as to reduce long distance travel and focus on sustainable travel and establishment of LEZs in all urban centres and high costs for car use.
ECONOMIC						
12. Maintain or improve good quality and accessible employment opportunities	**+**	By continuing investment and prioritisation against the LTP priorities, the focus would continue to be on interventions which improve accessibility to employment opportunities in the city centres and existing employment areas by sustainable forms of transport. However, this would not address the need to ensure good accessibility to expected major employment and housing growth areas.	**++**	Moderate beneficial effects are expected to arise from the interventions under this scenario as some interventions are specifically aimed at ensuring good accessibility to expected major employment and housing areas as well as improving accessibility to employment in the city centres and existing employment areas.	**++**	Moderate beneficial effects are expected to arise from the interventions under this scenario as some interventions are specifically aimed at ensuring good accessibility to expected major employment and housing areas as well as improving accessibility to employment in the city centres and existing employment areas.

ISA Objectives	*Strategic Scenario 1* Do Minimum Continued investment and prioritisation against the three LTP priorities as follows; • Economy • Low Carbon • Quality of Life As a 'do-minimum' this would be continued through the life of the Transport Strategy.		*Strategic Scenario 2* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 and continuation of Transport Fund schemes for targeted congestion reduction through road and rail based capacity improvement. WYTF schemes – (£60m p/annum > 2036).		*Strategic Scenario 3* Do Minimum plus Supporting Strategic Economic Plan economic growth through local growth deal 2 priorities, continuation of Transport Fund schemes and investment in wider transport solutions, focussing on low carbon and active travel solutions. WYTF schemes – (£60m p/annum > 2036).	
	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
13. Enhance productivity and competitiveness of bsinesses	**++**	By continuing investment and prioritisation against the LTP priorities, the focus would continue to be on interventions which reduce congestion on the highway network and on public transport leading to reduced delays and improved reliability of services and journey times. This would result in enhancements to the productivity and competitiveness of businesses.	**+++**	The interventions proposed under this scenario would improve connectivity between local communities and beyond therefore reducing journey times and enhancing travel reliability for commuters.	**+++**	The interventions proposed under this scenario would improve connectivity between local communities and beyond therefore reducing journey times and enhancing travel reliability for commuters.
SOCIAL						
14. Improve health and well-being for all citizens and reduce inequalities in health *(HIA specific objective)*	**++**	By continuing investment and prioritisation against the LTP priorities, the Do-Minimum scenario would provide new transport choices (park and ride sites, rail stations) and services which would improve accessibility to a range of facilities, including healthcare, education, employment and have an effect on health and wellbeing. The inclusion of walking, cycling and public transport improvements / schemes would assist in providing opportunities to improve health and wellbeing through active travel. The LTP priorities of improving quality of life would also assist in improving health and wellbeing of residents.	**+**	The interventions proposed under this scenario improve connectivity between communities, and make improvements to road and rail based services. This should improve access to a range of local facilities including healthcare facilities which would improve health and wellbeing for residents (assuming they are accessible for all, both in terms of physical accessibility and affordability).	**++**	The interventions proposed under this scenario improve connectivity between communities which will improve accessibility to a range of local facilities and services. The interventions focus on low carbon and active travel measures which will make improvements in the availability of travel options, air quality, and promote active travel all of which are likely to make improvements to health and wellbeing of residents.
15. To promote greater equality of opportunity for all citizens, with	**++**	By continuing investment and prioritisation against the LTP priorities, the Do-Minimum scenario would provide new transport choices and services which	**+**	Slight beneficial effects are expected to arise from the interventions under this scenario as some interventions are specifically aimed at ensuring good accessibility to employment and	**++**	The interventions proposed under this scenario improve connectivity between communities which will improve accessibility to a range of local facilities and services promoting equality for all.

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	SE	**Comments/ explanation**	**SE**	**Comments/ explanation**	**SE**	**Comments/ explanation**
the desired outcome of achieving a fairer society (*EqIA specific objective*)		would improve accessibility to a range of facilities, including healthcare, education, employment. This in turn would promote greater equality of opportunity. Active travel and public transport options would also assist in providing a range of affordable transport options for local residents. The priority of improving quality of life for residents should benefit all citizens, and dependent on the location of scheme improvements, improve quality of life and access of opportunity for those in more deprived areas.		housing areas as well as improving accessibility to the city centres which provide a range of vital services and facilities for residents therefore providing greater equality of opportunity for residents. The improvements would, however, only benefit all citizens if they provided an accessible service (physical accessibility and affordability) and assisted in achieving a fairer society for all.		The interventions focus on low carbon and active travel measures which would make improvements in the availability of travel options for all citizens, and where affordability is an issue this would assist in achieving a fairer society.

Appendix E. Assessment of Schemes per Type

E.1. Schemes Assessment Tables

E.1.1. ISA Objective 1 – Protect and Enhance Local Air Quality

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Air Quality	
New Highway Links	The majority of schemes would provide a new link road and potentially increase vehicle-kilometres. Without mitigation, this would lead to an increase in pollution emissions in the local area, though may reduce levels of emissions in other areas that experience reduced congestion or a change in traffic patterns.	• Effective Design • Management of Vehicle speed • High Occupancy Lanes and Cycle Lanes • Increase distances between traffic and sensitive receptors • Encourage use of Low Emission Vehicles	Moderate adverse --	Moderate beneficial ++
Highways Improvements	Most schemes would lead to a combination of adverse and beneficial effects as the provision of priority sustainable transport measures are offset by increased vehicle-kilometres as a result of new highway infrastructure.	• Effective Design • Encourage use of Low Emission Vehicles	Moderate adverse --	Moderate beneficial ++
Urban Centre Improvements	These schemes would result in beneficial effects as a result of pedestrian improvements, active traffic management and enhancements to public transportation infrastructure.	• None identified	Moderate beneficial ++	
Rail Improvements	These type of schemes would typically result in beneficial effects as a result of mode shift to rail but adverse effects associated with train frequency leading to increased air pollution.	• Newer technology trains	Moderate adverse --	Moderate beneficial ++

Support for Rail Gateway Improvements	As the schemes promote fairly reduced improvements to passenger facilities, no effects upon Air Quality are expected.	• None	Neutral 0
Rail Park & Ride	The majority of these types of scheme would result in a combination of beneficial and adverse effects resulting from the expansion of park and ride sites, offset by increased vehicle-kilometres to get to the park and ride facilities.	• Effective Design • Encourage use of Low Emission Vehicles	Combination of slight beneficial and adverse effects +/-

Recommended Mitigation for Air Quality: It will be important to reduce emissions and protect air quality as much as possible. Mitigation measures may affect the project design, layout, construction, operation and/or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to trap or better disperse emissions, and speed control. The implementation of mitigation measures may require working with partners to support their delivery.

Recommended Monitoring for Air Quality: Nitrogen dioxide and PM10 levels in AQMAs and on major roads, Take up of Electric Vehicles, Use of Sustainable modes of transport, Traffic levels with focus on Private Car and HGVs in Leeds City Centre and other key urban centres.

E.1.2. ISA Objectives 2 - To protect and enhance biodiversity, geodiversity and the green infrastructure network & ISA Objective 3 - Protect and enhance the International Sites (HRA specific objective)

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Biodiversity
New Highway Links	Schemes of this type can lead to severance of green infrastructure corridors or the direct loss of habitat. Fauna can also be directly lost through road kill etc. Indirect effects can also be experienced via noise, pollutant deposition etc.	• Compensatory green infrastructure – including development of 'Green Streets' • Scheme realignment – particularly if designated areas may be effected • Screening with native species	Moderate adverse --

		• Development of wildflower meadows along route alignment • Animal under / over passes	
Highways Improvements	Schemes such as this type can fragment existing green infrastructure corridors, or lead to direct loss of habitat some of which could be priority habitats,	• Compensatory green infrastructure – including development of 'Green Streets' • Screening with native species • Development of wildflower meadows along route alignment	Moderate adverse --
Urban Centre Improvements	Effects on biodiversity are likely to be more limited in urban centres, but there could still be issues relating to biodiversity features such as street trees, grassed areas, and even derelict areas that are overgrown etc.	• Development of 'Green Streets' • Installation of bird / bat boxes • Planting of wildflowers along routes, centre of traffic islands etc	Slight adverse -
Rail Improvements	An adverse effect could be expected on biodiversity along the infrastructure corridor as a result of potential land required for track capacity. Loss of trees and other planting due to requirement for embankment safety is another issue. Direct loss of fauna can be experienced through strikes by train.	• Protect green corridors • Planting of appropriate native species • Animal over / under passes	Moderate adverse --
Support for Rail Gateway Improvements	As the schemes promote fairly reduced improvements to passenger facilities in urban areas, no effects upon biodiversity are expected.	• Consideration of installation of bird / bat boxes • Consideration of planting of trees	Neutral 0
Rail Park & Ride	Development of large scale car parks can lead to direct loss of habitat. Indirect effects can also be experienced via noise, pollutant deposition etc.	• Compensatory green infrastructure • Screening with native species • Development of wildflower meadows along car park boundaries	Slight adverse -

Recommended Mitigation for Biodiversity: Opportunities to enhance biodiversity and green infrastructure exist, through designing in biodiversity into transport interventions. These opportunities include for example, the development of wildflower meadows along linear features such as roads and railway lines, which will look attractive and also provide opportunities for pollinators, or could include simple measures such as bird / bat boxes. More complex measures such as animal over or under passes can be considered. Similarly, biodiversity can be enhanced by the planting of suitable / native species of trees and hedgerows. Properly planned maintenance schemes can also enhance biodiversity, for example from the active control of invasive species.

Particular consideration needs to be made to protection measures in relation to any transport scheme which may impact directly, or indirectly, on any site designated for nature conservation purposes – particularly those designated as SSSI or Natura 2000.

Recommended Monitoring for Biodiversity: Length of greenways / blueways or other sustainable transport routes; Area of new planting of native species of wildflowers and other species suitable for screening; Area of invasive / non-native species appropriately treated / cleared / remediated; Number of street lamps with a downward beam; Number of transport schemes located in designated areas

E.1.3. ISA Objective 4 - Reduce carbon dioxide emissions from transport

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Carbon emissions	
New Highway Links	Most such schemes would increase vehicle-kilometres and therefore carbon dioxide emissions.	• Effective Design • Management of Vehicle speed • High Occupancy Lanes and Cycle Lanes • Encourage use of Low Emission Vehicles • Methods to reduce Carbon Footprint during construction e.g. use by contractor of carbon calculator	Moderate adverse --	
Highways Improvements	Whereas some schemes would increase vehicle-kilometres, resulting in more carbon dioxide emissions, others would promote improved bus and pedestrian links, leading to a reduction in carbon dioxide emissions.	• Effective Design • Encourage use of Low Emission Vehicles • Methods to reduce Carbon Footprint during construction e.g. use by contractor of carbon calculator	Moderate adverse --	Moderate beneficial ++
Urban Centre Improvements	Schemes could be expected to lead to a decrease in carbon dioxide emissions as a result of sustainable public transportation and active walking and cycling improvements.	• Methods to reduce Carbon Footprint during construction e.g. use by contractor of carbon calculator	Moderate beneficial ++	

Rail Improvements	Such schemes could lead to beneficial effects associated with increased train frequency, offset by increased carbon dioxide emissions.	• Newer technology trains	Moderate adverse --	Moderate beneficial ++
Support for Rail Gateway Improvements	As such schemes tend to promote fairly small improvements to facilities for passengers, effects on carbon are anticipated to be limited.	• Methods to reduce Carbon Footprint during construction e.g. use by contractor of carbon calculator	Slight beneficial +	
Rail Park & Ride	Expansion of park and ride facilities will likely reduce overall carbon emissions though this improvement will be offset by emissions due to travel to these sites.	• Effective Design • Encourage use of Low Emission Vehicles • Methods to reduce Carbon Footprint during construction e.g. use by contractor of carbon calculator	Slight beneficial +	

Recommended Mitigation for Carbon: Due to the potential threats posed by a changing climate and in order to meet Government commitments to reducing carbon emissions, measures should be taken to reduce the amount of carbon from our transport system. Reductions would mainly be from vehicles and can be found in many of the measures suggested to reduce air pollution emissions, but further reductions to the carbon footprint can be found in the construction and operation of transport network assets – for example by using more energy efficient lights. The carbon footprint can be readily measured at construction and operation by use of an appropriate carbon calculator.

Recommended Monitoring for Carbon: As per recommendations for Air Quality, plus CO_2 emissions from vehicles on Key Route Network.

E.1.4. ISA Objective 5 - Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Flood Risk
New Highway Links	Some link roads may be located within flood zones and therefore would be liable to flooding or these schemes could lead to additional impermeable surfaces, increasing run off into nearby watercourses and thereby cause flooding elsewhere.	• Careful route selection – avoid flood areas if possible • Design to consider flood protection measures, flow routes and flood storage capacity • Use of SuDS	Strong adverse ---
Highways Improvements	Most schemes would lead to additional impermeable surfaces, increasing vulnerability to flooding.	• Design to consider flood protection measures, flow routes and flood storage capacity • Use of SuDS	Moderate adverse --
Urban Centre Improvements	An increase in impermeable surfaces has the potential to increase the risk of flooding, though note the urban centre location is likely to be relatively impermeable at present and there may be an opportunity to remediate this.	• Design to consider flood protection measures, flow routes and flood storage capacity • Use of SuDS	Slight adverse -
Rail Improvements	An adverse effect is expected from any infrastructure improvements around flood alert zones.	• Design to consider flood protection measures, flow routes and flood storage capacity • Use of SuDS • Floodplain alleviation	Moderate adverse --
Support for Rail Gateway Improvements	Implementation of these schemes would be expected to take place on impermeable surfaces within an existing site, therefore no effects upon this flood risk are expected.	• Explore opportunities for use of SuDS	Neutral 0
Rail Park & Ride	Some schemes would likely increase impermeable surfaces and surface water runoff.	• Careful site selection – avoid flood areas if possible	Slight adverse

		• Design to consider flood protection measures, flow routes and flood storage capacity • Use of SuDS	-

Recommended Mitigation for Flood Risk: Flooding poses a particular risk to the transport network and this situation is likely to get worse with a changing climate. However, new infrastructure developments or improvements to existing infrastructure can also contribute to an additional flood risk elsewhere. Opportunities can be taken to lower flood risk by considering flood protection measures, improving flow routes, flood storage capacity and using Sustainable Drainage Systems (SuDS). The appropriate use of SuDS will be critical and it should be the intention that site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts. Infrastructure should only be located in flood zones when there is no other option.

Recommended Monitoring for Flood Risk: Number of new transport schemes in flood risk areas; Number of new transport schemes with improved drainage standards / use of SuDS; % of floodplain changing due to new/planned transport related schemes; Number of new transport schemes integrated with green infrastructure (green corridors and spaces)

E.1.5. ISA Objective 6 - Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Resources
New Highway Links	Construction of these schemes would result in a requirement for additional resources and increased waste production.	• Sustainable design measures • Consideration of waste hierarchy • Use of recycled or re-used materials	Strong adverse ---
Highways Improvements	Construction of these schemes would result in a requirement for additional resources and increased waste production.	• Sustainable design measures • Consideration of waste hierarchy • Use of recycled or re-used materials	Moderate adverse --
Urban Centre Improvements	These schemes would increase the use of resources and the production of waste.	• Sustainable design measures • Consideration of waste hierarchy • Use of recycled or re-used materials	Moderate adverse --
Rail Improvements	Adverse effects are to be expected from the use of natural resources and waste generated.	• Sustainable design measures • Consideration of waste hierarchy • Use of recycled or re-used materials	Moderate adverse --
Support for Rail Gateway Improvements	Some schemes would inevitably result in a requirement for additional resources and increased waste production.	• Sustainable design measures • Consideration of waste hierarchy • Use of recycled or re-used materials	Slight adverse -
Rail Park & Ride	Such schemes will increase the use of resources and the production of waste during construction	• Sustainable design measures • Consideration of waste hierarchy • Use of recycled or re-used materials	Slight adverse -

Recommended Mitigation for use of Natural Resources, reducing waste and encouraging reuse and recycling: Consideration during design and construction of transport schemes should be given to the waste hierarchy of prevention, reuse, recycling and disposal. All waste should be handled in accordance to applicable waste management legislation and the emphasis should be to minimise the volume of waste produced and the volume sent for disposal, unless it can be demonstrated that this is the best environmental outcome. Consideration should be given to the use of Recycled materials in construction.

Recommended Monitoring for Natural Resources, reducing waste and encouraging reuse and recycling: Re-use of road materials and use of recycled materials in road construction and maintenance; Number of locations for refuse and recyclables with improved accessibility

E.1.6. ISA Objective 7 - Protect and enhance the water environment

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Water
New Highway Links	Such schemes would result in increased impermeable areas, potentially leading to increased contaminated surface water runoff.	• Use of SuDS • Pollution Control Measures & Plan during construction	Moderate adverse --
Highways Improvements	Most schemes would increase potentially contaminated surface water runoff by increased paved areas.	• Use of SuDS • Pollution Control Measures & Plan during construction	Moderate adverse --
Urban Centre Improvements	It is considered that there is not likely to be increases in impermeable area – potential opportunity for improvement via permeable paving etc.	• Use of SuDS • Pollution Control Measures & Plan during construction	Neutral 0
Rail Improvements	Increased infrastructure capacity may lead to addition polluted runoff. Area of impermeable surfacing likely to remain constant.	• Use of SuDS • Pollution Control Measures & Plan during construction	Moderate adverse --
Multi-Modal Corridors	Such schemes would result in increased impermeable areas, potentially leading to increased contaminated surface water runoff.	• Use of SuDS • Pollution Control Measures & Plan during construction	Moderate adverse --
Rail Park & Ride	Most schemes would likely increase surface water runoff to a small degree, therefore effects are likely	• Use of SuDS • Pollution Control Measures & Plan during construction	Slight adverse -

	to be reasonably small and confined to a local area. Potential opportunity to use permeable paving.		

Recommended Mitigation for Water: Impact on local water resources can be addressed through planning and design for the efficient use of water, including water recycling. Consideration should be given to the use of SuDS (including permeable paving), but it is also recognised that conventional drainage will play an important role. Protection and good pollution control measures are to be utilised during both construction and operation of transport schemes.

Recommended Monitoring for the Water Environment: Number of new transport schemes with improved drainage standards / use of SuDS**;** Number of water pollution incidents attributable to transport

E.1.7. ISA Objective 8 - Conserve soil resources and quality and seek to remediate contaminated land

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Soil
New Highway Links	Some schemes would likely be located within moderate to good agricultural lands, or greenfields, hence leading to a decrease in quality soils. There is also a potential that new areas could become contaminated e.g. following accidental pollution / road runoff etc. Other schemes may provide an opportunity to remediate contaminated land – including removal / treatment of invasive species such as Japanese Knotweed.	• Careful route selection – avoid areas of better quality soils if possible and target previously used land • Remediation of contaminated land • Removal of invasive species • Care of topsoil for future reuse	Strong adverse ---
Highways Improvements	For the most part the majority of schemes are likely to be located within urban areas, and therefore no tangible effects upon this indicator are expected. However there is still potential for some schemes to affect good quality agricultural land or potentially contaminated new areas through pollution incidents and runoff. Opportunities may be provided for remediation of contaminated land / removal of invasive species.	• Careful scheme design – avoid areas of better quality soils if possible and target previously used land • Remediation of contaminated land • Removal of invasive species • Care of topsoil for future reuse	Moderate adverse --

Urban Centre Improvements	As the schemes are located within urbanised lands, there will be no / very limited effects on good quality soil resources. Opportunities may be provided for remediation of contaminated land / removal of invasive species.	• Remediation of contaminated land • Removal of invasive species • Care of topsoil for future reuse	Neutral 0
Rail Improvements	As these improvements will be to already existing railway lines, effects will be limited e.g. by slight encroachment on agricultural lands. Opportunities may be provided for remediation of contaminated land / removal of invasive species.	• Remediation of contaminated land • Removal of invasive species • Care of topsoil for future reuse	Neutral 0
Support for Rail Gateway Improvements	The schemes are unlikely to have a tangible effect on soil resources but may provide opportunities for remediation of contaminated land / removal of invasive species.	• Remediation of contaminated land • Removal of invasive species	Slight beneficial +
Rail Park & Ride	The majority of schemes are likely to be located in urban lands and not expected to have any obvious effect on soil resources but may provide opportunities for remediation of contaminated land / removal of invasive species.	• Remediation of contaminated land • Removal of invasive species	Slight adverse -

Recommended Mitigation for Soil resources and contaminated land: Protection of soil resources, particularly those of higher quality / areas of better agricultural lands should always be considered – this could be done during scheme planning by careful route selection. If areas of good quality soil cannot be avoided, care should be taken during construction to store topsoil for later reuse – either on site as landscaping or further afield. Opportunities should also be taken to utilise areas of previously developed land and to remediate contaminated land when possible. This could include the removal / appropriate treatment of any invasive species such as Japanese Knotweed.

Recommended Monitoring for Soil resources and contaminated land: Numbers and % of transport schemes on previously developed land; Area of grade 1, 2 or 3a agricultural land permanently lost as a result of transport schemes; Number of land pollution incidents attributable to transport

E.1.8. ISA Objective 9 - Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Heritage
New Highway Links	Some such schemes may have a detrimental effect to the character and setting of heritage assets, though they may also provide opportunities for enhancement. There is always a potential for unknown heritage features to be discovered during construction.	• Consideration of character, setting, level of protection and potential need for conservation during planning and design • Precautions for unexpected heritage discovery during construction • Potential need for archaeological watching brief during construction – particularly in areas not previously developed	Moderate adverse --
Highways Improvements	Some such schemes may have a detrimental effect to the character and setting of heritage assets, though they may also provide opportunities for enhancement. There is always a potential for unknown heritage features to be discovered during construction.	• Consideration of character, setting, level of protection and potential need for conservation during planning and design • Precautions for unexpected heritage discovery during construction • Potential need for archaeological watching brief during construction	Moderate adverse --
Urban Centre Improvements	Construction of the schemes may have impacts upon the settings of conservation areas and listed buildings. Opportunities for enhancement could be presented.	• Consideration of character, setting, level of protection and potential need for conservation during planning and design	Moderate adverse --
Rail Improvements	Some such schemes may have a detrimental effect to the character and setting of heritage assets, though they may also provide opportunities for enhancement e.g. to railway heritage features.	• Consideration of character, setting, level of protection and potential need for conservation during planning and design	Moderate adverse --

	There is always a potential for unknown heritage features to be discovered during construction.	• Precautions for unexpected heritage discovery during construction • Potential need for archaeological watching brief during construction	
Support for Rail Gateway Improvements	Construction of the schemes may have impacts upon the settings of conservation areas and listed buildings, but would be limited in scale. Opportunities for enhancement could be presented.	• Consideration of character, setting, level of protection and potential need for conservation during planning and design	Slight adverse -
Rail Park & Ride	Some such schemes may have a detrimental effect to the character and setting of heritage assets, though they will be relatively limited in scale and may also provide opportunities for enhancement. There is always a potential for unknown heritage features to be discovered during construction.	• Consideration of character, setting, level of protection and potential need for conservation during planning and design • Precautions for unexpected heritage discovery during construction • Potential need for archaeological watching brief during construction	Slight adverse -

Recommended Mitigation for Heritage: The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. Heritage assets may be buildings, monuments, sites, places, areas or landscapes. Consideration should be made of the character and setting of the heritage asset, its significance (and level of protection afforded to it), the potential for loss or harm and need for conservation. Opportunities should be taken when possible for the enhancement of heritage assets. It should also be noted that due to its nature, not all heritage features may be apparent at the planning / design stage and precautions for unexpected discovery should be taken – perhaps through an archaeological watching brief.

Recommended Monitoring for Heritage: Number of historic sites directly impacted by Transport schemes

E.1.9. ISA Objective 10 - Protect and enhance the quality of landscape and townscape

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Landscape & Townscape
New Highway Links	These types of schemes can have a detrimental effect on the landscape – particularly if located in designated areas. Though in certain circumstances, there may be an opportunity for enhancement – for example if new link road is across a derelict area.	• Careful route selection – particular protection to nationally designated areas required, with avoidance if possible • Consideration during Planning / Design to landscaping & screening, with care taken in choice of materials and species used	Moderate adverse --
Highways Improvements	Some schemes would have the potential to adversely impact adjacent areas identified as open space and recreation. May also provide opportunities for enhancement.	• Consideration during Planning / Design to landscaping & screening, with care taken in choice of materials and species used	Moderate adverse --
Urban Centre Improvements	The schemes would enhance the landscape and townscape by enhancing the pedestrian realm, therefore creating better quality and more tranquil areas.	• Consideration during Planning / Design to choice of materials used	Moderate beneficial ++
Rail Improvements	As these schemes propose improvements to already existing railway lines, no effects onto the character and quality of landscape, including PROWs, are expected. Opportunities for additional screening may be provided.	• Consideration during Planning / Design to landscaping & screening, with care taken in choice of materials and species used	Neutral 0
Support for Rail Gateway Improvements	The schemes would enhance the landscape and townscape by enhancing the pedestrian realm, therefore creating better quality and more tranquil areas.	• Consideration during Planning / Design to choice of materials used	Slight beneficial +

Rail Park & Ride	The majority of schemes are unlikely to have any obvious effects on the character of their landscapes or townscapes.	• Consideration during Planning / Design to landscaping & screening, with care taken in choice of materials and species used	Slight adverse -

Recommended Mitigation for Landscape & Townscape: Projects need to be designed carefully, taking account of the potential impact on the landscape. Reducing the scale of a project or making changes to its operation can help to avoid or mitigate the visual and landscape effects of a proposed project. Consideration during planning should also be given to appropriate siting, design of the scheme (including choice of materials) and landscaping schemes. Note that ideally native species should be used in any planting. Subject to appropriate planning, screening can also take place 'off site' e.g. by planting out gaps in tree lines / hedgerows. Particular consideration is to be given to conserving landscape and scenic beauty in any nationally designated areas, with encouragement given to avoiding these areas if possible. Opportunities for landscape enhancement should be taken when possible.

Recommended Monitoring for Landscape & Townscape: Countryside Quality Counts (focus on any changes in the landscape quality due to transport effects); Transport facility (stations etc), street and environmental cleanliness - levels of a) litter, b) detritus, c) graffiti and d) fly posting; % of transport schemes applications that incorporate improvements to public realm and sympathetic design

E.1.10. ISA Objective 11 - Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Congestion & Sustainable Transport	
New Highway Links	These schemes would provide additional road capacity and therefore reduced congestion. Note that not all schemes would promote sustainable transport modes.	• Bus priority measures, the provision of high-occupancy lanes • Cycle lanes (if highway type appropriate) • Ensure adequate footpaths (if highway type appropriate)	Moderate adverse --	Moderate beneficial ++

Highways Improvements	These types of scheme would help address congestion on the highways by allowing easier traffic flow and potentially greater capacity.	• Promotion of public and sustainable transport • Provision of footpath / cycle lanes	Moderate beneficial ++
Urban Centre Improvements	The schemes would typically reduce motor vehicle traffic while enhancing pedestrian access, positively contributing to this objective.	• Ensure provision of footpath and cycle lanes	Moderate beneficial ++
Rail Improvements	These types of scheme would result in better and more reliable journey times, encouraging modal shift away from the private automobile.	• None identified	Moderate beneficial ++
Support for Rail Gateway Improvements	Most schemes would increase public transport appeal resulting from improvements to passenger facilities, therefore potentially reducing road traffic.	• None identified	Slight beneficial +
Rail Park & Ride	While these schemes would lead to beneficial effects in encouraging the use of public transport, the creation of additional spaces would increase vehicle-kilometres locally.	• Measures to address localised road traffic to the park and ride site • Cycle lanes & areas for secure bike parking	Slight benefit +

Recommended Mitigation for Reducing road traffic and congestion through reducing the need to travel by car and improving and promoting sustainable modes of transport: Congestion can be reduced in numerous ways. Examples include new junctions and highway improvements, though these measures often only provide short term fixes. Therefore it is important that aspects such as Smart Infrastructure and Managed Highways and importantly, the development of more sustainable and active modes (such as cycling and walking) are taken. Improved communities, with better streetscapes and people friendly streets may also encourage people to leave their cars, thereby reducing road traffic / congestion. A further key component will be the full integration of bus and rail services to increase accessibility to the transport system.

Recommended Monitoring for Reducing road traffic and congestion through reducing the need to travel by car and improving and promoting sustainable modes of transport: Access to public transport services and facilities (including walking and cycling facilities); Public transport punctuality and service reliability; Goods moved by rail or more sustainable modes of transport

E.1.11. ISA Objective 12 - Maintain or improve the number and range of good quality and accessible employment opportunities

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Employment
New Highway Links	The provision of new highways and link roads would improve accessibility to development land widening the range of potentially accessible employment opportunities.	• None identified	Strong beneficial +++
Highways Improvements	The schemes would lead to improved journey times due to reduced congestion at peak times, therefore improving accessibility to employment centres.	• None identified	Strong beneficial +++
Urban Centre Improvements	The schemes would lead to beneficial effects associated with increased accessibility by foot, cycle and bus to employment areas.	• None identified	Moderate beneficial ++
Rail Improvements	The scheme would lead to increased and improved access to jobs and employment opportunities by providing high frequency, fast, high quality rail connectivity.	• None identified	Strong beneficial +++
Support for Rail Gateway Improvements	The schemes are unlikely to have a tangible effect against this objective.	• None identified	Neutral 0
Rail Park & Ride	Most schemes are unlikely to have a tangible effect upon this ISA objective given its small dimension.	• None identified	Neutral 0

Recommended Mitigation for maintaining and improving the number and range of good quality and accessible employment opportunities: It is vital that the transport network provides and where possible improves, the access to employment opportunities and effectively connects business areas with residential areas.

Connectivity between business and residential centres and key infrastructure such as Airports is a major consideration to be made, as is connectivity between urban centres across the region. Issues such as the attractiveness of the region as a better place to live and work can also influence and enhance inward investment or tourism and thereby increase employment opportunities across the region.

Recommended Monitoring for maintaining and improving the number and range of good quality and accessible employment opportunities: Working age people with access to employment by public transport / sustainable modes of transport

E.1.12. ISA Objective 13 - Enhance productivity and competitiveness of businesses

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Productivity & Competitiveness
New Highway Links	Most schemes would relieve congestion on the surrounding road network by providing additional highway linkages and capacity, likely improving journey time reliability for all users.	• None identified	Strong beneficial +++
Highways Improvements	These schemes promote highways improvements which would lead to additional capacity and reduced congestion. There is also potential increased public transport ridership levels and enhanced links to employment areas.	• None identified	Strong beneficial +++
Urban Centre Improvements	These schemes typically promote better walking, cycling and bus routes leading to an increase in active transport use and therefore reducing congestion and travel times.	• None identified	Strong beneficial +++
Rail Improvements	These schemes would increase rail capacity, provide faster and more frequent links and result in reliability benefits for all rail users.	• None identified	Strong beneficial +++

Support for Rail Gateway Improvements	These schemes are unlikely to have a tangible effect against this objective.	• None identified	Neutral 0
Rail Park & Ride	Most schemes are unlikely to have a tangible effect upon this ISA objective given its small dimension.	• None identified	Neutral 0

Recommended Mitigation for enhancing productivity and competitiveness of business: The efficient movement of people and goods is vital to maintaining and enhancing productivity and the competitiveness of business. As such, consideration to ways of reducing congestion should be made in relation to all transport schemes. Connectivity between business centres and key infrastructure such as Airports is a major consideration to be made. Issues such as the attractiveness of the region as a better place to live and work can also influence competitiveness and productivity by enhancing inward investment or tourism and therefore should also be a key consideration in the design and planning of any transport scheme.

Recommended Monitoring for enhancing productivity and competitiveness of business: Reduction in levels of congestion; Reduction in journey times; Reduction in Freight / Goods delivery times

E.1.13. ISA Objective 14 - Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Health & Well-Being
New Highway Links	With most schemes of this type there is a potential for accidents to occur (during construction and operation), as well as an increase in pollutant levels and the potential for disturbance through noise & vibration. Issues such as light pollution and community severance can also impact on health. However, access to services may improve.	• Ensure scheme is designed to latest H&S standards • See mitigation suggested for reduction in emissions • Consideration to reducing noise & vibration impacts through design e.g. use of noise barriers or low noise road surfacing – in particular near to sensitive receptors • Consideration during design to be given to issue of community severance	Combination of slight beneficial and adverse effects +/-
Highways Improvements	These schemes would typically lead to beneficial effects on the health and wellbeing of citizens due to improvements in the overall environment (e.g. reduction in pollutants) and improved accessibility to a range of vital services including healthcare facilities. Highway improvements may lead to less accidents and reduce driver stress.	• Ensure scheme is designed to latest H&S standards • Consideration to reducing noise & vibration impacts through design e.g. use of noise barriers or low noise road surfacing – in particular near to sensitive receptors	Combination of slight beneficial and adverse effects +/-
Urban Centre Improvements	These schemes would likely make significant improvements to the health and wellbeing of citizens through means of improved accessibility covering bus, walking and cycling modes.	• None identified	Moderate beneficial ++
Rail Improvements	These scheme would typically lead to a positive impact on the access to a range of services, including health services.	• None identified	Slight beneficial +

Support for Rail Gateway Improvements	These schemes are not likely to have any significant impact on citizens' health and well-being.	• None identified	Neutral 0
Rail Park & Ride	The majority of schemes of this type are considered not likely to have any significant impact on citizens' health and well-being.	• None identified	Neutral 0

Recommended Mitigation for improving the health & well-being for all citizens and reducing inequalities in health: The consideration of health & safety (including security / crime) is critical as part of scheme planning and design and should include the introduction of the most modern and effective safety measures where proportionate**.** Safety considerations should apply to the construction phase, as well as when the transport infrastructure is operational. It should always be the consideration to minimise the risk of deaths or injury arising from the scheme and contribute to an overall improvement in societal safety levels. Consideration during scheme planning and design also has to be given to reducing emissions and other aspects such as noise, vibration dust, light pollution and severance which potentially effect health and well-being. Access to public services (health, education, community facilities etc.) is also another key consideration.

Recommended Monitoring for improving the health & well-being for all citizens and reducing inequalities in health: Reduction in levels of crime recorded on public transport; Reduction in number of transport related accidents – both at construction and operation stage

E.1.14. ISA Objective 15 - To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)

Type of Scheme	Likely Effects	Typical specific Mitigation for type of scheme	Overall Likely Effect on Equality
New Highway Links	Most schemes of this type are expected to have a slight positive effect on promoting equality of opportunity for all citizens as the new link roads are expected to improve access to employment, unlocking development as well as to improve slightly the car travel affordability.	• Consider potential for severance from key public services – or opportunities to improve access • See suggested mitigation for reduction in emissions	Combination of slight beneficial and adverse effects +/-
Highways Improvements	Schemes of this type could deliver an improved link between deprived communities and employment in the areas, having a beneficial effect.	• Consider potential for severance from key public services – or opportunities to improve access • See suggested mitigation for reduction in emissions	Combination of slight beneficial and adverse effects +/-
Urban Centre Improvements	These schemes would typically promote greater equality of opportunity for all citizens, as they would provide better access to the city centre facilities such as hospitals, educational facilities and the railway station.	• None identified	Moderate beneficial ++
Rail Improvements	These schemes may provide some benefits in terms of promoting greater equality of opportunity for citizens through improved accessibility to a range of services in local towns and cities.	• Consider affordability	Slight beneficial +
Support for Rail Gateway Improvements	These schemes are considered not likely to have any significant impact on promoting citizens' greater equality of opportunity.	• None identified	Neutral 0

Rail Park & Ride	The majority of this type of scheme are considered not likely to have any significant impact on promoting citizens' greater equality of opportunity.	• None identified	Neutral 0

Recommended Mitigation for promoting greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society: During the Planning and Design stages of any transport scheme, it is vital that consideration is given to the need for access to key public services such as health, education community and leisure facilities by all members of society. Access should be considered in relation to all modes, with an emphasis on more active and sustainable types. Affordability should also be a key consideration, with a particular emphasis placed on effects on lower income groups. It should also be a priority to enhance access to key services for vulnerable groups.

Recommended Monitoring for promoting greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society: Measurement of transport affordability against lower income levels; Levels of access to public services.

Appendix F. Assessment of Draft Transport Strategy

F.1. Draft Strategy Integrated Assessment Tables

F.1.1. Core Themes

Core Theme	**Road Network – Or Ambition is for a road network that works better, enabling users to move around more efficiently and effectively and balancing the competing demands for road space**
Summary of Core Theme (for full text refer to Transport Strategy document)	Highway network is an essential component of the transport system. The private car accounts for most of our journeys and will remain an important option for most journeys, but there will be a need to manage its use alongside providing alternative options. Periods of Congestion are happening for longer periods. **RN1 – Key Route Network:** We will focus attention on these busiest routes which represent 7% of length but 60% of all trips. We will manage the WY Key Route Network of strategic roads through collaboration with neighbouring local highway authorities and Highways England Motorways. We will use smarter technologies to actively manage the network, providing accurate information to users. We will develop proposals to share out available road space to priorities certain vehicles at certain times and situations. Driver / Traveller education is also important. In addition to Key routes, we will also ensure efficient and safe use of other routes. **Policy: Manage a Key Road Network that makes it easier for vehicles to move around** **RN2 – Car:** More car journeys will increase delays and congestion, but there is still an important role for car journeys. We will therefore maintain car journeys at today's level and accommodate new additional trips by sustainable options. We will provide more park & ride at key locations and support a shift to more sustainable vehicles e.g. with a comprehensive electric charging point network. We will explore options for fiscal demand management measures e.g. road user charging. **Policy: Maintain the number of car journeys at today's levels at peak periods** **RN3 – Freight:** We will manage our Key Route Network to ensure clearly defined freight access routes are available and support provision of infrastructure such as consolidation centres and lorry parking. We will collaborate with industry to achieve improved vehicle environmental standards and transition to electric vehicles in town / city centres & sensitive locations. We will work with TfN partners to explore ways to shift to rail and water freight. **Policy: Work with freight industry partners to make freight journeys more efficient** **RN4 – Taxi:** We will provide adequate taxi ranks at appropriate key transport hubs and work to achieve a greater take up of low emission electric taxis and work with Ultra Low Emission Vehicle programme. We will work to strengthen safeguarding protection for vulnerable users. **Policy: Work with taxi trade to improve safeguarding issues and the provision of environmentally friendly taxis at key hubs** **RN5 – Motorcycles:** Users are particularly vulnerable. We will work to make our network more effective for users and adopt a standardised approach to motorcycle parking. We will review programmes and projects at design stage to eliminate motorcycle safety issues and run a trial to allow motorcycles to use bus lanes to test potential safety issues. **Policy: Improve the highway network and parking facilities to be safer and more effective for motorcycle users**

	RN6 – Walking & Cycling: These are important modes in their own right but also to connect to other modes. We will provide walking & cycling networks that are safer more attractive and convenient, with more access opportunities to local facilities and the wider transport network. We will provide cycle facilities such as secure parking hubs to help make journeys easier, reducing the need to carry bikes on other modes. We will design street layout to reduce cyclist conflict with other users. **Policy: Improve the highway network to be safer and more effective for pedestrians and bicycle users.**

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives		Description of effect[1]	Scale / significance of effect	Recommendations for mitigation or enhancement
1	Protect and enhance local air quality	This theme focuses on managing the existing road space and keeping car volume at existing levels during the peak period. There is	+/-	Clearer acknowledgement of the AQMAs and specific commitments to air quality improvements. Future scheme

[1] This includes the effects' magnitude, geographical scale, time period over which they occur, whether they are permanent or temporary, positive or negative, probable or improbable, reversible or irreversible, frequent or rare

		also a commitment to support greater take up of low emission taxis & vehicles (which in parallel may have clean air benefits). Some additional road schemes (P39) are proposed that will contribute negatively to air quality through additional vehicle kilometres on the network. There is no specific acknowledgment of air quality nor reference to air quality management areas in this location as part of this theme despite many AQMAs relating to the road network.		development should ensure air quality mitigation is included. Road schemes could target solving air quality issues.
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	This theme in itself does not recognise the potential for effects on biodiversity etc., however the policies within it are likely to lead to 'hard' interventions that may have a negative effect on these environmental issues e.g. by direct loss of habitat. Effects from 'hard' interventions could be considered permanent. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	--	It is recommended that this Theme is reworded to note that there is a potential that the policies within it (and schemes derived from these) could lead to environmental effects but that these effects will be addressed by those contained within the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'. This approach would likely reduce the significance of negative effects.
3	Protect and enhance the International sites (HRA Specific objective)	This theme in itself does not recognise the potential for effects on biodiversity etc., however the policies within it are likely to lead to 'hard' interventions that may have a negative effect on International sites. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	---	It is recommended that the Theme is amended to note the requirement to protect International Sites and appropriately assess any schemes that are likely to have significant effects on International sites through the HRA process. These effects will be addressed by those contained within the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'. Mitigation measures will need to be implemented to avoid, reduce or compensate for any adverse effects.

4	Reduce carbon dioxide emissions from transport	This theme focuses on managing the existing road space and keeping car volume at existing levels during the peak period. There is also a commitment to support greater take up of low emission taxis & vehicles and support to deliver a comprehensive electric charging point network. The introduction of out of town park and ride sites will keep cars from driving into the urban centres and thus reduce the length of trips made by car, thus helping to reducing emissions. Some additional road schemes (P39) are proposed and new road construction will lead to additional vehicle-kilometres on the network, causing an increase in carbon dioxide emissions from transport.	+/-	None
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	This theme is concerned with the importance of the Road Network (in particular Key Routes) and the need to ensure this network operates as efficiently and reliably as possible. No note is made of the potential impact for flooding on the reliability of the network. This theme and the policies within it are also likely to lead to 'hard' interventions that may have a negative effect on flooding and there is no recognition of the risk of flooding from either existing or proposed infrastructure. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	--	It is recommended that the Theme (particularly Policy RN1) is amended to note that there is a threat to the reliability of the network from issues such as flooding and that the development of hard infrastructure can contribute to this issue. It is also recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the issue of flooding to the network, but also the potential for new schemes to increase flooding elsewhere. The Cross Cutting theme will note that mitigation measures e.g. through design will need to be implemented to avoid, reduce or compensate for any adverse effects.
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	For the most part this theme does not recognise the need for prudent use of natural resources, or minimise the production of waste, though some recognition is made (in RN2) of the need to shift toward more sustainable vehicles such as low emission cars – this would lead to a reduction in fuel (natural resource) consumption. No note is made of supporting re-use and recycling. All of these issues are likely to be relevant as this theme and the policies within it are likely to lead to	+	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the prudent use of natural resources, minimise the production of waste and support re-use and recycling.

		'hard' interventions / new infrastructure – this is likely to result in negative effects. The issue of prudent use of natural resources etc is more comprehensively addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'		
7	Protect and enhance the water environment	This theme in itself does not recognise the potential for effects on the water environment, however the policies within it are likely to lead to 'hard' interventions that may have a negative effect on the water environment e.g. through polluted runoff, accidents and construction pollution incidents. Effects from 'hard' interventions could be considered permanent – especially that from runoff. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	--	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the need to protect the water environment during the construction and operation of new infrastructure. This could be accomplished during the design process and by the use of SuDS and this approach would likely reduce any negative effects.
8	Conserve soil resources and quality and seek to remediate contaminated land	This theme in itself does not recognise the potential for effects on soil resources and quality or the potential to remediate contaminated land. However the policies within this theme are likely to lead to 'hard' interventions that may have a negative effect on soil resources or provide opportunities to remediate contaminated land. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the need to protect soil resources when possible and to take opportunities for land remediation or reuse of contaminated land when possible.
9	Conserve and where appropriate enhance those elements which contribute to the significance of the areas heritage assets	This Theme is concerned with the Road Network and does not note the Cultural Heritage assets of WY. Nevertheless, interventions derived from this theme have the potential to effect these assets – perhaps negatively such as by direct damage / removal or perhaps positively by affording the opportunity to enhance the setting of assets. These issues will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the requirement to protect (and if possible enhance) heritage assets when possible.
10	Protect and enhance the character and quality of landscape and townscape	This Theme is concerned with the Road Network of WY but does not note the effects it has on the character and quality of the areas landscapes and townscapes. Interventions derived from this theme have the potential to have positive and negative effects on landscape	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the

		etc. These effects will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.		requirement to protect and enhance landscape / townscape when possible.
11	Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport, including public transport, cycling and walking	This theme is central to supporting this ISA objective. The range of interventions including managing the existing road network through smart infrastructure and introducing more park and ride car parking spaces at key transport hubs and out of town locations will reduce car trips in congested urban areas. The theme discusses priority to non-car vehicles on the highway network. A commitment to improving walking and cycling infrastructure is noted in this theme but there is little discussion on public transport (bus) interventions aside from reference to the introduction of dedicated lanes. The interventions proposed will seek to address the issue of congestion. The plan does not seek to reduce traffic but achieve no change in traffic growth.	++	None
12	Maintain or improve the number and range of good quality and accessible employment opportunities	This theme makes little direct reference to access to employment opportunities, however new road infrastructure will enhance links to employment areas, particularly those supporting access to the Enterprise Zones, key employment areas (e.g. the airport)	0	The theme could better relate the road network improvements to the identified economic zones to enhance the case for improving access to employment.
13	Enhance productivity and competitiveness of businesses	This theme makes reference to the impact of congestion on productivity, and the measures proposed to reduce congestion will improve productivity and competitiveness of business. The theme also specifically makes reference to freight movements throughout West Yorkshire as critical to the economy and moving and presents ideas for moving freight to sustainable modes in collaboration with freight industry partners.	+++	None
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	Higher levels of sustainable travel in West Yorkshire will lead to health benefits. Sustainable travel, walking, cycling and public transport, will ensure health benefits through its use of exercise. This should lead to reductions in obesity, and its subsequent impact on the health service.	+	People should be aware of the alternatives to using the car. These messages should be made available for all, and clearly outline how a person would use the alternative mode. The impact of any road user charging on low-income groups should be considered.
15	To promote greater equality of opportunity for all citizens, with the	The theme will ensure that access to service across West Yorkshire is maintained and enhanced through continuing to support the key route	+	People should be aware of the alternatives to using the car. These messages should

	desired outcome of achieving a fairer society (EqIA specific objective)	network while also opening up the possibilities for park and ride usage as well as electric vehicle support. Equality of transport access may be strained however, with the potential of increasing road charging and electric vehicle support, which may only benefit the more affluent members of society who are able to buy/use the technology. The aimed shift to sustainable modes should lead to a modal shift, which can reduce air, light and noise pollution. Support of electric vehicles and vehicle environmental standards will ensure the impact of car trips on the environment is minimised.		be made available for all, and clearly outline how a person would use the alternative mode. The impact of any road user charging on low-income groups should be considered. The implementation of new modes of transport (electric vehicles, park and ride etc.) should be reviewed to ensure that it benefits all members of society.

HIA sub-objective		**Scale of Effect**								**Description of effect/Recommendations for mitigation or enhancement**
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	**Assessment summary**	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	++	++	++	Accessibility may be improved as a result of the theme. Managing West Yorkshire's network of key roads should cater for future growth by minimising journey times. Subsequently, access to amenities and services should be enhanced. Policy RN4 will ensure that taxis are located in key transport hubs, which should improve connectivity to facilities for those arriving to the town/city via rail. Improving walking and cycling networks will enhance accessibility by creating more consistent and continuous cycle routes which should connect with key destinations.
2	Improve affordability of transport	-	-	-	--	-	-	-	-	While there are no stated aims for improving the affordability of transport across West Yorkshire,

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
										improving walking and cycling networks may promote an increased uptake in an inexpensive transport mode. However, the affordability of transport may be reduced if potential measures to implement road user charging are followed through, which would have a particularly detrimental effect on low-income groups. With the stated aim of allocating additional future road trips to sustainable modes (such as public transport, park and ride), the affordability of ticketing is not specified.
3	Reduce crime and fear of crime and promote community safety	+	+	+	+	++	+	+	+	While there are no explicit aims to reduce crime and perceptions of safety, some policies may indirectly contribute to a better feeling of safety. For example, improving cycling and walking infrastructure (including more secure cycling parking) may reduce crime in terms of bicycle thefts.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	++	+	+	+	The theme would provide safer walking and cycling routes by redesigning street layouts for cyclists, which should reduce conflict between vehicles and bicycles. This is likely to reduce the number of collisions. Safety for motorcyclists may be improved through trials to determine and redistribute their priority on the road e.g. bus lane running.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
										The use of freight consolidation centres may also reduce the level of HGVs on unsuitable roads.
5	Reduce severance	+	+	+	+	++	+	+	+	Improving the walking and cycling networks across West Yorkshire may reduce severance through improving access between destinations that may have been hard to access before.
6	Reduce environmental impacts of transport – vibration and air, noise and light pollution	+	+	+	+	+	+	+	+	The number of car journeys will be maintained at today's level, with additional trips to be accommodated by sustainable modes. This will include more park & ride locations, electric car charging points, and safer and more attractive cycle routes. The use of low emissions vehicles for taxis and freight will reduce the negative impact they have on the environment. As a result, the environmental impacts of transport would be reduced as additional trips will transfer to more sustainable modes. Currently, West Yorkshire is experiencing a sustained decline in carbon dioxide emissions. The policy would effectively maintain the level of transport emissions, which should contribute to the sustained decline in carbon emissions.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	+	Accessibility may be improved as a result of the theme. Managing West Yorkshire's network of key roads should cater for future growth by minimising journey times. Subsequently, access to amenities and services should be enhanced. Policy RN4 will ensure that taxis are located in key transport hubs, which should improve connectivity to facilities for those arriving to the town/city via rail. Improving walking and cycling networks will enhance accessibility by creating more consistent and continuous cycle routes which should connect with key destinations.
2	Improve affordability of transport	-	-	-	-	-	-	-	-	-	While there are no stated aims for improving the affordability of transport across West Yorkshire, improving walking and cycling networks may promote an increased uptake in an inexpensive transport mode. However, the affordability of transport may be reduced if potential measures to implement road charging are followed through, which would have a particularly detrimental effect on low-income groups. With the stated aim of allocating additional future road trips to sustainable modes (such as public transport,

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
											park and ride), the affordability of ticketing is not specified.
3	Reduce crime and fear of crime and promote community safety	+	+	+	+	+	+	+	+	+	While there are no explicit aims to reduce crime and perceptions of safety, some policies may indirectly contribute to a better feeling of safety. For example, improving cycling and walking infrastructure (including more secure cycling parking) may reduce crime in terms of bicycle thefts.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	+	The theme would provide safer walking and cycling routes by redesigning street layouts for cyclists, which should reduce conflict between vehicles and cycles. This is likely to reduce the number of collisions. Safety for motorcyclists may be improved through trials to determine and redistribute their priority on the road e.g. bus lane running. The use of freight consolidation centres may also reduce the level of HGVs on unsuitable roads.
5	Reduce severance	+	+	+	+	+	+	+	+	+	Improving the walking and cycling networks across West Yorkshire may reduce severance through improving access between destinations that may have been hard to access before.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
6	Reduce environmental impacts of transport – air and noise pollution	+	+	+	+	+	+	+	+	+	The number of car journeys will be maintained at today's level, with additional trips to be accommodated by sustainable modes. This will include more park & ride locations, electric car charging points, and safer and more attractive cycle routes. The use of low emissions vehicles for taxis and freight will reduce the negative impact they have on the environment. As a result, the environmental impacts of transport would be reduced as additional trips will transfer to more sustainable modes. Currently, West Yorkshire is experiencing a sustained decline in carbon dioxide emissions. The policy would effectively maintain the level of transport emissions, which should contribute to the sustained decline in carbon emissions.

Core Theme	Places to Live and Work – Or Ambition is to make our cities, towns and neighbourhoods more attractive places to live work and visit
Summary of Core Theme	WY is characterised by its distinctive places. We need to be able to attract new workers to our urban areas and make town / city centres the setting for the interaction and collaboration that businesses need to thrive. Investment will give the image they need to attract new investment, new city living and new business.

(for full text refer to Transport Strategy document)	Our vision for our places is for them to have economic vitality, allow easy movement and offer healthier, safer and more attractive environments. A right balance is important – balancing movement and access for goods and people alongside the quality of people friendly places. **PL1 - People Friendly Streets:** We will make our urban centres more people friendly – reduce cars, cleaner air, better streetscape, more greenery, improved materials and space for people & cycles rather than vehicles. We will use best practice in design. We will combine development of rail & bus stations with wider development of surrounding areas and make access to these hubs as easy as possible, open up retail opportunities and provide opportunities to enjoy the space around them. **Policy: Improve streets, reduce the number of vehicles travelling into town / city centres and support safe, attractive, convenient routes and facilities for pedestrians and cyclists.** **PL2 – Working with Communities:** We will work with communities to create great places that enhance the transport network especially at the local level, with an emphasis on walking and cycling routes. We will mitigate effects of major transport links on local communities e.g. reduce severance, noise and air quality impacts. **Policy: Improve local neighbourhoods by reducing traffic speeds, encouraging walking / cycling and making areas greener and healthier.** **PL3 – Roads:** We will work to balance the quality of streets for people with the need for traffic to access / pass through. We will plan / build new roads where required to take traffic away from and around urban centres rather than through. **Policy: Build new roads to take traffic out of town / city centres** **PL4 – New Development:** Growth will mean new communities and commercial developments. We will ensure these are of high quality and sustainable design, with sustainable access. **Policy: Provide sustainable transport links to new housing and employment sites.**

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives		Description of effect[2]	Scale / significance of effect	Recommendations for mitigation or enhancement
1	Protect and enhance local air quality	This theme supports improved communities and people friendly streets which includes cleaner air, better streetscapes and attractive environments for walking and cycling. The exact projects and programmes are not determined in the document, but this overall theme suggests a beneficial impact to improved air quality. The new roads principle should enhance the congested areas however the additional road schemes could contribute negatively to air quality through additional vehicle kilometres on the network.	++	The theme could articulate the positive air quality effects for the areas of focus.

[2] This includes the effects' magnitude, geographical scale, time period over which they occur, whether they are permanent or temporary, positive or negative, probable or improbable, reversible or irreversible, frequent or rare

2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	This theme is concerned with our places having economic vitality, easy movement and healthier / safer and attractive environments. It notes parks and green spaces and extensive rural areas, all of which would be important to biodiversity. However, schemes derived from this theme will also result in hard interventions such as new roads and these are likely to result in negative effects on biodiversity etc which can be considered permanent. There is a recognition though that development of new places will have to be subject to sustainable design principles and will draw upon established best and future practice e.g. to improve residential areas and make them greener. These approaches are likely to help protect biodiversity / afford opportunities for enhancement. The effects derived from the policies outlined in this theme will be addressed and supported as appropriate by the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	++	--	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the requirement to protect and enhance biodiversity etc when possible.
3	Protect and enhance the International sites (HRA Specific objective)	This theme is concerned with our places having economic vitality, easy movement and healthier / safer and attractive environments. However, schemes derived from this theme will also result in hard interventions such as new roads and these may result in negative effects on International sites. The effects derived from the policies outlined in this theme will be addressed and supported as appropriate by the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	--		It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the requirement to protect International sites.
4	Reduce carbon dioxide emissions from transport	This theme supports improved communities and people friendly streets which includes cleaner air, better streetscapes and attractive environments for walking and cycling. The exact projects and programmes are not determined in the document, but this overall theme suggests a slight beneficial impact to reducing carbon dioxide emissions.	+		None

		The new roads principle should enhance the congested areas however the additional road schemes could contribute negatively to carbon dioxide emissions through additional vehicle kilometres on the network.		
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	This theme is concerned with making our cities, towns and neighbourhoods more attractive places to live, work and visit. No note is made of the potential impact for flooding on these areas. This theme and the policies within it are also likely to lead to 'hard' interventions that may have a negative effect on flooding and there is no recognition of the risk of flooding from either existing or proposed infrastructure. There is though a recognition for the use of established best and future practice in design, sustainable design principles etc and these are likely to require features such as the introduction of SuDS. These issues will also be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.	++ --	It is recommended that the Theme is amended to expand upon what is meant by established best and future design and sustainable design practices. It is also recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the issue of flooding, but also the potential for new schemes to increase flooding elsewhere. The Cross Cutting theme will note that mitigation measures e.g. through design will need to be implemented to avoid, reduce or compensate for any adverse effects.
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	This theme does not recognise specifically the need for prudent use of natural resources, or minimise the production of waste, though it does note the need for the use of established best and future practice in design, sustainable design principles etc and these are likely to require prudent use of natural resources, minimise waste etc. All of these issues are relevant as this theme and the policies within it will lead to 'hard' interventions such as new roads which in the absence of an appropriate approach would likely result in negative effects. The issue of prudent use of natural resources etc is more comprehensively addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	+	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the prudent use of natural resources, minimise the production of waste and support re-use and recycling.
7	Protect and enhance the water environment	This theme in itself does not recognise the potential for effects on the water environment, however the policies within it are likely to lead to 'hard' interventions that may have a negative effect on the water environment e.g. through polluted runoff from new roads and new	-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the

		developments, accidents and construction pollution incidents. Effects from 'hard' interventions could be considered permanent – especially that from runoff. There is though note of the need for the use of established best and future practice in design, sustainable design principles etc and these are likely to require protection of the water environment. These issues will also be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'		need to protect the water environment during the construction and operation of new infrastructure. This could be accomplished during the design process and by the use of SuDS and this approach would likely reduce any negative effects.
8	Conserve soil resources and quality and seek to remediate contaminated land	This theme in itself does not recognise the potential for effects on soil resources and quality or the potential to remediate contaminated land. However the policies within this theme will lead to 'hard' interventions such as new roads that may have a negative effect on soil resources or provide opportunities to remediate contaminated land. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the need to protect soil resources when possible and to take opportunities for land remediation or reuse of contaminated land when possible.
9	Conserve and where appropriate enhance those elements which contribute to the significance of the areas heritage assets	This theme is concerned with making our cities, towns and neighbourhoods more attractive places to live, work and visit and does not note the Cultural Heritage assets of WY. Nevertheless, interventions such as new roads derived from this theme have the potential to effect these assets – perhaps negatively such as by direct damage / removal or perhaps positively by affording the opportunity to enhance the setting of assets. There is note made of the need for the use of established best and future practice in design, sustainable design principles etc and these are likely to require protection of heritage assets. These issues will also be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the requirement to protect (and if possible enhance) heritage assets when possible.
10	Protect and enhance the character and quality of landscape and townscape	This theme is concerned with making our cities, towns and neighbourhoods more attractive places to live, work and visit and notes a vision for more attractive environments. Key elements of the theme include developing town and city centres to make them more people friendly, reducing the dominance of the car, better streetscapes etc. Neighbourhoods will be regenerated, traffic taken away from urban centres etc. These objectives will be achieved via	+++	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will further emphasise the requirement to protect and enhance landscape / townscape when possible.

		the use of established best and future practice in design, sustainable design principles etc. As such, it is considered that for the most part the interventions derived from this theme have the potential for long term significant positive effects. Positive effects are also more likely via the adherence to the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.		
11	Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport, including public transport, cycling and walking	This theme supports improved communities and people friendly streets which includes generating attractive environments for walking and cycling. The theme covers the delivery of new roads where required to increase capacity which will assist in reducing traffic congestion.	+	None
12	Maintain or improve the number and range of good quality and accessible employment opportunities	This theme includes proposals to deliver new developments including residential and employment opportunities however these are not summarised within the theme. The theme includes investment into urban realm programmes and neighbourhood investment programmes. Enhancements to the public transport systems including WYTF rail gateway improvement and Bradford/Forster Square interchange. These schemes will facilitate access to employment, in addition to the potential to create new job opportunities during works.	++	None
13	Enhance productivity and competitiveness of businesses	Improvements to the places people live and work has strong links to enhancing the productivity and competitiveness of businesses. The new developments identified will seek to enhance the productivity in the region. The attractiveness of the region as a better place to visit will drive the tourist economy benefits.	+	Links to the benefits of visitor economy/tourism could strengthen this theme.
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	Reducing traffic in urban centres, through pedestrianisation of town centres and routeing of traffic around urban areas, will ensure that all members of society benefit from a cleaner environment.	++	Air quality should be monitored in relevant areas to ensure that improvements are achieved in reality.
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	A fairer society can be achieved through redressing the modal priorities of town centres. The redesign of urban environments will produce a more pedestrian-friendly, safer place to use. Walking and cycling can be normalised which will further promote equality of opportunity for all transport modes.	++	It is recommended that all users are taken into account with regards to the policy's effects. For example, it should be checked whether those of low-income backgrounds are achieving the same benefits from the

				schemes as those from high-income backgrounds.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	Accessibility to services will be enhanced as development of rail/bus stations and their surroundings will ensure that users can better reach the stations.
2	Improve affordability of transport	0	0	0	0	0	0	0	0	The theme has no direct impact on the affordability of transport.
3	Reduce crime and fear of crime and promote community safety	+	+	+	+	+	+	+	+	The redesign of urban environments will produce more attractive and subsequently safer places. PL1's aim to improve the streetscape could create more inclusive and open environments which should reduce the perceptions/fear of crime.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	++	+	+	+	Producing people-friendly streets in urban areas, through reducing vehicle traffic and redressing the balance between vehicles and other modes should normalise cycling which should, in turn, improve safety. PL2's aim of enhancing walking and cycle routes at the local level should provide a safer environment for those modes, as there is separation from vehicles.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	**Assessment summary**	
5	Reduce severance	++	++	++	++	++	++	++	++	The effects of major transport links on local communities will be mitigated, ensuring that severance and other negative impacts are overcome.
6	Reduce environmental impacts of transport – vibration and air, noise and light pollution	++	++	++	++	++	++	++	++	There is a stated aim to mitigate the impacts of major transport links on communities. Impacts include noise pollution and air quality. Making urban centres more people-friendly through removing cars from centres should improve the city centre environment. Air quality, noise and vibration should all be improved for those in the city centre, as vehicles no longer dominate the space. Policy PL3 will plan/build new roads to take traffic away from urban centres rather than through them. This will additionally improve the urban centre environment as any potential future traffic is routed away from centres.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	+	Accessibility to services will be enhanced as development of rail/bus stations and their surroundings will ensure that users can better reach the stations.
2	Improve affordability of transport	0	0	0	0	0	0	0	0	0	The theme has no direct impact on the affordability of transport.
3	Reduce crime and fear of crime and promote community safety	+	+	+	+	+	+	+	+	+	The redesign of urban environments will produce more attractive and subsequently safer places. PL1's aim to improve the streetscape could create more inclusive and open environments which should reduce the perceptions/fear of crime.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	+	Producing people-friendly streets in urban areas, through reducing vehicle traffic and redressing the balance between vehicles and other modes should normalise cycling which should, in turn, improve safety. PL2's aim of enhancing walking and cycle routes at the local level should provide a safer environment for those modes, as there is separation from vehicles.
5	Reduce severance	++	++	++	++	++	++	++	++	++	The effects of major transport links on local communities will be mitigated, ensuring that severance and other negative impacts are overcome.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
6	Reduce environmental impacts of transport – air and noise pollution	++	++	++	++	++	++	++	++	++	There is a stated aim to mitigate the impacts of major transport links on communities. Impacts include noise pollution and air quality. Making urban centres more people-friendly through removing cars from centres should improve the city centre environment. Air quality, noise and vibration should all be improved for those in the city centre, as vehicles are no longer there. Policy PL3 will plan/build new roads to take traffic away from urban centres rather than through them. This will additionally improve the urban centre environment as any potential future traffic is routed away from centres.

Core Theme	One System Public Transport – Or Ambition is for a transformational metro style public transport system that connects different modes of transport into one network
Summary of Core Theme	We will create a 'One-System' public transport network – a multi modal integrated network for WY providing full integration of all tiers and modes, including physical interchange, timetabling and ticketing / payment. Significant National investment shall be linked to our regional and local networks. We will provide connectivity and capacity to spread economic benefits and work with business leaders to develop the plans. We acknowledge the need for journeys to be 'door to door' – not just station to station. Payment options are particularly important issues.

(for full text refer to Transport Strategy document)	**OS1 – Transport Links and Hubs:** Hubs are the gateways to the network and we will improve these to provide a high quality environment. Links to them are at the National / International, Regional and Local levels and we will provide infrastructure and services that link these levels together e.g. park and ride, shared payment systems, live travel info etc. We will create a better connected airport at Leeds Bradford. **Policy: Improve rail and bus stations and links, including park and ride, cycle and pedestrian links, so it is easier to access and change between different types of transport** **OS2 – Bus Network:** A draft Bus Plan has been developed to increase the role of Buses. We will work toward a single, integrated and strategically planned bus network, regardless of bus operator. We will provide a stable bus network to give greater customer confidence, supported by simplified payment methods. Rural areas will be connected to services and economic opportunities through closer partnership working, sharing resources and collaboration. We will use New Generation Transport to provide fast and frequent links – initially in Leeds, extending to other growth areas. **Policy: Develop a quick, frequent, reliable bus network, serving busy roads and providing local connections, including New Generation Transport** **OS3 – Rail Network:** Rail provides many regional connections across WY and beyond. Local connections are also in some areas, but this can conflict with fast journey times and need for local access. Removing some key constraints will help deliver greater capacity. We will develop proposals with our partners to re-structure rail services using Leeds station – currently the biggest pinch point. Construction of High Speed Rail and Trans North will drive need for change. We will consider running local rail services through Leeds Station rather than terminating here and consider transferring rail services from heavy rail to tram or tram-train services to release capacity at Leeds. We will develop options for improved connectivity to strategic growth areas. **Policy: Connect main towns and cities and other key hubs with high frequency rail or tram train services, ensuring that there are good links to High Speed Rail services when they are introduced.**

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives		Description of effect[3]	Scale / significance of effect	Recommendations for mitigation or enhancement
1	Protect and enhance local air quality	This theme supports a better integrated public transport network and expanding the transport offer in West Yorkshire which positively impacts on this theme with a positive effect on improving air quality by reducing the amount of travel by private car. The theme specifically comments on the provision of New Generation Transport and electric trolleybus vehicles.	++	None
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	This theme is concerned with developing a transformational metro style public transport system that connects different modes of transport into one network. Some of the schemes derived from this theme will result in hard interventions e.g. car parks for park and ride,	--	It is recommended that this Theme is reworded to note that there is a potential that the policies within it (and schemes derived from these) could lead to

[3] This includes the effects' magnitude, geographical scale, time period over which they occur, whether they are permanent or temporary, positive or negative, probable or improbable, reversible or irreversible, frequent or rare

		physical interchanges etc. and these are likely to result in negative effects on biodiversity etc which can be considered permanent. There is no recognition of potential effects on biodiversity etc., though the effects derived from the policies outlined in this theme will be addressed by the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.		environmental effects but that these effects will be addressed by those contained within the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'. This approach would likely reduce the significance of negative effects.
3	Protect and enhance the International sites (HRA Specific objective)	This theme is concerned with developing a transformational metro style public transport system that connects different modes of transport into one network. Some of the schemes derived from this theme will result in hard interventions e.g. car parks for park and ride, physical interchanges etc. and these may result in negative effects on International sites. There is no recognition of potential effects on International sites though the effects derived from the policies outlined in this theme will be addressed by the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	---	It is recommended that this Theme is reworded to note that there is a potential that the policies within it (and schemes derived from these) could lead to environmental effects but that these effects will be addressed by those contained within the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'. This approach would likely reduce the significance of negative effects.
4	Reduce carbon dioxide emissions from transport	This theme outlines measures for enhancing use of public transport systems which should have a positive effect on reducing carbon dioxide emissions by reducing the amount of travel by private car. The Principle specifically comments on the provision of an electric trolleybus system in Leeds, extending to other areas.	++	None
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	This theme is concerned with developing a transformational metro style public transport system that connects different modes of transport into one network. No note is made of the potential impact for flooding on this network. This theme and the policies within it are also likely to lead to 'hard' interventions that may have a negative effect on flooding and there is no recognition of the risk of flooding from either existing or proposed infrastructure. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	--	It is recommended that the Theme is amended to note that there is a threat to the network from issues such as flooding and that the development of hard infrastructure can contribute to this issue. It is also recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the issue of flooding to the network, but also the potential for new schemes to increase flooding elsewhere.

				The Cross Cutting theme will note that mitigation measures e.g. through design will need to be implemented to avoid, reduce or compensate for any adverse effects.
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	This theme does not recognise specifically the need for prudent use of natural resources, or minimise the production of waste, though these are likely to be relevant due to the hard interventions which will be derived from this theme and which will involve the use of natural resources and which will generate waste. The issue of prudent use of natural resources etc is addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	+	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the prudent use of natural resources, minimise the production of waste and support re-use and recycling.
7	Protect and enhance the water environment	This theme in itself does not recognise the potential for effects on the water environment, however the policies within it are likely to lead to 'hard' interventions that may have a negative effect on the water environment e.g. through polluted runoff, accidents and construction pollution incidents. Effects from 'hard' interventions could be considered permanent – especially that from runoff. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	--	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the need to protect the water environment during the construction and operation of new infrastructure. This could be accomplished during the design process and by the use of SuDS and this approach would likely reduce any negative effects.
8	Conserve soil resources and quality and seek to remediate contaminated land	This theme in itself does not recognise the potential for effects on soil resources and quality or the potential to remediate contaminated land. However the policies within this theme are likely to lead to 'hard' interventions that may have a negative effect on soil resources or provide opportunities to remediate contaminated land. These issues though will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the need to protect soil resources when possible and to take opportunities for land remediation or reuse of contaminated land when possible.
9	Conserve and where appropriate enhance those elements which contribute to the significance of the areas heritage assets	This theme is concerned with developing a transformational metro style public transport system that connects different modes of transport into one network. Nevertheless, interventions derived from this theme have the potential to effect these assets – perhaps negatively such as by direct damage / removal or perhaps positively by affording the opportunity to enhance the setting of assets. These	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the

		issues will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.		requirement to protect (and if possible enhance) heritage assets when possible.
10	Protect and enhance the character and quality of landscape and townscape	This theme is concerned with developing a transformational metro style public transport system that connects different modes of transport into one network but does not note the effects it has on the character and quality of the areas landscapes and townscapes. Interventions derived from this theme have the potential to have positive and negative effects on landscape etc. These effects will be addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'.	+/-	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the requirement to protect and enhance landscape / townscape when possible.
11	Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport, including public transport, cycling and walking	The integration between public transport services and networks according to this theme is in full alignment with this ISA objective. The commitment to an expanding transport offer, offering a greater range and travel choices, and the full integration of bus and rail services to increase accessibility to the transport system will significantly contribute towards the principle of reducing the need to travel by car. The growth targets for bus and rail identify the positive plan to increase public transport use to meet this objective.	+++	Document should clarify the bus growth targets Page 18 states 25% more trips by 2026 and 50% by 2036, whereas P26 states 25% increase in bus patronage over next 20 years.
12	Maintain or improve the number and range of good quality and accessible employment opportunities	A better integrated network will improve access to jobs and potentially increase travel horizons of those in employment and the unemployed. This could significantly boost employment and economic growth. Electrification of the Harrogate and Calder Valley Rail lines will increase the accessibility of the key urban centres to a greater number of residents across the West Yorkshire regions, and provide quicker journey times to access key employment areas. Enhanced access to Leeds Bradford Airport will provide increased employment opportunities.	+++	None
13	Enhance productivity and competitiveness of businesses	Advancing the bus and rail network including the enhanced transport hubs and interchanges; and electrification of the Harrogate and Calder Valley Rail line will provide a more efficient public transport offering. The theme makes reference to enhanced connections between other main towns and cities through the provision of high frequency rail and tram-train services, including connectivity to Leeds Bradford Airport. The enhanced connections will stimulate investment at the key gateway and enhance this gateway as a connection to global opportunities and business.	+++	None

14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	Higher levels of public transport usage through the policy's schemes is likely to slightly increase the levels of physical activity. People are likely to walk/cycle to bus stops/rail stations when compared with accessing their private vehicle. Improved and more accessible transport hubs should enhance the attractiveness of using public transport rather than the car, as the sites become more open, inclusive and pleasant to use.	++	It is recommended that people should be aware of the alternatives to using the car. These messages should be made available for all, and clearly outline how a person would use the alternative mode. Benefits should be felt by all members of society in West Yorkshire.
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	The encouragement of sustainable modes of travel should lead to mode shift, which will reduce air, noise and light pollution and minimise the number of car trips.	++	It is recommended to review whether public transport remains a financially viable method of transport for all members of the population e.g. ensure that jobseekers can afford to use the rail service to access employment areas.

HIA sub-objective		**Scale of Effect**								**Description of effect/Recommendations for mitigation or enhancement**
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	**Assessment summary**	
1	Improve accessibility to services, facilities and amenities for all	++	++	++	++	++	++	++	++	Accessibility to services will improve as the integration of modes will be improved, and door-to-door journeys will be focussed on. The improvement of transport links and hubs will help with multi-stage journeys, and as will the improved timetabling and ticketing/payment options. Improvements to the bus and rail network (including New Generation Transport and potentially tram-trains) will introduce new options for journeys for those without access to a car.
2	Improve affordability of transport	+	+	+	+	+	+	+	+	This theme aims to produce a consistent ticketing scheme across an integrated public transport network. The affordability of this will depend on the exact

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
										pricing structure, but as a scheme like this would reduce the need to buy multiple tickets for different operators and modes, it is likely that it would improve the affordability of transport. This will be particularly beneficial for low-income groups
3	Reduce crime and fear of crime and promote community safety	+	+	+	+	+	+	+	+	Improving transport hubs and physical interchanges may reduce the fear of crime at stations. Creating 'gateways' to the transport network through designing a high quality environment should reduce crime and/or the perceptions of it.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	Producing a more integrated and comprehensive public transport network may promote a modal shift from the car to public transport, reducing vehicle km. As a result, the reduction in cars on the road should reduce the number of accidents.
5	Reduce severance	+	+	+	+	+	+	+	+	This theme is unlikely to have a large impact on severance, although any shift from cars to public transport use could reduce traffic on key road corridors, and so reduce the perception on severance.
6	Reduce environmental impacts of transport – vibration and air, noise and light pollution	+	+	+	+	+	+	+	+	The planned integrated public transport network should reduce West Yorkshire's transport emissions, improving environmental criteria such as vibration, noise pollution and air quality. Public transport uptake should increase as it becomes a more attractive proposition, which will subsequently reduce the environmental impacts of transport.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
										Planning for 'door-to-door' journeys rather than 'station-to-station' journeys should enhance the convenience of using public transport. By making bus and rail transport more attractive, a modal shift to sustainable modes can occur. Currently, West Yorkshire is over 70% reliant on cars for travelling to work.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	++	++	++	++	++	++	++	++	++	Accessibility to services will improve as the integration of modes will be improved, and door-to-door journeys will be focussed on. The improvement of transport links and hubs will help with multi-stage journeys, and as will the improved timetabling and ticketing/payment options. Improvements to the bus and rail network (including New Generation Transport and potentially

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
											tram-trains) will introduce new options for journeys for those without access to a car.
2	Improve affordability of transport	+	+	+	+	+	+	+	+	+	This theme aims to produce a consistent ticketing scheme across an integrated public transport network. The affordability of this will depend on the exact pricing structure, but as a scheme like this would reduce the need to buy multiple tickets for different operators and modes, it is likely that it would improve the affordability of transport. This will be particularly beneficial for low-income groups
3	Reduce crime and fear of crime and promote community safety	+	+	+	+	+	+	+	+	+	Improving transport hubs and physical interchanges may reduce the fear of crime at stations. Creating 'gateways' to the transport network through designing a high quality environment should reduce crime and/or the perceptions of it.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	+	Producing a more integrated and comprehensive public transport network may promote a modal shift from the car to public transport, reducing vehicle km. As a result, the reduction in cars on the road should reduce the number of accidents.
5	Reduce severance	+	+	+	+	+	+	+	+	+	This theme is unlikely to have a large impact on severance, although any shift from cars to public

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
											transport use could reduce traffic on key road corridors, and so reduce the perception on severance.
6	Reduce environmental impacts of transport – air and noise pollution	+	+	+	+	+	+	+	+	+	The planned integrated public transport network should reduce West Yorkshire's transport emissions, improving environmental criteria such as vibration, noise pollution and air quality. Public transport uptake should increase as it becomes a more attractive proposition, which will subsequently reduce the environmental impacts of transport. Planning for 'door-to-door' journeys rather than 'station-to-station' journeys should enhance the convenience of using public transport. By making bus and rail transport more attractive, a modal shift to sustainable modes can occur. Currently, West Yorkshire is over 70% reliant on cars for travelling to work.

Core Theme	Smart Futures – Or Ambition is to use technology to better plan and manage the transport system and improve the experience of the people using it.
Summary of Core Theme (for full text refer to Transport Strategy document)	This theme will be developed through National, Pan-Northern and Local initiatives to reflect the need for wider integration and economies of scale. **SF1 – Network Management:** Improve management through better use of data, including real time to get a comprehensive view of how the system is performing. Use of Intelligent Traffic Management systems to reduce delays / quick recovery from disruption. Better high quality data from new technologies etc will help future modelling etc. Development of integrated network management and driver communication centre. **Policy: Use of technology and data to better manage the transport network, improving capacity and efficiency** **SF2 – Mobility as a service:** Development of an account that enables use of bus, train, taxi and club car vehicle. Foundations for this are already laid through existing accounts for specific services. Different customer media e.g. phones can be used to pay and different payment options. This approach will reflect emerging trends in payment etc. **Policy: Registered users able to travel flexibly by any transport mode (including buses, rail, car clubs etc.) with a fair price guarantee, with technology used to simplify paying for travel** **SF3 – Information:** Working with Mobile Phone operators etc to build upon existing real time information feeds and exploit technology further to develop new easy to access customer information to allow greater choice between modes etc. **Policy: Provide improved travel information to make planning journeys easier** **SF4 – Open Data:** Continue to support open data initiatives to allow others make use of transport data and develop new insights into how transport networks perform. We will also be mindful of new technologies / ways of operating called 'disruptive technology' as these are developed e.g. Uber taxi. Autonomous Vehicles also have potential to transform transport provision and use and our approach to this technology will be revised as it develops. **Policy: Allow others to make use of our transport information for the benefit of customers travelling on our networks.**

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives		Description of effect[4]	Scale / significance of effect	Recommendations for mitigation or enhancement
1	Protect and enhance local air quality	This theme does not directly relate to the improvement of local air quality, however it is assumed that increased information around public transport systems will increase use of such systems which will ultimately enhance local air quality through the reduction of private cars. The smart motorway scheme will manage the flow of vehicles on the highway network, and efficient driver behaviour (less stop/start) should reduce pollutants from vehicles.	+	None

[4] This includes the effects' magnitude, geographical scale, time period over which they occur, whether they are permanent or temporary, positive or negative, probable or improbable, reversible or irreversible, frequent or rare

2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions. The success of this theme may also reduce the need for further 'hard' interventions derived from other themes e.g. by allowing the existing road network to operate more efficiently and may therefore help reduce the potential for further (future) effects on biodiversity.	+	None
3	Protect and enhance the International sites (HRA Specific objective)	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it and is unlikely to have effects on International sites.	0	None
4	Reduce carbon dioxide emissions from transport	This theme does not directly relate to the reduction of carbon dioxide emissions however it is assumed that increased information around public transport systems will increase use of such systems which will ultimately reduce carbon dioxide emissions through the reduction of private car vehicle kilometres. The smart motorway scheme will manage the flow of vehicles on the highway network, and efficient driver behaviour (less stop/start) should reduce carbon dioxide emissions from vehicles.	+	None
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions. This theme would provide 'real time' information that could inform users of the transport network of delays etc caused by adverse weather, thereby allowing more effective planning of journeys, but would not in itself reduce vulnerability to climate change, flood risk etc.	0	None
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions and therefore have limited waste production. The success of this theme may also reduce the need for further 'hard' interventions derived from other themes e.g. by allowing the existing road network to operate more efficiently and may therefore help ensure the prudent use of natural resources. Overall it is considered that the effect of this theme would therefore be positive.	+	None

7	Protect and enhance the water environment	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions. The success of this theme may also reduce the need for further 'hard' interventions derived from other themes e.g. by allowing the existing road network to operate more efficiently and may therefore help reduce the potential for further (future) effects on the water environment.	+	None
8	Conserve soil resources and quality and seek to remediate contaminated land	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions. The success of this theme may also reduce the need for further 'hard' interventions derived from other themes e.g. by allowing the existing road network to operate more efficiently and may therefore help reduce the potential for further (future) effects on soil resources. The reduced need for hard interventions may reduce the opportunity for remediation of contaminated land.	+	None
9	Conserve and where appropriate enhance those elements which contribute to the significance of the areas heritage assets	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions. The success of this theme may also reduce the need for further 'hard' interventions derived from other themes e.g. by allowing the existing road network to operate more efficiently and may therefore help reduce the potential for further (future) effects on heritage assets.	+	None
10	Protect and enhance the character and quality of landscape and townscape	This theme relates to the use of technology to better plan and manage the transport system and improve the experience of people using it. It is unlikely to result in any major new infrastructure or 'hard' interventions – thereby ensuring the protection of landscapes. The success of this theme may also reduce the need for further 'hard' interventions derived from other themes e.g. by allowing the existing road network to operate more efficiently. This could reduce traffic levels in town centres – thereby improving townscapes.	+	None
11	Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport,	A key element of this theme is reducing congestion through the deployment of managed motorway programmes to improve motorway capacity.	+++	None

	including public transport, cycling and walking	The deployment of the mobility as a service concept including the West Yorkshire smartcard rollout will enhance the attractiveness of the public transport offering and promote sustainable modes of transport.		
12	Maintain or improve the number and range of good quality and accessible employment opportunities	The availability of open data provides opportunities for developing apps which is a method for stimulating employment opportunities in the technology sector. There may however be a negative implication given the increase in automation through integrated ticketing and the potential reduction in ticket arrangement and enforcement. Opportunities for employment may be delivered through the deployment of new technologies including infrastructure for data collection, manipulation or deployment of autonomous vehicles.	+/-	None
13	Enhance productivity and competitiveness of businesses	Enhanced productivity and competiveness of businesses will be enhanced through the deployment of smart technologies to better manage the existing transport networks. This will reduce levels of congestion on the strategic road network and lead to greater connection between the urban areas of West Yorkshire but also to wider cities, and across the Northern Powerhouse area. Use of technology will allow for efficiencies in business, better planning and coordination of vehicle fleet as an example, and increased travel choices for employees.	++	None
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	The encouragement of sustainable modes of travel should lead to mode shift, which will reduce air and noise pollution. This reduction in air pollution will be of particular benefit to those with long term conditions such as asthma, but will also improve health overall. The reduction in noise will be of benefit to children in particular, who can be adversely affected by noisy environments.	+	None
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	The implementation of smarter network management capabilities should reduce the impact of accidents, delay hotspots etc. on urban areas. This should mitigate and reduce any potential journey time delays. The use of open data will ensure equality and fairness in allowing all members of society to access the same information.	+	It is recommended that real time information feeds, multi-modal transport booking services etc. can be accessed by all members of society. Certain subsections of the population are less likely to be able to use/access smartphones/internet etc.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	The policy will have little impact on accessibility to services, although improved management of the network and integrated mobility may make door-to-door journeys easier for those without access to a car.
2	Improve affordability of transport	+	0	0	+	+	+	+	+	Users of the account that enables flexible travel by any transport mode (bus, rail, car clubs etc.) will benefit from a 'fair price guarantee'. However, the use of smart technologies may benefit certain subsections of the population who have access to the required technology, such as smartphones/the internet.
3	Reduce crime and fear of crime and promote community safety	0	0	0	0	0	0	0	0	The theme has very limited potential to impact on community safety and the fear of crime.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	Real-time network management should reduce accidents and improve road safety by encouraging smoother flowing traffic.
5	Reduce severance	0	0	0	0	0	0	0	0	The theme would have very little impact on severance.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
6	Reduce environmental impacts of transport – vibration and air, noise and light pollution	+	+	+	+	+	+	+	+	The theme will improve the integration of different sustainable transport modes, making their use easier, which will promote a modal shift from car to public transport, reducing the environmental impact of transport.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	+	The policy will have little impact on accessibility to services, although improved management of the network and integrated mobility may make door-to-door journeys easier for those without access to a car.
2	Improve affordability of transport	0	+	0	+	+	+	+	+	+	Users of the account that enables flexible travel by any transport mode (bus, rail, car clubs etc.) will benefit

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
											from a 'fair price guarantee'. However, the use of smart technologies may benefit certain subsections of the population who have access to the required technology, such as smartphones/the internet.
3	Reduce crime and fear of crime and promote community safety	0	0	0	0	0	0	0	0	0	The theme has very limited potential to impact on community safety and the fear of crime.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	+	Real-time network management should reduce accidents and improve road safety by encouraging smoother flowing traffic.
5	Reduce severance	0	0	0	0	0	0	0	0	0	The theme would have very little impact on severance.
6	Reduce environmental impacts of transport – air and noise pollution	+	+	+	+	+	+	+	+	+	The theme will improve the integration of different sustainable transport modes, making their use easier, which will promote a modal shift from car to public transport, reducing the environmental impact of transport.

Core Theme	**Asset Management – Or Ambition is to ensure that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way.**
Summary of Core Theme (for full text refer to Transport Strategy document)	Asset management includes more than just streets – it also involves bridges, control systems, lighting etc. Road network is a major challenge with a backlog of repairs and funding issues. Severe weather events have made things worse. Poor maintenance can lead to greater problems and issues such as pot holes provide risk, especially to vulnerable users. Efficiencies have been made though e.g. through HMEP. **AM1 – Efficiencies:** Better long term planning with common cross boundary standards to make better use of budgets. More joint working and sharing of best practice. Minimise environmental impact and contribute to low carbon economy in the process of renewing and maintaining assets. New sustainable approaches for shared procurement specifications for asset renewal – improving efficiency and reducing cost, but still maintaining quality. More effective partnerships with designers etc. to realise efficient management of assets through design process. Continue to roll out HMEP. **Policy: Continue to roll out the government's Highways Maintenance Efficiency Programme, introduce better long term planning and environmental audits to manage assets cheaper and better** **AM2 – Resilience:** Road and rail resilience relates to how it performs in varied weather conditions and varied useage, but also more serious disruption due to accidents, flooding etc. Proactive maintenance to avoid problems e.g. regular drain cleaning – i.e. problems before they occur. Timely renewal of assets can prevent failures and often be cheaper to run. Attention to be paid to urban and rural roads. Impact on other utility assets e.g. water / gas etc from road maintenance also to be considered. **Policy: Make sure that we have a practical understanding of all assets and that they are regularly checked to identify potential problems before they can cause disruption.** **AM3 – Invest to Save:** We will replace old assets to save money e.g. through more efficient lights. New equipment can also provide more data about the network. We will explore new funding options for asset maintenance. **Policy: Invest in replacement assets to save operating costs in the longer term.**

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives		Description of effect[5]	Scale / significance of effect	Recommendations for mitigation or enhancement
1	Protect and enhance local air quality	There is no direct link to enhanced air quality through this theme. There could be positive or negative impacts to air quality depending on the measures and interventions deployed.	0	None
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	This theme relates to Asset Management and ensuring that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way. There would be limited interaction with biodiversity from these maintenance	0	None

[5] This includes the effects' magnitude, geographical scale, time period over which they occur, whether they are permanent or temporary, positive or negative, probable or improbable, reversible or irreversible, frequent or rare

		activities and any issues which arise could be addressed via the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.		
3	Protect and enhance the International sites (HRA Specific objective)	This theme relates to Asset Management and ensuring that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way. Effects on International sites are unlikely.	0	None
4	Reduce carbon dioxide emissions from transport	There are no clear commitments to emission reduction in this theme and there could be positive or negative impacts depending on the measures and interventions deployed. However the plans articulate the contribution to minimising carbon and environmental impacts.	0	None
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	It is recognised in this theme that severe weather can expose the fragility of the highway network and that resilience of the road and rail network is related to the ability of the network to function during varied conditions, including adverse weather. This will be managed by proactively maintaining the network, though there is no recognition of the potential increase in frequency or intensity due to a changing climate.	-	It is proposed that the theme is reworded to note the potential for a changing climate to increase the frequency and intensity of extreme weather and that the Asset Management regime needs to reflect this new reality.
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	This theme relates to Asset Management and ensuring that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way. The activities undertaken as part of this Asset Management will result in the use of natural resources and in waste production. They also afford the opportunity for re-use and recycling. The Asset Management can also (as noted) reduce energy consumption (a natural resource) due to more efficient systems e.g. lighting.	+/-	It is proposed that the theme is reworded to note the need to ensure that Asset Management is undertaken in such a way as to the prudent use of natural resources and the need to minimise waste production. It should also encourage opportunities for the re-use / recycling of materials.
7	Protect and enhance the water environment	This theme relates to Asset Management and ensuring that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way. The activities undertaken as part of this Asset Management could pose a risk to the water environment e.g. through accidental release of pollutants or by a release of pollutants due to activities such as deicing. There are not likely to be / very limited opportunities to enhance the water environment.	-	It is recommended that the Theme is reworded to note the need to protect the water environment during any work activities related to Asset Management.

8	Conserve soil resources and quality and seek to remediate contaminated land	This theme relates to Asset Management and ensuring that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way. There would be limited interaction with soil resource from these maintenance activities and limited opportunities to remediate contaminated land – pone example being the appropriate treatment of species such as Japanese Knotweed. Any issues which arise could be addressed via the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	0	Cross reference to the theme of 'Environment, Health & Well Being, Inclusion' to ensure that soil resources are not effected by any asset management activities. It should also advise that any remediation opportunities should be taken when possible.
9	Conserve and where appropriate enhance those elements which contribute to the significance of the areas heritage assets	This theme relates to Asset Management and ensuring that our transport assets are fit for the future and properly managed in a sustainable, environmentally friendly and cost effective way. There would be limited interaction with heritage assets from these maintenance activities and any issues which arise could be addressed via the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	0	Cross reference to the theme of 'Environment, Health & Well Being, Inclusion' to ensure that heritage assets are not effected by any asset management activities.
10	Protect and enhance the character and quality of landscape and townscape	Effective Asset Management will enhance the quality of townscapes through improving the aesthetics of infrastructure – this for example can be achieved via those aspects noted in this theme such as adequate and well maintained lighting, regular clearing of drains, improvements to footpaths etc.	+	None
11	Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport, including public transport, cycling and walking	This theme relates to management and maintenance of transport networks and retaining existing capacity rather than improving sustainability of other modes.	0	None
12	Maintain or improve the number and range of good quality and accessible employment opportunities	This theme relates to management and maintenance of transport networks and no specific reference is made to the potential job creation this could deliver. There is some potential for job creation through monitoring and evaluation of measures and also for customer information and social media marketing of improvements to the network being made.	0	None
13	Enhance productivity and competitiveness of businesses	This theme relates to management and maintenance of transport networks and no specific reference is made to business impact. The theme does however provide businesses with reliability and assurance of routes, if routes are maintained and are available to	+/-	There is potential to demonstrate the links between providing this resilience and the

		users. The theme discusses network resilience and the benefits of keeping the networks operational (e.g. through periods of heavy rain/snow) however the economic benefits and productivity benefits for businesses are not directly referenced. Maintenance of the network however inevitably causes delay during periods of roadworks.		economic savings caused from maintaining a regular system and timetable operation.
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	Long term thinking on asset management should ensure that access to facilities and infrastructure is maintained and sustained into the future. Phasing out ageing infrastructure with more modern and durable infrastructure should reduce the potential for a major network failure to occur; this will ensure that access to areas is maintained and that the risk of accidents is reduced.	+	It is recommended that up to date communication methods are used to relay messages when there are travel disruptions. Additionally people should be made aware of alternative methods of travel and how to obtain more information on them. This information should be made available in other languages, and in formats accessible for people with disabilities (especially people with visual impairments and learning difficulties).
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	Long term thinking on asset management should ensure that access to facilities and infrastructure is maintained and sustained into the future. Phasing out ageing infrastructure with more modern and durable infrastructure should reduce the potential for a major network failure to occur; this will ensure that access to areas is maintained and that the risk of accidents is reduced.	+	It is recommended that up to date communication methods are used to relay messages when there are travel disruptions. Additionally people should be made aware of alternative methods of travel and how to obtain more information on them. This information should be made available in other languages, and in formats accessible for people with disabilities (especially people with visual impairments and learning difficulties).

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	Resilience will be enhanced which should maintain levels of accessibility. The aim of proactively maintaining the rail networks through asset renewal and timely maintenance should ensure that accessibility to services is maintained.
2	Improve affordability of transport	0	0	0	0	0	0	0	0	This principle would have very little impact on the affordability of transport. There is little potential to increase the impact on this objective.
3	Reduce crime and fear of crime and promote community safety	0	0	0	0	0	0	0	0	This principle would have very little impact on crime and fear of crime. There is little potential to increase the impact on this objective.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	Safety should be enhanced through long-term planning of West Yorkshire's assets. As older, infrastructure is due to be phased out soon, the risk of failure will be minimised, and regular checking of assets should ensure any unsafe elements are repaired as soon as possible, minimising the chance for them to cause accidents.
5	Reduce severance	0	0	0	0	0	0	0	0	This theme would have little impact on severance. Renewal of highway assets should reduce the likelihood of asset failures, to assets such as bridges. Severance could be reduced as key assets are less prone to failure due to proactive asset management.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
6	Reduce environmental impacts of transport – vibration and air, noise and light pollution	0	0	0	0	0	0	0	0	The theme will have little impact on the environmental impacts.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+	+	+	+	+	+	+	+	+	Resilience will be enhanced which should maintain levels of accessibility. The aim of proactively maintaining the rail networks through asset renewal and timely maintenance should ensure that accessibility to services is maintained.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
2	Improve affordability of transport	0	0	0	0	0	0	0	0	0	This principle would have very little impact on the affordability of transport. There is little potential to increase the impact on this objective.
3	Reduce crime and fear of crime and promote community safety	0	0	0	0	0	0	0	0	0	This principle would have very little impact on crime and fear of crime. There is little potential to increase the impact on this objective.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	+	Safety should be enhanced through long-term planning of West Yorkshire's assets. As older, infrastructure is due to be phased out soon, the risk of failure will be minimised, and regular checking of assets should ensure any unsafe elements are repaired as soon as possible, minimising the chance for them to cause accidents.
5	Reduce severance	0	0	0	0	0	0	0	0	0	This theme would have little impact on severance. Renewal of highway assets should reduce the likelihood of asset failures, to assets such as bridges. Severance could be reduced as key assets are less prone to failure due to proactive asset management.
6	Reduce environmental impacts of transport – air and noise pollution	0	0	0	0	0	0	0	0	0	The theme will have little impact on the environmental impacts.

Cross Cutting Core Theme	**Environment, Health and Well Being, Inclusion – Or Ambition is to improve the transport system of West Yorkshire in such a way that it contributes to improving the health and overall wellbeing of people living or working here.**
Summary of Cross Cutting Core Theme (for full text refer to Transport Strategy document)	Promoting economic growth is compatible with high level objectives for improving environment, promoting health and well-being and increasing access to opportunities. Over 70% of all travel to work is by car, which is considered a vital part of our transport system. However, it creates environmental, health and social problems. Impacts on life expectancy are of major concern. To deliver vision of 'good' growth set out in Strategic Economic Plan, we need to address the negative aspects of our travel and provide greater options for more environmentally friendly and healthy transport. **X1 – Reducing traffic emissions and noise:** Road transport is the biggest contributor to air pollution. Cars are the largest contributor but other vehicles also play a part. NOx and PMn are of particular concern. WY has some of the highest air pollution in UK. Road traffic also contributes heavily to carbon emissions. Moving to low carbon transport system is vital to combat effects of climate change etc. and disruptive weather conditions. Exposure to noise can cause mental health issues and cardiovascular issues. 1 in 10 people in WY exposed to noise levels that cause health issues. Low Emission Strategy devised and this will be delivered following its adoption. Focus on encouraging people to switch from cars to a more sustainable mode or for some journeys by low emission, more active forms of transport. We will make significant progress in electrification of cars, freight and public transport and local authorities etc will lead by example. Electric infrastructure is inadequate. Bus Strategy sets our ambition for moving to a clean bus fleet with near to zero emissions. Leeds will be one of the first cities in the UK to introduce a Clean Air Zone before 2020. Only cars will be exempted from this. **Policy: Fund technology (e.g. electric vehicles) and behaviour change interventions (e.g. encouraging more walking and cycling instead of car driving) to ensure that all parts of WY meet environmental standards for air quality and noise.** **X2 – Improving safety:** Overall long term accident trends are downwards, but still cause significant amounts each year. Overall performance is worse than the national average and the gap is growing. Majority of collisions involve cars or taxis but 11% motorcycles and 13% involved cyclists. Priority to be given to these vulnerable users. We will maintain focus on driving down accidents. Through design and road safety projects. Greater resources for education, training and promotional programmes to improve road user behaviours to maximise the improvements in the physical environment. **Policy: Make the transport system safer, moving towards a 'zero tolerance' of transport injury related deaths.** **X3 – Encouraging Healthy Travel:** Inactivity is a major cause of health issues leading to premature death. Getting people to walk and cycle (e.g. by building on the success of Tour de France etc) could help prevent this, though there is a fear of road accidents. We believe active travel should not increase the risk of injury on the roads. We will encourage active travel by provision of more opportunities for cycling & walking. We will provide the right infrastructure on highways and off-road to allow safer and more effective journeys for cycle and walking. This will also involve behaviour change interventions such as training and promotional campaigns. **Policy: Providing more opportunities for walking and cycling**

	X4 – Including Communities: A large percentage of households have no access to a car. 64% of job seekers have no access to a car or cannot drive. A thriving and successful bus system can provide a way out of social isolation and is integral to promoting inclusion and boosting the economy. It supports mobility got job growth and is positive for economy of retail and leisure sectors. Bus system is weakest in rural WY. Another weakness is reduced services e.g. on Sunday's. We will develop our 'total transport' approach, connecting rural and more disadvantaged areas to opportunities – this will involve a multi-agency approach, across different areas and target groups (particularly disadvantaged / vulnerable groups). We will look to use ticketing / payment technology to develop concessionary travel for target groups. Access to green space can improve health, with consequent benefits. Access to green space is worst for disadvantaged groups. There is an extensive network of footpaths, bridleways, towpaths etc. linking rural and urban areas. We will improve access to green space in rural and urban areas – especially for those with mobility issues. Lack of Social interaction is also another issue with health impacts. Transport can bring people together but also cause severance. People on busy roads / streets are also more at risk of injury and exposure to noise / air pollution and statistically on average have less social interactions. We will seek to reduce community severance and isolation through our actions to encourage healthy travel and improve road safety. Particular attention will be paid to making places safe and accessible for older and frailer people to continue to walk and access services. **Policy: Develop the 'total transport' approach, as well as access to green spaces and severance and isolation problems.**

Assessment Scale	Assessment Category	Significance of Effect
+++	Large beneficial	Significant
++	Moderate beneficial	
+	Slight beneficial	Not Significant
0	Neutral or no obvious effect	
-	Slight adverse	
--	Moderate adverse	Significant
---	Strong adverse	
?	Effect uncertain	
+/-	Combination of slight beneficial and adverse effects	Not significant
++ --	Combination of moderate beneficial and adverse effects	Significant

ISA Objectives		Description of effect[6]	Scale / significance of effect	Recommendations for mitigation or enhancement
1	Protect and enhance local air quality	This theme makes direct reference to this objective. The delivery of the Low Emission Strategy, the Leeds Clean Air Zone and the delivery of electrification programmes will aid the delivery of this objective. The Low Emission Strategy will seek to reduce West Yorkshire's urban air pollution issues (currently 1 in 20 deaths in West Yorkshire are attributable to air pollution). It targets activity across West Yorkshire authorities. The Leeds Clean Air Zone seeks to achieve compliance with the EU Air Quality Directive and will be introduced by 2020. The details are to be determined but will set emission standards for buses, coaches, taxis, light goods vehicles and heavy goods vehicles – with only cars exempted.	+++	The theme makes no specific commitments to the levels of impact that are hoped to be achieved for the levels of NOx and PM10 reduction.
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	This theme and the policies within it are primarily concerned with reducing emissions and this may have a positive benefit on biodiversity e.g. through removing harmful emissions or deposition of particulate matter on biodiversity. There are no clear targets set as to how much emissions will be reduced. No recognition to other potential impacts of transport schemes on biodiversity is given – for example, there is no note made of the potential for new hard infrastructure to require the loss of areas of biodiversity. It is anticipated that in the absence of this recognition and by extension the absence of any mitigation, then this would likely result in negative effects. Note is also made of green spaces and the extensive network of footpaths, bridalways etc. but no further information is given as to how	+/-	It is recommended that the theme is amended to provide targets to be achieved in terms of percentage reduction in emissions. It is further recommended that the theme is amended to recognise the potential for transport schemes to have an effect on Biodiversity etc. and the need for these effects to be mitigated e.g. through design or for opportunities for enhancement to be taken e.g. by planting wildflowers, or native species at new road verges. The theme should also be amended to make more emphasis of the green infrastructure network and how this can be

[6] This includes the effects' magnitude, geographical scale, time period over which they occur, whether they are permanent or temporary, positive or negative, probable or improbable, reversible or irreversible, frequent or rare

		this can be utilised for maximum benefit as part of the green infrastructure network.		developed to aid objectives of the Transport Strategy.
3	Protect and enhance the International sites (HRA Specific objective)	This theme and the policies within it do not recognise the potential impacts of transport schemes on International sites.	--	It is recommended that the following text is added to the theme: Any development that would have an adverse impact on a designated site, an important habitat or species, and/or a habitat network, should be avoided as far as possible. If this cannot be achieved, the adverse impacts must be adequately mitigated, or, as a last resort, compensated for. It will not be possible to compensate for any proposals that would result in the loss of an irreplaceable habitat, including ancient woodland. In the case of International designated sites, a Habitat Regulations Appropriate Assessment is required for any proposal likely to have significant effects on the site. Any development that cannot demonstrate it would not adversely affect the integrity of such a site will be refused. Notwithstanding an adverse effect on the integrity of a International site, if there is no alternative solution and there are imperative reasons of over-riding public interest for the project, the application will be referred to the Secretary of State. If the authority and/or the Secretary of State is minded to approve any proposals, notwithstanding their adverse effect described above, compensatory measures to protect the site must be put in place, in consultation with Natural England.
4	Reduce carbon dioxide emissions from transport	This theme makes direct reference to this objective. The delivery of the Low Emission Strategy, the Leeds Clean Air Zone and the	+++	The theme makes no specific commitments to the levels of impact that are hoped to be

		delivery of electrification programmes will aid the delivery of this objective. The Low Emission Strategy will focus on encouraging people to switch from their cars to a more sustainable modes or for some journeys to be made by other low emission, more active forms of transport. Commitment to delivering electric vehicle infrastructure will support the uptake of electric vehicles. This includes private vehicles, but also a commitment to a near-zero emission bus fleet.		achieved for the levels of carbon dioxide reduction.
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	This theme notes the vital need to move to a lower carbon transport system to combat the effects of climate change and the disruptive impact of extreme weather conditions on our homes, communities and infrastructure. However, this is in the context of lowering carbon emissions and therefore lowering the contribution of WY to a changing climate – this theme does not address the issue of dealing with extreme weather events caused by an already changing climate.	-	In addition to noting the need to reduce WY's contribution to climate change, it is recommended that the theme is reworded to note the need to reduce the vulnerability from extreme weather events induced by an already occurring changing climate i.e. climate change will occur and will bring extreme events such as flooding – the Transport sector of WY needs to address this, perhaps through scheme design.
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	This Cross Cutting Theme notes the need to reduce emissions and proposes a number of policies to achieve this. As such it can be expected that there will be a reduction in fuel (natural resource) consumption. No note though is made of the need to minimise waste production or the need for recycling. The Transport Strategy will result in 'hard' infrastructure being developed and therefore there will be a need to address waste and potentially recycling as part of the development of those schemes. It is unclear without reference to other strategies as to how this could be accomplished.	+/-	It is recommended that the theme is reworded to note that waste and recycling would have to be addressed at scheme design and during the construction phase.
7	Protect and enhance the water environment	It is likely that Schemes derived from this Transport Strategy and the policies within will have an effect on the water environment during construction and operation. It is likely that effects will be negative and could be considered permanent. However, this cross cutting theme does not address potential effects on the water environment – only one note is made of canal towpaths being used to link urban and rural areas.	--	It is recommended that the theme is reworded to note the need to protect the water environment during the construction and operation of any new infrastructure. This could be accomplished during the design process and by the use of SuDS

					and this approach would likely reduce any negative effects.
8	Conserve soil resources and quality and seek to remediate contaminated land	It is likely that Schemes derived from this Transport Strategy and the policies within will result in 'hard' infrastructure being developed – these may have a negative effect on soil resources that could be considered permanent. These interventions though could potentially provide an opportunity for remediation or re-use of contaminated land. This cross cutting theme however, does not consider the potential for effects on soil resources or of contaminated land.	++	--	It is recommended that this Cross Cutting Theme is reworded to note the requirement to protect soil resources when possible and to take opportunities for land remediation or reuse of contaminated land when possible.
9	Conserve and where appropriate enhance those elements which contribute to the significance of the areas heritage assets	It is likely that Schemes derived from this Transport Strategy and the policies within will result in 'hard' infrastructure being developed – these may have a negative (permanent) effect on heritage assets. On the other hand these schemes could also afford the opportunity to enhance elements of the areas heritage assets. This Cross Cutting Theme does not note heritage assets or the potential for effects on these.	+/-		It is recommended that the Cross Cutting Theme is reworded to note the requirement to protect (and if possible enhance) heritage assets when possible.
10	Protect and enhance the character and quality of landscape and townscape	It is likely that Schemes derived from this Transport Strategy and the policies within will result in 'hard' infrastructure being developed – these could potentially have a positive or negative effect on landscape / townscape. This Cross Cutting Theme notes the need for access to Green Space and linkages between urban and rural areas and also the issue that transport schemes can make places unattractive, however there is little / no detail on how these issues such as Green Space and improving the attractiveness of places can be achieved.	+/-		It is recommended that the Cross Cutting Theme is reworded to note the requirement to protect and enhance landscape / townscape when possible.
11	Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport, including public transport, cycling and walking	The commitment to encouraging and supporting walking and cycling and active travel modes is within the 'encouraging healthy travel' commitment which is in full alignment with this objective. The commitment to a 300% increase in travel trips by walking and cycling by 2036 will significantly contribute towards the principle of reducing the need to travel by car and supporting the uptake of more sustainable modes of transport.	+++		None

12	Maintain or improve the number and range of good quality and accessible employment opportunities	The commitment to accessibility and inclusion for employment opportunities is within the 'including communities' commitment which is in full alignment with this objective. The commitment references the 28% of households in West Yorkshire with no access to a car and the 64% of job seekers that have no access to a car or cannot drive. The initiatives include a bus system to address social isolation, including increased operating hours (evenings and weekends). Bus system initiatives connecting rural communities will support disadvantaged areas and provide access to employment opportunities. Such initiatives will support specific communities including young people, older people, those with mobility difficulties, unemployed people, those on low incomes, and those who do hot hold a driving license.	+++	None
13	Enhance productivity and competitiveness of businesses	The theme makes direct reference to enhanced productivity delivered through improving health. There is direct reference to improving access to green space, and reducing severance between communities. Community cohesion and improved health will support productivity and business benefits.	+++	None
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	Higher levels of sustainable travel in West Yorkshire will lead to health benefits. Sustainable travel, walking, cycling and public transport, will ensure health benefits through its use of exercise. This should lead to reductions in obesity, and its subsequent impact on the health service.	+++	People should be aware of the alternatives to using the car. These messages should be made available for all, and clearly outline how a person would use the alternative mode.
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	This theme will enhance equality of opportunity for all citizens by looking at opportunities for fairer ticket pricing options for those such as jobseekers. The encouragement of sustainable modes of travel should lead to mode shift, which will reduce air, noise and light pollution and minimise the number of car trips.	+++	It is recommended to review whether public transport remains a financially viable method of transport for all members of the population e.g. ensure that jobseekers can afford to use the rail service to access employment areas.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	++	++	++	++	++	++	+++	++	The 'total transport' approach will connect rural and disadvantaged areas to opportunities, enhancing accessibility through ensuring the bus network is more comprehensive and connected. Improved off-peak services (such as Sundays) will help improve access for shift workers without access to cars, which will include employees in the health field.
2	Improve affordability of transport	+	+	+	+	++	+	+	+	The 'total transport' approach will look at using ticketing/payment technology to develop concessionary travel for disadvantaged groups, e.g. jobseekers, and people living in rural areas. 2.4% of the West Yorkshire population were collecting jobseeker's allowance in November 2014, which is above the 1.7% national average, suggesting that there is high potential for enacting a positive change in transport affordability. Furthermore, 21% of respondents to the Passenger Focus survey were not satisfied with bus fares. Measures to reduce bus fares for parts of the population is therefore in the public interest.
3	Reduce crime and fear of crime and promote community safety	0	0	0	0	0	0	0	0	There are few measures promoted relating to crime and perceptions of safety.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	++	+	+	+	Various programmes are proposed in order to enhance road safety across West Yorkshire, such as giving priority to vulnerable road users like motorcyclists, pedestrians and cyclists. Infrastructure for pedestrians and cyclists will also be designed with

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
										the aim of improving safety. The combined authorities' accident performance is improving but is still worse than the national average. Through design and road safety projects, with greater education, training and promotional programmes ensuring that road user behaviours will be improved.
5	Reduce severance	+	+	+	+	+	+	+	+	The strategy aims to provide more opportunities for walking and cycling by providing better infrastructure, which will reduce severance. Severance may also be reduced for people that live on/use busy roads. Where busy roads cause severance, attention will be paid to making them more safe and accessible, especially for older people's use.
6	Reduce environmental impacts of transport – vibration and air, noise and light pollution	+++	+++	+++	+++	+++	+++	+++	+++	The theme will reduce transport's environmental impact in West Yorkshire. The Low Emission Strategy aims to promote a modal shift from car to sustainable modes. Currently 70% of all travel to work is by car, so there is high potential for modal shift. Leeds' Clean Air Zone will enhance air quality in the city centre, while efforts to improve the electric infrastructure for cars, freight and public transport across West Yorkshire will also occur. As a result, air quality, noise, and pollution issues will be minimised, which will be particularly beneficial for children and those with health problems. Currently 1 in 10 people in West Yorkshire are exposed to noise levels that cause health issues.

HIA sub-objective		Scale of Effect								Description of effect/Recommendations for mitigation or enhancement
		Children and adolescents	Older people	Disabled/ other health problems	Low-income groups	Cyclists, pedestrians, commuters	Residents	Employees	Assessment summary	
										A programme to promote a behavioural change e.g. by encouraging more walking and cycling instead of using the car, should also reduce the environmental impacts of transport.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
1	Improve accessibility to services, facilities and amenities for all	+++	+++	+++	+++	+++	+++	+++	+++	+++	The 'total transport' approach will connect rural and disadvantaged areas to opportunities, enhancing accessibility through ensuring the bus network is more comprehensive and connected. Improved off-peak services (such as Sundays) will help improve access for shift workers without access to cars.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
2	Improve affordability of transport	+	+	+	+	+	+	+	+	+	The 'total transport' approach will look at using ticketing/payment technology to develop concessionary travel for disadvantaged groups, e.g. jobseekers, and people living in rural areas. 2.4% of the West Yorkshire population were collecting jobseeker's allowance in November 2014, which is above the 1.7% national average, suggesting that there is high potential for enacting a positive change in transport affordability. Furthermore, 21% of respondents to the Passenger Focus survey were not satisfied with bus fares. Measures to reduce bus fares for parts of the population is therefore in the public interest.
3	Reduce crime and fear of crime and promote community safety	0	0	0	0	0	0	0	0	0	There are few measures promoted relating to crime and perceptions of safety.
4	Improve road safety and reduce the number of accidents and other incidents	+	+	+	+	+	+	+	+	+	Various programmes are proposed in order to enhance road safety across West Yorkshire, such as giving priority to vulnerable road users like motorcyclists, pedestrians and cyclists. Infrastructure for pedestrians and cyclists will also be designed with the aim of improving safety. The combined authorities' accident performance is improving but is still worse than the national average. Through design and road safety projects, with greater education, training and promotional programmes ensuring that road user behaviours will be improved.

EqIA sub-objective		Scale of Effect									Description of effect/Recommendations for mitigation or enhancement
		Age	Gender	Disability	Ethnicity	Faith	Sexual Orientation and Gender Reassignment	Pregnancy and Maternity	Marriage and Civil Partnerships	Assessment summary	
5	Reduce severance	+	+	+	+	+	+	+	+	+	The strategy aims to provide more opportunities for walking and cycling by providing better infrastructure, which will reduce severance. Severance may also be reduced for people that live on/use busy roads. Where busy roads cause severance, attention will be paid to making them more safe and accessible, especially for older people's use.
6	Reduce environmental impacts of transport – air and noise pollution	+++	+++	+++	+++	+++	+++	+++	+++	+++	The theme will reduce transport's environmental impact in West Yorkshire. The Low Emission Strategy aims to promote a modal shift from car to sustainable modes. Currently 70% of all travel to work is by car, so there is high potential for modal shift. Leeds' Clean Air Zone will enhance air quality in the city centre, while efforts to improve the electric infrastructure for cars, freight and public transport across West Yorkshire will also occur. As a result, air quality, noise, and pollution issues will be minimised, which will be particularly beneficial for children and those with health problems. Currently 1 in 10 people in West Yorkshire are exposed to noise levels that cause health issues. A programme to promote a behavioural change e.g. by encouraging more walking and cycling instead of using the car, should also reduce the environmental impacts of transport.

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