West Yorkshire Transport Strategy 2016-2036

Integrated Sustainability Assessment

Main Report

West Yorkshire Combined Authority

July 2016

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Non-Technical Summary

Introduction

This is the Non-Technical Summary (NTS) of the Integrated Sustainability Assessment (ISA) Report of the Wet Yorkshire Transport Strategy 2016 – 2036. The purpose of the NTS is to set out the ISA process and the outcomes derived from this and is intended to inform people who have a general interest in the Transport Strategy ISA, but who are not concerned with its detailed technical assessment – readers are advised to read the full contents of the ISA Report for more detailed information if required.

The West Yorkshire Transport Strategy 2016 - 2036

The West Yorkshire Combined Authority (WYCA) and West Yorkshire District councils are currently preparing a new Transport Strategy to ensure that the area of West Yorkshire, comprising of Bradford, Calderdale, Kirklees, Leeds and Wakefield, has the appropriate transport infrastructure and services to help deliver the vision of *'Travel around West Yorkshire in 2036 will be easy and reliable, using a modern, well-connected transport network that enhances business success and people's lives.'*

This Transport Strategy will cover the period up to 2036 and will ensure that travel around West Yorkshire is easy and reliable, using a modern, integrated efficient, safe and low emission transport network that enhances people's lives, provides capacity to connect business with markets, employers with a large and productive workforce and people with jobs and opportunities.

The Objectives of the Transport Strategy are:

- Improve connectivity and reduce congestion - thereby increasing business productivity and providing access to wider labour markets.
- Create a 'sense of place' - encouraging walking and cycling for health and other benefits and increasing access in a safe way.
- Have a positive impact on our built and natural environment - increasing longer term resilience against climate change.

To help meet the above Objectives, a series of five 'Core Themes' were developed, which reflect important issues and concerns raised during the development of the Strategy. These Core Themes are:

1. Road Network – A road network that enables users to move around more efficiently and that balances the competing demands for road space;
2. Places to live and work – To make our cities, towns and neighbourhoods more attractive places to live, work and visit;
3. One System Public Transport – A transformational public transport system that connects different modes of transport into one network;
4. Smart Futures – To use technology to better plan and manage the transport system and improve the experience of the people using it;
5. Asset Management –To ensure that we make best use of our existing and future transport assets and that they are fit for the future and properly managed in a sustainable, environmentally friendly, and cost-effective way.

In addition there is a 'cross cutting' theme which applies to all the elements of the Transport Strategy:

- Environment, Health and Well Being, Inclusion –To improve the transport system of West Yorkshire in a way that it makes a significant contribution to improving the health and overall wellbeing of people living or working here.

The purpose of the Integrated Sustainability Assessment

While it is important that the Transport Strategy and any transport schemes which are derived from it help deliver the vision for transport across West Yorkshire, it is also important that this is done in a way which protects the environment, protects the health of people and allows as many different people as possible the same opportunities for accessing the facilities and services they require whilst promoting sustainable economic growth at the same time.

Therefore the Transport Strategy was subjected to a series of assessments that cover the topics of Sustainability and Strategic Environmental Assessment (SA/SEA), Health Impact Assessment (HIA) and Equality Impact Assessment (EqIA). It is also important to note that as there is a potential that the Transport Strategy could lead to direct or indirect effects on sites which have been designated at the International level for nature conservation purposes (such as Special Areas of Conservation), a Habitats Regulation Assessment (HRA) was also carried out. Taken together these various assessments are described as an 'Integrated Sustainability Assessment' (ISA).

Another important point to note is that the new Transport Strategy is not starting with 'a blank sheet of paper'. There is a current transport network across West Yorkshire that has been developed over many years and is the result of previous Transport Plans and investment decisions. This transport network already has an effect on the environment, on people's health and their equality of opportunity. An objective of this ISA is to provide for a high level protection of the environment and to contribute to the integration of environmental considerations into the preparation of the Strategy; to consider potential impact on and support efforts to improve the health of individuals and communities and to ensure that the Strategy does not discriminate against any individual or community and where possible promotes equality.

An overview of the ISA processes and how these come together is as follows. Note that the HRA process is undertaken in parallel and the results incorporated into the ISA as appropriate. We are currently at the stage of consulting on the draft Transport Strategy and ISA Report. The public consultation is taking place during July-October 2016.

NTS Table 1: Overview of Integrated Sustainability Assessment processes

Transport Planning Stage	Sustainability Appraisal/ Strategic Environmental Assessment		Habitats Regulation Assessment	Health Impact Assessment	Equalities Impact Assessment
	Stage	**Tasks**	**Tasks**	**Tasks**	**Tasks**
Determining the scope of the Transport Strategy clarifying goals; specifying the problems or challenges the authority wants to solve	**A. Setting the context and objectives, establishing the baseline and deciding on the scope**	Review plans/programmes		Identify Health related plans/programmes (as part of SA/SEA)	Review of relevant policies and strategies
		Review Sustainability themes		Derivation of health -related themes (as part of SA/SEA)	Derivation of equality-related themes
		Review Baseline data and likely future trends	Identify all international sites within and up to 20km around the Transport Strategy area	Gather data relating to health (as part of SA/SEA).	Baseline evidence
		Review Key sustainability issues	Contact Natural England for details of all international sites and consultation purposes	Identify health specific issues (as part of SA/SEA)	Identify equalities specific issues
		Review objectives and decision-making questions (SA/SEA Framework)	Liaise with SA/SEA team to ensure SA/SEA Framework covers international sites appropriately	Ensure inclusion of Health specific objectives in SA/SEA Framework	Ensure inclusion of Equalities specific objectives in SA/SEA Framework
		Prepare Key Sustainability Issues briefing note	*HRA information incorporated in briefing note*	*HIA information incorporated in briefing note*	*EqIA information incorporated in briefing note*
		Informal consultation with SEA Statutory consultees on the Key Sustainability Issues briefing note	*Consultation as part of SA/SEA informal consultation*	Informal engagement with HIA consultees on relevant aspects of Key Sustainability Issues briefing note	Informal engagement with EqIA consultees on relevant aspects of Key Sustainability Issues briefing note

Generating options for the Transport Strategy to resolve these challenges; appraising the options and predicting their effects	**B. Developing, refining and appraising strategic options**	Assess Transport Strategy objectives against the SA/SEA Framework	Assess Transport Strategy objectives against relevant HRA objective	*HIA assessment of Transport Strategy objectives and strategic options be undertaken within SA/SEA*	*EqIA assessment of Transport Strategy objectives and strategic options be undertaken within SA/SEA*
		Appraise Transport Strategy strategic options	Initial advice provided to client in relation to the sensitivities of the international sites and how to avoid significant effects on these sites.		
		Evaluate/select Transport Strategy preferred options.			
Selecting preferred options for the Transport Strategy and deciding priorities	**B. Assessing the effects of the Transport Strategy**	Predict and assess effects of options taken forward	HRA review of proposals in draft Transport Strategy	*HIA assessment of preferred options to be undertaken within SA/SEA.* *Mitigation measures proposed within SA/SEA*	*EqIA assessment of preferred options to be undertaken within SA/SEA.* *Mitigation measures proposed within SA/SEA*
		Propose mitigation measures	Propose mitigation measures		
Production of the draft Transport Strategy		Propose monitoring programme	*Monitoring as part of SA/SEA*	*Monitoring as part of SA/SEA*	*Monitoring as part of SA/SEA*
	C. Prepare ISA Report		Prepare HRA Screening Report (separate output)	HIA fully documented in ISA Report (no separate output but HIA component properly identified)	EqIA fully documented in ISA Report (no separate output but EqIA component properly identified)
Consultation on draft Transport Strategy	**D. Consulting on ISA Report**		**HRA Screening Report sent to Natural England for agreement on findings**.	*HIA Consultation included in ISA Report consultation*	*EqIA Consultation included in ISA Report consultation*
Production of final Transport Strategy	**D. Assess significant changes**		Assess significant changes	*HIA assessment of significant changes undertaken as part of SA/SEA*	*EqIA assessment of significant changes undertaken as part of SA/SEA*
Adoption of Transport Strategy	**D. Post Adoption Statement**		Prepare updated HRA Screening Report	*Relevant results reported in Post Adoption Statement*	*Relevant results reported in Post Adoption Statement*

Review of other Plans and Programmes

In addition to the existing transport network in which it operates, there are a range of relevant Plans, Programmes and Legislation which need to be considered in the development of the Transport Strategy ISA as this helps to identify relevant environmental and wider sustainability themes, baseline information and key issues. Therefore a range of relevant (to Sustainability, Health and Equality) plans, programmes and legislation were identified at the International (European), National (UK wide), Regional (pan-northern/West Yorkshire) and local levels.

The relationships between the relevant plans, programmes and legislation and the Transport Strategy were considered during the strategy development, with a large number of common themes and objectives being identified. These were addressed as appropriate.

The Existing Baseline

As noted above, the environment of West Yorkshire is already affected by the existing transport network. In order to consider the potential effects of the Transport Strategy, it was important to understand the existing environmental, social, economic and health context in which the strategy will be enacted and also understand how this environment may evolve without the implementation of the strategy. As such, an overview of the existing environmental (and wider sustainability) baseline was carried out.

The baseline data provided an overview of the sustainability characteristics of the West Yorkshire region and how these compare to the UK as a whole. The analysis highlighted a number of key issues which had implications and opportunities for the Transport Strategy ISA.

Key Sustainability Issues

As noted the review of existing plans, programmes and legislation, along with a review of the existing sustainability baseline allowed the identification of a series of key sustainability issues for West Yorkshire:

- Increasing greenhouse gases emissions (GHG), in particular CO2
- Increased risk of flooding
- Deteriorating air quality
- Threatened biodiversity and geodiversity and fragmentation of green infrastructure
- Pressure on landscape and townscape character
- Pressure on the historic environment
- Growing waste generation and natural resources consumption
- Pressure on land and contaminated land
- Pressure on water environment and pollution of watercourses
- High dependence on private car leading to traffic growth
- Employment
- Levels of productivity and competitiveness
- Population growth and make-up of the local population
- General health & health inequalities

The identification of these key sustainability issues also allowed the identification of implications and opportunities for the Transport Strategy and from this the identification of a series of ISA Objectives that would require particular attention during the strategy formulation process. A total of 15 ISA Objectives were identified:

NTS Table 2: ISA Objectives

No	ISA Objective	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
1.	Protect and enhance local air quality	Air Quality, Human Health (HIA, EqIA)
2.	To protect and enhance biodiversity, geodiversity and the green infrastructure network	Biodiversity, Flora, Fauna, Human Health, Population
3.	Protect and enhance the International sites (*HRA specific objectiv*e)	Biodiversity, Flora, Fauna (HRA)
4.	Reduce carbon dioxide emissions from transport	Climatic Factors, Human Health, Air
5.	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	Climatic Factors, Human Health, Material Assets (EqIA, HIA)
6.	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	Material Assets
7.	Protect and enhance the water environment	Water, Soil, Human Health (HIA)
8.	Conserve soil resources and quality and seek to remediate contaminated land	Soil, Biodiversity, Flora, Fauna, Material Assets
9.	Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	Cultural Heritage, Landscape, Material Assets
10.	Protect and enhance the character and quality of landscape and townscape	Cultural Heritage, Landscape, Material Assets (HIA)
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	Population, Material Assets, Human Health (HIA, EqIA)
12.	Maintain or improve the number and range of good quality and accessible employment opportunities	N/A
13.	Enhance productivity and competitiveness of businesses	N/A
14.	Improve health and well-being for all citizens and reduce inequalities in health (*HIA specific objective*)	Human Health (see HIA sub-objectives)

No	ISA Objective	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
15.	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (*EqIA specific objective*)	Population (see EqIA sub-objectives)

NTS Table 3: HIA Objectives and Sub-Objectives

HIA Objective	HIA Sub-Objectives
Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	1. Improve accessibility to services, facilities and amenities for all
	2. Improve affordability of transport
	3. Reduce crime and fear of crime and promote community safety
	4. Improve road safety and reduce the number of accidents and other incidents
	5. Reduce severance
	6. Reduce environmental impacts of transport - vibration and air, noise and light pollution

NTS Table 4: EqIA Objectives and Sub-Objectives

EqIA Objective	EqIA Sub-Objectives
To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society	1. Improve accessibility to services, facilities and amenities for all
	2. Improve affordability of transport
	3. Reduce crime and fear of crime and promote community safety
	4. Improve road safety and reduce the number of accidents and other incidents
	5. Reduce severance
	6. Reduce environmental impacts of transport - vibration and air, noise and light pollution

A series of questions to help aid the assessment and interpretation of each Objective were also identified. These questions and the ISA Objectives together make up the ISA Framework against which the Transport Strategy and derived scheme proposals were assessed.

Compatibility between the objectives of the Transport Strategy and Objectives of the ISA

In the early stages of development of the Transport Strategy, it was important to be sure that the objectives of the Strategy were in accordance with the ISA Objectives and therefore an assessment of their compatibility was carried out. This process identified potential synergies (i.e. where factors can come together to produce effects greater than a simple sum of the individual elements) but also any inconsistencies and helped to refine the objectives of the strategy.

A total of six objectives of the West Yorkshire Transport Strategy (Core Principles), with one cross cutting objective were considered initially.

- **Core Principle 1: One System** - The ambition is for a 'metro-style' public transport network that integrates all transport modes, including High Speed Rail, into one system that is easily understood, easy to access by a range of options and offers quick, convenient connections - this will be informed by work to develop a Connectivity Vision and expectations for journey times, frequency, capacity and quality of the network, and the role of key corridors and hubs for interchange.

- **Core Principle 2: Place Shaping** - The ambition is to make our cities, towns and neighbourhoods more attractive places to live, work and invest, with an emphasis on encouraging more walking and cycling and improving road safety, air quality and the image of places and the health of residents, with a focus on aligning investment in transport, public realm and regeneration.
- **Core Principle 3: Smart Futures** - The ambition is to exploit technology to improve the customer experience and to assist effective management of the transport system. This includes development of real-time customer information, extending payment options to include a 'best value' offer and extension of smartcards to car clubs, cycle storage, charging points and taxis.
- **Core Principle 4: Inclusion** - The ambition is to offer a high level of access by public transport in our urban and rural areas. The key input will be our work to develop a Bus Strategy. The WYCA preference is for a Bus Quality Contract Scheme. The challenge of connecting rural communities will potentially require developing imaginative solutions through collaboration with other public and private operators of vehicles.
- **Core Principle 5: Asset Management** - The ambition is to manage all of our transport system - roads, bridges, street lights, public transport stations and shelters, footways and cycle routes - in a way that offers maximum value for money and meets the needs of users.
- **Cross Cutting Principle: Minimising Carbon Emissions and Environmental Impact** - This theme will contribute to national and international targets to cut carbon emissions from the transport sector by making substantial progress towards a low carbon and environmentally sustainable transport system.

In this assessment it was found that there was a reasonable degree of compatibility, although some potential areas of conflict were identified, along with a number of gaps and areas where it was unclear how compatible the objectives were.

Therefore a series of recommendations were made in order to improve compatibility and shape the Transport Strategy as it developed. In particular these recommendations related to underpinning the requirement for minimising the environmental impact of scheme construction and implementation, as well as investing in transport measures to help promote economic growth and increasing employment across West Yorkshire.

Assessment of Alternatives

Three strategic scenarios in response to the six principles initially developed (as set out above) were developed by WYCA.

Scenario 1 considered continued investment against LTP3 (the previous Transport Strategy) priorities (economy, low carbon and quality of life) only whereas scenarios 2 and 3 considered continued investment against LTP3 priorities supplemented by Local Growth Deal 2 and continuation of Transport Fund schemes investment, with a focus on rail and road based capacity improvement (in the case of scenario 2) and on wider transport solutions, focusing on low carbon and active travel solutions (in the case of scenario 3).

Each strategic alternative has been assessed against the various ISA objectives. This has been done using a seven point scale of effect as follows:

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

A summary of the assessment for the three strategic scenarios is as follows:

- Strategic scenario 1 was the most environmentally favourable alternative given the slight adverse effects for air quality, biodiversity and natural environment, flood risk, soil quality, heritage assets and natural resources and waste and will also contribute positively and significantly to economic (1 in total) and social objectives (2 in total).
- Strategic scenario 2 was more problematic than the other two scenarios across the environmental, economic and social dimensions.
- Strategic scenario 3 had the highest number of significant beneficial significant effects (4 in total), relating to social and economic objectives and also lower environmental effects against objectives for air quality, greenhouse gases and sustainable modes of transport when compared with scenario 2. It nevertheless shows 7 significant environmental adverse effects for biodiversity and natural environment, flood risk, soil quality, heritage assets, water environment, heritage and natural resources and waste.

It should be noted that it is not the purpose of the ISA to decide the alternative to be chosen for the Single Transport Plan. This is the role of the decision makers who will have to make decisions about the plan to be adopted. The ISA provides information on the relative performance of the strategic scenarios and can make the decision making process more transparent.

On the knowledge that WYTF schemes will most likely be part of the Single Transport Plan (and therefore strategic scenario 1 is less realistic), strategic scenario 3 can be considered the scenario with the most potential to deliver a more balanced approach towards the three dimensions of sustainability. However, this would require the satisfactory minimisation of significant adverse effects potentially arising from proposed WYTF schemes and the careful consideration of the effects of the proposed schemes as part of the Single Transport Plan preparation as well as the strengthening of interventions to shift people from the private car to more sustainable modes of transport.

NTS Table 5: Assessment Summary for the Strategic Scenarios

ISA Objectives	Strategic Scenario 1 Do Minimum	Strategic Scenario 2 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.	Strategic Scenario 3 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
ENVIRONMENT			
1. Protect and enhance local air quality	+/-	--	-
2. To protect and enhance biodiversity, geodiversity and the green infrastructure network	-	--	--
3. Protect and enhance the International sites (HRA specific objective)	0	0	0
4. Reduce carbon dioxide emissions from transport	+	--	-
5. Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	-	+/--	--
6. Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	-	--	--
7. Protect and enhance the water environment	-	--	--
8. Conserve soil resources and quality and seek to remediate contaminated land	-	--	--
9. Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	-	--	--
10. Protect and enhance the character and quality of landscape and townscape	+	--	--

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	+	--	-
ECONOMIC			
12. Maintain or improve good quality and accessible employment opportunities	+	++	++
13. Enhance productivity and competitiveness of businesses	++	+++	+++
SOCIAL			
14. Improve health and well-being for all citizens and reduce inequalities in health *(HIA specific objective)*	++	+	++
15. To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (*EqIA specific objective*)	++	+	++

Assessment of the Draft Transport Strategy

WYCA have developed a series of Core Themes, with ambitions and derived policies associated to each in the Draft Strategy document dated April 2016 which was the subject of assessment. These are detailed below:

NTS Table 6: Draft Transport Strategy Themes and Ambitions and derived Policies (April 2016)

Theme	Ambition	Derived Policies
Road Network	Our 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	• RN1: Key Route Network – Manage a key road network that makes it easier for vehicles to move around • RN2: Car - Maintain the number of car journeys at today's level at peak periods • RN3: Freight – work with freight industry partners to make freight journeys more efficient • RN4: Taxi – work with taxi trade to improve safeguarding issues and the provision of environmentally friendly taxis at key hubs • RN5: Motorcycles – improve the highway network and parking facilities to be safer and more effective for motorcycle users • RN6: Walking & Cycling – improve the highway network to be safer and more effective for pedestrians and bicycle users
Places to live and work	Our ambition is to make our cities, towns and neighbourhoods more attractive places to live, work and visit	• PL1: People Friendly Streets – 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 - Improve local neighbourhoods by reducing traffic speeds, encouraging walking / cycling and making areas greener and healthier. • PL3: Roads - Build new roads to take traffic out of town / city centres • PL4: New Development - Provide sustainable transport links to new housing and employment sites.
One System Public Transport	Our ambition is for a transformational metro style public transport system that connects different modes of transport into one network	• OS1: Transport Hubs and Links - 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 - Develop a quick, frequent, reliable bus network, serving busy roads and providing local connections, including New Generation Transport • OS3: Rail Network - 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.
Smart Futures	Our ambition is to use improvements in technology to better plan and manage the transport system and improve the	• SF1: Network Management - Use of technology and data to better manage the transport network, improving capacity and efficiency • SF2: Mobility Account - Registered users able to travel flexibly by any transport mode (including

Theme	Ambition	Derived Policies
	experience of the people using it	buses, rail, car clubs etc.) with a fair price guarantee, with technology used to simplify paying for travel • SF3: Information - Provide improved travel information to make planning journeys easier • SF4: Open Data - Allow others to make use of our transport information for the benefit of customers travelling on our networks.
Asset Management	Our 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	• AM1: Efficiencies - 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 - 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 - Invest in replacement assets to save operating costs in the longer term.
Environment, Health and Wellbeing, Inclusion	Our ambition is to make the environment of West Yorkshire better to improve the health and wellbeing of people living or working here	• X1: Reducing emissions and noise - 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 - Make the transport system safer, moving towards a 'zero tolerance' of transport injury related deaths. • X3: Encouraging Healthy Travel - Providing more opportunities for walking and cycling • X4: Including Communities - Develop the 'total transport' approach, as well as access to green spaces and severance and isolation problems.

The April 2016 draft document also identified a series of programmes and projects (schemes) which would be developed by a series of subsequent 5 year Implementation Plans in order to implement the Transport Strategy. Note that further development work will be undertaken on these once the Transport Strategy is complete and adopted. The ISA has focussed on gaining an understanding of the effects of the proposed WYTF schemes identified for the period 2016 – 2021 and these were grouped per type of schemes for the purpose of the assessment as follows:

NTS Table 7: Proposed WYTF Schemes Grouping

Type of Scheme	Link to Strategy Core Themes and Policies*	Transport Fund Schemes
New Highway Links	Derived from Core Theme – Road Network and Policies RN1, RN2, RN3, RN5 and Core Theme – Places to Live & Work Policy PL3	• Castleford Northern Bypass • East Leeds Orbital Road • Glasshoughton Southern Link Road • Leeds Bradford Airport Access Road • Wakefield Eastern Relief Road York Central Access
Highways Improvements	Derived from Core Theme – Road Network and Policies RN1, RN2, RN3, RN5 and RN6 and Core Theme – Places to Live & Work Policies PL1, PL2 and PL3	• A650, A62, A641 Corridors
Urban Centre Improvements	Derived from Core Theme – Places to Live & Work and Policies PL1, PL2, PL4	• Leeds City Centre Package • Wakefield City Centre Package
Rail Improvements	Derived from Core Theme – One System Public Transport and Policies OS1 and OS3	• Calder Valley Line – signalling and line speed
Support for Rail Gateway Improvements	Derived from Core Theme – One System Public Transport and Policies OS1 and OS3	• Bradford Interchange/Forster Square • Castleford • Huddersfield • Leeds Station
Rail Park & Ride	Derived from Core Theme – One System Public Transport and Policy OS1	• 'Park and Rail' programme

Based on the information available for each named scheme, it was possible to draw generic overviews of the likely effects that each scheme type would typically have on each environmental, social and economic objective set as part of the ISA process. The results obtained were then fed into the assessment of policies and informed the development of policy recommendations set out below. The overall summary of the assessment findings for the different types of schemes is as follows:

NTS Table 8: Overview of the anticipated effects on the ISA Objectives in relation to each typical scheme type

Scheme Type	ISA Objective														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
New Highway Links	-- / ++	--	--	--	---	---	--	---	--	--	-- / ++	+++	+++	+/-	+/-
Highways Improvements	-- / ++	--	--	-- / ++	--	--	--	--	--	--	++	+++	+++	+/-	+/-
Urban Centre Improvements	++	-	-	++	-	--	0	0	--	++	++	++	+++	++	++
Rail Improvements	-- / ++	--	--	-- / ++	--	--	--	0	--	0	++	+++	+++	+	+
Support for Rail Gateway Improvements	0	0	0	+	0	-	0	+	-	+	+	0	0	0	0
Rail Park & Ride	+/-	-	-	+	-	-	-	-	-	-	+	0	0	0	0

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

As noted, the results of the Scheme Type assessment (displayed above in NTS Table 8) were then fed into the assessment of the Policies. The initial scoring of this assessment is as follows:

NTS Table 9: Assessment Scores for each Core Theme against each ISA Objective (initial scoring)

ISA Objective		Road Network	Places to live and work	One system public transport	Smart Futures	Asset Management	Environment, Health & Wellbeing
1	Protect and enhance local air quality	+/-	++	++	+	0	+++
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	---	++ --	---	+	0	+/-
3	Protect and enhance the International Sites (HRA specific objective)	---	--	---	0	0	- -
4	Reduce carbon dioxide emissions from transport	+/-	+	++	+	0	+++
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	---	++ --	---	0	-	-
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	+	+	+	+	+/-	+/-
7	Protect and enhance the water environment	---	-	---	+	-	--
8	Conserve soil resources and quality and seek to remediate contaminated land	+/-	+/-	+/-	+	0	++ --
9	Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	+/-	+/-	+/-	+	0	+/-
10	Protect and enhance the quality of landscape and townscape	+/-	+++	+/-	+	+	+/-
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	++	+	+++	+++	0	+++
12	Maintain or improve the number and range of good quality and accessible employment opportunities	0	++	+++	+/-	0	+++
13	Enhance productivity and competitiveness of businesses	+++	+	+++	++	+/-	+++
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	+	++	++	+	+	+++
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	+	++	++	+	+	+++

The results identify a number of areas of strength, but also some areas of weakness in relation to the performance of these Core Themes against the ISA Objectives.

The Core Themes are found to be positive in terms of improving air quality and reducing carbon dioxide emissions. This is particularly strongly demonstrated through the Cross Cutting Core Theme of Environment, Health and Well-being, Inclusion which has a clear policy (X1) to reduce emissions.

The Core Themes are also strongly positive in relation to reducing road traffic and congestion through reducing the need to travel by car and improving and promoting sustainable modes of transport including, public transport, cycling and walking. In this instance 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 and are considered to be strongly positive aspects. Similarly the growth targets for bus and rail identify the positive plan to increase public transport use.

Access to good quality and accessible employment opportunities are supported by the ambition for a better integrated network which 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. Similar positive effects are anticipated in relation to enhancing productivity and the competitiveness of business.

The Core Themes are also all positive or strongly positive in relation to improving health and well-being, reducing inequalities in health and promoting equality of opportunity. It is worth noting that the cross cutting theme of 'Environment, Health and Well-being, Inclusion' was considered to be Large Beneficial and due to the cross cutting nature of this Theme, this positivity will be experienced across the Strategy. Nevertheless, it is worth noting that recommendations to strengthen this aspect further were made - for example it was 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.

There are a number of areas where the Strategy as a whole was found to be less positive. These areas tended to reflect environmental issues, other than air quality and carbon. In particular the Core Themes relating to the 'Road Network' and 'One System Public Transport' were considered to be Strong Adverse in terms of biodiversity, flood risk and protection of the water environment. For example, new roads are likely to involve a direct loss of habitat that can be considered permanent and may have a negative effect on the water environment through construction pollution incidents, polluted runoff during operation and the potential for traffic accidents to result in pollution.

It was recognised though throughout the assessment of the Core Themes in relation to aspects of the environment that the Cross Cutting Theme of 'Environment, Health and Well-being, Inclusion' would address many of the issues arising within the themes. It was felt though that this Cross Cutting theme was weak in terms of protecting the environment (other than in relation to air quality and emissions). Therefore, throughout the assessment of the Core Themes, it was recommended that the Cross Cutting Theme was amended to address specific issues. In addition, the assessments of the type of schemes that will be implemented by the Transport Strategy have also led to further amendments proposals. Recommendations arising from the HRA Screening process have also been integrated in the amendments proposed.

Therefore in short, where required, recommendations to make the Core Themes more positive in terms of the ISA Objectives were made and these recommendations were addressed by WYCA as appropriate. In particular, the Core Theme for ‘Environment, Health & Well-Being, Inclusion’ was strengthened by the inclusion of a new policy X2 Protection and Enhancement of Green Infrastructure and the Built Environment. The final scoring of the Strategy after the introduction of the new policy X2 is shown below. Improvements in sustainability performance are notable across the environmental objectives.

NTS Table 10: Assessment Scores for each Core Theme against each ISA Objective (final scoring after introduction of new policy X2)

ISA Objective		Road Network	Places to live and work	One system public transport	Smart Futures	Asset Management	Environment, Health & Wellbeing
1	Protect and enhance local air quality	+/-	++	++	+	0	+++
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	--	++ -	--	+	0	++
3	Protect and enhance the International Sites (HRA specific objective)	--	-	--	0	0	++
4	Reduce carbon dioxide emissions from transport	+/-	+	++	+	0	+++
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	--	++ -	--	0	-	++
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	+	+	+	+	+/-	++
7	Protect and enhance the water environment	--	-	--	+	-	++
8	Conserve soil resources and quality and seek to remediate contaminated land	+/-	+/-	+/-	+	0	++
9	Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	+/-	+/-	+/-	+	0	++
10	Protect and enhance the quality of landscape and townscape	+/-	+++	+/-	+	+	++
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	++	+	+++	+++	0	+++
12	Maintain or improve the number and range of good quality and accessible employment opportunities	0	++	+++	+/-	0	+++
13	Enhance productivity and competitiveness of businesses	+++	+	+++	++	+/-	+++
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	+	++	++	+	+	+++
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	+	++	++	+	+	+++

Cumulative, Synergistic and Indirect effects

There is also a requirement to consider Cumulative, Synergistic and Indirect Effects of policies and interventions in the Transport Strategy. Secondary and Indirect effects are effects that are not a direct result

of the plan, but occur away from the original effect or as the result of a complex pathway. Cumulative effects arise where several proposals individually may or may not have significant effect but in-combination have a significant effect due to spatial crowding or temporal overlap. Synergistic effects are when two or more effects act together to create an effects greater than the simple sum of the effects acting alone.

The identification of these effects already takes into account the fact that WYCA has taken on board many of the recommendations to improve the sustainability performance of the Transport Plan. An overview of cumulative effects are as follows:

- Air Quality - Anticipated medium to long term benefits as measures are implemented.
- Biodiversity - Anticipated positive and negative effects over the medium to long term as measures are implemented.
- Carbon dioxide emissions - Anticipated medium to long term benefits as measures are implemented.
- Reducing vulnerability to climate change - Overall negative effects in the medium to long term as measures are implemented
- Prudent use of natural resources etc - Overall slight positive effects in the medium to long term as measures are implemented
- Protection and enhancement of water environment - Anticipated negative effects over the medium to long term as measures are implemented.
- Soil resources and contaminated land - Anticipated positive and negative effects over the medium to long term as measures are implemented.
- Landscape / Townscape - Anticipated overall positive beneficial effects over the medium to long term as measures are implemented.
- Reducing traffic and the need to travel by car and the promotion of sustainable modes of transport - Anticipated strong positive effects over the medium to long term as measures are implemented.
- Maintaining and improving the number and range of good quality and accessible employment opportunities - Anticipated positive effects over the medium to long term as measures are implemented.
- Enhancing productivity and competitiveness of business - Anticipated medium to strong positive effects over the medium to long term as measures are implemented.
- Improving health and well-being for all citizens and reducing inequalities in health - Anticipated medium to strong positive effects over the medium to long term as measures are implemented.
- Promotion of greater equality of opportunity for all citizens and achieving a fairer society - Anticipated medium to strong positive effects over the medium to long term as measures are implemented.

Monitoring

There will be a need to monitor the implementation of the strategy. As further schemes are likely to be developed, it is important that any decisions taken in relation to these, are taken with the best information available. Therefore, following the assessments, a monitoring programme was developed to allow the early establishment of a causal link between the implementation of the Transport Strategy and the likely significant effects (positive or negative). This will provide WYCA and other relevant authorities the information to make appropriate and informed decisions and take appropriate action as soon as practicable should the proposed monitoring programme be adopted. The results of this monitoring will also help inform future iterations of the Transport Strategy itself.

Next Steps

The ISA Report is being published for formal consultation with the Draft Transport Strategy. The results of the formal public consultation exercise may well result in changes to the Draft Transport Strategy, and these may have implications for the ISA results. In addition, the consultation exercise may result in direct changes to the contents of the ISA Report. These will be reported in the Post Adoption Statement in the next stage of development of the Transport Strategy and the ISA prior to adoption.

Summary & Conclusion

The West Yorkshire Combined Authority (WYCA) and the West Yorkshire District Councils are currently preparing a new Transport Strategy to ensure that the area of West Yorkshire, comprising of Bradford, Calderdale, Kirklees, Leeds and Wakefield, has the appropriate transport infrastructure and services to help deliver the vision of 'a top class transport system that supports good growth, serving the needs of business and people, enhancing prosperity, health and well-being for people and places across West Yorkshire'.

This Transport Strategy will cover the period up to 2036 and will ensure that travel around West Yorkshire is easy and reliable, using a modern, integrated efficient, safe and low emission transport network that enhances people's lives, provides capacity to connect business with markets, employers with a large and productive workforce and people with jobs and opportunities.

It has been recognised that implementation of this Strategy could have implications for the environment of the region, the health of its citizens and visitors to the region and the equality of opportunity for individuals and communities within the region. Therefore comprehensive and robust assessments were undertaken at the same time as the Strategy development and this process ensured that these issues were brought to the fore of the range of considerations undertaken during Strategy formulation.

As a result of the assessments undertaken, it was possible to propose a range of recommendations to improve the environmental, health and equality performance as the Strategy developed. Of particular note was the inclusion into the Core Theme of 'Environment, Health and Well-being, Inclusion' of a new policy 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment. This policy (along with the rest of the 'Environment, Health and Well-being, Inclusion' theme) applies across the Strategy policies and will ensure that environmental, health and equality issues are addressed at an early stage in any new transport scheme development. It will also encourage a range of mitigation to be incorporated into these transport schemes to ensure that the negative effects of these aspects are minimised as much as possible.

Mitigation will also be important to counteract many of the negative effects that can be expected from the construction and operation of any transport scheme. For example, the use of natural resources and the generation of waste are inherent in any construction process but mitigation can lead to greater use of recycling and waste reduction.

Mitigation can also provide an opportunity for enhancement of the environment. An example of this relates to mitigating the effects of Highway Infrastructure improvements on biodiversity where the sowing of wildflower mixes on grass verges, installation of bat and bird boxes, use of native species of tree and hedgerow all provide opportunities for biodiversity enhancement. In short, where there are aspects of the Transport Strategy which may have negative effects, there are opportunities to reduce or reverse these effects.

In terms of Health, it is considered that the Transport Strategy will be largely positive. The Strategy deals with improving health, reducing health inequalities etc. across a number of themes. Of particular note is the 'Environment, Health and Well Being, Inclusion' theme, which includes policies relating to improving air quality, improving safety, encouraging health travel etc.

The Transport Strategy deals with promoting equality etc across a number of themes but is particularly strong in terms of Equality in the 'Environment, Health and Well Being, Inclusion' theme. This Theme will ensure that the transport schemes promote equality of benefit across all user groups, with a particular focus on improving the lives for vulnerable transport users.

It is also considered that the Transport Strategy will be beneficial to enhancing productivity and the competitiveness of business and will maintain or improve the number and range of good quality and accessible employment opportunities.

Overall the Transport Strategy represents a well balanced approach in terms of its sustainability, health impact and equality impact performance and would ensure that the vision for the transport of West Yorkshire up to the year 2036 can be achieved in a sustainable and integrated fashion.

1. Introduction

1.1. Purpose of Report

1.2. This is the Integrated Sustainability Assessment (ISA) Report for the West Yorkshire Combined Authority (WYCA) Transport Strategy which has been prepared to fulfil the requirements for Sustainability Appraisal/Strategic Environmental Assessment (SA/SEA), Health Impact Assessment (HIA) and Equality Impact Assessment (EqIA). In addition, Habitats Regulations Assessment (HRA) has been undertaken as a parallel process to the ISA and is reported separately.

1.3. The ISA Report identifies the likely sustainability effects of implementing the Transport Strategy and reports on the process of developing the Transport Strategy from a sustainability perspective. The ISA and HRA Reports have been produced by Atkins for WYCA.

1.4. An overview of the Transport Strategy is presented next.

1.5. West Yorkshire Transport Strategy 2016 - 2036

1.6. The West Yorkshire Combined Authority (WYCA) was established on 1 April 2014 (prior to 2014 it operated as the West Yorkshire Integrated Transport Authority). The WYCA is currently developing a new, long term Transport Strategy for West Yorkshire covering the period 2016-2036. The Transport Strategy core principles and strategies will replace the current LTP (2011-2016). In addition, the Transport Strategy will also guide strategies and interventions and committed projects and programmes and incorporates some West Yorkshire plus Transport Fund (WYTF) schemes in its Implementation Plans. The Transport Fund is being developed by authorities in West Yorkshire and York, as part of the 'City Deal' with government, targeted specifically at increasing employment and economic growth across the area.

1.6.1. Transport Strategy's Objectives

1.7. The West Yorkshire Transport Strategy will cover the period up to 2036, in line with the Strategic Economic Plan (SEP) and provides the framework for the local transport planning and delivery of city region transport infrastructure and services.

1.8. The WYCA identifies the following overarching Transport Strategy Vision:

Travel around West Yorkshire in 2036 will be easy and reliable, using a modern, well-connected transport network that enhances business success and people's lives.

1.9. The SEP sets out seven expectations in development of a modern transport system that will provide connectivity and support sustainable economic growth:

- An integrated, accessible transport system;
- An efficient, well maintained and resilient highways network;
- A fully integrated 'metro style' City Region public transport network;
- Full exploitation of new and 'smart' technologies;
- Environmental improvements with a focus on reducing carbon emissions and air pollution;
- Promotion of cycling as a major mode of transport; and
- Ensuring that transport systems serve all communities.

1.10. In consideration of the SEP expectations, the Transport Strategy identifies three objectives, presented in Table 1-1.

Table 1-1 Proposed Transport Objectives

Proposed Transport Objectives		
Improve connectivity and reduce congestion - thereby increasing business productivity and providing access to wider labour markets	Create a 'sense of place' - encouraging walking and cycling for health and other benefits and increasing access in a safe way	Have a positive impact on our built and natural environment - increasing longer term resilience against climate change

1.11. Five core themes have been established in order to help develop the programmes and projects to deliver the strategy's objectives. These themes reflect the SEP's expectations for transport and the important issues and concerns identified through WYCA consultation in 2015. The core themes are:

- **Road Network** – A road network that enables users to move around more efficiently and effectively, balancing the competing demands for road space of different users; for a road network that works better, enabling users to move around more efficiently and effectively, and balancing the competing demands for road space;
- **Places to live and work** – To make our cities, towns and neighbourhoods more attractive places to live, work and visit;
- **One System Public Transport** – A transformational public transport system that connects different modes of transport into one network;
- **Smart Futures** – To use technology to better plan and manage the transport system and improve the experience of the people using it; and
- **Asset Management** – To ensure that we make best use of our existing and future transport assets and that they are fit for the future and properly managed in a sustainable, environmentally friendly, and cost-effective way.

1.12. In recognition of the connected influence of the core themes on broader aspects, also established in the Transport Strategy is a cross cutting core theme, as below:

- **Environment, Health and Well Being, and Inclusion** – To improve the transport system of West Yorkshire in a way that it makes a significant contribution to improving the health and overall wellbeing of people living or working here.

1.12.1. Current Transport Situation

1.13. As noted in the West Yorkshire Transport Strategy 2016 – 2036 West Yorkshire is well located to provide better transport connectivity to support economic growth in the City Region. We are at the centre of the country, at the cross roads of London, Edinburgh, Liverpool and Hull, on the main national rail and road networks from the East Coast Mainline and Trans Pennine Rail links to the M1 (north – south) and M62 (east – west). We are within an hour's drive time of 7 million people, and can reach Manchester, Sheffield and Hull within an hour's train journey.

1.14. The transport system supports a high volume of passenger and freight movement but there are significant challenges. Investment in capacity has not kept pace with economic and population growth resulting in congestion on roads, over-crowding on public transport, and a lack of overall resilience of the networks. Fundamentally, the transport system is under pressure and is holding back further growth. In 2014 the Growth Deal was negotiated securing £1bn for transport over the next 20 years enabling us to move up several gears - but this is only a starting point after decades of under investment.

1.14.1. Transport challenges

1.15. Current transport challenges are identified in the West Yorkshire Transport Strategy 2016 – 2036 as being:

- Inadequate north - south and east - west connections to the major cities of the UK
- Road congestion on motorway corridors and junctions and routes into the main urban centres

- Poor access by road, rail or bus to many key development sites including Leeds Bradford Airport, holding back job creation and house building
- Car dominance in town/city centres because of a lack of orbital road capacity
- Insufficient car parking at rail stations and limited park and ride options to our centres
- Severe overcrowding on trains in the busiest periods with peak period trains to and from Leeds having the worst overcrowding outside London
- Bus journeys made slow or unreliable by traffic congestion and long dwell times at bus stops because of on-bus payments
- Poor air quality and the impacts of harmful pollutants produced by traffic, linked with a range of illnesses and premature deaths
- Over-reliance on car use contributing to a rise in obesity and coronary heart disease
- Concerns with road safety, particularly the environment for walking and cycling

1.16. The future also present challenges. Work undertaken by Leeds University Institute of Transport Studies (Flexi-Mobility: 2015) and the Urban Transport Group (Horizon Scan: 2015) identify some key social and technological trends that are likely to have transformational impacts on the demand for travel in the future. In particular, the trends in youth mobility with lower levels of car ownership, greater use smart technology and the sharing economy.

1.17. Population growth and spatial perspectives - the population of West Yorkshire is forecast to grow by around 11% from 2015 to 2035, an increase of 276,000 people from 2.2 million to 2.5 million. The total population of the Leeds City Region is forecast to grow from 2.8 million to 3.0 million over the same period. This will put pressure on land, and on our transport services and systems.

1.18. City centre living has been an increasingly significant area of change – the 2011 census data shows there were 13,000 people living in Leeds city centre compared with only 3,200 in 2001; a further 10,200 dwellings in the city centre are planned for 2028. Going forward, attracting more people to live and work in our urban centres will be an important way of achieving growth without increasing travel demand, but there will still be the need to provide for growth elsewhere.

1.19. The West Yorkshire District Councils, through their respective Local Plans, are developing land-use allocation proposals to accommodate this forecast growth. The Local Plans identify the land allocations where development can take place and the type and scale of that development. The SEP, working from Local Plan land allocations, prioritises the key places for housing and jobs growth, and the range of infrastructure requirements and opportunities that needs to be integrated within them – including investment in transport, energy, digital and green infrastructure. There is a target to deliver between 10,000 - 13,000 new houses per year.

2. Approach to Integrated Sustainability Assessment

2.1. Introduction

2.2. The West Yorkshire Local Transport Plan (LTP) 2011-2016 was adopted in 2011 by the West Yorkshire Integrated Transport Authority. An ISA Report which covered SEA, HRA, EqIA, HIA and economic impacts was prepared as part of the evidence base underpinning the LTP 2011-2016.

2.3. For the ISA of the Transport Strategy, a similar approach has been adopted but expanded to use the SA/SEA process as the umbrella process under which the HIA and the EqIA have been undertaken. SA/SEA is a process which originally was used in the assessment of plans in the land use sector but which has become widely accepted as a way of covering environment, social and economic dimensions of sustainable development rather than just environmental as in a traditional SEA.

2.4. Sustainability Appraisal / Strategic Environmental Assessment

2.5. Although WYCA is not required under the Planning and Compulsory Purchase Act 2004 to undertake Sustainability Appraisal (SA) of the Transport Strategy, it has decided to undertake SA voluntarily. On the other hand, it is a statutory requirements that SEA is undertaken under the European Directive 2001/42/EC 'on the assessment of certain plans and programmes on the environment' (the 'SEA Directive').

2.6. Although the requirements to carry out SA and SEA are distinct, DCLG (Department for Communities and Local Government, formerly the ODPM (Office of the Deputy Prime Minister)) proposed that both can be satisfied through a single appraisal process. It has produced guidance (see Chapter 3 Methodology) to ensure SAs meet the requirements of the SEA Directive whilst widening the Directive's approach to include economic and social issues as well as environmental ones.

2.7. The EU Directive 2001/42/EC on assessment of effects of certain plans and programmes on the environment (the "SEA Directive") came into force in the UK through the Environmental Assessment of Plans and Programmes Regulations 2004 (the "SEA Regulations"). The SEA Regulations apply to a wide range of plans and programmes, including transport plans, and modifications to them.

2.8. The overarching objective of the SEA Directive is:

"To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans… with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans… which are likely to have significant effects on the environment." (Article 1)

2.9. The main requirements introduced by the SEA Regulations are that:

- the findings of the SEA are published in an Environmental Report (ER), which sets out the significant effects of the draft plan, in this case LTP3;
- consultation is undertaken on the plan and the ER;
- the results of consultation are taken into account in decision-making relating to the adoption of the plan; and
- information on how the results of the SEA have been taken into account is made available to the public.

2.10. In this ISA process, the ISA Report incorporates the Environmental Report.

2.11. Health Impact Assessment

2.12. There is no statutory requirement to undertake an HIA but it provides a useful way to support efforts to improve health of individuals and communities and help address health inequalities.

2.13. Guidance by the Department of Health (DH) 2007 aims to help authorities assess the health effects of their plans and programmes more effectively and is based on current good practice.

2.14. The Department for Transport (DfT) Transport Analysis guidance 2009 indicates that consideration of 'Human Health' is a legal requirement in an SEA and that an HIA is an integral part of an SEA to identify and inform health issues in Plans.

2.15. The HIA process is fully reported in the ISA Report.

2.16. Equalities Impact Assessment

2.17. EqIA fulfils the statutory duties of public bodies to ensure the promotion of equalities under the Equality Act 2010 and subsequent Public Sector Equality Duty.

2.18. The purpose of an EqIA is to ensure plans and programmes do not discriminate against any individual or community and where possible promotes equality. An EqIA considers impacts on a variety of groups, mainly focussing upon the 'protected characteristic groups' (PCGs) established under the Act, namely: age, disability, gender, gender reassignment, marriage and civil partnerships, pregnancy and maternity, race, religion or belief, and sexual orientation. The Act also makes explicit the concept of 'dual discrimination', where someone may be discriminated against or treated unfairly on the basis of a combination of two of the protected characteristics.

2.19. DfT Transport Analysis guidance 2009 requires an evidence-led EqIA to be completed to help inform the development of the transport plan, ensuring it addresses any equality issues identified and takes account any impacts the plan may have on the local communities.

2.20. The EqIA process is fully reported in the ISA Report.

2.21. Habitats Regulations Assessment

2.22. Habitats Regulations Assessment (HRA) is required under Regulation 61 of the Conservation of Habitats and Species 2010 (as amended) (the Habitats Regulations) for all plans and projects which may have likely significant effects on a European site (either alone or in combination with other plans or projects) and are not directly connected with, or necessary to, the management of the site.

2.23. European sites include Special Areas of Conservation (SAC), Special Protection Areas (SPA) and wetlands of international importance (Ramsar sites). HRA is also required, as a matter of UK Government policy for potential SPAs (pSPA), candidate SACs (cSAC) and proposed Ramsar sites (pRamsar) for the purposes of considering plans and projects, which may affect them. Hereafter, all of the above designated nature conservation sites are referred to as ‘international sites’.

2.24. Six internationally important sites for nature conservation were included in the HRA assessment, and are listed below:

- South Pennine Moors SAC;
- Denby Grange Colliery Ponds SAC;
- Lower Derwent Valley SAC, SPA and Ramsar site;
- Strensall Common SAC;
- Peak District Moors (South Pennine Moors Phase 1) SPA; and,
- South Pennine Moors Phase 2 SPA.

2.25. For further detail please consult the WYCA Transport Strategy HRA Stage 1 Screening Report which is being published separately.

2.26. ISA / Transport Strategy Programme Key Milestones

2.27. The ISA process has been programmed as follows:

- Commencement: May 2015;
- ISA Key Sustainability Issues Technical Note Consultation: June-July 2015;
- Consultation on the draft Transport Strategy and ISA Report: July - October 2016;
- Revisions to draft Transport Strategy and ISA: Autumn 2016;
- Publication of final Transport Strategy and Post Adoption Statement: April 2017.

2.28. Reporting and consultation as part of the ISA process

2.29. Key consultation requirements are those set in the SEA Regulations which identify three organisations to act as statutory consultation authorities in the SEA process: the Environment Agency, Natural England (formerly English Nature and the Countryside Agency) and Historic England (formerly English Heritage).

2.30. Two consultation periods involving the statutory consultation authorities and, in the latter period, the public are also set in the SEA Regulations. The consultation periods relate to:

- Scoping. The responsible authority is required to send details of the plan or programme to each consultation authority so that they may form a view on the scope, level of detail and appropriate consultation period of the Environmental Report. The consultation authorities are required to give their views within five weeks.
- The Environmental Report. The responsible authority is required to invite the consultation authorities and the public to express their opinions on the Environmental Report and the plan or programme to which it relates.

2.31. To ensure that the evidence base underpinning the ISA of the Transport Strategy was robust and up to date, a review of the ISA and HRA scoping information which informed the development of the LTP 2011-2016 has been undertaken. A formal Scoping Report consultation has not been undertaken as this had already been undertaken for LTP 2011-2016 and the Transport Strategy is viewed as a review of LTP 2011-2016. Instead, a Technical Note was prepared and consulted upon by WYCA providing background to the Transport Strategy and ISA development processes and presenting the results of the focussed scoping information review that was undertaken for information and comment.

2.32. Listed below are the organisations that were consulted on the Technical Note and the responses from this consultation have been used to inform the ISA and have helped refine the Transport Strategy. The Technical Note and the comments received, together with how these comments have been addressed in the preparation of this ISA Report, are set out in Appendix A to this report.

- Bradford Equalities Forum
- Bradford Metropolitan District Council
- Calderdale Council
- Calderdale: Principal Cohesion and Equality Officer
- City of York Council
- City of York Council
- Environment Agency
- Equality Officers/Assemblies
- Historic England
- Kirklees Council
- Kirklees Equalities Assembly
- Kirklees Public Health
- Leeds City Council
- Leeds City Region Enterprise Partnership (LEP)
- Leeds Equalities Assembly
- Leeds Public Health
- Natural England
- Public Health England

- Wakefield (Corporate Performance & Intelligence Manager)
- Wakefield Metropolitan District Council
- Wakefield Public Health
- WYCA Accessibility Officer

2.33. Key reporting requirements are those set by the SEA Directive and SEA Regulations:

'An Environmental Report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated.'

2.34. As already indicated, the SEA Report has been integrated in this ISA Report. Table 2-1 sets out the way the specific SEA requirements have been met in this report.

Table 2-1 Schedule of SEA Requirements

Information to be included in the Environmental Report under the SEA Regulations (Regulation 12 and Schedule 2)		Where covered in ISA Report
1.	An outline of the contents, main objectives of the plan, and of its relationship with other relevant plans and programmes	Sections 1 and 5 and Appendix B
2.	The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan;	Sections 6 and 7 and Appendix C
3.	The environmental characteristics of areas likely to be significantly affected	Section 6 and Appendix C
4.	Any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;	Section 7
5.	The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation	Sections 5, 7 and 8 and Appendix B
6.	The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage including architectural and archaeological heritage; landscape; the interrelationship between the above factors	Sections 9, 10 and 11 and Appendices D, E and F
7.	The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan	Section 12

8.	An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information	Section 10 and Appendix D
9.	A description of measures envisaged concerning monitoring in accordance with Regulation 17	Section 14
10.	A non-technical summary of the information provided under paragraphs 1 to 9	Non-technical summary

2.35. The ISA Report is thus an important consultation document and likely to be of interest to a wide variety of readers including decision makers, other plan/programme practitioners, statutory consultees, NGOs and members of the public. It accompanies the draft Transport Strategy on public consultation taking place in July-October 2016.

3. Scope of the ISA

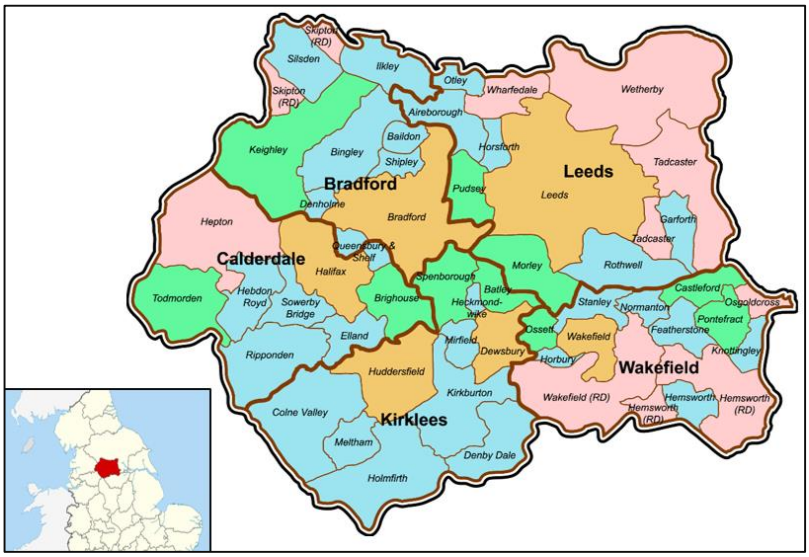
3.1. Introduction

3.2. This section describes the spatial, temporal and technical scope of the sustainability studies undertaken as part of the ISA.

3.3. Spatial Scope

3.4. The study area for the ISA of Transport Strategy covers five districts making up the West Yorkshire Combined Authority area: Bradford, Calderdale, Kirklees, Leeds and Wakefield districts (see Figure 3-1).

Figure 3-1 WYCA Location map



3.5. Temporal Scope

3.6. The temporal scope of the ISA has been aligned with that for Transport Strategy. The Transport Strategy's strategy will apply to the period up to 2036.

3.7. Technical Scope

3.8. The ISA has a very wide remit and will consider the following topics associated with the various assessment processes it covers.

SA / SEA

3.9. The SEA Directive and the SEA regulations require that the likely significant effects on the environment are assessed, considering the following factors and interrelationship between them:

- Biodiversity;
- Population;
- Human health (covering noise issues among other effects on local communities and public health);
- Fauna and flora;
- Soil;
- Water;
- Air;
- Noise;
- Climatic factors;
- Material assets (covering infrastructure, waste and other assets);
- Cultural heritage including architectural and archaeological heritage; and
- Landscape.

3.10. SA guidance requires the consideration of socio-economic factors alongside the environmental factors identified above.

HIA

3.11. The DH guidance recommends that the assessment of the impact of local transport plans should consider the following topics:

- Transport to work, shops, schools and healthcare;
- Walking and cycling;
- Community severance;
- Frequency and severity of crashes;
- Collisions causing injury and fatal accidents;
- Air pollution, noise; and
- Ageing population and increasing disability.

3.12. From an HIA perspective there are vulnerable social groups that need special consideration in transport planning with regards to their health. These groups are likely to experience transport-related exclusion and/or be subject to negative externalities of transport and are as follows:

- Children - who, as non-drivers, are reliant on others for motorised transport and who suffer the greatest impacts of transport policy on their health, particularly children in low-income families;
- Women - who are more likely not to own a car and find it harder to travel to shops, employment, healthcare and other services;
- Older people - who may feel vulnerable using public transport, who often need to seek health services and who are particularly vulnerable to road crash related injuries. Their continuing independence at home is often dependent on reliable transport options;
- Disabled and people with other health problems - who may not be able to access many forms of transport or need special arrangements to access those. They are likely to find it difficult to walk and may also be disadvantaged by the cost of transport;
- Those in low-income groups - who are likely to walk further because they cannot afford public transport or to own a car, and whose lack of transport options may limit life opportunities. They suffer the most from injuries, noise pollution and air pollution.

EIA

3.13. The EqIA process focuses on the consideration of the potential Transport Strategy effects on nine protected characteristic groups (PCGs) identified in the Equality Act 2010 that are relevant to the transport agenda:

- Age;
- Disability;
- Gender;
- Gender reassignment;
- Marriage and civil partnerships;
- Pregnancy and maternity;
- Race;
- Religion or belief; and
- Sexual orientation.

3.14. A degree of overlap between the HIA vulnerable social groups and the EqIA protected characteristics has been acknowledged by both HIA and EqIA processes. Consistency between the two assessments has been ensured, where appropriate, particularly in terms of assumptions, analysing techniques and findings.

4. ISA Methodology

4.1. Introduction

4.2. The ISA started as the preparation of Transport Strategy began and it has progressed concurrently in an iterative fashion in order to integrate sustainability considerations into the plan making process. The ISA has been used as a tool for improving Transport Strategy's sustainability performance. Specifically, this has been achieved through allowing sustainability objectives to be considered throughout Transport Strategy formulation process: from inception through development of principles, strategic options and preferred policies, measures and schemes.

4.3. As it has already been stated, the ISA process fully integrates three assessment processes: SA/SEA, HIA and EqIA. HRA has been undertaken in parallel to the ISA and its results incorporated into the ISA as appropriate. Table 4-1 demonstrates how the integration has been planned and achieved throughout all the stages of the ISA and Transport Strategy preparation.

4.4. Assessment Methodology

4.5. The ISA methodology adopted was developed broadly based on a number of published guidance documents:

- Transport Analysis Guidance (TAG) 2.11 Strategic Environmental Assessment for Transport Plans and Programmes, Department for Transport, 'In Draft' Guidance, April 2009;
- Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents - Guidance for Regional Planning Bodies and Local Planning Authorities, by the ODPM, the Scottish Executive, the Welsh Assembly Government and the Northern Ireland Department of the Environment November 2005;
- A Practical Guide to the Strategic Environmental Assessment Directive, by the ODPM, the Scottish Executive, the Welsh Assembly Government and the Northern Ireland Department of the Environment, September 2005;
- Draft Guidance on Health in Strategic Environmental Assessment, Consultation Document, Department of Health, 2007; and
- National Planning Policy Framework, March 2012 and associated Planning Practice Guidance, March 2014.

4.6. The work undertaken to-date involved the completion of the SA/SEA stages A, B and C and associated tasks (see Table 4-1).

Table 4-1 Integration of the Assessment Processes

Transport Planning Stage	Sustainability Appraisal/ Strategic Environmental Assessment		Habitats Regulation Assessment	Health Impact Assessment	Equalities Impact Assessment
	Stage	**Tasks**	**Tasks**	**Tasks**	**Tasks**
Determining the scope of the Transport Strategy clarifying goals; specifying the problems or challenges the authority wants to solve	**A. Setting the context and objectives, establishing the baseline and deciding on the scope**	Review plans/programmes		Identify Health related plans/programmes (as part of SA/SEA)	Review of relevant policies and strategies
		Review Sustainability themes		Derivation of health -related themes (as part of SA/SEA)	Derivation of equality-related themes
		Review Baseline data and likely future trends	Identify all international sites within and up to 20km around the Transport Strategy area	Gather data relating to health (as part of SA/SEA).	Baseline evidence
		Review Key sustainability issues	Contact Natural England for details of all international sites and consultation purposes	Identify health specific issues (as part of SA/SEA)	Identify equalities specific issues
		Review objectives and decision-making questions (SA/SEA Framework)	Liaise with SA/SEA team to ensure SA/SEA Framework covers international sites appropriately	Ensure inclusion of Health specific objectives in SA/SEA Framework	Ensure inclusion of Equalities specific objectives in SA/SEA Framework
		Prepare Key Sustainability Issues briefing note	*HRA information incorporated in briefing note*	*HIA information incorporated in briefing note*	*EqIA information incorporated in briefing note*
		Informal consultation with SEA Statutory consultees on the Key Sustainability Issues briefing note	*Consultation as part of SA/SEA informal consultation*	Informal engagement with HIA consultees on relevant aspects of Key Sustainability Issues briefing note	Informal engagement with EqIA consultees on relevant aspects of Key Sustainability Issues briefing note

Generating options for the Transport Strategy to resolve these challenges; appraising the options and predicting their effects	**B. Developing, refining and appraising strategic options**	Assess Transport Strategy objectives against the SA/SEA Framework	Assess Transport Strategy objectives against relevant HRA objective	*HIA assessment of Transport Strategy objectives and strategic options be undertaken within SA/SEA*	*EqIA assessment of Transport Strategy objectives and strategic options be undertaken within SA/SEA*
		Appraise Transport Strategy strategic options	Initial advice provided to client in relation to the sensitivities of the international sites and how to avoid significant effects on these sites.		
		Evaluate/select Transport Strategy preferred options.			
Selecting preferred options for the Transport Strategy and deciding priorities	**B. Assessing the effects of the Transport Strategy**	Predict and assess effects of options taken forward	HRA review of proposals in draft Transport Strategy	*HIA assessment of preferred options to be undertaken within SA/SEA.* *Mitigation measures proposed within SA/SEA*	*EqIA assessment of preferred options to be undertaken within SA/SEA.* *Mitigation measures proposed within SA/SEA*
		Propose mitigation measures	Propose mitigation measures		
Production of the draft Transport Strategy		Propose monitoring programme	*Monitoring as part of SA/SEA*	*Monitoring as part of SA/SEA*	*Monitoring as part of SA/SEA*
	C. Prepare ISA Report		Prepare HRA Screening Report (separate output)	HIA fully documented in ISA Report (no separate output but HIA component properly identified)	EqIA fully documented in ISA Report (no separate output but EqIA component properly identified)
Consultation on draft Transport Strategy	**D. Consulting on ISA Report**		**HRA Screening Report sent to Natural England for agreement on findings**.	*HIA Consultation included in ISA Report consultation*	*EqIA Consultation included in ISA Report consultation*
Production of final Transport Strategy	**D. Assess significant changes**		Assess significant changes	*HIA assessment of significant changes undertaken as part of SA/SEA*	*EqIA assessment of significant changes undertaken as part of SA/SEA*
Adoption of Transport Strategy	**D. Post Adoption Statement**		Prepare updated HRA Screening Report	*Relevant results reported in Post Adoption Statement*	*Relevant results reported in Post Adoption Statement*

4.7. SA / SEA

4.7.1. Stage A – Setting the Context and Establishing the Baseline

Other Relevant Plans and Programmes

4.8. The Transport Strategy will both influence and be influenced by other plans, policies and programmes (PPPs) produced by district councils, by statutory agencies and other bodies with plan making responsibilities. Legislation is a further driver that sets the framework for Transport Strategy, both directly and indirectly. Relevant plans and programmes had already been identified in the 2011 ISA Report and an update of these has been undertaken to inform the preparation of this ISA Report (see Section 5 and Appendix B).

Baseline Information

4.9. To predict accurately how potential plan proposals will affect the current baseline, it is first important to understand its current state and then examine the likely evolution of the environment without the implementation of the plan.

4.10. Baseline information provides the basis for understanding existing local environmental, economic and social issues, in particular in respect of health and equality, and alternative ways of dealing with them; formulating objectives to address these issues and predicting and monitoring sustainability effects.

4.11. The baseline conditions reported in the 2011 ISA Report have been reviewed and updated. This is presented in section 6 and Appendix C.

Key Sustainability Issues

4.12. Key sustainability issues in general, and those pertaining to health and equality in particular, within WYCA area have been identified as a result of the analysis of the baseline data and the review of other plans and programmes. The identification of these issues helped focus the ISA processes on the aspects that really matter. Implications to Transport Strategy development and opportunities for how Transport Strategy could assist in addressing these issues were also identified. This is presented in section 7 of this report.

Developing ISA Framework

4.13. A set of ISA objectives against which the policies and proposals in Transport Strategy can be assessed, was drawn up. They were identified building from the previous ISA Framework and the task updates above.

4.14. For each objective, assessment aid questions have been set out to form the ISA framework. The assessment aid questions provide a clarification of the intended interpretation of each objective to support direction of change sought through the implementation of Transport Strategy. The questions have guided the Transport Strategy assessment process.

4.15. The ISA objectives and assessment aid questions were refined through the consultation on the Key Sustainability Issues Technical Note and are presented in this report in section 8 of this report.

4.15.1. Stage B – Developing Alternatives

Testing the Transport Strategy Objectives against the ISA Objectives

4.16. A compatibility assessment of Transport Strategy objectives in its initial stages of preparation against the ISA objectives was undertaken as part of the iterative process to assess the sustainability of Transport Strategy objectives. This was undertaken to ensure that the overall objectives of Transport Strategy were in accordance with the ISA objectives and to provide a suitable framework for developing alternatives (section 9 of this report).

Developing, Refining and Appraising Strategic Alternatives

4.17. Consideration of alternative strategies and options for Transport Strategy are an integral part of the plan development. Three strategic scenarios were identified by WYCA in close liaison with the team conducting the ISA.

4.18. This task comprised the prediction of changes arising from Transport Strategy strategic scenarios. These were compared both with each other and with "Do Minimum" scenario. While carrying out this evaluation, each alternative was considered in the context on whether it would have a likely significant effect in relation to each of the ISA objectives. The results are presented in section 10 of this report.

Assessing the Effects of Transport Strategy Preferred Option

4.19. Assessing the significance of predicted effects is essentially a matter of judgement. There are a number of factors that will determine the significance of an effect, e.g. its scale and permanence and the nature and sensitivity of the receptor. It is very important that judgements of significance are systematically documented, in terms of the particular characteristics of the effect which are deemed to make it significant and whether and what uncertainty and assumptions are associated with the judgement. The assessment of significance also includes information on how the effect may be avoided or its severity reduced.

4.20. In the current practice of ISA (influenced by SEA), the broad-brush qualitative prediction and evaluation of effects can be often based on a qualitative seven point scale in easily understood terms. In general, this assessment has adopted the scale shown in Table 4-2 to assess the significance of effects of the schemes and proposals in Transport Strategy.

Table 4-2 Criteria for Assessing Significance of Effects

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

4.21. Moderate and strong beneficial and adverse effects have been considered of significance whereas no effect and slight beneficial and adverse effects have been considered non-significant.

4.22. Assessments per scheme type have been undertaken for West Yorkshire Transport Fund (WYTF) schemes which will be promoted by the Transport Strategy in the first Implementation Plan 2016-2021 as well as for all other policy proposals contained in the Draft Transport Strategy. The assessment results of the Draft Transport Strategy assessment are discussed in section 11.

4.23. The assessment also considered cumulative, indirect (secondary) and synergistic effects of the Draft Transport Strategy as follows.

Secondary and Cumulative Effects Assessments

4.24. Annex I of the SEA Directive requires that the assessment of effects include secondary, cumulative and synergistic effects.

4.25. Secondary or indirect effects are effects that are not a direct result of the plan, but occur away from the original effect or as a result of the complex pathway e.g. a development that changes a water table and thus affects the ecology of a nearby wetland. These effects are not cumulative and have been identified and assessed primarily through the examination of the relationship between various objectives during the Assessment of Effects.

4.26. Cumulative effects arise where several proposals individually may or may not have a significant effect, but in-combination have a significant effect due to spatial crowding or temporal overlap between plans, proposals and actions and repeated removal or addition of resources due to proposals and actions. Cumulative effects can be:

- Additive - the simple sum of all the effects;
- Neutralising- where effects counteract each other to reduce the overall effect;
- Synergistic- is the effect of two or more effects acting together which is greater than the simple sum of the effects when acting alone. For instance, a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all.

4.27. Many sustainability problems result from cumulative effects. These effects are very hard to deal with on a project by project basis through Environmental Impact Assessment. It is at the strategic level that they are most effectively identified and addressed.

4.28. Cumulative effects assessment is a systematic procedure for identifying and evaluating the significance of effects from multiple activities. The analysis of the causes, pathways and consequences of these effects is an essential part of the process.

4.29. Cumulative (including additive, neutralising and synergistic) effects have been considered throughout the entire ISA process, as described below:

- Identification of key sustainability (including detailed health and equality) issues as part of the review of relevant strategies, plans and programmes and baseline data analysis.
- Establishing the nature of likely cumulative effects, causes and receptors.
- Identifying key receptors (e.g. specific wildlife habitats) in the process of collecting baseline information and information on how these have changed with time, and how they are likely to change without the implementation of the Transport Strategy.
- Particularly sensitive, in decline or near to their threshold (where such information is available) or with slow recovery receptors have been identified through the analysis of environmental issues and problems.
- The development of ISA objectives and assessment aid questions has been influenced by cumulative effects identified through the process above and ISA objectives that consider cumulative effects have been identified.
- Cumulative effects of Transport Strategy proposals have been assessed.

4.30. The results are presented in section 12 of this report.

Mitigating Adverse Effects and Maximising Beneficial Effects

4.31. Mitigation measures have been identified to reduce the scale/importance of significant negative effects for the Transport Strategy Preferred Option. The results are presented in section 13 of this report.

Monitoring the Effects of Plan Implementation

4.32. Monitoring involves measuring indicators which will enable the establishment of a causal link between the implementation of the plan and the likely significant effect (positive or negative) being monitored. It thus helps to ensure that any adverse effects which arise during implementation, whether or not they were foreseen, can be identified and that action can be taken by WYCA to deal with them.

4.33. A monitoring programme has been prepared showing, for each significant effect, what data should be monitored, the source of the data, the frequency of monitoring, as well as when and what actions should be considered if problems are identified from the monitoring.

4.34. The results are presented in section 14 of this report.

4.34.1. Stage C – Preparing the ISA Report

4.35. This ISA Report has been prepared to accompany the Draft Transport Strategy on consultation.

4.35.1. Stage D – Consulting on Draft Plan and ISA Report

Assessing significant changes

4.36. The ISA Report will be published for formal consultation with the Draft Transport Strategy. The results of the formal public consultation exercise may well result in changes to the Draft Transport Strategy, and these will have implications for the ISA Report. In addition, the consultation exercise may result in direct changes to the contents of the ISA Report. These will be reported in the Post Adoption Statement.

Post Adoption Statement

4.37. Following completion of the public consultation and preparation of the Final Transport Strategy document, a statement (separate document) will be prepared setting out the following:

- How sustainability considerations have been integrated into the plan, for example any changes to or deletions from the plan in response to the information in the ISA Report.
- How the ISA Report has been taken into account.
- How the opinions and consultation responses have been taken into account. The summary should be sufficiently detailed to show how the plan was changed to take account of issues raised, or why no changes were made.
- The reasons for choosing the plan as adopted in the light of other reasonable alternatives dealt with.
- The measures that are to be taken to monitor the significant environmental effects of implementation of the Transport Strategy.

4.37.1. HIA

4.38. In order to ensure that potential impacts of the Transport Strategy on health and health inequalities have been considered and to fulfil the requirements of health legislation, an HIA has been undertaken in a fully integrated fashion with the SA/SEA process as set out in Table 2. The need for the HIA arises from the recognition that the Transport Strategy policies and proposals may impact on the factors influencing the health of communities and individuals, including such factors, as noise and air quality, accessibility to key services and facilities and the design of transport infrastructure.

Approach

4.39. The HIA objectives that have been considered in the 2011 ISA Report have been reviewed in the light of HIA guidance and identified health issues. The approach to the HIA review has ensured that all relevant topics have been considered throughout the assessment process from establishing the baseline and building up the area's population profile in terms of health, identifying the key issues, developing the ISA Framework, assessing the Transport Strategy options, mitigation and monitoring.

4.40. The HIA has identified actions that can enhance positive effects and reduce or eliminate negative effects of the Transport Strategy with respect to health and health inequalities.

Consultation

4.41. Consultation to inform and shape the HIA is being undertaken as part of the overall SA/SEA process as outlined in Table 2. Consultation responses from health representatives to the Key

Sustainability Issues Technical Note have been analysed to inform the HIA (see Reporting and Consultation as part of ISA process).

4.41.1. EqIA

4.42. In order to ensure that potential impacts of Transport Strategy on equality have been considered and to fulfil legislative requirements, an EqIA has been undertaken in a fully integrated manner with the SA/SEA process.

Approach

4.43. The EqIA objectives that have been considered in the 2011 ISA Report have been reviewed in the light of EqIA guidance and identified equalities issues. The approach to the EqIA review has ensured that all relevant topics have been considered throughout the assessment process from establishing the baseline and building up the area's population profile in terms of equalities, identifying the key issues, developing the ISA Framework, assessing the Transport Strategy options, mitigation and monitoring.

Consultation

4.44. Consultation to inform and shape the EqIA is being undertaken as part of the overall SA/SEA process as outlined in Table 4-1. Consultation responses from equalities representatives to the Key Sustainability Issues Technical Note have been analysed to inform the HIA (see Reporting and Consultation as part of ISA process).

5. Review of Other Plans and Programmes

5.1. Introduction

5.2. The first task of the ISA is the identification of other relevant PPPs. This helps to identify relevant environmental and wider sustainability themes, baseline information and key issues. The Transport Strategy must be prepared to take these PPPs into account as it may influence and be influenced by them.

5.3. The SEA Directive specifically states that information should be provided on:

"The relationship [of the plan or programme] with other relevant plans and programmes"

"The environmental protection objectives, established at international, [European] Community or [national] level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation"

5.4. In addition to this, the PPPs related to wider sustainability, HIA and EqIA have also been considered.

5.5. Methodology

5.6. Both the Transport Strategy and the ISA Report should be set in the context of international, national, regional and local objectives along with environmental, strategic planning, transport, health, social, economic and equality policies.

5.7. Relevant plans and programmes include those at different levels (international, national, regional and local) which influence Transport Strategy, or those in other sectors which contribute, together with Transport Strategy, to changes in the sustainability conditions of the area to which they apply.

5.8. Appendix B lists the documents reviewed to identify environmental, social (health and equality) and economic themes. A series of key generic themes which have emerged from the review are presented below.

Environmental Themes

5.9. The review of PPPs revealed a large amount of common themes in terms of their objectives relating to sustainability within the context of transport planning.

- Climate Change and Energy
  - Reduce energy consumption and energy wastage;
  - Reduce GHG emissions, particularly carbon dioxide;
  - Maximise the use of renewable energy;
  - Increase energy efficiency and make use of new and clean technologies;
  - Minimise the use of fossil fuels;
  - Need for measures to adapt to climate change;
- Transport
  - Promote mixed-use development policies to reduce the need to travel;
  - Improve local air quality through minimising traffic related emissions;
  - Encourage walking, cycling and the use of public transport;
  - Reduce traffic congestion and improve safety for all road users;
  - Promote sustainable alternatives to car travel;
  - Promote viable alternatives to road haulage, such as shipping and rail;
  - Promote clean vehicle technology;
  - Connect key regeneration sites;

    - Promote integration, maintain and improve the public right of way and wider access network;
    - Connect the area to the wider regional, national and international networks;
- Natural Resources and Waste
    - Ensure efficient resource use and minimise resource footprint;
    - Raise awareness of resource use/depletion;
    - Use secondary and recycled materials;
    - Consider opportunities to maximise on-site re-use of materials;
    - Employ waste reduction methods to minimise construction and maintenance waste;
    - Reduce the amount of waste disposed off at landfill;
- Land
    - Brownfield/Greenfield hierarchy of land use;
    - Minimise and seek to reclaim derelict and contaminated land whilst taking into account any biodiversity interests;
    - Protect farmland and soils;
- Water
    - Improve the quality of ground and surface water;
    - Improve the biological and chemical quality of rivers;
    - Make use of vegetated drainage systems and 'Sustainable Urban Drainage Systems';
    - Minimise the risk and impact of flooding by controlling surface water management and floodplain management;
    - Prevent inappropriate development in floodplains;
    - Prepare for impacts of climate change, including sea level rise, coastal squeeze and coastal erosion;
- Biodiversity
    - Contribute to the delivery of local and national Biodiversity Action Plans;
    - Protect and enhance endangered species, habitats and geodiversity, including sites of geological importance;
    - Protect and enhance existing wildlife and provide opportunities for new habitat creation
    - Increase tree cover and ensure the sustainable management of existing woodland;
    - Protect, maintain and where possible enhance natural habitat networks and green infrastructure, to avoid fragmentation and isolation of networks;
    - Protect and enhance designated nature conservation sites of international importance (SPA/SAC) and national importance (SSSI);
    - Promote access and understanding of nature and biodiversity.
- Landscape
    - Protect and enhance landscape and townscape character and local distinctiveness;
    - Heritage
    - Help to conserve historic buildings through sympathetic design;
    - Conserve, protect and enhance designated and non-designated historic assets;
    - Improve access to buildings and landscapes of historic/cultural value;
    - Use architectural design to enhance the local character and "sense of place" of development;
    - Protect local distinctiveness.

Economic Themes

- Improve physical accessibility of jobs through the location of employment sites and transport links close to areas of high unemployment.
- Widen the number and range of accessible employment opportunities.
- Improve rail and road journey reliability for business users.
- Support local businesses.

Health

5.10. The derived key health-related themes are:

- Improve health in the UK and globally, taking account of the diverse factors influencing health, such as climate change, pollution, conflict, environmental degradation and poverty;
- Tackle poor health by improving the health of everyone, and of the worst off in particular;

- Reduce health inequalities among different groups in the community (e.g. young children, pregnant women, black and minority ethnic people; older people, people with disabilities; low income households);
- Support the public to make healthier and more informed choices with regard to their health and adopt physically active lifestyles;
- Address pockets of deprivation;
- Provide physical access for people with disabilities;
- Provide or improve access to local health and social care services;
- Provide opportunities for increased exercise, thus reducing obesity, particularly in children, and illnesses such as coronary heart disease;
- Provide for an ageing population; and
- Promote healthy lifestyles through exercise, physically active travel and access to good quality and affordable food, which can assist in reducing both physical and mental illnesses.

Equality

5.11. The derived key equality-related themes are:

- Protect human rights (e.g. the right to liberty and security of person) and fundamental freedoms (e.g. a right to freedom of thought, conscience and religion, freedom of expression, etc);
- Prohibit discrimination, harassment and victimisation on such grounds as sex, race, language and religion;
- Promote equality of opportunity in the way services are planned, promoted and delivered;
- Treat everyone with dignity and respect;
- Recognise people's different needs, situations and goals and removes the barriers that limit what people can do and can be;
- Create sustainable communities which are active, inclusive, safe, fair, tolerant and cohesive;
- Create sustainable communities which are fair for everyone - including those in other communities, now and in the future;
- Improve economic, social and environmental conditions particularly in the most deprived areas;
- Ensure fair access to and distribution of resources across the community;
- Assess and address the impacts upon diverse communities including cultural, racial, economic, generational, social (including disabilities) and religious mixes;
- Create a sense of belonging and wellbeing for all members of the community;
- Provide physical access for people with disabilities; and
- Minimise isolation for vulnerable people.

6. Baseline Information

6.1. Introduction

6.2. The next task addresses the collection of an evidence base for the ISA. The SEA Directive states that the Environmental Report should provide information on:

"relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan" and the "environmental characteristics of the areas likely to be significantly affected" (Annex I (b) (c))

and

"any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (Birds Directive) and 92/43/EEC (Habitats Directive)" (Annex I (c)).

6.3. To accurately predict how Transport Strategy proposals will affect the environmental characteristics, it is important to understand the current state of the environment and then examine the likely evolution of the environment without the implementation of the plan. In this report the current state regarding wider sustainability, rather than just environment, has been characterised.

6.4. Methodology

6.5. Existing baseline information provides the basis for the prediction and monitoring of the effects of the implementation of the Transport Strategy and helps identify sustainability problems and alternative ways of dealing with them.

6.6. Due to the fact that ISA is an iterative process, subsequent stages in its preparation and assessment might identify other issues and priorities that require the sourcing of additional data and/or information and identification of monitoring strategies. This makes the ISA process flexible, adaptable and responsive to changes in the baseline conditions and enables trends to be analysed over time.

6.7. The most efficient way to collate relevant baseline data is through the use of indicators (see below). This ensures that the data collation is both focused and effective. The identification of relevant indicators has taken place alongside the review of other relevant plans, policies and programmes (section 5), the identification of sustainability issues (section 7) and developing the ISA framework (section 8).

6.8. Data Analysis

6.9. Data have been collated and analysed for the following indicators (as detailed in Appendix C):

Environmental Data

- Population
- CO2 Emissions
- Climate Change
- Local Air Quality
- Noise
- Light Pollution
- Biodiversity, Fauna and Flora
- Landscape and Townscape
- National Character Areas
- Heritage Assets
- Green Belt
- Green Infrastructure Corridors

- Green Space
- Soil
- Water Quality
- Flooding

Economic Data

- Employment
- GVA
- Economic Sectors

Social Data (including health and equalities)

- General health statistics
- Accessibility
- Road safety and accidents
- Obesity
- Physical activity in children and adults
- Equality target groups
- Multiple deprivation
- NEET level

6.10. The baseline data provides an overview of the sustainability characteristics of the Transport Strategy area and how these compare to the region and the UK. This overview is presented in Appendix C. The analysis of the baseline data has highlighted a number of key issues in West Yorkshire. These, together with implications and opportunities arising for the Transport Strategy, have been summarised in Table 7-1.

6.11. Data Limitations

6.12. The purpose and use of indicators is to provide quantified, objective information in order to show how things change over time. However, they do not explain why particular trends are occurring and the secondary, or knock-on, effects of any changes.

6.13. It is believed that the data sets available provide a comprehensive overview of the sustainability situation in West Yorkshire.

7. Key Sustainability Issues

7.1. The SEA Directive states that the Environmental Report should provide information on:

"Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC" (Annex I(d))"

7.2. The key sustainability issues identified in the 2011 ISA Report have been reviewed and updated. The review of key issues and problems indicated that there are a number of significant sustainability issues in WYCA area. These key issues are summarised in Table 7-1. This table also provides a discussion on the implications/opportunities of such issues to the Transport Strategy and provides a clear link to the proposed ISA Objectives. The analysis of sustainability issues has influenced the development of the ISA Framework (see Section 8), in particular in formulating assessment aid questions.

7.3. It should be noted that, because HIA and EqIA are also being undertaken, the approach involved the identification of generic HIA and EqIA key sustainability issues, implications and opportunities and objectives in Table 7-1 under the Social dimension of sustainability. These have been further developed in Table 7-2 to ensure a more in-depth level of coverage of issues to satisfy specific HIA and EqIA requirements leading to the development of HIA and EqIA sub-objectives.

Table 7-1 Key Sustainability Issues

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
Environmental			
1.	**Increasing greenhouse gases emissions (GHG), in particular CO_2** In 2012, the five combined West Yorkshire Authorities were responsible for a total of 2,582,000 tonnes of road transport CO_2 emissions, compared to 2,613,000 tonnes in 2011. Comparing the different authorities, Leeds had the highest total CO_2 road transport emissions (1,515,000 tonnes), followed by Wakefield (737,000 tonnes), Kirklees (658,000 tonnes), Bradford (560,000 tonnes) and Calderdale (391,000 tonnes). Since 2007, there has been a sustained decline in CO_2 emissions in West Yorkshire of approximately 13%. Although emissions have been on the decline, potential traffic growth is likely to result in an overall increase in CO_2 emissions.	The Transport Strategy should seek to ensure that reducing CO_2 is a fundamental principle of the Transport Strategy itself (e.g. promotion of sustainable modes of transport, smarter travel management such as workplace, residential and school travel plans, creation of inter-modal interchanges, sustainable freight movements and traffic management interventions). The Transport Strategy should seek to ensure that new schemes maximise the opportunity for increasing tree /vegetation cover, where practical, in order to absorb increased amounts CO2, e.g. through the use of street trees.	Reduce carbon dioxide emissions from transport
2.	**Increased risk of flooding** The combined authorities of West Yorkshire fall within the Humber River Basin catchment area, comprised of the rivers Aire, Wharf, Holme, Laneshaw, Meanwood Beck and Worth. There are currently 25 Flood Warning Areas within Bradford and major transportation infrastructure has been included in flood zone 3 areas. 58km of the transport network between Calderdale, Kirklees & Wakefield is 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. In Leeds District, the rivers Aire and Wharfe are susceptible to flooding, and this	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 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	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	occasionally leads to flooding in the Kirkstall area, including flooding of the A65 / A659 roads as well as parts of the rail network. New transport interventions can aggravate the existing flood risk by requiring landtake from floodplains and by changing the drainage regime from land in transport use.	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.	
3.	**Deteriorating air quality** In West Yorkshire there are 33 Air Quality Management Areas (AQMAs) related to road traffic emissions of NO_2. NO_2 concentrations have increased in West Yorkshire in recent years, mainly as a result of exhaust emissions from traffic on the roads, including heavy-duty vehicles (freight and buses), diesel passenger cars and buses in urban areas. The four combined authorities are currently undertaking a 'West Yorkshire Low Emission Strategy' in order to establish measures to help reduce NO_2 and particulate matter (PM_{10} or $PM_{2.5}$) emissions. However, it is acknowledged that traffic increase and growth of carbon-based motorised transportation infrastructure can significantly impact air quality, leading to costly health-related illnesses of residents and visitors.	The Transport Strategy should integrate the principles of the undergoing West Yorkshire Low Emission Strategy in order to improve local air quality. The principles include creation of Low Emission Zones, smart travel management, investment in public transport, green infrastructure, cycling and walking facilities, and upgrade of the current bus and train fleet. The Transport Strategy should consider ecological receptors (such as the air quality sensitive wetland and heath habitats in the South Pennine Moors and North Pennine Moors European designated sites) alongside human receptors when dealing with air quality.	Protect and enhance local air quality
4.	**Threatened biodiversity and geodiversity and fragmentation of green infrastructure** The most sensitive areas in terms of biodiversity in West Yorkshire are: - Denby Grange Colliery Ponds in Wakefield, which supports great crested newts. - The South Pennine Moors in Kirklees and Calderdale, which support various important habitat types such as Northern Atlantic wet heaths; European dry heaths; blanket bogs;	The Transport Strategy should aim to protect designated areas and other areas of ecological value, e.g. by ensuring that planning/ design of transport interventions avoid sensitive areas and through the adoption of best practice wildlife friendly designs into road interventions. Where this is not possible, there should be mitigation and compensation for losses.	Protect and enhance biodiversity, geodiversity and the green infrastructure network & Protect and enhance the

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	transition mires; quaking bog; and old sessile oak woods. This area also is home for breeding short-eared owl, merlin, and golden plover and an internationally important assemblage of breeding birds. - The Peak District Moors in Bradford and Calderdale districts supports breeding short-eared owl, merlin and golden plover. More generally, there are 32 sites in West Yorkshire designated as Sites of Special Scientific Interest (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 UK Government target of 95%. There are also a number of Special Areas of Conservation (SAC) and Special Protection Areas (SPAs) within a relatively close proximity of the West Yorkshire boundaries that have also been taken into account in this assessment. New transport projects have the potential to impact on the sites of ecological or geological value and more generally on the network of linked multi-functional green spaces, comprising the local green infrastructure, through landtake for infrastructure and such construction and operational impacts as noise, vibration, dust and drainage. Increased accessibility to designated sites also has the potential to adversely impact on them.	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. Other opportunities for Transport Strategy include the following: avoid the fragmentation of green infrastructure, which contributes to protecting natural habitats and biodiversity; the need for cohesive habitat networks to help habitats and species adapt to the consequences of climate change; the potential for policies and proposals to encourage recreation in sensitive areas through improving access, in particular in relation to recreational pressures on Ilkley Moor SSSI, SAC and SPA; enhancement of the green infrastructure through for example foot paths, cycle lanes and other public rights of ways. Increased accessibility to appropriately designed multi-functional green infrastructure can play a significant role in diverting access pressure away from more sensitive sites,	International sites (*HRA specific objectiv*e)

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
		such as those designated for wildlife and geological conservation. Alongside the Transport Strategy is a Habitats Regulation Assessment (HRA) which will identify areas to avoid, or where this is not possible, appropriate mitigation measures very early on in the development of the Plan.	
5.	**Pressure on landscape and townscape character** Most of Calderdale and Bradford, and small parts of Kirklees and Leeds fall within the Southern Pennines, typified by large sweeping landforms with an open character deeply trenched by narrow valleys and wooded cloughs. The area has extensive views from elevated locations in all directions. Most of the rest of Calderdale, Kirklees and Bradford is within the Yorkshire Southern Pennine Fringe, sloping from west to east and dissected by steep-sided valleys. The urban areas are mainly confined by valleys, with dramatic views between settlements and the surrounding hillsides. Elsewhere, there is pastoral farming with predominantly broadleaved woodlands on steep valley sides providing an impression of a well wooded landscape even though tree cover is relatively sparse overall. Most of Leeds and Wakefield, and parts of Bradford and Kirklees districts fall within the 'Nottinghamshire, Derbyshire and Yorkshire Coalfields' with widespread evidence of industrial activity in a complex mix of built-up areas, industrial land, dereliction and farmed open country. However there are substantial areas of intact agricultural land in both arable and pastoral use. Eastern parts of Leeds and Wakefield are within the Southern Magnesian Limestone area. This is an elevated	The Transport Strategy should seek to preserve and enhance the character of the county's landscape and townscape by ensuring that its integrity and valuable natural open space is not lost. It should also aim to ensure that transport interventions avoid sensitive areas and respect particular landscape or townscape settings, in particular 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). Opportunities for landscape enhancement should be explored, e.g. through sympathetic design and enhancements to existing landscape improvement areas, new planting opportunities associated with transport development. There may be opportunities to slow the flow of water into river catchments (see Issue 2 above) 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	Protect and enhance the character and quality of landscape and townscape

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	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. 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. New transport projects have potential to impact on the region's landscape and townscape through additional landtake, which may necessitate removal of natural features or manmade structures, and visual changes.	• Restoring wetlands. These measures can help reduce flood risk in the lower parts of a catchment and help to protect transport infrastructure from flooding.	
6.	**Pressure on the historic environment** The most important heritage feature in West Yorkshire is the World Heritage Site at Saltaire near Bradford, designated in 2001. This is a purpose-built "model" Victorian industrial village that was built in the nineteenth century. There are many listed buildings, Conservation Areas and Scheduled Ancient Monuments across West Yorkshire, many reflecting its national and global importance through the industrial revolution and Victorian times. Overall, there are 134 heritage sites that have been identified as "at risk" by Historic England. Historic England's 'Register of Historic Parks and Gardens of special historic interest in England' identifies over 1,600 sites in West Yorkshire that have been assessed to be of national importance. New transport projects have the potential to impact on the region's heritage assets both adversely and positively. This can include works affecting conditions and setting for assets, through physical works in the Conservation areas or the destruction of known or unknown archaeological areas.	The Transport Strategy should aim to protect and preserve designated and non-designated heritage assets and their settings and opportunities for improving settings should be explored. Opportunities for the Transport Strategy to provide better accessibility to the historic environment and ensure that new transport interventions improve the settings of cultural heritage assets. 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.	Maintain and enhance the quality and distinctiveness of historic and cultural heritage

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
7.	**Growing waste generation and natural resources consumption** Waste production may continue growing in line with population and economic growth. New transport interventions' construction contributes to increase the levels of waste generated, if building materials are not efficiently used. Recycled materials use less energy than the extraction, processing and transportation of aggregates. Also with more waste being produced, the amount of trips to transport such waste is likely to increase, thus generating more traffic. The transport sector accounts for a major proportion of energy use, mainly through the consumption of fossil fuel.	The Transport Strategy should seek to promote minimisation of natural resources consumption (e.g. through the use of secondary and recycled materials). The Transport Strategy can also promote modal shift to sustainable transport modes, therefore reducing fuel consumption. Opportunity for the Transport Strategy to promote waste minimisation and improved waste management, e.g. through use of recycled materials in transport interventions construction, including road construction and maintenance.	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling
8.	**Pressure on land and contaminated land** 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. The Agricultural Land Classification (ALC) indicates there is little high quality soil in West Yorkshire. Soils are graded in relation to their agricultural importance, with grade 1 (excellent quality), 2 (very good quality) to 3a (good quality) being the best and most versatile soils for agricultural production. The little proportion of Grade 1 and 2 lands are located east of the A1, along the eastern boundaries of Leeds and Wakefield. 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	The Transport Strategy should support appropriate land uses and should aim to protect land resources through avoidance of impacts. 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. In particular, the Transport Strategy must ensure that that soil resources are protected during the construction phase of schemes. The Transport Strategy should lead to no additional contamination of soils and secure improvements to land quality as part of the implementation of proposals.	Conserve soil resources and quality and seek to remediate contaminated land

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. New transport projects have potential to impact on the existing greenfield/ agricultural land. Some of the most significant impacts on soils occur as a result of activities associated with construction. Contaminated land can be encountered during construction of transport interventions.		
9.	**Pressure on water environment and pollution of watercourses** West Yorkshire falls within the Humber River Basin within which water has played an important role in the growth of the cities and manufacturing industries. The main rivers within West Yorkshire comprise the River Aire which flows through the Bradford and Leeds districts; River Wharfe 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. 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. The Environment Agency has defined an important Groundwater Source Protection Zone (SPZ) in North East	The Transport Strategy should seek to prevent pollution of watercourses and groundwater (e.g. by incorporating SuDS in road drainage design/ transport interventions to enhance water quality and reduce pollution and flood risk and by promoting porous surfacing for transport infrastructure).	Protect and enhance the water environment

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	Leeds. There are no other SPZs in any other part of the region. New transportation projects generally impact the status of the catchment's rivers and lakes. Adverse effects of covering the land with impervious materials, such as building a new road, prevents soils absorbing water and therefore increasing the risk of flooding, surface runoff and pollution of groundwater. 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.		
Economic			
10.	**High dependence on private car leading to traffic growth** The private car is still the most frequently used form of transport in West Yorkshire, but road congestion, particularly in the peak periods is a major concern for businesses and the public. Congestion also adversely affects the operation of bus services, reducing their performance and financial viability. Although bus and rail performance has improved in recent years, public transport is still not meeting its full potential: trains are crowded in the peak periods and bus usage is falling. Fare levels, frequent network changes and lack of integration between services are seen as major barriers to a greater usage of bus services. Currently, the biggest journey-to-work flows are within districts, followed by trips to Leeds and Bradford. The largest journey-to-work flows coincide with the worst congestion and rail overcrowding. Transport problems including congestion and a lack of investment are key contributory factors to lower than average economic performance in West Yorkshire.	The Transport Strategy should aim to minimise dependence on the private car, thus reducing traffic growth and congestion, e.g. through increasing accessibility and sustainable modes of transport to/from rural areas, encouraging a modal shift by facilitating a widening travel choice through quality integrated facilities and services, walking and cycling improvements, demand management, network management, travel planning and intelligent transport systems. 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.	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

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
		The Transport Strategy should create disincentives for car use including congestion charging, car park charging and limiting car park spaces.	
11.	**Employment** Yorkshire and the Humber has a workforce of over 2.5 million, and an unemployment rate of around 8%. The total annual GVA is £100 billion in 2010. The Yorkshire and Humber economy was badly hit by recession and employment levels have yet to return to pre-recession levels. West Yorkshire is one of the most dynamic and significant local economies in the UK outside of London. Leeds has experienced fast growth over recently years, and is firmly established as a leading UK financial services and commercial centre outside London. 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. Skills in manufacturing are supplemented by graduates emerging from the four universities in the sub-region, specialising in engineering, textiles and advanced manufacturing; digital media, healthcare and business/management. The region has a thriving food and drink manufacturing sector linked to local agricultural produce and agri-tech facilities. World-renowned cultural, leisure and tourist facilities attract many visitors to the region.	The Transport Strategy should support existing and new businesses through delivering the transport infrastructure necessary for the future economic growth of the region. This should include improving accessibility by sustainable modes of transport to employment opportunities and aiming to create high quality green environments alongside transport interventions making the region more attractive for prospective employers and employees. 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. Improving the transport network will also improve the experience of other users including leisure travellers.	Maintain or improve the number and range of good quality and accessible employment opportunities

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
12.	**Levels of productivity and competitiveness** Bradford has seen a growth of 7,500 in the number of residents in employment over the year to September 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. 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 2014 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). Wakefield's economic taskforce supports both individuals and businesses and recognises that a strong and sustainable local economy is central to a better future for all communities and people. 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). Calderdale is the smallest economy in the West Yorkshire sub-region, with a population of 205,300, expected to reach 221,000 by 2033 (ONS Interim 2011 based population projections). During the economic downturn its economic performance has been hardest hit of the areas in the sub-region. It is expected that it will growth below the sub-regional average. However, productivity per worker measured as GVA per capita is	The Transport Strategy should seek to reduce road congestion (therefore reducing the time to commute) and improve rail and road journey reliability. The Transport Strategy should seek to limit the rising costs associated with travel to assist in enhancing accessibility to employment opportunities within the area The Transport Strategy should consider that 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.	Enhance productivity and competitiveness of businesses

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	the highest within the West Yorkshire and above the regional average. Kirklees' economy is comprised of a population of just below 430,000 (expected to reach 486,000 by 2036), a workforce of 320,000, an economy with around 250,000 businesses and worth around £5.5m. It has linkages to 12 universities. 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). There is a risk that rising transport costs, unreliability and journey times for business/freight will shrink accessible markets and reduce productivity in the region. Also, it will be harder for employers to recruit as commuters face rising costs/journey times.		
Social			
13.	**Population growth and make-up of the local population** The population of West Yorkshire is projected to grow 14% over the WTLTP period, from 2.1 million presently to 2.4 million. The population will also age, with the number of people over 60 increasing by 40%, while the proportion aged 18 and under age will only grow by 3%). The population of Bradford is projected to grow twice as quickly as the other districts in West Yorkshire (all of which are projected to grow at a similar rate) over the Transport Strategy period. **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. This is illustrated by examining the levels of deprivation between districts -	The Transport Strategy should consider specific transport needs of the growing population and of different neighbourhoods and communities. It should take into account all age groups and special needs and ensure that people from different groups and backgrounds have the same opportunities with regards to access to transport.	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society *(EqIA specifc objective; see Table 2 for EqIA sub-objectives)*

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	City of York shows the lowest levels of deprivation, as only around 7% of the population are within the 20% most deprived areas nationally, and the highest levels are in Bradford where just over 45% of the population are within the 20% most deprived areas nationally. Another indicator of deprivation is the proportion of the population unemployed. In the WYCA area, approximately 2.4% of the population were collecting job seekers allowance (JSA) in November 2014, which is slightly higher than national levels (1.7%). Highest levels of unemployment are found in Bradford, followed by Leeds. The lowest level of unemployment is in York. Overall the proportion of the population unemployed has decreased in all areas since 2012. **Equality Groups** **Gender** The gender balance in West Yorkshire is 49% males and 51% female, which mirrors the national balance in England. **People with Disabilities** The proportion of the population in WYCA area claiming disability living allowance (DLA) stands at 8.7%, this is slightly higher than the national level (7.7%). Highest levels within WYCA are in Wakefield, with the smallest proportion of the population claiming DLA situated in Calerdale. **Black and Minority Ethnic Groups** The population of West Yorkshire is predominantly white (83%), although this is slightly less than the proportion for England as a whole (85%). The next largest ethnic group is Asian (including Asian British), the proportion of which is considerably higher in the WYCA area (12%) than for England as a whole (8%). The highest proportions of BME groups are situated within Bradford (33%), and Kirklees (21%). In both cases,		

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	Asian/ Asian British make up the majority of the BME population. Over a quarter of the population in Bradford are Asian/Asian British. Asian and Black communities in West Yorkshire typically comprise generally larger households with a younger age profile than the white population. 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. **Sexuality and Gender Identity** The proportion of people identifying themselves as living in same-sex couples in West Yorkshire is broadly similar to the England average at 1.9%. Within Yorkshire and the Humber, 1.4% of people have stated they are gay, lesbian or bisexual, which is in line with national levels. **Age Profile** Yorkshire and Humber has a marginally younger population than for England as a whole. Around 20% of the population are children, compared to 19% nationally. The district of Bradford has the highest proportion of children, where just over 23% of the population are aged under 16. The highest proportion of older people within the WYCA area is found within Wakefield and York where around 16% of the population are aged over 65. **Faith Groups** The majority of people in West Yorkshire identify themselves as Christian, and at 55%, the proportion of these is just below the average for England (59%). In Wakefield, this proportion of the population identifying themselves as Christian is considerably higher at 66%,		

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	and in Bradford is significantly lower at 46%. Muslim faith is the second highest religion within the WYCA area (11% of the population). There are considerable proportions of Muslims in Bradford (25% of the population in the district) and Kirklees (15%). Around 32% of the population within the WYCA area identify themselves as having no religion. **Marriage and civil partnerships** The number of civil partnerships taking place within WYCA area increased between 2008 and 2011. A total of 233 civil partnerships were formed in 2011 within the WYCA area, 98 of which were male couples and 135 were female couples.		
14.	**General health & health inequalities** Around 17% of residents have a limiting long-term health problem or disability, in line with the England average (18%). In addition when asked during the 2011 Census to provide a picture of their general health, around 5.8% of the WYCA population stated they were in bad or very bad health, compared to 5.5% nationally. West Yorkshire is typically worse than the national average across a range of health indicators, although with some variation within the area. Key points include: - Adult obesity levels are slightly higher within WYCA than national levels. The highest levels of obesity are seen in Wakefield, Bradford and Calderdale (27% of adult population), compared to 23% nationally. - The proportion of children considered obese varies across the districts, with the highest levels seen in Wakefield (21%), Bradford and Leeds (20%), compared to 19% nationally.	The Transport Strategy should encourage healthier lifestyles for all by providing environments that promote good physical and mental health (e.g. through promotion of active modes of travel, improvement of local air quality) and by providing affordable, integrated and efficient transport systems. The Transport Strategy should ensure that green and blue infrastructure is used to help increase the attractiveness of sustainable transport options between communities, to make active modes of travel more popular.	Improve health and well-being for all citizens and reduce inequalities in health (*HIA specific objective; see Table 2 for HIA sub-objectives*)

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	- Deaths due to cancer for those aged under 75 are higher than average. Wakefield and Calerdale show the highest levels with 193 and 186 per 100,000 members of the population compared with 172 nationally; - Life expectancy at birth for both males and females was lower than national levels across all districts. In public health nationally significant inequalities exist as a result of failures, including information, social context, market failures, etc. The level of deprivation varies considerably between and within the districts within WYCA. This is likely to give rise to potential inequalities in terms of health as deprived or lower socio-economic groups are more likely to experience health inequalities due to: • inadequate level of health literacy; • fewer resources to devote to healthy goods and services. Research relating to the links between transport and health inequalities shows that: • people without access to a car can experience health problems as a result of lack of access to essential services and amenities and increased level of social exclusion. • disadvantaged groups are more likely to be involved in a road accident. • deprived communities tend to experience poorer air quality as a result of transport related air pollution, and therefore they are more likely to experience the resulting health impacts;		

No	Key Issue	Implications/Opportunities for Transport Strategy	ISA Objective
	• the pedestrian death rate for children from families in social class V is higher than for children of social class I. • speeding is more common in less affluent areas.		

Table 7-2 Key HIA and EqIA specific issues

No	Key Issue	Implications/Opportunities for the Transport Strategy	HIA/EqIA sub-objective
1.	**Physical activity and open space** The percentage of physically active adults in WYCA is in line with national levels based on 2014 figures. The highest levels of physically active adults are within York (62%) and Leeds (61%). Adults in Calderdale show the lowest levels of physical activity (50% are physically active). The 2014 rate of primary school children in year 6 classed as obese or morbidly obese in WYCA (average 19%) is in line with national and regional levels (19%). Highest levels of childhood obesity were seen in Bradford (21%) and Wakefield (20%). Adult obesity levels are slightly higher within WYCA than national levels. The highest levels of obesity are seen in Wakefield, Bradford and Calderdale (27% of adult population), compared to 23% nationally.	The Transport Strategy should help encourage public accessibility to open space and the movement of people within open areas via an integrated network of green space across the county. It should also aim to promote countryside access and enjoyment and encourage regular physical activity including active travel for children and adults as part of a healthy lifestyle, to aim to reduce obesity levels and associated health problems.	Improve accessibility to services, facilities and amenities for all
2.	**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. This is illustrated by examining the levels of deprivation between districts -	The Transport Strategy should aim to promote accessibility to key services and facilities and employment areas by public transport and cycling routes, particularly to/from relatively deprived areas. Opportunity to improve and strengthen transport links	Improve accessibility to services, facilities and amenities for all

No	Key Issue	Implications/Opportunities for the Transport Strategy	HIA/EqIA sub-objective
	City of York shows the lowest levels of deprivation, as only around 7% of the population are within the 20% most deprived areas nationally, and the highest levels are in Bradford where just over 45% of the population are within the 20% most deprived areas nationally. Another indicator of deprivation is the proportion of the population unemployed. In the WYCA area, approximately 2.4% of the population were collecting job seekers allowance (JSA) in November 2014, which is slightly higher than national levels (1.7%). Highest levels of unemployment are found in Bradford, followed by Leeds. The lowest level of unemployment is in York. Overall the proportion of the population unemployed has decreased in all areas since 2012.	between market towns and their surrounding rural areas. Differences in deprivation are a major determinant of health inequality in the UK. Improving access of opportunity in deprived areas will assist in reducing such inequalities.	
3.	**Air Pollution** In West Yorkshire there are 33 Air Quality Management Areas (AQMAs) related to road traffic emissions of NO_2. NO_2 concentrations have increased in West Yorkshire in recent years, mainly as a result of exhaust emissions from traffic on the roads, including heavy-duty vehicles (freight and buses), diesel passenger cars and buses in urban areas. The four combined authorities are currently undertaking a 'West Yorkshire Low Emission Strategy' in order to establish measures to help reduce NO_2 and particulate matter (PM_{10} or $PM_{2.5}$) emissions. However, it is acknowledged that traffic increase and growth of carbon-based motorised transportation infrastructure can significantly impact air quality, leading to costly health-related illnesses of residents and visitors. Short-term exposure to elevated PM_{10} concentrations can cause premature deaths, primarily from	The Transport Strategy should seek to minimise the impacts of the transport system on air pollution. It should adhere to the principles set out in the West Yorkshire Low Emission Strategy to assist in reducing air quality issues across the area and work to improve health inequalities in West Yorkshire. The Transport Strategy should promote the use of active travel, public transport, discourage car use, and implementation of other schemes to reduce emissions (i.e. 20mph zones, low emission vehicles).	Reduce air, noise and light pollution from transport

No	Key Issue	Implications/Opportunities for the Transport Strategy	HIA/EqIA sub-objective
	cardiovascular and respiratory causes, and extra and early emergency hospital admissions. There is also wide ranging evidence that chronic exposure to raised levels of particulates have considerable effects on mortality and on the development of respiratory disease. Elevated concentrations of ambient NO_2 may be causally related to cardiovascular deaths and to emergency hospital admissions for ischemic heart disease, acute myocardial infarction, chronic obstructive pulmonary disease (COPD) in older people and asthma at all ages, as well as increasing symptoms, medication use, and medical consultations, predominantly in people who already have COPD or asthma. Long-term exposure to raised NO_2 may affect lung function and increase the risk of respiratory infection.		
4.	**Noise Pollution** Many areas of West Yorkshire already experience high levels of traffic noise, principally associated with the motorway and trunk road networks. More than half the population of West Yorkshire experience LA10,18-hour noise levels ≥ 55 dB, and more than 20,600 people have been identified as living in locations that should investigated for action to reduce traffic noise. About 4,000 people experience noise from railways to a similar level, with about 400 people living in areas that should be investigated for further action in this respect. Future population and traffic growth, with associated congestion are likely to result in an increase in existing levels of noise. Noise pollution can be a major nuisance and is widely recognised as a disbenefit affecting daily life. General annoyance and sleep disturbance are the most	The Transport Strategy should seek to minimise as much as practicable noise generation, especially noise generated by traffic, e.g. through use of quiet surfacing and establishment of quiet zones and reduced speed limits.	Reduce air, noise and light pollution from transport

No	Key Issue	Implications/Opportunities for the Transport Strategy	HIA/EqIA sub-objective
	widespread effects of environmental noise. Symptoms such as depression, irritability and headaches have also been reported. Stress has been suggested as a possible mechanism through which noise may affect mental and physical health.		
5.	**Light Pollution** Between 1993 and 2000 light pollution increased 24% nationally. Within West Yorkshire, the main areas where light pollution increased was at the periphery of the urban areas, and this encroachment into darker areas is likely to continue. Health effects of light pollution may include: increased headache incidence, worker fatigue, medically defined stress, decrease in sexual function and increase in anxiety	The Transport Strategy should seek to minimise as much as practicable light pollution (e.g. through promoting light sources of minimum intensity and LED luminaires).	Reduce air, noise and light pollution from transport
6.	**Road safety for all travellers** In the WYCA area, there were a total of 5,839 accidents in 2012. Of these, 1% were fatal, 16% were serious and 83% were slight. The number of accidents each year has fallen for the last three years. Children, young males, disabled and older people are particularly vulnerable groups in terms of accidents. Research shows that a higher proportion of accidents occur in deprived areas – of which there are a lot within the WYCA area. Pedestrians, cyclists and motorcyclists are vulnerable user groups in terms of accidents, and accident rates amongst these groups are considerably higher than the national average in the WYCA area.	The Transport Strategy should set out a clear strategy and programme to continue to enhance safety for all road users including pedestrians, cyclists and motorcyclists, and aim to reduce the rate of transport crashes and other incidents (e.g. through reducing traffic growth and congestion, traffic calming measures, highway maintenance in rural areas, low key accident reduction strategies, 20mph zones).	Improve road safety and reduce the number of accidents and other incidents

No	Key Issue	Implications/Opportunities for the Transport Strategy	HIA/EqIA sub-objective
7.	**Crime and fear of crime** In March 2015 alone, there were over 21,000 reported crimes within the West Yorkshire constabulary area. Nearly 26% of these were anti-social behaviour crimes, and a further 18% were violence and sexual offences, which are both considerably likely to impact on sense of place and perceived safety issues when travelling within the area. The latest Passenger Focus survey undertaken in Autumn 2014 identified that around 7% of bus passengers in West Yorkshire felt that other passengers' behaviour gave them cause to worry or feel uncomfortable on their bus journey. The proportion of bus users feeling this was has however reduced from 10% in 2011.	The Transport Strategy should seek to reduce the levels of crime and perceived crime within West Yorkshire.	Reduce crime and fear of crime and promote community safety
8.	**Severance** Severance is often an unintended consequence of a measure intended to address other problems. Certain groups in society are potentially vulnerable to the effects of severance as a result of the transport network, and these include people without access to a car, children, older people, people with disabilities, parents with pushchairs, and deprived residents. Those groups impacted by severance may experience longer journey times, or are often required to use pedestrian routes that are inappropriate or difficult to use. In extreme cases, severance issues (either actual or perceived) may result in users limiting their journeys and hence reducing access to opportunity. Deprivation varies considerably between and within the six districts in WYCA area, and there are clear pockets of deprivation for example in Bradford where around 45% of the population are within the 20% most deprived areas nationally. Those in deprived areas are less likely	The Transport Strategy should seek to reduce any existing severance issues and ensure new initiatives do not create severance for the local population.	Reduce severance

No	Key Issue	Implications/Opportunities for the Transport Strategy	HIA/EqIA sub-objective
	to own a car and are therefore more prone to severance issues associated with walking, cycling and public transport routes. The proportion of households without access to a car in WYCA is slightly higher than national averages (29% compared to 26% nationally) and levels are particularly high in Bradford (31%) and Leeds (32%). Residents without access to a car are reliant on walking cycling and public transport for their journeys and are therefore particularly prone to any impacts of severance.		
9.	**Affordability of transport** Any intervention that changes the cost of travel for users may give rise to impacts on personal affordability, and may have disproportionate effects where there are few or no travel alternatives, especially where low income households preclude car ownership and use. Changes to transport costs can include public transport fares, parking charges, road user charges or impacts to the road network that impacts on the operating costs of cars. The latest Passenger Focus survey undertaken in Autumn 2014 showed that 63% of bus passengers in West Yorkshire were satisfied with the fare paid for their bus journey. Around 21% were not satisfied with bus fares.	Transport Strategy should seek to ensure new transport initiatives are affordable and do not price out certain groups of society. Existing pricing initiatives for vulnerable groups on public transport services should be maintained on new services (i.e. concessionary fares). Promote use of technology to reduce transport costs for users i.e. smart cards.	Improve affordability of transport

8. ISA Framework

8.1. The assessment framework is a key component in completing the ISA by synthesising the baseline information and sustainability issues into a systematic and easily understood tool that allows the prediction and assessment of effects arising from the implementation of the Plan.

8.2. Defining ISA objectives before the Plan is written gives an early indication of the sustainability issues that will require particular attention in the Plan making process.

8.3. The proposed ISA objectives have been derived from a review of the objectives in the 2011 ISA Report ensuring that they are aligned with identified sustainability issues. The ISA objectives (and HIA and EqIA sub-objectives) have been worded so that they reflect one single desired direction of change for the theme concerned and do not overlap with other objectives. They include both externally imposed sustainability objectives and other objectives have been devised specifically in relation to the context of the Transport Strategy being prepared.

8.4. In addition, assessment aid questions have been identified to substantiate the proposed ISA Objectives and HIA and EqIA sub-objectives. The assessment aid questions provide a clarification of the intended interpretation of each objective to support direction of change sought through the implementation of Transport Strategy. These questions guided the assessment process reported in sections 9-11.

8.5. The ISA objectives together with the assessment aid questions make up the ISA framework that has been used in the assessments of the Transport Strategy proposals in the following sections of the ISA Report. The proposed ISA objectives and associated assessment aid questions are presented in Table 8-2. Tables 8-3 and 8-4 show proposed HIA and EqIA sub-objectives and assessment aid questions, respectively.

8.6. Likely Cumulative Effects

Table 8-1 Likely Cumulative Effects and their Causes

Cumulative Effect	Affected Receptor	Causes	ISA Objective
Increase in air pollution	Population Wildlife habitats Species (in particular within the AQMAs and in proximity to major roads)	Air emissions from major roads and particularly congested areas are of concern. Designation of the AQMAs indicates that national air quality standards are unlikely to be met in the areas concerned. This affects the health of humans and other species.	1
Habitat degradation, loss and fragmentation	Areas of wildlife habitats (in particular, those in unfavourable condition), valuable landscapes (in particular, those showing negative trends)	Use of land for new infrastructure, including transport infrastructure, commercial uses and housing. Disturbance of habitats and species and negative effects as a result of human activities (recreation, noise from transport, etc), coastal squeeze and pollution of environmental media (water, soil and air).	2 and 3
Climate change	Population (human health)	Even though local actions to combat an increase in GHG emissions (in particular carbon dioxide emissions) are important, climate change is a global phenomenon and	4

	Transport Infrastructure	GHG concentrations in the atmosphere are likely to increase during the Transport Strategy period as a result of human activities worldwide. These activities include transport, energy, industry, buildings sectors and others. Joint efforts of all nations may lead to a subsequent stabilisation and decline of GHG concentrations but such effects may occur in a distant future, beyond the Transport Strategy period.	
Increase in flood risk	Population Infrastructure Heritage assets Wildlife habitats Species	Use of land for new transport infrastructure, commercial uses, housing and associated increase in impermeable surfaces. Risk of significant flooding events is also likely to increase in the future, particularly as a result of climate change consequences.	5
Increase in water pollution	Rivers Groundwater	Water pollution is largely caused by human activity and has had a major impact on our local waterways and their ability to be healthy and function naturally. Water pollution comes from two sources - point sources or diffuse sources. Pollution from various sources discharging into the same waterbody can result in exceedances of water quality standards.	7
Heritage degradation	Local heritage assets (in particular, those on the Heritage at Risk Register)	Use of land for new infrastructure, including transport infrastructure, commercial uses and housing. Disturbance of heritage assets and their settings as a result of human activities (recreation, noise from transport, etc) and pollution of environmental media (water, soil and air).	9
Landscape and townscape degradation	Local landscape and townscape	Combined effects can arise through the interaction of two or more developments, whether of the same type or not, within the landscape/townscape and visual baseline context. Collectively they give rise to an overall combined effect and cause irreversible harm.	10

Table 8-2 ISA Framework of objectives and assessment aid questions

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
Environment			
1.	Protect and enhance local air quality *	*Will Transport Strategy proposals …* • Deteriorate/enhance local air quality, particularly in areas which already experience poor air quality? • Reduce traffic levels and congestion and promote more sustainable transport patterns across the West Yorkshire area, particularly focusing on areas with low air quality (e.g. AQMAs)? • Promote walking and cycling and improve infrastructure for these forms of travel? • Promote the use of public transport? • Encourage Green Travel Plans and School Travel Plans? • Promote operation of low emission and new vehicles, including buses and private cars? • Recognise the importance of awareness and marketing campaigns promoting the issue of improving air quality in the region? • Instigate financial incentives and measures on the basis of the polluter pays principle? (e.g. congestion charge, road pricing, car parking charges) • Protect and enhance green infrastructure, a network of linked, multifunctional green spaces in and around the area's towns and cities, contributing to an improvement in air quality? • Protect air quality sensitive wetland and heath habitats in the South Pennine Moors and North Pennine Moors European designated sites?'	Air Quality, Human Health (HIA, EqIA)
2.	To protect and enhance biodiversity, geodiversity and the green infrastructure network *	*Will Transport Strategy proposals …* • Affect/enhance area and condition of designated biodiversity and geological sites? • Affect/enhance area and condition and non-designated but locally important biological and geological sites?	Biodiversity, Flora, Fauna, Human Health, Population

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
		• Protect designated sites sensitive to visitor and recreational pressures such as Ilkley Moor?' • Affect greenfield and/or brownfield land which has significant biodiversity or geological interest of recognised local importance? • Promote the delivery of Local Biodiversity and Geodiversity Action Plans? • 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? • Promote good design to secure biodiversity benefits?	
3.	Protect and enhance the International sites (*HRA specific objective*) *	*Will Transport Strategy proposals …* • Affect the International sites identified as part of the HRA Screening process (including both positive and negative effects)? • Take on board the HRA findings and recommendations?	Biodiversity, Flora, Fauna (HRA)
4.	Reduce carbon dioxide emissions from transport *	*Will Transport Strategy proposals …* • Reduce CO_2 emissions? • 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? • Promote the use of sustainable forms of transport and reduce car use? • Promote better coordination and integration of different modes?	Climatic Factors, Human Health, Air

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
		• Support the use of clean vehicles and energy efficiency improvements of passenger transport? • Promote the use of new Intelligent Transport Systems technologies? • Support the use of financial incentives to reduce the reliance on a private car?	
5.	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions *	*Will Transport Strategy proposals…* • 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? • Minimise the risk of flooding by, for example, promoting improved drainage standards in rainfall intensity and vegetated drainage systems? • 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? • Ensure that floodplains are used for their natural purpose and are protected from inappropriate development? • Where transport schemes require a landtake from the floodplain are there appropriate compensatory measures put in place?	Climatic Factors, Human Health, Material Assets (EqIA, HIA)
6.	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	*Will Transport Strategy proposals …* • Help to enable new infrastructure /repair to be resource efficient (materials, energy, water, sustainable procurement etc) in construction and operation? • Promote sustainable waste management practices? • Promote the use of recycled materials in construction? • Improve access to recycling centres? • Promote the use of local suppliers and locally-produced materials in construction?	Material Assets

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
7.	Protect and enhance the water environment *	*Will Transport Strategy proposals …* • Protect the quality of surface and groundwater resources? • Minimise the use of impermeable hard surfacing? • Protect and enhance green infrastructure contributing to improvements in the quality of surface water run-off? • Protect water quantity/quality sensitive nature conservation designated sites?	Water, Soil, Human Health (HIA)
8.	Conserve soil resources and quality and seek to remediate contaminated land	*Will Transport Strategy proposals …* • Promote the reclamation and use of previously-developed land to make more productive use of land? • 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? • Avoid permanent (irreversible) loss of the most highly productive agricultural soils? • Avoid mineral safeguarding areas?	Soil, Biodiversity, Flora, Fauna, Material Assets
9.	Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets *	*Will Transport Strategy proposals …* • Attach value to the historic environment? • 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? • Improve access to historic sites by sustainable transport modes? • Reduce traffic congestion in historic town centres and villages? • Appropriately manage elements of the transport infrastructure which are designated heritage assets?	Cultural Heritage, Landscape, Material Assets

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
10.	Protect and enhance the character and quality of landscape and townscape *	*Will Transport Strategy proposals …* • Ensure the construction, repair and maintenance of transport infrastructure respects and enhances the local landscape character? • 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)? • Conserve, protect and enhance the region's natural environmental assets (e.g. Green Belt, parks and green spaces, common land, woodland and forests, etc)? • Protect and enhance green infrastructure, contributing to improved landscape and townscape? • Protect 'tranquil' areas (e.g. areas free from visual intrusion, noise, light pollution etc)? • Protect Public Rights of Way? • Protect and enhance locally important buildings and townscapes, maintaining and strengthening local distinctiveness and sense of place? • Improve the streetscape by removing unnecessary clutter?	Cultural Heritage, Landscape, Material Assets (HIA)

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
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 *	*Will Transport Strategy proposals …* • Promote accessibility (particularly on foot or by cycling or public transport) to key services and facilities, employment sites and open space? • Promote the primacy of active travel modes (walking and cycling) over domestic car use – pedestrianisation, phasing of traffic lights, 20 mile an hour zones? • Improve the quality of cycling and walking infrastructure? Explore synergies with green infrastructure proposals for enhancing green walking and cycling routes? • Promote modal shift to more sustainable forms of transport and continue making these forms of travel more convenient, accessible and affordable? • Promote integration, maintain and improve the public right of way and wider access network? • Promote transportation of freight and goods using waterways and rail?	Population, Material Assets, Human Health (HIA, EqIA)
Economic			
12.	Maintain or improve the number and range of good quality and accessible employment opportunities *	*Will Transport Strategy proposals …* • Help create and sustain new jobs for local people, particularly in high unemployment areas, providing the necessary training if needed? • Improve accessibility to employment opportunities in areas with high levels of unemployment? • 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? • Widen the number and range of accessible employment opportunities? • 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?	N/A

No	ISA Objective (* denotes potential for cumulative effects)	Assessment aid questions	SA/SEA topic (relevance to HIA, EqIA and HRA shown in brackets)
13.	Enhance productivity and competitiveness of businesses *	*Will Transport Strategy proposals …* • Reduce time lost to congestion by commuters on motorway corridors and routes into main urban centres? • Improve road and rail journey reliability for business users? • Support local businesses?	N/A
Social			
14.	Improve health and well-being for all citizens and reduce inequalities in health (*HIA specific objective*) *	*Will Transport Strategy proposals …* • 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)?	Human Health (see HIA sub-objectives)
15.	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (*EqIA specific objective*) *	*Will Transport Strategy proposals...* • Promote greater equality of opportunity to the varying age groups of residents (the older population and younger travellers), disabled people, different nationalities and ethnic groups, different religious groups, low income and unemployed people, different sex and sexual orientation groups?	Population (see EqIA sub-objectives)

Table 8-3 HIA Sub-objectives and assessment aid questions

HIA Objective	HIA sub-objectives	Assessment aid questions
Improve health and well-being for all citizens and reduce inequalities in health (*HIA specific objective*)	1. Improve accessibility to services, facilities and amenities for all	*Will the Transport Strategy...* • Ensure that (new and existing) developments are accessible (particularly on foot, by cycling or public transport) to primary health care services, particularly for the most vulnerable groups?

HIA Objective	HIA sub-objectives	Assessment aid questions
		• Promote and enable measures to help all residents to adopt healthy lifestyles (eg. active travel through walking and cycling)? • Promote inclusive accessibility to provide equality of opportunity? • Promote accessibility (particularly on foot or by cycling or public transport) to open space and recreational activities (e.g. playing fields, sports facilities, footpaths etc), particularly for vulnerable groups? • Protect and enhance green infrastructure, a network of linked, multifunctional green spaces in and around the area's towns and cities, thus creating new or improved public green space and therefore improve the overall environment? • Support publicity or awareness-raising campaigns and/or education and practical offers to promote active modes of transport or physical activity? • Provide accessibility improvements to health services particularly for the most vulnerable residents (including deprived communities)? • Provide overall accessibility improvements that improve the quality of life of users and therefore benefits health of residents? • Reduce the physical and perceived impact of the transport system and therefore reduce severance issues? • Provide initiatives that improve availability of transport options for all to improve accessibility levels to key facilities such as healthcare, open spaces, employment locations?

HIA Objective	HIA sub-objectives	Assessment aid questions
	2. Improve affordability of transport	• Provide affordable transport options to ensure accessibility to vital health services? • Provide affordable transport options to ensure accessibility to key facilities such as open spaces, employment locations etc.? • Promote use of technology to reduce transport costs for users i.e. smart cards? • Provide transport services that maintain fare structures (i.e. concessionary fares on public transport services) to ensure the most vulnerable groups in terms of health (children, older), can afford to use transport options to access healthcare facilities? • Promote the use of
	3. Reduce crime and fear of crime and promote community safety	• Promote the application of 'Secured by Design' in transport development schemes? • Contribute to improvements of public realm and levels of natural surveillance to create a more welcoming environment for travel, physical activity, and accessing key facilities? • Improve personal security on public transport and at its facilities to improve accessibility to key facilities? • Improve actual and perceived safety and security issues relating to transport schemes to improve access of opportunity for all and create more welcoming environments for travel (including physical modes)?
	4. Improve road safety and reduce the number of accidents and other incidents	• Ensure safe paths for walking and cycling? • Promote training for drivers to promote safe driving? • Ensure initiatives aiming to calm traffic in residential areas i.e. 20mph zones?

HIA Objective	HIA sub-objectives	Assessment aid questions
		• Promote safety talks with children and young people to raise awareness of their safety as pedestrians and cyclists? • Reduce the total killed and seriously injured in traffic accidents, particularly for vulnerable users in terms of accidents – children, young males, older people and those from deprived areas? • Reduce the total slight casualties? • Improve the safety for vulnerable road users such as pedestrians, motorcyclists and cyclists?
	5. Reduce severance	• Improve access to essential facilities such as healthcare services to reduce any existing severance issues? • Improve accessibility between communities? • Reduce the physical and perceived impact of the transport system on the local environment? Particularly for the most vulnerable population in terms of severance and health – including older and disabled people.
	6. Reduce environmental impacts of transport - vibration and air, noise and light pollution	• Aim to minimise air, noise and light pollution and vibration during construction and operation? • Reduce transport impact on air quality and noise, particularly around vulnerable users such as children, older people and deprived areas? • Promote practices, equipment and materials which reduce vibration and air, noise and light pollution to assist in improving health levels

Table 8-4 EqIA Sub-objectives and assessment aid questions

EqIA Objective	EqIA sub-objectives	Assessment aid questions
To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society	1. Improve accessibility to services, facilities and amenities for all	*Will the Transport Strategy...* • Improve access to essential facilities, including employment, healthcare and education, particularly for those in the most deprived areas (20% most deprived nationally), older and disabled people? • Improve access to pedestrian and cycle routes and green networks in the most deprived areas (20% most deprived nationally)? • Improve public realm and overall environment in the most deprived areas (20% most deprived nationally)? • Include walking, cycling and public transport measures in the most deprived areas (20% most deprived nationally)? • Provide transport services/ initiatives that are accessible for all, including those with a physical or learning disability and those with limited mobility? This includes physical access to services and provision of accessible information on transport service. • Provide transport services that are welcoming for all groups of society to increase availability of travel options? • Provide initiatives that improve perceptions of transport, and therefore increase range of travel options available? • Will the Transport Strategy take due regard of requirements for travel by disabled people including suitable parking provision, approach to new technologies for transport, disabled access on board buses, and provision of accessible information (including signage)? • Will the Transport Strategy take account of the mixed use of pedestrian footways and road space and deal with conflicts between users to promote accessibility for all?

EqIA Objective	EqIA sub-objectives	Assessment aid questions
	2. Improve affordability of transport	• Provide transport services that are financially accessible for all, specifically those in the most income deprived areas nationally or those on limited incomes? • Provide transport services or initiatives that improve the affordability of travel options in the area, specifically the most deprived areas and vulnerable users? • Provide transport services that maintain fare structures for vulnerable users (i.e. concessionary fares on public transport services)?
	3. Reduce crime and fear of crime and promote community safety	• Promote the application of 'Secured by Design' in transport development schemes? • Contribute to improvements of public realm and levels of natural surveillance to create more welcoming environments for travel (and hence improve accessibility for all)? • Improve personal security on public transport and at its facilities particularly for vulnerable users known to have security concerns with public transport (women, BME groups, older and disabled people)? • Assist in improving actual and perceived safety and security on transport options within the area?

EqIA Objective	EqIA sub-objectives	Assessment aid questions
	4. Improve road safety and reduce the number of accidents and other incidents	• Provide initiatives that enhance road safety and therefore reduce the number of accidents, particularly for vulnerable users in terms of accidents – children, older people, disabled people, and those in deprived areas? • Improve existing road safety issues to reduce the number of accidents or other incidents, particularly for vulnerable road users in terms of accidents – children, older people and those in deprived areas?
	5. Reduce severance	• Improve access to essential facilities to reduce any existing severance issues? • Improve accessibility between communities? • Improve access to information for all users to promote travel options available for all? • Reduce the physical and perceived impact of the transport system on the local environment? Particularly for the most vulnerable population in terms of severance – including older and disabled people.
	6. Reduce environmental impacts of transport – air and noise pollution	• Improve impact of transport on the local environment to create more welcoming areas for travel? • Provide transport options that improve / do not worsen air and noise pollution levels, particularly for the most vulnerable groups such as deprived residents and children (as air quality and noise impacts are known to adversely impact learning ability of children in extreme cases)? • Reduce traffic levels and congestion and promote more sustainable transport patterns across the area, particularly focusing on areas with low air quality (e.g. AQMAs)? • Promote sustainable travel to reduce the environmental impact of transport for vulnerable groups?

9. Compatibility between Transport Strategy Objectives and the ISA Objectives

9.1. Introduction

9.2. A compatibility assessment of a preliminary set of Transport Strategy objectives and the ISA objectives was undertaken (see Table 9-1) in June 2015. A total of six objectives of the West Yorkshire Transport Strategy (Core Principles), with one cross cutting objective were considered as follows:

- **Core Principle 1: One System -** The ambition is for a 'metro-style' public transport network that integrates all transport modes, including High Speed Rail, into one system that is easily understood, easy to access by a range of options and offers quick, convenient connections - this will be informed by work to develop a Connectivity Vision and expectations for journey times, frequency, capacity and quality of the network, and the role of key corridors and hubs for interchange.
- **Core Principle 2: Place Shaping -** The ambition is to make our cities, towns and neighbourhoods more attractive places to live, work and invest, with an emphasis on encouraging more walking and cycling and improving road safety, air quality and the image of places and the health of residents, with a focus on aligning investment in transport, public realm and regeneration.
- **Core Principle 3: Smart Futures -** The ambition is to exploit technology to improve the customer experience and to assist effective management of the transport system. This includes development of real-time customer information, extending payment options to include a 'best value' offer and extension of smartcards to car clubs, cycle storage, charging points and taxis.
- **Core Principle 4: Inclusion -** The ambition is to offer a high level of access by public transport in our urban and rural areas. The key input will be our work to develop a Bus Strategy. The WYCA preference is for a Bus Quality Contract Scheme. The challenge of connecting rural communities will potentially require developing imaginative solutions through collaboration with other public and private operators of vehicles.
- **Core Principle 5: Asset Management -** The ambition is to manage all of our transport system - roads, bridges, street lights, public transport stations and shelters, footways and cycle routes - in a way that offers maximum value for money and meets the needs of users.
- **Cross Cutting Principle: Minimising Carbon Emissions and Environmental Impact -** This theme will contribute to national and international targets to cut carbon emissions from the transport sector by making substantial progress towards a low carbon and environmentally sustainable transport system.

Table 9-1 Compatibility Assessment

	STP Objectives	Protect and enhance local air quality	Protect and enhance biodiversity, geodiversity and the green infrastructure network	Protect and enhance the European sites (HRA Specific Objective)	Reduce carbon dioxide emissions from transport	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	Protect and enhance the water environment	Conserve soil resources and quality and seek to remediate contaminated land	Conserve and, where appropriate enhance those elements which contribute to the significance of the area's heritage assets	Protect and enhance the character and quality of landscape and townscape	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	Maintain or improve good quality and accessible employment opportunities	Enhance productivity and competitiveness of business	Improve health and well-being for all citizens and reduce inequalities in health (HIA Specific Objective)	Promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA Specific Objective)
1	One System, High Speed Ready	?	?	?	?	?	?	?	?	✓	?	✓	✓	✓	✓	✓
2	Place Shaping	?	?	?	?	?	?	?	?	✓	✓	✓	✓	?	✓	✓
3	Smart Futures	✓	NR	NR	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓
4	Inclusion	✓	NR	NR	✓	NR	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓
5	Asset Management	✓	NR	NR	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	✓	✓
CC.	Low Carbon	?	?	?	?	?	?	?	?	✓	✓	✓	✓	✓	✓	NR

Key:

✓	Broadly Compatible
X	Potential Conflict
?	Dependant upon nature of implementation measures
NR	Not relevant / No relationship

9.3. Assessment Results

9.4. A high degree of compatibility between the two sets of objectives was found with no obvious potential areas of conflict identified. This indicated that a robust and comprehensive set of preliminary set Transport Strategy objectives had been developed. In a small number of areas there was no relationship identified between the Transport Strategy objectives and the ISA objectives.

9.5. In a number of areas, however, the potential compatibility was unclear as yet - these areas offered the potential to be compatible dependent upon the implementation measures proposed through development of the Transport Strategy policies and interventions. This essentially represented instances where careful attention would need to be paid to the content of the policies and interventions developed to implement the Transport Strategy objectives, as follows:

Core Principle 1: One System - The ambition is for a 'metro-style' public transport network that integrates all transport modes, including High Speed Rail, into one system that is easily understood, easy to access by a range of options and offers quick, convenient connections.		
ISA Objective	**Rationale for assessment of Compatibility dependent upon Implementation Measures**	**?**
Protect and enhance local air quality	While an integrated metro style transport network is likely to induce people to utilise public transport as opposed to their private cars and reduce air quality impacts, some of the proposed schemes have the potential to increase emissions - if even on a short term basis (e.g. construction phase). Careful scheme planning and mitigation during implementation could reduce this impact. Air quality will also be protected & enhanced by development of rail services (inc. light rail) and increased efficiency of road network which will reduce congestion and allow cars to operate more efficiently, thereby reducing emissions.	
Protect and enhance biodiversity, geodiversity and the green infrastructure network	Potential developments under this principle could impact on areas noted for biodiversity or geodiversity. Precise effects will be subject to the nature of the development chosen e.g. location in designated areas. Opportunity may arise to help develop green infrastructure network.	
Protect and enhance the International Sites (HRA Specific Objective)	Potential developments under this Principle could impact on areas designated for nature conservation reasons. Precise effects will be subject to the nature of the development chosen e.g. location and it is important to note that effects can be direct, indirect or a combination of both and can occur during construction, operation or both.	
Reduce carbon dioxide emissions from transport	An integrated metro style transport network is likely to induce people to utilise public transport as opposed to their private cars and this will reduce emissions. Emissions will also be reduced by development of rail services (inc. light rail) and increased efficiency of road network which will reduce congestion and allow cars to operate more efficiently, thereby reducing emissions. However, there may be a temporary increase in emissions e.g. during construction phase. Careful scheme planning and mitigation during implementation could reduce this impact.	
Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	Potential developments under this Principle could impact on areas prone to flooding or could increase areas of hardstanding. Precise effects will be subject to the nature of the development chosen e.g. location on floodplain.	
Promote prudent use of natural resources, minimise the production	Reduction in traffic congestion will lead to a more prudent use of natural energy resources. This will also lead to a reduction in waste such as emissions and other aspects such as car component waste	

of waste and support re-use and recycling	(tyres, breaks etc). Re-use & recycling opportunities can be potentially promoted during any building / scheme implementation work e.g. via use of latest building codes etc. but would require careful implementation
Protect and enhance the water environment	Reduced traffic levels could lead to a reduction in traffic accidents and general hydrocarbon emissions (e.g. oil, tyre wear etc) from vehicles that could impact on adjacent drainage networks / watercourses. Impacts on water quality could be experienced during project implementation (e.g. construction phase) though careful scheme planning and mitigation during implementation could reduce this impact.
Conserve soil resources and quality and seek to remediate contaminated land	There is some requirement for new building under this principle e.g. new Hub Station and potentially new rail stations linked to the wider network. These developments may impact on both soil resources and potentially contaminated land though any issues could be successfully addressed via careful planning and adherence to good practice.
Protect and enhance the character and quality of landscape and townscape	Reduced traffic congestion is likely via this Principle and this could lead to the protection and enhancement of the character of landscape and townscape. Similarly investment in new rail hubs with good design will offer an opportunity for revitalising areas of townscape. Impact could be experienced via the construction of new infrastructure, though careful scheme design and implementation could help mitigate this.

Core Principle 2: Place Shaping - The ambition is to make our cities, towns and neighbourhoods more attractive places to live, work and invest, with an emphasis on encouraging more walking and cycling and improving road safety, air quality and the image of places and the health of residents, with a focus on aligning investment in transport, public realm and regeneration.		
ISA Objective	**Rationale for assessment of Compatibility dependent upon Implementation Measures**	**?**
Protect and enhance local air quality	Improving air quality is an objective of this Principle and will be attained by promoting walking, cycling and encouraging people to switch from the car. This will be accommodated by the development of routes for cycling and quieter streets etc. However some of the proposed schemes have the potential to increase emissions - if even on a short term basis (e.g. construction phase). Careful scheme planning and mitigation during implementation could reduce this impact. Air quality will also be protected & enhanced by development of rail services (inc. light rail) and increased efficiency of road network which will reduce congestion and allow cars to operate more efficiently, thereby reducing emissions.	
Protect and enhance biodiversity, geodiversity and the green infrastructure network	Potential developments under this Principle could impact on areas noted for biodiversity or geodiversity. Precise effects will be subject to the nature of the development chosen e.g. location in designated areas. Opportunity may arise to help develop green infrastructure network.	
Protect and enhance the International sites (HRA Specific Objective)	Potential developments under this Principle could impact on areas designated for nature conservation reasons. Precise effects will be subject to the nature of the development chosen e.g. location of new / expanded orbital roads and it is important to note that effects can be direct, indirect or a combination of both and can occur during construction, operation or both.	
Reduce carbon dioxide emissions from transport	Reducing carbon emissions is an objective of this Principle and will be attained by promoting walking, cycling and encouraging people	

	to switch from the car. This will be accommodated by the development of routes for cycling and quieter streets etc. In addition the use of low emission vehicles and other low carbon technologies etc will be incentivised. Some infrastructure though could result in an increase in emissions - at least temporarily during implementation. Careful planning and implementation could help reduce / nullify these impacts.
Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	Potential developments under this Principle could impact on areas prone to flooding or could increase areas of hardstanding. Precise effects will be subject to the nature of the development chosen e.g. location on floodplain.
Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	Efforts to improve air quality and promote carbon efficiency will result in prudent use of natural resources such as energy. This will also lead to a reduction in waste such as emissions and other aspects such as car component waste (tyres, breaks etc). Re-use & recycling opportunities can be potentially promoted during any building / scheme implementation work e.g. via use of latest building codes etc. but would require careful implementation.
Protect and enhance the water environment	Reduced traffic levels (as people switch from the car) could lead to a reduction in traffic accidents and general hydrocarbon emissions (e.g. oil, tyre wear etc) from vehicles that could impact on adjacent drainage networks / watercourses. Impacts on water quality could be experienced during project implementation (e.g. construction phase) though careful scheme planning and mitigation during implementation could reduce this impact.
Conserve soil resources and quality and seek to remediate contaminated land	Increasing orbital road capacity may lead to the need to develop new roads or widen existing - this could potentially impact on soil resources and the need to remediate contaminated land.
Enhance productivity and competitiveness of business	This Principle seeks to find better and more sustainable ways to move freight etc - how this is implemented may increase costs for industry or could lead to a reduction.

Cross Cutting Core Principle: Minimising Carbon Emissions and Environmental Impact – This theme will contribute to national and international targets to cut carbon emissions from the transport sector by making substantial progress towards a low carbon and environmentally sustainable transport system		
ISA Objective	**Rationale for assessment of Compatibility dependent upon Implementation Measures**	**?**
Protect and enhance local air quality	Efforts made to cut carbon emissions e.g. improving vehicle maintenance is likely to result in improvements and protection of air quality. However, some schemes may result in an increase in emissions during construction / implementation. This could be mitigated depending upon careful planning and implementation measures.	
Protect and enhance biodiversity, geodiversity and the green infrastructure network	Reduced carbon will help contribute to a reduction in the rate of climate change and this will therefore help protect biodiversity etc from the effects of a changing climate. However, some schemes may result in an increase in impact on biodiversity during construction / implementation. This could be mitigated depending upon careful planning and implementation measures.	
Protect and enhance the International sites (HRA Specific Objective)	Potential developments under this Objective could impact on areas designated for nature conservation reasons. Precise effects will be subject to the nature of the development chosen e.g. location of new / expanded orbital roads and it is important to note that effects can	

	be direct, indirect or a combination of both and can occur during construction, operation or both.
Reduce carbon dioxide emissions from transport	Better vehicle maintenance and reducing reliance on fossil fuels will reduce carbon emissions, but the development of new infrastructure could result in emissions rising - at least on a temporary basis. This could be mitigated depending upon careful planning and implementation measures.
Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	Potential infrastructure developments could impact on areas prone to flooding or could increase areas of hardstanding. Precise effects will be subject to the nature of the development chosen e.g. location on floodplain and the nature / effectiveness of the planning and implementation.
Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	Reduction in traffic congestion will lead to a more prudent use of natural energy resources. This will also lead to a reduction in waste such as emissions and other aspects such as car component waste (tyres, breaks etc). Re-use & Recycling opportunities can be potentially promoted during any building / scheme implementation work e.g. via use of latest building codes etc. but would require careful implementation
Protect and enhance the water environment	New infrastructure could impact on adjacent drainage networks / watercourses. Impacts on water quality could be experienced during and by project implementation (e.g. construction phase) though careful scheme planning and mitigation during implementation could reduce this impact.
Conserve soil resources and quality and seek to remediate contaminated land	The development of new infrastructure may impact on both soil resources and potentially contaminated land though any issues could be successfully addressed via careful planning and adherence to good practice.

9.6. As shown above, there were a number of areas where a reasonable level of uncertainty in terms of effects arose. This was particularly pertinent, as a number of schemes planned under the WYTF (which could be promoted by the Transport Strategy) had the potential for negative environmental impacts. While it is the case that these schemes could have an overall positive benefit on the environment in the medium to longer term e.g. an improvement in air quality, careful individual scheme planning will be required to achieve this and to achieve as minimal an impact as possible during the construction and implementation phases.

9.7. ISA Recommendations

9.8. As the potential for environmental impact arose across a number of the Transport Strategy Principles, it was recommended that the original Cross Cutting Principle to Lower Carbon is amended in order to underpin the requirement for minimising the environmental impact of scheme construction and implementation, as follows:

Minimising Carbon Emissions and Environmental Impact - This theme will contribute to national and international targets to cut carbon emissions from the transport sector by making substantial progress towards a low carbon and environmentally sustainable transport system

9.9. Final Transport Strategy Objectives

9.10. WYCA have further developed the strategy objectives, the rationale for them and the key challenges to achieving them in the Transport Strategy taking on board the ISA recommendations and many other influences as the strategy developed.

9.11. The original six principles originally considered in the compatibility assessment have evolved and been condensed to become three key transport objectives as follows:

- Improve connectivity and reduce congestion, thereby increasing business productivity and providing access to wider labour markets - supporting 'good growth' in Leeds city region.
- Create a 'sense of place', encouraging walking, cycling for health and other benefits and increasing access across West Yorkshire in a safe way
- Have a positive impact on our built and natural environment in West Yorkshire, improving development viability and increasing longer term resilience.

10. Assessment of Alternatives

10.1. Introduction

10.2. In conducting the ISA, account has been taken of the SEA Directive requirement that the Environmental Report should consider:

'reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme' and give 'an outline of the reasons for selecting the alternatives dealt with' (Article 5.1 and Annex Ih)'.

10.3. Defining strategic alternatives

10.4. WYCA developed three strategic scenarios in response to the six Transport Strategy Core Principles in October 2015.

10.5. A full description of each of the three scenarios under consideration is provided in Appendix D. Scenario 1 considers continued investment against LTP3 priorities (economy, low carbon and quality of life) only whereas scenarios 2 and 3 consider continued investment against LTP3 priorities supplemented by Local Growth Deal 2 and continuation of WYTF schemes investment, with a focus on rail and road based capacity improvement (in the case of scenario 2) and on wider transport solutions, focusing on low carbon and active travel solutions (in the case of scenario 3).

10.6. Assessing strategic scenarios

10.7. The strategic scenarios were assessed using the ISA framework. The outcomes of this process are shown in full in Appendix D and then summarised in Table 10-1 below and the subsequent discussion.

10.8. The assessments have been undertaken using a seven point scale of effect as follows:

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

10.9. Those effects which are either moderate or major are deemed to be significant. In addition, commentary on each assessment is provided.

10.10. The subsequent discussion includes recommendations and refinements to be considered in developing the preferred option for the long-term strategy.

10.11. Assessment summary for the strategic scenarios and recommendations

10.12. A discussion of the assessment summary results presented in Table 10-1 follows considering environmental, economic and social (including health and equalities) effects. Recommendations regarding most sustainable strategic scenario(s) are also provided.

10.13. From an environmental perspective, strategic scenario 1 (continuation of investment against LTP3 priorities) performed best against all ISA environmental objectives due to the reduced number of hard interventions in comparison to the WYTF schemes in strategic scenarios 2 and 3. Strategic scenario 3 performed marginally better than strategic scenario 2 due to a greater emphasis on interventions that could more effectively counteract predicted increases in air pollution (ISA objective 1), carbon dioxide emissions (ISA objective 4) and improve and promote sustainable modes of transport (ISA objective 11). These 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. However, the performance of both scenarios 2 and 3 against ISA objectives 2 (biodiversity), 5 (flood risk), 6 (use of resources), 7 (water environment), 8 (soil), 9 (heritage assets) and 10 (landscape) is potentially adverse due to a number of WYTF proposed schemes under both scenarios involving construction on greenfield land, agricultural land, flood zones etc.

10.14. From an economic perspective, scenarios 2 and 3 provided moderate to strong beneficial effects against ISA objective 12 (accessible employment opportunities) and ISA objective 13 (productivity and competitiveness of businesses) through ensuring good accessibility to existing and expected employment and housing areas, reducing journey times and enhancing travel reliability for commuters. On the other hand, scenario 1, by not addressing the need to ensure good accessibility to expected major employment and housing growth areas, would only provide slight to moderate beneficial effects.

10.15. From a social perspective, strategic scenarios 1 and 3 performed similarly, and marginally better that strategic scenario 2, with potential significant beneficial effects on both ISA objective 14 (health and well-being) and ISA objective 15 (greater equality of opportunity). By continuing investment and prioritisation against the LTP priorities, scenario 1 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 and 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. 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. In the case of scenario 3 improved connectivity between communities and interventions that focus on low carbon and active travel measures were likely to make improvements on health and well-being of residents and improve the availability and affordability of travel options for all citizens.

10.16. In summary, out of the three strategic scenarios:

- Strategic scenario 1 is the most environmentally favourable alternative given the slight adverse effects for air quality, biodiversity and natural environment, flood risk, soil quality, heritage assets and natural resources and waste and will also contribute positively and significantly to economic (1 in total) and social objectives (2 in total).
- Strategic scenario 2 is more problematic than the other two scenarios across the environmental, economic and social dimensions.
- Strategic scenario 3 has the highest number of significant beneficial significant effects (4 in total), relating to social and economic objectives and also lower environmental effects against objectives for air quality, greenhouse gases and sustainable modes of transport when compared with scenario 2. It nevertheless shows 7 significant environmental adverse effects for biodiversity and natural environment, flood risk, soil quality, heritage assets, water environment, heritage and natural resources and waste.

10.17. It should be noted that it is not the purpose of the ISA to decide the alternative to be chosen for the Transport Strategy. This is the role of the decision makers who will have to make decisions

about the strategy to be adopted. The ISA provides information on the relative performance of the strategic scenarios and can make the decision making process more transparent.

10.18. On the knowledge that WYTF schemes would most likely be part of the Transport Strategy's Implementation Plans (and therefore strategic scenario 1 is less realistic), strategic scenario 3 has been considered the scenario with the most potential to deliver a more balanced approach towards the three dimensions of sustainability. However, this would require the satisfactory minimisation of significant adverse effects potentially arising from proposed WYTF schemes and the careful consideration of the effects of the proposed schemes as part of the Strategy preparation as well as the strengthening of interventions to shift people from the private car to more sustainable modes of transport.

Table 10-1 Assessment Summary for the Strategic Scenarios

ISA Objectives	Strategic Scenario 1	Strategic Scenario 2	Strategic Scenario 3
ENVIRONMENT			
1. Protect and enhance local air quality	+/-	--	-
2. To protect and enhance biodiversity, geodiversity and the green infrastructure network	-	--	--
3. Protect and enhance the International sites (HRA specific objective)	0	0	0
4. Reduce carbon dioxide emissions from transport	+	--	-
5. Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	-	+/--	--
6. Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	-	--	--
7. Protect and enhance the water environment	-	--	--
8. Conserve soil resources and quality and seek to remediate contaminated land	-	--	--
9. Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	-	--	--
10. Protect and enhance the character and quality of landscape and townscape	+	--	--
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	+	--	-
ECONOMIC			
12. Maintain or improve good quality and accessible employment opportunities	+	++	++
13. Enhance productivity and competitiveness of businesses	++	+++	+++
SOCIAL			

14. Improve health and well-being for all citizens and reduce inequalities in health *(HIA specific objective)*	++	+	++
15. To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (*EqIA specific objective*)	++	+	++

11. Assessment of Draft Transport Strategy

11.1. Introduction

11.2. This section predicts and evaluates the likely sustainability effects arising from the proposed Draft Transport Strategy and puts forward recommendations in order to address shortfalls identified during the assessment.

11.3. Transport Strategy Proposals

11.4. WYCA have developed a series of Core Themes, with ambitions and derived policies associated to each theme in the Draft Strategy document (see Table 11-1). The proposals associated with these Core Themes formed a draft Transport Strategy document dated April 2016 and have been assessed against the ISA Framework as set in Table 8-1.

Table 11-1 Draft Transport Strategy Themes and Ambitions and derived Policies (April 2016)

Theme	Ambition	Derived Policies
Road Network	Our 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	• RN1: Key Route Network – Manage a key road network that makes it easier for vehicles to move around • RN2: Car - Maintain the number of car journeys at today's level at peak periods • RN3: Freight – work with freight industry partners to make freight journeys more efficient • RN4: Taxi – work with taxi trade to improve safeguarding issues and the provision of environmentally friendly taxis at key hubs • RN5: Motorcycles – improve the highway network and parking facilities to be safer and more effective for motorcycle users • RN6: Walking & Cycling – improve the highway network to be safer and more effective for pedestrians and bicycle users
Places to live and work	Our ambition is to make our cities, towns and neighbourhoods more attractive places to live, work and visit	• PL1: People Friendly Streets – 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 - Improve local neighbourhoods by reducing traffic speeds, encouraging walking / cycling and making areas greener and healthier. • PL3: Roads - Build new roads to take traffic out of town / city centres • PL4: New Development - Provide sustainable transport links to new housing and employment sites.

Theme	Ambition	Derived Policies
One System Public Transport	Our ambition is for a transformational metro style public transport system that connects different modes of transport into one network	• OS1: Transport Hubs and Links - 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 - Develop a quick, frequent, reliable bus network, serving busy roads and providing local connections, including New Generation Transport • OS3: Rail Network - 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.
Smart Futures	Our ambition is to use improvements in technology to better plan and manage the transport system and improve the experience of the people using it	• SF1: Network Management - Use of technology and data to better manage the transport network, improving capacity and efficiency • SF2: Mobility Account - 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 - Provide improved travel information to make planning journeys easier • SF4: Open Data - Allow others to make use of our transport information for the benefit of customers travelling on our networks.
Asset Management	Our 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	• AM1: Efficiencies - 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 - 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 - Invest in replacement assets to save operating costs in the longer term.
Environment, Health and Wellbeing, Inclusion	Our ambition is to make the environment of West Yorkshire better to improve the health and wellbeing of people living or working here	• X1: Reducing emissions and noise - 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 - Make the transport system safer, moving towards a 'zero tolerance' of transport injury related deaths. • X3: Encouraging Healthy Travel - Providing more opportunities for walking and cycling • X4: Including Communities - Develop the 'total transport' approach, as well as access to green spaces and severance and isolation problems.

11.5. WYCA have also identified in the draft Transport Strategy document dated April 2016 some of the key programmes and projects that will form part of the Implementation Plans. It should be noted that further development work on these programmes and projects will be undertaken once the Strategy is complete and adopted. An early example of the high level delivery programme is provided in the Strategy for 2016-2021.

11.6. A high level ISA has been undertaken of the different types of projects (schemes) at this stage to inform policy development. The focus of the ISA has been on the WYTF schemes indicated on the high level delivery programme for 2016-2021. All other implementation proposals have been generically assessed as part of proposals associated with the Core Themes assessments.

11.7. Proposed WYTF schemes have been identified and grouped per type of scheme and their links to the proposed Core Strategy and Policies mapped (as shown in Table 11-2).

Table 11-2 Grouping of Transport Fund Schemes identified for the period 2016-2021

Type of Scheme	Link to Strategy Core Themes and Policies*	Transport Fund Schemes
New Highway Links	Derived from Core Theme – Road Network and Policies RN1, RN2, RN3, RN5 and Core Theme – Places to Live & Work Policy PL3	• Castleford Northern Bypass • East Leeds Orbital Road • Glasshoughton Southern Link Road • Leeds Bradford Airport Access Road • Wakefield Eastern Relief Road • York Central Access
Highways Improvements	Derived from Core Theme – Road Network and Policies RN1, RN2, RN3, RN5 and RN6 and Core Theme – Places to Live & Work Policies PL1, PL2 and PL3	• A650, A62, A641 Corridors
Urban Centre Improvements	Derived from Core Theme – Places to Live & Work and Policies PL1, PL2, PL4	• Leeds City Centre Package • Wakefield City Centre Package
Rail Improvements	Derived from Core Theme – One System Public Transport and Policies OS1 and OS3	• Calder Valley Line – signalling and line speed
Support for Rail Gateway Improvements	Derived from Core Theme – One System Public Transport and Policies OS1 and OS3	• Bradford Interchange/Forster Square • Castleford • Huddersfield • Leeds Station
Rail Park & Ride	Derived from Core Theme – One System Public Transport and Policy OS1	• 'Park and Rail' programme

*Note that the rationale for schemes may be derived from a range of policies within the Transport Strategy. Those noted are the most applicable Policies to that type of scheme.

11.8. Based on the limited information available for each scheme it has been possible to draw generic overviews of the likely effects that each scheme type would typically have on each environmental, social and economic objective set as part of the ISA process. The results obtained have then be fed into the assessment of Core Themes' policies and informed the development of policy recommendations.

11.9. A summary of the assessment findings are presented in the section below. Tables detailing the assessments are provided in Appendices D and E.

11.10. Note that in both cases (Core Themes and Scheme Types) the assessment utilised the following significance scale:

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

11.11. Assessment Summary

Core Themes

11.12. The initial assessment scores for each ISA objective and for each Core Theme is provided in Table 11-3. A discussion of the assessment results and recommendations arising from the assessments follows in Table 11-4. In this table the response from WYCA to each of the recommendations is also provided. The recommendations are aimed at improving the sustainability performance of the Core Themes against the ISA objectives.

Table 11-3 Summary of assessment scores for the Transport Strategy's Core Theme proposals (April 2016)

ISA Objective		Road Network	Places to live and work	One system public transport	Smart Futures	Asset Management	Environment, Health & Wellbeing
1	Protect and enhance local air quality	+/-	++	++	+	0	+++
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	---	++ / --	---	+	0	+/-
3	Protect and enhance the International Sites (HRA specific objective)	---	--	---	0	0	- -
4	Reduce carbon dioxide emissions from transport	+/-	+	++	+	0	+++
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	---	++ / --	---	0	-	-

6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	+	+	+	+	+/-	+/-
7	Protect and enhance the water environment	---	-	---	+	-	--
8	Conserve soil resources and quality and seek to remediate contaminated land	+/-	+/-	+/-	+	0	++ / --
9	Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	+/-	+/-	+/-	+	0	+/-
10	Protect and enhance the quality of landscape and townscape	+/-	+++	+/-	+	+	+/-
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	++	+	+++	+++	0	+++
12	Maintain or improve the number and range of good quality and accessible employment opportunities	0	++	+++	+/-	0	+++
13	Enhance productivity and competitiveness of businesses	+++	+	+++	++	+/-	+++
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	+	++	++	+	+	+++
15	To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)	+	++	++	+	+	+++

11.13. The assessment results identify a number of areas of strength, but also some areas of weakness in relation to the performance of these Core Themes against the ISA Objectives as follows:

11.14. The Core Themes have been found to be positive in terms of improving air quality and reducing carbon dioxide emissions. This is particularly strongly demonstrated through the Cross Cutting Core Theme of Environment, Health and Well-being, Inclusion which has a clear policy (X1) to reduce emissions. Reference should be made to the specific recommendations made in Table 11-4 - particularly to the recommendation for a commitment to be made to the levels of reduction that are hoped to be achieved in NOx and PM10.

11.15. The Core Themes are also strongly positive in relation to reducing road traffic and congestion through reducing the need to travel by car and improving and promoting sustainable modes of transport including, public transport, cycling and walking. In this instance 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 and are considered to be strongly positive aspects. Similarly the growth targets for bus and rail identify the positive plan to increase public transport use.

11.16. Access to good quality and accessible employment opportunities are supported by the ambition for a better integrated network which 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 Line Enhancement 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. Similar positive effects are anticipated in relation to enhancing productivity and the competitiveness of business.

11.17. The Core Themes are also all positive or strongly positive in relation to improving health and well-being, reducing inequalities in health and promoting equality of opportunity. It is worth noting that the cross cutting theme of 'Environment, Health and Well-being, Inclusion' was considered to be Large Beneficial and due to the cross cutting nature of this Theme, this positivity will be experienced across the Strategy. Nevertheless, it is worth noting the recommendations in Table 11-4 to strengthen this aspect further - for example 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.

11.18. There are a number of areas where the Strategy as a whole is less positive. These areas tend to reflect environmental issues, other than air quality and carbon. In particular the Core Themes relating to the 'Road Network' and 'One System Public Transport' were considered to be Strong Adverse in terms of biodiversity, flood risk and protection of the water environment. For example, new roads are likely to involve a direct loss of habitat that can be considered permanent and may have a negative effect on the water environment through construction pollution incidents, polluted runoff during operation and the potential for traffic accidents to result in pollution.

11.19. It was recognised throughout the assessment of the Core Themes in relation to aspects of the environment that the Cross Cutting Theme of 'Environment, Health and Well-being, Inclusion' would address many of the issues arising within the themes. However, the assessment of the Cross Cutting theme itself indicated a number of weaknesses in terms of protecting the environment (other than in relation to air quality and emissions). Therefore, throughout the assessment of the Core Themes, it was recommended that the Cross Cutting Theme was amended to address specific issues. In addition, the assessments of the proposed WYTF schemes by type that will be implemented by the Transport Strategy (see below) have also led to further amendments proposals. Recommendations arising from the HRA Screening process have also been integrated in the amendments proposed.

11.20. The amended Core Theme in Table 11-6 has been proposed for consideration by WYCA. Note that this amended Core Theme contains a proposed new policy X? concerning the Protection and Enhancement of the Built and Natural Environment.

11.21. WYCA took on board the recommendations made by the ISA and has included a new policy X2 ‘Protection and Enhancement of Green Infrastructure and the Built Environment’ in the draft consultation strategy document and has renumbered the other policies under this theme. This policy has resulted in an enhancement of the scores against many of the ISA objectives as shown in Table 11-7, in particular those concerned with the protection of the environment.

Table 11-4 Core Themes Assessment Summaries & Recommendations

Core Theme: Road Network			
ISA Obj.	**Assessment summary**	**Recommendation**	**How has this recommendation been addressed?**
1.	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 (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.	Clearer acknowledgement of the AQMAs and specific commitments to air quality improvements. Future scheme development should ensure air quality mitigation is included. Road schemes could target solving air quality issues.	WYCA Response – Poor air quality is addressed in 'Our Current Transport Challenges' chapter. Sentence added to 1st paragraph of Road Network chapter acknowledging AQMAs in West Yorkshire. Sentence added articulating link between road network core theme and cross cutting theme under RN1 – Key Route Network heading. The WYLES strategy will set the framework for air quality improvement and key mechanisms will be transposed into the Transport Strategy.
2.	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'.	WYCA response – Sentence added under 'RN1 – Key Route Network' to articulate link between road network theme and cross cutting theme. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory

		This approach would likely reduce the significance of negative effects.	paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
3.	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.	WYCA response – New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
5.	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.	WYCA Response – Sentence added under RN1-Key Route Network to link between road network core theme and cross cutting theme. Link to 'Asset Management' core principle added, including network resilience from extreme weather and future proofing. Resilience of the network and disruption caused by flooding addressed in the Asset Management theme – AM2 Resilience. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built

			Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
6.	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 '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'	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.	WYCA Response – Sentence added to link between road network core theme and cross cutting theme under RN1 – Key Route Network heading. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
7.	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.	WYCA Response – Sentence added under RN1-Key Route Network to link between road network core theme and cross cutting theme. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
8.	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	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the	WYCA Response – Sentence added under RN1-Key Route Network to link between road

	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'	need to protect soil resources when possible and to take opportunities for land remediation or reuse of contaminated land when possible.	network core theme and cross cutting theme New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
9.	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.	WYCA Response – Sentence added under RN1-Key Route Network to link between road network core theme and cross cutting theme New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and sub-heading inserted in cross cutting theme to address natural and built environment.
10.	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 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.	WYCA Response – Sentence added to link between road network core theme and cross cutting theme under RN1 – Key Route Network heading. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting

			theme to address natural and built environment responsibilities.
12.	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)	The theme could better relate the road network improvements to the identified economic zones to enhance the case for improving access to employment.	The Transport Strategy now makes clear reference on improving access to employment opportunities and its role as a delivery mechanism for the Strategic Economic Plan.
14	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.	WYCA Response – Maintaining the number of car trips in the peak hours at existing levels is identified in the policy proposals. The proposals for strengthening alternatives to car travel are included in the One Network Public Transport and Places core themes. Addressing public health is an integral part of the cross cutting theme of Environment, Wellbeing and Inclusion.
15	The theme will ensure that access to service across West Yorkshire is maintained and enhanced through continuing to support the key route 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.	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. 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.	WYCA Response – Response as above in Q14.

Core Theme: Places to live and work			
ISA Obj.	**Assessment summary**	**Recommendation**	**How has this recommendation been addressed?**
1.	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.	WYCA Response – Theme articulates ambition of creating 'healthy streets which will benefit from clean air' (para.3) Policies PL1 and PL2 both articulate benefits of clean air on public health.
2	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.	WYCA Response - New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
3	This theme is concerned with our places having economic vitality, easy movement and healthier / safer and attractive environments. However, schemes derived from this theme	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well	WYCA Response -

	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'.	Being, Inclusion' which will deal with the requirement to protect International sites.	New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
5	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.	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.	WYCA Response – Sentence added to link places theme to cross-cutting theme policies. (para.3) New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address adverse weather mitigation. Asset management theme references resilience against adverse and extreme weather conditions – see AM2 resilience.
6	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.	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.	WYCA Response Sentence added to link places theme to cross-cutting theme policies. (para.3) New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting

	The issue of prudent use of natural resources etc is more comprehensively addressed via the Cross Cutting Theme of 'Environment, Health & Well Being, Inclusion'		theme to address natural and built environment responsibilities.
7.	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 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'	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.	WYCA Response New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and sub-heading inserted in cross cutting theme to address adverse weather. Asset management chapter also references resilience against adverse weather conditions. SuDS and other detailed considerations will be addressed during detailed design phase, but will adhere to principles of mitigating effects of adverse weather as placed in the Transport Strategy.
8.	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.	WYCA Response - New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
9.	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	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the	WYCA Response - New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built

	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'.	requirement to protect (and if possible enhance) heritage assets when possible.	Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
10.	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 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'.	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.	WYCA Response - New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
13.	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.	WYCA Response Wording strengthened in place shaping theme to detail economic benefits of tourism (para's 1 and 2).

14.	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.	WYCA Response Published version of Transport Strategy will be supported by a monitoring and evaluation plan for air quality.
15.	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.	WYCA Response The cross-cutting theme of Inclusion will ensure our transport schemes promote equity of benefits across all user groups, with particular focus on improving the lives for vulnerable transport users.
Core Theme: One System Public Transport			
ISA Obj.	**Assessment summary**	**Recommendation**	**How has this recommendation been addressed?**
2.	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 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'.	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
3	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.	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	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes.

	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'.	effects will be addressed by those contained within the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
5.	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
6.	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting

			theme to address natural and built environment responsibilities.
7.	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.	WYCA Response New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address adverse weather. Asset management chapter also references resilience against adverse weather conditions. SuDS and other detailed considerations will be addressed during detailed design phase, but will adhere to principles of mitigating effects of adverse weather as placed in the Transport Strategy.
8.	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
9.	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	It is recommended that appropriate referencing is made to the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion' which will deal with the	WYCA Response.

	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'.	requirement to protect (and if possible enhance) heritage assets when possible.	Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
10.	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
11.	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.	Transport Strategy has now been addressed to provide consistent bus patronage targets throughout the document.
14.	Higher levels of public transport usage through the policy's schemes is likely to slightly increase the levels of physical	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	WYCA Response – Maintaining the number of car trips in the peak hours at existing levels is

	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.	person would use the alternative mode. Benefits should be felt by all members of society in West Yorkshire.	identified in the policy proposals. The proposals for strengthening alternatives to car travel are included in the One Network Public Transport and Places core themes. Addressing public health is an integral part of the cross cutting theme of Environment, Wellbeing and Inclusion.
15.	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.	WYCA Response – The bus component of the One Public Transport Scheme address the topic of the affordability of public transport.
Core Theme: Smart Futures			
ISA Obj.	**Assessment summary**	**Recommendation**	**How has this recommendation been addressed?**
15.	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.	WYCA Response Sentence added to SF3 information stating "*We will also maintain an inclusive approach to information provision by ensuring information is available in a number of non-digital formats.*"
Core Theme: Asset Management			
ISA Obj.	**Assessment summary**	**Recommendation**	**How has this recommendation been addressed?**
2.	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	Cross reference to the theme of 'Environment, Health & Well Being, Inclusion' to ensure that biodiversity is not	WYCA Response.

	biodiversity from these maintenance activities and any issues which arise could be addressed via the Cross Cutting theme of 'Environment, Health & Well Being, Inclusion'.	effected by any asset management activities.	Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
5.	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.	WYCA Response Reworded AM2 Resilience to *"We need to proactively maintain the network to avoid some problems normally associated with disruption, especially if climate change is likely to increase their frequency"*
6.	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.	WYCA Response Rewording of AM1 to include *"re-using materials and recycling where possible"*
7.	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	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory

	likely to be / very limited opportunities to enhance the water environment.		paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
8.	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'.	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.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
9.	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'.	Cross reference to the theme of 'Environment, Health & Well Being, Inclusion' to ensure that heritage assets are not effected by any asset management activities.	WYCA Response. Clearer link provided on p22 between core and cross-cutting themes. New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.
13.	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 users. The theme discusses network resilience and the benefits of keeping the networks operational (e.g. through periods of heavy	There is potential to demonstrate the links between providing this resilience and the economic savings caused from maintaining a regular system and timetable operation.	WYCA Response – Link between resilience and economy included in AM2 – Resilience.

	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.		
14.	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).	WYCA Response – Maintaining the number of car trips in the peak hours at existing levels is identified in the policy proposals. The proposals for strengthening alternatives to car travel are included in the One Network Public Transport and Places core themes. Addressing public health is an integral part of the cross cutting theme of Environment, Wellbeing and Inclusion.
15.	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).	WYCA Response – As above.
Core Theme: Environment, Health & Wellbeing			
ISA Obj.	**Assessment summary**	**Recommendation**	**How has this recommendation been addressed?**
1.	This theme makes direct reference to this objective. The delivery of the Low Emission Strategy, the Leeds Clean Air	The theme makes no specific commitments to the levels of impact that	The WYLES strategy will set the framework for air quality improvement and key mechanisms will be

	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.	are hoped to be achieved for the levels of NOx and PM10 reduction.	transposed into the Transport Strategy.
2.	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 this can be utilised for maximum benefit as part of the green infrastructure network.	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 developed to aid objectives of the Transport Strategy. Amendments have been proposed for the cross cutting theme to address the identified shortfalls and a new policy X2 has been identified (see Table 11-6).	WYCA Response New policy proposal – 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and explanatory paragraph inserted in cross cutting theme to address natural and built environment responsibilities.

3	This theme and the policies within it do not recognise the potential impacts of transport schemes on International sites.	The HRA Screening has 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. Amendments have been proposed for the cross cutting theme to address the	WYCA Response New sub-heading inserted in cross cutting theme which is concise and addresses the recommendations raised.

		identified shortfalls and a new policy X2 has been identified (see Table 11-6).	
4.	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 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.	The theme makes no specific commitments to the levels of impact that are hoped to be achieved for the levels of carbon dioxide reduction.	The WYLES strategy will set the framework for air quality improvement and key mechanisms will be transposed into the Transport Strategy.
5.	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. Amendments have been proposed for the cross cutting theme to address the identified shortfalls and a new policy X2 has been identified (see Table 11-6).	WYCA Response New cross-cutting theme policy ''X2 Protection and Enhancement of Green Infrastructure and the Built Environment' included, as recommended. New policy proposal – 'X2 Protecting and Enhancing our Environment' and new sub-heading inserted in cross cutting theme which is concise and addresses the recommendations raised.
6.	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	It is recommended that the theme is reworded to note that waste and recycling	WYCA Response New cross-cutting theme policy 'X2 Protection and Enhancement of

	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.	would have to be addressed at scheme design and during the construction phase. Amendments have been proposed for the cross cutting theme to address the identified shortfalls and a new policy X2 has been identified (see Table 11-6).	Green Infrastructure and the Built Environment' included. New policy proposal – 'X2 Protecting and Enhancing our Environment' and new sub-heading inserted in cross cutting theme which is concise and addresses the recommendations raised.
7.	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. Amendments have been proposed for the cross cutting theme to address the identified shortfalls and a new policy X2 has been identified (see Table 11-6).	WYCA Response New policy proposal – ''X2 Protection and Enhancement of Green Infrastructure and the Built Environment' and new sub-heading inserted in cross cutting theme to address adverse weather. Asset management chapter also references resilience against adverse weather conditions. SuDS and other detailed considerations will be addressed during detailed design phase, but will adhere to principles of mitigating effects of adverse weather as placed in the Transport Strategy.
8.	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. Amendments have been proposed for the cross cutting theme to address the	WYCA Response New cross-cutting theme policy 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' included, as recommended. New sub-heading inserted in cross cutting theme which is concise and

		identified shortfalls and a new policy X2 has been identified (see Table 11-6).	addresses the recommendations raised.
9.	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. Amendments have been proposed for the cross cutting theme to address the identified shortfalls and a new policy X2 has been identified (see Table 11-6).	WYCA Response New cross-cutting theme policy 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' included, as recommended. New sub-heading inserted in cross cutting theme which is concise and addresses the recommendations raised.
10.	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. Amendments have been proposed for the cross cutting theme to address the identified shortfalls and a new policy X2 has been identified (see Table 11-6).	WYCA Response New cross-cutting theme policy 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' included, as recommended. New sub-heading inserted in cross cutting theme which is concise and addresses the recommendations raised.
14.	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.	WYCA Response – Maintaining the number of car trips at a constant level will require WYCA to enhance and promote alternative travel options. These recommendations are addressed ostensibly in the One Network Public Transport and Smart Futures themes.

15.	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.	WYCA Response – As above. The cross-cutting theme of Inclusion will ensure our transport schemes promote equity of benefits across all user groups, with particular focus on improving the lives for vulnerable transport users.

11.21.1. Proposed WYTF schemes by type

11.22. As indicated above, the focus of the ISA has been on the effects of the proposed WYTF schemes which are indicated in the high level delivery programme provided in the Strategy for 2016-2021. The following Table 11-5 provides an overview of the anticipated effects on the ISA Objectives in relation to each typical scheme type identified. Eight scheme types have been considered:

- New Highway Links
- Highways Improvements
- Highway Junction Improvements
- Urban Centre Improvements
- Rail Improvements
- Support for Rail Gateway Improvements
- Multi-Modal Corridors
- Rail Park & Ride

11.23. Significant negative effects are predicted across a number of ISA Objectives, in particular environmental objectives (ISA Objectives 1-10) and typical mitigation measures for each type of scheme have been proposed in Appendix E and are summarised below:

11.24. 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.

11.25. 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.

11.26. 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.

11.27. 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.

11.28. 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.

11.29. 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.

11.30. 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.

11.31. 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.

11.32. 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.

11.33. 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.

11.34. It is important to note that this typical mitigation may, or may not, be applied to an individual scheme – the mitigation to be applied will depend upon the precise design of the scheme, the landscape and environment into which it is to be placed, the level of environmental protection required and the overall economic and social objectives of the scheme. In short, any mitigation to be put in place will be bespoke to and appropriate for, that scheme.

11.35. Similarly, proposals for Monitoring of effects of schemes have been made, which have taken into consideration in the preparation of the proposed ISA Monitoring Programme (see section 13 of this ISA Report).

11.36. It is recommended that Transport Strategy policy is amended in order to recognise that there is a need to address the potential significant negative effects that have been identified for the types of schemes and that a due process needs to be in place to ensure that such effects are addressed in later stages of the scheme development process. The following text amendments to the Cross Cutting Theme are proposed (refer also to text in Table 11- 6 where this text has been inserted):

"This Transport Strategy will lead to a number of new transport schemes. Recognising that these schemes may have significant effects on the environment, all Schemes to be derived from this Strategy are to be subject to rigorous assessment at a level appropriate to the scale of the Scheme and its stage of development.

Consideration is to be given to all relevant environmental issues at all stages of the Scheme life cycle – from concept, through design, construction and operation, to decommissioning. Note that the following are suggested measures only and it is to be recognised that each scheme will be unique. At all times, relevant legal requirements and Best Practice prevailing at that time should be followed.

Further Scheme Assessment

It should be noted that as Schemes are taken forward for more detailed assessment / appraisal, the Staged approach outlined in Transport Analysis Guidance (WebTAG) developed by the Department for Transport will be followed. This appraisal process is in three stages as follows:

- *Stage 1 – Option Development. This involves identifying the need for intervention and developing options to address a clear set of locally developed objectives which express desired outcomes. These are then sifted for the better performing options to be taken on to further detailed appraisal in Stage 2.*
- *Stage 2 – Further Appraisal of a small number of better performing options in order to obtain sufficient information to enable decision-makers to make a rational and auditable decision about whether or not to proceed with intervention. The focus of analysis is on estimating the likely performance and impact of intervention(s) in sufficient detail.*
- *Stage 3 – Implementation, Monitoring and Evaluation.*

Appraisal should be undertaken in a proportionate manner, but should aim to ensure that interventions have been developed in a robust manner, supported by fit for purpose and proportionate analysis, providing a sound basis for identifying problems and developing solutions. This should result in an auditable and documented process which identifies the best performing option to be taken forward. The appraisal process will need to be adjusted for Schemes that are already committed or at an advanced stage of development.

This approach also means that certain schemes, depending upon type, size / scale and location, may be subject to the requirements of either or both Environmental Impact Assessment (EIA) and Habitats Regulation Assessment (HRA).”

Table 11-5 Overview of the anticipated effects on the ISA Objectives in relation to each WYTF typical scheme type

Scheme Type	ISA Objective														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
New Highway Links	-- ++	--	--	--	---	---	--	---	--	--	-- ++	+++	+++	+/-	+/-
Highways Improvements	-- ++	--	--	-- ++	--	--	--	--	--	--	++	+++	+++	+/-	+/-
Highway Junction Improvements	-- ++	-	-	-- ++	-	-	-	-	-	--	-- ++	++	++	+/-	+/-
Urban Centre Improvements	++	-	-	++	-	--	0	0	--	++	++	++	+++	++	++
Rail Improvements	-- ++	--	--	-- ++	--	--	--	0	--	0	++	+++	+++	+	+
Support for Rail Gateway Improvements	0	0	0	+	0	-	0	+	-	+	+	0	0	0	0
Multi-Modal Corridors	-- ++	--	--	-- ++	--	--	--	--	--	--	++	+++	+++	++	+
Rail Park & Ride	+/-	-	-	+	-	-	-	-	-	-	+	0	0	0	0

Table 11-6 Amendments proposed to Cross Cutting Core Theme (shown in italics)

Cross Cutting Core Theme - Environment, Health and Well Being, Inclusion

Our 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, *while providing a high level of protection and enhancement to our built and natural environment.*

It is important that we promote economic growth in West Yorkshire. This objective can be compatible with our other high level objectives for improving the environment, promoting health and well-being, and increasing access to opportunities in our communities – for example, a stable economy with high average income is associated with improved living conditions and public health; and better health provides for a more focussed, more productive workforce. *The success of this approach though is dependent upon appropriate protection measures being put in place to protect our people and our environmental and cultural assets.*

Our travel has been characterised in recent decades by increases in the availability and use of private transport, particularly the car. Census data tells us that in West Yorkshire over 70% of all our travel to work is by private vehicle (car or van). The car has provided great freedom in choosing where we work and live, and where we shop and socialise. The car is a vital part of our transport system and the economy, *but yet has the potential to result in significant negative impacts on both the built and natural environments through causing congestion on roads and causing high levels of air pollution. The car, along with other elements of the transport network can bring unacceptable environmental cost in terms of pollution, biodiversity loss and flooding, or detrimental impacts on our landscapes, townscapes and cultural heritage and historic assets.*

Negative impacts from transport can also be felt on other aspects of our society – for example pollution from transport can be a contributory factor to decreased life expectancy. These effects help mean that life expectancy across West Yorkshire ranges from 1 to 2 years shorter than the national average, with people in our most deprived areas living 7 to 11 years less than the wealthiest people.

To deliver the vision of 'good' growth that the Strategic Economic Plan sets out, we need to address the negative aspects *on the built and natural environment* 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 affecting health. Cars are the largest source of emissions, but diesel buses, trains, taxis and heavy and light goods vehicles also contribute to the problem. Two pollutants are particularly worrying - Nitrogen dioxide (NO2) and Particulate Matter (PMn) are known to increase the risk of lung cancer, asthma and cardio-vascular disease, and new evidence suggesting links with other cancers, strokes, low-birth weight babies and children's development. West Yorkshire's urban areas have some of the highest levels of air pollution in the UK. Public Health England suggest that 1 in 20 deaths in West Yorkshire are attributable to air pollution. Asthma causes around 6000 hospital admissions each year in the Yorkshire and Humber region with a high proportion in West Yorkshire, and its contribution to premature death is 25% higher than the national average. The Low Emission Strategy makes commitment to reducing levels of NOX and PM10.

Road traffic also accounts for 21% of overall carbon emissions in West Yorkshire. Moving to a lower-carbon transport system is vital if we are to help combat the effects of climate change and the disruptive impact of extreme weather conditions on our homes, communities and infrastructure.

Exposure to noise pollution can cause mental health problems, poor performance at school and work, and an increased risk of cardiovascular disease. Noise levels above 55 dB(A) are known to increase blood pressure and the risk of heart attack. In West Yorkshire, nearly 1 in 10 people are exposed to road, rail and air transport noise of more than 55 dB at night time, whilst the World Health Organisation recommends that average noise levels at night should not exceed 40 dB(A).

We will start to deliver the West Yorkshire Low Emission Strategy. The Low Emission Strategy has developed to target activity by all the West Yorkshire authorities to reduce emissions from transport and other sources which have an adverse impact on health and the environment. The Low Emission Strategy was consulted on in autumn 2015 and is now being prepared for adoption in summer 2016 by the West Yorkshire Combined Authority and the five West Yorkshire District Councils.

In line with the Low Emission Strategy we will focus on encouraging people to switch from their cars to a more sustainable mode or for some journeys to be made by other low emission, more active forms of transport

We will make significant progress in the electrification of cars, freight and public transport vehicles. Currently the refuelling infrastructure for electric and other alternative fuelled vehicles is inadequate. Creating a low emission future requires that public authorities and businesses lead by example. Local authorities operate over 3,000 fleet vehicles and employ over 30,000 people across West Yorkshire, providing the potential to influence the uptake of low emission vehicles in their business operations and in the wider population. Our Bus Strategy sets out our ambition for moving to a clean bus fleet with near to zero emissions.

Leeds will be one of the first cities in the country to introduce a Clean Air Zone which will set emission standards for vehicles permitted to enter the zone, and we will test this approach for the wider and consistent roll-out of stronger emission controls across West Yorkshire.

The Leeds Clean Air Zone is intended to achieve compliance with the EU Air Quality Directive and will be introduced before 2020. The extent, details and implementation date are still to be determined but it is expected that the Clean Air Zone will set emissions standards for buses, coaches, taxis, light goods vehicles (LGVs) and heavy goods vehicles (HGVs), with only cars exempted.

X2 Improving Safety - the annual cost to society of road accidents in West Yorkshire is currently estimated at approximately £365m. Accident statistics vary from year to another, but the overall long term trend of casualties in West Yorkshire is downward. We have made good progress in recent years in reducing accidents, particularly fatalities. In 2015 the number of fatally injured people on West Yorkshire's roads was the lowest ever recorded in one year, with the 2015 figures showing 48 people killed on our roads (down by 25% from 61 recorded fatalities in 2014) and 868 seriously injured and 6,276 slight injuries – but our performance is still worse than the national average and that gap is growing.

The majority of collisions causing accidents involve cars or taxis, but 11% of the collisions involved motorcycles and 13% involved cyclists. We believe that priority should be given to these vulnerable road users with provision of safer environments for these types of user.

We will maintain our focus on driving down accidents through improved highways design and road safety projects that move us closer towards a 'zero tolerance' of transport injury related deaths. In particular we believe that we must put greater resources into programmes of education, training and promotional programmes to improve road user behaviour to maximise the improvements in the physical environment.

X3 Encouraging Healthy Travel - health evidence links physical inactivity to premature deaths, breast and colon cancers, diabetes, and cardiovascular disease. In West Yorkshire, 38% of people are considered inactive, with 215 preventable and premature deaths each year per 100,000 people, higher than the national average. Getting more people to do more cycling and walking could play an important role in prevention.

We want to avoid fear of road accidents deterring people from leading healthier active lifestyles. We believe that increasing active travel, with all its benefits for health, inclusion and the environment, should not increase the risk of injury on the roads. Countries across northern Europe demonstrate more than 10 times the distance travel by bicycle per head of population and almost half the cycling accident rates.

We believe we can significantly increase the levels and safety of cycling and walking by building on the legacy of the Tour de France and Tour of Yorkshire cycle events and our delivery of CityConnect programmes.

We will encourage more active, healthy travel by providing more opportunities for cycling and walking. This means delivering the right infrastructure on the highway network and off-road to provide for safer and more effective journeys for bicycle users and pedestrians. It also means providing appropriate support including behaviour change interventions such as training and promotional campaigns to attract people to cycling and walking.

X4 Including Communities - in West Yorkshire, 28% of all households have no access to a car whilst 64% of job seekers have no access to a car or cannot drive. This policy proposal addresses the availability, accessibility and affordability of the transport system.

A thriving and successful bus system can be effective at providing a way out of social isolation and is an integral part of our approach to promoting inclusion as well as boosting the economy. The bus supports mobility for job growth, and has a positive economic impact on the retail and leisure sectors, with more people in the UK accessing high streets by bus than by any other transport mode.

The bus system is at its weakest in the rural areas of West Yorkshire and in the reduced services that operate in the early mornings, evenings and Sundays.

We will develop our ‘total transport’ approach, connecting rural or more disadvantaged areas to a full range of opportunities, where different agencies such as the health sector’s clinical commissioning groups, hospital trusts, and patient transport providers, that currently commission transport services work together with community transport, education transport, AccessBus etc to combine their resources into a more co-ordinated, efficient, and better targeted approach to meet our communities’ needs.

We will develop the approach with a range of stakeholders and agencies for specific locations and within specific communities, especially for young people, older people, those with mobility difficulties, unemployed people, those on low incomes and those who do not hold a driving licence. JobCentre Plus will have an important role to play together with employers and further education colleges and other skills providers that deliver training programmes. We will look to use ticketing and payment technology to develop concessionary travel offers for targeted groups

Health evidence suggests that access to green space can improve mental health and well-being, reduce the risk of obesity and increase life expectancy. Levels of access to green space are worst for those people in deprived communities. In West Yorkshire, only 18% of the population say they access green space for health and exercise, yet 64% of West Yorkshire is classified as rural and we have an extensive network off footpaths, bridleways and canal

towpaths linking the urban areas with the countryside. We will improve access to green space, both in rural and urban settings, with particular emphasis on improving access for people with mobility difficulties

People who are socially isolated are up to five times more likely to die prematurely than those who have strong social ties. Social interaction is good for our mental and physical health - it reduces loneliness and depression, and encourages physical activity. Transport can help bring communities together but it can also cause severance, reduce interaction and make places unattractive. People living on streets with high traffic volumes are more at risk of injury and exposure to air and noise pollution, and on average, have less than one quarter the number of friends and social interactions than people living on streets with low traffic volumes.

We will seek to reduce community severance and isolation through our actions to encourage healthy travel and to improve road safety, and we will pay particular attention to making places safe and accessible for older and frailer people to continue to walk and access services

X? Protection and Enhancement of the Built and Natural Environment – *The built and natural environment of West Yorkshire makes an important contribution to our people's quality of life through providing spaces in which people live fruitful and healthy lives and which provide a safe and reassuring sense of place. An adequately protected and appropriately enhanced built and natural environment can help foster and develop a pride in our local areas and our diverse historic and cultural heritage. The built and natural environment thus has an important function in our mental and physical well-being, with a resultant effect on our cultural and economic productivity.*

NATURAL ENVIRONMENT

Across West Yorkshire, the natural environment includes a wide variety of land use types and landscapes, examples of which are urban and urban fringe, open moorland such as Ilkley Moor, river corridors, ancient woodlands, canals, reservoirs such as Scammonden and waterbodies such as the Rivers Aire, Wharf, Calder, Don and Worth. There are also a number of sites designated for nature conservation – for example there are six internationally and European important sites (SAC, SPA and Ramsar Sites) and 32 SSSI's, all providing a variety of habitats for numerous species.

The range of habitats found across West Yorkshire results in a great diversity of wildlife, and includes many different bird species such as red kite hovering above the outskirts of Leeds to Short Eared Owl and Arctic Tern. There are also different species of butterfly, invertebrates, fish and reptiles and a range of mammals such as Otter, Badger, Brown Hare and Bat. The linear nature of many features of the transport system across West Yorkshire has created green corridors running along the side of roads and railways which are biodiversity rich.

All the above elements come together to constitute West Yorkshire's 'Green Infrastructure'. Green Infrastructure not only helps to create more pleasant places to live, but brings important environmental, health and economic benefits. These can include improvements in physical activity opportunities, land regeneration or remediation, provision of habitat and opportunities for wildlife enhancement and movement. There is also good evidence that green space can make positive impacts on local economic regeneration, especially for job creation, business start-up, increased land values and inward investment. Green space also has potential for enhancing social cohesion; it can bring people together, and can create community cohesion as different social groups engage with each other, thereby improving mental and cognitive health.

New transport projects have the potential to impact on habitats and species and more generally on the Green Infrastructure network, through direct landtake for infrastructure (which may contribute to fragmentation and severance) and construction and operational disturbance (noise, vibration, light pollution etc) and emissions / contamination (air, water & soil), though it may also provide opportunities for enhancement.

West Yorkshire has a wide range of water body types (rivers, canals, lakes, groundwater). Water bodies were frequently negatively impacted due to the industrial past of this region, but in recent decades there has been a marked and continuing improvement in water quality. Transport does pose a risk to water quality. For example, highway runoff can have relatively high pollutant loads especially after dry periods or following gritting operations. There is also of course the potential for pollution following a transport accident.

Due to the highly urban nature of many parts of West Yorkshire, many rivers and other water bodies, along with ground surface types have been modified from their natural condition. This has resulted in limitations to the carrying capacity of the drainage network and increased flood risk. Development of transport infrastructure can aggravate existing flood risk in a wide range of ways, for example by requiring land take from flood plains, or by changing the drainage regime etc. Expected impacts from a changing climate include increased risk of extreme flooding (from more frequent "heavy precipitation events") and more extreme weather events from higher temperatures and increased wind and rain in winter months.

Pollution of water bodies (including groundwater) and increased risk of flooding must be prevented, both during the construction and operation of any transport project. The challenges that a changing climate will bring must also be considered. This could be achieved via the appropriate use of SuDS in road drainage design/ transport interventions to enhance water quality and reduce pollution and flood risk. Opportunities also exist for creating blue infrastructure which can both help to manage localised flood risk and simultaneously create new habitats.

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 European 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 European 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.

This Transport Strategy will lead to a number of new transport schemes. Recognising that these schemes may have significant effects on the environment, all Schemes to be derived from this Strategy are to be subject to rigorous assessment at a level appropriate to the scale of the Scheme and its stage of development.

Consideration is to be given to all relevant environmental issues at all stages of the Scheme life cycle – from concept, through design, construction and operation, to decommissioning. Note that the following are suggested measures only and it is to be recognised that each scheme will be unique. At all times, relevant legal requirements and Best Practice prevailing at that time should be followed.

Further Scheme Assessment

It should be noted that as Schemes are taken forward for more detailed assessment / appraisal, the Staged approach outlined in Transport Analysis Guidance (WebTAG) developed by the Department for Transport will be followed. This appraisal process is in three stages as follows:

- *Stage 1 – Option Development. This involves identifying the need for intervention and developing options to address a clear set of locally developed objectives which express desired outcomes. These are then sifted for the better performing options to be taken on to further detailed appraisal in Stage 2.*
- *Stage 2 – Further Appraisal of a small number of better performing options in order to obtain sufficient information to enable decision-makers to make a rational and auditable decision about whether or not to proceed with intervention. The focus of analysis is on estimating the likely performance and impact of intervention(s) in sufficient detail.*
- *Stage 3 – Implementation, Monitoring and Evaluation.*

Appraisal should be undertaken in a proportionate manner, but should aim to ensure that interventions have been developed in a robust manner, supported by fit for purpose and proportionate analysis, providing a sound basis for identifying problems and developing solutions. This should result in an auditable and documented process which identifies the best performing option to be taken forward. The appraisal process will need to be adjusted for Schemes that are already committed or at an advanced stage of development.

This approach also means that certain schemes, depending upon type, size / scale and location, may be subject to the requirements of either or both Environmental Impact Assessment (EIA) and Habitats Regulation Assessment (HRA).

BUILT ENVIRONMENT

The built environment includes designated heritage assets such as registered parks and gardens and scheduled monuments – many of which are located across the West Yorkshire area, as well as other buildings and public spaces. Industrial heritage assets are also an important component of the cultural and historic built environment of West Yorkshire. Together, all these assets make an important contribution to the character of urban areas and can help foster a sense of community and a pride in a shared heritage. This character and sense of place can also help to make West Yorkshire an attractive place to live in and visit.

Public spaces are an integral part of the built environment and can bring communities and people together. They can also encourage physical activity and recreation, restore a sense of pride in an area and attract businesses and jobs. Parts of our transport system e.g. station buildings and forecourts, streets and other pedestrian thoroughfares form a key element of public spaces. These public spaces can be improved through reducing carriageway width and providing more generous pavements for pedestrians and green infrastructure for example. Transport infrastructure and traffic can have a significant effect on the built environment and through this be detrimental to people's quality of life. New transport projects need to be sensitively designed to be sympathetic with existing character and quality and opportunities for improving built assets and their settings and public spaces should be examined. In addition, design for new transport projects needs to take into account the principles of Life Cycle Management and consider the prudent use of natural resources, minimise the production of waste and support re-use and recycling for all stages of the project from concept to decommissioning.

Policy Proposals – Environment, Health and Well Being, Inclusion

X1 Reducing emissions and noise - fund technology (e.g. electric vehicles) and behaviour change interventions (e.g. encouraging more walking and cycling instead of car driving) to ensure all parts of West Yorkshire meet environmental standards for air quality and noise

X2 Improving Safety - make the transport system safer, moving towards a 'zero tolerance' transport injury related deaths

X3 Encouraging Healthy Travel – providing more opportunities for walking and cycling

X4 Including Communities – develop the total transport approach, as well as access to green spaces, and severance and isolation problems

X? Protection and Enhancement of the Built and Natural Environment - *a transport system which will ensure a high level of protection and enhancement to West Yorkshire's built and natural environment.*

Table 11-7 Summary of assessment scores for the Transport Strategy's Core Theme proposals (after introduction of X2 policy)

ISA Objective		Road Network	Places to live and work	One system public transport	Smart Futures	Asset Management	Environment, Health & Wellbeing
1	Protect and enhance local air quality	+/-	++	++	+	0	+++
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	--	++ / -	--	+	0	++
3	Protect and enhance the International Sites (HRA specific objective)	--	-	--	0	0	++
4	Reduce carbon dioxide emissions from transport	+/-	+	++	+	0	+++
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	--	++ / -	--	0	-	++
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	+	+	+	+	+/-	++
7	Protect and enhance the water environment	--	-	--	+	-	+
8	Conserve soil resources and quality and seek to remediate contaminated land	+/-	+/-	+/-	+	0	++
9	Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	+/-	+/-	+/-	+	0	++
10	Protect and enhance the quality of landscape and townscape	+/-	+++	+/-	+	+	++
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	++	+	+++	+++	0	+++
12	Maintain or improve the number and range of good quality and accessible employment opportunities	0	++	+++	+/-	0	+++
13	Enhance productivity and competitiveness of businesses	+++	+	+++	++	+/-	+++
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	+	++	++	+	+	+++
15	To promote greater equality of opportunity for all citizens, with the	+	++	++	+	+	+++

	desired outcome of achieving a fairer society (EqIA specific objective)						

12. Mitigation

12.1. Introduction

12.2. The term mitigation encompasses any approach that is aimed at preventing, reducing or offsetting significant adverse environmental effects that have been identified. In practice, a range of measures applying one or more of these approaches is likely to be considered in mitigating any significant adverse effects predicted as a result of implementing LTP3. In addition, it is also important to consider measures aimed at enhancing positive effects. All such measures are generally referred to as mitigation measures.

12.3. However, the emphasis should be in the first instance on proactive avoidance of adverse effects. Only once alternative options or approaches to avoiding an effect have been examined, should mitigation then examine ways of reducing the scale/importance of the effect.

12.4. Mitigation can take a wide range of forms, including:

- Refining intervention measures in order to improve the likelihood of positive effects and to minimise adverse effects;
- Technical measures (such as setting guidelines) to be applied during the implementation stage;
- Identifying issues to be addressed in project environmental impact assessments for certain projects or types of projects;
- Proposals for changing other plans and programmes; and
- Contingency arrangements for dealing with possible adverse effects.

12.5. Mitigation of Significant Adverse Effects

12.6. An overview of the recommended mitigation for each ISA Objective is as detailed in Table 12-1.

Table 12-1 Overview of Recommended Mitigation for each ISA Objective

No.	ISA Objective	Overview of Recommended Mitigation
1	Protect and enhance local 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.
2	To protect and enhance biodiversity, geodiversity and the green infrastructure network	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.
3	Protect and enhance the International Sites (HRA specific objective)	As above
4	Reduce carbon dioxide emissions from transport	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.
5	Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions	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.
6	Promote prudent use of natural resources, minimise the production of waste and support re-use 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.

7	Protect and enhance the water environment	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.
8	Conserve soil resources and quality and seek to remediate 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.
9	Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets	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.
10	Protect and enhance the quality of landscape and 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.
11	Reduce road traffic and congestion through reducing the	Congestion can be reduced in numerous ways. Examples include new junctions and highway

	need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	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.
12	Maintain or improve 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.
13	Enhance productivity and competitiveness of businesses	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.
14	Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)	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.
15	To promote greater equality of opportunity for all citizens, with the desired outcome of	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

	achieving a fairer society (EqIA specific objective)	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.

13. Cumulative, Synergistic and Indirect Effects

13.1. As noted in Section 3, there is a requirement to consider Cumulative, Synergistic and Indirect Effects of policies in the Transport Plan. Secondary and Indirect effects are effects that are not a direct result of the plan, but occur away from the original effect or as the result of a complex pathway. Cumulative effects arise where several proposals individually may or may not have significant effect but in-combination have a significant effect due to spatial crowding or temporal overlap. Synergistic effects are when two or more effects act together to create an effects greater than the simple sum of the effects acting alone.

13.2. The results of the assessments of direct effects of the Transport Plan proposals are presented in Appendices E and F and discussed in section 11. As required by the SEA Regulations, cumulative, synergistic and indirect effects have also been considered during the ISA. The identification of these effects already takes into account the fact that WYCA has taken on board many of the recommendations to improve the sustainability performance of the Transport Strategy. Table 13-1 lists the results of this analysis.

Table 13-1 Anticipated cumulative, synergistic and indirect effects

Effects	Causes	Significance
Air Quality	It is considered that the Transport Strategy will have a cumulative beneficial effect on air quality. This beneficial effect will be derived from the strong measures put in place to support the Cross Cutting theme of 'Environment, Health & Well-Being' – an example of this are the targets set for reduction in pollutants, as well as the measures in other themes, particularly 'Places to live and Work' and 'One system Public Transport' which will reduce the need to travel by car, reduce congestion and improve / promote sustainable modes of transport including public transport, cycling and walking. These elements will have a temporal overlap and will be all located within the same spatial area of West Yorkshire and will benefit air quality across the region.	Anticipated medium to long term benefits as measures are implemented.
Biodiversity (including International Sites)	The Transport Strategy will result in a mix of cumulative positive and negative effects on biodiversity, with however a bias toward the negative. For example, some aspects such as those noted under the Road Network Theme have the potential to be strongly negative, perhaps through the direct loss of habitat. Other aspects though could be more beneficial – in particular the Cross Cutting theme of 'Environment, Health & Well-Being' should afford protection and enhancement opportunity to biodiversity and it is also recognised in the Strategy that there is a requirement to use established best and future practice in design and sustainable design principles, which would also likely help protect biodiversity / offer opportunities for enhancement.	Anticipated positive and negative effects over the medium to long term as measures are implemented.

Carbon dioxide emissions	Under the Transport Strategy, it is considered that carbon dioxide emissions, particularly from road transport, will fall across West Yorkshire relative to that which would be expected under a 'Continue as Normal' approach. This relative fall in carbon dioxide emissions will be derived from aspects of the Plan such as those relating to air quality emissions i.e. it is anticipated that the Plan will reduce the need to travel by car, reduce congestion and improve / promote sustainable modes of transport including public transport, cycling and walking. There will be a temporal overlap to the implementation of these aspects of the Plan and benefits of reduced carbon emissions will be experienced across West Yorkshire and indeed beyond.	Anticipated medium to long term benefits as measures are implemented.
Reducing vulnerability to climate change by minimising flood risk	The Transport Strategy will result in mainly negative effects on flooding. For example, some aspects such as those noted under the Road Network Theme have the potential to be strongly negative, perhaps by the direct contribution of more impermeable areas. There are only slight beneficial areas identified in the 'Places to Live and work' theme (recognised by the need to use established best and future practice in design – which is likely to include SuDS), but overall these positive effects are negated by the cumulative negative effects of introducing 'hard' interventions across the other themes.	Overall negative effect in the medium to long term as measures are implemented.
Prudent use of natural resources, production of waste and recycling	The Transport Strategy has for the most part slight positive beneficial effects across all its themes e.g. through the need to use established best and future practice in design, sustainable design principles which would require prudent uses of natural resources etc, though there are some negative aspects associated with the 'Asset Management' and 'Environment, Health and Well-Being' Theme. Overall though, the positive effects should act cumulatively together.	Overall slight positive effects in the medium to long term as measures are implemented.
Protection and enhancement of the water environment	It is anticipated that the Transport Strategy will have overall cumulative negative effects on the water environment. This would be due to the number of 'hard' interventions, for example under the Road Network theme, which would lead to increased polluted runoff, as well as an increased risk of accidents that may cause pollution. There will be a temporal overlap to the implementation of these aspects of the Plan and effects will be experienced across West Yorkshire.	Anticipated negative effects over the medium to long term as measures are implemented.
Soil resources and	There will be a range of cumulative positive and negative effects on soil, agricultural resources and contaminated land. For example, the	Anticipated positive and negative effects over the

contaminated land	development of the highway network provides an opportunity for positive effects relating to contaminated land, but it may also provide an opportunity for further land to become contaminated and new roads under the Road Network theme would likely lead to the loss of soil resources. Some aspects of the Plan, for example, the 'Asset Management' theme, will have neutral effects. Effects will be experienced across West Yorkshire.	medium to long term as measures are implemented.
Landscape / townscape	It is anticipated that the Transport Strategy will have a mix of cumulative positive and negative effects but that overall cumulatively, the effect will be positive. This is particularly the result of the strong beneficial effects anticipated via the 'Places to live and work' theme. Effects will be experienced across West Yorkshire, but will likely be most positive in urban areas.	Anticipated overall positive beneficial effects over the medium to long term as measures are implemented.
Reducing traffic and the need to travel by car and the promotion of sustainable modes of transport	It is anticipated that cumulatively the Transport Strategy will result in positive effects on reducing traffic, congestion and the need to travel by car. Public transport, cycling and walking modes will all develop significantly. This is particularly borne out of the themes of 'On system public transport', 'Smart futures' and 'Environment, Health and Well-Being'. Only the 'Asset Management' theme has a less than positive effect and in this instance it is considered neutral. It is considered that these positive effects will have a temporal overlap and be experienced across West Yorkshire.	Anticipated strong positive effects over the medium to long term as measures are implemented.
Maintaining and improving the number and range of good quality and accessible employment opportunities	The Transport Strategy will result in cumulative positive effects on employment opportunities. This will particularly be via the 'One system public transport' and 'Environment, Health & well-being' themes which will lead to a better integrated network, improve access to jobs and potentially increase travel horizons for those in employment, as well as those unemployed. Bus system initiatives to connect rural communities etc. are one of the measures that will ensure positive effects are experienced across West Yorkshire.	Anticipated positive effects over the medium to long term as measures are implemented.
Enhancing productivity and competitiveness of business	It is anticipated that cumulatively the Transport Strategy will result in cumulative positive effects in enhancing productivity and competitiveness of business. Positive effects are the result of all themes, with only 'Asset Management' not fully recognising the links between the resilience of the transport networks and the productivity and competitiveness of business. Overall it is considered that net cumulative effects will be	Anticipated medium to strong positive effects over the medium to long term as measures are implemented.

	medium to strong positive and will be experienced across West Yorkshire for the period of the Plan.	
Improving health and well-being for all citizens and reducing inequalities in health.	Positive effects are experienced across all themes and the medium to strong positive themes of 'Places to live and work', 'One system public transport' and 'Environment, Health and Well-Being' will act to cumulatively enhance positive effects through measures such as sustainable travel, walking and cycling and which will improve fitness, reduce obesity etc. and thereby have a range of health and well-being effects across West Yorkshire for the period of the plan.	Anticipated medium to strong positive effects over the medium to long term as measures are implemented.
Promotion of greater equality of opportunity for all citizens and achieving a fairer society	Positive effects are experienced across all themes and the medium to strong positive themes of 'Places to live and work', 'One system public transport' and 'Environment, Health and Well-Being' will act to cumulatively enhance positive effects through measures such as fairer ticket pricing options. The encouragement of sustainable modes of travel across the Plan will also lead to a modal shift which will provide a greater range of people to experience opportunities across the West Yorkshire region for the period of the Plan.	Anticipated medium to strong positive effects over the medium to long term as measures are implemented.

14. Monitoring

14.1. The SEA Directive states that *'member states shall monitor the significant environmental effects of the implementation of plans and programmes…..in order, inter alia, to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action' (Article 10.1). In addition, the Environmental Report should provide information on a 'description of the measures envisaged concerning monitoring' (Annex I (i))"* (Stage E).

14.2. In line with the SEA Directive, ISA monitoring will cover significant social, environmental and economic effects and it will involve measuring indicators that will enable the establishment of a causal link between the implementation of the Transport Strategy and the likely significant effects (both positive and negative) being monitored. In line with the SEA Directive, these significant positive and negative effects should be monitored with the implementation of Transport Strategy.

14.3. The following potentially significant effects (direct as well as cumulative effects) have been identified by the assessment and form the basis of the monitoring programme:

Beneficial effects

- ISA Objective 1: Protect and enhance air quality
- ISA Objective 4: Reduce carbon dioxide emissions from transport
- 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
- ISA Objective 12: Maintain or improve the number and range of good quality and accessible employment opportunities
- ISA Objective 13: Enhance productivity and competitiveness of business
- ISA Objective 14: Improve health and well-being for all citizens and reduce inequalities in health
- ISA Objective 15: To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society

Mix of positive and negative effects

- ISA Objective 2: To protect and enhance biodiversity, geodiversity and the green infrastructure network
- ISA Objective 6: Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling
- ISA Objective 8: Conserve soil resources and quality and seek to remediate contaminated land
- ISA Objective 9: Conserve and where appropriate, enhance those elements which contribute to the significance of the area's heritage assets
- ISA Objective 10: Protect and enhance the quality of landscape and townscape

Adverse effects

- ISA Objective 3: Protect and enhance the International Sites
- ISA Objective 5: Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions
- ISA Objective 7: Protect and enhance the water environment

14.4. The proposed monitoring programme is outlined in Table 14.1 below:

Table 14-1 Proposed Monitoring Programme

No.	ISA Objective against which a significant effect has been predicted (without mitigation)	Indicator(s) to be Used	Targets	Suggested frequency of analysis of monitoring data/mitigation	Responsibility for undertaking monitoring
1	Protect and enhance air quality	Nitrogen dioxide and PM10 levels in AQMAs and on major roads	Reduce	Annually	All relevant WYCA Local Authorities
		Take up of Electric Vehicles	Increase	Annually	WYCA
		Traffic levels with focus on private car and HGV use and goods vehicles entering Leeds city centre and key town centres	Reduce	Annually	WYCA
		Use of Sustainable modes of transport with a focus on levels of cycling and walking	Increase	Annually	All relevant WYCA Local Authorities
2 & 3	Protect and enhance biodiversity, geodiversity and the green infrastructure network Protect and enhance International sites	Length of greenways / blueways or other sustainable transport routes	Increase	Annually	All relevant WYCA Local Authorities
		Area of new planting of native species of wildflowers and other species suitable for screening	Increase	Annually	All relevant WYCA Local Authorities
		Area of invasive / non-native species appropriately treated / cleared / remediated	Increase	Annually	All relevant WYCA Local Authorities
		Number of street lamps with a downward beam	Increase	Annually	All relevant WYCA Local Authorities
		Number of Transport schemes located directly within designated areas	Zero	Annually	All relevant WYCA Local Authorities
4	Reduce carbon dioxide (CO_2) emissions from transport	As indicators for ISA Objective 1, plus CO_2 emissions from vehicles on major roads	Reduce	Annually	WYCA
5	Reduce vulnerability to climate change by	Number of new transport schemes in flood risk areas	Zero	Full record – constantly update	All relevant WYCA Local Authorities

	minimising flood risk and effects from other adverse weather conditions	Number of new transport schemes with improved drainage standards / use of SuDS	Increase	Full record – constantly update	All relevant WYCA Local Authorities
		% of floodplain changing due to new/planned transport related schemes	Zero	Annually	All relevant WYCA Local Authorities
		Number of new transport schemes integrated with green infrastructure (green corridors and spaces)	Increase	Annually	All relevant WYCA Local Authorities
6	Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling	Proportion of recycled materials used in transport related construction	Increase	Annually	All relevant WYCA Local Authorities
		Number of locations for refuse and recyclables with improved accessibility	Increase	Annually	All relevant WYCA Local Authorities
7	Protect and enhance the water environment	Number of new transport schemes with improved drainage standards / use of SuDS	Increase	Full record – constantly update	All relevant WYCA Local Authorities
		Number of water pollution incidents attributable to transport	Zero	Full record – constantly update	All relevant WYCA Local Authorities / Environment Agency
8	Conserve soil resources and quality and seek to remediate contaminated land	Numbers and % of transport schemes on previously developed land	Increase	Annually	All relevant WYCA Local Authorities
		Area of grade 1, 2 or 3a agricultural land permanently lost as a result of transport schemes	Zero	Annually	All relevant WYCA Local Authorities
		Number of land pollution incidents attributable to transport	Zero	Full record – constantly update	All relevant WYCA Local Authorities / Environment Agency
10	Protect and enhance the quality of landscape and townscape	Countryside Quality Counts (focus on any changes in the landscape quality due to transport effects)		As and when CQC results are published	Natural England
		Transport facility (stations etc), street and environmental cleanliness - levels of a) litter, b) detritus, c) graffiti and d) fly posting	Increase	Annually	All relevant WYCA Local Authorities

		% of transport schemes applications that incorporate improvements to public realm and sympathetic design	Increase	Full record – constantly update	All relevant WYCA Local Authorities
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	Access to public transport services and facilities (including walking and cycling facilities)	Increase	Annually	All relevant WYCA Local Authorities
		Number of cycling and walking journeys	Increase	Annually	All relevant WYCA Local Authorities
		Public transport punctuality and service reliability	Increase	Annually	All relevant WYCA Local Authorities
		Number of initiatives to improve access by sustainable transport modes to essential facilities	Increase	Full record – constantly update	All relevant WYCA Local Authorities
		Number of improvement schemes for pedestrian and cycle routes and green networks, including the RoW network	Increase	Full record – constantly update	All relevant WYCA Local Authorities
		Traffic levels with focus on private car and HGV use and goods vehicles entering Leeds city centre and key town centres	Reduce	Annually	All relevant WYCA Local Authorities
12 & 13	Maintain or improve the number and range of good quality and accessible employment opportunities	Number of transport options serving employment hotspots	Increase	Annually	All relevant WYCA Local Authorities
		Number of transport options between towns across West Yorkshire to allow better access to employment opportunities	Increase	Annually	All relevant WYCA Local Authorities
		As indicators for IA Objective 11, plus working age people with access to employment by public transport / sustainable modes of transport	Increase	Annually	All relevant WYCA Local Authorities
14	Improve health and well being for all citizens and reduce inequalities in health (HIA specific)	Personal security and number of crimes on public transport	Reduce	Annually	WYCA informed by British Transport Police
15	To promote greater equality of	Disability Discrimination Act compliance of bus stops, bus vehicles and rail stations	Increase	Full record – constantly update	WYCA

	opportunity for all citizens, with the desired outcome of achieving a fairer society				

15. Conclusions

15.1. The process of Integrated Sustainability Assessment (ISA) throughout the development of the Transport Strategy has been thorough and comprehensive. Iterations of assessment have been employed, with continuous dialogue between the WYCA team and the ISA team. This has resulted in a positive progression from the draft to Transport Strategy that is being submitted for consultation in terms of environmental protection and enhancement, improvements to health and greater equality of opportunity.

15.2. Based on the findings of the ISA, it is possible to draw a number of key conclusions with regards to the West Yorkshire Transport Strategy 2016 – 2036 consultation version. Table 15-1 below outlines how the Final Draft Strategy improved on the original draft Strategy, along with an overview of the key conclusions drawn for the performance of the Strategy in relation to the ISA Objectives.

Table 15-1 Overview of key conclusions regarding the performance of the Transport Strategy

Protect and enhance local air quality		
Draft Strategy	The draft Strategy was generally positive in terms of Air Quality, with only some negative effects identified in relation to the Road Network. Nevertheless a number of recommendations were made in order to strengthen Strategy in relation to Air Quality – for example it was recommended that there was a clearer acknowledgement of AQMA's.	**Overview:** The Transport Strategy now provides a strong positive basis on which to protect and enhance air quality across West Yorkshire.
Final Strategy	The final Strategy was enhanced with a number of aspects, including acknowledgement of AQMA's. It is also noted that the WYLES Strategy will set the framework for air quality improvement and key mechanisms from this are to be brought into the Transport Strategy.	
To protect and enhance biodiversity, geodiversity and the green infrastructure network		
Draft Strategy	Strong adverse effects were anticipated in relation to biodiversity from a number of aspects of the draft Strategy such as in relation to the Road Network and 'One system public transport'. As such a number of recommendations were made to improve this outcome – of particular note for example cross referencing to be made to the appropriate cross cutting theme of 'Environment, Health & Well-Being, Inclusion'.	**Overview:** The new Policy 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment' has been inserted into the Cross Cutting Theme. This new policy includes an extensive section on the natural environment, including habitats and species of note as well as International important sites. This new policy also notes the requirement for mitigation of adverse impacts in relation to any new development, or as a last resort, compensation. It is therefore considered that protecting and when possible
Final Strategy	The final Strategy was enhanced with appropriate cross referencing and the inclusion of a new Policy 'X2 Protection and Enhancement of Green Infrastructure and the Built	

	Environment'. This would help address responsibilities relating to the natural environment.	enhancing biodiversity will be possible as the new Strategy is implemented.
Protect and enhance the International sites (HRA specific objective)		
Draft Strategy	The draft Strategy did not note the requirement to protect International sites and appropriately assess any schemes that are likely to have significant effects on such sites.	**Overview:** The new Policy ''X2 Protection and Enhancement of Green Infrastructure and the Built Environment' has been inserted into the Cross Cutting Theme. This new policy includes an extensive section on the natural environment, including habitats and species of note as well as International important sites. This new policy also notes the requirement for mitigation of adverse impacts in relation to any new development, or as a last resort, compensation. It also notes the requirement for HRA for any proposal likely to have significant effects on an International site. It is therefore considered that protecting and when possible enhancing biodiversity will be possible as the new Strategy is implemented.
Final Strategy	The final Strategy was enhanced with appropriate cross referencing and the inclusion of a new Policy 'X2 Protection and Enhancement of Green Infrastructure and the Built Environment'.. This would help address responsibilities relating to the natural environment.	
Reduce carbon dioxide emissions from transport		
Draft Strategy	As with the need to protect and enhance local air quality, the Draft Strategy was generally positive in terms of reducing carbon dioxide emissions from transport, though measures were suggested to strengthen the performance of the Strategy further – for example it was recommended that commitments be made to the levels that are hoped to be achieved in terms of carbon dioxide emissions reduction.	**Overview:** The Transport Strategy now provides a strong positive basis on which to help reduce carbon emissions.
Final Strategy	The final Strategy was enhanced with the note that the WYLES Strategy will set the framework for air quality improvement and key mechanisms from this are to be brought into the Transport Strategy.	
Reduce vulnerability to climate change by minimising flood risk and effects from other adverse weather conditions		
Draft Strategy	Strong adverse effects were anticipated in relation to flood risk from a number of aspects of the draft Strategy such as in relation to the Road Network and 'One system	**Overview:** It is recognised in the final strategy that there is a need for the transport network to be resilient to a changing climate and the issues such as flooding that this will bring.

	public transport'. As such a number of recommendations were made to improve this outcome – of particular note for example cross referencing to be made to the appropriate cross cutting theme of 'Environment, Health & Well-Being, Inclusion', as well as amendments to other Themes such as 'Road Network' (in particular Policy RN1).	For example, Policy X2 notes that 'expected impacts from a changing climate include increased risk of extreme flooding'. It is therefore considered that through these aspects of the Strategy and the need for further assessment (as set out in Policy X2), that flooding issues will be appropriately considered as part of the implementation of the Transport Strategy.
Final Strategy	Amendments as suggested were made to the Final Strategy, including for example highlighting the need for network resilience from flooding.	
Promote prudent use of natural resources, minimise the production of waste and support re-use and recycling		
Draft Strategy	Overall the draft Strategy was considered to be positive in terms of use of prudent natural resources etc., but it was considered that this could be strengthened further, especially as issues relating to recycling etc were notably absent.	Overview: The insertion of the cross cutting policy X2 specifically notes the need for consideration during design and construction should be given to the need to reduce waste and encourage reuse and recycling / use of recycled materials. This approach, along with the need for further assessment (as outlined in Policy X2), will ensure that the use of resources will be appropriately considered as part of the implementation of the Transport Strategy.
Final Strategy	Gaps in the draft Strategy were filled by the development and insertion to the Final strategy of Policy X2.	
Protect and enhance the water environment		
Draft Strategy	Strong adverse effects were anticipated in relation to the water environment from a number of aspects of the draft Strategy such as in relation to the Road Network and 'One system public transport'. As such a number of recommendations were made to improve this outcome – of particular note for example cross referencing to be made to the appropriate cross cutting theme of 'Environment, Health & Well-Being, Inclusion'.	**Overview:** Policy X2 has been included in the Final Strategy, a section of which specifically addresses the water environment. As such it is considered that the Transport Strategy will, where possible, protect and enhance the water environment.
Final Strategy	Amendments as suggested were made to the Final Strategy, including for example amendments to some aspects to recognise extreme weather events.	
Conserve soil resources and quality and seek to remediate contaminated land		
Draft Strategy	The draft Strategy was considered to have a mix of positive and negative effects in relation to conserving soil	**Overview:** It is recognised in the Final Strategy that protection of soil resources, particularly those of

	resources etc. It was therefore recognised that the Strategy would benefit from enhanced measures to deal with the anticipated effects and as such a specific section of the new proposed policy X2 deals with 'Soil resources and contaminated land'.	higher quality should always be considered. In addition, opportunities should also be taken to utilise areas of previously developed land and to remediate contaminated land when possible.
Final Strategy	The new Policy X2 was incorporated into the Final Strategy.	
Conserve and, where appropriate, enhance those elements which contribute to the significance of the area's heritage assets		
Draft Strategy	The draft Strategy was considered to have a mix of positive and negative effects in relation to heritage assets etc. It was therefore recommended that the Cross Cutting Policy was reworded to note the requirement to protect (and if possible enhance) heritage assets where possible.	**Overview:** It is considered that through the incorporation of Policy X2, protection and enhancement of heritage assets will be appropriately considered as part of the implementation of the Transport Strategy.
Final Strategy	Policy X2 was developed and incorporated into the final Strategy and included a specific section dealing with heritage.	
Protect and enhance the character and quality of landscape and townscape		
Draft Strategy	The draft Strategy was considered to have a mix of positive (strongly so in relation to the 'Places to Live and work' theme) and negative effects in relation to landscape / townscape. It was therefore recommended that the Cross Cutting Policy was reworded to strengthen aspects and note the requirement to protect (and if possible enhance) landscape / townscape.	Overview: It is considered that through the incorporation of Policy X2, protection and enhancement of landscape / townscape will be appropriately considered as part of the implementation of the Transport Strategy. The importance of scheme design and the Planning system is also recognised through the Final Strategy (see Policy X2)
Final Strategy	Policy X2 was developed and incorporated into the final Strategy and included a specific section dealing with landscape / townscape.	
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 *		
Draft Strategy	The draft Strategy was found to be very positive in terms of this objective. There was only one small area of inconsistency between text relating to bus patronage identified.	**Overview:** The final strategy remains strongly positive in terms of reducing road traffic etc.
Final Strategy	The appropriate sections of text were amended to provide consistent bus	

	patronage targets throughout the document.	
Maintain or improve the number and range of good quality and accessible employment opportunities		
Draft Strategy	The draft Strategy was found to be generally positive in terms of this objective. However, it was considered that the Road Network theme could better relate the road network improvements to the identified economic zones to enhance the case for improving access to employment.	**Overview:** The Strategy has been strengthened to ensure that its contribution to economic growth and job creation is maximised.
Final Strategy	The Final Strategy now makes clear reference to improving access to employment opportunities and its role as a delivery mechanism for the Strategic Economic Plan.	
Enhance productivity and competitiveness of businesses		
Draft Strategy	Generally the draft Strategy was found to be very positive in terms of this objective. Only small suggestions for strengthening / clarifying text were recommended.	**Overview:** The Strategy has been strengthened to highlight the role it can play in enhancing productivity and competitiveness of business.
Final Strategy	The final Strategy has strengthened / clarified some limited areas of text and improved cross referencing.	
Improve health and well-being for all citizens and reduce inequalities in health (HIA specific objective)		
Draft Strategy	It was considered that the draft Strategy was positive across all themes (on occasion moderately to strongly so) in terms of improving health etc. Nevertheless a number of recommendations were made to strengthen the performance of the strategy further – in particular it was considered important to make people more aware of alternatives to using the car.	**Overview:** The Strategy deals with improving health, reducing health inequalities etc. across a number of themes. Of particular note is the 'Environment, Health and Well Being, Inclusion' theme, which includes policies relating to improving air quality, improving safety, encouraging health travel etc.
Final Strategy	The final Strategy has strengthened / clarified some limited areas of text and improved cross referencing.	
To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society (EqIA specific objective)		
Draft Strategy	It was considered that the draft Strategy was positive across all themes (on occasion moderately to strongly so) in terms of promoting equality etc. Nevertheless a number	**Overview:** The Strategy deals with promoting equality etc across a number of themes but is particularly strong in terms of Equality in the 'Environment, Health and Well Being,

	of recommendations were made to strengthen the performance of the strategy further.	Inclusion' theme. This Theme will ensure that the transport schemes promote equality of benefit across all user groups, with a particular focus on improving the lives for vulnerable transport users.
Final Strategy	The final Strategy has strengthened / clarified some limited areas of text and improved cross referencing.	

15.3. An ISA monitoring programme has been proposed which, if adopted by WYCA, will allow the early establishment of a causal link between the implementation of the Transport Strategy (via the Transport Schemes) and the likely significant effects (positive or negative). This will provide WYCA and other relevant authorities the information to make appropriate and informed decisions and take appropriate action as soon as practicable. The results of this monitoring will also help inform future iterations of the Transport Strategy itself.

15.4. Overall the Transport Strategy represents a well balanced approach in terms of its sustainability, health impact and equality impact performance and would ensure that the vision for West Yorkshire *'Travel around West Yorkshire in 2036 will be easy and reliable, using a modern, well-connected transport network that enhances business success and people's lives'*, can be achieved in a sustainable and integrated fashion.

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