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THE DRAFT NATIONAL POLICY STATEMENT FOR NATIONAL NETWORKS

APPRAISAL OF SUSTAINABILITY NON-TECHNICAL SUMMARY

1. Introduction

The Planning Act 2008 introduced a new planning system for determining Nationally Significant Infrastructure Projects (NSIPs). Under the Act, the Department for Transport (DfT) is responsible for preparing the National Networks National Policy Statement (hereafter referred to as the NN NPS) which will set out a statement of government policy on development of the national road and rail networks, including Strategic Rail Freight Interchange (SRFIs) developments. Thresholds for NSIPs are defined in the Planning Act 2008 as amended by The Highway and Railway (Nationally Significant Infrastructure Project) Order 2013. The Secretary of State will use the NN NPS as the primary basis for making decisions on development consent applications for national networks NSIPs in England.

DfT is also responsible for undertaking an Appraisal of Sustainability (AoS) of the NN NPS. Ramboll has undertaken the AoS on behalf of DfT. Whilst it has been produced on behalf of the DfT, it is an independent appraisal of the National Policy Statement as it stands at the time of writing this report and does not necessarily represent the views of the Department for Transport. The AoS incorporates a Strategic Environmental Assessment under European Directive 2001/42/EC on the assessment of effects of certain plans and programmes on the environment (the "Strategic Environmental Assessment (SEA) Directive").

This Non-Technical Summary provides:

- An overview of the National Networks NPS and its main objectives (Section 2);
- An outline of the AoS process (Section 3);
- A summary of the relevant Policies, Plans, Programmes, Baseline Conditions and Key Sustainability Issues (Section 4);
- The AoS Framework (Section 5);
- A summary of the appraisal of the NPS and strategic alternatives (Section 6);
- Selection of the NN NPS (Section 7);
- How the AoS Process has Informed the Development of the NPS (Section 8);
- Summary of Monitoring and Mitigation Measures (Section 9);
- Opportunities for Improvement (Section 10);
- Next Steps (Section 11).

2. The National Networks NPS

The Government needs to deliver national networks that meet the country's long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:

- Networks with the capacity and connectivity to support national and local economic activity and facilitate growth and create jobs
- Networks which support and improve journey quality, reliability and safety
- Networks which support the delivery of environmental goals and the move to a low carbon economy
- Networks which join up our communities and link effectively to each other.

In broad terms, the policy in the NN NPS is for a significant and balanced package of improvements and enhancements across the road and rail networks, targeting key pressure points and transforming the networks for the longer term. This sits alongside a significant package of measures to protect the environment and support sustainable transport on the national networks. Across the modes the Government's policy is:

- **Roads** – reduce congestion and unreliability by focusing on improving and enhancing the existing national road network, including through enhancements beyond the existing highway boundary. However, in some cases, to meet the demands on the national road network it will not be sufficient to simply expand capacity on the existing network and so some new road alignments and corresponding links will be needed.

- **Rail** – improve the capacity, capability and reliability of the rail network at key locations for both passenger and freight movements to improve journey times, and to maintain or improve operational performance. Where this incremental approach is not sufficient, new or re-opened alignments to improve capacity, speed, connectivity and reliability should be considered. Where major new inter-urban alignments are required, high speed rail alignments are expected to offer the most effective way to provide a step change in inter-city capacity and connectivity, as well as helping to deliver long term sustainable economic growth.

- **Strategic Rail Freight Interchanges** – support the transfer of freight from road to rail and facilitate sustainable rail freight growth. To this end, there is a need for an expanded network of SRFIs to serve regional, sub-regional and cross-regional markets providing good connectivity with both the road and rail network. These will be private sector, commercial developments that need to be located near the business markets they will serve – major urban centres, or groups of centres – and be linked to key supply chain routes. Given the need for effective connections for both rail and road, the number of locations suitable as SRFIs will be limited, which will restrict the scope for developers to identify viable alternative sites.

3. Appraisal of Sustainability Process

Scoping

The first stage of the AoS process is called Scoping and this was undertaken in March 2009. It first involved identifying relevant policies, plans and programmes (PPPs) that might be relevant to the NN NPS. Following this, baseline information was collected relating to relevant environmental, social and economic issues. From the PPPs and baseline data, the key sustainability issues relevant to the NN NPS were identified. A framework for undertaking the appraisal was then developed. This framework determines how the appraisal will be undertaken and what objectives (the AoS objectives) the NN NPS and alternatives will be assessed against. The Scoping Report was consulted on as required under the SEA Directive. Since the Scoping Report, both the baseline data and PPP tables have been updated to ensure they are still relevant and current.

Developing and Refining Alternatives and Assessing Impacts

The SEA Directive states that in addition to the appraisal of the plan or programme, the appraisal must be carried out on "reasonable" alternatives. The development of strategic alternatives to the NN NPS was guided by DfT. The two alternatives appraised were as follow:

Alternative 1: this is a package of measures that seek to shift demand from road to rail through increased rail provision and sustainable transport measures and an increase in the cost of motoring. This would involve a smaller roads infrastructure package than in the NPS, targeted at making best use of the existing national road network.

Alternative 2: this is a package of measures with an expanded infrastructure package on the national road network, accompanied by reductions in rail provision and a "do minimum" approach to environmental standards and policies.

Both the NPS and the two strategic alternatives selected were appraised against the AoS objectives in the same way. This appraisal followed a two stage process that involved first predicting the impacts from the NPS (or alternative) and then assessing the significance of those impacts overall.

The impact prediction stage involved identifying the likely impacts of the individual interventions contained within the NPS (and strategic alternatives) by predicting impacts relating to the issue addressed by the AoS objective (e.g. air quality, safety). A number of key considerations per objective (as are outlined in Table 1) were taken account of when identifying the impacts. The identification of impacts included consideration of both the construction and operational phases of any interventions contained within the policy.

The impacts were predicted using professional judgement, considering how long the impact was expected to continue for, the magnitude of the impact, how far the influence of the impact reached, the probability of it occurring, whether it was permanent or temporary, and whether it was reversible.

Evidence to support the identification of impacts was obtained from a variety of sources, such as DfT modelling data, research reports, and appraisals undertaken on schemes already completed.

The significance of the impacts of the NPS (or strategic alternative) taken collectively was determined at an AoS objective level using the following scale:

Significantly supports AoS objective – is considered significant, e.g. positive impacts are substantial, significantly accelerates an improving trend, significantly decelerates a declining trend, significantly supports delivery of a declared objective.
Supports AoS objective - but not to a significant extent, e.g. positive impacts are not substantial, does not significantly accelerate an improving trend, does not significantly decelerate a declining trend, does not significantly support delivery of a declared objective.
Neutral contribution to AoS objective – either no impacts, or on balance (taking account of positive and negative impacts) a neutral contribution.
Detracts from AoS objective - but not to a significant extent, e.g. negative impacts are not substantial, does not significantly decelerate an improving trend, does not significantly accelerate a declining trend, does not significantly detract from delivery of a declared objective.
Significantly detracts from AoS objective – is considered significant, e.g. negative impacts are substantial, significantly decelerates an improving trend, significantly accelerates a declining trend, significantly detracts from delivery of a declared objective.

The extent to which an objective was supported or detracted from was determined based upon professional judgement, taking account the nature of the impacts as outlined above, as well as the receptors being impacted upon, e.g. in the case of impacts on biodiversity, impacts on protected habitats were considered to be of greater magnitude than impacts on non-protected habitats. Where an AoS objective had a variety of impacts with different magnitudes (both large and small, negative and positive) a judgement call was required as to the significance of the overall impact.

Consulting on the draft NPS and the AoS Report

SEA Consultation Bodies have been consulted throughout the AoS process.

4. Relevant Policies, Plans, Programmes, Baseline Conditions, and Key Sustainability Issues

A review of relevant legal Plans, Policies and Programmes (PPPs) that have the potential to influence the development of the NN NPS was undertaken at the Scoping stage and was added to following stakeholder comments on the AoS Scoping Report. In addition, a further review was undertaken in September 2013 to ensure the list remained up-to-date and relevant and captured any changes in policy since the Scoping Report.

The review was used to inform the consideration of key sustainability issues and development of the AoS Framework. A range of common themes emerged from the PPP review, including delivering sustainable development, promoting economic growth, and improving quality of life for all, including future generations.

Sustainability Baseline and Key Issues

The key sustainability issues have not changed following the review of PPPs and baseline. The baseline provides a broad overview of sustainability aspects in England). Table 1 below shows a summary of the baseline data collated.

Table 1 : Summary of Baseline data

Key Issue	Relevant Baseline data
Noise	• Defra estimate that over 9 million people (based on 2001 Census data) are affected by noise levels of over 55dB (L_{den}) as a result of major roads in England. • 153,000 people (based on 2001 Census data) are affected by noise levels of over 55dB (L_{den}) as a result of railway lines
Air Quality	• There are 734 Air Quality Management Areas (AQMAs) within 254 local authorities in the UK (2013). • Roadside PM10 concentrations have reduced from around 35µgm-3 in 1996 to approximately

Key Issue	Relevant Baseline data
	22µgm-3 in 2012. • NOx concentrations have reduced between 1 and 2% annually between 2004 and 2009, however, reductions have been greatest in the vicinity of motorways with reductions of around 3.5% annually.
Greenhouse Gas Emissions	• Domestic emissions from transport increased by 8% between 1990 and 2007, they then fell by 8% between 2007 and 2009. • The trend over the past 20 years shows emissions reducing from cars and taxis matched by increasing emissions from larger vehicles such as vans, buses and HGVs. • In the UK in 2011 GHG emissions amounted to 553.1MtCO_2e. This is a 29% reduction from 1990 where 774.8MtCO_2e was released.
Landscape and Townscape	• There are currently nine National Parks in England in addition to the Norfolk and Suffolk Broads which is subject to the same duty of regard as a National Park. • There are 32 Heritage Coast Areas. • There are currently 33 Areas of Outstanding Natural Beauty (AONB) in England. • There are 159 classified National Character Areas.
Historic Environment	• There are 18 World Heritage Sites in England. • There are 19,759 Scheduled Monuments in England. • There are 43 English battlefields, six are at high risk.
Climatic Factors and Adaptation	○ Temperature in England has increased between 1 and 1.7°C since the mid-20th Century. • The annual average rainfall ranges between 466-4577mm. • Sea surface temperature has increased over the past thirty years by 0.7°C. • UK Climate Impacts Programme predicts reductions in rainfall during summer, increases during winter and a rise in the mean annual temperatures across England.
Waste Generation and Resource Use	• 22.9 million tonnes of municipal waste was collected in England in 2011/12, 43% was recycled. • Total commercial and industrial waste generation in England, in 2009, was estimated to be 47.9 million tonnes; with transport and storage accounting for 2.2 million tonnes of the total. • In 2010, it is estimated that 47,356,104 tonnes of construction and demolition waste arisings was produced in England.
Flood Risk	• More than 5.5 million (one in six) properties in England and Wales are at risk of flooding from all water sources. • Over 2 million properties are at risk of flooding from rivers or the sea and nearly 3 million are susceptible to surface water flooding alone.
Soil and Land Resources	• Provisional estimates show that the nitrogen balance for the UK had decreased by 17% compared to levels in 2000 and the phosphorus balance has fallen by 25% over the same time period. • In 2012, over 78% of land in England was used for commercial agricultural purposes or forestry and woodland.

Key Issue	Relevant Baseline data
Contamination of Water Resources	• 79% of rivers in England were of excellent or good chemical quality in 2008 compared to 55% in 1990. • 72% of rivers were of excellent or good biological quality in 2008 compare to 55% in 1990. • 65% of groundwaters meet good quantitative status (in relation to groundwater abstraction pressures) and 59% meet good status for chemicals. • Diffuse pollution is responsible for 49% of the failing water bodies under the Water Framework Directive.
Biodiversity	• In England (2013) there are: • 85 Special Protection Areas (SPAs). • 240 Special Areas of Conservation (SACs). • 71 Ramsar sites. • Over 4,100 Sites of Special Scientific Interest (SSSIs) of which 97% are in favourable or recovering condition. • 224 National Nature Reserves (NNRs).
Water Resources	• In 2008, 24,800 million litres per day of water were abstracted in England. The majority of this was used for public water supply.
Productivity Growth across the Economy	• The UK economy grew by 0.7% in the second quarter of 2013, up from 0.3% in the first quarter of the year, according to revised figures from the Office for National Statistics (ONS). The economy has now recouped almost half of its total 7.2% contraction during the 2008-09 recession, with output remaining 3.3% below its pre-recession peak. • Unemployment in England has decreased from 10.13% in 1992/93 to 7.8% in 2012/13 (these figures are an average of quarterly statistics). • It has been estimated that congestion on the whole road network costs the economy £19 billion every year.
Employment, Regeneration and Local/Regional Development	• The strategic road network provides access to goods and services and it is estimated that over 1 million jobs are associated with the network. • Unemployment in England has decreased from 10.13% in 1992/93 to 7.8% in 2012/13 (these figures are an average of quarterly statistics).
Rural Economic Growth	• Figures from Defra's Statistical Digest of Rural England underline the importance of transport in rural areas and the challenges rural residents face: • in 2009 42% of households in the most rural areas had a regular bus service close by compared to 96% of urban households. • on average, expenditure on transport accounts for 17.7% of total expenditure for rural residents compared with 14.5% for urban residents. • the number of households with good transport access to key services or work has declined for town/fringe areas from 86% of households in 2007 to 83% in 2011; over the same period the figures for villages decreased from 52% to 27% and for

Key Issue	Relevant Baseline data
	hamlet/isolated dwellings decreased from 41% to 29%.
Accessibility	• Between 2000 and 2012, traffic volume (vehicle miles) on the strategic road network increased from 75.2 million km to 84.7million km, an increase of approximately 12.6%. • Passenger km on the railway network increased from 40.9 billion km in 2003/04 to 56.9 billion km in 2011/12. • There were 1.2 cars per household in 2011. • On the principal and main routes in England, 283 railway stations have step free access to all station platforms out of a total of 387 stations.
Population	• The population of the United Kingdom was estimated to be 63.7 million in mid-2012, with 53.5 million people attributed to the population of England.
Equality	• In the late 1990s, income inequality rose slightly before falling in the early 2000s. In recent years the trend has been broadly flat, though the most recent figures have shown a fall in inequality. • There were 1.2 cars per household in 2011. • People in the most deprived 10% of areas in England often experience the worst air quality, and tend to be more exposed to emissions from transport and industry than the average.
Health and Well-being	• In 2012, 66% of people travelled by car for their average trip, 9% used public transport and 24% either walked or cycled. • Research suggests that traffic-generated air pollutants play a role in the development of asthma and chronic obstructive lung disease.
Security and Safety	• In 2012 there were a total of 195,723 reported road casualties of all severities, 42% lower than in 1990. • There were no train accidents resulting in passenger or workforce fatalities during 2012/13. This is the sixth year in succession with no such fatalities.

5. The AoS Framework

The AoS framework sets out the structure for the assessment, and includes a set of sustainability objectives that have been used within the appraisal process to assess the NN NPS and strategic alternatives. These sustainability objectives have been developed from the sustainability key issues identified at the Scoping stage.

The AoS objectives using in undertaking the appraisal are set out in Table 2 below.

Table 2: AoS Objectives

AoS Objective
AoS1: To contribute towards the reduction of noise levels from road and rail national networks
AoS2: To contribute towards improving local air quality
AoS3: To contribute towards the reduction of greenhouse gas emissions
AoS4: To protect and enhance landscape quality, townscape quality and to enhance visual amenity
AoS5: To protect and preserve heritage assets in a manner appropriate to their significance
AoS6: To preserve, protect and enhance biodiversity
AoS7: To encourage the protection of water resources (quantity)
AoS8: To encourage the protection of water quality
AoS9: To contribute towards increased resilience on national networks
AoS10: To minimise the impact on soil and land resources including contamination and loss
AoS11: To minimise the use of previously undeveloped land
Ao12: To encourage the use of recycled materials in the construction of infrastructure, whilst reducing, re-using or recycling the waste generated from construction
AoS13: To contribute towards reducing the risk of flooding in the hinterland
AoS14: To reduce accidents and incidents on national networks and reduce risk to the users of road and rail network
AoS15: To contribute to the reduction of crime and fear of crime among vulnerable groups and transport user types
AoS16: To contribute towards the maximisation of user benefits on the national networks
AoS17: To contribute towards the improvement of levels of congestion and reliability on the National Networks
AoS18: To contribute towards better strategic transport access to deprived areas and areas of high unemployment
AoS19: To contribute towards the improvement of accessibility to and from rural areas
AoS20: To contribute to reduced severance of transport routes and recreational areas as a result of national network development and operations

AoS Objective
AoS21: To enhance access to national networks and the jobs, services and social networks they create, including for the most disadvantaged
AoS22: To ensure the needs of different social groups are taken into account in national network planning and service delivery
AoS23: To contribute towards improving health and public health

6. Summary of the Appraisal of the NPS and Alternatives

Table 3 below shows the overall scores for the NPS and Strategic Alternatives in a matrix format, to allow an easy comparison to be made. A comparative discussion of overall performance by economic, environmental and social objectives follows the table.

Key for Sustainability Performance Matrix

Significantly supports (++)
Supports (+)
Neutral (/)
Detracts (-)
Significantly detracts (--)

Table 3: Overall Sustainability Performance Comparison of NPS and Strategic Alternatives

	NPS	Alt 1	Alt 2
AOS1 To contribute towards the reduction of noise levels from road and rail national networks	/	/	-
AOS2 To contribute towards improving local air quality	/	/	-
AOS3 To contribute towards the reduction of greenhouse gas emissions	+	+	-
AOS4 To protect and enhance landscape quality, townscape quality and to enhance visual amenity	-	-	--
AOS5 To protect and conserve heritage assets in a manner appropriate to their significance	-	-	--
AOS6 To preserve, protect and enhance biodiversity	-	-	--
AOS7 To ensure the protection of water resources (quantity)	-	-	-
AOS8 To encourage the protection of water quality	/	/	-
AOS9 To contribute towards increase resilience on national networks	+	+	+
AOS10 To minimise the impact on soil and land resources including contamination and loss	-	-	-
AOS11 To minimise the use of previously undeveloped land	-	-	-
AOS12 To encourage the use of recycled materials in the construction of infrastructure, whilst reducing, re-using or recycling the waste generated from	-	-	-
AOS13 To contribute towards reducing the risk of flooding in the hinterland	/	/	-
AOS14 To reduce accidents and incidents on national networks and reduce risk to the users of road and rail network	+	+	+
AOS15 To contribute towards the reduction of crime and fear of crime among vulnerable groups and transport user types	/	/	/
AOS16 To contribute towards the maximisation of user benefits on the National Networks	++	+	++
AOS17 To contribute towards the improvement of levels of congestion and reliability on the National Networks	++	++	++
AOS18 To contribute towards better strategic transport access to regeneration areas, employment centres and areas of high unemployment	+	+	+
AOS19 To contribute towards the improvement of accessibility to rural areas	+	+	+

	NPS	Alt 1	Alt 2
AOS20 To contribute to reduced severance of transport routes and recreational areas as a result of national network development and operations	/	/	-
AOS21 To enhance access to national networks and the jobs, services and social networks they create, including for the most disadvantaged	+	+	+
AOS22 To ensure the needs of different social groups are taken into account in national network planning and service delivery	-	-	-
AOS23 To contribute towards improving health and public health	+	+	+

Environmental Performance

Generally the NN NPS detracts, but not significantly, from the delivery of environmental objectives. Whilst a substantial proportion of national networks infrastructure development is likely to occur within existing highway and railway boundaries, the trunk road upgrades and pinch point investments, the conversion of significant lengths of motorway to Smart Motorways limited new road and rail alignments, together with extensive rail electrification is likely to result in localised environmental impacts. Many of the environmental objectives are detracted from, but not significantly. However, the targeted measures to reduce pollution in areas of poor air quality, and this, together with commitment to tackle existing areas of the networks vulnerable to flooding ensures that for objectives relating to noise, air quality, water quality and flood risk, the NPS scores neutral. The commitment in the NPS to support the transition to ULEVs outweighs all measures that increase greenhouse gas emissions, meaning that the NPS contributes towards the objective relating to the reduction of greenhouse gases.

Alternative 1 commits to a similar level of environmental mitigation measures as are contained in the NPS, and therefore the environmental performance of Alternative 1 is broadly similar in terms of the scoring. However, the scale of infrastructure works is substantially lower than that proposed in the NPS. Therefore, where the scores for Alternative 1 and the NPS seem the same, it is often the case that Alternative 1 is closer to being neutral than would be the case for the NPS. In particular, the increased cost of motoring leads to a lower level of traffic which affects a number of the AoS objectives more positively than the NPS scenario. For example, this is the case for landscape, heritage and biodiversity, where large amounts of infrastructure works under the NPS will more likely lead to adverse impacts than under Alternative 1 where less construction and operational disturbance for road and rail infrastructure and traffic is likely. The greater the scale of works, the greater the likelihood that sensitive receptors will be affected. In addition, for biodiversity (AoS 6), although both detracting from the objective, Alternative 1 would detract to a lesser extent that the NPS due to the reduced scale of the works as a whole, and the commitment in Alternative 1 to a policy of biodiversity offsetting, which would help mitigate for habitat loss and disturbance impacts from any new infrastructure.

Alternative 2 broadly involves a greater degree of roads infrastructure, and less rail infrastructure. It also doesn't contain the proactive environmental enhancement for both existing and proposed infrastructure that is committed to in the NPS and Alternative 1. For this reason, Alternative 2 generally scores worse on environmental measures. In particular, objectives relating to air quality, noise, greenhouse gas emissions, landscape, heritage, biodiversity, water quality and flooding score worse when compared to the NPS.

Economic Performance

The NPS supports or significantly supports all of the objectives focused on the economy. The provision of extensive additional lane miles of new capacity, predominantly as hard shoulder running (Smart Motorways), targeted at those areas of greatest congestion, pinch point investments and trunk road upgrades, together with the relief of overcrowding on the rail network, through better use of the existing network and limited additional new links, new chords and track widening, provides for significant user benefits and journey time reliability and supports the objectives relating to access, congestion, user benefits and

employment. In particular, TASM modelling of a NPS investment scenario forecasts that the road infrastructure measures supported by the NPS would reduce congestion on the strategic road network (SRN) by 39.8% by 2040 (when compared to baseline 2040 levels).[1] Network resilience is also improved through the inclusion of a strong commitment to address climate change adaptation in the NPS.

Alternative 1 generally performs well against the economic objectives but not to the same extent as the NPS. On user benefits Alternative 1 supports the objective, but not significantly (whereas the NPS significantly supports). This is due to the smaller scale of road infrastructure measures contained in this Alternative when compared to the NPS and the moderate increase in the cost of motoring, which although is predicted to reduce congestion, is also likely to impact on user benefits due to the increased cost for road users. TASM modelling suggests that an increase in the cost of motoring would have a relatively small impact on congestion for a given increase in cost: a 25-28% increase in the cost of motoring over a 15 year period might reduce congestion on the SRN by 15.8%[2]. Although most of the interventions contained within the NPS are also contained in Alternative 1, these measures are on a much smaller scale, with TASM modelling of an Alternative 1 investment scenario forecasting that the road infrastructure measures supported by Alternative 1 (not including the cost of motoring measures) would reduce congestion on the SRN by 11.4% by 2040 (when compared to baseline 2040 levels).[3]

Alternative 2 performs well against the economic objectives, and scores the same as the NPS in all cases. Whilst it is expected that the performance of the road infrastructure measures might actually be slightly better than the NPS from an economic perspective, due to a larger programme of interventions, including motorway widening rather than Smart Motorways and substantially more trunk road upgrades, this is not reflected in the overall scores. This is partly due to the fact that the NPS already scores well on the economic objectives, partly due to the reduced rail investment in Alternative 2 counterbalancing the increased roads investment, and partly due to the fact that congestion, reliability and journey time benefits are not consistently correlated with investment because there are diminishing economic returns (in respect of congestion) for expenditure on transport infrastructure if this increases beyond the expenditure already committed to in the NPS.

Social Performance

Overall the NN NPS supports social objectives but generally not significantly, and the performance is more mixed than for the other areas of sustainability. Positive scores are obtained for the predicted reduction of accidents and incidents, and the improvement of health. Impacts relating to severance due to the NPS are mixed, with both positive and negative impacts resulting in an overall neutral score. The NPS is likely to detract, but not significantly, from the objective relating to the needs of social groups due to the likelihood of needing to acquire land for the infrastructure measures supported by the NPS and the impacts that this will have on the people living at these locations. The objective relating to crime and fear of crime is not considered to be affected by the NPS and therefore scores neutrally.

Both Alternative 1 and Alternative 2 perform similarly to the NPS on the social objectives with no change in scoring for either alternative, except for on severance, where Alternative 2 detracts from the objective whereas the NPS and Alternative 1 have a neutral contribution to the objective. In addition there are differences that are not necessarily reflected in the overall scores with respect to the cost of travel that could affect different social groups. In particular, Alternative 1 proposes an increase in the cost of motoring as a way of reducing demand on the SRN.

7. Selection of the NPS

The discussion above shows that if the NPS is compared against the two strategic alternatives, it is considered that the NPS gives the most

[1] Central forecast based on central estimates of population, incomes and fuel costs.
[2] Based on a "constant cost of motoring" scenario, i.e. motoring costs remaining constant in real terms rather than declining as forecasted under the Department's central scenario. This relationship is not linear and is dependent on fleet fuel efficiency.
[3] Central forecast based on central estimates of population, incomes and fuel costs.

balanced sustainable performance against the AoS objectives. Generally, Alternative 1 performs less well than the NPS on the economic and social objectives, and Alternative 2 performs less well environmentally than the NPS. Therefore the NPS has been chosen as the preferred policy to be taken forward to consultation stage.

8. How the AoS Process has Informed the Development of the NPS

The AoS process has informed the development of the NPS and resulted in a number of changes within the NPS itself. The first draft of the NPS was used to undertake an initial appraisal, and the first draft of the Impact Assessment Tables was created. It was identified that Alternative 1 showed a stronger commitment to environmental mitigation than the NPS which meant that Alternative 1 scored substantially better against the environmental objectives.

The NPS team considered the environmental mitigation measures contained within Alternative 1, and identified where elements of this mitigation could be incorporated into the NPS. The NPS policy was amended and then the Impact Assessment Tables were re-scored for the amended NPS. It is considered that the NPS is now introducing measures relating to environmental mitigation which up until now have not been fully articulated or set out in transport policy in the UK. The measures that are now part of the NPS as a result of the AoS process are as follows:

- Targeted measures to reduce pollution in areas of poor air quality, including the opportunity to use speed management on Smart Motorways to reduce emissions;
- Use of measures to address biodiversity fragmentation as a result of existing road and rail infrastructure;
- Proactive commitment to addressing existing noise issues on the networks through the implementation of mitigation measures, rather than a policy of primarily addressing noise problems opportunistically as part of measures implemented for other reasons, such as safety;
- Commitment to implementing enhancement measures for both existing identified problems and for future schemes in the areas of flood risk, water quality, air quality, noise, heritage, landscape and biodiversity.

9. Summary of Monitoring and Mitigation Measures

Proposed Mitigation Measures

The SEA Directive requires that the Environmental Report includes measures to prevent, reduce or offset any significant adverse effects of the plan or programme, i.e. the NPS. Such measures are termed mitigation measures.

The high level nature of the NN NPS means that it has been necessary to consider its effects at a strategic level. At this strategic NPS level, mitigation of adverse sustainability impacts (and enhancement of beneficial impacts) has been achieved via the policy making process. Development of the NN NPS has been informed by the AoS process, with the aim of enhancing the sustainability "performance" of the NPS. The approach to appraising alternatives has helped optimise and balance the NPS across all aspects of sustainability.

At a project level, the Impacts section of the NN NPS identifies mitigation measures that should be included in NSIPs on National Networks. In general, mitigation measures will be identified through the Environmental Impact Assessment (EIA) process.

As no significant adverse effects of the NN NPS have been identified, no further discussion of mitigation measures is provided in this report.

Proposed Monitoring Measures

The SEA Directive requires that any significant effects of the plan or programme, i.e. the NPS, be monitored, in order that they can be tested against those predicted. As no significant adverse effects of the NN NPS have been identified, no further discussion of monitoring measures is provided in this report.

10. Opportunities for Improvement

The NN NPS identifies a number of measures that aim to enhance the sustainability "performance" of the NPS and mitigate the impacts of any adverse impacts. However, it is considered that there are a number of opportunities that could be given future consideration for further improvements to the sustainability of the national networks. These recommendations are as follows:

- The Government is currently undertaking a consultation on biodiversity offsetting in England. It is recommended that, depending on the response to this consultation, and as part of wider Government policy, a biodiversity offsetting policy should be considered for national networks infrastructure development. Implementation of such a policy could, on an individual scheme level, potentially off-set biodiversity impacts to a significant extent, by, for example the provision of compensatory habitat that matches or more than matches the value of habitat lost. The value of off-setting could potentially be further increased by adopting a strategic regional or national level approach that seeks to consolidate areas of high value habitat. However, care should be taken to avoid a situation whereby a habitat off-setting approach is used as justification for habitat loss.
- Implementation of a policy that seeks to manage and enhance National Networks as ecological networks, at a strategic national level could significantly improve strategic level ecological connectivity in England. Such a policy could be effectively be coordinated with the implementation of biodiversity off-setting approaches.
- Enhancement of green infrastructure to manage climate change adaptation and increase resilience of the national networks to climate change.
- Consideration of utilising the national networks for renewable energy generation, with the target of becoming self-sufficient in energy.

The absence of any significant adverse impacts negates the need for monitoring under the SEA Directive. However, in addition to the opportunity for mitigation measures discussed above, there is also the opportunity to implement monitoring of the environmental mitigation measures at a network level in order to gain valuable data relating to overall impacts of the NPS. Such a programme could build upon scheme level evaluations already undertaken, and could most effectively be managed via use of Geographic Information Systems

11. Next Steps

The draft NN NPS is accompanied by a consultation document. Any comments on this document should be directed to DfT via the contact details in the consultation document.

Following the consultation period and process of Parliamentary scrutiny of the NPS, DfT will publish a response to the consultation detailing the responses received and how these have been taken into account. The Department will also undertake a review of the draft NN NPS and the AoS in the light of consultation replies, aiming to designate the NPS document later in 2014 and to update the AoS as necessary.

Limitations and Assumptions

Spatial specificity

The NN NPS sets out the Government's policy for the future development of infrastructure on the national networks in England. The existing national networks in England are extensive. The appraisal is therefore challenging due to the fact that some aspects of policy might be quite well spatially defined, i.e. they could relate to some change on the existing networks, whereas for other aspects of policy e.g. SRFIs, there is little spatial/locational definition. Therefore the magnitude and probability of many of the impacts identified is difficult to define as it will depend on the location of the measure being implemented, and also on the existence of sensitive receptors to be affected by an impact. In addition to this there is uncertainty around the extent of mitigation measures in terms of what is practically possible at different locations.

To address this, the approach taken within the appraisal of the NPS has been at a strategic level and precautionary to reflect a judgement of

likely risk, i.e. without making allowance for the consideration of mitigating factors which might form a part of any specific proposal, unless these are specifically identified within the NPS itself.

Assumptions

For the vast majority of AoS objectives, multiple interventions have a variety of impacts against the objective, which may be of varying magnitude, scale and probability. Therefore professional judgement was relied upon to weigh up the combination of impacts against an objective to determine an overall significance score for that objective. Where uncertainty as to the overall score existed, a precautionary approach was taken.

A variety of different evidence sources have been used to provide evidence and examples of the impacts. Each of these sources have specific limitations. In particular, both rail and road traffic modelling has been referred to, and uncertainty is inherently part of forecasting and predicting future behaviour and trends. For example, traffic trends and outcomes depend on a large number of variables, economic (GDP, oil prices) and behavioural (people preferences, trends and social habits). As these drivers are not certain and could be subject shifts in trends or shocks in the future, forecasting is a highly uncertain exercise that must be interpreted as best estimates given current state of information and assumptions. Whilst there is uncertainty around road and rail forecasts, this has been mitigated by considering low and high road traffic demand scenarios.

Where outcomes of previous schemes have been referred to as evidence, it is acknowledged that impacts of future schemes will depend on location and the mitigations that are practically possible.