

# THE STATE OF THE NATION 2005

An assessment of the UK's infrastructure by the Institution of Civil Engineers



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## About the Institution of Civil Engineers

As a professional body, the Institution of Civil Engineers (ICE) is one of the most important sources of professional expertise in road and rail transport, water supply and treatment, flood management, waste and energy – our infrastructure. Established in 1818, it has over 75,000 members throughout the world – including over 60,000 in the UK.

## About this report

The State of the Nation Report is compiled each year by a panel of experts drawn from the various fields of civil engineering expertise across ICE's membership.

Its aim is to stimulate debate and to highlight the actions that civil engineers believe need to be taken to improve the state of the nation's infrastructure. It has been produced since the year 2000.

The report is issued to a wide audience of stakeholders, including politicians, civil servants, local authorities, trade, regulatory and consumer bodies as well as the media.

This year, six regional versions of the State of the Nation Report – Northern Ireland, Scotland, Wales as well as the North West, South West and West Midlands of England – are being produced, in conjunction with this UK-wide publication.

For more information on the background to the State of the Nation Report, contact ICE External Relations:

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Since the publication of ICE's last State of the Nation Report, in June 2004, there has been a General Election in the UK. Infrastructure issues, such as transport policy and energy supply, barely registered a mention in the political campaigns. The environment and sustainability issues were overlooked altogether.

People and governments only appear to take notice of infrastructure – our basic social life support systems – when something fails. The media will often cover the bad news stories, ignoring the good work that's ongoing. For example, improvements and investment in flood management continues in the UK, but media coverage of the damage caused in Boscastle or Carlisle will remain uppermost in the public's mind.

Despite numerous improvements being made, it is true that for decades we as a nation have failed to invest sufficiently in maintaining and renewing our infrastructure. We cannot continue to pretend that significant investment is not urgently required – we can no longer avoid the issue of having to increase expenditure to meet the demands of the present and the future. And we certainly shouldn't continue with a 'patch and make good' culture.

In this, the sixth year of the State of the Nation report, we continue to explore these and other issues; issues crucial to our way of life, our health and our economy.

A handwritten signature in black ink, appearing to read 'Colin Clinton'.

**Dr Colin J Clinton**

ICE President, October 2005

## **Overall comments**

The answers to many of the problems posed in this report are neither easy nor simple.

This report clearly highlights the concerns of those who are responsible for the planning, operation, building, maintenance and quality of our nation's life-support system. It suggests courses of action we can take to preserve our quality of life and standard of living.

The benefits of eight years of political stability and a Government with three resounding General Election wins behind it should be making themselves apparent by now. Whilst some sectors of the built environment do show improvement or at least no change, this is precious little when set against the entire picture – there is no consistent upward trend.

There is still a real need for greater public understanding and education about the serious decisions that must be taken concerning our infrastructure. Only through public engagement can we as a country confront and deal effectively with them.

The future role of nuclear power, the proposals over charging for using roads and the debate over water supply and other utility bills are just some of the important questions that need resolution in the coming years. As we said in last year's report, a viable future cannot be delivered by short-term populist decisions.

The window of opportunity to effect remedies, repairs and renewals is rapidly closing, if society is not to suffer.

**What we want to see happen overall:**

A speedy progression to full operation of the new national railways management structure.

Increased and consistent levels of funding for the national road network from the Government, not the peaks and troughs of the past.

Local transport provisions planned into major new developments and public facilities.

National and international support for continued research into climate change and carbon emissions to allow sustainable air travel to continue and grow in the future.

The Government to encourage major port development and expansion in locations where road and rail networks are best equipped to support it.

Ofwat to recognise that we need much more funding, to meet higher environmental standards and new water demands, as well as to replace old systems, that can only come from rises in water charges.

A consultation on preserving the security of our energy supply, short, medium and long term, which should be achieved with a broad range of sources of fuel and domestic fuel reserves.

Continued investment, above 2005/2006 levels, in flood warning measures and forecasting to deal with river, tidal, coastal and urban drainage problems.

Local government to identify potential sites for waste facilities.

Policies put into practice at a local level, with funding to support community involvement in developing and managing local infrastructure.

**Overall comments**

Grade	<b>D +</b>
Change	—
Sustainability	<b>B -</b>

## **Sustainability and the environment**

A few more admirable initiatives, sound strategies and good intentions – that is as far as progress on sustainability has gone in 2004/2005. In terms of putting it into practice, it has been another year of drift and missed opportunities.



Although measures to put sustainability policies into practice are being felt, there has not been much evidence of cultural change at the level of individuals, communities and businesses.

Changes to financial incentives can help, but there are obstacles barring progress. These can only be broken down if everyone understands that they must play a part in protecting our health, quality of life and prosperity. It is important to emphasise the difference that individuals can make to overcome the 'why bother?' syndrome. Until then, any forms of management aimed at limiting the amount of electricity we consume or limiting car use, for example, are bound to meet stiff opposition. There is a need to make people think differently.

The amount of energy we use continues to rise. However, the competitive market, due to regulations and environmental uncertainties, looks unlikely to deliver the 16,000 to 22,000 megawatts of new capacity that the UK will need by 2013, as coal-fired and nuclear stations are closed down. Electricity and gas prices have risen significantly – a reflection of increases in fuel costs rather than generating companies gearing up to invest in new facilities. The long planning process as it currently operates is set to obstruct developments in many of the best renewables sites and supporting networks. The UK must invest in new generation facilities, based on a mixed range of fuels. It must limit the energy used, by incentives to reduce consumption and encourage conservation.

Air and road traffic continues to grow unsustainably and the price of each still does not reflect the true cost to the environment. Fuel-efficient vehicles and other developments in technology have not been followed up with enough incentives to bring them into the mainstream. Instead, the environmental benefits from the limited number of fuel-efficient vehicles on the road, has been offset by the overall increase in traffic.

Managing demand is still controversial, particularly following the failed bid to introduce road charging in Edinburgh and the limited success of the M6 Toll. Affordable, reliable, high-quality rail services and a range of linked urban transport services – given a welcome push by being included in the Regional Spatial Strategies – will be essential in encouraging people to leave the car at home.

Many changes need to happen to the planning system and to public attitudes if the UK is to get the waste reprocessing facilities it needs by 2009/2010, when the Landfill Directive starts to bite. Recycling rates for domestic waste continue to improve but the public are still worried about the cleanliness and safety of facilities. We need the Government to take the lead in creating an approach to managing resources so that waste is seen as one link in the materials-use chain, and as a potentially plentiful energy fuel. However, to attract private interest, the time taken to plan and build new plants must reduce considerably.

Failures in the UK water industry include a lack of funding to tackle the increase in sewer flooding and the lack of management of public demand for domestic water. Here, too, we need a change in culture and incentives to reduce demand and solve supply problems. The current five-year funding period is not enough to allow longer term planning and resourcing. The Government needs to consider improving this situation.

Around 400,000 properties are still at risk from flooding in the UK, but the Government's *'Making Space For Water'* strategy presents a solid approach to managing floods in the future. Action on developing floodplains inappropriately will demand a tough line from Planning Policy Guidance Note 25 (PPG 25), the revised guidance on floodplain planning, as well as increased design guidance on flood-proofing for those who build houses.

Despite this, we are encouraged that the Government set up the Sustainable Procurement Taskforce earlier this year, which bodes well for the future.

## Sustainability & the environment

Grade **B –**  
Change ▲



View looking west, Wimbleball Lake and Exmoor National Park: AB Design Group, Exeter



Stirling station: Jacobs Babbie

## Energy

It may not yet be a case of the lights going out, but they are certainly beginning to flicker. Another year has gone by without any significant new generating capacity being built. Upgrades to the electricity transmission and distribution networks are happening, but at a slow pace.



## As the UK becomes more dependent on imported gas, the prospect of the nation losing control of its energy supply, and with it a grip on prices and carbon emissions, looms ever larger.

The only real alternative is to invest very soon in a mixed range of domestic fuel sources, in which nuclear, clean coal and renewable power sources each play a significant part. Since 1990, UK electricity demand has risen by over 20%. And while, 15 years ago, natural gas made up just 1% of the nation's fuel sources for generation, it now makes up 38%.

In 2005, the UK became a country that imports more natural gas than it exports. And in the next 10 years, as existing nuclear and coal-fired power stations (which make up more than 50% of current electricity generation) are taken out of use, the gap is likely to be filled by natural gas imported mainly from fields in Russia and the Middle East.

Recent energy policy in the UK has been influenced by two main factors: the Government's White Paper published in 2003, which favours gas and renewable sources of energy; and Ofgem, which tightly regulates the gas and electricity industry, mainly in terms of price and service. Over the past 10 years, a series of Ofgem initiatives have promoted free market activity. Wherever companies have a monopoly in terms of gas or electricity, Ofgem has introduced stringent price controls. The days of wholesale and retail price reductions have passed, as the industry wrestles with rising commodity prices and future investment strategies.

Gas prices have increased by 21% and power prices by 17% over the past 18 months. These rises are now affecting the profitability of Britain's manufacturing base, particularly small to medium-sized companies that are high energy users. Also, the number of fuel-poor (defined as people who spend more than 10% of their disposable income on fuel) is expected to rise by 500,000 this year. The outlook for the next three winters is bleak. With domestic production from the North Sea falling by 5% this year and importing arrangements to meet increasing demand still stretched, gas prices will stay high. Power and gas prices are likely to rise by around 30% over the next two years. Longer term, gas prices may fall as further pipelines from Europe are built and the

UK's LNG (liquefied natural gas) terminals, which are currently being built, are completed. However, prices still depend on demand elsewhere in the world.

The UK's energy policy continues to be based on the idea that the market will provide what is needed. There is however a slant in favour of renewables through incentives (the Renewables Obligation), which effectively subsidise this sector by around £300 million each year. The target of 10% by 2010 is unlikely to be met, given the difficulties wind farms face in terms of planning permission. Somewhere between 5% to 7% is more likely.

The market invested heavily in gas-powered stations over the past 15 years and consideration of investment in new coal-fired and nuclear power has been ignored. But market forces have not led to any new gas-fired plants being built in the last two years. It is believed that there is enough generation capacity to meet the UK's immediate needs. Also, the difference between gas and power prices is still not sufficient for generators to build new plants and make a return on their investment. Eventually, though, when we cannot avoid the need for further generation capacity, a further dash for gas is likely as plants are quick to build and provide flexible performance to meet the BETTA (British Electricity Trading and Transmission Arrangements) market model. Over the next 15 years the UK will depend on imported gas for 90% of its supply, with up to 70% of its electricity being generated from that source.

In 2004, the nuclear contribution to the UK's electricity supply was 21%. By 2013, it will fall to around 7% as power stations reach the end of their lives. The latest reactor systems, have been developed from proven technology and offer improved safety features, building processes and performance, and produce significantly less waste than existing reactors. However, if the existing nuclear power stations are to be replaced so that nuclear power can continue to make a contribution to a low carbon energy mix, we need to take action now on:

- a programme to encourage the public to accept it;
- a long-term solution for nuclear waste; and
- a proposal for the energy market to fund a nuclear programme.

On the emissions front, progress also looks bleak with the 15 EU member states in 2003 reporting a 1.1% increase in 2004. The European target of an 8% reduction by 2012 against 1990 levels is looking increasingly unlikely. Only France, Germany, Sweden and the UK could make this target, even though all of these countries showed increases over the past year. The UK increased its emissions by 1.4%, although it is still on course to achieve its goal of a 12.5% cut by 2008–2012. Any further cuts beyond this point will be hard to achieve. Energy conservation measures, which are an absolute must, have had no real effect.

### What we want to see happen in energy:

A consultation on preserving the security of supply, short, medium and long term, which should be achieved with a broad range of sources of fuel and domestic fuel reserves.

Investment in research and development into new technologies for nuclear power and low carbon emission coal-fired power stations.

Reduced demand through increased financial incentives for energy conservation and efficiency.

Increased funding for developing the most promising renewable technologies, particularly marine.

Development of a strong UK policy to introduce more waste-to-energy plants.

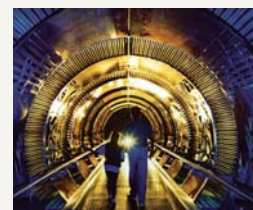
The planning process streamlined for new facilities and improvements to the network.

### Energy

Grade **D**

Change **—**

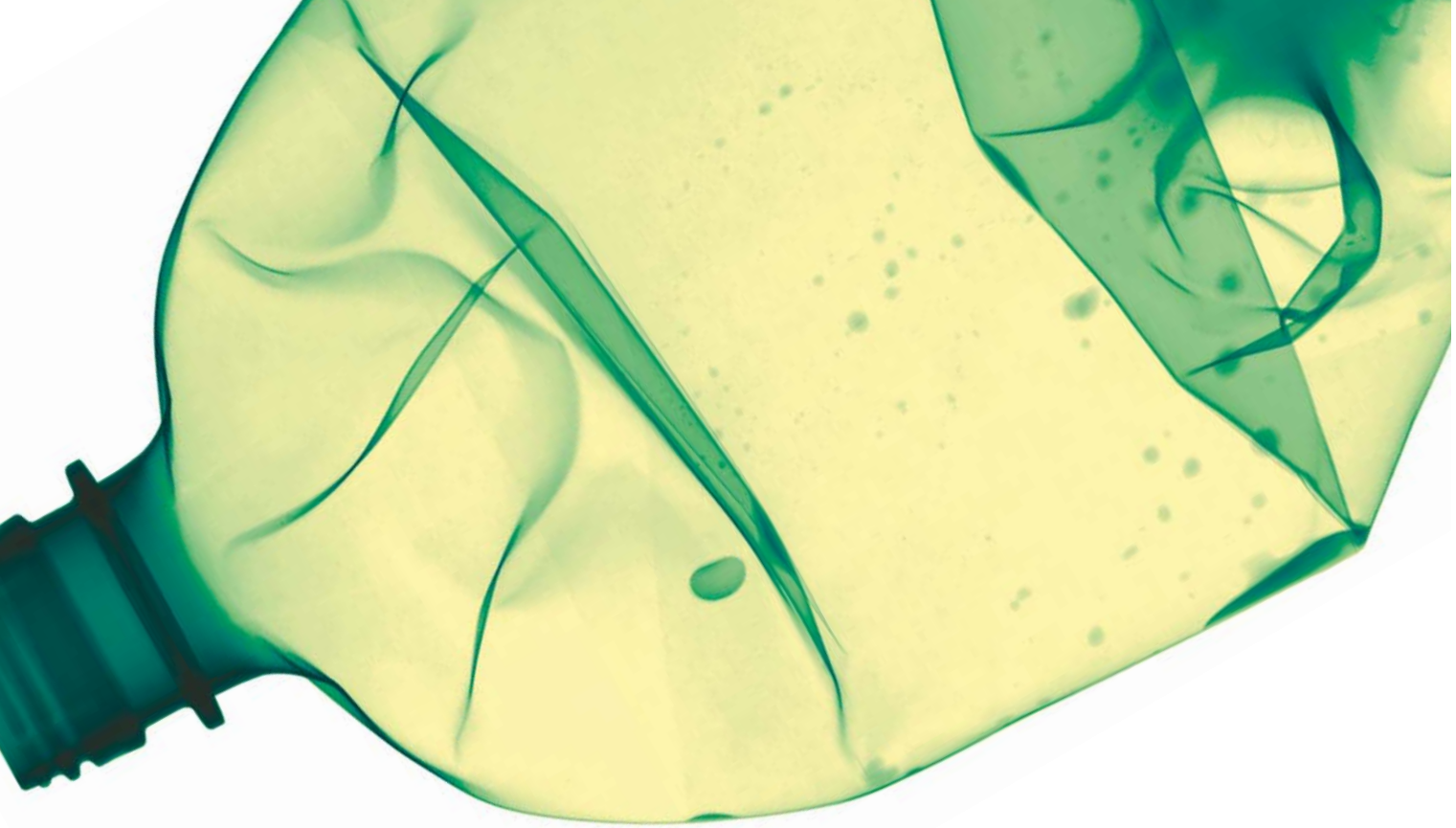
Sustainability **C—**



Sellafield: BNFL



Utilising the power of the sun in Cornwall – Hayle Youth Club investing in the future: Cornwall Sustainable Energy Partnership 2005.



## **Waste**

The past 12 months have continued to show the denial and disconnected thinking with which the Government, businesses and the public approach the subject of waste. In this country, waste is seen as an end – a dead end – rather than a means. That view has to change.

To meet Landfill Directive targets for diverting biodegradable waste, the UK will need to invest more than £10 billion in waste facilities. We have a choice. We can either spend that money on processing plants that only partly tackle the waste issue, or it can be invested in efficient regional facilities. Residual waste becomes fuel, which then becomes energy for the National Grid, or heating energy if combined heat and power (CHP) plants are built.

Not much progress was made in 2004/2005. However, there was some movement towards letting contracts and agreeing PFI credits for waste management services in Greater Manchester, Cambridge and elsewhere. There were no new major planning approvals for facilities and certainly there has not yet been enough political commitment to encourage serious investment by industry. We are seeing regular instances of planning decisions becoming political decisions. Proposals have been turned down (West Sussex Materials Recycling Facility) against planning officers' advice or put back to further public enquiry (Riverside Resource Recovery in Bexley) against the inspector's recommendation.

Creating energy from waste will benefit the UK. Investing part of the £10 billion needed to treat our waste to create energy would help to meet national targets for renewable energy, reduce carbon dioxide produced, and reduce landfill, as well as increasing the capacity, security and delivery of our electricity supply. The first step for this to happen is a look by Government at ways of supporting energy-from-waste through a mechanism similar to the Renewables Obligation. However, we recognise that including energy-from-waste into the Obligation itself may affect the fledgling renewables industry. Local government must show that they are leading on the issue, and the engineering profession must develop and promote these joined-up solutions.

A report published by ICE and the Renewable Power Association measuring the potential energy from residual waste estimated that, by 2020, 17% of all electricity used could, theoretically, come from waste. A more realistic but still very significant contribution would be 10%.

In the longer term, the UK needs to consider all waste – not just household waste – as a material resource, and manage it as such. National and local government need to assess the technical and economic scope for reprocessing and treatment facilities, and opportunities for communities and businesses to make best use of the resources these facilities produce. We also need to analyse the demand for facilities to deal with residual waste.

Major challenges will have to be solved. How can the private sector be incentivised to invest in the industry? Should facilities be clustered together or share existing waste, energy and industrial sites? How can public and political support for the issue be encouraged? Do people have the right skills in the right quantity to deliver a wide-ranging materials resource strategy programme? And finally, can we afford, economically or environmentally, not to find answers to all of the above?

Waste is a combination of materials – our resources for tomorrow. If we extract reusable materials, what's left is residual waste – solid material containing energy that can be released to light rooms, heat buildings and drive businesses.

Waste is an energy resource, and at a time when the UK's own existing sources of energy are diminishing, it could help fill the fuel gap, just as it is doing in other European states.

No connection between waste and energy is being made. It may not be widely appreciated, but recycling has its limits. However good we become at recycling there will always be a certain amount of residual waste. And many people may also not understand that, by using modern technology that keeps to the Waste Incineration Directive, waste can be burned to produce energy. It is both clean and safe – as the handful of energy-from-waste plants that are currently working in the UK are showing. Finally, the Government must tackle the fact that, while the EU classifies biodegradable waste as a renewable source of energy, the Renewables Obligation specifically excludes the most common energy-from-waste technology.

## Waste

Grade **D**

Change **—**

Sustainability **D+**

### What we want to see happen in waste:

Local government to identify potential sites for waste facilities and make realistic assessments of technology options.

A clear regulatory framework from Government to develop facilities, which can compare to those provided for other forms of renewable energy.

Adoption by national and local governments of the waste-as-material resource strategy.

Campaigns to raise awareness of the links between waste, resource, renewable energy, climate change and economic development.



Kerbside recycling: Bryson House Charity



Recyclable glass: Jonathan Pollock



## **Communities for the future**

Communities for the future are those that can succeed economically, socially and environmentally while respecting the needs of future generations.

It is widely recognised that the quality of streets and public places can create a sense of place and well-being that binds communities together.

As a result, appointing a Minister of Communities and Local Government is welcome and should be supported to develop existing, as well as new communities effectively in the future.

Civil engineers have a central role to play by encouraging the community to become involved in managing its streets. An outstanding example is in Rotherham, where the Streetpride project, launched in 2003, combines all of the functions and activities that affect the streets across the borough. The council-wide approach makes sure there is a swift and effective response to environmental concerns such as litter, graffiti, fly-tipping, vandalism and other antisocial behaviour. However, measuring the quality of a community is a complicated issue. It seems to call for improved measures of quality of life to guide us through the decisions that create and maintain an affordable, high-quality street.

Affordability of housing continues to be a concern. In 1995, the average house price was three times the average annual salary. Ten years later, it is five-and-a-half times the average salary and out of the reach of most key workers. The Government's competition, as part of its 'Homes For All' strategy, to design and build 'the £60,000 house' is a step in the right direction, as is the decision to allow rural local authorities to set aside land purely for affordable housing to meet local needs.

Taking forward the sustainable communities agenda will place a strain on skills and design. Sir John Egan's 'Skills Review' calls for a cultural change in the way relevant occupations are trained and developed. The National Centre for Sustainable Communities Skills in Leeds is identifying gaps in the skills needed. It is also to review the education and training available for occupations that develop our public spaces, streets, parks, housing estates and stations, and encourage more people into these professions.

The planned expansion of housing in the south and south east of England will require flexibility in the layout of estates to meet the needs of communities. Current, inflexible guidance on the design of residential roads and footpaths is due to be replaced by 'The Manual For Streets', which will help to achieve the aims of sustainable development. This manual should be introduced as soon as possible.

### What we want to see happen in communities for the future:

Policies put into practice at a local level, with funding to support community involvement in developing and managing local infrastructure.

Better measures of quality of life to help decision-making when developing neighbourhoods.

Quick introduction of 'The Manual For Streets' to allow greater flexibility and variety in design and meet the needs of future communities.

## Communities for the future

Grade C-

Change ▲

Sustainability C



Birmingham city centre



RNLI Lifeboat Station Tenby: Dean & Dyball Construction Ltd

## **Water and wastewater**

The water we drink in the UK has never been cleaner or safer. But it is also becoming scarcer. Our water supply is being put under increasing strain by factors ranging from climate change, low rainfall and an ageing delivery structure, to changes in the population, and the increasing use of appliances such as power showers.



## Water and wastewater

Grade **B +**

Change **—**

Sustainability **B —**

The job of renewing the distribution network could take at least 200 years, even at today's unprecedented rate of investment.

At the end of 2004, compliance with drinking water standards revealed that in England 99.94% of more than 1.8 million tests carried out met all the national and European health-based standards. The figures for Wales were 99.92% of more than 140,000 tests.

Although some sewers still cannot cope with intense rainfall, leading to flooding and polluted overflows to rivers (notably to the Thames in London), co-operation with the consent conditions for wastewater discharges was also at record levels.

Meeting EU directives on these two performance measures is where water companies in England and Wales have concentrated capital investment. Investment in the network over the fourth five-year Asset Management Period (AMP4), from 2005–2010 will increase still further, following the AMP4 determination by Ofwat.

Meeting the challenge of increasing standards, though, has not been made any easier for water companies by restrictions placed on them by planning policies, traffic management plans and increased community involvement. All of these restrictions have increased the difficulty and cost of capital projects.

Poor planning of major developments means utilities cannot meet the requirements needed for water and wastewater. For example, housing development in south east England will need new water sources, best provided by dams storing winter rainfall, which will take around 20 years to agree, plan and deliver. Unless early decisions are made to go ahead with new reservoirs, water supplies will continue to be at risk of disruption in drought conditions, even with the much increased expenditure needed to replace old, leaky water pipes.

A combination of spiralling quality standards and removal of abstraction rights for drinkable water – as a result of environmental protection measures – is leading to a situation which cannot continue. We would like to see a greater degree of joined-up thinking from the promoters of higher environmental standards to allow the industry to move towards genuine sustainability.

Positive prospects for the water industry include the EU Water Framework Directive, which, though still containing many unknowns, promises a co-ordinated approach to managing river basins.

### What we want to see happen in water and wastewater:

Ofwat to recognise the need for much more funding to meet higher environmental standards and new water demands, as well as to replace old systems. That funding can only come from rises in water charges.

More precautionary long-term planning to allow for climate change and develop new water resources, noting that new reservoirs take many years to develop. The economic wellbeing of the country must not be put at risk by water shortages.

A recognition in planning policy that essential investment in new water sources and wastewater disposal must be given a higher priority.

Faster decisions on proposals to deal with sewer overflows to the Thames in London via a major new cross-city tunnel system.

A set of national standards for sustainable development that are easy to understand, capable of being put into practice at reasonable cost and structured towards reducing, not increasing, the new investment needed in infrastructure.



Stwlan Dam: First Hydro Ltd



Water treatment works: Severn Trent PLC



## **Flood management**

The vulnerability of parts of the UK to sudden and violent flooding has been vividly brought home to British householders in 2004/2005. First, there was the torrential rain and flash flood that swept Boscastle in Cornwall off its feet in August 2004. Two months later, the south west experienced a prolonged storm surge and large waves for 48 hours. In January 2005, the swollen River Eden flooded 1,700 properties in Carlisle and in June there were floods in North Yorkshire.

Grade	C+
Change	—
Sustainability	B

The total investment in flood management has increased significantly year-on-year, reaching around £560 million in 2004/2005. The target of providing improved protection to 80,000 properties in the three years up to the end of 2005/2006 is in sight. However, this still leaves many thousands more at significant risk.

Recognising the seriousness of the issue, the Government has invested heavily in recent years to repair and improve flood defences, widen coverage of flood warning schemes and produce new flood maps. The *'First Government Response to Making Space For Water'*, which takes forward a new strategy to tackle potential flooding issues and the problem of coastal erosion in England, puts forward an overall range of measures. It is aimed at strengthening protection against flood damage.

It is time that flood management, and the social, environmental, and economic opportunities that come with it, played a greater part in achieving more strategic aims. The environment could be improved with wider use of:

- n catchment flood management plans;
- n shoreline management plans; and
- n strategic flood risk assessments.

The localised nature of these incidents might disguise the scale of the flood threat in the UK. In England and Wales, nearly 400,000 properties have been identified by the Environment Agency as being at significant risk of flooding from rivers and the sea.

A further 1.6 million are in floodplain areas, and 90,000 other properties are at risk from coastal erosion, groundwater or sewer flooding.

Rising sea levels, increasingly frequent tidal surges and higher river flows, all brought about by climate change, are adding to the risk of flooding. Meanwhile, development in floodplains, particularly in the Thames Gateway, is adding to the possible costs of repair. A report on flood risk by the Association of British Insurers recently forecast that an extreme flood in the Thames Gateway after 2016 could cause damage worth up to £16 billion. In addition, two to four people still drown every year, swept away by waves on the UK coastline.

A shortage in engineering skills could make delivering the Government's flood and coastal defence policy difficult. The action plan published by ICE with Defra and the Environment Agency in February 2005 sets out how the skills crisis can be avoided, and this plan must be delivered.

It is hoped that enforcing the soon-to-be revised Policy Planning Guidance Note 25 (PPG25) in England and Wales will help to prevent floodplains and areas close to eroding cliffs being developed inappropriately. It will do this by making sure that managing flood risk is considered in all regional, local and site planning.

Finally, there is a need to fund further research into flooding scenarios. Models to predict flood levels for large rivers such as the Thames and the Severn become less reliable when applied to many rivers with steep catchments and complex flows in Wales and northern England. Techniques to model failure of sea defence structures under increasing climate change also need improving.

**What we want to see happen in flood management:**

Continued investment, above 2005/2006 levels, in flood warning measures and forecasting to deal with river, tidal, coastal and urban drainage problems.

Improvements to the planning system to prevent inappropriate developments, encourage greater use of sustainable drainage systems and introduce changes in how land is used to reduce run-off and peak flows.

Public education on flood risks, including the personal dangers of floods or exposed shorelines.

Improved measures for utilities, services, new homes and communities to reduce the effect of flooding and speed up recovery.

Improvements in the capabilities and co-operation of the organisations involved in flooding emergencies.

Encouragement of more young people to enter engineering so that a skills shortage in flood management is avoided.



Temporary flood defence at Ironbridge



Rock armour at West Bay, Dorset: Brian Lessware

## **Transport**

In the vital field of transport, the benefits of an eight-year period of political stability should be making themselves clear by now. Most days bring a story in the press about a problem in this area, whether it's road congestion, lack of rail capacity or the state of the actual roads and railways themselves. Long-term solutions that also consider the environment are easy neither to find nor put into practice.



**Rail**

**Grade:** C

**Change:** ▲

Rail passengers have a very clear view of what makes a good, efficient network. Consistently, in research, they rank the top three factors as frequency, reliability and journey time (in that order). There has been some progress on reliability in the last 12 months, with reduced delays due to repairs or maintenance of tracks and signalling. On frequency and journey time our rail network still falls short of the mark.

Network Rail should be commended on the 16% reduction in delays due to the infrastructure – a welcome sign of improved management. But the fact that it has reportedly underspent in 2004/2005 by about £800 million is worrying. Reducing costs by simply reducing the volume of work can lead to blockages further downstream – as those financing British Rail discovered.

The hold-up in infrastructure enhancement projects dates back to the announcement of the Rail Review in January 2004. It cannot be allowed to continue into 2005/2006. Transferring what are left of the Strategic Rail Authority's duties to the Department for Transport's Rail Group will, we hope, lead to more investment in the network. We welcome the arrival of Dr Mike Mitchell as Director General of the Rail Group. The renewed focus on reducing the unit cost of network maintenance and renewal, and not simply on reducing the network's size, is also good news. Doing less work for the same price is not the answer; doing the same work for a lower price is.

Certain parts of the Railways Act 2005 have been a disappointment, such as removing the Government's duty to encourage people to use the rail network and the requirement to develop strategy. In Scotland and Wales, government has shown a huge commitment to its networks. Both countries have much to offer in terms of best practice that could benefit England's rail users.

Welcome rail developments include:

- n transferring responsibility for health and safety in the rail industry to the Office of Rail Regulation (ORR);
- n the ORR's effort to develop the *'Policy Framework for Investments'* as a way of speeding up improvements to the network and new facilities, especially by organisations which are not part of Network Rail;
- n the benefits of modernising the West Coast Mainline – new trains and reduced journey times – are now being experienced by passengers between London and Manchester.

Serious study on the merits of a high-speed north-south rail link in the UK should begin again, taking account of all the possible advantages, such as:

- n the impact on the need for more airports in the south east;
- n reducing traffic on existing inter-city routes;
- n and the full range of environmental benefits.

There is no easy answer. Instead, we need to apply measures intelligently and in a consistent way. Reducing congestion is going to be painful. Providing the extra air, sea, road and rail capacity we need is going to prove expensive in economic, environmental and social terms.

Our review shows that the state of the nation's transport systems has made little, if any, improvement since the quiet demise of the *'Ten Year Transport Plan 2000'*, with no form of transport achieving a rating above C+. The topic of 'sustainable transport' may have become better understood, but while the feelings of guilt and worry may have increased, the spending and decision-making have not.

In the last 12 months, between June 2004 and 2005, the failure to commit financially to major projects such as Crossrail, and the failure to provide environmentally-friendly trains and buses, does not bode well for the future of the nation.

If we want a world-class transport system in 10 years, we must take decisions now.

**What we want to see happen in rail:**

A speedy progression to full operation of the new national railways management structure.

Greater recognition of how new engineering solutions can improve the frequency and reliability of trains and journey times.

Revisions to the *'Green Book, Appraisal and Evaluation in Central Government'* rules to allow better, fairer and quicker evaluation of the benefits of projects.

Grade	D+
Change	▼
Sustainability	C-



One of Northern Ireland's new trains: Translink



West Midlands' Metro: Centro



Toombe Bridge:  
DRD Roads Service



Blackpool at night:  
Blackpool Borough  
Council/EDAW

### What we want to see happen in roads:

Increased and consistent levels of funding for the national road network from the Government, not the peaks and troughs of the past.

Less congestion and so shorter journey times.

The national debate on road charging to be brought forward.

### What we want to see happen in local transport:

Local transport provisions planned into major new developments and public facilities, and protected from changes in development.

Existing light rail systems extended to show the benefits of long-term investment in high-quality local transport.

Financial help for cross-sector transport schemes that tackle social exclusion in rural areas.

Better links with bus and rail services with taxis provided – often the first choice for groups of young people.

## Roads

Grade: C +  
Change: –

Congestion continues to be the number one concern of road users in towns and cities across the UK, with delays due to accidents and roadworks still causing the most frustration. That's unlikely to change while car journeys continue to rise and local roads across the UK need better maintenance.

The scene on the national road network is different. Although planned spending fell in 2004/2005, investment in improvements is set to rise. Plans are being rolled out to tackle congestion, and the safety of the road network is improving steadily in line with the 2010 target of a 33% reduction in those killed or seriously injured since 1998.

Journeys on major roads are increasing. The backlog of maintenance work is not as serious as on local roads and delays are seen as less of a problem. However, the hold-ups and delays that do happen can be severe. There are well-known bottlenecks across the network, most notably on the M1, M6, M25, M58 and M62. And accidents continue to cause lengthy tailbacks.

The national debate on charging for using roads is moving extremely slowly and the overwhelming rejection of a road-charging scheme for central Edinburgh seems to have dampened enthusiasm for toll systems generally. The M6 Toll road has arguably failed to live up to its promise to relieve congestion around the M5 and M6 north of Birmingham.

A number of trial congestion-busting solutions introduced in 2004/2005 offer greater hope for improvement:

- The Highways Agency's Traffic Officer initiative, designed to provide greater safety and a rapid response to accident-related congestion, will be extended nationwide by the end of 2005.
- The Active Traffic Management information system on the M42, the National Traffic Control Centre project and the forthcoming trial of high-occupancy vehicle lanes on a stretch of the M1 will all aim to cut congestion by influencing how drivers behave.

By the end of 2006, around 80% of the £5 million-£10 million road-improvement schemes initially targeted by the Highways Agency (HA) in 2002 will be finished, or nearly finished. Although 2004/2005 saw a £200 million (11%) drop in planned spending, the HA has promised increases to £1.9 billion for 2005/2006 and to £2.2 billion for the following two years, designed to fund major improvements and new technology schemes. However, with investment in maintenance appearing to stay level, there is a fear that a backlog could begin to build up.

We are also concerned about reclassifying the road network, and how it will affect spending on regional roads. Roads will now have to compete with housing and economic development for funding from a single pot of money in each region.

## Local transport

Grade: C  
Change: –

The state of local transport affects the quality of life and prosperity of everyone in the UK. It has a major bearing on a whole range of issues, including:

- the ability of people to get from A to B;
- traffic congestion;
- environmental pollution; and
- the sustainability of communities and local economies.

Improvements could be made in all of these areas if the Government invested in and promoted local transport services well enough to encourage a shift away from our car-first culture. First and foremost, that involves a change in thinking at a strategic level. Passenger Transport Executives are being encouraged to improve the safety and security of local transport services, and to increase the number of buses provided. We also welcome the important part that integrated local transport is playing in Regional Spatial Strategies.

Travellers have to be persuaded that their journey by public transport will be comfortable, affordable and seamless. We would like to see high-quality, accessible, passenger-friendly interchanges planned into major new developments from the very beginning. At hospitals, schools, major public buildings and commercial developments there should be priority access close to building entrances for buses, rather than car parks. More investment in better information for passengers, to allow people to move easily between routes and types of transport, would also tempt travellers back onto public transport.

Light rail schemes around the country are now benefiting from better links with feeder bus services. Losses on those schemes are reducing as a result of the rise in passenger numbers. An example is the Nottingham Express Transit light rail scheme (NET), which was built to budget and opened in March 2004. Bus networks are already integrating their services with NET trams, and passengers are helped on their way by conductors on board every tram. For many travellers, buses do not offer a safe and secure environment, and there is a clear need for projects to show this doesn't have to be the case. We welcome more research into funding mechanisms to improve and extend existing light rail projects.

In Wales and much of Scotland, free off-peak travel for the over-60s and the disabled has been an outstanding success, meeting social, health, leisure and transport aims. Its introduction across the UK is welcomed for these reasons, and also because the accompanying three-year transport funding provides guaranteed money for the industry.

Local transport solutions, which take account of the needs of all members of the community and the needs of rural areas involve new ways of thinking. The success of Cornwall's TAP (Transport Action Patients) project – a single phone number for all health and voluntary transport bookings – proves the power of a simple, well carried out idea to deliver huge benefits for users and providers.

## Airports

**Grade:** C +  
**Change:** ▼

The last 12 months have seen air travel from UK airports continue its climb back to levels before the September 11th tragedy. Fuelled by the continued introduction of low-cost airline services, traffic at BAAs London airports grew by 6%, while in the regions the number of journeys rose by 9% in 2004/2005. This steep growth only adds to the pressure for more runway capacity in all parts of the country but most immediately in the south east. Demand there is expected to rise each year, on average, by nearly 4% between 2005/2006 and 2014/2015, although runway capacity will limit actual maximum growth to 3%. The remaining demand will add to the natural growth in other regions.

Critically, the congestion isn't confined to air traffic itself. Road and rail access to airports is also under strain, and future growth in air travel will be stunted if delays continue in providing new capacity.

Following the 2003 White Paper, all major airports are preparing Master Plans before a White Paper review in 2006. Although dates for introducing new infrastructure have been set by the 2003 White Paper, timings are in the hands of the commercial airport operators. They alone will decide when and how to invest.

London Heathrow is set to receive investment of £5.65 billion over the next 10 years to fund the new Terminal 5 and other upgrades to facilities to deal with airline alliances and the new, 550-seat Airbus A380. The extra runway included in the 2003 White Paper is being evaluated for the medium term along with the airlines. London Gatwick, which published its draft Master Plan in March 2005, has a £685 million 10-year programme of work underway to boost existing facilities to deal with 40 million passengers a year. And at London Stansted, plans for a second runway will reach planning application stage in 2007. Investment of £550 million will bring the number of passengers up to 35 million by 2015.

Regional airports' share of the UK market has grown from 31% in 1980 to 40% in 2004. Direct international services from regional airports increased almost fivefold, from 6.2 million passengers in 1990 to 29.8 million in 2004. Proposals included in the 2003 White Paper and Master Plans include a second runway at Birmingham International Airport, and major terminal and airfield investment at Manchester, Birmingham International Airport, Bristol International Airport, Newcastle, Glasgow (International and Prestwick Airports), Edinburgh and at London Luton. In 2005, we have also seen the opening of a converted ex-military airfield as Robin Hood Doncaster Sheffield International Airport.

But while airports have been looking ahead, developments in associated road and rail access have run at a different speed. Delivery of infrastructure has continued to be hampered by funding and programming delays, threatening efforts to achieve a shift by passengers and airport employees onto public transport.

## Seaports

**Grade:** B –  
**Change:** —

British seaports are as essential to the national economy today as they have always been. Very nearly all (97%) of the goods that enter and leave the country do so by sea. We depend on our ports to bring us food, clothing, cars, Christmas presents and a lot more besides. Container traffic through the UK's 100 commercial ports has grown by 64% in the last 10 years. Lack of capacity at deep-sea container ports in the UK is already forcing trade to other ports in northern Europe, such as Le Havre and Hamburg, and making the goods we buy more expensive.

The UK needs more port capacity. Three deep-water container ports – at Felixstowe South, London Gateway (Shell Haven) and Bathside Bay at Harwich – are planned. Where they are based is purely down to the commercial reasons of independent private developers. Capacity will increase – the question is whether it will increase in the right places. We are still waiting for the decisions of the Secretary of State following public inquiries.

Concentrated in the south east, the new major ports will put enormous extra strain on the region's road and rail networks. We must see new ports as parts of a national network moving goods in and out of the country and not purely as separate commercial entities without any effect beyond their immediate area.

Immingham in North East Lincolnshire illustrates the need for surrounding transport links to keep pace with continuing development of existing ports. Although the port of Immingham is rapidly expanding, transport connections to and from the docks are in need of some improvement to help remove congestion and improve capacity.

Incoming environmental laws such as the EU Water Framework Directive mean that River Basin Management Plans must be prepared which will have a major influence on options to develop ports in the future. The Government needs to consider, with the industry, whether the current *'Modern Ports – A UK Policy'*, can continue to provide an effective framework to make for long-term development of the UK's ports. Can we get an appropriate balance between benefits to society, economic factors and environmental considerations in this new context?

### What we want to see happen in airports:

Co-ordinated efforts to set up all the types of transport investment programmes that support the growth of UK airports.

Long-term support from the Government to develop airports and air services, following the 2003 White Paper *'The Future of Air Transport'*.

National and international support for continued research into climate change, carbon emissions and scientific improvements in trading and technological innovation, to allow sustainable air travel to continue and grow in the future.

### What we want to see happen in seaports:

The Government to work with the ports industry to raise public awareness of the role played by ports in the country's way of life.

The Government to encourage major port development and expansion where road and rail networks are best equipped to support it.

An open debate on the pros and cons of a national ports strategy. We need balanced sustainable port development in which social and economic benefits are given equal weight to environmental considerations.



Passengers at West Midlands Airport: British Airways



Ships from Berth Two: The Bristol Port Company

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