



# Strategies to reduce the footprint

Presented by Murray Reid  
Asphalt's Carbon Footprint



# Agenda

Placeholder for your own subheadline

- 1 The need for a strategy
- 2 UK government policy framework
- 3 Highways Agency and local authority policies
- 4 How to build a sustainable road
- 5 Conclusions

# The need for a strategy

- One-off projects have limited impact
  - Demonstrating that something works will not necessarily persuade people to adopt it
- To change established methods, you need to have clear instructions from senior management
  - “If you always do what you’ve always done, you’ll always get what you’ve always got”
- Conflicts with other initiatives can arise unless there is a clear strategy covering all aspects of sustainability
  - Example: conflict between using low carbon methods and minimising disruption to road users
- Need connection between policy and what happens on the road

# Securing the future

## UK sustainable development strategy, 2005



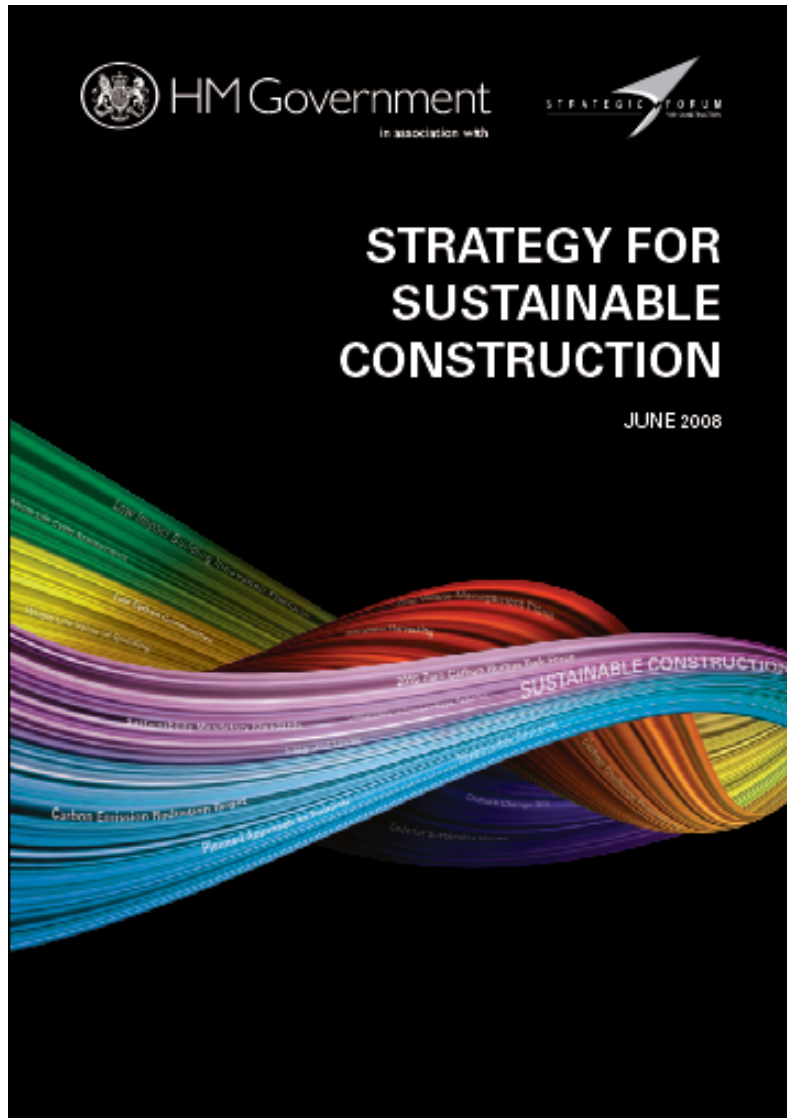
### Four priority areas

- Sustainable consumption and production
  - Climate change and energy
  - Natural resource protection and environmental enhancement
  - Sustainable communities
- 
- Highway maintenance affects all of the priority areas



# UK government policy

## Strategy for sustainable construction, 2008



### Climate change targets

- Reduce UK CO<sub>2</sub> emissions by at least 26% on 1990 levels by 2020 and 60% by 2050.
- 15% reduction in carbon emissions from construction processes and associated transport compared to 2008 level.
- Climate change bill increased 2050 target to 80% by 2050.
- Waste target: reduction of 50% in construction waste to landfill by 2012 compared to 2008 level

# UK Government policy: fiscal and legislative measures on waste



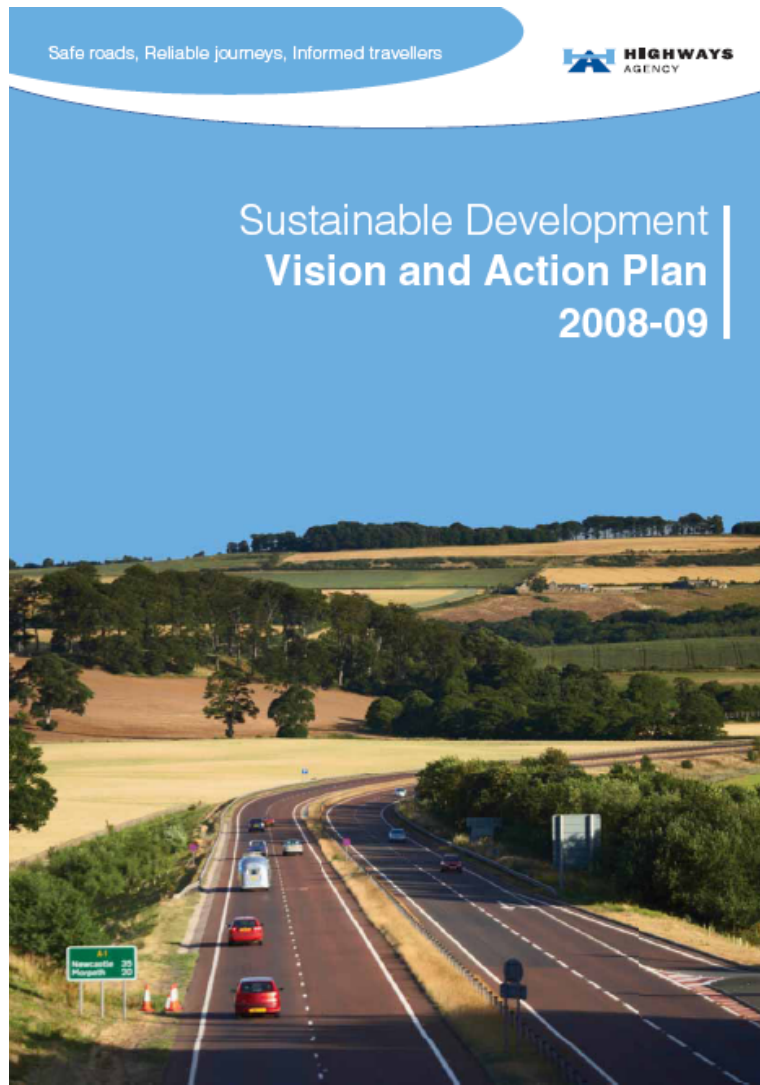
- Landfill tax: increases to £40/tonne for non-hazardous waste from April 2009
- Aggregate levy increasing to £2/tonne from April 2009



- Site Waste Management Plan Regulations introduced in England in 2008
- Aim to improve material resource efficiency on construction sites

# Highways Agency

## Sustainable development vision and action plan, 2008-09



### Climate change and energy

- "The Highways Agency has direct control over the construction, maintenance and operation of the strategic road network and we need to drive this towards a low carbon future."
- 40 specific actions on different aspects of sustainability
- Carbon Accounting Framework launched September 2008
- Maintenance and new build

# Local Authorities: Well-maintained Highways

Code of Practice for Highway Maintenance Management, 2005

- Ch 15 – Sustainable Highway Maintenance
  - Authorities should develop a “Policy for Sustainable Development in Highway Maintenance”
  - “The policy should form a linkage between the strategic objectives of the authority ... and the materials, practice and processes used in an ongoing way on the highway network”
  - Covers range of topics including materials and waste
- Appendix K – Sustainability and Maintainability Checklists
  - Materials: use of local materials, designing to minimise use of materials
  - Waste: minimise, reuse and recycle – in that order
  - Energy: maximise use of cold rather than hot technology



# Sustainable Highways

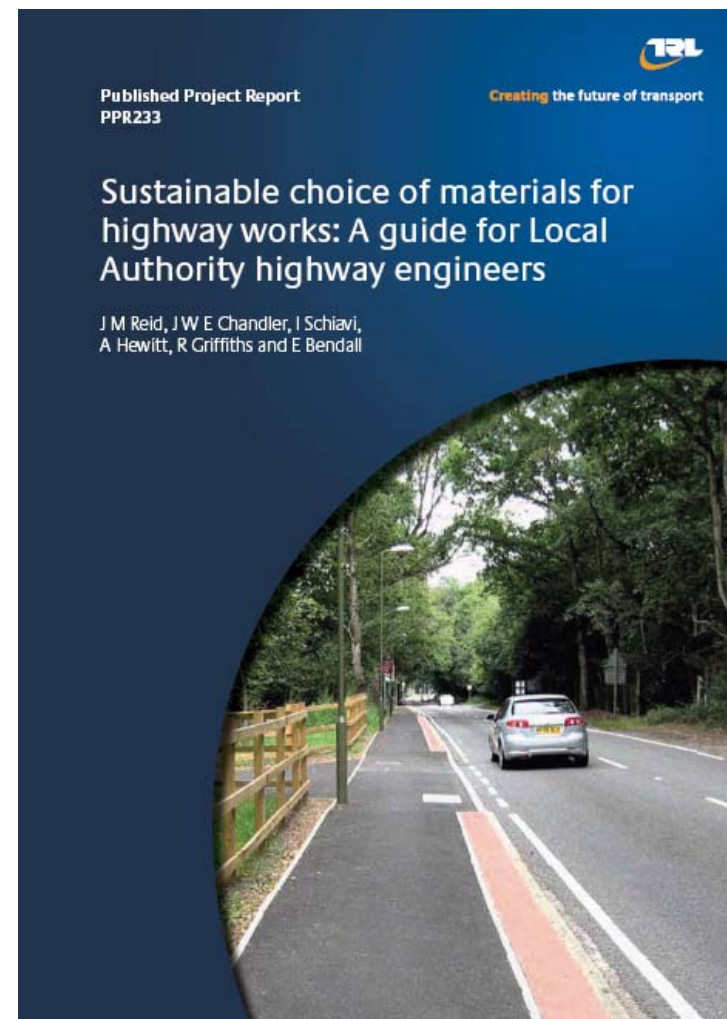
Department for  
**Transport**

## Sustainable Highways: A Short Guide



**ROADS**  
UK ROADS BOARD

June 2008



# DfT guidance

- Sustainable Highways, TSO, published June 2008
- Commissioned by DfT and UK Roads Board as daughter document to Well-maintained Highways
- Summary guidance for local authority highway engineers on choice of sustainable materials and techniques
  - Linking to corporate objectives
  - Milestones for sustainability
  - How to build a sustainable road
  - Tools to calculate sustainability, including AggRegain CO2 calculator
- Detailed guidance on materials and techniques and case studies in TRL PPR233, published November 2008

# Materials and methods

- General order of priority for choice of materials for highway works
  1. Reuse existing highway materials at the same level or at as high a level as reasonably practicable
  2. Use imported recycled or secondary materials as much as reasonably practicable
  3. Use primary materials
- Develop a strategy for your area that applies these principles to your particular situation
- Consider availability of materials, waste, energy and durability

# How to build a sustainable road: 15 steps

- Step 1 Get support from the top
  - Establish a link to corporate objectives
- Step 2 Get all the key players involved at an early stage
  - Partnerships: Hampshire, Staffordshire Highways
- Step 3 Appoint a champion
  - If appropriate, e.g. Gloucestershire County Council
- Step 4 Assess what is appropriate for your area
  - Rural or urban; nature of road network; availability of materials
- Step 5 Liaise with other departments in your council
  - Planning, Estates, Property – recycling facilities, sources of material



## How to build a sustainable road: Part 2

- Step 6 Ensure you have logistic support for recycling
  - Recycling does not happen in a vacuum; need facilities for storage and treatment of arisings
- Step 7 Develop a procurement strategy for sustainability
  - Include requirements for sustainability in maintenance contracts
- Step 8 Do not be afraid to use primary aggregates
  - Minimising transport distances is critical for sustainability
- Step 9 Set appropriate Key Performance Indicators
  - Relevant, easy to measure, few in number
- Step 10 Insist on quality control from suppliers
  - Essential to ensure durability of products

# How to build a sustainable road: Part 3

- Step 11 Keep track of materials
  - A resource, not a waste; ensure reused
- Step 12 Create a sustainability culture through the supply chain
  - Essential at all levels, especially in the field; training requirements
- Step 13 Monitor progress
  - Report on progress to all stakeholders
- Step 14 Aim for continual improvement
  - Look beyond the “quick wins”
- Step 15 Celebrate success
  - Spread the word

# Milestones for sustainability

- Cumulative basis – ways to increase sustainability
  - Cover methods, materials and waste
- Milestone Zero
  - Standard techniques with no recycling
- Milestone One
  - Low risk applications and established techniques
- Milestone Two
  - Innovative techniques and high value applications
- Milestone Three
  - Innovative techniques and higher risk applications

# Milestone zero – new pavement





# Milestone one – cold recycling of existing pavement



## Milestone two – use of incinerator bottom ash in cold recycled foam bitumen base





## Milestone three – recycling thin surfacing at 25%



# Milestones for surfacing

Milestone	Action
0	<ul style="list-style-type: none"><li>• Use primary aggregates and hot asphalt for all applications.</li><li>• Dispose of arisings to landfill or exempt site.</li></ul>
1	<ul style="list-style-type: none"><li>• In-situ hot recycling using the repave or remix processes.</li><li>• Use materials such as steel slag, if it is available, economic and meets requirements.</li><li>• Recycle arisings as unbound subbase or capping.</li></ul>
2	<ul style="list-style-type: none"><li>• Retexture surfacing to avoid having to replace it.</li><li>• In-situ cold recycling using the retread process.</li><li>• Recycle arisings into new surface course at 10 per cent.</li></ul>
3	<ul style="list-style-type: none"><li>• Collect surface dressing sweepings and surplus and reuse in new surface dressing.</li><li>• Recycle arisings into new surface course at &gt;10 per cent.</li><li>• Recycle thin surfacing into new thin surfacing.</li></ul>



# Conclusions

- Need a strategy for sustainability to achieve significant progress
- National policies, financial drivers and targets in place
- Major clients are developing their sustainability policies
- Guidance on sustainability in Well-maintained Highways
- Specific guidance on materials, methods and waste in Sustainable Highways and PPR233; includes energy and CO<sub>2</sub>
- Need to take steps to ensure strategy is implemented
- Can use sustainability milestones to help gauge progress



**Do You  
Have Any  
Questions?**

# Thank you

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