



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

 HM Government

Securing the future
delivering UK sustainable development strategy

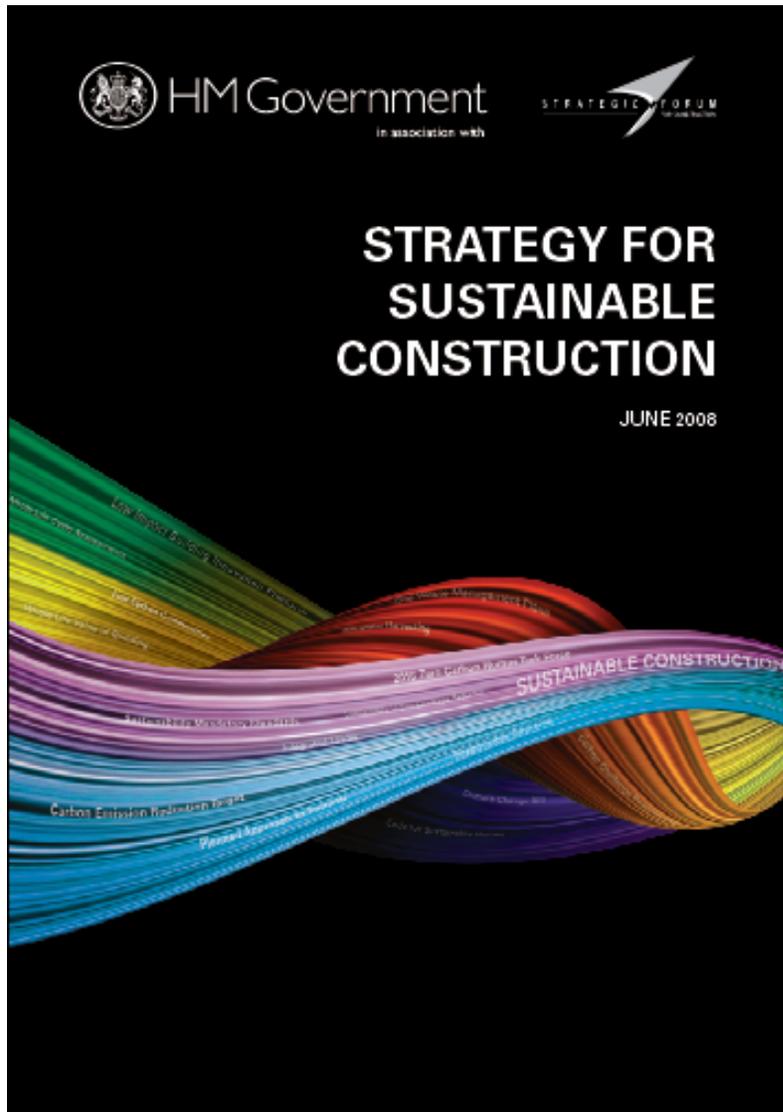


Four priority areas

- 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 CO₂ 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



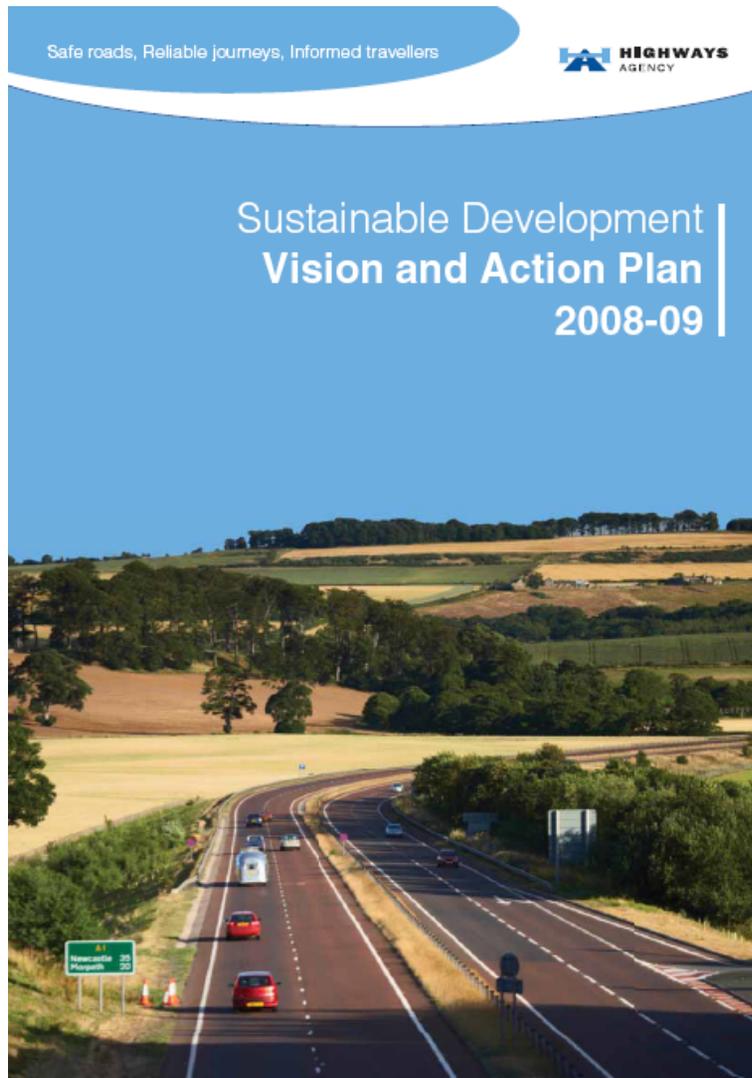
- Landfill tax: increases to £40/tonne for non-hazardous waste from April 2009
- Aggregate levy increasing to £2/tonne from April 2009



- 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

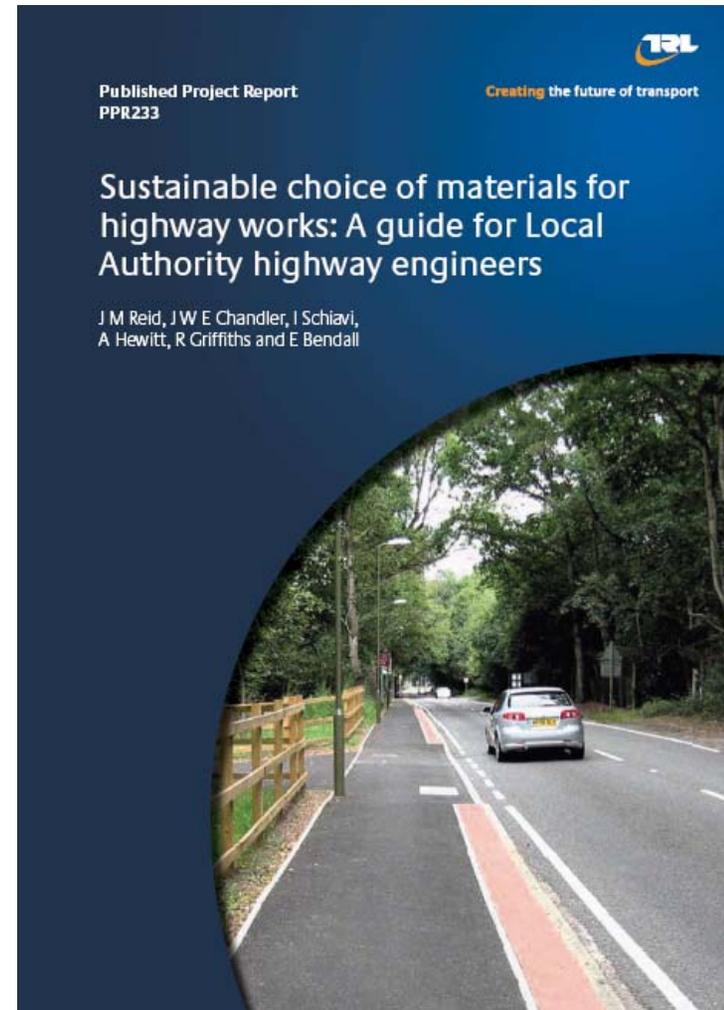
Sustainable Highways

Department for
Transport

Sustainable Highways: A Short Guide



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

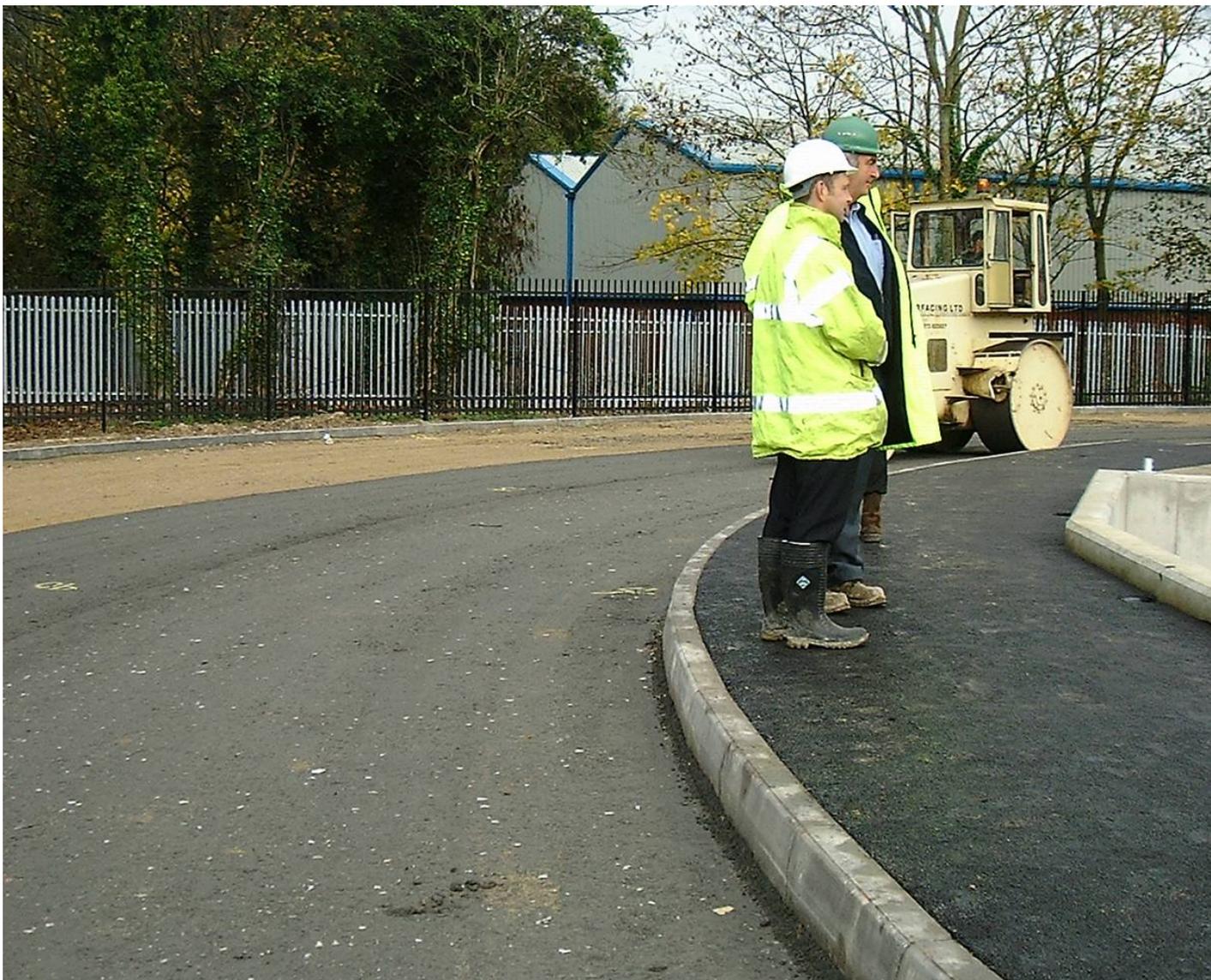
Milestone zero – new pavement



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

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 CO₂
- 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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