The Road Surface Treatments Association Ltd

Road Surface Treatments – residential roads

Dr Howard Robinson, Chief Executive

APSE Highways & Street Lighting Advisory Group

Oxford 31.10.17

www.rsta-uk.org

RSTA INTRODUCTION

RSTA overview

- Formed in 2008
- Members treat c.100 million m^2 per annum
- 5 sectors and 7 sub-sectors represented
- 86 members – 13 local authority members
- Represents the supply chain
- Activities include; stakeholder engagement, developing guidance, specs and training

84 members covering the supply chain

39 Contractors

32 Manufacturers

…including 13 local authority members

Scottish Borders Council

Aberdeenshire Council

Tayside contracts

Argyll & Bute Council

Dumfries & Galloway Council

Northumberland
Northumberland County Council

Durham County Council

Lancashire County Council

Leicestershire County Council

South Gloucestershire Council

DORSET County Council

Cyngor Sir Penfro - Pembrokeshire County Council

Cyngor Sir Ceredigion County Council

Stakeholder engagement

ADEPT

CIHT
Corporate Partner

Roads Collaboration Programme

TRANSPORT SCOTLAND

UK ROADS LIAISON GROUP

htma
Highways Term Maintenance Association

apse

MHA
Midlands Highway Alliance
Driving Collaboration

TAG
Technical Advisers Group

highways england
driving forward

MSIG
Midland Service Improvement Group

South East 7

Training and qualifications

Approx 400 highway engineers, asset managers and contractors attend an RSTA CPD course each year

SURFACE TREATMENTS

Cost effectiveness, advantages and disadvantages

Advantages

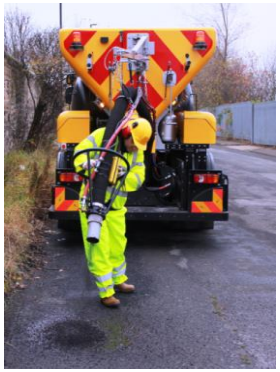
- Preventative maintenance
- Extends the service life of existing road assets
- Rapid treatments reduce traffic congestion during works
- Improves network resilience to combat climate change
- Improves skid resistance protecting public safety e.g. skid policy
- Improved customer satisfaction – fewer potholes!

It is important for asset managers to know what treatments are available











New asset management guidance

- RSTA, ADEPT and MSIG recognised in 2014 the need for new tools/guidance to help highway authorities to make better informed decisions at the pavement level
- This resulted in a panel being set up involving industry stakeholders to collaborate and produce a new tool
- The tool was launched at the 2016 RSTA Conference and is now available through www.rsta-uk.org and www.trl.co.uk

SURFACE DRESSING

Cost effectiveness, advantages and disadvantages

What is Surface Dressing?

Surface dressing has been used for over a century!

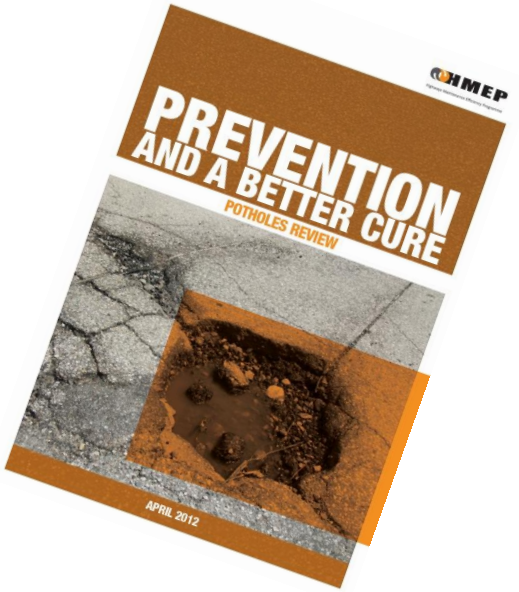
- The process involves spraying an emulsion binder onto a prepared road surface then dressing the binder with chippings
- Sounds simple, but it is a designed process with lots of parameters that need to be controlled to achieve a successful outcome

What does it do?

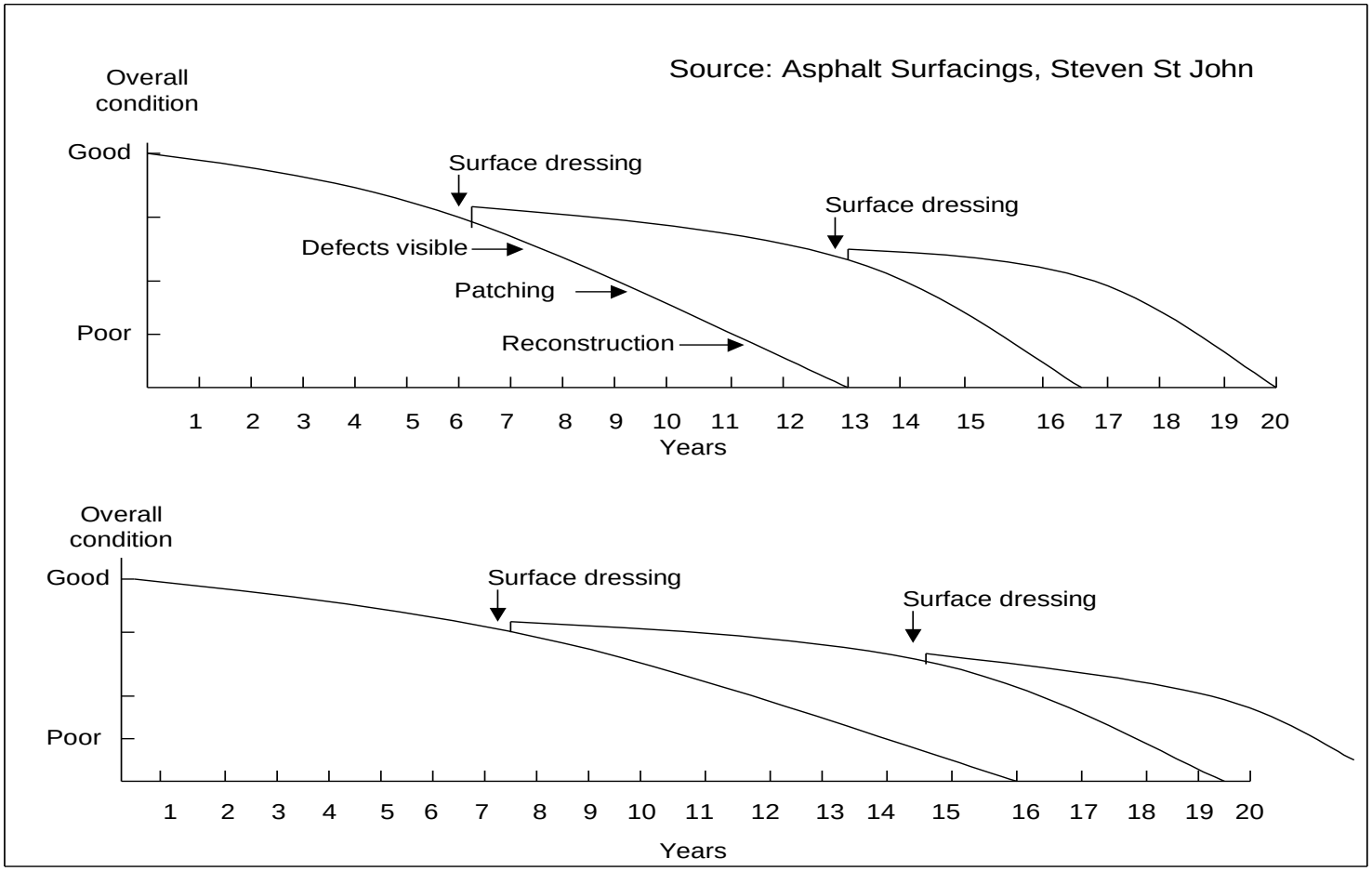
- Surface Dressing performs 2 functions;
- **Improves safety by restoring texture depth and skid resistance**
- **Seals the road surface**

Asset management

- Surface dressing is a preventative maintenance technique, extending the service life of the road asset and delaying the cost of asset replacement
- It helps to prevent potholing and pavement deterioration
- It is an economic option, stretching budgets
- Cost Life Index typically 25p/ m^2 per annum (e.g. £2.50 m^2 over 10 years service life)
- Fast installation, high productivity 20-40,000 m^2 per day
- Low carbon footprint



Preventative Maintenance



Applications

- Carriageways
- Footways
- Cycle ways
- Car parks

Site Selection

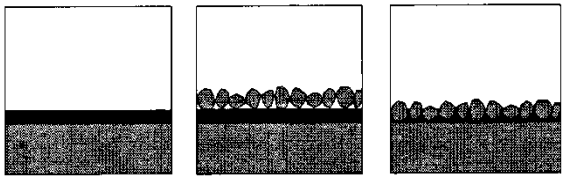
- **When to surface dress?**
- When skid resistance falls below acceptable levels
- When existing surface shows first signs of distress, for example:
  - Crazing
  - Fretting
  - Loss of Chippings
- Before major patching is required

Surface dressing limitations

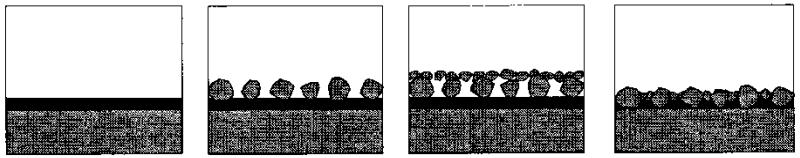
- Will not re-profile a misshapen road surface
- Will not directly strengthen the road structure, but maintains road strength
- High texture increases noise
- Quiet dressing with good texture can be designed
- Potential for loose chippings

Types

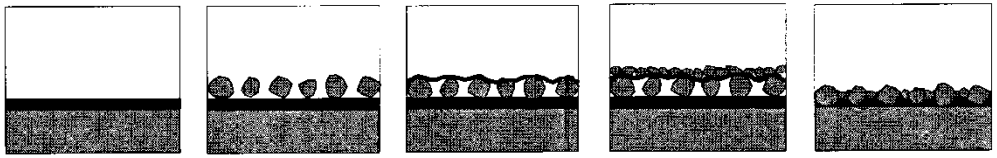
Single Dressing



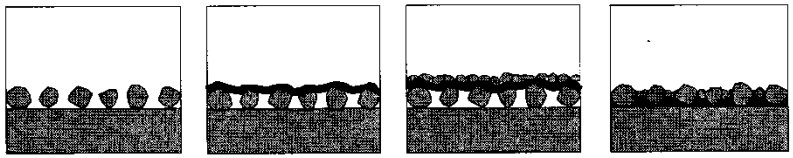
Racked-In



Double Dressing



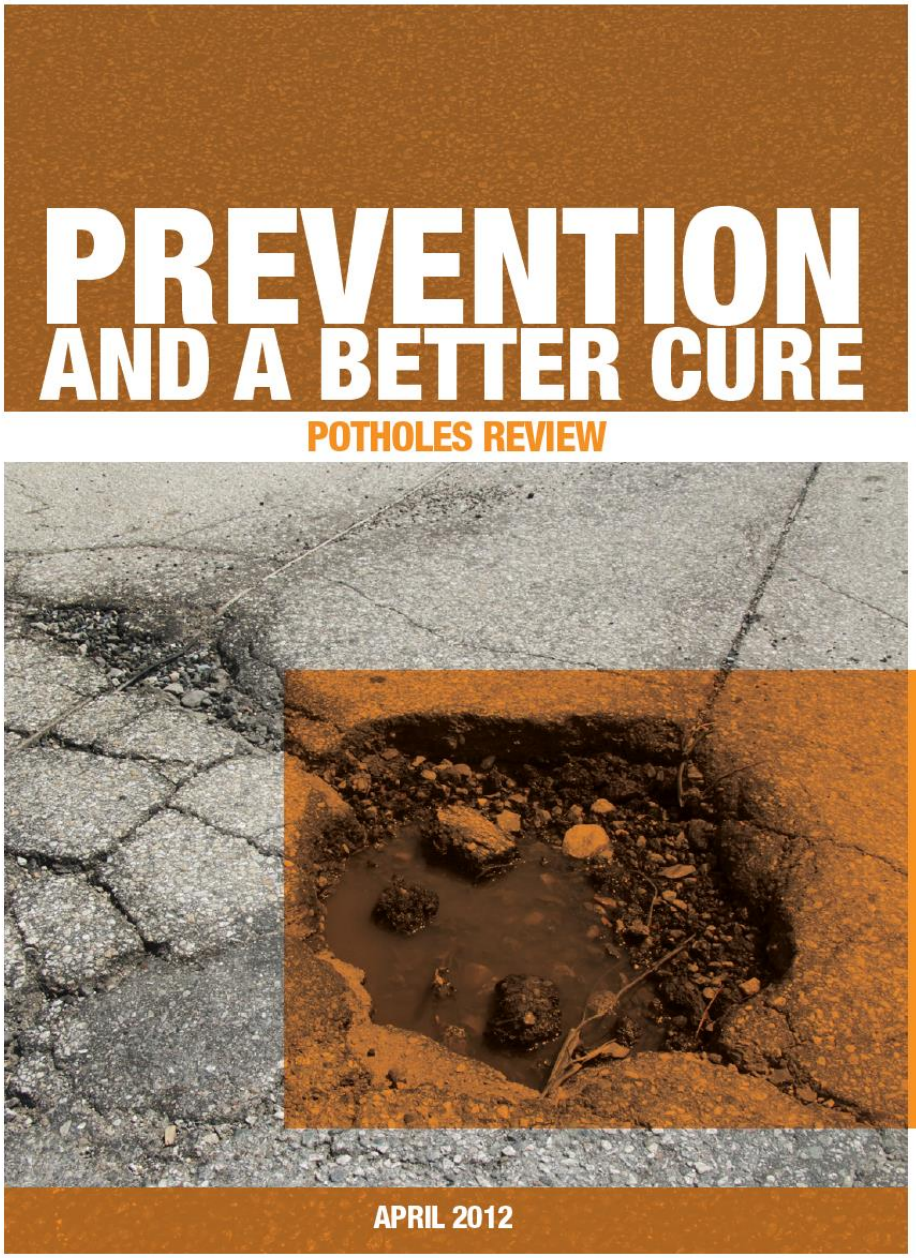
Sandwich Dressing



10 & 6 racked-in dressing

HMEP
Highways Maintenance Efficiency Programme

RSTA



- NHSS23 ***Small Scale Pavement Repairs*** evolved from this.

New Surface Dressing Design Guide

DESIGN GUIDE FOR ROAD SURFACE DRESSING

by D Bateman

With the advice of a panel representing the Industry and the Clients under the Chairmanship of Dr H L Robinson, The Road Surface Treatments Association

Road Note 39 (Seventh Edition)

Sealed Surface Dressing

- Spray applied binder locks in ‘loose aggregate’ reducing excess loose chippings (flyers)
- Reduces scuffing and fretting on stress areas
- Blackens road surface ; transforms appearance from a dressing to look more like asphalt

SLURRY SURFACING

Cost effectiveness, advantages and disadvantages

Slurry surfacing: footways

Microsurfacing: carriageways

Finished Job

Why use slurry surfacing?

- Extends asset life
- Suitable for urban roads
- Long history of successful use
- Restores skid resistance
- 10-15 year service life if done properly
- Cold mix – low environmental impact
- Fast and efficient

Slurry surfacing: other benefits

- Can be laid in tight areas
- Low traffic management, minimal disruption
- Regulates undulating surfaces giving a smooth textured finish
- No waste generated, cold applied
- Can be pigmented

Thin Film Slurry Surfacing

Typical thin film site (3mm)

Thick Film Slurry Surfacing

Typical thick film site (6mm)

Slurry surfacing: applications

- Carriageways – traffic restrictions
- Footways
- Cycle ways
- Car parks
- Playgrounds
- Airfield runways
- Reservations and Islands







Slurry surfacing: Preparation

- **Preparation:**
- Removal of vegetation
- Verge & edge trimming
- Scrape & high pressure air
- High pressure water
- Ironwork adjustment & protection
- Kerb & driveway protection

Masking Trenching Works

Improved Aesthetics

Estate Roads

Urban roads and footpaths

Urban road – no loose chippings

Fine textured finish

HIGH FRICTION SURFACING

Cost effectiveness, advantages and disadvantages

High Friction Surfacing or Antiskid

How does HFS work?

Durable Micro-texture (**Calcined Bauxite aggregate**), reduced contact points, high contact pressure points and improved hydraulic conductivity are critical for high skid resistance and reduced braking distances (Parry, TRL 1996)

HRA

HFS

GLC Trials

In 1967 the Greater London Council and the Metropolitan Police recognised the need for a durable skid resistant surface tough enough to withstand the harshest traffic environment.

Trials of high friction surfacing started in 1968 – cold applied bitumen extended epoxy resin + calcined bauxite

Trial outcomes

- Accidents and casualties reduced by **50% in year 1**
- **Cost of treatment recovered within 1 year**
- 10 year programme was instigated
- Programme cost to be covered 8 fold in reduced accident costs
- Effective life of HFS found to exceed **10 years**

Saving lives and money

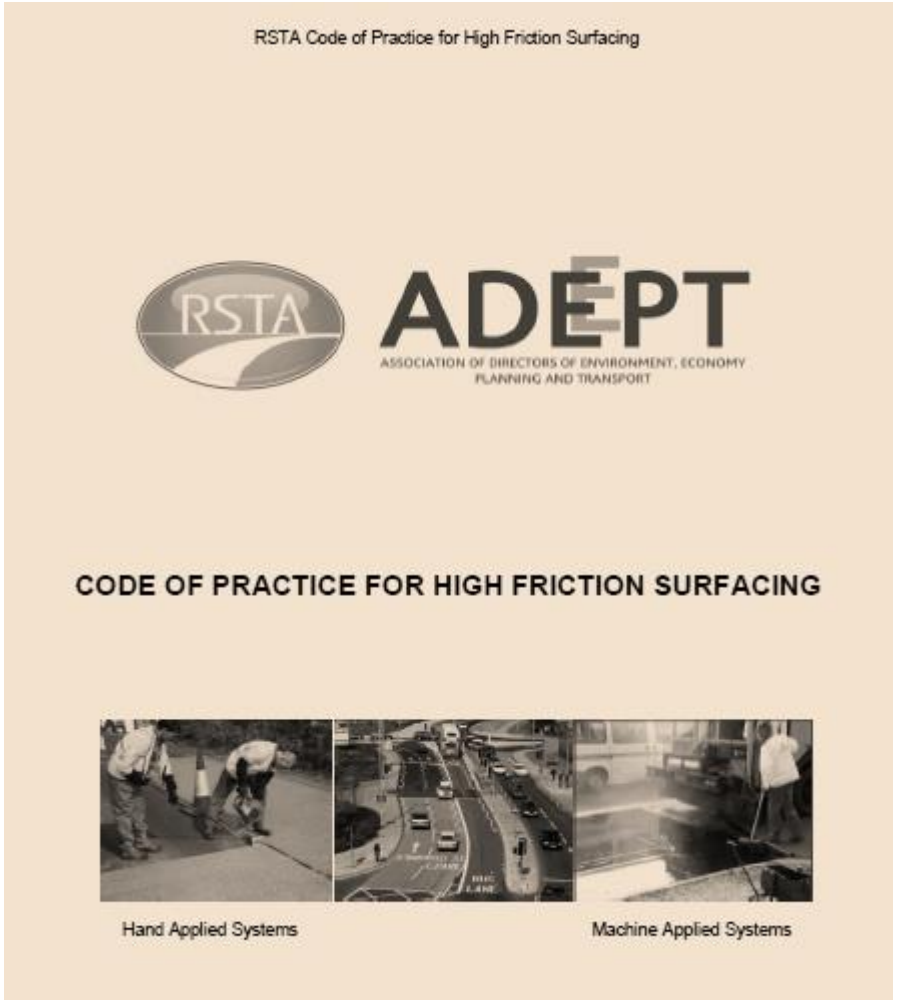
- HFS has been found to reduce wet weather accidents by 57% and could reduce the overall number of accidents on our roads by 5.5%

  TRL Research – BRF Road fact 1997

- 1,700 sites treated in one year with HFS at a cost of £3 million saved us £24 million through accident prevention.

  The London Accident Analysis Unit

RSTA ADEPT Code of Practice



- Re-issued 2017
- ADEPT peer review
- SG1 endorsed

The end result should be this

Transport Research Laboratory
Creating the future of transport



PUBLISHED PROJECT REPORT PPR789

Use of high PSV asphalt surfacings to replace high friction surfacings (HFS) - performance review

M Militzer (TRL) and A Premathilaka (CH2M)

Prepared for:	Highways England, PTS
Project Ref:	T-TEAR Task 355

Quality approved:

Helen Viner	Martin Greene
(Project Manager)	(Technical Referee)

HFS outperforms high PSV asphalt

Independent study on HFS durability

Site information and data gathering – 2013 to 2014

- 304 inspections recorded on 272 different sites
- 12 months to 14 years of age
- Sites are located throughout the UK
- All sites are traceable to BBA HAPAS High Friction from:
  - Five year reviews
  - Routine surveillance

INNOVATIVE PATCHING

Cost effectiveness, advantages and disadvantages

Thermal Patch Repairs

- Stage 1:- Applying 180°C heat over 8 minute heat cycle

Thermal Patch Repairs

- Checking and recording the temperature of repair

- Checking surface is +90c prior to compacting
- If below 90c then area reheated

Thermal Patch Repairs

- Compaction of repair

- HRA – use Bomag 75 – largest pedestrian roller – towed behind van
- DBM and SMA's – Bomag 55 as in photo is used - winched into van
- All equipment is winched into the van – there is no manual handling

Spray Injection Patching

- Varies from a 1 man to a 3 man operation
- Classed as mobile works – just uses stop and go – no cones, no signs
- 3-6mm chippings open graded
- Fast & economic
- Quality relies on workforce skill

Spray Injection Patching

- Compaction may be required to ensure the correct finish and a durable product
- A vibrating plate is often used for heavier trafficked applications and on sites with turning traffic.

Spray Injection Patching

ASPHALT PRESERVATION

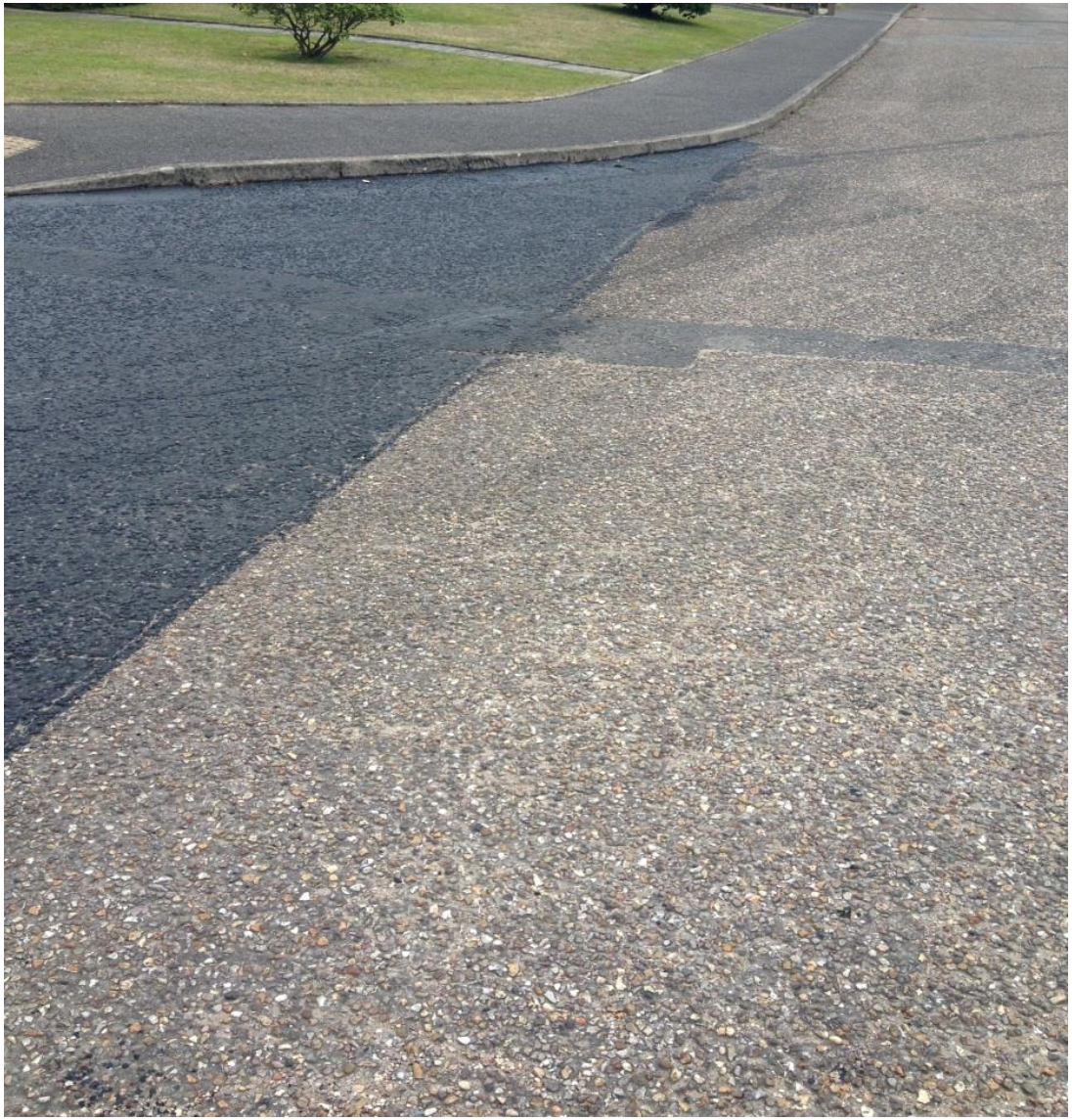
Cost effectiveness, advantages and disadvantages

Road Preservation/Sealants

Road Preservation/Sealants

Finished job

The difference



Asphalt Preservation Systems

- A new HD is being developed by RSTA and Highways England
- Clause 950 is also being updated

RETEXTURING

Cost effectiveness, advantages and disadvantages

Typical HRA Site – After Shotblasting

Captive Shotblasting unit

Computer Controlled

Consistent Full Width

Improves both Macro and Micro Texture

Treats any Surface

Markings Cats Eyes

Pedestrianised Area

The Effect

Hydro-retexturing

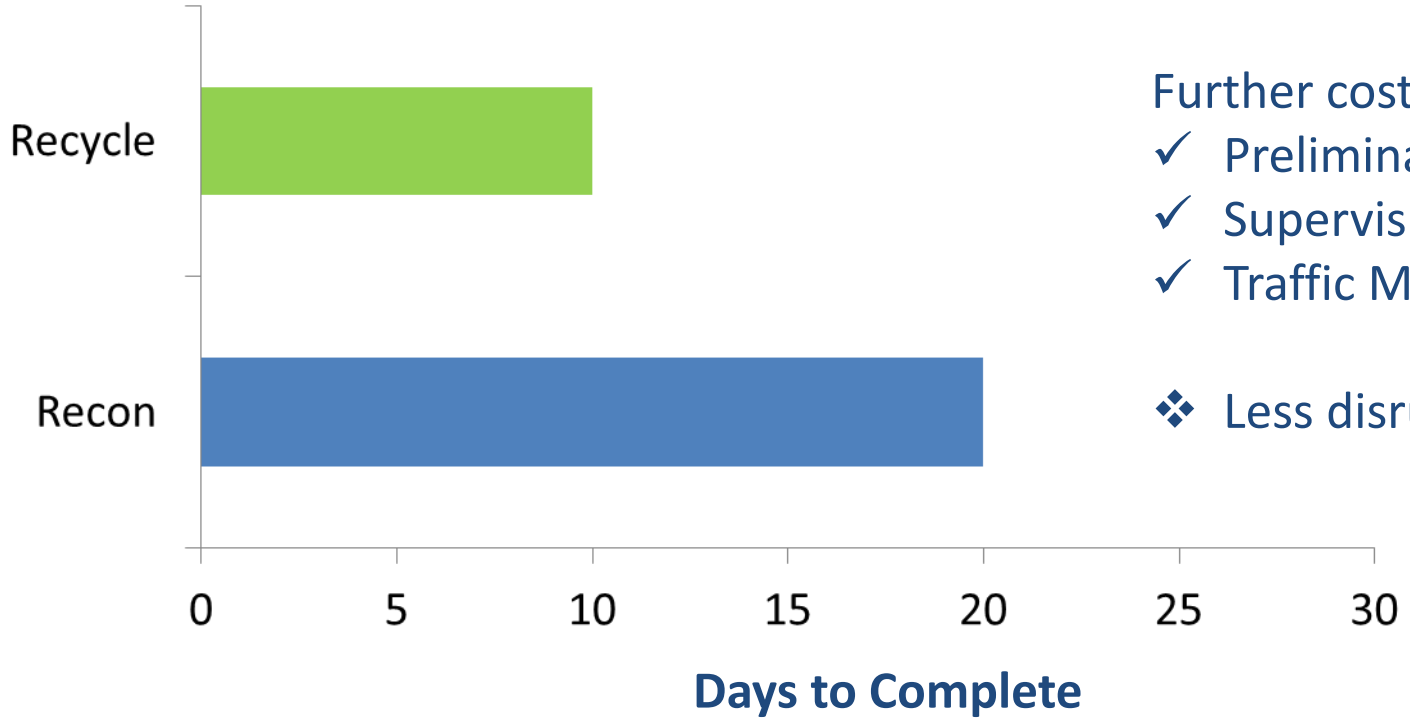
IN-SITU RECYCLING

Cost effectiveness, advantages and disadvantages

Grading and re-profiling the recycled material

Faster build times

Rural project example: Outputs 2,000 m^2 per day



Further cost savings:

- ✓ Preliminaries
- ✓ Supervision
- ✓ Traffic Management

- ❖ Less disruption

Traffic Issues:

Reduction in emissions, noise and disruption

✓ Reduction in lorry movements to recycle 1km of road

- In-situ  17
- Ex-situ  33
- Recon  65

Other considerations?

Tar bound roads – lock it in

Encapsulates the contaminated material within the Pulverising Process

Environment Agency confirmed outside scope of Waste Management Regulations

Majority of Tar is found in the top 100mm

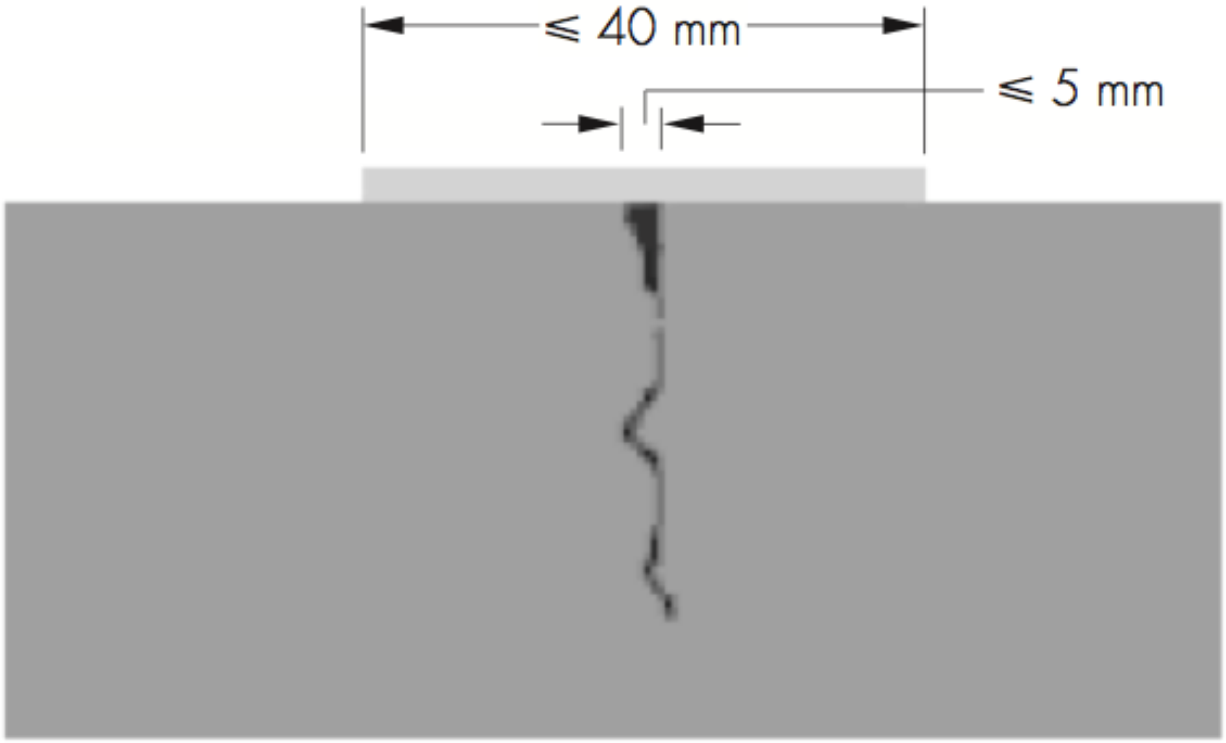
Memorandum of Understanding:

- Environment Agency
- SPL
- Oxfordshire CC
- Bardon Contracting

CRACK & JOINT REPAIRS

Cost effectiveness, advantages and disadvantages

Types of crack & joint repair systems



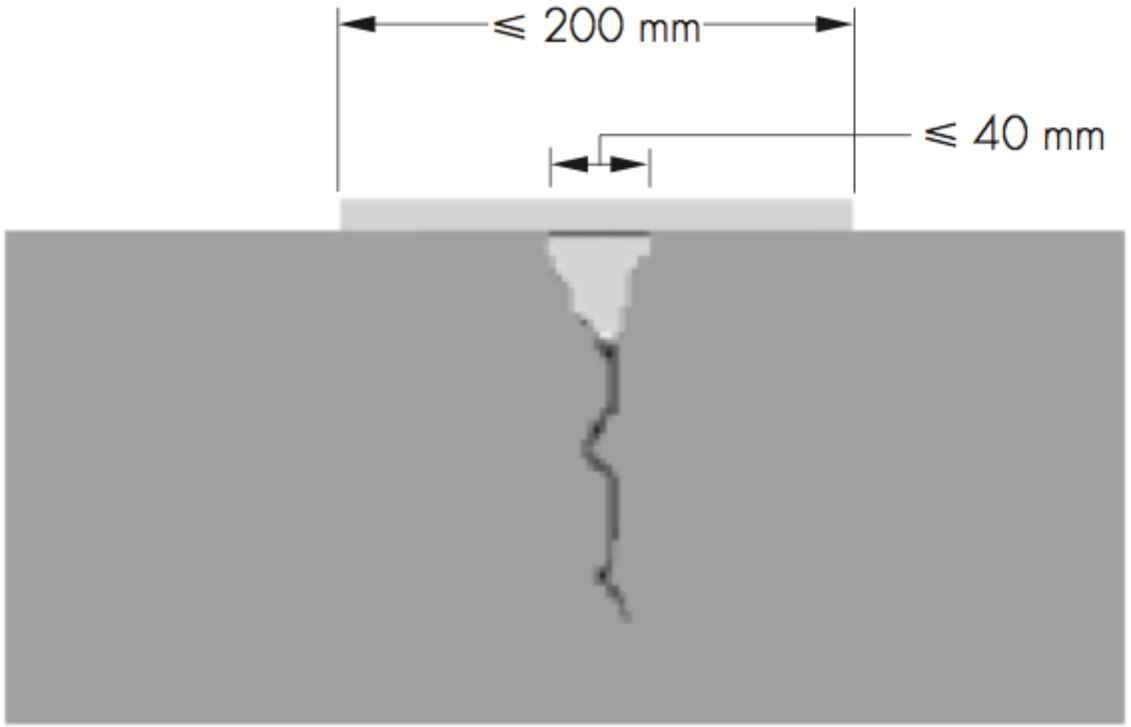
(a) Overband

Overband

New Overbanding Products

- Skid resistant / retained long term
- No spread (thermoset)
- Hard wearing
- Safe to use
- Low cost / minimal disruption
- HAPAS certification

Fill & Overband systems



(b) Fill and overband

Fill and overband

Inlaid – Single or Multiple Cracks

Suitable for both Concrete & Asphalt Repairs

Can also use an over-band system to seal edges

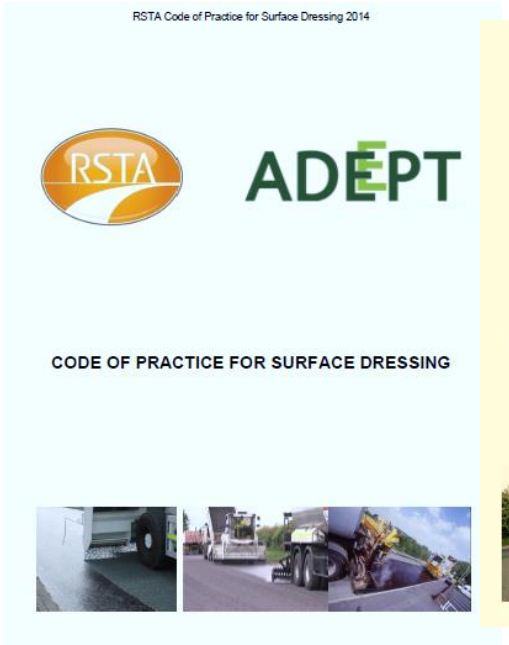
Flexible (Grade F) and High Modulus (Grade H) systems available

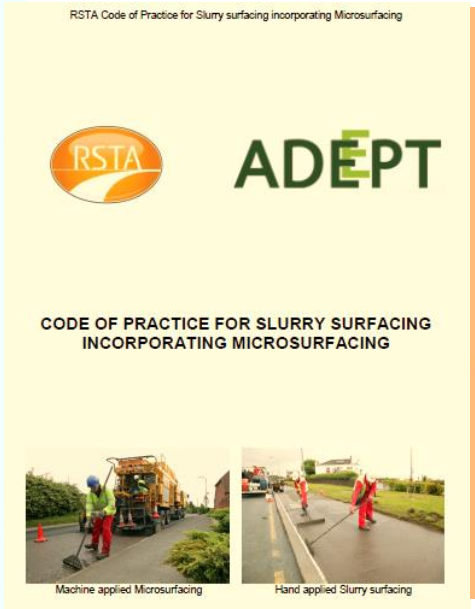
CODES OF PRACTICE

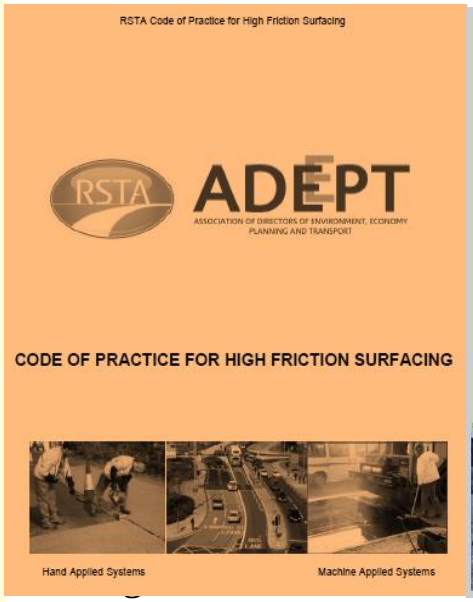
Produced jointly by RSTA and ADEPT

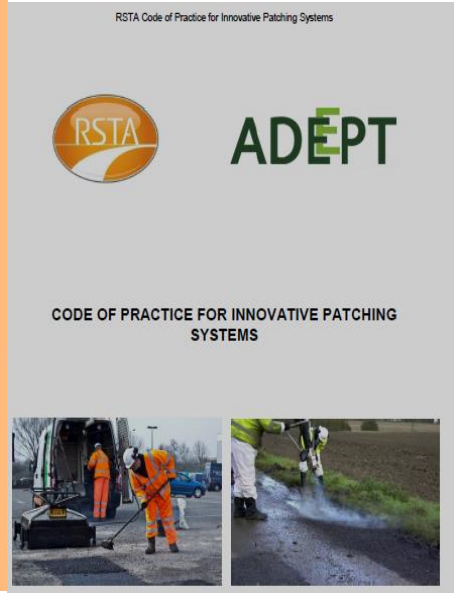
Codes of practice

- We now have 10 Codes of Practice, we had 1 in 2009
- **How can we work together to raise industry awareness?**

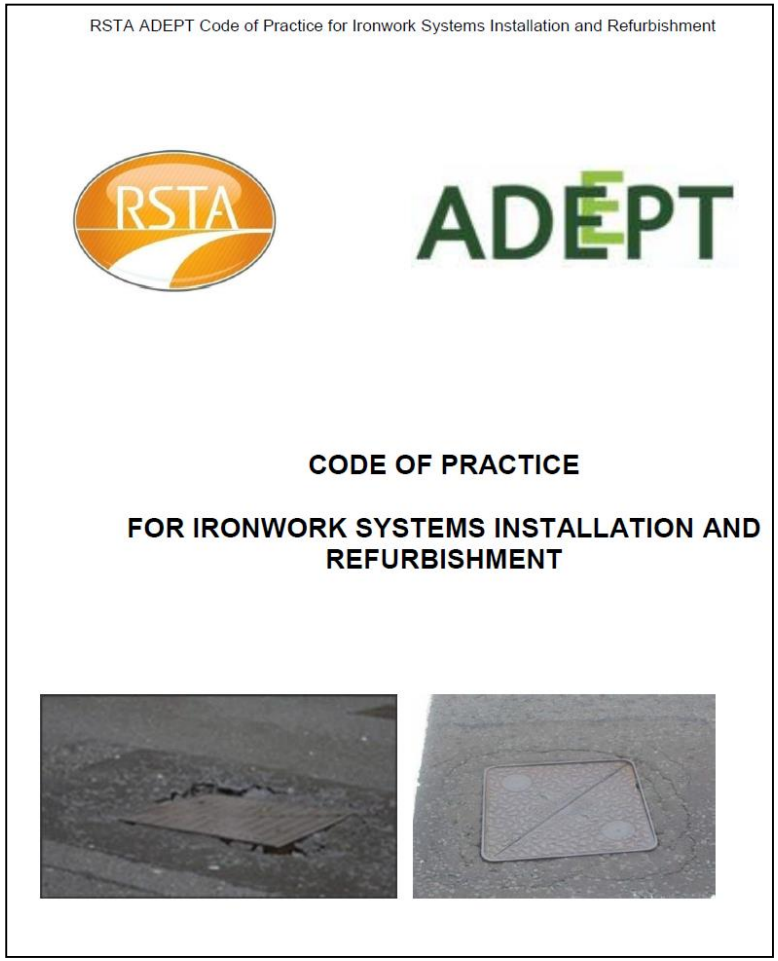








New Code of Practice



PAM SAINT-GOBAIN

INSTARMAC

IKO Setting the Standard

TARSTONE

WREKIN Intelligent products for civil engineering

LMS | HIGHWAYS

Star Uretech Enterprise House, Hollin Bridge Street, Blackburn, BB2 4AY

KIELY

EUROVIA VINCI

Colas

RMS Innovators in surface treatments

FREE CPD TRAINING

Lunchtime seminars at your place

Munch & Learn Lunchtime Seminars

LUNCHTIME SEMINARS IN 2015

NO NEED TO TRAVEL! WE COME TO YOU

During 2015 the RSTA will be running a series of six, free lunchtime seminars around the UK introducing High Friction Surfacing and Crack & Joint Repair systems.

munch 'n' learn

High Friction Surfacing and Crack & Joint Repair Systems

The 2 hour sessions will be held between June and September and are offered on a first come, first served basis.

The seminars will be held at your premises on a date to suit between 12-2pm with a buffet lunch provided for up to 20 delegates.

The courses are designed to give engineers and technicians a detailed insight into the principles and practice of high friction surfacing and crack and joint repair systems including applications (site selection), types of systems, benefits and service life.

There will be ample time during the session to ask questions and discuss any practical issues or experiences gained from using these products.

Seminar hosts:

Howard Robinson
Chief Executive, RSTA

Mike Harper
Stirling Lloyd and RSTA Chairman

BOOK NOW TO SECURE YOUR FREE SESSION

Email
kathy@rsta-uk.org

Call Kathy on
01902 824325

FIRST COME FIRST SERVED!

WWW.RSTA-UK.ORG

Mouchel & Shropshire CC
30th July 2015

ww.rsta-uk.org

University Diploma in Road Surface Technology

- Launched in 2014, standard is Foundation Level Degree
- Entirely by web based distance learning
- Three modules: Contracts Management, Surface Treatments and Pavement Solutions – counts as 60 credits (25% of a degree)
- Sept – May – assignments and three exams
- **35** graduates in 2015, **6** last year and **11** now - majority from local authorities

Thankyou for your attention

Any Questions?