

High Friction Surfacing in London

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Mark Stephenson



W.D.M. Limited
North View, Staple Hill, Bristol BS16 4NX
Telephone: 0117 956 7233 Web: www.wdm.co.uk

Pedestrian crossings – a short history



- Pompeii

Pedestrian crossings – a short history



POLICE NOTICE.

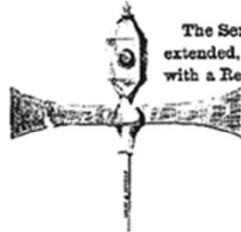
STREET CROSSING SIGNALS. BRIDGE STREET, NEW PALACE YARD.

CAUTION.



The Semaphore Arms
lowered, and by Night with
a Green Light.

STOP.



The Semaphore Arms
extended, and by Night
with a Red Light.

By the Signal "CAUTION," all persons in charge of Vehicles and Horses are warned to pass over the Crossing with care, and due regard to the safety of Foot Passengers.

The Signal "STOP," will only be displayed when it is necessary that Vehicles and Horses shall be actually stopped on each side of the Crossing, to allow the passage of Persons on Foot; notice being thus given to all persons in charge of Vehicles and Horses to stop clear of the Crossing.

METROPOLITAN POLICE OFFICE
September, 1868.

RICHARD MAYNE,

Commissioner of Police of the Metropolis.

- 1868

Pedestrian crossings – a short history



- Bridget Driscoll – first pedestrian victim of an automobile accident – 1896
- Coroner – hoped such a thing would never happen again!

Pedestrian crossings – a short history



- 1962 – first panda crossing
- Caused 'little more than utter confusion'

Pedestrian crossings – a short history



- 1969 – The most famous crossing
- Still causes 'little more than utter confusion'

Crossings in London



- On TfL and Borough principal road network
 - Over 500km assigned as 'approaches to crossings'
 - 2009 analysis indicated good correlation between accident rates and skid resistance at crossings
 - Arthur Young (1985) found significant benefits could be achieved through application of HFS
 - The TRL/ CSS Molasses project reports significant casualty reduction where 'high friction surface were applied
 - A requirement for commissioning new crossings in London is provision of HFS
 - No requirement to maintain HFS, other than as identified in London skid policy

High Friction surfacing



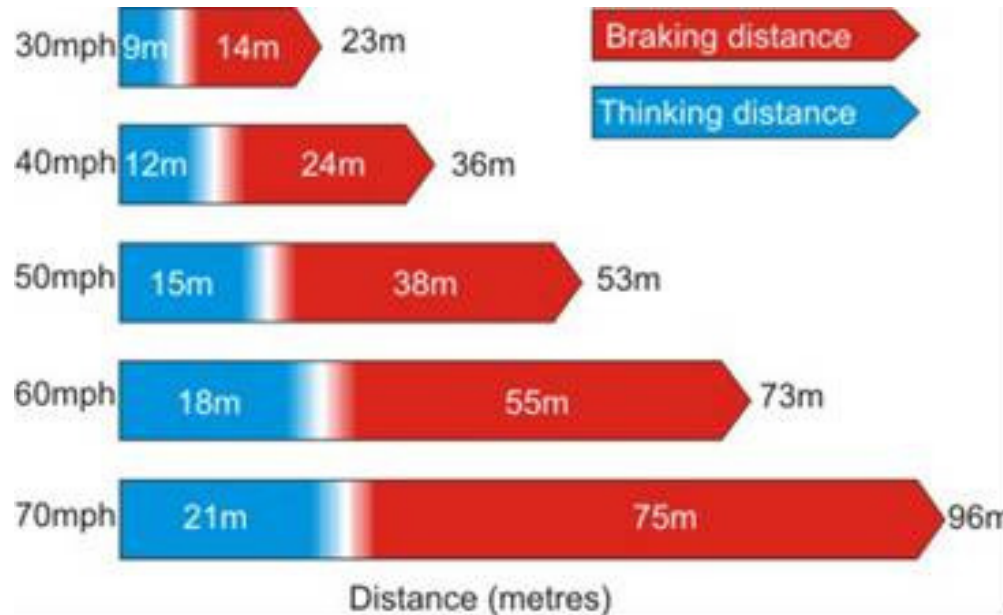
- Uses calcined bauxite with resin or other binder
- Controlled by HAPAS scheme for specification and laying
- Road Surface Treatment Association estimate a 4 – 8 service life
- Factors influencing life include laying conditions, surfaced condition
- Due to constraints in London HFS is often done at sub optimal times.

The Borough's concerns



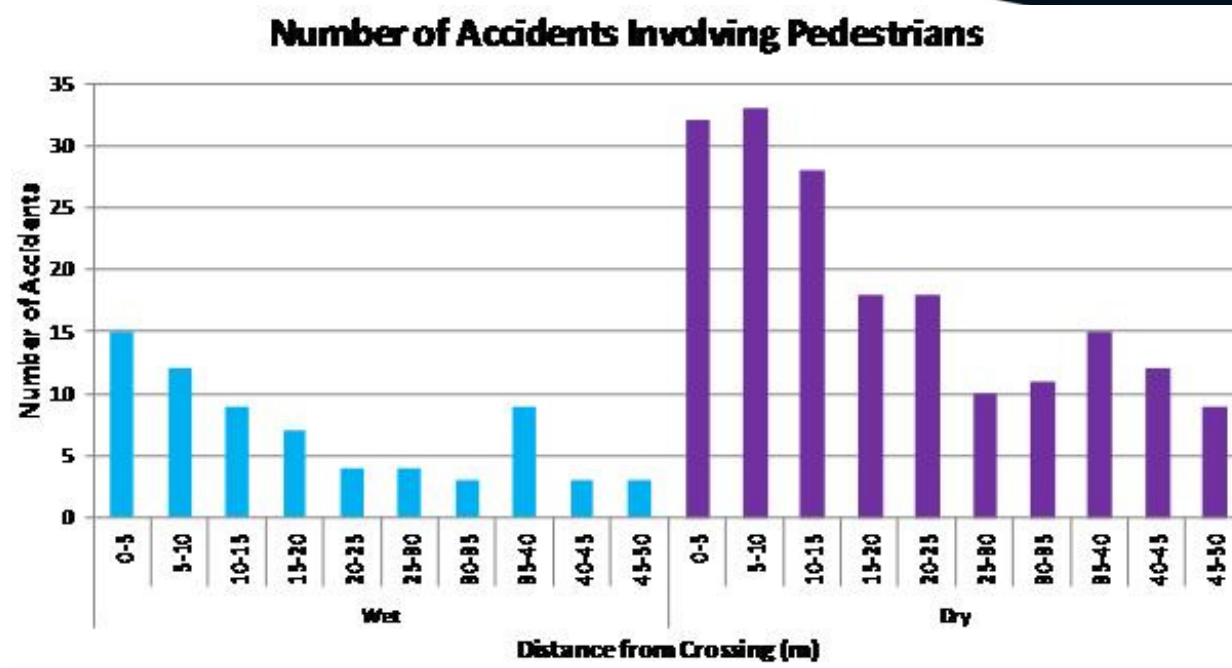
- Perceived HFS performance is poor
- Considered costly treatment – no delegated maintenance budget
- Speed in London is low
- Some roads/ boroughs have extensive crossings
- There are a limited number of 'skidding' accidents
- If the required length was shortened there would be considerable savings across London
- 'Standard' 50m approach used

The review – design standards



- Highway code – emergency braking
- Manual for streets applies different criteria – generally in line with research findings
- Could apply 40m

Crash review



- 129 Sample sites with crashes
- Reviewed location from police reports relative to crossing
- Increase at 35 -40m from crossing

Alternate materials



Surface Type	Total Length of Data (m)	Length Above 0.50 (%)	Length Above 0.55 (%)
ULM Ultra Mince (PSV 68)	2550	86%	69%
Asphalt Concrete (PSV 68)	1160	79%	46%
Stone Mastic Asphalt (PSV 68)	670	79%	48%
Hot Rolled Asphalt (PSV 68)	960	84%	52%
Stone Mastic Asphalt (PSV 69)	720	61%	50%
Asphalt Concrete (PSV 70)	2460	52%	3%
HFS Guyanan Bauxite (PSV 70)	240	100%	100%
HFS Chinese Bauxite (PSV 70)	540	81%	72%

- Sample sites treated with 'high PSV' materials

Review of study



- There may be a case to reduce length of 'approach to crossings' to 40m (and therefore high PSV requirement)
- There is a small, but significant increase in pedestrian crashes at 35 – 40m from crossing
- Speed in London is low – but can vary greatly
- High PSV materials (as laid) can give high confidence of meeting 0.50 SCRIM
- There are fixed costs for HFS (traffic management) that won't vary with site length

Review of study



- Apply process of 'relaxation' and departure
- Relaxation – would change II to 0.50 – scope for high PSV materials

Site category and definition		Investigatory level at 50km/h							
		0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65
K	Approaches to pedestrian crossings and other high risk situations						It is a		

- Departure – reduction in length of 'approach'
- Risk based – documented

Departure considerations



- Type of crossing including standard of control equipment and associated street furniture
- Approach speeds (including off peak speeds)
- Road alignment
- Accident pattern
- Visibility of crossing for approaching traffic
- Visibility of approaching traffic for crossing users
- Patterns of use of crossing
- Any route management strategies in place/proposed

Conclusion



- 2009 - 40 year anniversary
- Advances in design/ operation
- Different demands

