

A15 Dual Carriageway. Barnetby to Humber Bridge – Surfacing History

Background

A15/A180/M180 were built in late 70s early 80s, designed pavements built with modern materials under full supervision and laboratory testing regime.

A15 was de-trunked in 2001/2. Existing Hot Rolled Asphalt (HRA), 23 years old beginning to show signs of distress in some areas. DfT conducted an investigation and findings indicated - replace HRA with a Stone Mastic Asphalt type thin surfacing.

Between 2002/3 and 2006 Thin Surfacing began to fret badly

North Lincolnshire Council conducted an investigation in 2007 including road coring and visual inspections and concluded 300mm sound bituminous construction and a failed thin surfacing. Probable cause, too low binder and poor laying conditions.

DfT provided funding for replacement of failed surface course.

Cemex appointed by North Lincolnshire Council to replace existing surface course. Cemex flagship proprietary material HAPAS approved Viatex was chosen (as recommended by DfT in these circumstances, high stress levels etc). North Lincolnshire Council specified proprietary bond coat to be incorporated for additional adhesion and seal.

State of Play (2010/11)

A15 Nbn and part of A15 Sbn surfacing now 3 years old, rest of Sbn and roundabout 2 years.

2010, Rod Chapman and Bob Brooks (very experienced North Lincolnshire Council Highway Engineers) raised concerns regarding certain areas of surfacing which appeared to be “open” to the eye and following rain remained ‘damp’ for several days (sponge effect). Reasons being poor texture/voiding holding moisture giving rise to Oxidation, freeze and thaw.

Informal inspection between Bob Brooks and Cemex proved rather inconclusive owing to weather conditions but North Lincolnshire Council were still not satisfied agreed to monitor situation.

2011 and concern remained. Some minor potholing was observed and issues on roundabout noted. Damp areas still very noticeable following periods of wet weather. Some areas appeared more open, some with very slight loss of material.

The concern at the time was, If deterioration continues to accelerate, after 5-6 years North Lincolnshire Council will be left with a problem. Not expected to apply surface treatment for 10–12 years under whole life costing and life cycle planning approach.

State of Play (2019)

The surfacing has continued to deteriorate, particularly in the ‘Open Textured/Damp’ areas first identified back in 2010.

Patching works have been undertaken regularly between 2013 to present day.

SCANNER RCI perhaps show the carriageway in a fair condition, other Condition Surveys, namely Annual Engineers Inspections (AEI Survey) less so. AEI surveys undertaken annually since 2017 suggest 86% of the carriageway is now categorised as ‘Amber’. The AEI recommends Surface Dressing treatment together with significant amount of patching work, which would not address the underlying issues adequately and would require continuous patching which would be disruptive and expensive. However we have undertaken a Lifecycle Analysis using ‘Xais Expert Asset’ software, which suggested a Typical Engineering 1 Lifecycle as the preferred approach and considered where the road sits within our Lifecycle plan. This particular lifecycle analysed over a future 30 years suggests a series of resurfacing treatments. Surface dressing has on average a seven year lifespan, whereas resurfacing has a lifecycle of approximately 15 years.

Summary (Approx Dates)

Built 1970-80

Detrunked 2001-2

HRA replaced with SMA 2001/2

SMA replaced with Cemex Viatex 2008/9

Surfacing Failures start to emerge 2010

Machine Patching undertaken between 2013-present day

AEI Condition

2017-18

Green 11.6%

Amber 88.4%

Red 0%

2018-19

Green 14.1%

Amber 85.3%

Red 0.6%

2019-20

Green 11.7%

Amber 86.3%

Red 2%