



**CENTRA**  
AUSTRALIA PTY LTD

Centra Project: Hume Motorway  
Managed Maintenance Model



**Leading advice.  
Real outcomes.**

**Strategic Planning  
Transport Planning  
Business Case Development  
Operational Delivery Assessment  
Pavement Design & Rehabilitation  
Asset Management & Risk Assessment  
Pavement Deterioration Assessment  
Technical Policy & Standards Review  
Project Strategy and Review  
Project Risk Assessment  
Expert Witness**

**Centra Australia provides specialist technical advisory services to a broad range of government and private organisations with a particular focus on improving operational efficiencies. We work with boards, directors and senior managers to help “achieve more from less” in delivering infrastructure outcomes.**

Centra Australia comprehensively understands the technical environment and the management principles as applied to infrastructure. We offer industry leading knowledge based on practical experience. Our Directors have worked within government and understand critical government drivers. We provide independent technical advice with strategies and ideas for improvement and innovation.

Our clients achieve real outcomes and high value improvements in infrastructure management and delivery.

## Project Methodology





## Innovations

Centra benefits its clients by developing innovative solutions that do more with less.

## Inspections

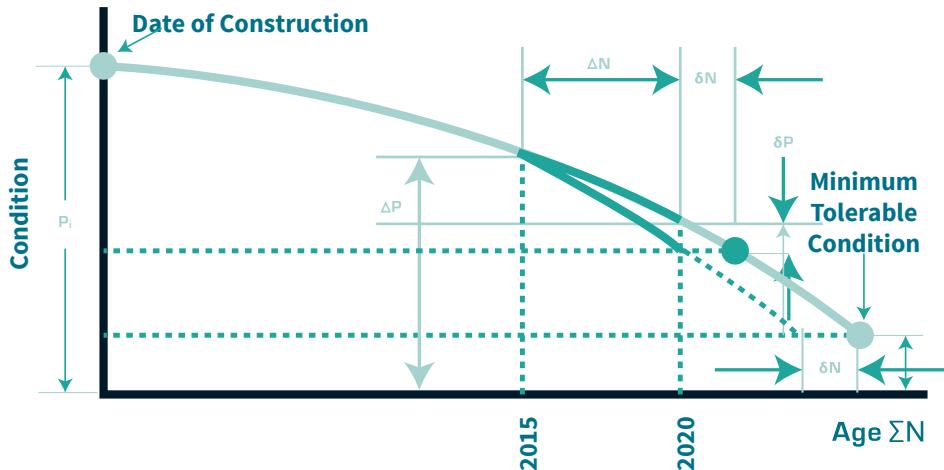
Centra has inspected and produced asset dilapidation and defect maps for scores of roads and bridges.

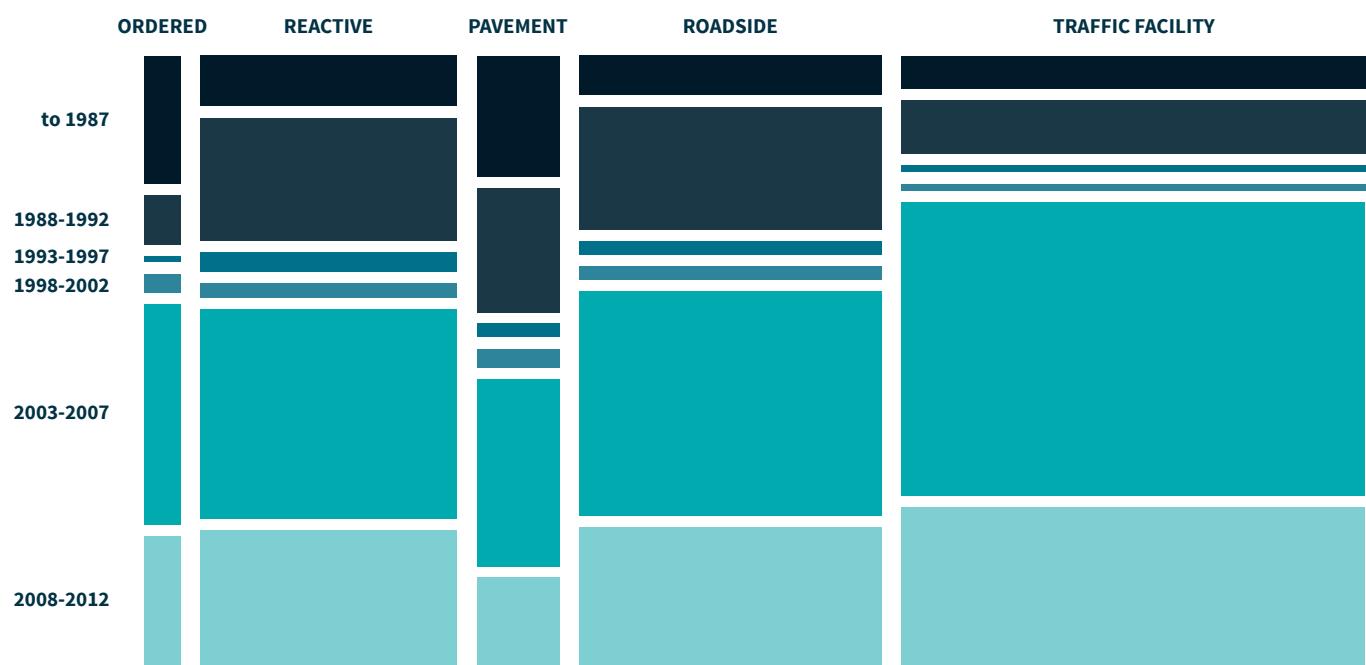
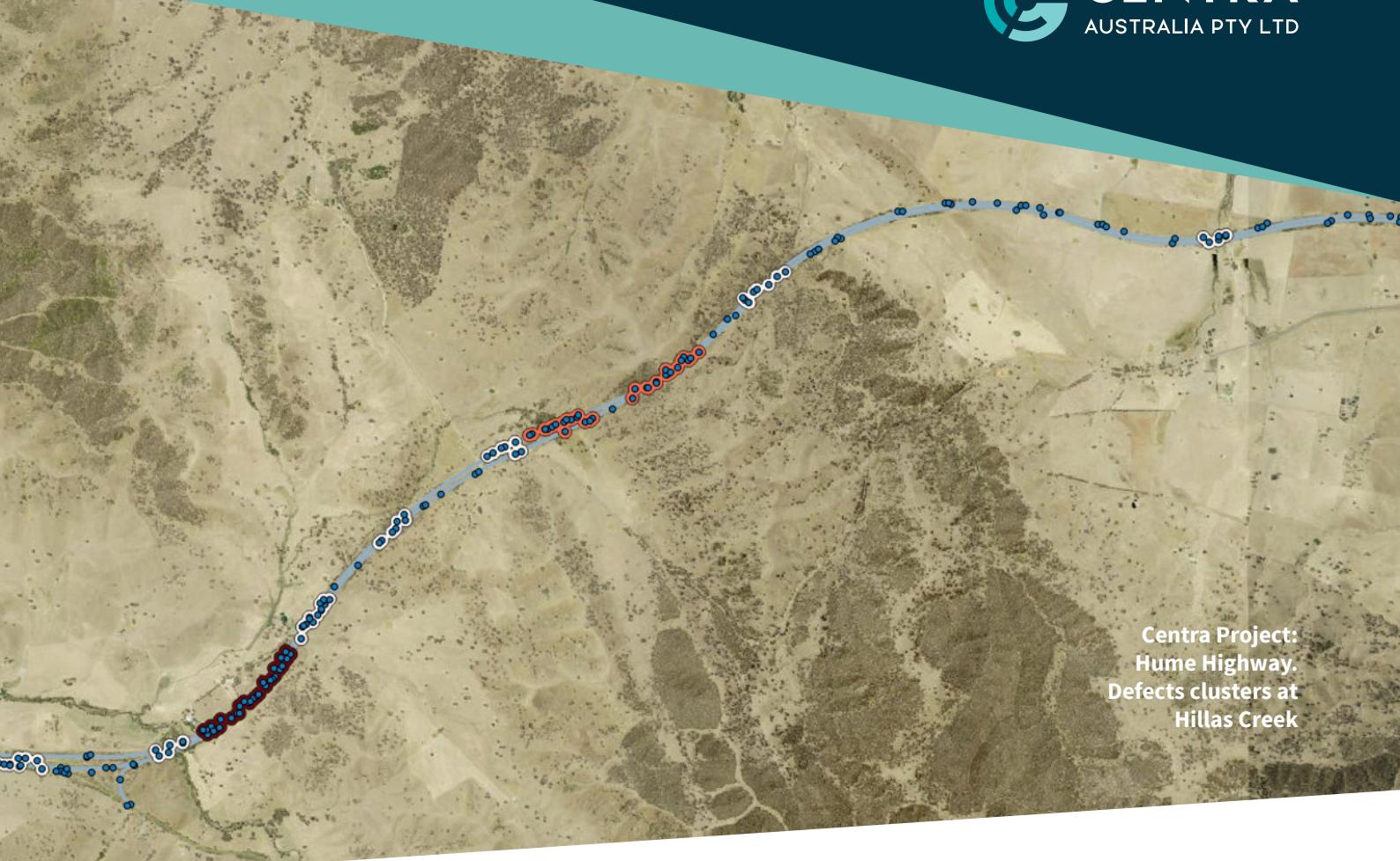
## Diagnostics

Centra employs experts capable of diagnosing the cause(s) of pavement asset impairment.

## Pavement damage model

*Used to assess accelerated deterioration*





Distribution of maintenance defects for the Hume Highway by resurfacing age by defect type.



Centra Project:  
Epping to Thornleigh  
Third Track Project  
-Pavement Ruts,  
Pittwater Rd,  
Macquarie Park, NSW

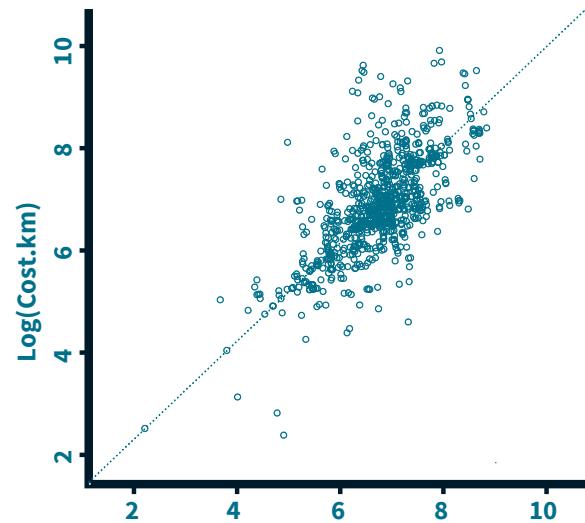
Without maintenance, the condition of any road network deteriorates.

Maintenance costs can be used to gauge the effectiveness of remediation works and road maintenance activities as it is expected that maintenance will decrease after repairs have been done.

A statistical model was created based on 10 years of Routine Road Maintenance Contract data. This model provided valuable insights into the effectiveness of the delivery of road maintenance activities across variable road links, seal ages and pavement types.

## Plot of actual vs fitted values

For road maintenance 10 year cost model



Fitted : Factor(Pavcat) + Factor(Link) + Pavcat:Link + Log(Seal):Link