



Moving Pavement Management beyond the Short-Term: Embracing Innovation and Addressing Sustainability, Accountability, and Improved Performance





A Few Statistics

- 335+ participants
 - ✓ ~ 1/3 international
- 32+ countries
- 39+ states
- 77 (~1/4) U.S. DOT participants
 - ✓ From 21 state DOT





9th International Conference on
MANAGING PAVEMENT ASSETS (ICMPA9)

Theme:

***Moving Pavement Management
beyond the Short-Term:
Embracing **Innovation** and
Addressing **Sustainability**,
Accountability & **Improved
Performance*****

→ *How should the next generation
of pavement management
approaches systems look like?*







Thanks to our Keynote Speakers

Kathryn A. Zimmerman

President, APTEch

*Preparing for the Next
Transformation in
Pavement Management*



Sam Savage

*Consulting Professor,
Stanford University*



Andre Molenaar

Emeritus Professor, T.U. Delft

*Sustainable and Durable
Design and Construction
of Pavement Assets*



Author of *The Flaw of Average,
Why we Underestimate Risks in
Face of Uncertainty*





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Book 5
Pavement Asset Management
Ralph Hazen
and
W. Ronald Hudson

PAVEMENT ASSET MANAGEMENT
RALPH HAZEN AND W. RONALD HUDSON
WITH FRED COOPER BAKER
WILEY
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Ralph Hazen
and
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Stephen Maher

Luis Picado Santos

Luis Rodriguez

Cesar Queiroz





A **BIG** Thanks to our Scientific Committee !!!!

Scientific Committee

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*North Carolina Department of
Transportation*

Theuns Henning
University of Auckland

Challenge

Nasir Gharaibeh
Co-chair (TAMU, USA)

Shelly Stoffels
Co-chair (PennState, USA)

Innovations Theme

Zhanmin Zhang (*UT-Austin, USA*)
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Luis Fuentes (*Colombia*)

Sustainability Theme

Thomas Baker (*WA DOT, USA*)
Tony Parry (*UK*)
Thomas Harman (*FHWA, USA*)
Phillippe Lepert (*France*)

Performance Management

Tim Henkel (*MN DOT, USA*)
Seosamh Costello (*New Zealand*)
Omar Smadi (*ISU, USA*)
Michael Burrow (*UK*)

Accountability

James Watkins (*MS DOT, USA*)
Wyanand Steyn (*South Africa*)
Gonzalo Rada (*AMEC, USA*)
Oscar Gutierrez (*Spain*)

Case Studies

Katie Zimmerman (*APTech, USA*)
Chen Chen (*Philippine*)
Raja Shekharan (*VA DOT, USA*)
Peter Kadar (*Australia*)

Tutorials/Workshops

Sue McNeil, *Chair* (*UDel, USA*)
Dingxin Cheng (*CSU-Chico, USA*)
Ian Greenwood (*NZ*)
Ross Waugh (*NZ*)



9th International Managing Pa









Compliance Specifications and Effective Management of Pavements for Highway Concessions

David K. Bell, P.Eng., Applied Research Associates, Inc.

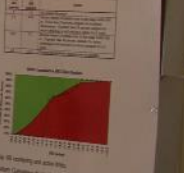
Introduction
 The increasing cost of highway construction is a major concern for highway agencies. In 2010, the average cost of highway construction was \$1.2 billion per mile. This cost is expected to increase to \$1.5 billion per mile by 2015. The cost of highway construction is expected to increase to \$1.8 billion per mile by 2020. The cost of highway construction is expected to increase to \$2.1 billion per mile by 2025. The cost of highway construction is expected to increase to \$2.4 billion per mile by 2030. The cost of highway construction is expected to increase to \$2.7 billion per mile by 2035. The cost of highway construction is expected to increase to \$3.0 billion per mile by 2040. The cost of highway construction is expected to increase to \$3.3 billion per mile by 2045. The cost of highway construction is expected to increase to \$3.6 billion per mile by 2050.

Pavement Maintenance for Concessions Agreements

Item	Year 1	Year 2	Year 3	Year 4	Year 5
Item 1	100	100	100	100	100
Item 2	100	100	100	100	100
Item 3	100	100	100	100	100
Item 4	100	100	100	100	100
Item 5	100	100	100	100	100



Recommended Smoothness Management Strategy
 The increasing cost of highway construction is a major concern for highway agencies. In 2010, the average cost of highway construction was \$1.2 billion per mile. This cost is expected to increase to \$1.5 billion per mile by 2015. The cost of highway construction is expected to increase to \$1.8 billion per mile by 2020. The cost of highway construction is expected to increase to \$2.1 billion per mile by 2025. The cost of highway construction is expected to increase to \$2.4 billion per mile by 2030. The cost of highway construction is expected to increase to \$2.7 billion per mile by 2035. The cost of highway construction is expected to increase to \$3.0 billion per mile by 2040. The cost of highway construction is expected to increase to \$3.3 billion per mile by 2045. The cost of highway construction is expected to increase to \$3.6 billion per mile by 2050.



Conclusions
 The increasing cost of highway construction is a major concern for highway agencies. In 2010, the average cost of highway construction was \$1.2 billion per mile. This cost is expected to increase to \$1.5 billion per mile by 2015. The cost of highway construction is expected to increase to \$1.8 billion per mile by 2020. The cost of highway construction is expected to increase to \$2.1 billion per mile by 2025. The cost of highway construction is expected to increase to \$2.4 billion per mile by 2030. The cost of highway construction is expected to increase to \$2.7 billion per mile by 2035. The cost of highway construction is expected to increase to \$3.0 billion per mile by 2040. The cost of highway construction is expected to increase to \$3.3 billion per mile by 2045. The cost of highway construction is expected to increase to \$3.6 billion per mile by 2050.



Thanks to our Promotion and Outreach Committee

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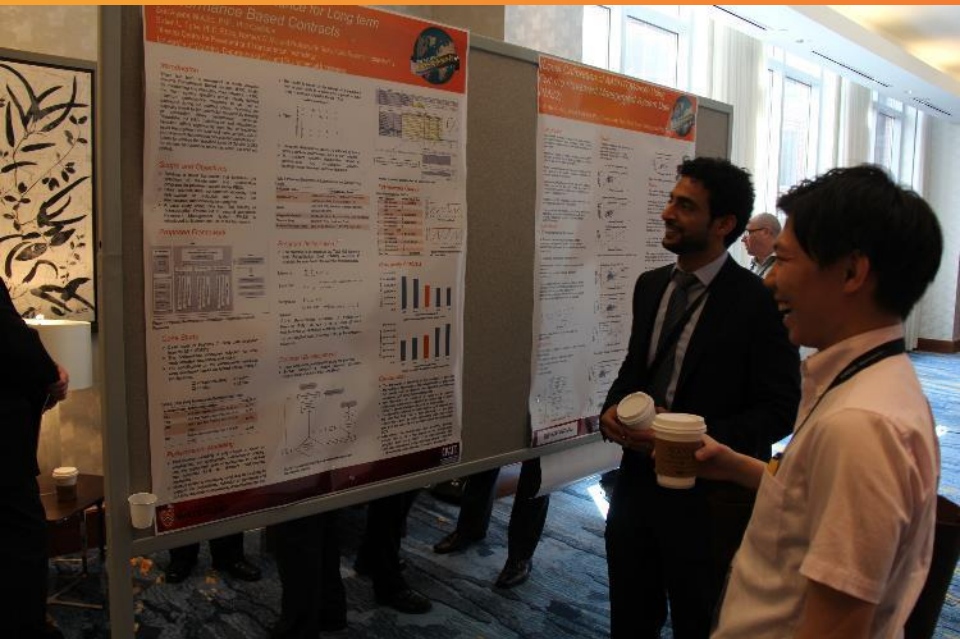
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