

Pavement Technical Session Summary

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National Workshop on Highway Asset Management & Data Collection

Durham, North Carolina
September 26, 2008



Presenters

- J. Neil Mastin, P.E. (NCDOT)
 - NCDOT Pavement Condition Data Elements and Variability
- Y. Richard Kim, Ph.D, P.E. (NCSU)
 - Comparison of Automated and Manual Data Collection for Pavement Distresses
- Bruce Steven, Ph.D (UC PRC)
 - An Assessment of Automated Pavement Distress Identification Technologies in California
- Kelvin C.P. Wang, Ph.D (UA)
 - Automatic Cracking Survey and Protocol Development
- Katie Zimmerman, P.E. (APT)
 - Integration of Automated Distress into PMS

NCDOT Pavement Condition Data Elements and Variability

- NCDOT survey procedure and quantification of variability along 90+ mile test course.
- Key Points
 - High levels of variability are found from the manual surveys.
 - Lower levels of variability found from AC sections relative to PCC sections.
 - Higher variability occurs as condition deteriorates.

Comparison of Automated and Manual Data Collection for Pavement Distresses

- NCDOT “ground truth” compared against vendor reported distresses.
- Cracking in the asphalt pavements is underestimated by the vendors.
 - Definition and sensitivity
- Rutting appears to be quantified correctly, but the lack of sensitivity with the NCDOT shoulder survey causes vendors to systematically report higher rutting distress than NCDOT.

Comparison of Automated and Manual Data Collection for Pavement Distresses

- Cracking in the PCC pavements is better predicted than that in the AC pavements.
- The effect of errors in distress measurements may be amplified or reduced in network level pavement condition ratings.
- Issues with distress definition and equipment sensitivity resulted in differences in the reported LTPP and NCDOT distresses .
- Vendor variability?
 - Stay tuned for final report

An Assessment of Automated Pavement Distress Identification Technologies in California

- California experience with automated distress survey rodeo.
 - 60 mile test course with 11-500 ft test sections
 - 6 vendors (2 used fully automated distress identification)
- Highly defined descriptions of pavement distresses help to reduce variability and misunderstanding between the vendor and agencies.

Automatic Cracking Survey and Protocol Development

- Overview, historical development and technological state of automated crack surveys.
- Technological limits exist for defining crack types and severity.
 - High variability
 - Low repeatability
 - Low accuracy and precision
- Compromise is to use defined protocols and compute effective cracking indices for network level decision making.

Integration of Automated Distress into PMS

- PMS as a decision making tool and motivation for moving towards automated distress surveys.
- Role of QC/QA in effective automated distress survey.
 - Joint vendor and agency responsibility
 - Partnership that requires iterations for success
- Effect of data collection changes on PMS.
- Sustaining PMS reliability through data collection changes.
 - Consistency, Calibration, Compatibility, Communication

Key Issues

- Variability and accuracy in distress surveys
 - Manual surveys
 - Technology and analysis maturity
 - Influence on decision making
- Applications and agency expectations
 - Communication
 - Focused and realistic use of automated surveys
 - PMS integration

Thank You

