Improving Data Quality for Pavement Management System

Sui G. Tan
Metropolitan Transportation Commission

and

DingXin Cheng
California Pavement Preservation Center
References

• NCHRP Synthesis of Highway Practice 401 – Quality Management of Pavement Condition Data Collection (Flintsch and McGhee 2009)

• Practical Guide for Quality Management of Pavement Condition Data Collection, FHWA 2013
Overview

• Background
• Objectives
• MTC’s Data Quality Management Plan
• Implementation Status
• Conclusions
Background

- Pavement Technical Assistance Program
- Data Quality Mgt Plan
- StreetSaver PMS
- Regional Transport. Plan
Objectives

(1) Provide consistent pavement distress identification
(2) Improve data quality
(3) Provide industry standards and accountability
(4) Meet the minimum qualifications required for responding to RFP
Garbage In – Garbage Out
Data Quality Management Plan

- Consultant prequalification
- Quality control plan - before, during, and after production
- Quality acceptance
- Rater Certification Program (New)

Source: http://tinyurl.com/mm39ptx
REQUEST FOR PROPOSALS
FOR
2014 PAVEMENT MANAGEMENT INSPECTION SERVICES
(February 3, 2014)

8. Develop a formal data collection Quality Management Plan (QMP). The QMP shall address data quality control for data collection as well as quality acceptance by City staff. Preference will be given to firms that have been pre-qualified through the MTC Data Quality Management Plan.
Quality Acceptance

3rd Neutral Party – California Pavement Preservation Center:

• Verifies quality control plans (QCP) adopted by contractors
• Audits QCP results to ensure contractors are meeting the requirements
• Conducts on-project site audits
Quality Acceptance (cont’d)

- Checks data collected against prior survey data
- Checks calculated PCI values against PCI values based on performance curve in StreetSaver PMS
- Surveys sample sections previously rated by contractor

Source: http://tinyurl.com/mm39ptx
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<tr>
<th>End Location</th>
<th>Previous Inspection</th>
<th>M&amp;R Between Inspection</th>
<th>Last Inspection</th>
<th>Projected PCI</th>
<th>Diff</th>
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<td>8/0 CHAPMAN DR (SOUTH XSEC)</td>
<td>9/12/2012 73</td>
<td>10/2/2013 63</td>
<td>10/2/2013 70</td>
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<td>511 ft N/O HACIENDA AV</td>
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<td>10/2/2013 55</td>
<td>10/2/2013 60</td>
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<td></td>
<td>10/2/2013 75</td>
<td>-2</td>
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<td>10/19/2013 84</td>
<td>-3</td>
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<td>173 ft SW/O CASTRO CT</td>
<td>6/23/2011 91</td>
<td>10/19/2013 89</td>
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Eligibility:

- P-TAP consultant’s raters
- Local agency’s raters
- Any other data collection vendors
How to be Certified?

- Must attend a distress survey class
- Pass an 8-hour field exam
- Pass an online knowledge exam

What distress type is predominant in this photo?

A. Alligator cracking
B. Longitudinal and transverse cracking
C. Patching and utility cuts
D. Rutting
Rater Certificate

- Good for 2 years

Recertification:
- Attend a refresh distress survey course
- Pass an online knowledge exam
- Re-certified for another 2 years
- Every 4 years must take field test
Administration of Certification

California Pavement Preservation Center
(California State University, Chico)

- Manages registration
- Manages issuance and renewal of certification
- Manages and develops online exam
1) 50% or more of the PCI values must be within +/-8 PCI points of the ground truth (12 out of 24 sections)

2) 12.5% or less of the PCI values can be between +/-18 PCI points of the ground truth (3 or less out of 24 sections)
Implementation Status

• Field Exam
  ▪ 2013 – 77% pass (out of 26)
  ▪ 2014 – 47% pass (out of 15)
  ▪ Test sites near MTC
  ▪ MTC modified ASTM D6433 protocol
  ▪ 20 AC sample sections
  ▪ 4 PCC sample sections
Test Sites

#10 – Merritt Ave
#1 – Haddon Rd
#3 – McKinley Ave
#2 – Haddon Rd
#5 – Montclair Ave
#4 – McKinley Ave

Merritt Ave
Haddon Rd
Haddon Ln
Kenwyn Rd
Athol Ave
Montclair Ave
Cleveland St
Parthsteinography
Seda County Bicycle Route 35
Steps On Toes.Com
Online Knowledge Exam

- 30 random questions in four categories:
  - Inspection procedures
  - Asphalt pavement distress identification
  - Concrete pavement distress identification
  - PCI calculations
Conclusions & Recommendations

- Condition data (PCI) drives treatment recommendations
- DQMP provides a documented framework for dealing with consultant selection, quality control, and quality acceptance
- QCP must be established prior to data collection
- Rater Certification Program was developed to ensure data quality standards among raters
Just Remember...

If it wasn’t documented, it didn’t happen!
Questions

Sui Tan, PE
StreetSaver Program Manager
Metropolitan Transportation Commission
stan@mtc.ca.gov

Dr. DingXin Cheng, Director
California Pavement Preservation Center
dxcheng@csuchico.edu