PROS AND CONS OF AUTOMATED PAVEMENT DATA COLLECTION

Jenny Li, P.E., Maintenance Division
Matt Rogers, Abilene District
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Importance of Pavement Condition Data

TxDOT collects pavement surface distress, ride quality and skid data across the Texas highway network

- Determine pavement condition
- Assist in making pavement maintenance and repair related decisions
- Develop four-year pavement management plans for preventive maintenance and rehabilitation projects
Pavement Data Collection History

- 1982
- 1993
- 2001
- 2017
MAP-21 and FAST ACT Requirements

- The 0.10 mile uniform pavement data collection and reporting on the National Highway System (NHS).

- Pavement Data Quality Management Plan to be developed and followed for the collection and processing of all data collection used for evaluating pavement performance.
Data Quality Management Plan

- Submitted March 6th, 2018
- Approved by FHWA on March 26th, 2018
Automated data collection typically incorporate the use of vans fitted with equipment (e.g., lasers, high-speed cameras, and computers) specifically designed for collecting pavement and roadway features.

- Semi-automated – the resulting images are viewed at workstations by personnel trained to rate visible cracks and other distresses

- Fully automated – use the collected images and pattern recognition technology for automatically detecting distresses
Division Roles

- Manage data collection contract
- Train and certify visual raters and equipment operators
- Maintain and repair equipment
- Set up verification sections
- QC pavement distress data
- Store data in pavement management system (Pavement Analyst)
- Create and update data quality management plan
Pros of Automated Data Collection

- Safety, reduce visual raters exposure to traffic
- Data collected at highway speed
- Collect all pavement data in one pass
- More objective data than visual raters
- More consistent among different districts
Pros of Automated Data Collection

- Possible recheck or reprocess collected data
- Faulting measured
- Images collected and available to other users
- Improved data collection percentages
Data Collection Percentage 2015-2018

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Condition</th>
<th>Distress</th>
<th>Ride</th>
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<tbody>
<tr>
<td>2015</td>
<td>96%</td>
<td>98%</td>
<td>98%</td>
</tr>
<tr>
<td>2016</td>
<td>97%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>2017</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2018</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
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Cons of Automated Data Collection

- Technology is evolving rapidly
- Data consistency issue
- False positive cracking reported on high textured roads
District Perspectives
District Pavement Data Needs

- High quality pavement data directly linked to pavement management system
- General information to see how pavements are doing overall
- Detailed information about a specific pavement section such as cause of a premature failure
- Develop lists of candidate projects to meet specific pavement objectives
District Roles in Automated Data Collection

- Attend distress audit training and certification
- Work with TTI to audit 6% of the network (windshield)
- Conduct IRI and rut depth audit in one county per district
- Review pavement images
Pros of Automated Data Collection

- Less interruption to traffic
- 3D technology can “see” more distresses than visual raters
- Save travel time to visit road segments using images
Pros of Automated Data Collection

- Sealed and unsealed cracking reported
- Finer level of details on all distresses for 0.1-mile sections
- Report localized pavement problem
- PathView provides a tool to collect asset inventory data such as guardrail, lane width, number of lanes, etc.
Cons of Automated Data Collection

- The current process is not fully automated. There is some manual post-processing that takes place.

- False positive cracking reported on some pavements and Mischaracterization of some Distresses.