Effect of the Number of Lifts on Road Surface Smoothness for Urban Roadways

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Wiley Cunagin
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LTPP results from NCHRP 20-50 indicate that the value of the IRI after overlay of resurfaced AC pavements is not dependent on:

- The IRI value prior to rehabilitation
- Overlay thickness (or # of lifts)
- Milling prior to overlay
- AC Type
Florida DOT undertook study to verify the LTPP findings for Urban Superpave resurfacing projects
Analysis Used the following databases:

- Construction Quality reporting
- Pavement Condition Survey
From the beginning, there were problems with the data:

- Inconsistencies in the terms used in the database made it impossible to automatically extract usable data.
- Due to the data input using many different people without strict quality control on the process.
Consequently, a manual data extraction process was required.

Appropriate Superpave projects were identified using simple computer search rules and the data extracted manually and entered in spreadsheets.
Upon completion of analysis dataset, analyses of the data were performed using SAS/STAT© software.
## ANOVA Results

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Evaluation Variable</th>
<th>F</th>
<th>P</th>
<th>Statistically Significant Relationship?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ride Change</td>
<td>number of lifts</td>
<td>0.00</td>
<td>0.9948</td>
<td>NO</td>
</tr>
<tr>
<td>Ride Before</td>
<td>number of lifts</td>
<td>1.26</td>
<td>0.2684</td>
<td>NO</td>
</tr>
<tr>
<td>Ride After</td>
<td>number of lifts</td>
<td>3.96</td>
<td>0.0526</td>
<td>NO</td>
</tr>
</tbody>
</table>
Figure 1. Frequency Distribution for Ride Change for Single Lift
Figure 2. Frequency Distribution for Ride Change for Multiple Lifts
Figure 3. Frequency Distribution for Ride After for Single Lift
Figure 4. Frequency Distribution for Ride After for Multiple Lifts
Figure 5. Frequency Distribution for Ride Before for Single Lift
Figure 6. Frequency Distribution for Ride Before for Multiple Lifts
There was no statistical basis found in this study for concluding that the number of lifts of asphalt used in construction has an impact on the change in ride rating.