## Statistical Analysis of Pavement System in the United States

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### Abstract

This study explores the updated literature and analyzed the statistics of the total pavement in the United States (US).
- There is the total of 8.7 million miles of pavements (2.5% Interstate and 97.5% Non-Interstate) in the US.
- Interstate comprises of 65% concrete, and 35% asphalt pavements.
- Non-Interstate has 94% asphalt and 6% concrete.
- The construction of asphalt and concrete pavements cost per mile-lane the average of $3.1 and $2.8 million, respectively.
- The total construction cost is $26.7 billion.
- The average maintenance cost for asphalt pavement is $34,000 per mile-lane per year (totaling about $295 billion per year).

### Introduction

- Asphalt is defined as a bituminous aggregate material which is combined with asphalt binder and compacted with aggregate material and aggregate with steel reinforcement. Supports heavy loads using a beam reaction in the reinforcement.
- Rigid behavior: Portland cement and aggregate with steel reinforcement.
- Supports heavy loads using a beam reaction in the reinforcement.
- Bituminous aggregate material combined with asphalt binder and compacted.
- Creates a smooth surface, reducing tire noise.
- Flexible behavior.

### Table 1: National Data

<table>
<thead>
<tr>
<th>Highway Type</th>
<th>Asphalt</th>
<th>Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miles</td>
<td>Percentage</td>
<td>Miles</td>
</tr>
<tr>
<td>Interstate</td>
<td>142,869</td>
<td>65%</td>
</tr>
<tr>
<td>Non-Interstate</td>
<td>7,930,996</td>
<td>94%</td>
</tr>
<tr>
<td>Combined</td>
<td>8,072,964</td>
<td>93.3%</td>
</tr>
<tr>
<td>Total Miles</td>
<td>152,800</td>
<td></td>
</tr>
<tr>
<td>Percentage</td>
<td>97.5%</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2: State Data

### Cost Analysis

Figure: Construction Costs per Lane-Mile of Pavement
- Asphalt Average: $3.1 Million
- Concrete Average: $2.77 Million (11% loss)

### 8.7 Million Miles of Pavement

- Interstate (2.5%) comprising 65% Concrete and 35% Asphalt
- Non-Interstate (97.5%) comprising 6% Concrete and 94% Asphalt

### Maintenance

- Average $34,000 per lane-mile per year
- Total $295 billion per year nationally

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### Conclusions