In October of 2016, the Iowa DOT changed the nomenclature and the recommended asphalt binder grades for Iowa’s roadways and published a reference guide card. Since that time, there have been updates to the guidance and specifications. This new reference guide will provide updated guidance for projects constructed under Iowa DOT requirements. See Iowa DOT IM 510 Method of Design of Asphalt Mixture for additional information.

### Mixture Selection with Abbreviated Design Criteria

<table>
<thead>
<tr>
<th>Design Traffic (1X10⁶ ESALS)</th>
<th>Mixture Designation</th>
<th>Layer</th>
<th>Gyratory Density</th>
<th>Aggregate¹</th>
<th>Percent Crushed (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 – 10.0 M</td>
<td>HT</td>
<td>Surface</td>
<td>95.0</td>
<td>A</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Intermediate</td>
<td>96.0</td>
<td>A</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base</td>
<td>96.5</td>
<td>B</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>&gt; 10 M</td>
<td>VT</td>
<td>Surface</td>
<td>95.0</td>
<td>A</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Intermediate</td>
<td>96.5</td>
<td>B</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base</td>
<td>96.5</td>
<td>B</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>HMA Interlayer²</td>
<td>Base</td>
<td>50</td>
<td>98.0</td>
<td>A</td>
<td>45</td>
</tr>
<tr>
<td>HMA High Performance Thin Lift³</td>
<td>Surface</td>
<td>50</td>
<td>≥ 98.0</td>
<td>A</td>
<td>50</td>
</tr>
</tbody>
</table>

1. Flat & Elongated 10% maximum at a 5:1 ratio.
2. See I.M. 510A, Table 3 for additional requirements.
3. See I.M. 510A, Table 4 for additional requirements.
**ADDITIONAL INFORMATION**

**FULL DEPTH PAVEMENTS**
- Use “S” binder at depths > 3” or 4” from the surface

**TYPICALLY AVAILABLE BINDERS**

**NON-TYPICAL BINDERS**
- Small quantities of specialized binders (<25 tons of binder) may not be available or have a high cost.

**HMA INTERLAYER BID ITEMS**
- **Mix** = HMA interlayer base course, ¾”
- **Binder** = PG 58-34E

**HIGH-PERFORMANCE THIN LIFT BID ITEM**
- **Mix** = HMA thin lift surface course, ¾”
- **Binder** = PG 64-34E+

**WIDENING**
- **Mix** = HMA ST, HT, or VT base, ½” or ¾”
- **Binder** = PG 58-28S, H, or V

**SHOULders Paved Separately**
- **Mix** = HMA ST, HT, or VT base, ½” or ¾”
- **Binder** = PG 58-28S, 3% air voids

**PATCHING**
- **Mix** = Any ½” or 3/8” mix
- **Binder** = PG 58-28S or PG64-22S

**DETOUR PAVING**
- HT or ST mixture, PG58-28S binder

**COLD-IN-PLACE RECYCLING**
- **Foamed asphalt:** PG52-34S
- **Asphalt emulsion:** HFMS-2s CSS-1

**LEVELING AND GRADE CORRECTION**
- ST or HT mixture, PG 58-28S binder

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**STEP-BY-STEP BID ITEM CONSTRUCTION**

**STEP 1: Select Nominal Maximum Aggregate Size**
- ¾” – Thin lifts, trails, athletic facilities
- ½” – General surface and intermediate mix
- ¾” – General base mix

**STEP 2: Determine Traffic Level**
- Standard Traffic (ST) ≤ 1M ESALs
- High Traffic (HT) 1M-10M ESALs
- Very High Traffic (VT) > 10M ESALs

**STEP 3: Choose Lift Designation**
- Base
- Intermediate
- Shoulder
- (Minimum lift thickness = 3 X NMA size)

**STEP 4: Choose the Appropriate Binder**
- Determine location and type of work.
- Use binder selection guide above to select recommended binder.

**BID ITEM EXAMPLE**
- HMA Standard Traffic (ST) surface, ½”,
- Asphalt binder, PG 58-28S

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**EXAMPLE BINDER GRADE COMPARISON***

<table>
<thead>
<tr>
<th>PREVIOUS PG</th>
<th>CURRENT PG</th>
<th>BINDER BUMP FOR RAP**</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG 58-28</td>
<td>PG 58-28S</td>
<td>PG 52-34S</td>
</tr>
<tr>
<td>PG 64-28</td>
<td>PG 58-28H</td>
<td>PG 52-34H</td>
</tr>
<tr>
<td>PG 70-28</td>
<td>PG 58-28V</td>
<td>PG 52-34V</td>
</tr>
<tr>
<td>PG 76-28</td>
<td>PG 58-28E</td>
<td>PG 52-34E</td>
</tr>
</tbody>
</table>

* Approximate equivalents
**Binder bump required when > 20% of binder is from RAP