This reference guide has been developed to assist local agencies with the selection of asphalt mixes for their projects. See SUDAS Design Manual Section 5D-1: Asphalt Pavement Mixture Selection for additional information.

### Mixture Selection Table

<table>
<thead>
<tr>
<th>Design Traffic (1x10^6 ESALS)</th>
<th>Mixture Designation</th>
<th>Layer</th>
<th>Gyratory Density</th>
<th>Aggregate(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.3</td>
<td>LT</td>
<td>Surface</td>
<td>50 96.0</td>
<td>A(^1) 60(^1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intermediate</td>
<td>97.0</td>
<td>A(^1) 45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base</td>
<td>97.0</td>
<td>A(^1) 60(^1)</td>
</tr>
<tr>
<td>0.3 – 1.0</td>
<td>ST</td>
<td>Surface</td>
<td>50 96.0</td>
<td>A(^1) 75(^1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intermediate</td>
<td>97.0</td>
<td>A(^1) 60(^1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base</td>
<td>97.0</td>
<td>A(^1) 60(^1)</td>
</tr>
<tr>
<td>1.0 – 10.0</td>
<td>HT</td>
<td>Surface</td>
<td>75 96.0</td>
<td>A(^1) 75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intermediate</td>
<td>96.5</td>
<td>A(^1) 60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base</td>
<td>96.5</td>
<td>A(^1) 60</td>
</tr>
</tbody>
</table>

\(^1\) Requirements differing from Iowa DOT Materials I.M. 510; for base mixes, aggregate quality improved from B to A and percent crushed aggregate increased by 15%.

\(^2\) Flat & Elongated 10% maximum at a 5:1 ratio.

### Step-by-Step Bid Item Construction

**Step 1: Select Maximum Aggregate Size**
- 3/8’’ – Thin lifts, trails, athletic facilities
- 1/2’’ – General surface and intermediate mix
- 3/4’’ – General base mix

**Step 2: Determine Traffic Level**
- Low Traffic (LT)
- Standard Traffic (ST)
- High Traffic (HT)
- Very High Traffic
  - < 0.3M ESALs
  - 0.3M – 1M ESALs
  - 1M – 10M ESALs
  - > 10M ESALs (See Iowa DOT)

**Step 3: Choose Lift Designation**
- Base
- Surface
- 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 below.

**Bid Item Example**
- HMA Standard Traffic (ST) Surface, 1/2”, PG 58-28S
**ADDITIONAL INFORMATION**

**FULL DEPTH PAVEMENTS**
- Use "S" binder at depths > 3" or 4"

**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 base course, ½" or ¾"
- **Binder** = PG 58-28S

**SHOULDERs PAVED SEPARATELy**
- **Mix** = HMA base course, ½" or ¾"
- **Binder** = PG 58-28S, 3% air voids

**PATCHING**
- Mix = Any ½" or ¾" mix
- **Binder** = PG 58-28S or PG64-22S

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

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

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

**SUDAS TABLE 5D–1.01: ASPHALT BINDERS FOR LOCAL AGENCIES**

<table>
<thead>
<tr>
<th>DESIGN TRAFFIC (1X10^6 ESALS)</th>
<th>DESIGN SPEED (MPH)</th>
<th>PG BINDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.3 M AND ANY</td>
<td></td>
<td>58–28S</td>
</tr>
<tr>
<td>0.3–1.0M AND &gt; 45M</td>
<td></td>
<td>58–28S</td>
</tr>
<tr>
<td>0.3–1.0M AND 15–45</td>
<td></td>
<td>58–28S¹</td>
</tr>
<tr>
<td>1.0–10M AND 15–45</td>
<td></td>
<td>58–28H</td>
</tr>
</tbody>
</table>

**OVERLAYS (LT/ST/HT)**
- 58–28S or H 64–22S²

1 Use of PG 58-28H should be considered if heavy truck or bus traffic is present.

2 If methods are used to retard reflective cracking, PG 58-28S or H is recommended.

**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**

* MM1379 02/15/2023