PAPA Regional Technical Meeting
State College

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District 9-0

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2019 Bituminous Testing

Testing:
• 62 Lots- Mixture Acceptance by box sample
• 37 Lots – Density Acceptance by pavement core

Failures:
• 1 AC failure (Sec. 409 Non PWL - 50% Pay)
• 0 Gradation failure
• 0 Density failures
<table>
<thead>
<tr>
<th>Year</th>
<th>Lots Tested</th>
<th>% Density Range</th>
<th>% Average Density</th>
<th>Total $ for Incentive Lots</th>
<th>Total $ for Disincentive Lots</th>
<th>Delta (Incentive – Disincentive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>329</td>
<td>77.9-98.4</td>
<td>92.8</td>
<td>1,342,870</td>
<td>(27,474)</td>
<td>1,315,396</td>
</tr>
<tr>
<td>2017</td>
<td>354</td>
<td>85.7-98.5</td>
<td>92.8</td>
<td>1,229,450</td>
<td>(59,060)</td>
<td>1,170,390</td>
</tr>
<tr>
<td>2018</td>
<td>394</td>
<td>82.9-98</td>
<td>92.8</td>
<td>1,698,808</td>
<td>(49,120)</td>
<td>1,649,688</td>
</tr>
<tr>
<td>2019</td>
<td>371</td>
<td>81.9-99</td>
<td>92.8</td>
<td>969,434</td>
<td>(29,461)</td>
<td>939,973</td>
</tr>
</tbody>
</table>

REF: Section 405 Evaluation of Bituminous Pavement Longitudinal Joint Density and Payment of Incentive/Disincentive
• Longitudinal Joint Type
  – Which joint type is being utilized most-
    • Primarily Vertical/Butt Joint
    • Some Tapered/Notched Wedge
  
  – Which joint type is producing better density
    • Varies by contractor/mix; but, appears Notched Wedge trends higher historically
  
  – Longitudinal joint issues?
    • Performing very well overall.
### 2019 Percent Within Limits (PWL)

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of PWL Projects Let</td>
<td>27</td>
<td>38</td>
<td>44</td>
<td>32</td>
</tr>
<tr>
<td>Number HOLA</td>
<td>13</td>
<td>22</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Number LTS</td>
<td>14</td>
<td>16</td>
<td>23</td>
<td>*18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Pay Factors (%)</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Content</td>
<td>101.29</td>
<td>100.82</td>
<td>101.45</td>
<td>101.68</td>
</tr>
<tr>
<td>Primary Control Sieve</td>
<td>98.88</td>
<td>99.65</td>
<td>101.07</td>
<td>99.22</td>
</tr>
<tr>
<td>#200 Sieve</td>
<td>102.56</td>
<td>101.70</td>
<td>98.86</td>
<td>99.90</td>
</tr>
<tr>
<td>Density (Cores)</td>
<td>103.20</td>
<td>101.69</td>
<td>103.00</td>
<td>101.09</td>
</tr>
<tr>
<td>Average Density</td>
<td>94.3</td>
<td>94.3</td>
<td>94.6</td>
<td>94.2</td>
</tr>
<tr>
<td>Average Overall Lot Pay Factor (%)</td>
<td>1.01</td>
<td>1.01</td>
<td>1.02</td>
<td>1.01</td>
</tr>
<tr>
<td>Incentive ($)</td>
<td>$159,038.61</td>
<td>$144,658.62</td>
<td>$334,314.41</td>
<td>$80,762.18</td>
</tr>
<tr>
<td>Disincentive ($)</td>
<td>-$45,848.47</td>
<td>-$88,688.77</td>
<td>-$84,783.69</td>
<td>-$50,699.20</td>
</tr>
</tbody>
</table>

* 5 Projects switched from LTS to HOLA in 2019
District Innovations & Best Practices

  - Approximately 18,000 Tons, utilized HOLA.
  - Interstate preservation project planned for late 2020 let
    - Funding dependent.

- District utilizes SMA on all Interstate Highways and 4-lanes.
  - Feel it’s a very good performing mix, extra AC for durability and Polymer Modified. Utilize HOLA.

- Specify NTT for all paving. Tack issues have been very negligible.
District Innovations & Best Practices

• Used 19mm Hi-RAP on both ECMS/Contract and Dept. Force paving. Over 100,000 tons placed in 2019.
  – To date, no issues. Mix and placement/performance has been very favorable to date. Need to update SSP’s to reflect 2020 Sec. 413 Spec. changes...

• Looking to pilot 9.5 mm Hi-Rap (Via ECMS-*Funding Dependent)- **Need updated SSP for Sec. 413**

• Performed crack & seat on a portion of I-99
  – Worked well, utilized “Crack and Seat” special provision, not the Rubblizing spec. in 408, resulting in thinner overlay (9 ½”).
District Innovations & Best Practices

• Utilize Mobile lab-
  – Verify aggregate gravities
  – Verify mix designs, Max. gravities, voids, gradation/AC

• Other-
  – PME works with DME, review pavement designs
    • Utilize Pub. 242 to bump down gyrations where applicable to get more AC in paving courses.
    • Routinely “Bump” binder grades in rut prone areas.

  – Have been using CL. 4A Geotextile separator between subgrade/subbase layers +/- 15 years. (Now in 2020 Spec.)
2020 District Changes - Direction

- Utilize District Special Provision for Local Acceptance of SMA. (SSP currently in CT process)

- Continue HOLA testing, with appropriate resources (SSP’s currently in CT process)

- Increase use of preservation techniques- 6.3 Thin Lift in future. Good performing mix to date with substantial benefits.

- Increased use of FDR with bituminous overlay
  - Typically 19mm High-RAP
Questions/Comments???

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