To: Joseph E. Crowe  
From: Scott E. Stitt
Subject: Pavement Design
Date: November 2, 2011

FAU Route 6768 (VFW Road)  
Section 10-00166-02-PV  
Tazewell County  
From IL 29 to IL 9 (Court Street) in Pekin

We have reviewed the pavement selection for the above captioned section, which was submitted by email dated September 1, 2011. This roadway will be jurisdictionally transferred to District 4 after completion. Revisions were sent by email on September 22, 2011. Based on revised life cycle costs, the rigid option was less expensive than the HMA design.

The approved pavement design is as follows:

VFW Road from IL 29 to IL 9 (Court Street)

9 inches of rigid pavement with tied shoulders
4 inches of stabilized sub-base

If you have any questions, please contact Paul Niedemhofer at (217) 524-1651.
\[ TF = 20 \left( \frac{(0.15 \times 1070) + (676 \times 2.1441)}{1 \times 100} \right) + 676 \times 2.1441 \]

\[ TF = 20 \left( \frac{(0.15 \times 32 \times 1070) + (676 \times 45.52)}{1 \times 100} \right) \]

\[ TF = 20 \left( \frac{515 + 22,521 + 143,562}{1 \times 100} \right) = \frac{186,623}{1 \times 100} = 0.187 \]

\[ TF = 20 (0.187) = 3.73 \text{ Actual} \]

For the Traffic Factor USS Su 250 and 250

\[ TF = 20 \left( \frac{16,179 + 22,500}{1 \times 100} \right) = 0.25 \]

\[ TF = 20 (0.25) = 5.00 \text{ Min Traffic Factor} \]

**Tied Shoulder = 9" Jointed**

**Un Tied Shoulder = 9/4" Jointed**

**15" Spacing on Joints**

**9" Curb Subbase**

**12" Asphalt Surf**
Note: Use of untied shoulder design requires BDE approval.

RIGID PAVEMENT DESIGN CHART
(Mechanistic Design: SSR = Poor)

Figure 54-4.E

54-4.6
HARD COPIES UNCONTROLLED
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Subbase</th>
<th>Minimum Thickness (inches)</th>
<th>Improved Subgrade Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interstate / Supplemental Freeways</td>
<td>HMA or PCC Stabilized 4</td>
<td>CA, GM, or MS</td>
<td></td>
</tr>
<tr>
<td>Other Marked Routes</td>
<td>HMA or PCC Stabilized 4</td>
<td>CA, GM, or MS</td>
<td></td>
</tr>
<tr>
<td>Unmarked Routes (TF ≥ 2.0)</td>
<td>HMA or PCC Stabilized 4</td>
<td>CA, GM, or MS</td>
<td></td>
</tr>
<tr>
<td>Unmarked Routes (0.7 &lt; TF &lt; 2.0)</td>
<td>HMA or PCC Stabilized 4</td>
<td>CA, GM, or MS</td>
<td></td>
</tr>
<tr>
<td>Unmarked Routes (TF ≤ 0.7)</td>
<td>Not required n/a</td>
<td>CA, GM or MS</td>
<td></td>
</tr>
</tbody>
</table>

| Class II                             |         |                           |                        |
| Marked Routes                        | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Unmarked Routes (TF ≥ 2.0)           | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Unmarked Routes (0.7 < TF < 2.0)     | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Unmarked Routes (TF ≤ 0.7)           | Not required n/a       | CA, GM or MS              |

| Class III                            |         |                           |                        |
| Marked Routes (TF ≥ 2.0)             | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Marked Routes (0.7 < TF < 2.0)       | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Marked Routes (TF ≤ 0.7)             | Not required n/a       | CA, GM or MS              |
| Unmarked Routes (TF ≥ 2.0)           | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Unmarked Routes (0.7 < TF < 2.0)     | HMA or PCC Stabilized 4 | CA, GM, or MS             |
| Unmarked Routes (TF ≤ 0.7)           | Not required n/a       | CA, GM or MS              |

Notes:
1. Regardless of the traffic factor, a CA or GM improved subgrade may be used in lieu of a stabilized subbase in urban sections having curb and gutter and a storm sewer system.
2. Improved Subgrade Types include:
   - CA – Composite Aggregate (3 in. CA 6/CA 10/RAP over 9 in. Aggregate/PGE)
   - GM – Granular over Modified Soil (4 in. CA 6 or CA 10 over 12 in. Modified Soil)
   - MS – Modified Soil (minimum of 12 in.)
3. The minimum thickness of improved subgrade shall be according to Section 54-2.01(f).
4. Modified Soil is not allowed when no stabilized subbase is used.

**MINIMUM STRUCTURAL DESIGN REQUIREMENTS**
(Rigid Pavement: Mechanistic Design)

Figure 54-4.D

54-4.4

HARD COPIES UNCONTROLLED
# BUREAU OF LOCAL ROADS & STREETS
## PAVEMENT DESIGN

### Revised Mainline Pavement

<table>
<thead>
<tr>
<th>Date</th>
<th>9-25-2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculations by</td>
<td>Red Ward</td>
</tr>
<tr>
<td>Checked by</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>1 Roads and Streets</td>
</tr>
</tbody>
</table>

**Limits of Analysis:**
- Station 600+00 to 761+85
- Station 1211.85 to 49+50
- Length: 20227.5 Ft 3.831 Miles

**Structural Design Traffic:**
- ADT: 14,600
- PV: 10,780
- SU: 348
- MU: 562

\[ 138,890.594 \text{ yd} \]

<table>
<thead>
<tr>
<th>Route</th>
<th>NEW Rd (F 46766)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section</td>
<td>10-00166-02-PV</td>
</tr>
<tr>
<td>County</td>
<td>Tazewell</td>
</tr>
<tr>
<td>Location</td>
<td></td>
</tr>
</tbody>
</table>

**Pavement Design:**
- Subgrade Support Rating (SSR): Poor (fair, poor, or granular)
- Flexible Traffic Factor: 3.55 m
- Selected Design PG Binder: PC 64-22
- Design Pavement HMA Temp.: 76.6 °F
- Design HMA Modulus (E_ac): 645 ksi
- Design HMA Microstrain: 85
- Pavement Thickness: 10\(\frac{1}{2}\)" in
- Subgrade: 12" Modified Soil
- Comments: Fly Ash & Lime

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**FULL-DEPTH HMA PAVEMENT**
**DESIGN CALCULATIONS FOR LOCAL AGENCIES**

Figure 37-4P
Ch. 54 of 805
Mechanistic Flexible Pavement

Class I  Roadway 11,600 ADT

PU = 92.5%  10,750
54 = 3.0%   348
14 = 4.5%   522

% Traffic in design lane  94 = 32%  MWS4 = 4.7%

Actual Traffic Factor

\[ TF = 20 \left\{ \frac{(0.15 \times 0.82 \times 14) + (132.5 \times 0.82 \times 14)}{1000} \right\} \]

\[ TF = 20 \left\{ \frac{513 + 9270 + 113340}{1000} \right\} = \frac{124611}{1000} = 124.61 \]

\[ TF = 2.169 \]

\[ M10, TF = 20 \left\{ \frac{(132.5 \times 0.45 \times 2.5) + (482.53 \times 145 \times 2.5)}{1000} \right\} \]

\[ TF = 20 \left\{ \frac{14906 + 162854}{1000} \right\} = \frac{177760}{1000} = 0.178 \]

\[ M10, TF = 3.55 \]

From Fig. 54-5.6 = 10\% HMA Full Depth 12" Modified Soil
Note: The minimum design HMA mixture temperature will be 73°F.
### Full-Depth HMA Pavement

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>FUT REHAB COST</th>
<th>FUT REHAB COST%</th>
<th>PRES REHAB COST</th>
<th>PRES REHAB COST%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 &quot; Polymerized HMA Surface Course Mix &quot;O&quot; N70</td>
<td>15,556</td>
<td>TON</td>
<td>$52.14</td>
<td>$827,774</td>
<td>2.5 &quot; Polymerized H M A Binder Course IL-19.0, N70</td>
<td>19,445</td>
<td>TON</td>
</tr>
<tr>
<td>9.216 &quot; SUB-BASE GRAN MATRXL TYPE C 56&quot;</td>
<td>16,097</td>
<td>TON</td>
<td>$18.00</td>
<td>$288,740</td>
<td>12.4 &quot; PROCESSING MODIFIED SOIL 12&quot;</td>
<td>170,083</td>
<td>SG YD</td>
</tr>
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</table>

### Flexible

<table>
<thead>
<tr>
<th>ACTIVITY 1 --- YEAR 6</th>
<th>PWF5=</th>
<th>0.8625</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% LONGITUDINAL SHOULDER JOINT ROUTING &amp; SEALING</td>
<td>35,088</td>
<td>LIN FT</td>
</tr>
<tr>
<td>100% CL JOINT ROUTING &amp; SEALING (SINGLE LANE PAVING)</td>
<td>20,834</td>
<td>LIN FT</td>
</tr>
<tr>
<td>50% RANDOM/THERMAL CRACK ROUTING &amp; SEALING (SEE NOTE)</td>
<td>57,294</td>
<td>LIN FT</td>
</tr>
<tr>
<td>0.10% PARTIAL-DEPTH PAVEMENT PATCHING (MILL &amp; FILL SURFACE)</td>
<td>139</td>
<td>SQ YD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 2 --- YEAR 10</th>
<th>PWF10=</th>
<th>0.7441</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% LONGITUDINAL SHOULDER JOINT ROUTING &amp; SEALING</td>
<td>35,088</td>
<td>LIN FT</td>
</tr>
<tr>
<td>100% CENTERLINE JOINT ROUTING &amp; SEALING</td>
<td>20,834</td>
<td>LIN FT</td>
</tr>
<tr>
<td>50% RANDOM/THERMAL CRACK ROUTING &amp; SEALING (SEE NOTE)</td>
<td>57,294</td>
<td>LIN FT</td>
</tr>
<tr>
<td>0.50% PARTIAL-DEPTH PAVEMENT PATCHING (MILL &amp; FILL SURFACE)</td>
<td>694</td>
<td>SQ YD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 3 --- YEAR 15</th>
<th>PWF15=</th>
<th>0.6419</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 &quot; MILLING-PAVEMENT AND SHOULDERS</td>
<td>170,083</td>
<td>SQ YD</td>
</tr>
<tr>
<td>1.0% PARTIAL-DEPTH PAVEMENT PATCHING (MILL AND FILL ADDITIONAL 2 IN.)</td>
<td>1,389</td>
<td>SQ YD</td>
</tr>
<tr>
<td>2 &quot; HMA OVERLAY SURFACE POLYMER MX &quot;D&quot;</td>
<td>15,556</td>
<td>TON</td>
</tr>
<tr>
<td>2 &quot; HMA OVERLAY SHOULDERS</td>
<td>3,493</td>
<td>TON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 4 --- YEAR 20</th>
<th>PWF20=</th>
<th>0.5537</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% LONGITUDINAL SHOULDER JOINT ROUTING &amp; SEALING</td>
<td>35,088</td>
<td>LIN FT</td>
</tr>
<tr>
<td>100% CENTERLINE JOINT ROUTING &amp; SEALING</td>
<td>20,834</td>
<td>LIN FT</td>
</tr>
<tr>
<td>50% RANDOM/THERMAL CRACK ROUTING &amp; SEALING (SEE NOTE)</td>
<td>57,294</td>
<td>LIN FT</td>
</tr>
<tr>
<td>0.10% PARTIAL-DEPTH PAVEMENT PATCHING (MILL &amp; FILL SURFACE)</td>
<td>139</td>
<td>SQ YD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 5 --- YEAR 25</th>
<th>PWF25=</th>
<th>0.4775</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% LONGITUDINAL SHOULDER JOINT ROUTING &amp; SEALING</td>
<td>35,088</td>
<td>LIN FT</td>
</tr>
<tr>
<td>100% CENTERLINE JOINT ROUTING &amp; SEALING</td>
<td>20,834</td>
<td>LIN FT</td>
</tr>
<tr>
<td>50% RANDOM/THERMAL CRACK ROUTING &amp; SEALING (SEE NOTE)</td>
<td>57,294</td>
<td>LIN FT</td>
</tr>
<tr>
<td>0.50% PARTIAL-DEPTH PAVEMENT PATCHING (MILL &amp; FILL SURFACE)</td>
<td>694</td>
<td>SQ YD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 6 --- YEAR 30</th>
<th>PWF30=</th>
<th>0.4120</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 &quot; MILLING PAVEMENT AND SHOULDERS</td>
<td>170,083</td>
<td>SQ YD</td>
</tr>
<tr>
<td>2.0% PARTIAL-DEPTH PAVEMENT PATCHING (MILL AND FILL)</td>
<td>2,778</td>
<td>SQ YD</td>
</tr>
<tr>
<td>1.0% PARTIAL-DEPTH SHOULDERS PATCHING (MILL AND FILL)</td>
<td>312</td>
<td>SQ YD</td>
</tr>
<tr>
<td>3.75 &quot; HMA OVERLAY-PAVT POLYMER MX &quot;D&quot;</td>
<td>29,168</td>
<td>TON</td>
</tr>
<tr>
<td>1.75 &quot; HMA OVERLAY-SHOULDER5</td>
<td>3,057</td>
<td>TON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 7 --- YEAR 35</th>
<th>PWF35=</th>
<th>0.3554</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% LONGITUDINAL SHOULDER JOINT ROUTING &amp; SEALING</td>
<td>35,088</td>
<td>LIN FT</td>
</tr>
<tr>
<td>100% CENTERLINE JOINT ROUTING &amp; SEALING</td>
<td>20,834</td>
<td>LIN FT</td>
</tr>
<tr>
<td>50% RANDOM/THERMAL CRACK ROUTING &amp; SEALING (SEE NOTE)</td>
<td>57,294</td>
<td>LIN FT</td>
</tr>
<tr>
<td>0.10% PARTIAL-DEPTH PAVEMENT PATCHING (MILL &amp; FILL SURFACE)</td>
<td>139</td>
<td>SQ YD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITY 8 --- YEAR 40</th>
<th>PWF40=</th>
<th>0.3098</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% LONGITUDINAL SHOULDER JOINT ROUTING &amp; SEALING</td>
<td>35,088</td>
<td>LIN FT</td>
</tr>
<tr>
<td>100% CENTERLINE JOINT ROUTING &amp; SEALING</td>
<td>20,834</td>
<td>LIN FT</td>
</tr>
<tr>
<td>50% RANDOM/THERMAL CRACK ROUTING &amp; SEALING (SEE NOTE)</td>
<td>57,294</td>
<td>LIN FT</td>
</tr>
<tr>
<td>0.50% PARTIAL-DEPTH PAVEMENT PATCHING (MILL &amp; FILL SURFACE)</td>
<td>694</td>
<td>SQ YD</td>
</tr>
</tbody>
</table>

| ACTIVITY 9 --- YEAR 45 | PWF45= | 0.0433 |

**Total Present Construction Cost** <br> **Per Mile Over the Period of 40 Years** <br> **CrF40= 0.0433** <br> **$952,346**
## Maintenance and Rehabilitation Activity Schedule

### Jointed Plain Concrete Pavement and Unbonded Jointed Plain Concrete Overlay

### Item

<table>
<thead>
<tr>
<th>Enter Pavement Pay Items</th>
<th>Quantity</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Pres Const Cost</th>
<th>Pres Const Cost/Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 &quot; PCC Pavement 9&quot;</td>
<td>138,893</td>
<td>SQ YD</td>
<td>$41.30</td>
<td>$5,756,295</td>
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<tr>
<td>4 &quot; Stabilized Sub-Base 4&quot;</td>
<td>138,893</td>
<td>SQ YD</td>
<td>$15.00</td>
<td>$2,083,400</td>
<td></td>
</tr>
<tr>
<td>9 &quot; Concrete Shoulders 8&quot;</td>
<td>31,189</td>
<td>SQ YD</td>
<td>$31.70</td>
<td>$968,702</td>
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</tr>
<tr>
<td>9.216 &quot; Sub-Base Gran Matrl Type C</td>
<td>16,097</td>
<td>TON</td>
<td>$18.00</td>
<td>$289,740</td>
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<tr>
<td>Longitudinal Shoulder Joint Routing and Sealing</td>
<td>35,088</td>
<td>LIN FT</td>
<td>$2.00</td>
<td>$70,176</td>
<td></td>
</tr>
<tr>
<td>12.399 &quot; Processing Modified Soil 12&quot;</td>
<td>170,083</td>
<td>SQ YD</td>
<td>$2.00</td>
<td>$340,156</td>
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<tr>
<td>Lime 4% (120 lbs/cu yd of soil)</td>
<td>3,926</td>
<td>TON</td>
<td>$65.00</td>
<td>$255,221</td>
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</table>

### Present Construction Costs Over the Period of 40 Years

Present Cost: $9,783,699
Total Present Cost: $2,474,433

### Activities

#### Activity 1 — Year 10

- 0.10% Class B Pavement Patching: PWF10 = 0.7441
  - Quantity: 139 SQ YD
  - Unit Price: $190.00
  - Fut Rehab Cost: $26,290
  - Fut Rehab Cost/Mile: $6,688
  - Pres Rehab Cost/Mile: $4,977

#### Activity 2 — Year 15

- 0.20% Class B Pavement Patching: PWF15 = 0.6419
  - Quantity: 278 SQ YD
  - Unit Price: $190.00
  - Fut Rehab Cost: $52,779
  - Fut Rehab Cost/Mile: $13,376
  - Pres Rehab Cost/Mile: $8,586

#### Activity 3 — Year 20

- 2.00% Class B Pavement Patching: PWF20 = 0.5357
  - Quantity: 2,778 SQ YD
  - Unit Price: $190.00
  - Fut Rehab Cost: $527,795
  - Fut Rehab Cost/Mile: $13,376
  - Pres Rehab Cost/Mile: $8,586

- 0.50% Class C Shoulders Patching: PWF20 = 0.5357
  - Quantity: 156 SQ YD
  - Unit Price: $150.00
  - Fut Rehab Cost: $23,392
  - Fut Rehab Cost/Mile: $6,098
  - Pres Rehab Cost/Mile: $4,018

- 100% Longitudinal Shoulder Joint Routing and Sealing: PWF20 = 0.5357
  - Quantity: 35,088 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $70,176
  - Fut Rehab Cost/Mile: $18,000
  - Pres Rehab Cost/Mile: $12,000

- 100% Center Line Joint Routing and Sealing: PWF20 = 0.5357
  - Quantity: 20,834 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $41,668
  - Fut Rehab Cost/Mile: $10,300
  - Pres Rehab Cost/Mile: $7,200

#### Activity 4 — Year 25

- 0.30% Class B Pavement Patching: PWF25 = 0.4778
  - Quantity: 417 SQ YD
  - Unit Price: $190.00
  - Fut Rehab Cost: $79,169
  - Fut Rehab Cost/Mile: $20,392
  - Pres Rehab Cost/Mile: $15,245

- 1.00% Class C Shoulders Patching: PWF25 = 0.4778
  - Quantity: 312 SQ YD
  - Unit Price: $150.00
  - Fut Rehab Cost: $46,784
  - Fut Rehab Cost/Mile: $12,593
  - Pres Rehab Cost/Mile: $9,304

#### Activity 5 — Year 30

- 4.00% Class B Pavement Patching: PWF30 = 0.4120
  - Quantity: 5,556 SQ YD
  - Unit Price: $190.00
  - Fut Rehab Cost: $1,055,589
  - Fut Rehab Cost/Mile: $275,898
  - Pres Rehab Cost/Mile: $203,924

- 1.50% Class C Shoulders Patching: PWF30 = 0.4120
  - Quantity: 488 SQ YD
  - Unit Price: $150.00
  - Fut Rehab Cost: $70,176
  - Fut Rehab Cost/Mile: $18,000
  - Pres Rehab Cost/Mile: $12,000

- 2.25% HMA Overlay of Pavement: PWF30 = 0.4120
  - Quantity: 17,561 TON
  - Unit Price: $85.00
  - Fut Rehab Cost: $1,487,548
  - Fut Rehab Cost/Mile: $380,940
  - Pres Rehab Cost/Mile: $286,952

- 1.50% HMA Overlay of Shoulders: PWF30 = 0.4120
  - Quantity: 2,620 TON
  - Unit Price: $80.00
  - Fut Rehab Cost: $206,952
  - Fut Rehab Cost/Mile: $52,740
  - Pres Rehab Cost/Mile: $39,560

#### Activity 6 — Year 35

- 100% Longitudinal Shoulder Joint Routing and Sealing: PWF35 = 0.3554
  - Quantity: 35,088 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $70,176
  - Fut Rehab Cost/Mile: $18,000
  - Pres Rehab Cost/Mile: $12,000

- 100% Center Line Joint Routing and Sealing: PWF35 = 0.3554
  - Quantity: 20,834 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $41,668
  - Fut Rehab Cost/Mile: $10,300
  - Pres Rehab Cost/Mile: $7,200

- 50% Random Crack Route & Seal: PWF35 = 0.3554
  - Quantity: 52,085 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $104,170
  - Fut Rehab Cost/Mile: $26,043
  - Pres Rehab Cost/Mile: $18,702

- 40% Reflect Transverse Crack Route & Seal: PWF35 = 0.3554
  - Quantity: 41,668 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $83,338
  - Fut Rehab Cost/Mile: $21,335
  - Pres Rehab Cost/Mile: $15,251

- 0.10% Partial-Depth Pavement Patching: PWF35 = 0.3554
  - Quantity: 139 SQ YD
  - Unit Price: $100.00
  - Fut Rehab Cost: $13,889
  - Fut Rehab Cost/Mile: $3,500
  - Pres Rehab Cost/Mile: $2,533

#### Activity 7 — Year 40

- 0.50% Class B Pavement Patching: PWF40 = 0.3086
  - Quantity: 694 SQ YD
  - Unit Price: $190.00
  - Fut Rehab Cost: $131,949
  - Fut Rehab Cost/Mile: $33,000
  - Pres Rehab Cost/Mile: $24,225

- 100% Longitudinal Shoulder Joint Routing and Sealing: PWF40 = 0.3086
  - Quantity: 41,668 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $83,338
  - Fut Rehab Cost/Mile: $21,335
  - Pres Rehab Cost/Mile: $15,251

- 100% Center Line Joint Routing and Sealing: PWF40 = 0.3086
  - Quantity: 20,834 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $41,668
  - Fut Rehab Cost/Mile: $10,300
  - Pres Rehab Cost/Mile: $7,200

- 60% Reflect Transverse Crack Route & Seal: PWF40 = 0.3086
  - Quantity: 62,502 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $125,004
  - Fut Rehab Cost/Mile: $31,251
  - Pres Rehab Cost/Mile: $22,834

- 50% Random Crack Route & Seal: PWF40 = 0.3086
  - Quantity: 52,085 LIN FT
  - Unit Price: $2.00
  - Fut Rehab Cost: $104,170
  - Fut Rehab Cost/Mile: $26,043
  - Pres Rehab Cost/Mile: $18,702

- 0.50% Partial-Depth Pavement Patching: PWF40 = 0.3086
  - Quantity: 694 SQ YD
  - Unit Price: $100.00
  - Fut Rehab Cost: $89,447
  - Fut Rehab Cost/Mile: $22,362
  - Pres Rehab Cost/Mile: $16,251

#### Present Rehab Cost Per Mile for the Period of 40 Years

- Total Present Cost: $140,800
- Pres Rehab Cost Per Mile: $43,169

#### Total Present Cost Per Mile for the Period of 40 Years

- Total Present Cost: $2,962,414
- Pres Rehab Cost Per Mile: $128,273