Strong Transportation System Pivotal to Economy

60% of the U.S. and Canadian populations live within a day drive of Ohio
TRANSPORTATION ASSET MANAGEMENT PLAN (TAMP)

TAMP includes:

- ODOT Highway Infrastructure strategies
- Planned investments using anticipated funds
- Emphasis on safety, mobility
- Risk and resiliency
VALUE OF OHIO’S TRANSPORTATION ASSETS

- $66 Billion in Pavement
- $26 Billion in “Other”
- $2 Billion in Culverts
- $22 Billion in Bridges

Total: $116 Billion
PAVEMENT CONDITION BEFORE TAMP

Ohio Interstate Improved with TAMP!

Performance

TAM

1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017
Deighton (dTIMS)

- Has roads, traffic, history, estimating, decision trees, etc.
- Forecasts roadway distress, rolls up to PCR
- Optimizes solutions by budget, PCR critical success targets

6-yr plan horizon expands to 10-yrs per Federal requirements
PMS BETTER KNOWN AS THE “BLACK BOX”
PMS IS NOT INTUITIVE AT TIMES

Which Route Would You Work on First?

A

B
ODOT NEW BUSINESS PROCESS

$$$ Flows from Central Office to Districts
### CAPITAL WORK PLAN PAVEMENTS

#### PRIORITY SYSTEM - PLANNED VS. PROGRAMMED (FY2018)

<table>
<thead>
<tr>
<th>District 3 Treatments</th>
<th>Planned</th>
<th>Programmed</th>
<th>% Awarded to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 - Chip Seal</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>30 - Microsurfacing</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>31 - Double Application Microsurfacing</td>
<td>8.20</td>
<td>8.20</td>
<td>100.00%</td>
</tr>
<tr>
<td>38 - Fine Graded Polymer AC Overlay</td>
<td>98.58</td>
<td>114.82</td>
<td>100.00%</td>
</tr>
<tr>
<td>40 - CPR Concrete Pavement Repair</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>41 - Thin AC Overlay without Repairs</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>50 - AC Overlay without Repairs</td>
<td>40.56</td>
<td>41.04</td>
<td>100.00%</td>
</tr>
<tr>
<td>60 - AC Overlay with Repairs</td>
<td>19.80</td>
<td>29.24</td>
<td>96.85%</td>
</tr>
<tr>
<td>100 - New Flexible Pavement</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>167.14</td>
<td>193.30</td>
<td>99.52%</td>
</tr>
<tr>
<td>20 - Crack Sealing</td>
<td>50.96</td>
<td>50.96</td>
<td>100.00%</td>
</tr>
<tr>
<td>Gap Projects</td>
<td>38.00</td>
<td>38.00</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>282.26</strong></td>
<td></td>
</tr>
</tbody>
</table>
# Capital Work Plan Pavements

## General System - Planned vs. Programmed (FY2018)

<table>
<thead>
<tr>
<th>District 3 Treatments</th>
<th>Planned</th>
<th>Programmed</th>
<th>% Awarded To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 - Chip Seal</td>
<td>56.52</td>
<td>32.46</td>
<td>100.00%</td>
</tr>
<tr>
<td>30 - Microsurfacing</td>
<td>59.40</td>
<td>33.42</td>
<td>0.00%</td>
</tr>
<tr>
<td>31 - Double Application Microsurfacing</td>
<td>0.00</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>38 - Fine Graded Polymer AC Overlay</td>
<td>19.14</td>
<td>19.14</td>
<td>100.00%</td>
</tr>
<tr>
<td>40 - CPR Concrete Pavement Repair</td>
<td>0.42</td>
<td>0.42</td>
<td>100.00%</td>
</tr>
<tr>
<td>41 - Thin AC Overlay without Repairs</td>
<td>0.00</td>
<td>24.06</td>
<td>100.00%</td>
</tr>
<tr>
<td>50 - AC Overlay without Repairs</td>
<td>80.40</td>
<td>110.94</td>
<td>76.31%</td>
</tr>
<tr>
<td>60 - AC Overlay with Repairs</td>
<td>166.18</td>
<td>149.92</td>
<td>73.04%</td>
</tr>
<tr>
<td>100 - New Flexible Pavement</td>
<td>0.00</td>
<td>2.76</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>382.04</td>
<td>373.12</td>
<td>73.22%</td>
</tr>
<tr>
<td>20 - Crack Sealing</td>
<td>63.54</td>
<td>63.54</td>
<td>100.00%</td>
</tr>
<tr>
<td>Gap Projects</td>
<td>8.72</td>
<td>8.72</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>445.38</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Compliance with Pavement Management System*

**DISTRICT 3**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>PMS</th>
<th>DWP MATCHES</th>
<th>PERCENTAGES</th>
<th>MEETS GOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>307.44</td>
<td>269.58</td>
<td>82.01%</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>339.21</td>
<td>354.42</td>
<td>79.47%</td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td>421.34</td>
<td>456.38</td>
<td>84.12%</td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td>528.69</td>
<td>158.16</td>
<td>86.32%</td>
<td>✔</td>
</tr>
<tr>
<td>2024</td>
<td>383.99</td>
<td>252.12</td>
<td>41.19%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,980.67</td>
<td>1,490.66</td>
<td>75.26%</td>
<td></td>
</tr>
</tbody>
</table>

**Goal: Match 75% of the PMS Location and Treatment Recommendations**

* *District 3 Multi-Year Work Plan - April 24, 2018*
Rejected PMS Recommendations

- LOR-301-24.99 to 26.69
  - AC Overlay w Repair
  - Concrete Pavement Repair
- MED-42/224 (Lodi Bypass)
  - Micro’d in 2011 - No PMS recommendation
  - 2021 AC Overlay with Repairs
- No Chip Sealing in Villages
CAPITAL WORK PLAN PAVEMENTS

FY2018 GAP Projects

- HUR US 20 - Pavement Repairs (2020/2022)
- HUR SR 601 - Intersection Rutting (2023)
- WAY SR 21 - Smoothseal - (2024)

FY2019 GAP Project

- RIC IR 71 - Pavement Repairs (2020)
GAP Projects
  - Full/Partial Depth Repair/Resurfacing
    - 2019: 11,200 tons of asphalt repair
    - 2020: 12,100 tons of asphalt repair

Ready To Pave Projects
  - Full Depth Repair
    - 2019: 12,360 tons of asphalt repair = $927,000
    - 2020: 1,880 tons of asphalt repair = $141,000
### SUMMARY: DISTRICT UNIFIED WORK PLAN

<table>
<thead>
<tr>
<th>DISTRICT 3 TREATMENTS</th>
<th>CAPITAL PROGRAMMED</th>
<th>OPERATIONS PLANNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 - Chip Seal</td>
<td>422.44</td>
<td></td>
</tr>
<tr>
<td>30 - Microsurfacing</td>
<td>210.48</td>
<td></td>
</tr>
<tr>
<td>31 - Double Application Microsurfacing</td>
<td>73.68</td>
<td></td>
</tr>
<tr>
<td>38 - Fine Graded Polymer AC Overlay</td>
<td>738.00</td>
<td></td>
</tr>
<tr>
<td>40 - CPR Concrete Pavement Repair</td>
<td>39.18</td>
<td></td>
</tr>
<tr>
<td>41 - Thin AC Overlay without Repairs</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>50 - AC Overlay without Repairs</td>
<td>83.38</td>
<td></td>
</tr>
<tr>
<td>60 - AC Overlay with Repairs</td>
<td>763.47</td>
<td></td>
</tr>
<tr>
<td>100 - New Flexible Pavement</td>
<td>81.68</td>
<td></td>
</tr>
<tr>
<td>110 - New Rigid Pavement</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>2,412.31</strong></td>
<td><strong>0.00</strong></td>
</tr>
<tr>
<td>20 - Crack Sealing</td>
<td>662.00</td>
<td></td>
</tr>
<tr>
<td>Ready to Pave (Pavement Repair)</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Gap Projects (Band-Aid Activities until Capital Project)</td>
<td>336.00</td>
<td>460.60</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3,410.31</strong></td>
<td><strong>460.60</strong></td>
</tr>
</tbody>
</table>

### PERCENT OF DISTRICT LANE MILES WITH AN ACTIVITY

\[
\text{Percent} = \frac{\text{Lane Miles of Activities (Inclusive of RTP, GAP & Crack Seal)}}{\text{Total District P & G Lane Miles}} \times 100
\]

\[
\begin{align*}
\text{Percent of District} & = \frac{3,870.91}{4,176.30} \\
& = 92.69\%
\end{align*}
\]

### PERCENT OF DISTRICT LANE MILES WITH AN ACTIVITY TO IMPROVE THE PCR

\[
\text{Percent} = \frac{\text{Lane Miles of Activities (Inclusive of RTP, GAP & Crack Seal)}}{\text{Total District P & G Lane Miles}} \times 100
\]

\[
\begin{align*}
\text{Percent of District} & = \frac{2,412.31}{4,176.30} \\
& = 57.76\%
\end{align*}
\]
OLD WAY VS. NEW WAY

PRIORITY PAVEMENT SYSTEM

STATEWIDE AVERAGE PCR

CRITICAL SUCCESS FACTOR: 85

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027

CURRENT INVESTMENT STRATEGY

OLD INVESTMENT STRATEGY

Ohio Department of Transportation

Southeastern States Pavement Conference
$400 MILLION SAVED OVER 6 YEARS

YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 | YEAR 6

$100M | $200M | $300M | $400M

Ohio Department of Transportation
Southeastern States Pavement Conference
ODOT paves 1,700 more miles a year.  
Well-maintained roads = safer roads.

Repairing 150 more bridges a year.
AVERAGE PAVEMENT LIFE AFTER TREATMENT

Pavement Deterioration and Treatment Effective Lives

Graph showing the average pavement life after treatment with different treatment options and their effective lives.
Projected Network Condition Distribution Pavement

- **EXCELLENT (PCR > 85)**
- **GOOD (75 < PCR < 85)**
- **FAIR (65 < PCR < 75)**
- **POOR (55 < PCR < 65)**
- **VERY POOR (55 < PCR < 65)**
CRADLE TO GRAVE ASSET MANAGEMENT PROCESS
Asset Management Leadership Team

EXECUTIVE MANAGEMENT

TAM COUNCIL

TECHNOLOGY COUNCIL

ASSET MANAGEMENT LEADERSHIP TEAM
(CENTRAL OFFICE AND DISTRICTS, MPOS)
LEADERSHIP TEAM

Multi-Disciplinary Business Owners and Stakeholders from ODOT Central and District Offices
COMMUNICATION

- Fact card
- Frequently asked questions
- Talking points
- Video
- Web page
- PowerPoint

ODOT. Taking Care of What We Have.

Most people notice when ODOT builds something new. We actually spend 91% of our time and resources taking care of what we already have. While repair costs have gone up, funding has not. So we must constantly do more with less (what cost ODOT $1 in 2006 now costs $1.56 in 2015). We continue to implement new, smarter ways to improve safety and protect the huge investment in the more than 43,000 miles of roads and 14,000 bridges that ODOT maintains.

1. State-of-the-Art Technology for Improved Decision-Making
   - Our Pavement Management System software conducts in-depth analysis of road conditions to determine road resurfacing priorities with the highest benefit at the lowest cost.
   - The Transportation Information Mapping System (TIMS) is a robust data source with the latest on ODOT facilities, roads and bridges, airports, ports, transit systems, culverts, safety barriers, railroads, intermodal facilities and much more.

2. Aggressive Preservation Treatments
   - More chip seal and microsurfacing of roads to extend surface life – at fractions of the cost of conventional overlays.
   - Proactively clean and seal bridges to keep the joints, shoe structures, surfaces and drains in good repair and extend surface life.

3. More Collaboration
   - Coordinate capital and maintenance work under one plan.
   - Continuously interact with front line crews, contractors and local governments to share information and benefit from their first-hand, practical knowledge.
   - Capture, analyze and replicate successes across the state.
WHY DATA GOVERNANCE?

PROBLEM

- Updated local road inventory not integrated with state road inventory network
- Maintenance & Pavement Managements can’t share data due to lack of standards
- SMS has outdated road and traffic data = mismatch in TAM Reports
- Expensive change orders due to lack of information sharing

IMPACT

- Potential loss of life due to poor emergency response
- EIMS stores inaccurate location data and needs replaced
- Feds show 109% difference in the number of Bridges
- County crews didn’t crack seal before paving

$Financial impact due to lack of informed decisions
$250k change order!
DATA GOVERNANCE ADVANTAGE

47% Increase in employee productivity

up to 25% Reduction in Change Orders

15% Savings in Capital Program budget
SYSTEMATIC PROCESS: OPTIMIZE INVESTMENTS

GUIDANCE AND DIRECTION PROVIDED BY THE ASSET MANAGEMENT LEADERSHIP TEAM

1. Maintain critical asset inventories and condition
2. Establish performance targets and funding needs
3. Communicate strategic direction and progress made
4. Monitor progress for continuous improvement
5. Develop work plans
Drill Throughs Offer Details! Details! Details!

Asset Expenditure
- Capital Costs
- Maintenance Costs
- Historic Expenditure

Auto Populate Data

Selected Year Maintenance Expenditures per Project Category

<table>
<thead>
<tr>
<th>Year</th>
<th>Maintenance Category</th>
<th>Maintenance Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>PAVEMENT</td>
<td>$845,305.49</td>
</tr>
<tr>
<td>2011</td>
<td>BRIDGE</td>
<td>$490,984.74</td>
</tr>
<tr>
<td>2011</td>
<td>ROADWAY</td>
<td>$464,355.81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$2,375,118.91</strong></td>
</tr>
</tbody>
</table>

Selected Year Capital Expenditures per Treatment Category

<table>
<thead>
<tr>
<th>Project Year</th>
<th>Treatment Category</th>
<th>Capital Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Minor Rehabilitation</td>
<td>$211,538,387.74</td>
</tr>
<tr>
<td>2011</td>
<td>New Construction</td>
<td>$21,528,684.15</td>
</tr>
<tr>
<td>2011</td>
<td>Reactive Maintenance</td>
<td>$2,789,047.87</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$260,044,734.94</strong></td>
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</tbody>
</table>

Selected Year Historic Capital Expenditures per Category

<table>
<thead>
<tr>
<th>Historic Project Year</th>
<th>Historic Treatment Category</th>
<th>Historic Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
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<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Good Stewardship of Newly Acquired Motor Vehicle User Fees
RESOURCES

FOR MORE INFORMATION, PLEASE VISIT

transportation.ohio.gov/AssetManagement
QUESTIONS?