Background

- City maintains approximately 67 miles of arterial roads and 230 miles of local roads (residential/industrial roads).

- Public Works prepares and updates a Pavement Management Program (PMP) every two years.

- PMP is required by OCTA in order for the City to be eligible for Measure M2 funds.
Introduction

• City contracted with Bucknam Infrastructure Group, Inc. to prepare the 2016 and 2018 PMP updates.

• Bucknam Infrastructure Group assisted 17 Orange County local agencies last year with updating their pavement management programs.

• Peter Bucknam has completed over 200 PMP projects over the past 17 years.
PAVEMENT MANAGEMENT PROGRAM - 2018 UPDATE
Pavement Management Program

- The PMP objective is to:
  - Determine existing pavement conditions
  - Develop pavement rehabilitation strategies
  - Forecast future pavement rehabilitation projects
  - Forecast budget needs
- The program determines the existing roadway condition and assigns a Pavement Conditions Index (PCI) rating from 0-100 for each roadway segment.
Pavement Condition Index

- The PCI is a function of overall condition of the pavement. Condition problems include potholes, cracking, failures, rutting, etc.
- Fewer problems = higher PCI rating
Factors That Effect Pavement Life

- Delay of Preventive Maintenance
- Traffic Volume and Loading
- Age of Pavement
- Type of Pavement (PCC vs AC)
- Soil and Base Material Under Pavement
- Storm Water Infiltration into Subgrade
- Utility Trench Cuts
## PCI Rating Summary

<table>
<thead>
<tr>
<th>Item</th>
<th>2011 PCI</th>
<th>2013 PCI</th>
<th>2016 PCI</th>
<th>2018 PCI (Current)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial Streets</td>
<td>64.2</td>
<td>65.0</td>
<td>65.6</td>
<td>69.4</td>
</tr>
<tr>
<td>Local Streets</td>
<td>61.3</td>
<td>62.0</td>
<td>59.2</td>
<td>61.8</td>
</tr>
<tr>
<td>Citywide</td>
<td>62.3</td>
<td>63.0</td>
<td>61.6</td>
<td>64.7</td>
</tr>
</tbody>
</table>

**Historical Fullerton PCI (2011-2018)**

- MPAH
- Locals
- Citywide
2018 PCI Rating Summary

PCI - Arterial Roads
- Very Poor = 15%
- Poor = 14%
- Fair = 24%
- Good = 14%
- Very Good = 33%

Weighted Average PCI = 69.4* (Fair)

PCI - Local Roads
- Very Poor = 31%
- Poor = 13%
- Fair = 14%
- Good = 16%
- Very Good = 26%

Weighted Average PCI = 61.8 (Fair)

PCI - All Roads (Weighted)
- Very Poor = 27%
- Poor = 15%
- Fair = 17%
- Good = 13%
- Very Good = 28%

Overall Weighted City Average PCI = 64.7 (Fair)

* Significant arterial street improvements in 2017 were funded by private development and other agencies (OCSD, OCTA, cities).
Current Funding PCI Projection

Projected Pavement Conditions (PCI) FY 2018-2025

- **Today:** $64.7m
- **2018-19:** $7.7m
- **2019-20:** $66.0m
- **2020-21:** $67.7m
- **2021-22:** $67.2m
- **2022-23:** $66.5m
- **2023-24:** $65.8m
- **2024-25:** $64.3m

- **Current Funding**
- **Entire Network PCI**
Zone 6 will be completed in summer 2018

Zone 4 will be completed in summer 2018
Funding Requirements to Maintain PCI

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Shortfall (in $millions)</th>
<th>Current Budget (in $millions)</th>
<th>Budget Required (in $millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 18-19</td>
<td>$7.70</td>
<td>$4.90</td>
<td>$4.70</td>
</tr>
<tr>
<td>FY 19-20</td>
<td>$6.10</td>
<td>$6.20</td>
<td>$6.20</td>
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<tr>
<td>FY 21-21</td>
<td>$6.20</td>
<td>$6.20</td>
<td>$6.20</td>
</tr>
<tr>
<td>FY 21-22</td>
<td>$6.10</td>
<td>$6.10</td>
<td>$6.10</td>
</tr>
<tr>
<td>FY 22-23</td>
<td>$6.20</td>
<td>$6.20</td>
<td>$6.20</td>
</tr>
<tr>
<td>FY 23-24</td>
<td>$6.20</td>
<td>$6.20</td>
<td>$6.20</td>
</tr>
<tr>
<td>FY 24-25</td>
<td>$4.80</td>
<td>$4.80</td>
<td>$1.4</td>
</tr>
</tbody>
</table>

Budget amounts shown in $millions.
Alternate Funding & Resulting PCI

$10.5 Million per Fiscal Year
Enhanced Funding & Resulting PCI

$12 Million per Fiscal Year

PCI Rank

Current FY18-19 FY19-20 FY20-21 FY21-22 FY22-23 FY23-24 FY24-25

PCI:

- Arterial
- Local
- Citywide
## Maintenance Methods

### Typical Pavement Condition Maintenance Methods

<table>
<thead>
<tr>
<th>Condition Category</th>
<th>PCI Levels</th>
<th>Maintenance Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
<td>86-100</td>
<td>None</td>
</tr>
<tr>
<td>Good</td>
<td>75-85</td>
<td>Slurry Seal</td>
</tr>
<tr>
<td>Fair</td>
<td>60-74</td>
<td>Thin Overlay (2”)</td>
</tr>
<tr>
<td>Poor</td>
<td>41-59</td>
<td>Thick Overlay (4”)</td>
</tr>
<tr>
<td>Very Poor</td>
<td>0-40</td>
<td>Reconstruction</td>
</tr>
</tbody>
</table>

**In General:**
- Slurry Seal adds 5-20 points to a street’s PCI rank (depending on existing condition)
- Thin Overlay resets the street’s PCI rank at 100.
- Thick Overlay resets the street’s PCI rank at 100.
- Reconstruction resets the street’s PCI rank at 100.
Citywide Findings and Recommendations

- Pavement management involves frequent preventative maintenance.
  - As pavement deteriorates preventative maintenance such as patching and slurry seal have limited benefits. More aggressive maintenance measures have to be used.

- Key overlay projects will be needed over the next seven years to maintain the Citywide PCI level.

- Recommend implementing a proactive, common sense overlay program and a continued slurry seal program for the next several fiscal years.
Arterial Findings and Recommendations

• 37% (25 centerline miles) of arterial streets qualify for slurry seal maintenance.

• 30% (20 centerline miles of arterial streets qualify for rehabilitation/reconstruction maintenance.

• Develop a proactive fiscal and planned approach to identify overlay projects based on the PMP models.

• Appropriate approximately $2 million annually to generate an arterial network PCI increase of 1 point.
Local Findings and Recommendations

• 27% (63 centerline miles) of local streets qualify for slurry seal maintenance.

• 46% (107 centerline miles of local streets qualify for rehabilitation/reconstruction maintenance.

• Develop a proactive fiscal and planned approach to identify overlay projects based on the PMP models.

• Appropriate approximately $5 million annually to generate an local network PCI increase of 1 point.
Questions?