Ms. Yapp managed the street and path survey and the pavement report in 2012.

She presented the report to Council in December of 2012.

She has been involved with the design of the 2015 Pavement Project.

She also managed the recent survey and report and is here to give an update of our street and path condition.

Margot Yapp, PE
NCE Vice President
City of Davis
“State of the Pavements”

Presented by:
Margot Yapp, P.E.
December 1\textsuperscript{st}, 2015
What is a Pavement Mgmt. Program?

- A tool to help make cost-effective decisions
- Answers 4 main questions
  - What does City own/maintain in street/bike network?
  - What condition is it in?
  - What repairs are needed and when?
  - How much money is required to maintain or improve streets cost-effectively?
- StreetSaver® software utilized
### Street/Bike Path Network

<table>
<thead>
<tr>
<th>Functional Class</th>
<th>Centerline Miles</th>
<th>Lane Miles</th>
<th>% of the Entire Network (Area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterials</td>
<td></td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>County</td>
<td></td>
<td></td>
<td>23.8%</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td>185.7</td>
<td>50.6%</td>
</tr>
<tr>
<td>Arterials</td>
<td>1.1</td>
<td>1.7</td>
<td>0.3%</td>
</tr>
<tr>
<td>Total</td>
<td>159.5</td>
<td>338.9</td>
<td>100%</td>
</tr>
<tr>
<td>Bike Paths</td>
<td>51.8</td>
<td>99.1</td>
<td>-</td>
</tr>
</tbody>
</table>

Asset value is $233 million!
Types of Pavement Distresses

- Alligator cracking
- Block cracking
- Rutting
- Weathering & raveling
- Longitudinal or transverse cracking
- Patches
- Distortions
How is Condition Measured?

- Good - Excellent
- At Risk
- Poor
- Failed

Streets 63
Bike paths 51
PCI = 40
• 40% is in good condition
• 25% is poor/very poor

PCI Breakdown (Streets)

• Arterials are in better condition. Improved since 2012

Arterial, PCI=72
Residential, PCI=58
Collector, PCI=66
Alleys, PCI=35

- Good/V. Good (70-100)
- At Risk (50-69)
- Poor (25-49)
- Failed (0-24)
How do Other Cities Compare?

Data from 2014 Statewide Needs Survey

Statewide Average PCI = 66 (2014)

Data from 2014 Statewide Needs Survey
PCI Breakdown (Bike Paths)

- Only 22% is in good condition
- 58% is poor/very poor
“Pay Now or Pay More Later”

- **PCI=100**
  - Slurry Seal
    - $3.20/sy

- **PCI=70**
  - Rubber Cape Seal/Thin AC Overlay
    - $10.00 - $24.00/sy

- **PCI=50**
  - Thick AC Overlay
    - $30.00 - $35.50/sy

- **PCI=25**
  - FDR
    - $59.00 - $77.50/sy

- **PCI=0**
  - Very Poor / Failed

% of Pavement Life:
- 40%
- 75%
- 90%
Scenario 1A: Current City Budget
($1.8M/Year)
Scenario 1B: Current City Budget
($1.8M/Year - Arterials & Collectors Only)
Scenario 2: Maintain PCI at 63
Scenario 3: Reach Target PCIs

Arterials 68, Collectors 65, Locals 60
Scenario 4: Current City Budget
($397K/Year - Bike Paths)
Scenario 5: Maintain PCI at 51 Bike Paths
Scenario 6: Improve PCI to 68 Bike Paths
Impacts of Different Funding Level

Current Condition (2015)
- Good/Very Good: 39.5%
- Fair: 35.4%
- Poor: 22.3%
- Very Poor: 2.8%

2035 Condition (Current Budget)
- Good/Very Good: 44.5%
- Fair: 39.0%
- Poor: 20.9%
- Very Poor: 11.9%

2035 Condition (Maintain PCI at 63)
- Good/Very Good: 48.7%
- Fair: 44.4%
- Poor: 7.0%
- Very Poor: 10.1%

2035 Condition (Current Budget on A/C)
- Good/Very Good: 48.7%
- Fair: 34.2%
- Poor: 19.0%
- Very Poor: 11.9%
Impacts of Different Funding Levels

Current Condition (2015)
- Very Poor: 19.9%
- Good/Very Good: 21.6%
- Fair: 19.9%
- Poor: 38.6%

2035 Condition (Current Budget)
- Very Poor: 34.9%
- Good/Very Good: 26.5%
- Fair: 38.6%

2035 Condition (Maintain PCI at 51)
- Very Poor: 29.4%
- Good/Very Good: 33.7%
- Fair: 36.9%

2035 Condition (Improve PCI to 68)
- Very Poor: 8.9%
- Good/Very Good: 52.5%
- Fair: 38.6%
How Did We Get Here?

- Pavements are deteriorating rapidly
- Asphalt prices have increased almost five-fold since 1999
- Funding has not kept up
Conclusions

- Davis City has a substantial investment in street and bike path network ($233 million)

- Streets ($1.8M/year)
  - Streets will deteriorate to 36 by 2035
  - Unfunded backlog grows to $127.1 million
  - Very poor streets grow 15 times to 45%

- Bike Paths ($397K/year)
  - Paths will deteriorate to 45 by 2035
  - Unfunded backlog grows to $25.3 million
  - Very poor paths increase to 35%
Average Annual Budget for Pavement Program

$3,930,000 Total
Project Cost Breakdown, 2015 Pavement Project

Percent Total Contract

- Street Paving: 65%
- Concrete Flatwork: 28%
- Bike Path: 8%

Goal is to get Bike Path costs to 15% or higher.
## Pavement Condition Index (PCI) Comparison

<table>
<thead>
<tr>
<th>Street Classification</th>
<th>Percent of All Streets</th>
<th>2012 Average PCI</th>
<th>2015 Average PCI</th>
<th>Target PCI&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterials</td>
<td>21%</td>
<td>63</td>
<td>72</td>
<td>68</td>
</tr>
<tr>
<td>Collectors</td>
<td>14%</td>
<td>60</td>
<td>66</td>
<td>65</td>
</tr>
<tr>
<td>Local Streets</td>
<td>65%</td>
<td>62</td>
<td>58&lt;sup&gt;1&lt;/sup&gt;</td>
<td>60</td>
</tr>
<tr>
<td>All Streets</td>
<td>100%</td>
<td>62</td>
<td>63</td>
<td>-</td>
</tr>
</tbody>
</table>

| Bike Paths            | -                      | 59               | 51<sup>1</sup>   | 68<sup>3</sup>         |

1. PCI number derived from StreetSaver extrapolation, not from the survey.
2. Discussed in next section.
3. Council adopted goals in 2013 that the target PCI for bike paths be equal or greater than the highest street PCI.
2013: A Year of Decisions

- Budgeting the Program
- Priority Local Streets
- Target PCIs
- Pavement Management Scenarios
Improved Streets 2012-2015

- First Street, A Street to G Street
- B Street, Fifth Street to Fourteenth Street\(^1,\,^2\)
- East Eighth Street, F Street to J Street\(^2\)
- Base Repair and Crack Seal, various streets
- East Covell Boulevard, Birch Lane to Alhambra Drive
- L Street, Second Street to Fifth Street
- West Eighth Street, Anderson Road to A Street
- East Eighth Street, J Street to L Street
- Lillard Drive, Farragut Circle to 2761 Lillard
- Lake Boulevard, Arlington Boulevard to West Covell Boulevard

\(^1\) Partially funded by the Community Development Block (CDBG) Program.
\(^2\) Partially funded by a grant from SACOG.
Improved Streets 2012-2015
Funding for Improved Streets 2012-2015

- CDBG: 90%
- SACOG Grants: 8%
- Local Funds: 2%
- Third Street, from A Street to B Street (CIP 8164) – partially funded by a SACOG grant - $3.3M grant funding a $6.5M project
- L Street, from Fifth Street to Covell Boulevard (CIP 8256) – partially funded by a SACOG grant - $1.5M grant funding a $2.0M project
- Mace Boulevard, from Montgomery Avenue to Chiles Road (CIP 8257) – partially funded by a SACOG grant - $2.0M grant funding a $2.7M project.
Upcoming Projects

Partially grant funded
Considering the 2016 Paving Project

- The condition of the arterials and collectors are currently above the Council approved goals.
- The condition of the local streets and bike paths are below the approved goals.
- SACOG funded projects will improve the conditions of an arterial (Mace Boulevard) and a collector (L Street).
Staff recommends that the 2016 Paving Project focus on local streets and bike paths.
Sample 2015 Paving Project – Local Streets – Slurry Seal

- Paving Cost: $435,000
Sample 2015 Paving Project – Bike Paths – Replace with Concrete
Sample 2015 Paving Project – City
Selected Streets – Mill and Fill

- Paving Cost: $762,000
### Budget Planning Cost Breakdown

<table>
<thead>
<tr>
<th>Description</th>
<th>Estimated % of Constr. Contract</th>
<th>Example Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paving (Scenario 3)</td>
<td></td>
<td>$5,460,000</td>
</tr>
<tr>
<td>Bike Path (Scenario 6)</td>
<td></td>
<td>$1,060,000</td>
</tr>
<tr>
<td>Curb, gutter, sidewalk, ramps</td>
<td>15%</td>
<td>$819,000</td>
</tr>
<tr>
<td>Construction Contract</td>
<td></td>
<td>$7,339,000</td>
</tr>
<tr>
<td>Construction Contingency</td>
<td>10%</td>
<td>$733,900</td>
</tr>
<tr>
<td><strong>TOTAL CONSTRUCTION BUDGET</strong></td>
<td></td>
<td>$8,072,900</td>
</tr>
<tr>
<td>Planning / Study</td>
<td>5%</td>
<td>$366,950</td>
</tr>
<tr>
<td>Engineering and Design</td>
<td>10%</td>
<td>$733,900</td>
</tr>
<tr>
<td>Construction Admin and Inspection</td>
<td>10%</td>
<td>$733,900</td>
</tr>
<tr>
<td><strong>SUBTOTAL SOFT COSTS</strong></td>
<td></td>
<td>$1,834,750</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td><strong>$9,907,650</strong></td>
</tr>
</tbody>
</table>
History of Average PCI