A Regional Asset Management Program for Local Streets & Roads

San Francisco Bay Area Case Study

Theresa Romell
Rocky Mountain Pavement Preservation Partnership
Boise, ID
October, 2010
Presentation Focus

Regional Agencies can Implement an Asset Management Program and Performance Policies to Affect the Conditions on Local Streets and Roads
Better Pavement Management
in Bay Area

MTC is recognized by the FHWA as “one of the first regions in the country to implement a pavement management system”— FHWA Office of Asset Management
San Francisco Metropolitan Region

- Population = 7.3 Mil
- Nine Counties
- 109 Jurisdictions
- 42,500 Lane-Miles
- 1,500 Miles of Highway
- 23 Transit Agencies
- Seven Toll Bridges
- One MPO: MTC
Why are Local Streets and Roads a Regional Concern?

- Supports *All* Modes of Transportation
- $40 - $50 billion replacement value
- Conditions are Facing Steep Decline
- Escalating Deferred Maintenance Jeopardizes Funding for *All* Transportation Priorities
MTC’s Regional Streets & Roads Program

- **Purpose:**
  - Promote cost-effectiveness and sustainability
  - Improve conditions

- **Four Main Components:**
  - Software (StreetSaver®)
  - Training & User Support
  - Federal Grant Program – PTAP
  - Policy – LSR Committee

- **Each Component Essential to Program’s Success**
MTC’s StreetSaver®

- Network Level System
- Used by all 109 Bay Area Jurisdiction; 250 nationwide
- Developed 25 Years Ago
- Designed Specifically for Local Agencies
- Cost Effectiveness vs. “Worst First”

Purpose:
- Document Needs & Conditions
- What Do I Fix First?
MTC’s StreetSaver®

1. **Inventory**
   Setup pavement section network

2. **Condition Assessment**
   Conduct pavement surface distress survey

3. **Work Needed & Funds**
   Identify sections needing work and estimate funds

4. **Candidate Projects**
   Prioritize projects by cost-effectiveness

5. **Impacts of Funding**
   Compare impacts of different funding scenarios

6. **Feedback**
   Review M&R Strategies, treatment costs and re-inspect sections

**How StreetSaver Works**

1. Inventory
2. Condition Assessment
3. Work Needed & Funds
4. Candidate Projects
5. Impacts of Funding
6. Feedback
Training & Support

- Technical (Software) Support
  - Virtual on-site, Hotline & e-mail

- Technology Transfers

- Training Program
  - Pavement management concepts
  - Software use
  - Setting up pavement network
  - Distress data collection
  - How to use data to influence decisions

- PMS Champion
  - Conduct statewide workshops to promote effective use of PMS
Pavement Technical Assistance Program (PTAP)

- Federal Grant Program (STP)
- $1.5 M Annually
- 50 Re-Inspections/ Updates Per Year
- Ensures MTC Access to Quality Data
- Obtains 100% PMS Certification
Policy

- Condition Summaries
- Local Streets and Roads Committee
- Needs / Shortfall Assessments
- Funding
  - Performance-Based Allocation of Regional Funds
# Regional Condition Summaries

## Best and Worst Bay Area Pavements

<table>
<thead>
<tr>
<th>City</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brentwood</td>
<td>87</td>
</tr>
<tr>
<td>Foster City</td>
<td>84</td>
</tr>
<tr>
<td>Los Altos</td>
<td>84</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>83</td>
</tr>
<tr>
<td>Sonoma</td>
<td>83</td>
</tr>
<tr>
<td>Contra Costa County</td>
<td>82</td>
</tr>
<tr>
<td>Dublin</td>
<td>82</td>
</tr>
<tr>
<td>Gilroy</td>
<td>82</td>
</tr>
<tr>
<td>Cloverdale</td>
<td>80</td>
</tr>
<tr>
<td>Vacaville</td>
<td>80</td>
</tr>
<tr>
<td>Sonoma County</td>
<td>43</td>
</tr>
<tr>
<td>Orinda</td>
<td>44</td>
</tr>
<tr>
<td>Richmond</td>
<td>45</td>
</tr>
<tr>
<td>El Cerrito</td>
<td>48</td>
</tr>
<tr>
<td>Larkspur</td>
<td>48</td>
</tr>
<tr>
<td>Marin County</td>
<td>48</td>
</tr>
<tr>
<td>Rio Vista</td>
<td>48</td>
</tr>
<tr>
<td>Suisun City</td>
<td>50</td>
</tr>
<tr>
<td>Napa County</td>
<td>51</td>
</tr>
<tr>
<td>St. Helena</td>
<td>51</td>
</tr>
</tbody>
</table>

### Category:
- **Excellent**: 90-100
- **Very Good**: 75-89
- **Good**: 60-74
- **Fair**: 45-59
- **Poor**: 25-44
- **Very Poor**: 0-24
- **No Data**

### Totals:
- **Miles**: 4794
- **Percent**: 11% 33% 20% 14% 12% 9% 1% 100%
Local Streets & Roads Committee

- Regional Public Works Officials
- Advises MTC on Policy
- Advocates for Better Funding
- Works to Improve Project Delivery
- Encourages Best Practices Among Peers
Local Streets & Roads Needs Assessment

- How Much Do We Need to Spend?
  - Pavement
  - Non-Pavement
  - Bridges
- Regional “What-If?” Scenarios
- Exclusive Use of StreetSaver® Makes This Easy
# Local Streets & Roads Needs Assessment

## 25-Year Local Street & Road Shortfalls

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Total Need</th>
<th>Revenue</th>
<th>Shortfalls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>$3,211,497,606</td>
<td>$1,837,688,171</td>
<td>$1,373,809,435</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>$2,575,002,231</td>
<td>$1,285,038,979</td>
<td>$1,290,052,252</td>
</tr>
<tr>
<td>Marin</td>
<td>$1,162,630,529</td>
<td>$482,275,532</td>
<td>$680,399,997</td>
</tr>
<tr>
<td>Napa</td>
<td>$862,232,210</td>
<td>$317,247,354</td>
<td>$544,984,866</td>
</tr>
<tr>
<td>San Francisco</td>
<td>$2,388,826,89</td>
<td>$1,068,156,075</td>
<td>$1,203,726,804</td>
</tr>
<tr>
<td>San Mateo</td>
<td>$2,335,183,049</td>
<td>$1,081,589,912</td>
<td>$1,243,514,088</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>$4,322,323,488</td>
<td>$2,391,317,434</td>
<td>$1,981,006,054</td>
</tr>
<tr>
<td>Solano</td>
<td>$1,387,724,521</td>
<td>$362,740,349</td>
<td>$1,017,984,172</td>
</tr>
<tr>
<td>Sonoma</td>
<td>$2,214,831,687</td>
<td>$642,751,356</td>
<td>$1,572,080,331</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$20,391,830,980</strong></td>
<td><strong>$9,477,741,301</strong></td>
<td><strong>$10,914,089,680</strong></td>
</tr>
</tbody>
</table>
The Costs of Deferring Maintenance

- Bay Area PCI Goal = 75
- Current investment in maintenance insufficient:
  - 23 point reduction in PCI
  - 230% increase in repair backlog by 2032
- Benefit to Cost ratio of maintenance investment is 5:1
Impact of Data on Regional Policy

- Regional Policy = “Fix it First”
- Recognition of Benefit / Costs
- New Approach to Funding – Performance Based
Benefit Cost Analysis

Project Performance

- High (>10)
  - Freeway Performance Initiative
  - HOT Network

- Medium High (5-9)
  - Freight
  - Arterial Improvements
  - HOV Lanes

- Medium (1-4)
  - Freeway and Expressway Widening
  - Freeway-to-Freeway Interchanges
  - Transportation for Livable Communities

- Low (<1)
  - Climate Protection and Emissions Reduction
  - Lifeline

Number of Goals Addressed

Source: MTC
Impact of Data on Regional Policy

- Six-Fold Increases in Regional Investments in LSR
Making the Most of Scarce Resources

- Requests for Funding Coupled with Accountability
- Regional LSR Funds Conditioned on Performance
  - PMS Certification
  - Projects Recommended by StreetSaver®
  - Performance Based Allocation Formula
**Allocation Formula**

\[ \text{Funding Allocation Formula} = \text{PM Performance} + \text{Lane Miles} + \text{Shortfall} + \text{Population} \]
Difficult to Find a “One Size Fits All” Performance Measure

Performance Measure Criteria

- Measurable
- Objective as Possible
- Can be fairly applied
- Utilizes data widely available
- Meaningful
Performance Measure

- Ratio of Actual to Recommended % of Budget Spent on Preventive Maintenance
  - No advantage or disadvantage due to existing network features or budget
  - Data comes Directly from StreetSaver ®
  - Can be Weighted by Jurisdiction Size
  - Promotes Pavement Preservation Principles
Importance of Preventive Maintenance
Defining Preventive Maintenance

- Arterial and Collector Roadways
  - PCI of 70 or Above
- Residential / Local Roadways
  - PCI of 60 or Above
  - If Below 70, Must Extend Life by 5 Years
Setting the Benchmark

- Actual / Recommended % of Budget Spent on Preventive Maintenance
- Recommended – Determined by StreetSaver®
  - % Varies by Jurisdiction
- Actual – Determined by Jurisdictions’ StreetSaver® Maintenance History
  - 2-Year Historical Average
  - Countywide Avg. Treatment Costs
<table>
<thead>
<tr>
<th>Street / Section Name</th>
<th>Length</th>
<th>Width</th>
<th>Area (sq/ft)</th>
<th>PCI Before Treatment</th>
<th>Treatment Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPINE CT</td>
<td>158</td>
<td>33</td>
<td>5214</td>
<td>85</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>AMBERWOOD CIR</td>
<td>1077</td>
<td>32</td>
<td>34464</td>
<td>89</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>KINGSWOOD CT</td>
<td>211</td>
<td>33</td>
<td>6963</td>
<td>83</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>LAKEVIEW CIR</td>
<td>2658</td>
<td>33</td>
<td>87714</td>
<td>73</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>LAKEVIEW CT</td>
<td>192</td>
<td>32</td>
<td>6144</td>
<td>73</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>LYNBROOK DR</td>
<td>853</td>
<td>32</td>
<td>27296</td>
<td>60</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>MARIETTA CT</td>
<td>400</td>
<td>33</td>
<td>13200</td>
<td>63</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>MARKELEY LN</td>
<td>2632</td>
<td>30</td>
<td>78960</td>
<td>17</td>
<td>MILL AND THIN OVERLAY</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>MCKINLEY ST</td>
<td>1521</td>
<td>33</td>
<td>50193</td>
<td>43</td>
<td>MILL AND THICK OVERLAY</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>MEADOWS CT</td>
<td>370</td>
<td>33</td>
<td>12210</td>
<td>89</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>MISSION CIR</td>
<td>1089</td>
<td>33</td>
<td>35937</td>
<td>50</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>MONTANA ST</td>
<td>350</td>
<td>33</td>
<td>11550</td>
<td>44</td>
<td>MILL AND THICK OVERLAY</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>NEBRASKA ST</td>
<td>422</td>
<td>33</td>
<td>13926</td>
<td>81</td>
<td>MILL AND THICK OVERLAY</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>OAKBROOK CIR</td>
<td>1918</td>
<td>33</td>
<td>63294</td>
<td>87</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>OAKBROOK CT</td>
<td>264</td>
<td>33</td>
<td>8712</td>
<td>80</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>OAKBROOK DR</td>
<td>6385</td>
<td>40</td>
<td>255400</td>
<td>51</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>ORINDA CT</td>
<td>211</td>
<td>33</td>
<td>6963</td>
<td>89</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>ORINDA WAY</td>
<td>739</td>
<td>36</td>
<td>26604</td>
<td>87</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>PHOENIX DR</td>
<td>2083</td>
<td>33</td>
<td>68739</td>
<td>73</td>
<td>CHIP SEAL AND SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>POLK ST</td>
<td>528</td>
<td>30</td>
<td>15840</td>
<td>58</td>
<td>MILL AND THICK OVERLAY</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>RAINIER CT</td>
<td>370</td>
<td>33</td>
<td>12210</td>
<td>90</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>RAMSGATE CT</td>
<td>211</td>
<td>34</td>
<td>7174</td>
<td>83</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>REGENCY PL</td>
<td>264</td>
<td>33</td>
<td>8712</td>
<td>83</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>RIALTO AVE</td>
<td>1320</td>
<td>33</td>
<td>43560</td>
<td>82</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>RIALTO CT</td>
<td>317</td>
<td>33</td>
<td>10461</td>
<td>82</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
<tr>
<td>RIDGECREST CT</td>
<td>634</td>
<td>33</td>
<td>20922</td>
<td>76</td>
<td>SLURRY SEAL</td>
<td>10/1/2007</td>
</tr>
</tbody>
</table>
# Sample Calculation

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>County of Napa</th>
<th>American Canyon</th>
<th>Calistoga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended percent PM</td>
<td>16%</td>
<td>43%</td>
<td>20%</td>
</tr>
<tr>
<td>Actual PM Arterials &amp; Collector</td>
<td>$71,304</td>
<td>$486,373</td>
<td>$187,729</td>
</tr>
<tr>
<td>Actual PM Residential</td>
<td>-</td>
<td>$1,010,649</td>
<td>$98,813</td>
</tr>
<tr>
<td>Actual Total PM</td>
<td>$71,304</td>
<td>$1,497,022</td>
<td>$286,542</td>
</tr>
<tr>
<td>Actual Total Maintenance</td>
<td>$14,657,343</td>
<td>$4,953,711</td>
<td>$1,776,620</td>
</tr>
<tr>
<td>Actual percent PM</td>
<td>0%</td>
<td>30%</td>
<td>16%</td>
</tr>
<tr>
<td>Performance Score</td>
<td>3%</td>
<td>70%</td>
<td>81%</td>
</tr>
</tbody>
</table>
Conclusions

- Investment in asset management will yield large benefits
  - Asset management programs provide the means for ensuring accountability and tracking progress
  - Ability to respond quickly to federal stimulus funding call for projects
  - Successful Advocacy Efforts Gain Local Buy-In

- Emphasis on Performance Yielding Gains
  - Conditions Improving Despite Declining Funds
  - Agencies champion use of PMS & Pavement Preservation
  - Demonstrate Cost-Effectiveness to Taxpayers
Questions / Contact Information

- Theresa Romell
  (510) 817-5772
  tromell@mtc.ca.gov

- Sui Tan
  (510) 817-5844
  stan@mtc.ca.gov

www.mtcpms.org
www.streetsaveronline.com

THANK YOU!