Complete Streets and Pavement Preservation

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Scott Gibson P.E.
About Us

- RTC of Washoe County, NV
  - MPO (long range mobility)
  - Transit (mode split and trip reduction)
  - Street and Highway (Provides Opportunity)
- Member agencies are the Cities of Reno, Sparks, and Washoe County
Funding: Indexed Fuel Tax

- Passed Twice by Voter Initiative
  - CPI then PPI (Construction Inflation)
- Indexes County Fuel Tax to Inflation
- Also:
  - Indexes **State Fuel Tax** and Keeps that Increment,
  - Index **Federal Gas Tax** and Keeps that,
  - Indexes **Federal Diesel Fuel Tax** and Keeps that!
Local Regional Roads and RTP Roads

- **Regional and RTP Roads**
  - 1,500 Lane Miles (30%)
  - 3,500 Lane Miles (70%)

- **Vehicle Miles Traveled**
  - Residential: 8%
  - Arterials: 50%
  - Interstate: 42%
Project Selection Process (Blind to Jurisdiction)

Program Elements

- **Rehabilitation / Reconstruction**
  - PCI 0-50
  - Rank by Traffic
    - PCI 40-50 Rehabilitation
    - PCI 0-40 Reconstruction

- **Preventive Maintenance**
  - PCI 50-100
  - Structural Distress less than 5%

- **Corrective Maintenance**
  - Everything Else (≈ 40-60, > 5% Patching)
  - Variety of Tools
Type 3 Slurry Seal
When should preventive maintenance be applied?

The chart illustrates the relationship between pavement condition and time. Preventive maintenance is applied between the good and poor condition lines to maintain the condition of the pavement.
Network Performance Life after Preventive Maintenance

![Graph showing Network Performance Life after Preventive Maintenance](image-url)
Newly Constructed Pavements:
1\textsuperscript{st} SS at year 3, 2\textsuperscript{nd} SS at year 9

Predicted Do-Nothing performance curve

Predicted SS at year 3 performance curve

1\textsuperscript{st} slurry seal

2\textsuperscript{nd} slurry seal

Present Condition Index (PCI)

Age in Years

12/15/2011
Relative Benefit = $100\times \frac{B}{B_0}$

Benefit-Cost Ratio = $\frac{B}{C}$
Effectiveness Analysis – New Construction

Year of Slurry Seal Application

Relative Benefit

NC-Arterial (A)  NC-Collector (B)  NC-Residential (C)
Network Condition Comparison

<table>
<thead>
<tr>
<th>Condition</th>
<th>All Regional Roads</th>
<th>RTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Poor</td>
<td>2%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Poor</td>
<td>5%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Fair</td>
<td>21%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Good</td>
<td>72%</td>
<td>88.4%</td>
</tr>
</tbody>
</table>
“My favorite subject: watching asphalt congeal.”
The Triple Bottom Line

- Social
  - Equitable
  - Sustainable
- Economic
  - Viable
- Environment
  - Bearable
Complete Street Policies

Why?

- Increase safety
- Provide for users of all ages, modes and mobility's
- Improve livability and quality of life
- Economic development
- Improved traffic flow
- More on-street parking
- Connectivity
Towards a Complete Street

**Checklist:**
- Road conversion (Road Diet)
- Wide sidewalks
- Bike lanes
- Special bus lanes
- Accessible transit stops
- Frequent crossing opportunities
- Median islands
- Accessible pedestrian signals
- Curb extensions
- Narrower lanes, 10’ OK
- Tight curb radii
Complete Streets / Road Diets

Before: incomplete urban street

- 4-lane undivided
- No center turn lane
- No bike facilities
- Numerous driveways
- Pedestrian unfriendly
- Wide lanes
- No designated parking
Complete Streets / Road Diets

After: More complete urban street

✓ 3-lane divided
✓ Center turn lane
✓ Bike facilities
✓ Pedestrian Friendlier
✓ Narrow lanes
✓ More Parking

✓ Free!
✓ Neighborhood Building
Recent Road Conversions Reduce – Annualized Crash Rates

<table>
<thead>
<tr>
<th>Location</th>
<th>Before</th>
<th>After</th>
<th>% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wells Ave</td>
<td></td>
<td></td>
<td>-31%</td>
</tr>
<tr>
<td>California/Mayberry</td>
<td>33.4</td>
<td>19.4</td>
<td>-42%</td>
</tr>
<tr>
<td>Arlington</td>
<td>18.6</td>
<td>10.0</td>
<td>-46%</td>
</tr>
<tr>
<td>Mill Street</td>
<td>7.7</td>
<td>4.4</td>
<td>-43%</td>
</tr>
</tbody>
</table>

Sources: UNR Center for Advanced Transportation Education and Research and Nevada Department of Transportation
Complete Street/Road Conversions

Significant safety benefits:

- *Lower* speeds,
- *Reduced* conflict points and crashes,
- *Better* sight distance,
- *Refuge* for pedestrians,
- *Space* for bicycles (and others)

6 conflict points Vs. 2 conflict points

Four-Lane Undivided

Three-Lane
Other Opportunities –
TCSP Grant – Sutro Complete Street
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TCSP Grant – Sutro Complete Street
Making Adjustments/Costs

- Striping design
- Lane reconfiguration
- Signal Head placement
- Signal timing
- Loop detection
- Continued evaluation
- Added maintenance costs
- Honey Dos
Parting Thoughts

• Make your pavement program part of a bigger conversation: safety, Complete Streets, and stronger communities and neighborhoods.

• Making roads safer and more complete for more users makes the road safer for all users.

• Do Something! Do it early and do it often!
NV LTAP Training Courses

- **Complete Streets and Pavement Preservation:** Linking Public Works and Planning for Better Infrastructure and Better Communities

- **Slurry Seals and Microsurfacing:** Design, Construction, and Inspection.
Thank You!

Questions?
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