PRESENTATION GOALS

- Review pavement basics: Pavement 101
- Identify budget needs
Wheel Loads
Pavement Deterioration Cycle
How Does Asphalt Concrete Deteriorate?

Aging (environmental effects)

Fatigue (load related)
COMPARATIVE VEHICLE PAVEMENT STRESS

(5-10 BLAZER = 1 VEHICLE UNIT)
Common Pavement Distresses

- Weathering or Raveling
- Transverse or Longitudinal Cracking
- Block Cracking
- Alligator Cracking
Evaluating Common Pavement Distresses

- Alligator cracking
- Block cracking
- Distortions
- Longitudinal / transverse cracking
- Patches
- Rutting / depressions
- Weathering / raveling
Evaluating Pavement
The Pavement Condition Index

100 – 91 = Excellent
90 – 71 = Good
70 – 51 = Fair
50 – 31 = Poor
30 – 0 = Failed
PAVEMENT PRESERVATION

Applying the **RIGHT TREATMENT**
to the **RIGHT PAVEMENT**
at the **RIGHT TIME**
using the **RIGHT MATERIALS**
Pavement Maintenance & Rehabilitation Strategies

• **Best-First “Top Down” Management**: Focuses maintenance and rehabilitation on the best streets in the system. Interim procedure.

• **Worst-First “Bottom Up” Management**: Focuses maintenance and rehabilitation on the worst streets in the system. Interim procedure.

• **Critical-Point Management**: Focuses maintenance and rehabilitation on streets above rather than below a critical PCI. Most economical in the long run.
Pavement Condition vs. Maintenance / Rehabilitation Cost
CURRENT SYSTEM CONDITIONS
City of Larkspur System Data

- 32.17 centerline miles of pavement
- 63.75 lane miles of pavement
- 4,691,960 square feet of pavement
- Systemwide average PCI* of 39 in September 2013
- Systemwide average PCI* of 39 In March 2014
  - (Systemwide average PCI would be 36 without)
- Estimated replacement value of $60,672,000

*Formula based on pavement area
# Maintained Road System

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Replacement Cost</th>
<th>Centerline Miles</th>
<th>Lane Miles</th>
<th>Pavement Area (square feet)</th>
<th>Average PCI Sept 2013</th>
<th>Average PCI March 2014</th>
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<td>Totals</td>
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<td>32.17</td>
<td>63.75</td>
<td>4,691,960</td>
<td>39</td>
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</tbody>
</table>
Streets Paved Since September 2013 Update

CIP’s (Grant Fund participation)

- Redwood Highway: Wornum Drive to Industrial Way
- Alexander Avenue: Bridge to Acadia Avenue

Work done in coordination with Rose Lane Developer

- Ward Street: adjacent to new development
- Doherty Drive: Larkspur Plaza to Bridge Deck

Work done in coordination with RVSD project

- Acacia Avenue: Alexander Avenue to Elm Avenue
Streets Under Construction: Cost $764,329

- Larkspur Landing Circle: Sir Francis Drake to Sir Francis Drake
- Victoria Way: Larkspur Landing Circle to end
2014 Project Streets to Consider

GREENBRAE HILLS
• Eliseo Drive: pavement change to end
• Via Lerida: Bretano Way to Via Navarro
• Via Navarro: 801 feet e/o Eliseo Drive to Via Lerida

MURRAY HILL
• Frances Avenue: Magnolia Avenue to Arbor Street
• Hillcrest Avenue: Frances Avenue to 370 w/o Frances Avenue

HILLVIEW
• Magnolia Avenue: north bound land from Bon Air to Murray and Dartmouth Drive from Magnolia to Tulane
2014 Project Streets to Consider

SOUTH ELISEO
- El Portal Drive: Sir Francis Drake Blvd. to Via Casitas
- Via Casitas: El Portal Drive to Via Holon
- Via Casitas: Via Holon to end
- Via Holon: South Eliseo Drive to Via Casitas

SOUTH MAGNOLIA (in coordination with MMWD project)
- Ardmore Road: Wilshire (E) to Pary Way
- Ardmore Road: Park Way to Wilshire (W)
- Marina Visa Avenue: Ardmore Road to 1,950 feet w/o Summit
- Wilshire Avenue: Ardmore (E) to Ardmore (W)

HOT SPOTS
- Sir Francis Drake Blvd.
- Magnolia Avenue (in coordination with RVSD project)
Proposed Strategy on Road Maintenance
Assuming Measure C is adopted by the Community

Direct use of funds only to repair aging and deteriorating neighborhood streets and roads, repair potholes, clear hazardous and flammable brush to prevent fires and improve emergency vehicle access, and maintain police and fire protection – as specified in Measure C.
Proposed Strategy on Road Maintenance
Assuming Measure C is adopted by the Community

• Combine strategies of “Worst First” and “Critical Point Management”
  • Focus on Higher Capacity Roads
    • Arterials
    • Collectors
  • Revisit needs annually and track critical area
  • Work with Measure C Oversight Committee for feedback on progress
Minimize Small Project High Cost Overhead and Mobilization Costs

- Combine patch repairs (digouts) to be done in an annual or bi-annual project
- Maximize the use of dollars in a larger project
  - Larger project reduces unit cost by spread of overhead
- Allow for flexibility in schedule to maximize use of dollars
  - Allowing Contractors some flexibility in schedule can reduce unit costs
- Work with Utility Districts to combine pavement projects with utility replacement projects
Consider Options to Hold Those Who Damage Our Streets Accountable

- Adopt a Street Cutting Ordinance to restrict the cutting of newly paved or repaired streets.

- Require projects to pay for the repair of trenches cut into paved public streets.

- Require trucks carrying large loads on paved public streets to pay to help offset the damage to public streets.
Conclusion

✓ Larkspur has some of the worst roads in the Bay Area, and Measure C is urgently needed to invest in Larkspur’s streets and roads in order to begin on work on improving them.

✓ Without additional funds, we simply cannot make the progress we need to improve our roads – and costs will only increase in the long-run – by as much as 40 times higher.

✓ If strategy as proposed is followed, residents will definitely see noticeable improvements over the next 5 years in road conditions.
QUESTIONS?