

Pavement Management

City Council Meeting of
December 10, 2013

Previous Meetings Summary

February 2013: presented the 2012 pavement survey and consultant presented general pavement management strategies

April 2013: reviewed existing maintenance funding sources and explored alternative local funding possibilities

- City Council adopted "Guiding Principles"

May 2013: City Council approved funding at \$25 million over 2 years. Staff was directed to:

- Hire a design consultant for the first year's maintenance project
- Hire a public outreach firm

October 2013: Council approved an agreement with the design consultant for Year 1 design

Guiding Principles

April 2013

Prioritize key streets of community value at a higher level than local streets.

Set average PCI goal for pavement from 70 to the low 60's.

- Arterials: 68
- Collectors: 65
- Priority Local Streets (tied to Collectors): 65
- Remainder of Local Streets: 60

Keep streets in good condition from deteriorating to a poor condition

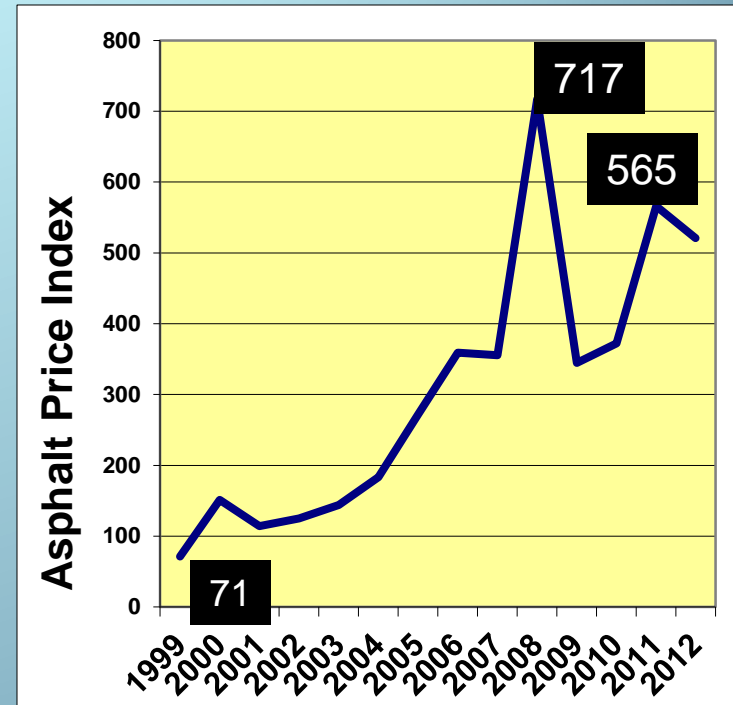
New roads and enhanced corridors shall not create future higher pavement costs for the City unless specific funds are identified for this purpose.

Maintain the condition of bike paths to a comparable, or higher, standard than that of streets. Maintain higher use/value bike path segments to a higher level than lesser used segments.

Defer major investments in the maintenance of bike paths impacted by trees until long-term decisions are made about the trees

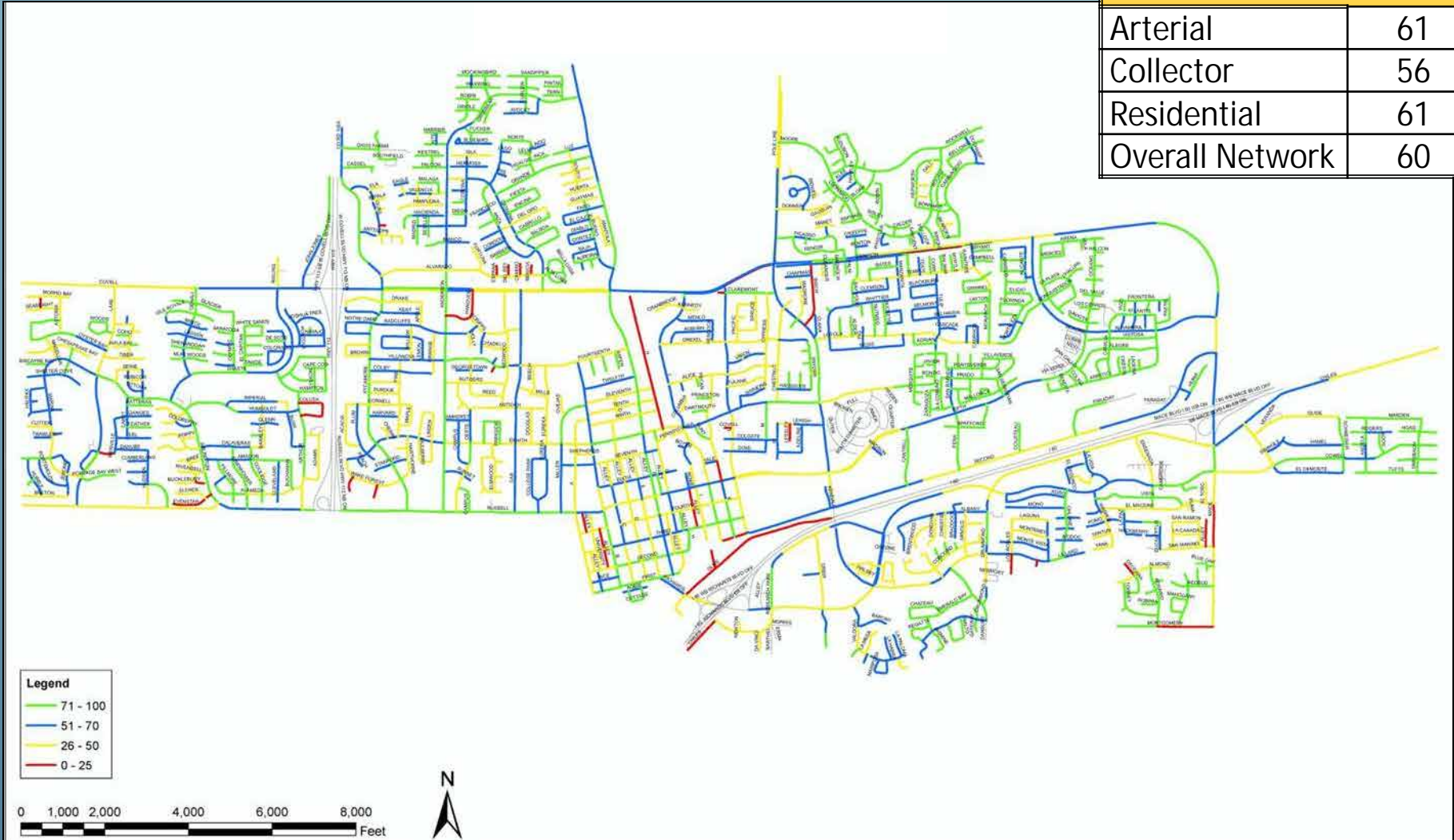
Funding Strategy

- Price of oil rising faster than most interest rates
- Spending as much as possible as early as possible adds the most value in 20-year scenarios
- Council agreed to this strategy in the May 2013 meeting with \$25M in Years 1 and 2 and a uniform amount in the following years.



Dec 2013 PCI - Streets

| Dec 2013 PCI | |
|-----------------|----|
| Arterial | 61 |
| Collector | 56 |
| Residential | 61 |
| Overall Network | 60 |

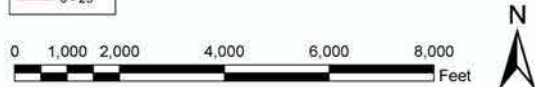
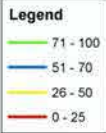
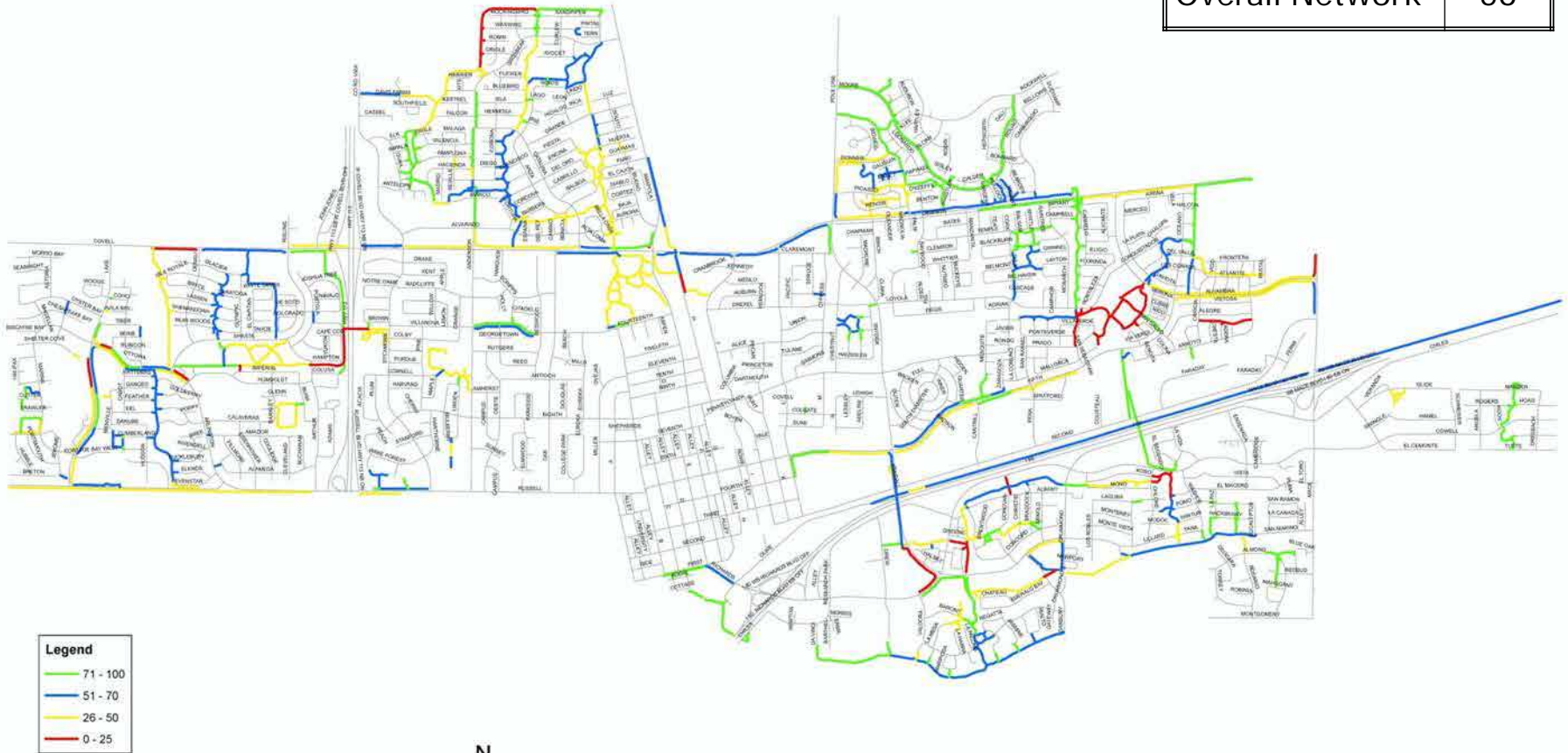


Dec 2013 PCI - Bike Paths

Dec 2013 PCI

Overall Network

56



Summary

- City of Davis pavement condition is at a critical juncture.
- Spending more money up front saves money in the long run.
- Waiting will be more expensive as the pavement condition continues to age.

Pavement Consultant

- Nichols Consulting Engineering selected for Pavement Management design. Division Manager Ryan Shafer is the Project Manager
- Nichols and City Staff have selected the streets to be treated for Year 1 and a preliminary selection of streets for Year 2 (\$25M total)
- They have performed field verification of street selection and treatment methods for the first year's streets
- Performed additional 20-year scenarios with fiscal analyses

Additional Oversight

- John Harvey
 - § Professor, Civil & Environmental Engineering at UC Davis
 - § Director, UC Pavement Research Center (Davis, Berkeley)
- Providing field verification of Nichols selected streets and review treatment strategies
- Will provide quality assurance of plans & construction specifications throughout project

Types of Distresses and Selection of Appropriate Treatments

John Harvey

UC Davis

Wheel Path Cracking – 1st Stage



Wheel Path Cracking – 2nd Stage



Wheel Path Cracking – 3rd Stage



Wheel Path Cracking – 4th Stage



Environmental Cracking



Bike Path Distresses



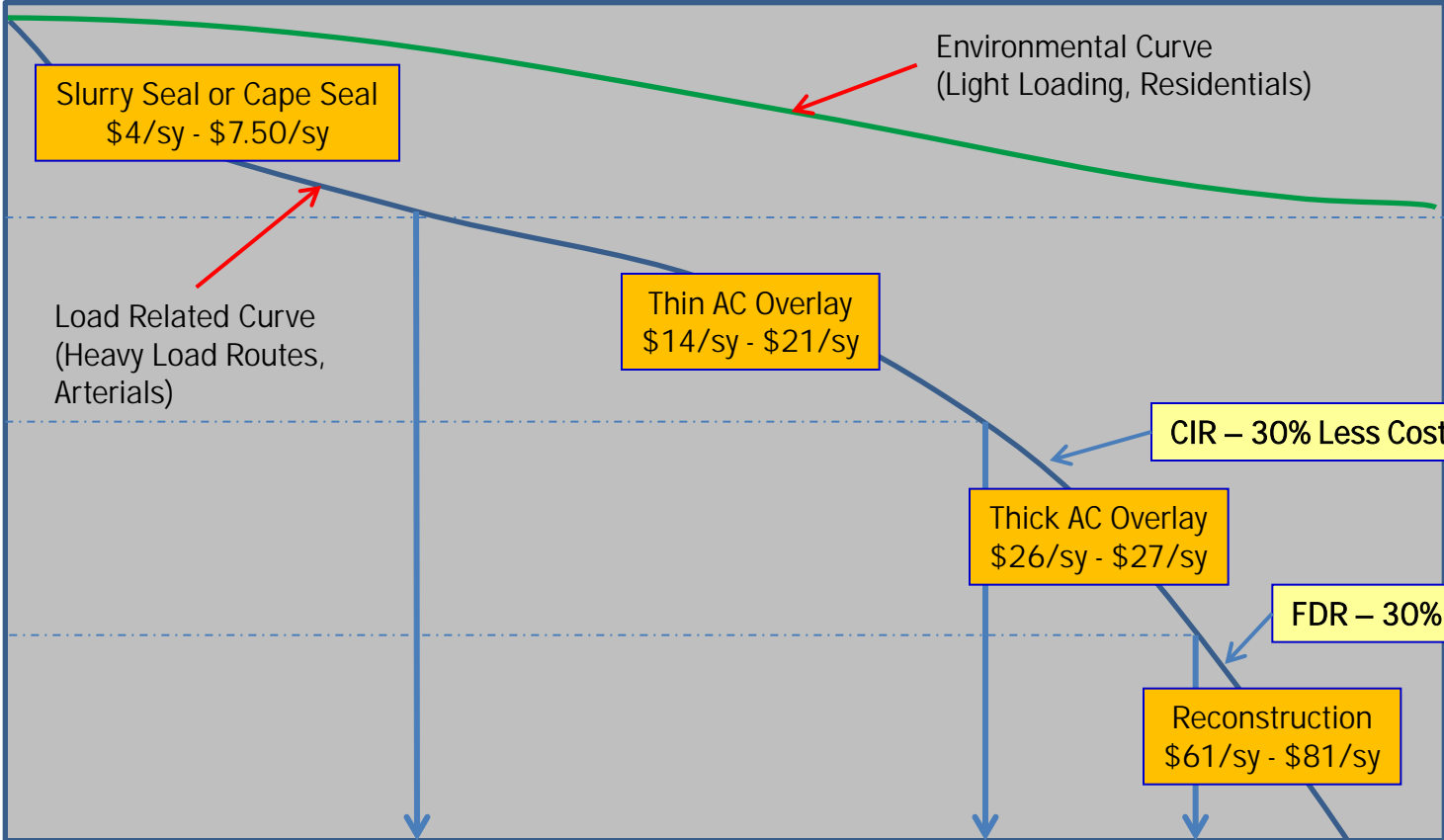
Bike Path Distresses



Pavement Deterioration and Cost

Pavement Condition

Excellent
 Good
 Fair
 Poor
 Very Poor



Slurry Seal or Cape Seal
 \$4/sy - \$7.50/sy

Environmental Curve
 (Light Loading, Residentials)

Load Related Curve
 (Heavy Load Routes,
 Arterials)

Thin AC Overlay
 \$14/sy - \$21/sy

CIR – 30% Less Costly

Thick AC Overlay
 \$26/sy - \$27/sy

FDR – 30% Less Costly

Reconstruction
 \$61/sy - \$81/sy

40%

75%

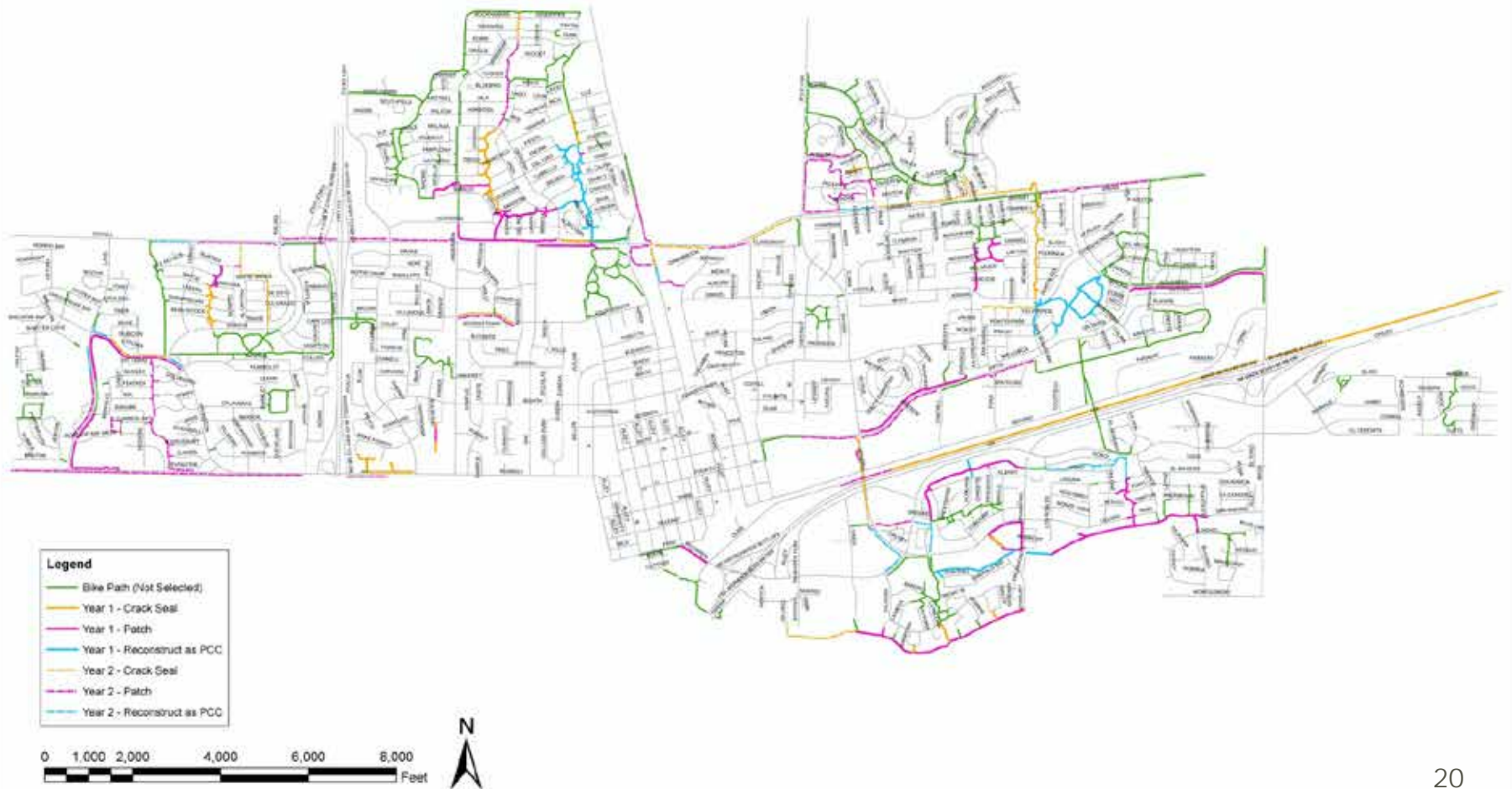
90%

% of Pavement Life

Year 1 and 2 Street Treatments - \$25 Million



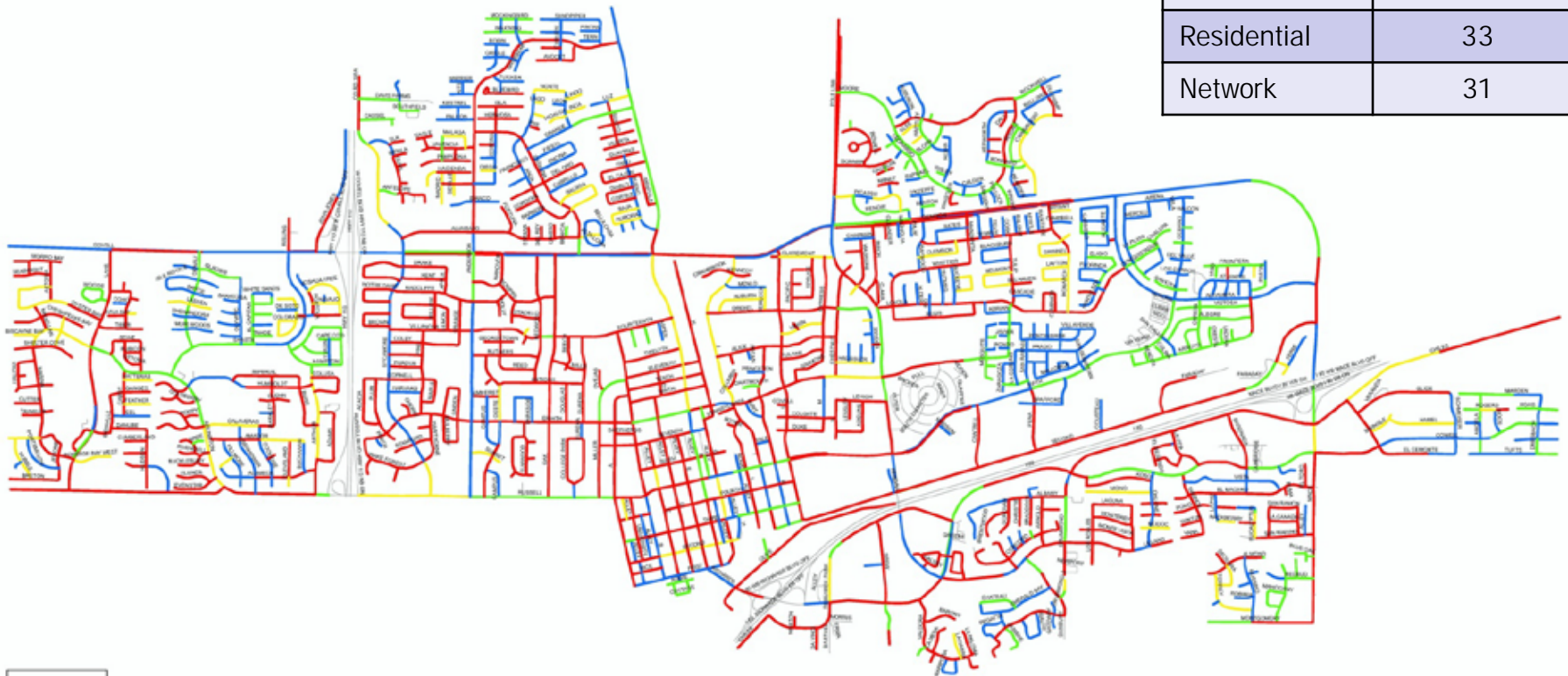
Year 1 and 2 Bike Path Treatments - \$25 Million



Year 20 PCI — Streets — \$2M/yr

Year 20 PCI

| | |
|-------------|----|
| Arterial | 42 |
| Collector | 14 |
| Residential | 33 |
| Network | 31 |



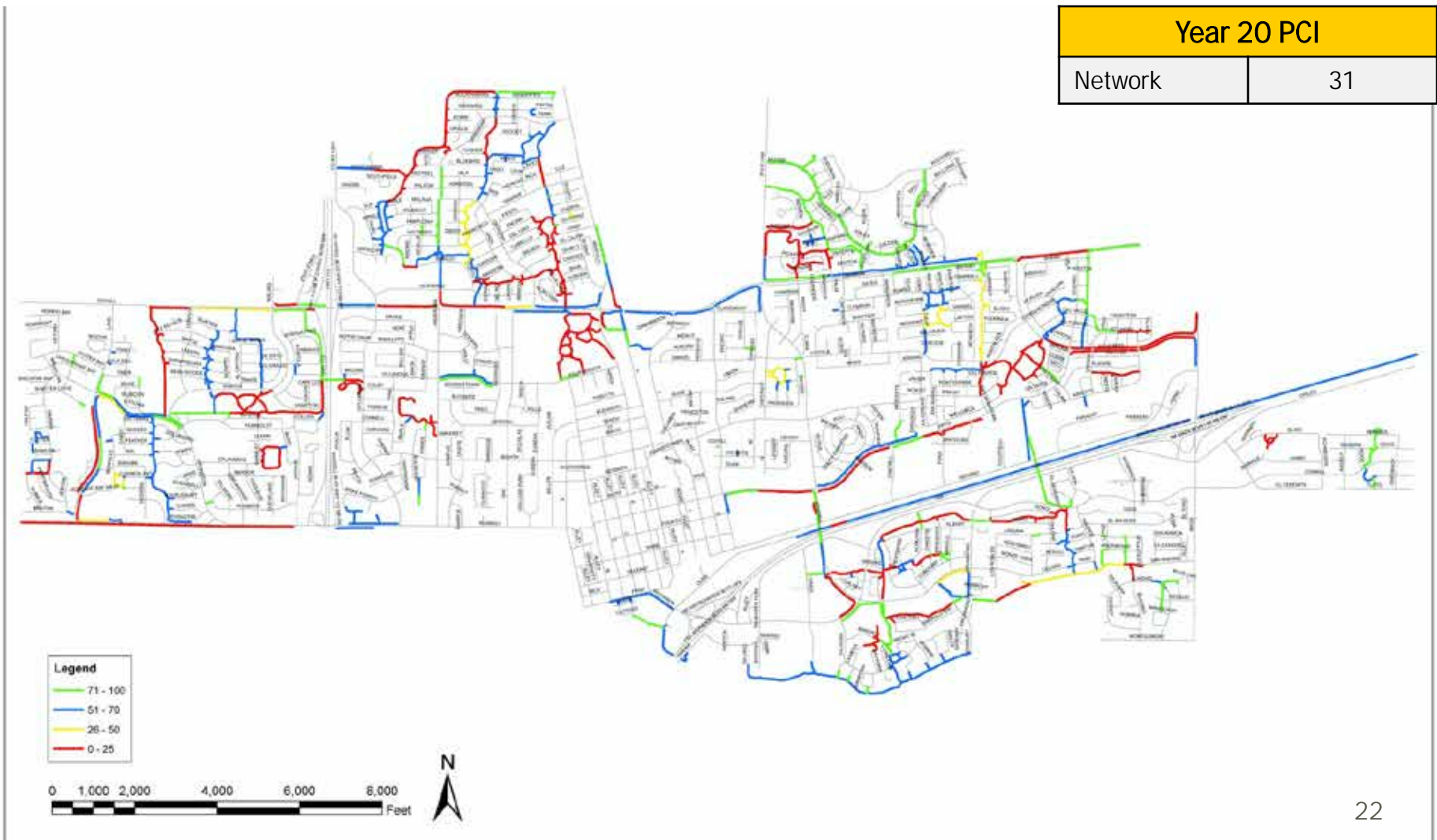
Legend

| | |
|-------------|----------|
| Green line | 71 - 100 |
| Blue line | 51 - 70 |
| Yellow line | 26 - 50 |
| Red line | 0 - 25 |

0 1,000 2,000 4,000 6,000 8,000 Feet

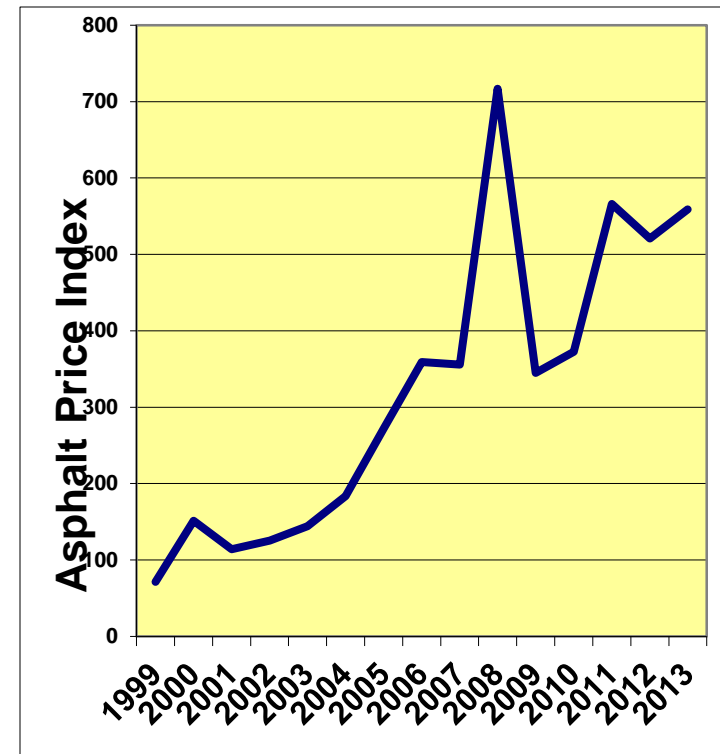


Year 20 PCI – Bike Paths – \$2M/yr



Cost and Funding Uncertainties

- ~ Material costs:
 - Asphalt binder cost volatility, follows cost of oil
 - Will consider other materials when doing project level design
- ~ Construction costs:
 - Demand for paving expected to drop next 2-3 year
 - ARRA and state highway bond measures finishing in 2014
 - No new federal transportation bill



Scenario Summary

