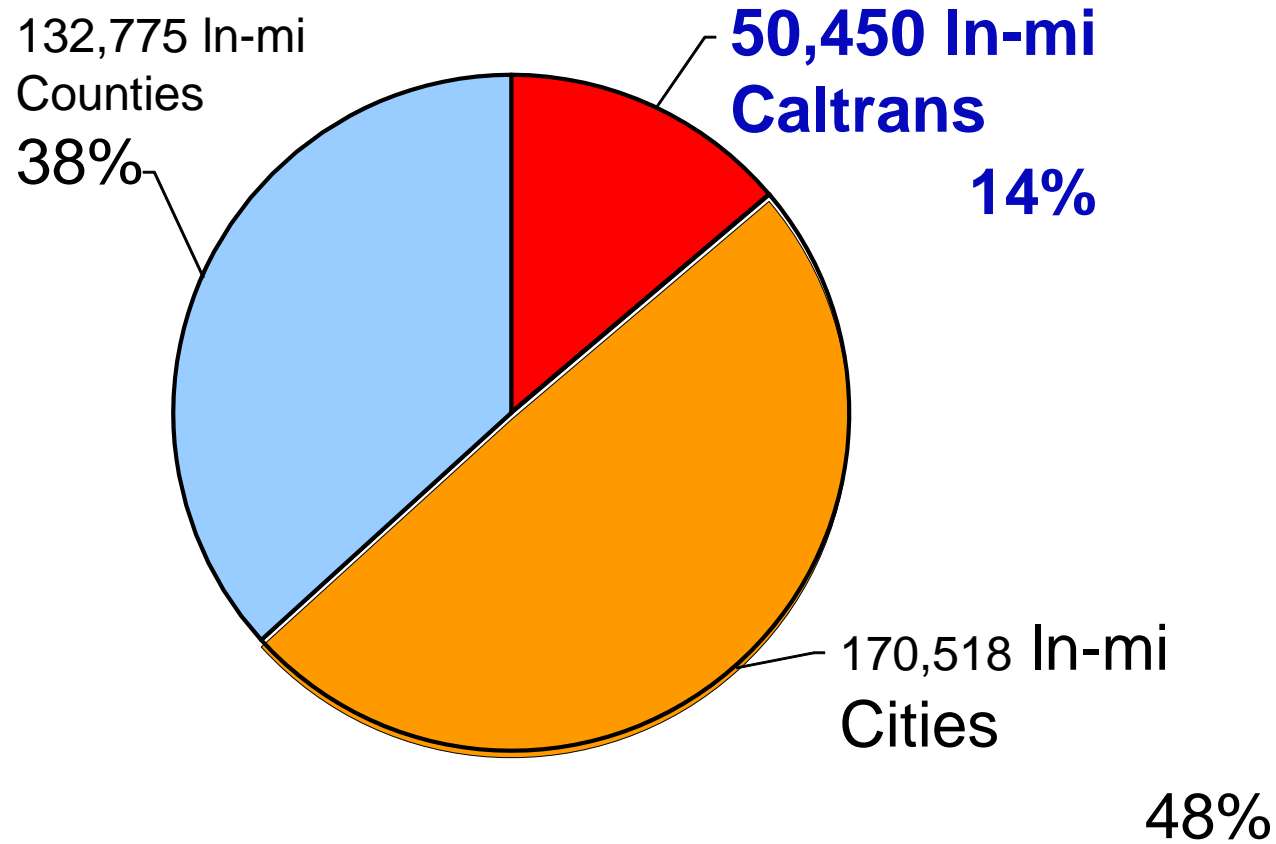




California Pavement Inventory



Total state network: 353,744 In-mi

Financial Breakdown

CT pavement projects:
last 4 yrs: \$4.0 billion / 16,500 ln-mi

- Preventive Maint: avg = \$104,000/ ln-mi
- Major Rehab: avg = \$1 million/ ln-mi

10 yr pavement needs = \$2.0 bil / yr



Traffic and Climate





Cracking



- 1st Stage:
single longitudinal
or transverse

- 3rd Stage:
intersecting, 3
or more pieces





Typical Concrete Repair Strategies

Distress Level

Preventive

Failed joint seal

3rd stage \leq 10%; spalling

Corrective

IRI > 170

Faulting > 1/4"

3rd stage 10% - 20%

Rehabilitation

3rd stage \leq 10%

Strategies

➤ Seal joints, slab replacement, spall repair

➤ Grind, slab replacement, DBR

➤ Lane replacement, CSOL

Spall Repair



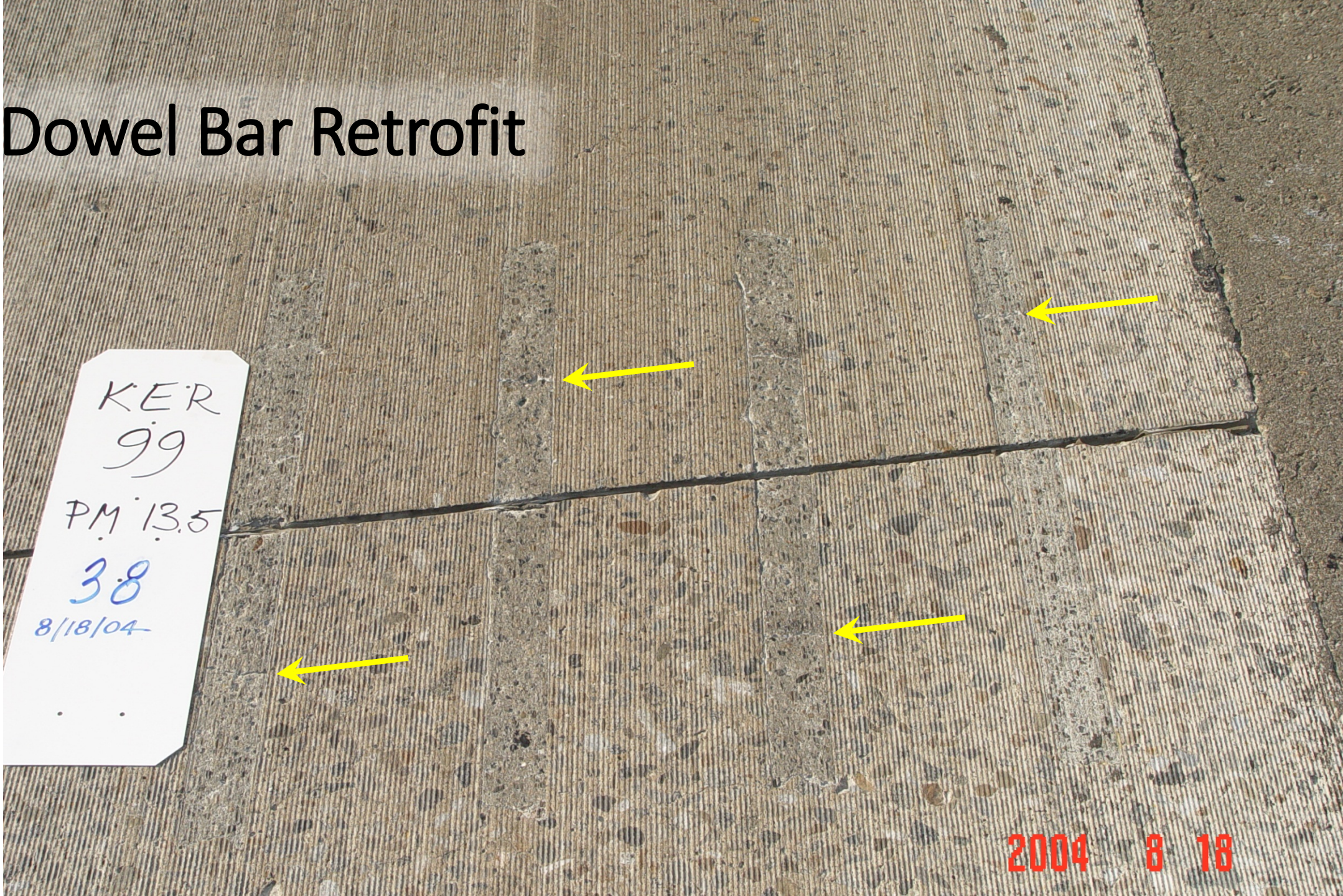
Spall Repair



Spall Repair



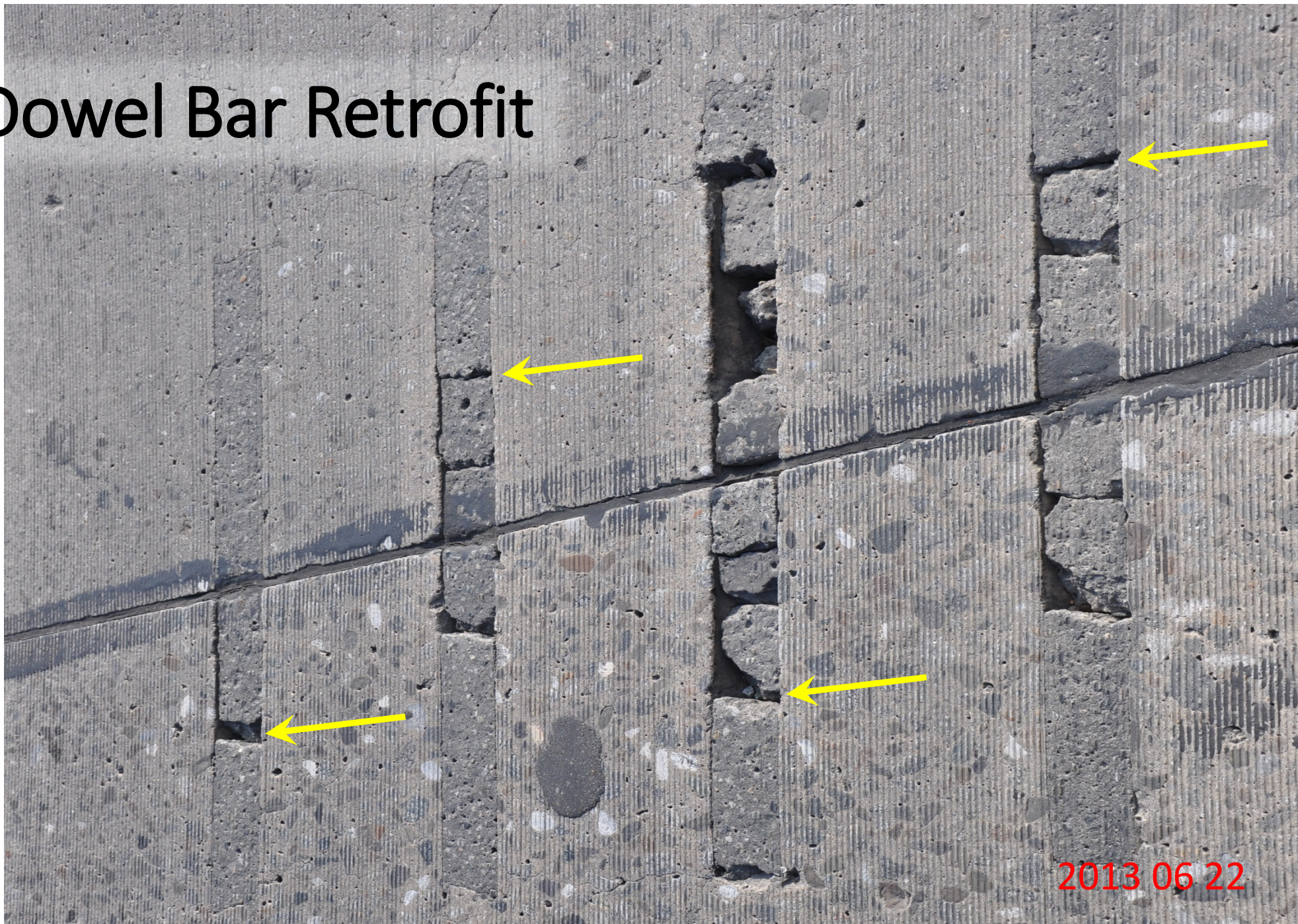
Dowel Bar Retrofit



KER
99
PM 13.5
38
8/18/04
.
.

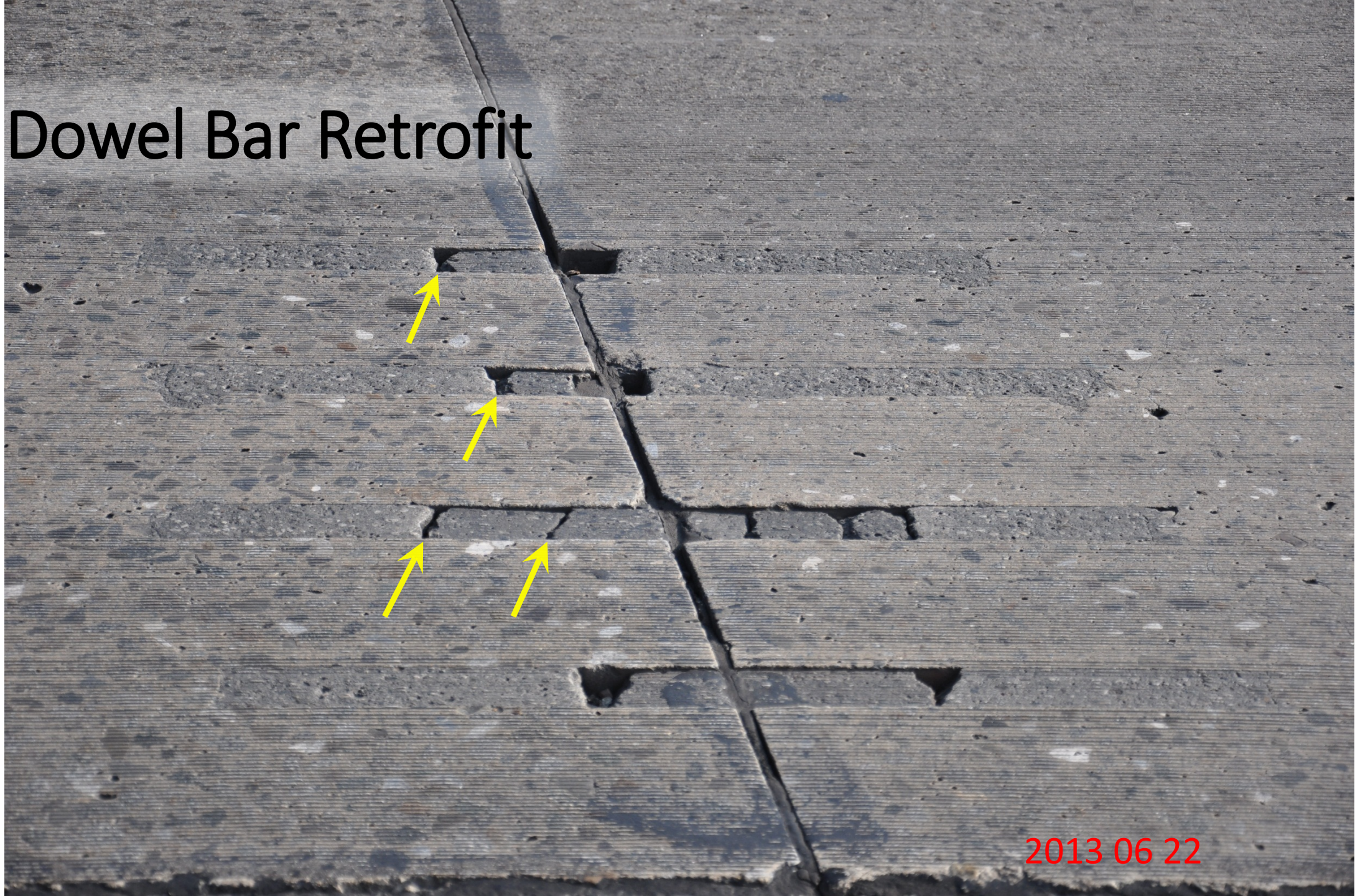
2004 8 18

Dowel Bar Retrofit



2013 06 22

Dowel Bar Retrofit



2013 06 22

Dowel Bar Retrofit



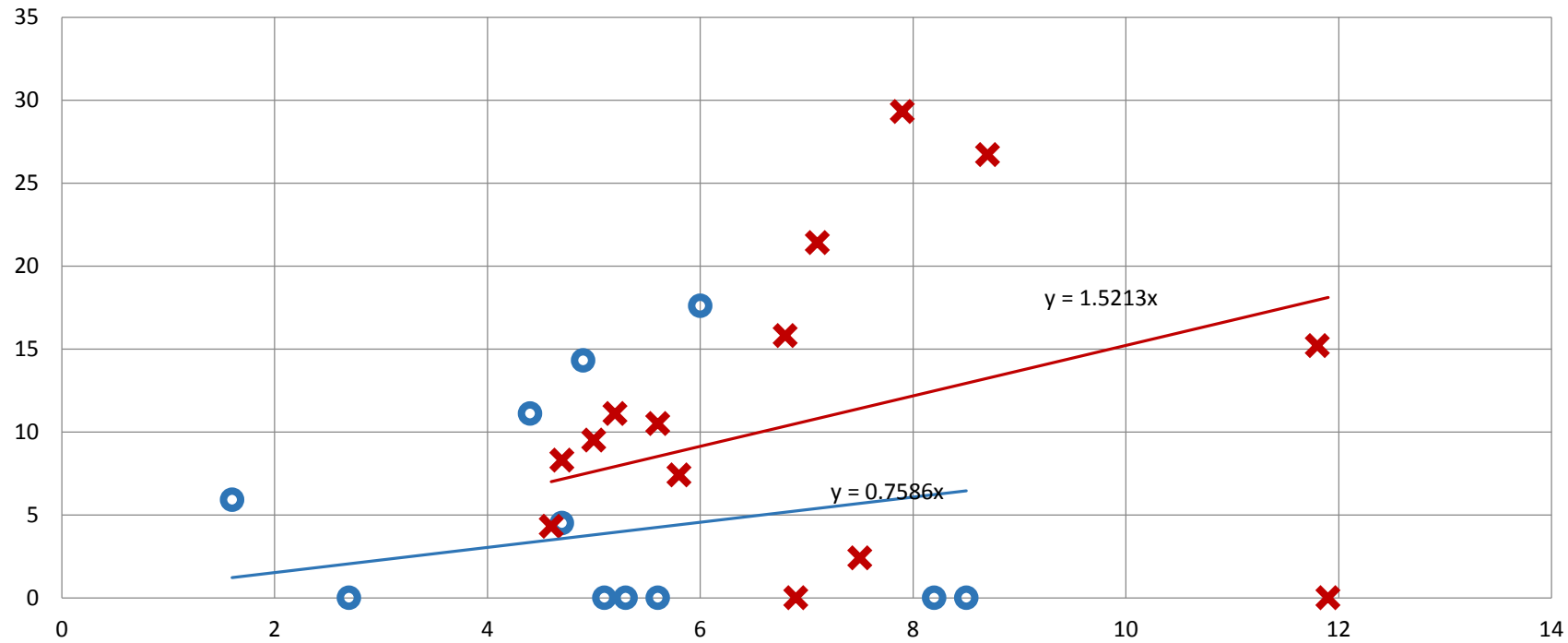
Slab Replacement



Slab replacement



Slab Replacement 3rd Stage Crack vs. Age



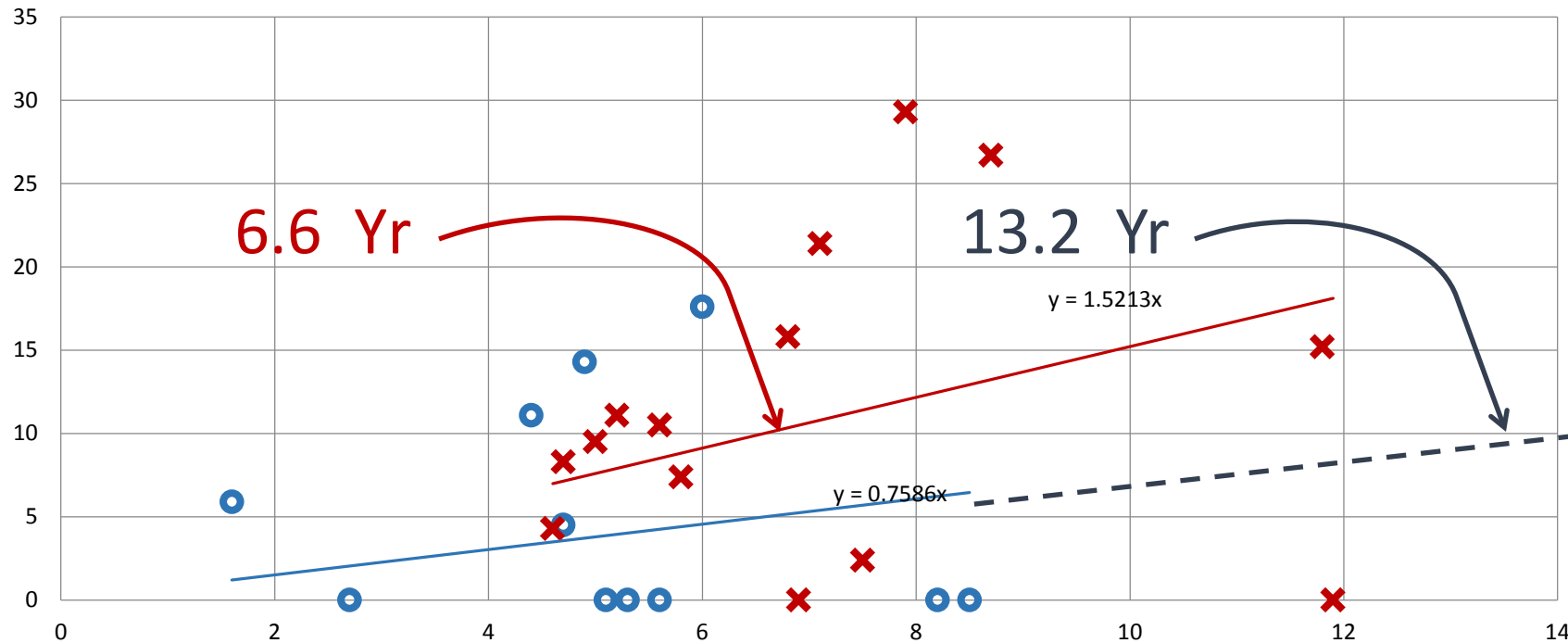
● Doweled

— Linear (Doweled)

× Not Doweled

— Linear (Not Doweled)

Slab Replacement 3rd Stage Crack vs. Age



● Doweled

— Linear (Doweled)

× Not Doweled

— Linear (Not Doweled)

Slab replacement Study Limitations

- Survivor bias
 - Some failed slabs have been replaced
- Repeat projects at location
 - Difficult to ID old slabs among new slabs

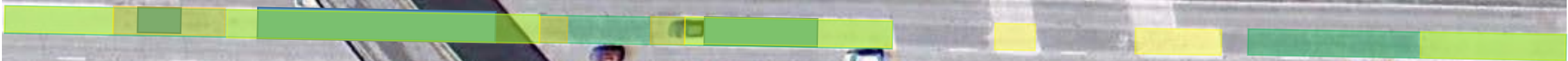
Slab Replacement

2002

2010

2007

2009





Innovations

Strategy/ Issue

Rapid slab replacement

Spall repair durability

Abrasive wear & rutting

Innovation

- Rapid strength concrete
- Precast panels (nonstd)

- CP Tech Center design-2012
- Polyester concrete
- Future: AML alternatives

- Lithium silicate surface hardeners?
- Polyester concrete inlays?



Questions?

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Thank you!