Kansas
Department of Transportation

Kansas – Backwards: First

MWPPP Webinar May 20, 2025

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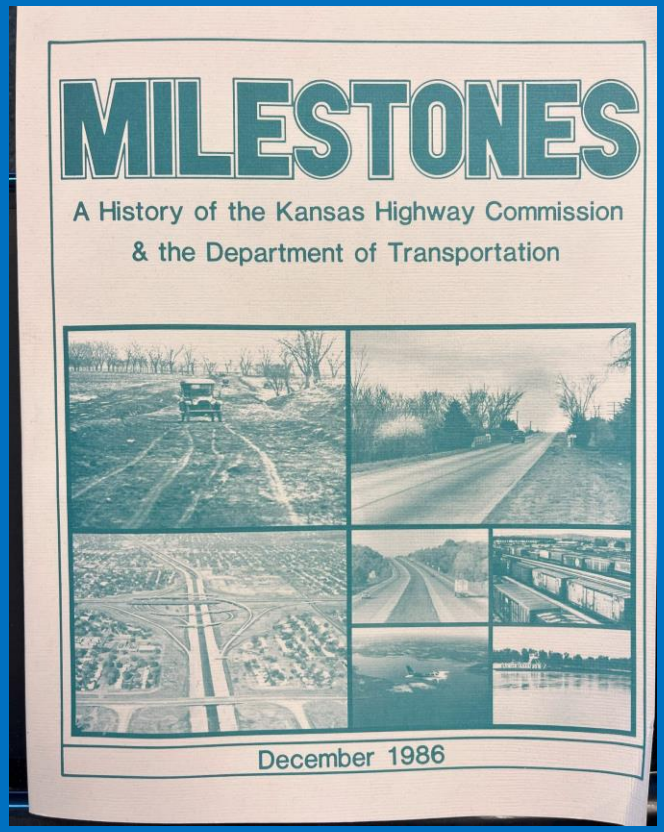
"consecutive preservation treatments, diminishing returns, and when a rehabilitation should be considered"

Going Backwards First - History

- Kansas Highway Commission - 1917
  - Built some, were granted a bunch of “roads”
    - Roads were Gravel, Dirt, and a few hard surfaces
      - Maintenance was with a blade, a shovel, and folks with strong backs (and sometimes a good team), and more dirt and rocks and maybe a little “asphalt”



Going Backwards First - History

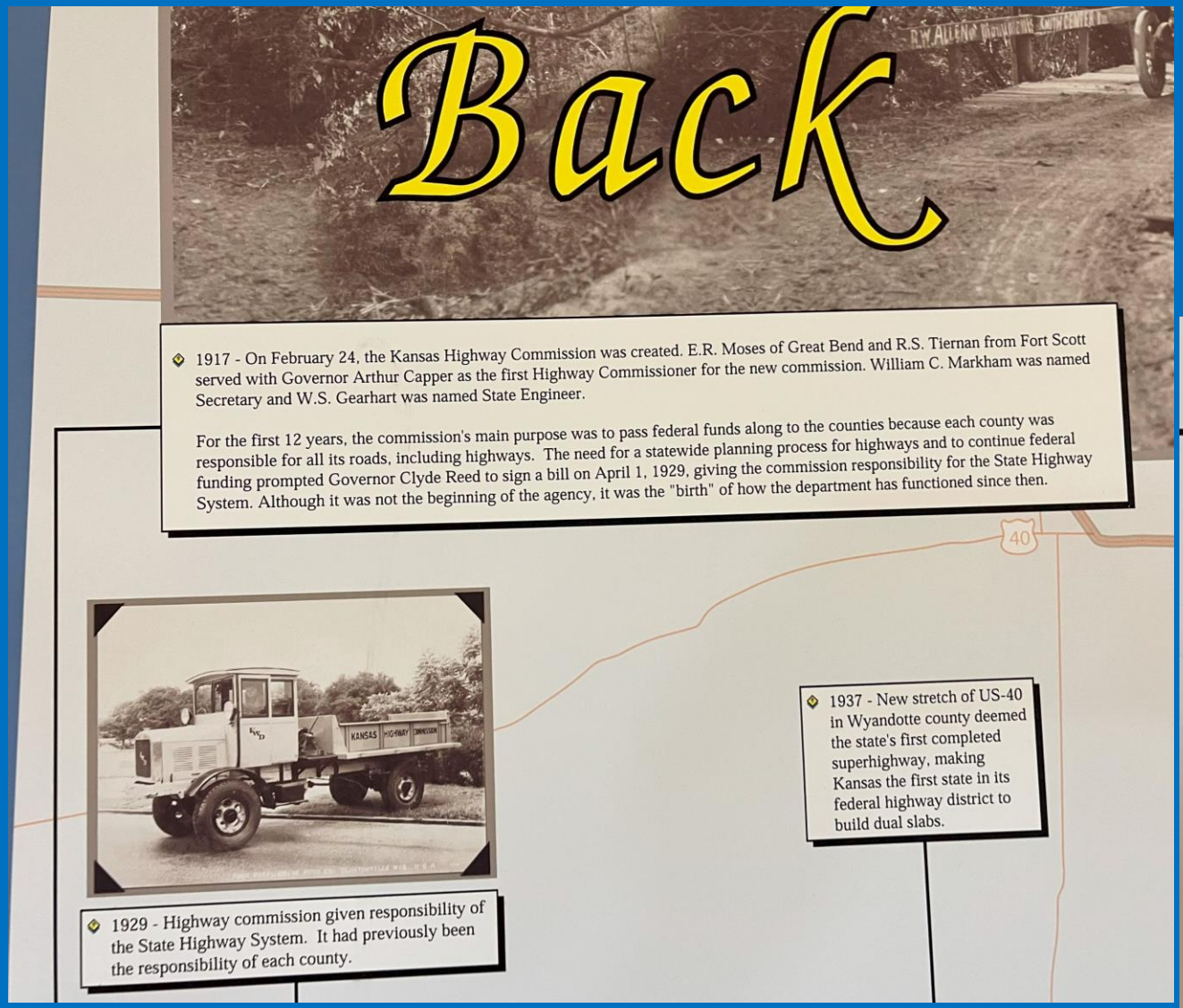
Farmers near Junction City "work out" their poll taxes by removing boulders from a road in 1912.

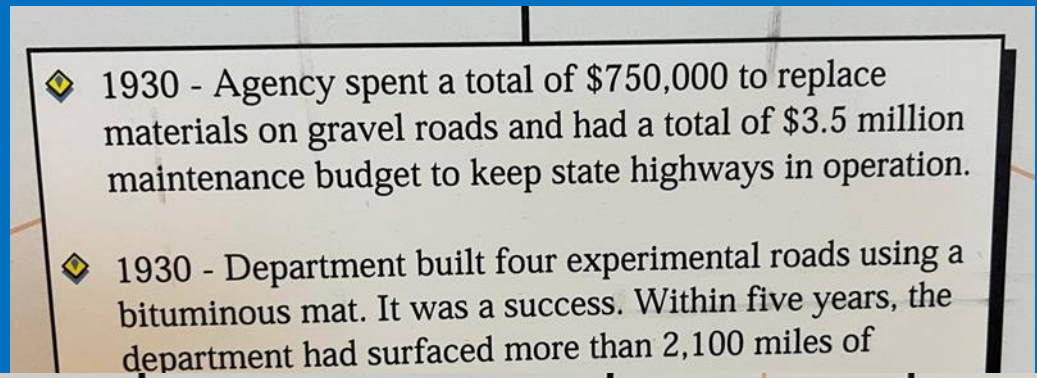
Credit: Joseph J. Pennell Collection, Kansas Collection, University of Kansas Libraries

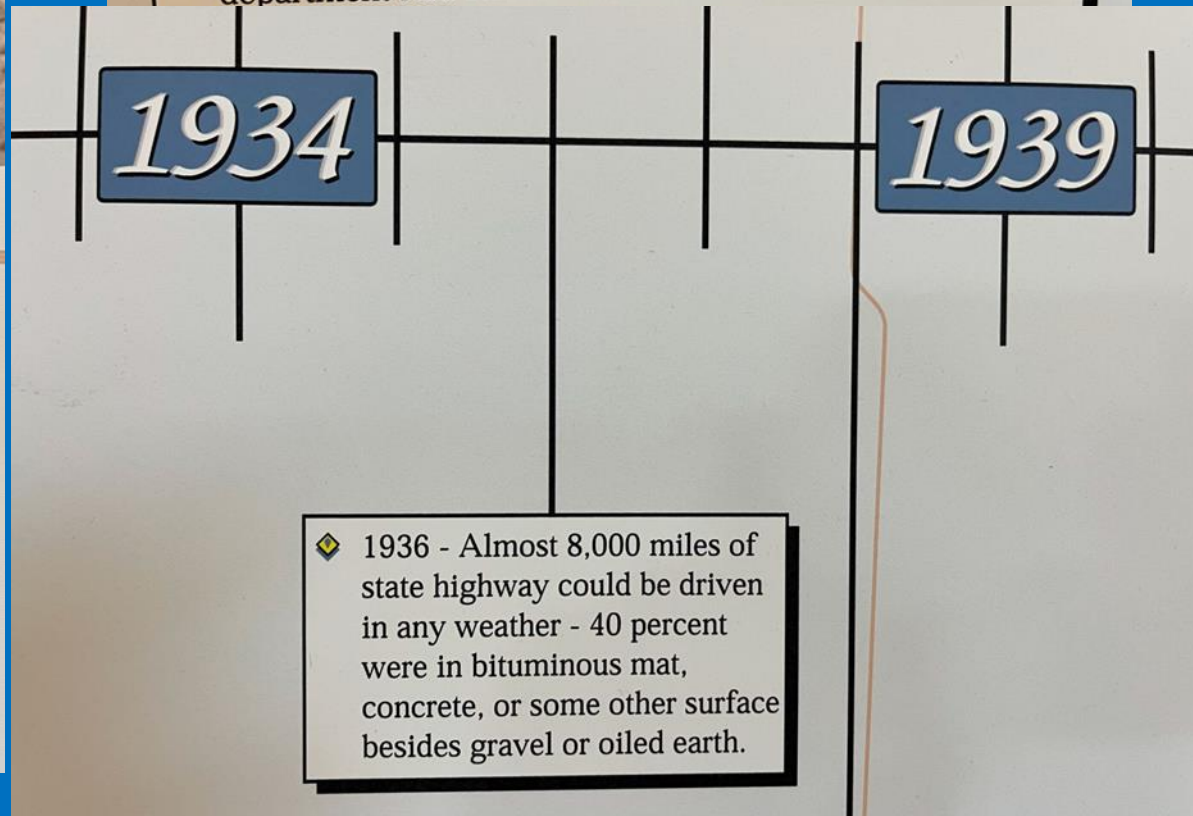
A horse-drawn road grader flattens a rutted Kansas road in 1919.

Credit: Joseph J. Pennell Collection, Kansas Collection, University of Kansas Libraries

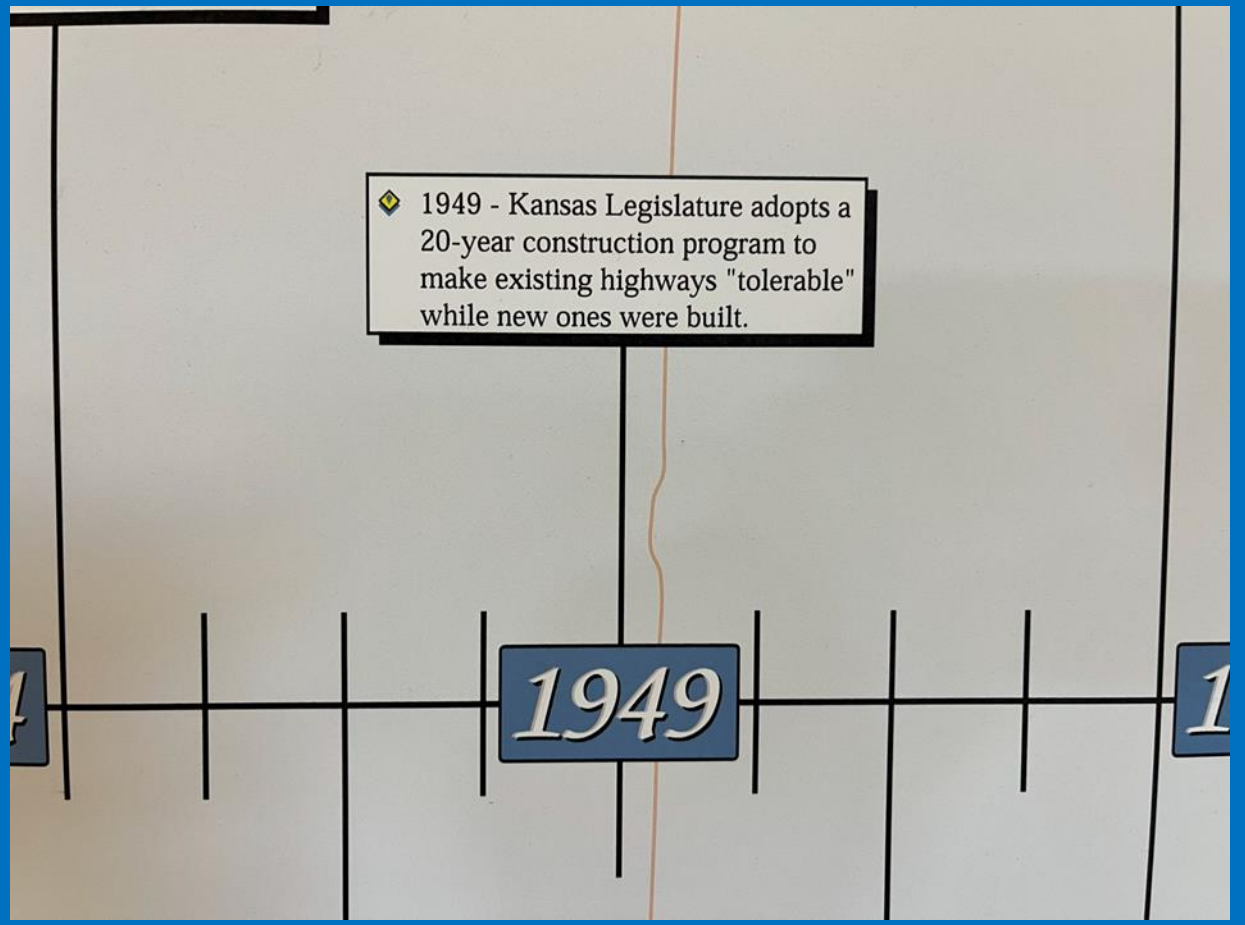
State Highway Commission 1917-1937





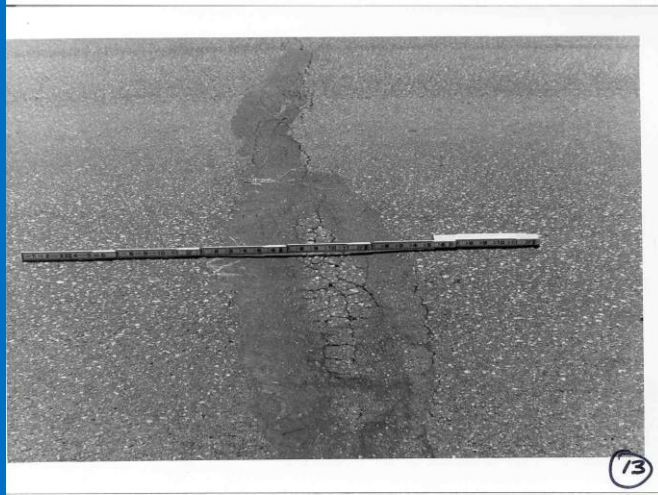


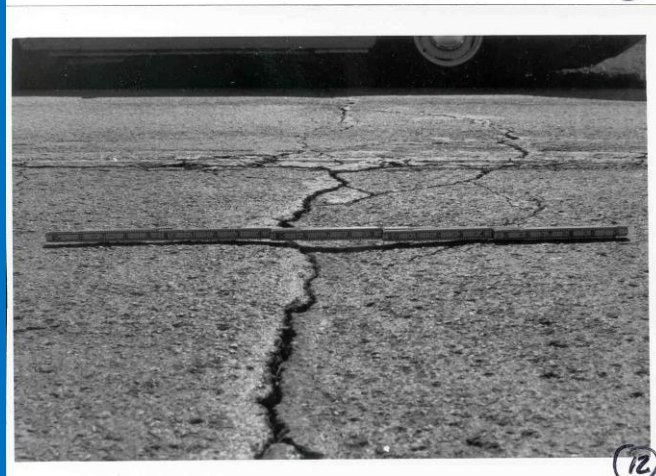
Going Backwards First - History



Going Backwards First - History

- Kansas Department of Transportation
  - Still had “roads”
    - Most were now hard surfaced
      - Maintenance was quite varied with different “Areas” having different philosophies (and materials, equipment, and skills)
- Pavement Surface Ratings – not so good – “**Undriveable”** per Reader’s Digest
- Calculated we lost 1 mile of pavement surface between the State line and Salina 250 miles east of Colorado due to transverse (shrinkage) cracks





Going Backwards First - History

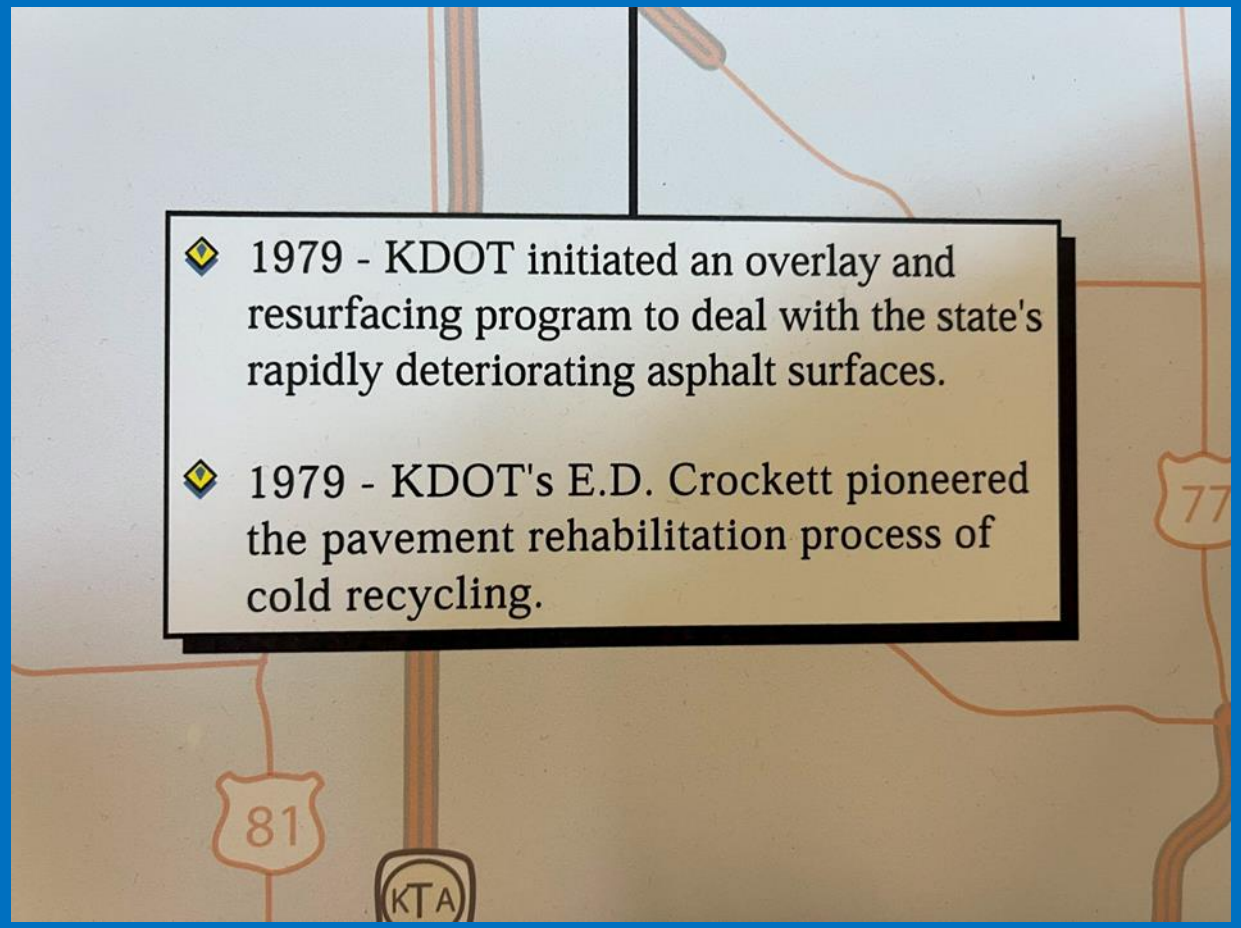
- Kansas Department of Transportation replaces the State Highway Commission – 1975
  - Cabinet Secretary
  - “multi-modal integrated trans
  - Shift to maintenance
    - [By 1976] “no longer would it b
      and only secondarily (if at all) c

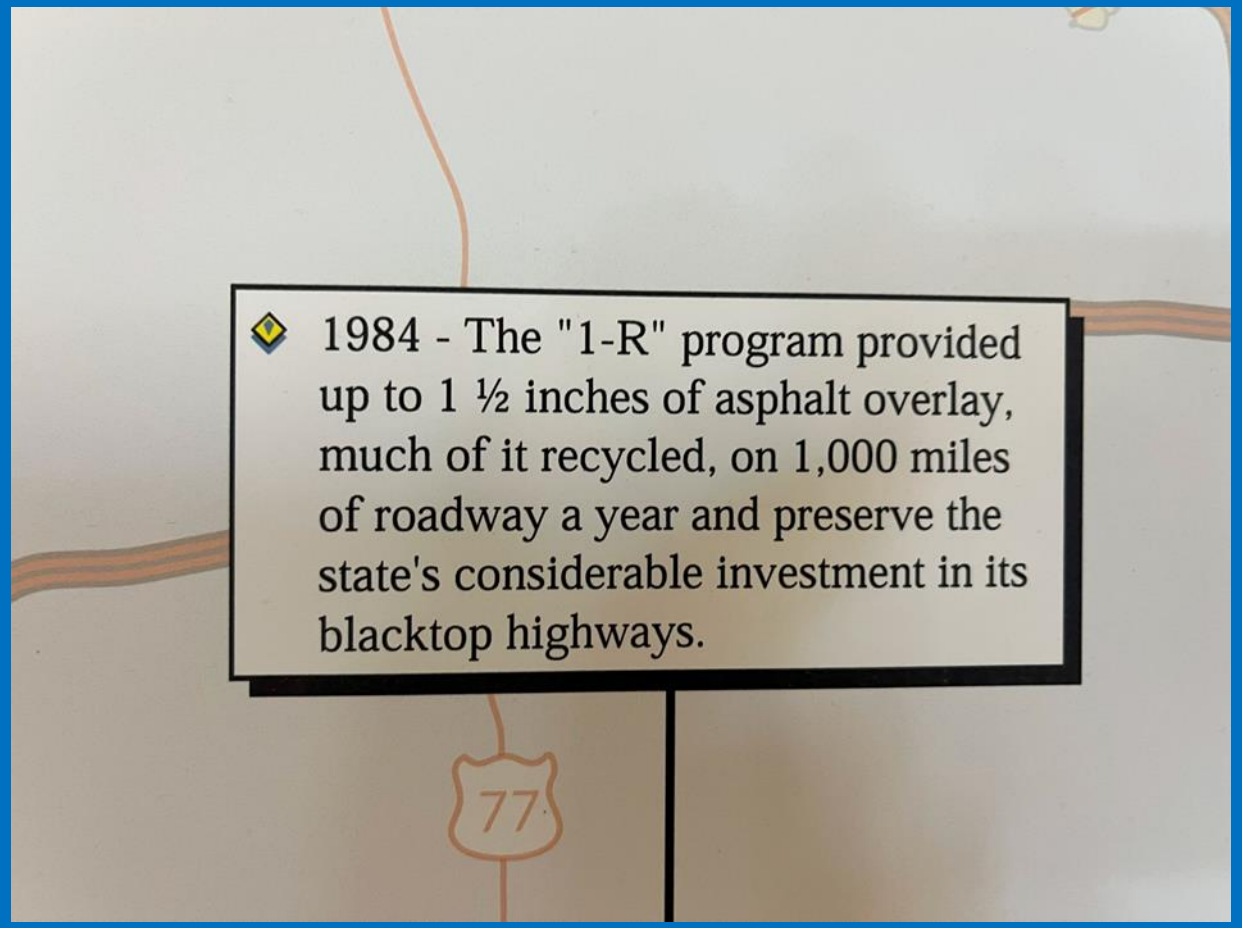
Reconstruction, rehabilitation and repair became the watchwords as KDOT worked to preserve the state's highway investment in the 1970s and 1980s.

Credit: KDOT

Going Backwards First - History

- Addressing Pavement Surface Conditions





Preemptive strike by the DOT

- Developed a Priority Formula to drive Capital Projects
- Developed a PMS to drive “Preservation” Projects
- State Funded work (Thanks Kansas Legislature!)
- Got our people and equipment off the road for doing anything but “Routine Maintenance” ; Reduced our staffing, equipment needs, and went to contracted “preservation”

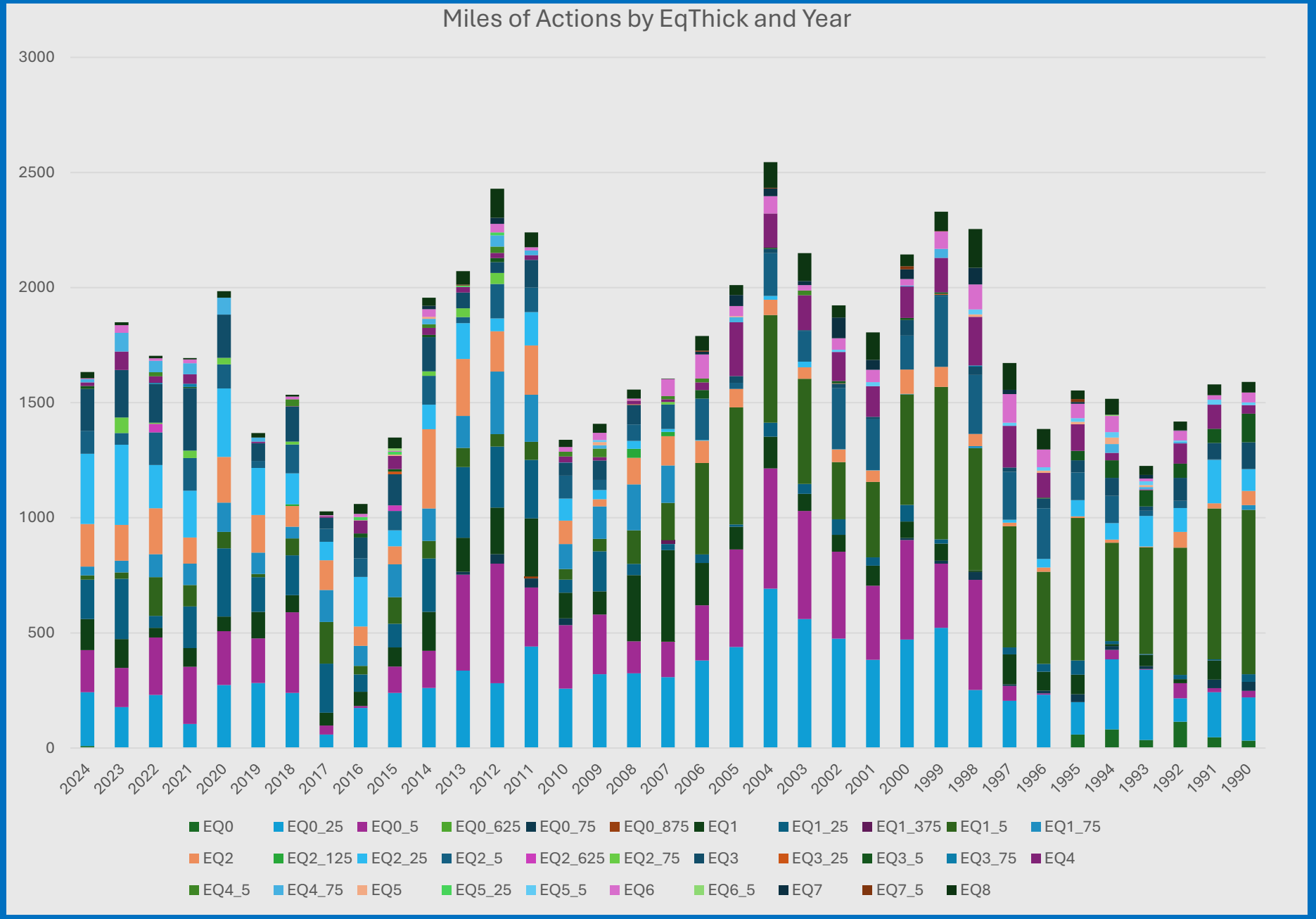
What did KDOT do to improve performance?

- As a couple of those prior slides indicated, KDOT adopted a Pavement Preservation Philosophy
  - Work on Good Pavements/Keep them Good
    - ~1200 miles per year (on a ~10,000 miles State Highway System)
    - Early actions were basically Chip Seals and 1 ½” Overlays
    - Eventually broadened the toolbox to many other actions

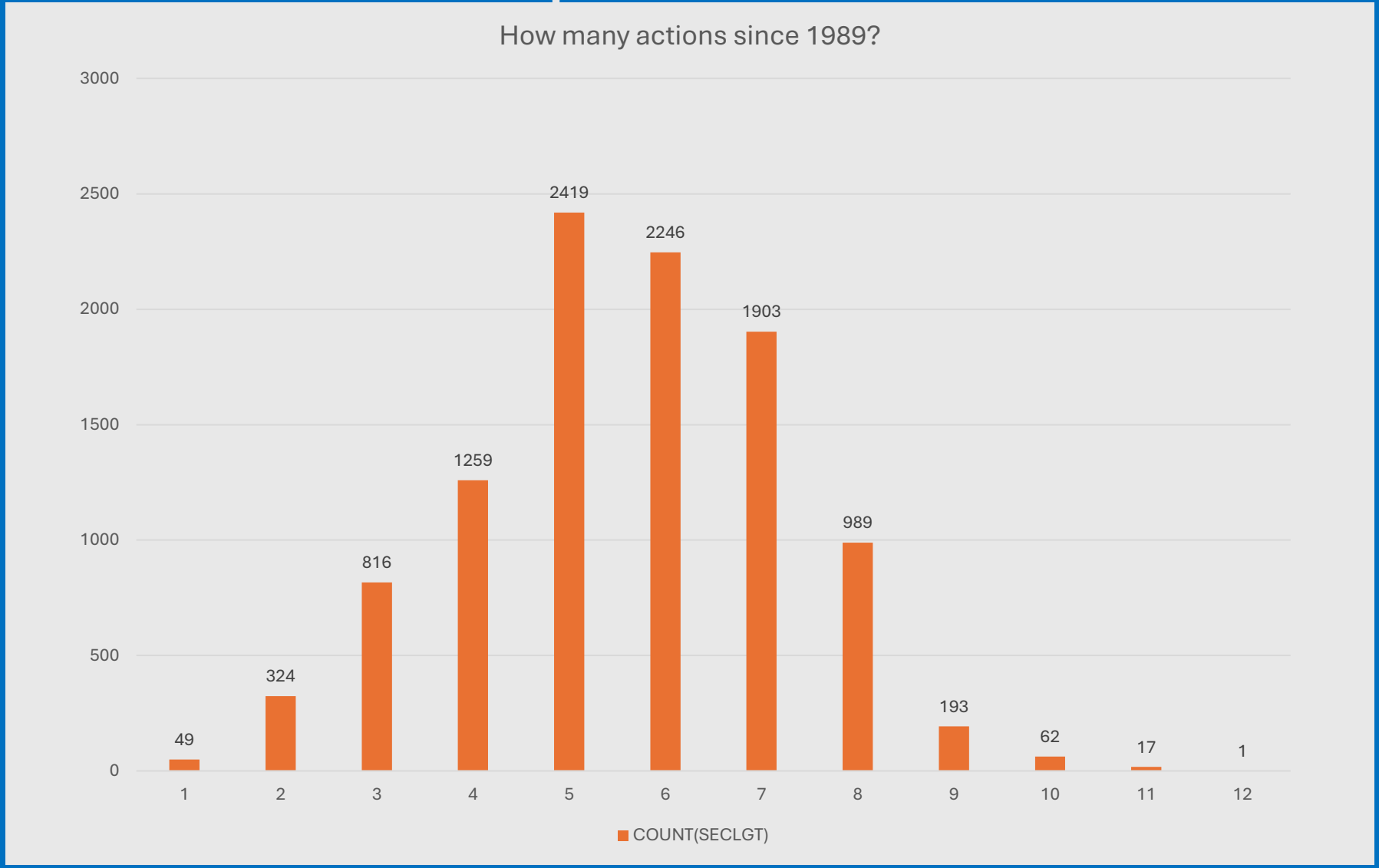
Samples of Actions with their EQUTHICK

EQUTHICK	SDESC
.25	CM1",OL.75"
.25	ChipSeal
.25	Crack Seal on PC
.25	JtRepair w/AC
.25	Mod Slurry Seal
.5	CM1" in 18'DL
.5	Cold Mill .75"
.5	Cold Mill 1"
.5	CraR(F) Only

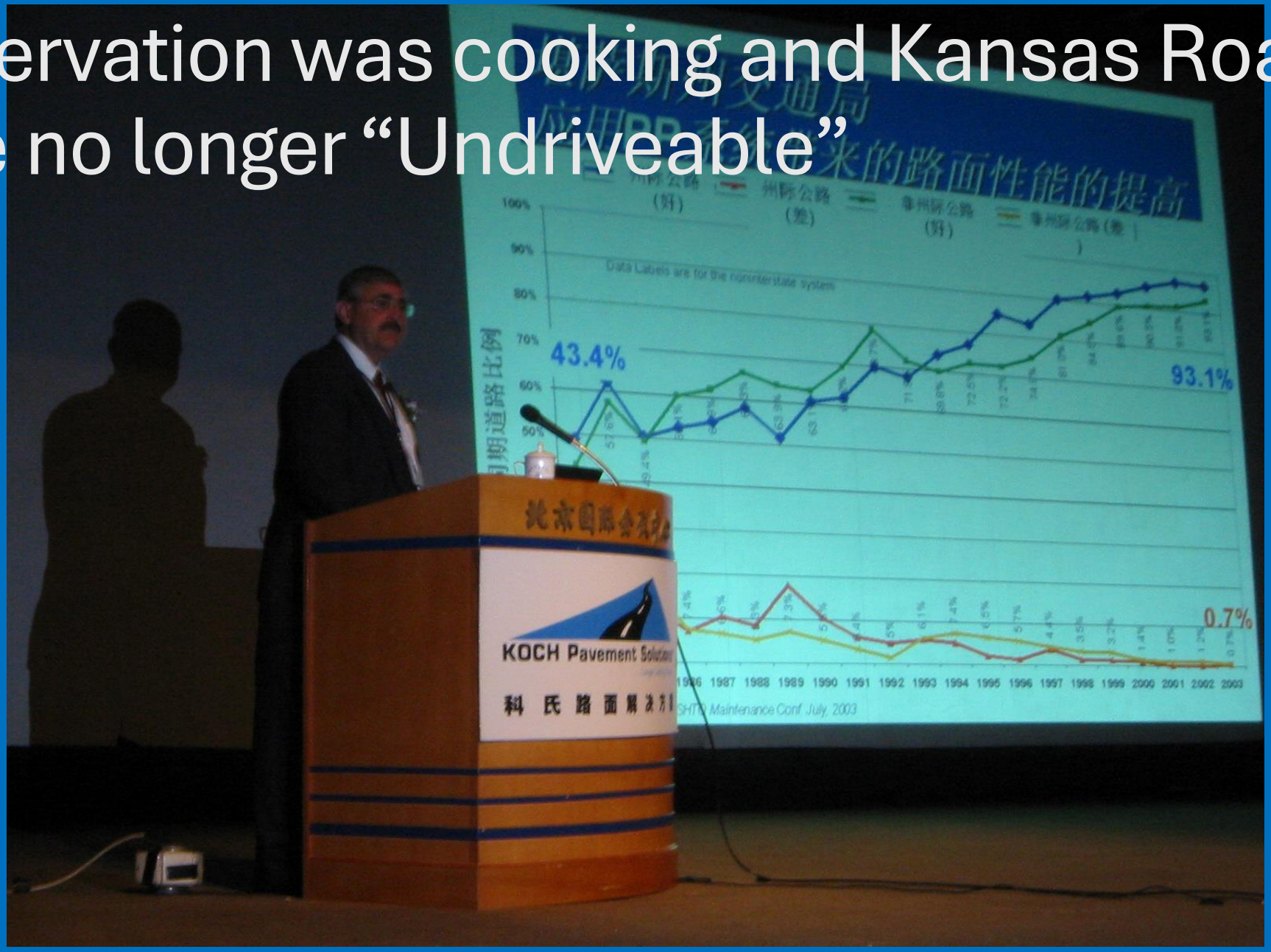
EQUTHICK	SDESC
1.25	CM .5",UBAS
1.25	CM.5",OL1"
1.25	CM.75",OL1.5"
1.25	MSS, OL1"
1.25	SR1",OL.75"
1.375	SR1",OL.625"
1.5	CM 1",OL 1"

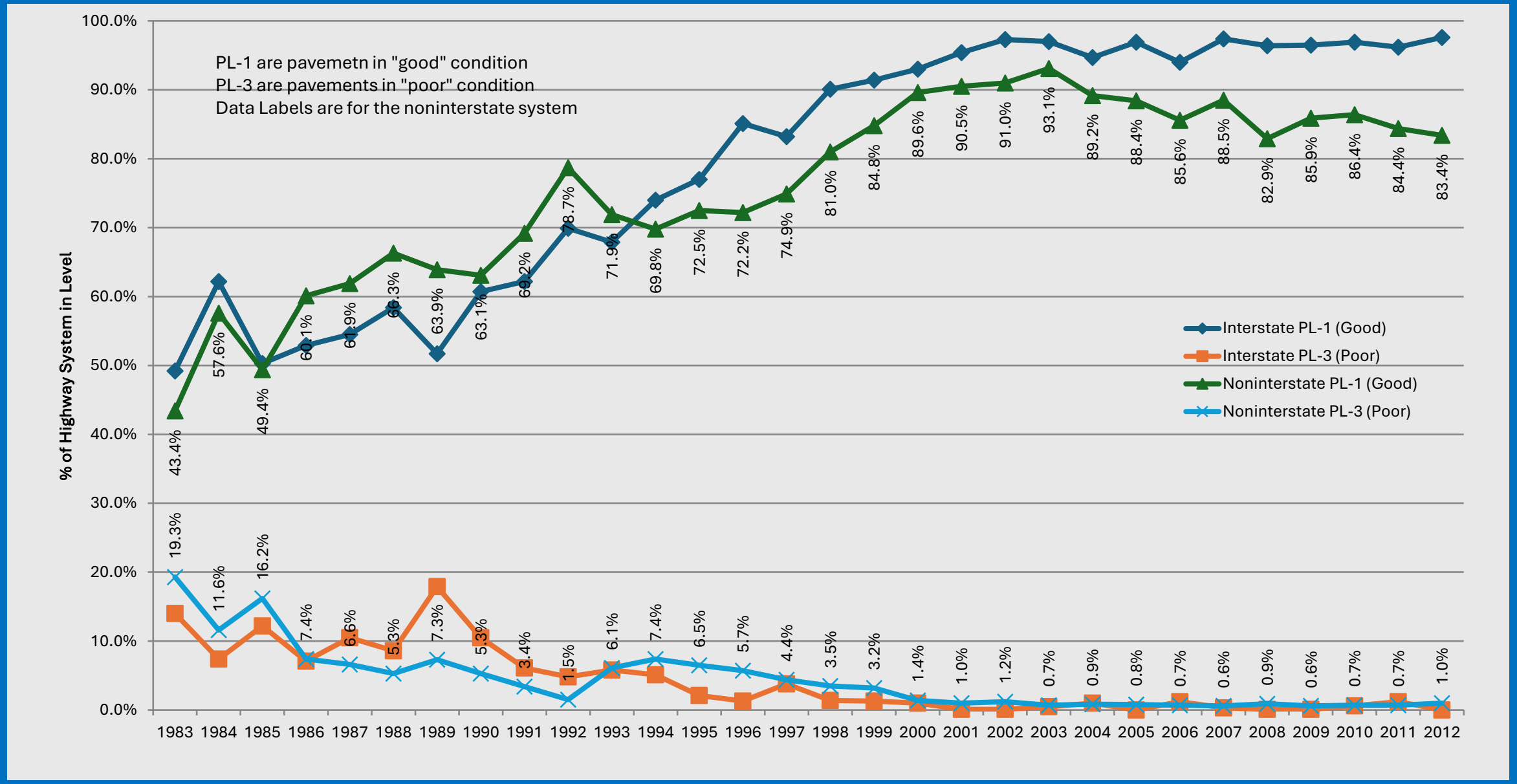

Miles of Actions by EqThick and Year
3000
2500
2000
1500
1000
500
0
2024 2023 2022 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001 2000 1999 1998 1997 1996 1995 1994 1993 1992 1991 1990
EQ0 EQ0_25 EQ0_5 EQ0_625 EQ0_75 EQ0_875 EQ1 EQ1_25 EQ1_375 EQ1_5 EQ1_75
EQ2 EQ2_125 EQ2_25 EQ2_5 EQ2_625 EQ2_75 EQ3 EQ3_25 EQ3_5 EQ3_75 EQ4
EQ4_5 EQ4_75 EQ5 EQ5_25 EQ5_5 EQ6 EQ6_5 EQ7 EQ7_5 EQ8

We don’t leave our pavements alone!



Preservation was cooking and Kansas Roads were no longer “Undriveable”




PL-1 are pavemetn in "good" condition
PL-3 are pavements in "poor" condition
Data Labels are for the noninterstate system
% of Highway System in Level
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Interstate PL-1 (Good)
Interstate PL-3 (Poor)
Noninterstate PL-1 (Good)
Noninterstate PL-3 (Poor)
43.4% 57.6% 49.4% 60.1% 61.9% 66.3% 63.9% 63.1% 69.2% 78.7% 71.9% 69.8% 72.5% 72.2% 74.9% 81.0% 84.8% 89.6% 90.5% 91.0% 93.1% 89.2% 88.4% 85.6% 88.5% 82.9% 85.9% 86.4% 84.4% 83.4%
19.3% 11.6% 16.2% 7.4% 6.6% 5.3% 7.3% 5.3% 3.4% 1.5% 6.1% 7.4% 6.5% 5.7% 4.4% 3.5% 3.2% 1.4% 1.0% 1.2% 0.7% 0.9% 0.8% 0.7% 0.6% 0.9% 0.6% 0.7% 0.7% 1.0%

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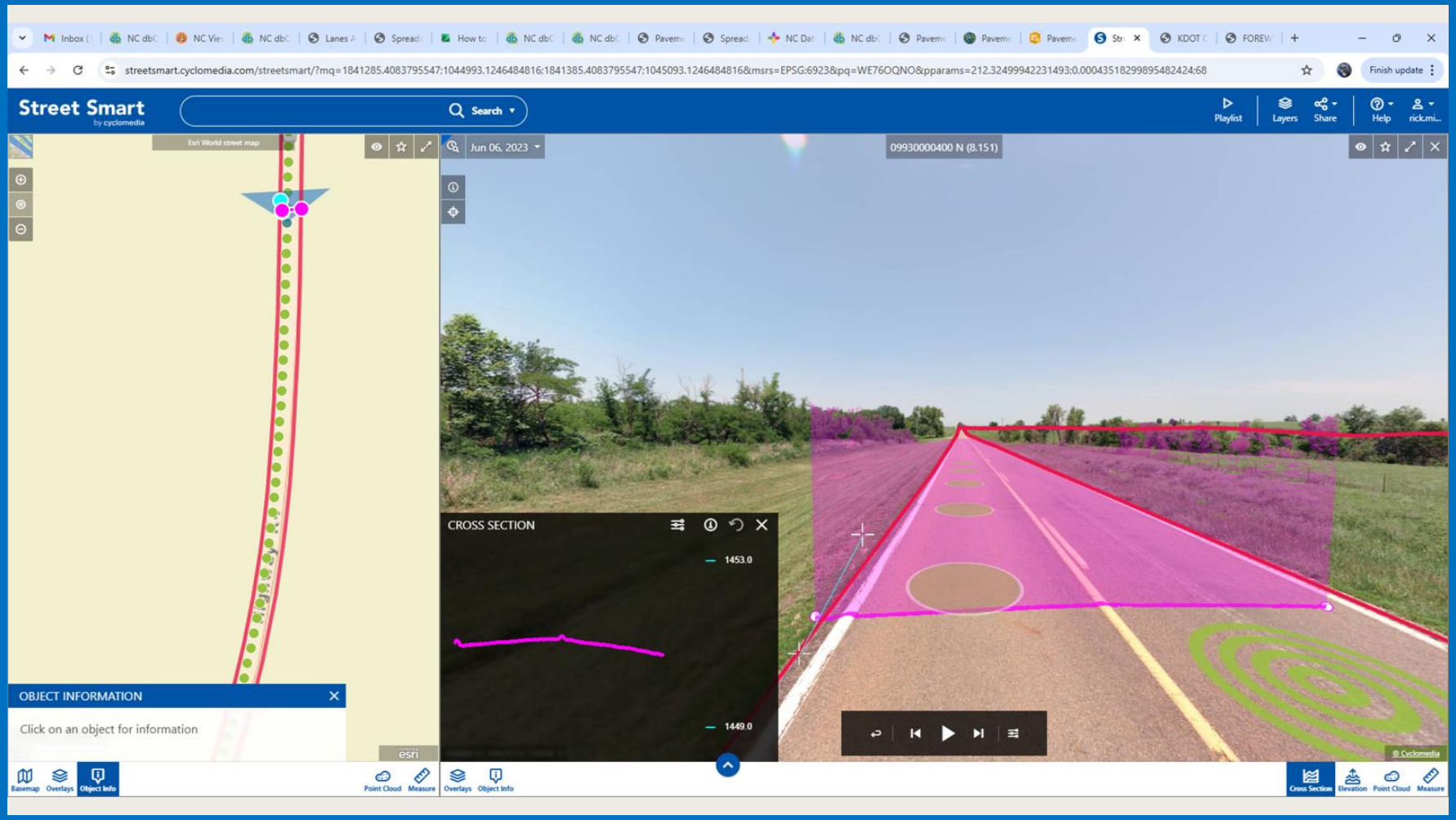
But,

- Somehow someone said something and jinxed us…
  - Repeated actions are not getting the same benefit they once provided
    - See it in the data
    - See it in the world
    - Hear about it from old timers
  - KDOT had a second state funded program (Comprehensive Transportation Program) that mimicked the first one and had comparable success
  - KDOT change for the third program and got rid of the Heavy Pavement Actions portion of the selection process (We don’t need it, Preservation can do it all – WRONG!)
  - Issues with repeated actions that limit future options SRs over too many chip seals can set the road on fire,

SRs over too many chip seals can set the road on fire,

old layer boundaries limit options for milling depths,

shapes of the road surface also are getting “wonky”)



What can we do?