NCAT Test Track Research

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NCAT Test Track - Summary of SCDOT

2000

Section	Layer	Type Mix	Rate (psy)	PG	LA - B Grading	Evaluated
S-8	Surface	12.5 mm	175	76-22	35	Comparison of top size agg. in Superpave Mixtures
S-11	Surface	9.5mm	150	76-22	35	

2003

N-13	Surface	12.5 SMA	200	76-22	25	Comparison of low - vs. high LA abrasions agg. in SMA
S-1	Surface	12.5 SMA	200	76-22	51	
W-3	Surface	9.5 mm	150	76-22	46	Evaluation of new limestone agg. source

2006

S-1	Surface	12.5 SMA	200	76-22	51	Continue traffic for 10 mil. more ESALs

NCAT Test Track and Other - Summary of SCDOT

2009 - (Green Group) - Standard Mixes, High RAP, WMA, Various Tack Products

2012 - (Green Group) – Continuation

2012 - Pavement Preservation Group (Track and Lee Road 159)

2015 - Pavement Preservation Group (Lee Road 159, US-280, and MnRoad)

2018 - Pavement Preservation Group (Continuation)

2018 - More on this in a minute..

Lessons Learned:

- Placed Superpave mixtures composed of low LA aggregates, high gyration counts, resulting in low binder contents.
- Both 12.5mm and 9.5mm designs performed as expected: very little rutting.
- No significant difference in pavement performance (rutting) with 9.5 mm and 12.5 mm Superpave courses.

Lessons Learned:

- SMA - High LA Abrasion mix had much more aggregate breakdown during production and was hard to control the dust portion of the aggregate.
- SMA - Lower LA Abrasion mix was much easier to control during production.
- Marine limestone did not perform and had to be replaced prior early into the first research cycle due to low friction values (polishing) and concerns for track safety.

SC Findings - Implementation

- We now use 9.5 mm HMA on all mid-high ADT roads (including interstate).
- SMA mix is something that we will likely pursue again (good performance) in the near future, some concerns with aggregate breakdown during production.
- Marine limestone continues to not be permitted in any high traffic type mixes

SC Findings - Implementation

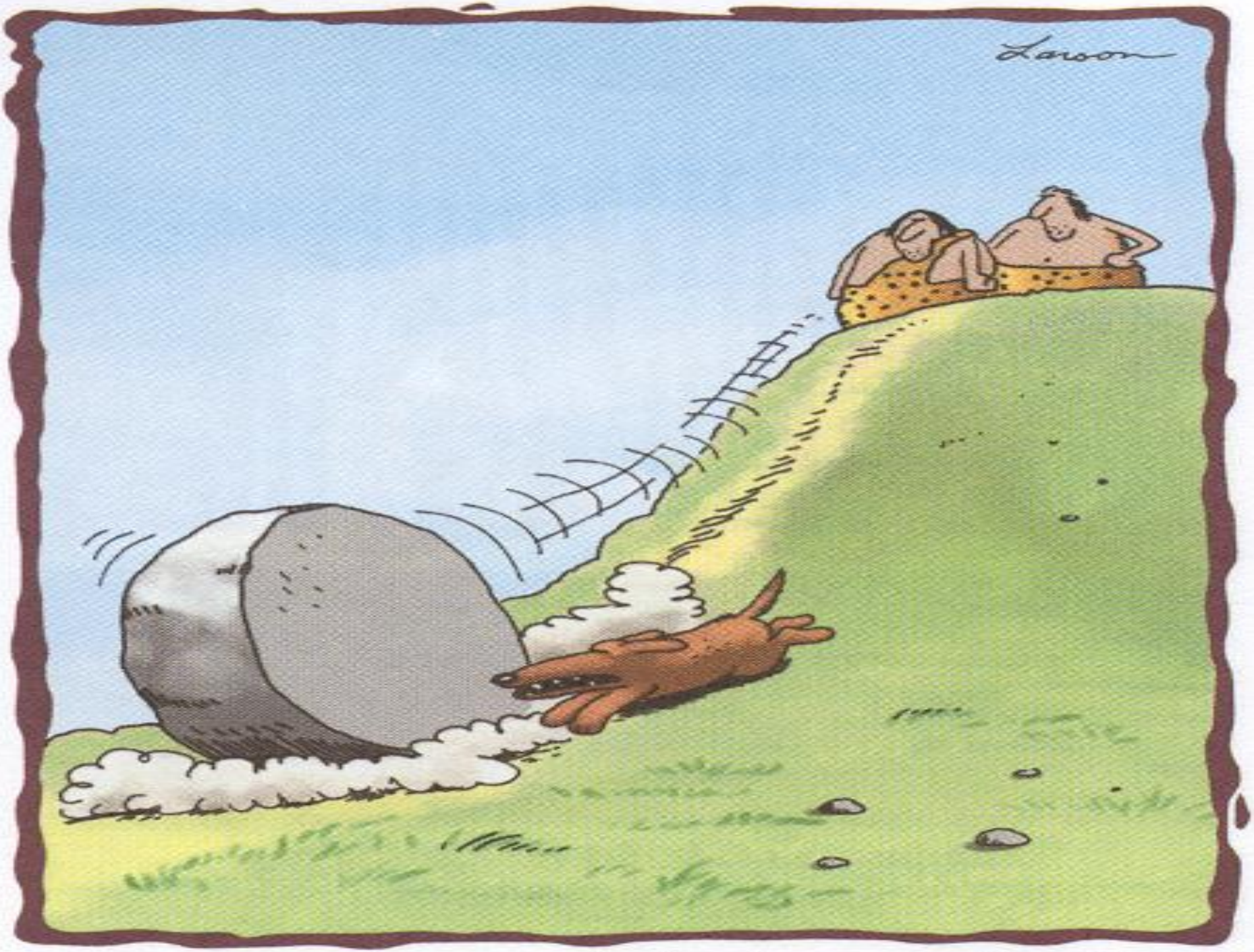
- Using PMA binders and using RAP/RAS has helped with our concerns with rutting.
- However there has been an increasing need to find a means to produce mixtures that would also resist cracking. We have gradually lowered gyration levels, lowered air void targets, and began using COAC to add more virgin binder.

SC Findings - Implementation

- We allow more RAP/RAS (% aged binder) in our mixtures than in previous years.
- WMA – option for the HMA Contractor to use in nearly all mixes.
- Using more thin lifts (3/4”) than in the past.
- Continuation of Pavement Preservation and using the test sections to make decisions on what products do best for our roads..

Plans for 2018 Track

- Continue with our commitment to the Pavement Preservation Group
- Add a section on the track involving rehab placement of a 12.5mm Intermediate mix using WMA and 25-30% RAP..
- Plans are to place **1** lift up to 7” in depth.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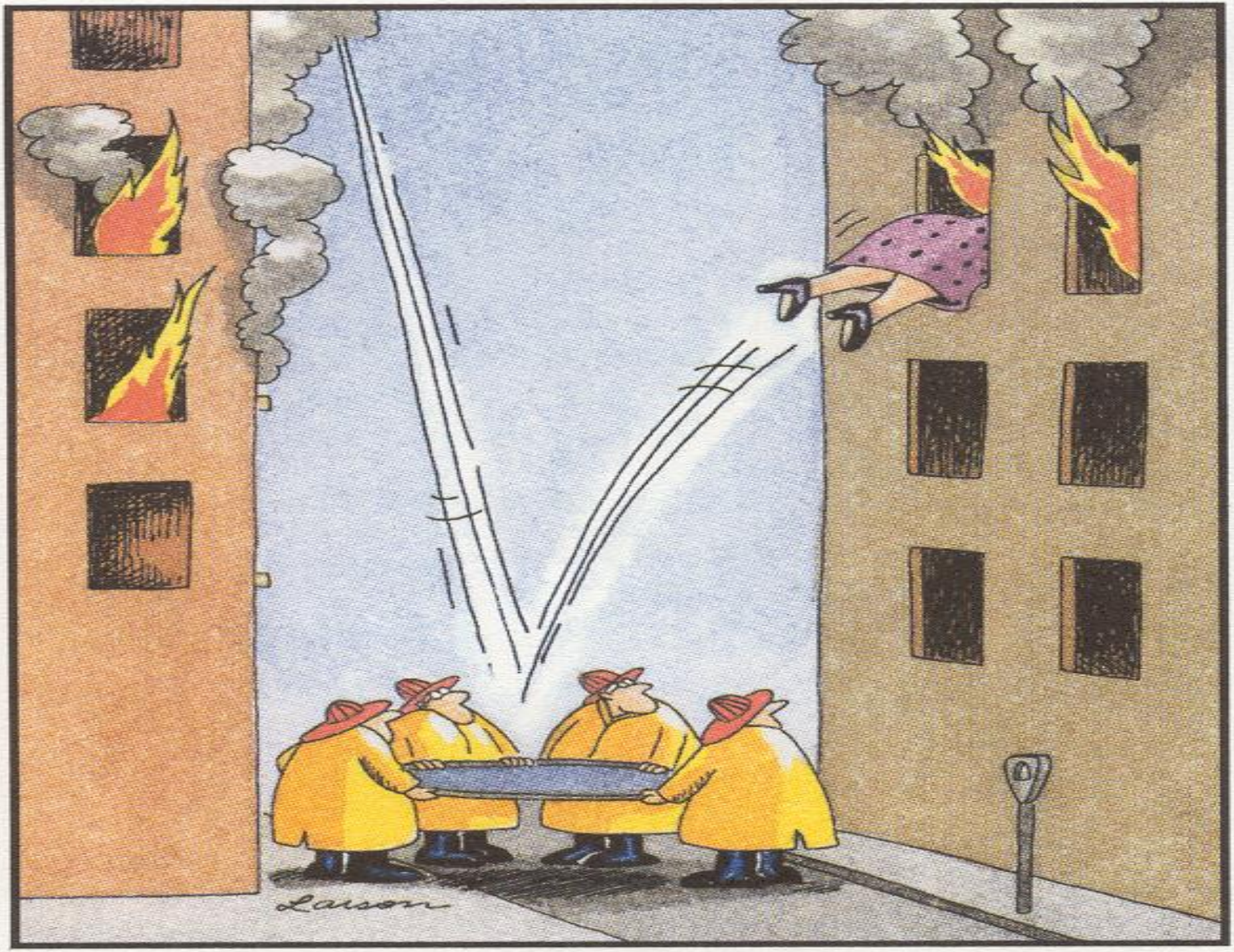
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Conclusions

- **The NCAT Test Track research has provided the SCDOT answers to asphalt related issues in a fraction of the time of conventional testing.**

- **We appreciate the partnership and willingness to provide a means to do this research.**