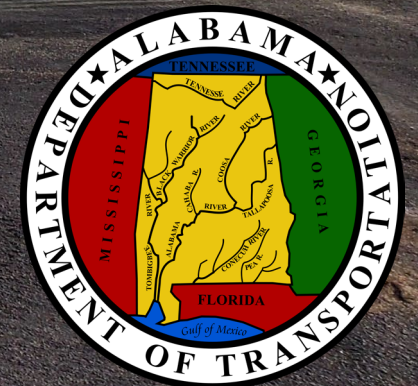


Alabama's Climate Challenge Project Update

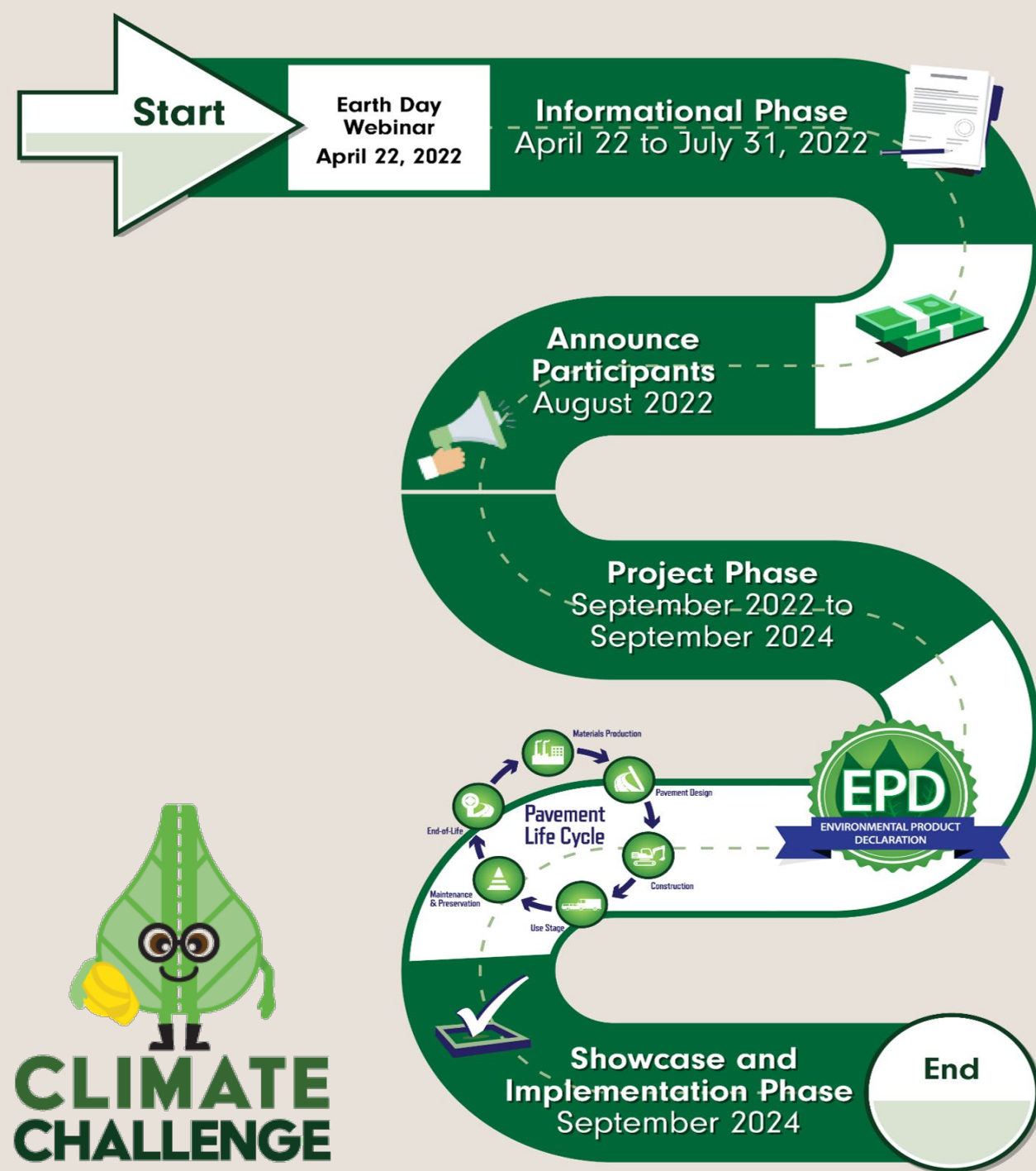
ALDOT Transportation Conference 2024
Zane Hartzog





FHWA CLIMATE CHALLENGE

- Explore the use of LCA & EPDs for
 - Pavement Materials
 - Pavement Design
- Enhancing pavement sustainability with data



CLIMATE CHANGE, What do you think?

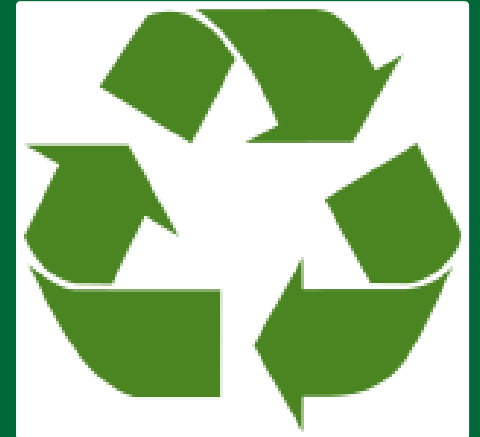
Pollution / Litter



Electric Cars / Hybrids



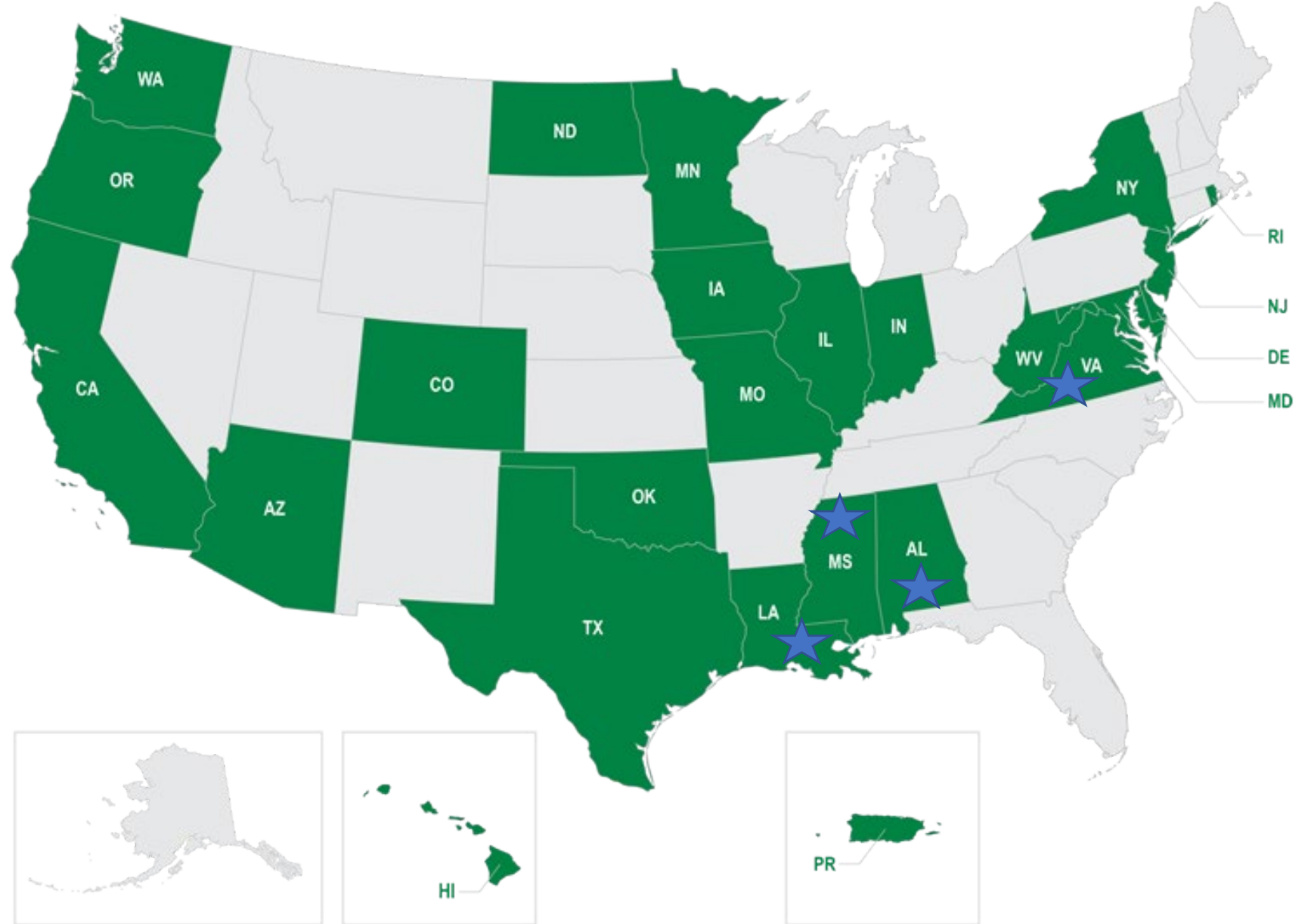
Recycling





CLIMATE CHALLENGE

35 Projects
\$7.1 million

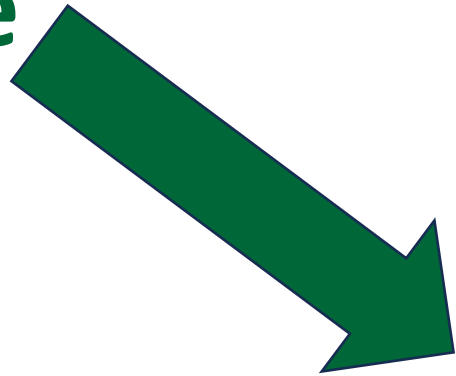


Collaborative
Effort
\$1.2 Million in
FHWA
Grant funds





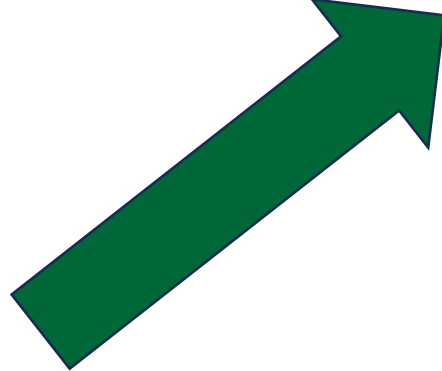
Performance



Cost



Environment



**What are the
interests
of the
Asphalt Lab?**



ALDOT Mission Statement

**To provide a safe, efficient,
environmentally sound
intermodal transportation
system for all users,
especially the taxpayers of
Alabama.**

Back on cars for just a second...

2024 Corvette E-Ray Hybrid



Image:Media.Chevrolet.com

- Zero to 60 mph in 2.5 seconds
- All-wheel drive
- Same gas mileage

2019 Ram eTorque



Image: Kevauto – Wikipedia.org

- 130 extra lbf-ft of torque
- 2 more mpg
- Best in class towing capacity

What
exactly
did we
do?





Sections

- US-82, Prattville, AL
- Three sections were constructed
 - Aramid Fiber
 - Control
 - Warm Mix-1





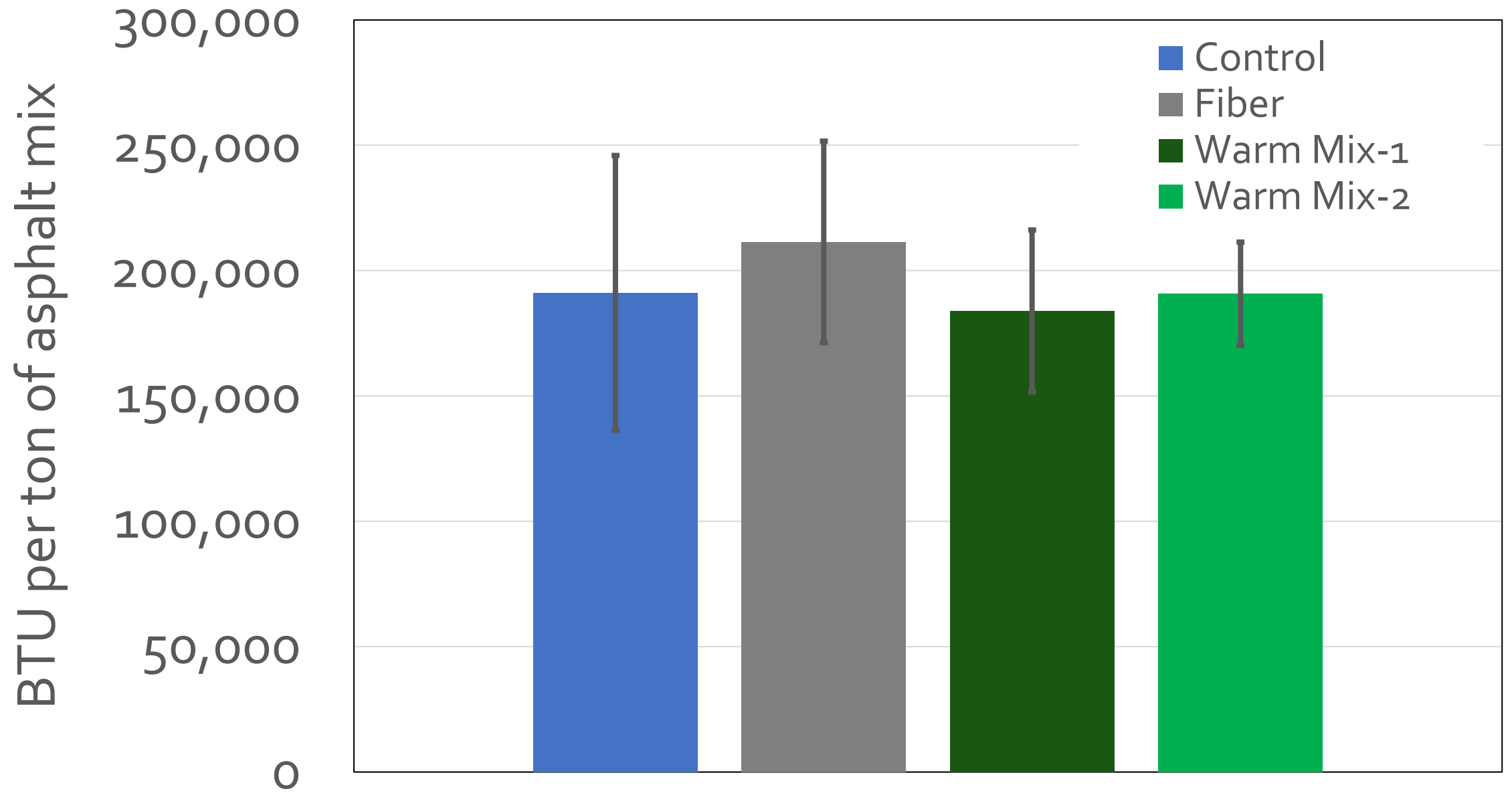
Sections

- Warm Mix-2 section was placed in December 2023





Mix ID	Planned production temperature, °F	Average temp. achieved during production, °F
Control	325	323
Fiber	325	327
Warm Mix-1	275	303
Warm Mix-2	275	295

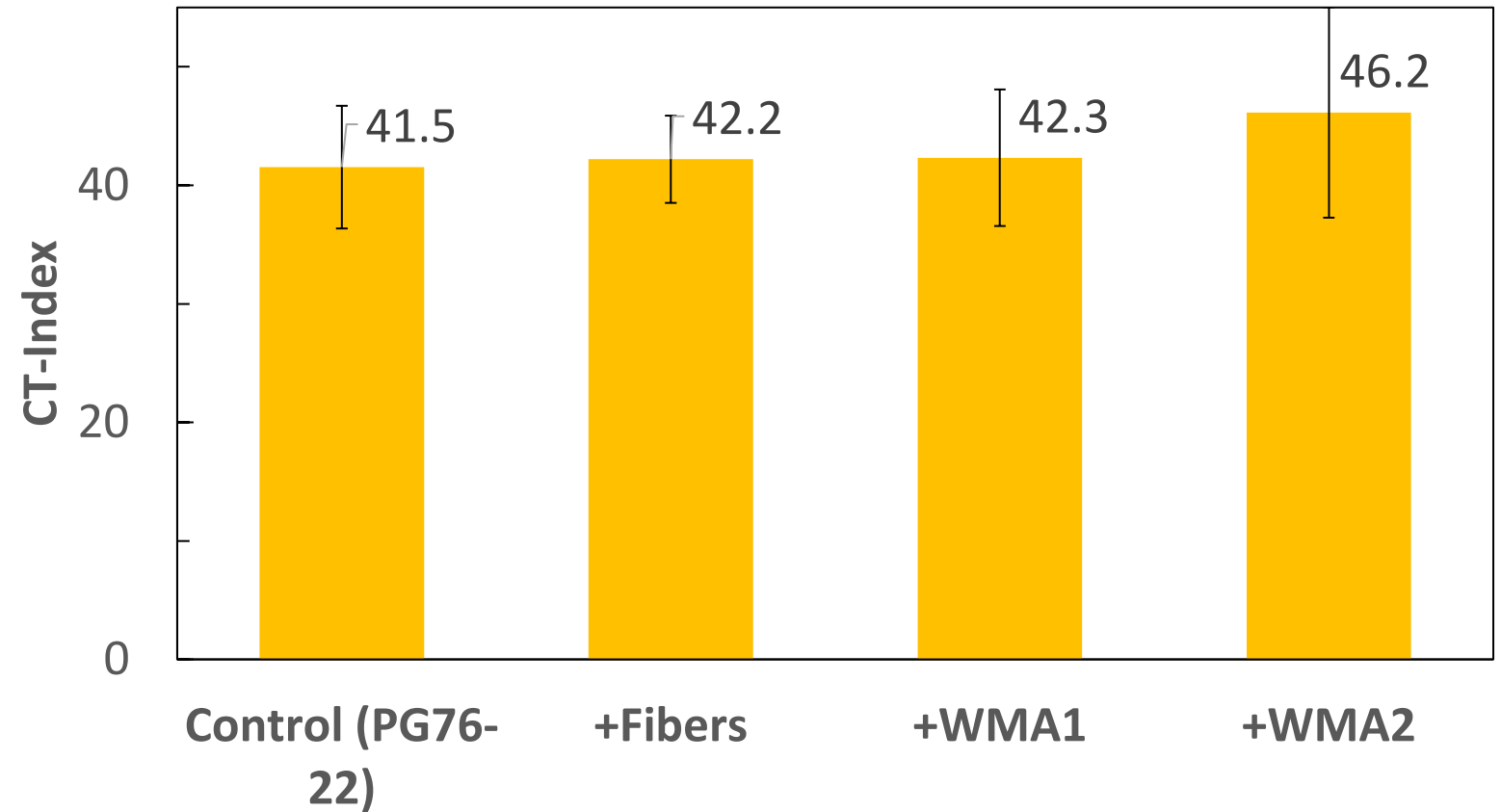


- No significant differences in burner fuel consumption were observed

What do cookies and asphalt have in common?

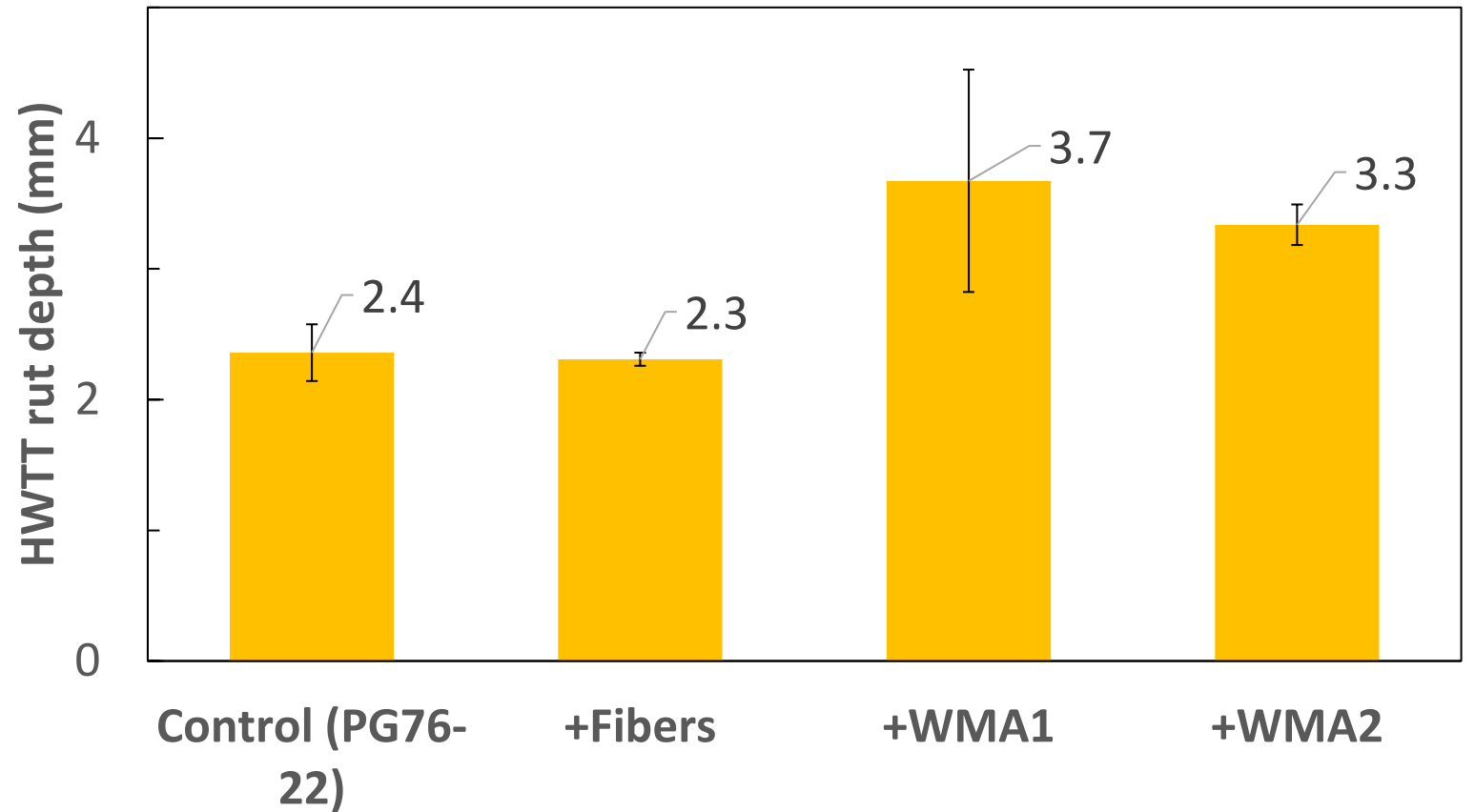


Lower temperature, improved cracking performance



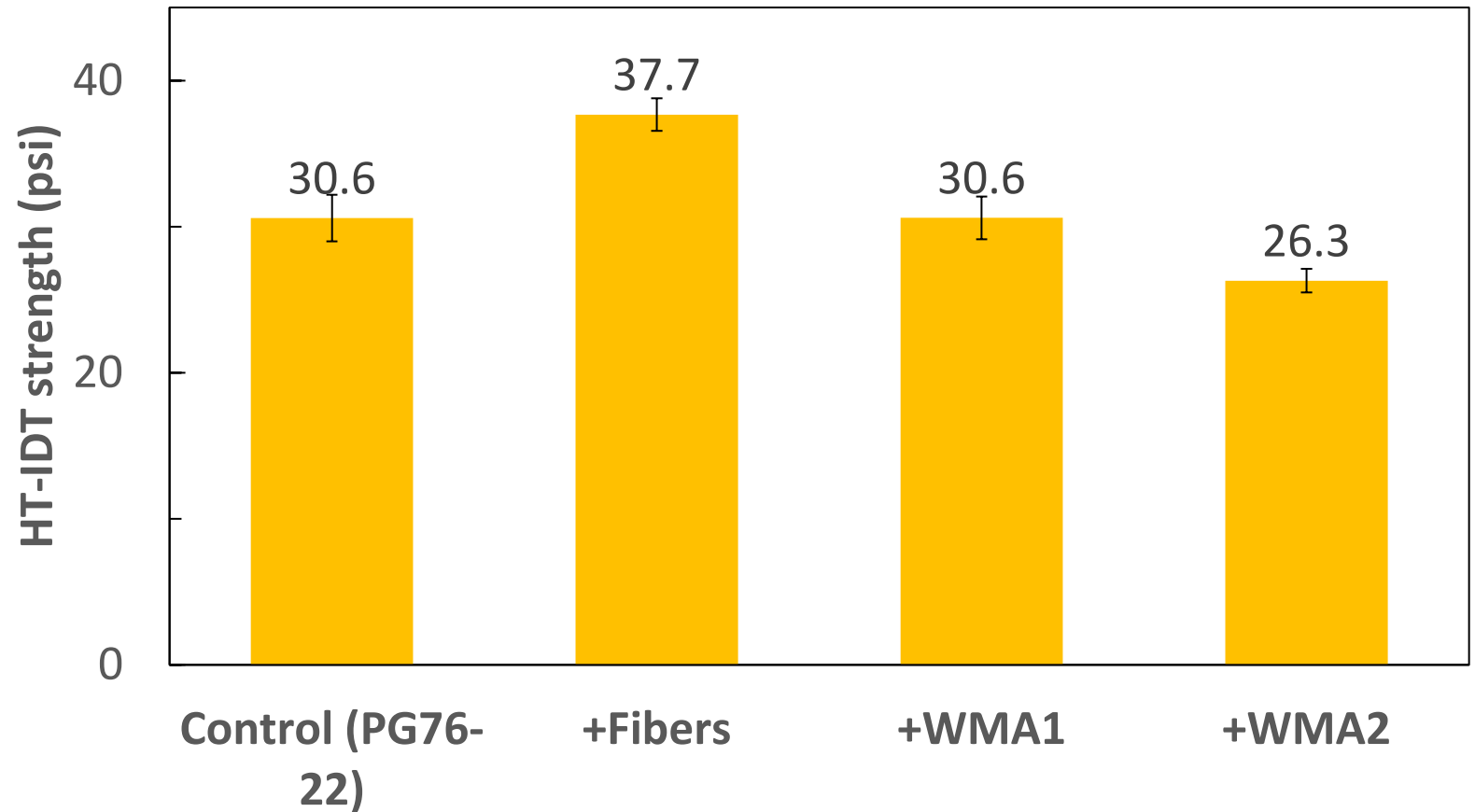
- Similar results for +Fibers compared to the control
- Higher CT_{index} with lower mixing and compaction temperatures
- No significant differences between different PMLC mixes

Lower
temperature,
slightly higher
rutting
susceptibility
(All Pass < 10mm)



- Satisfactory rutting performance for all the mixes
- Similar results for +Fibers mixes compared to the control
- Higher rut depths with lower mixing/compaction temperatures for WMAs, still satisfactory

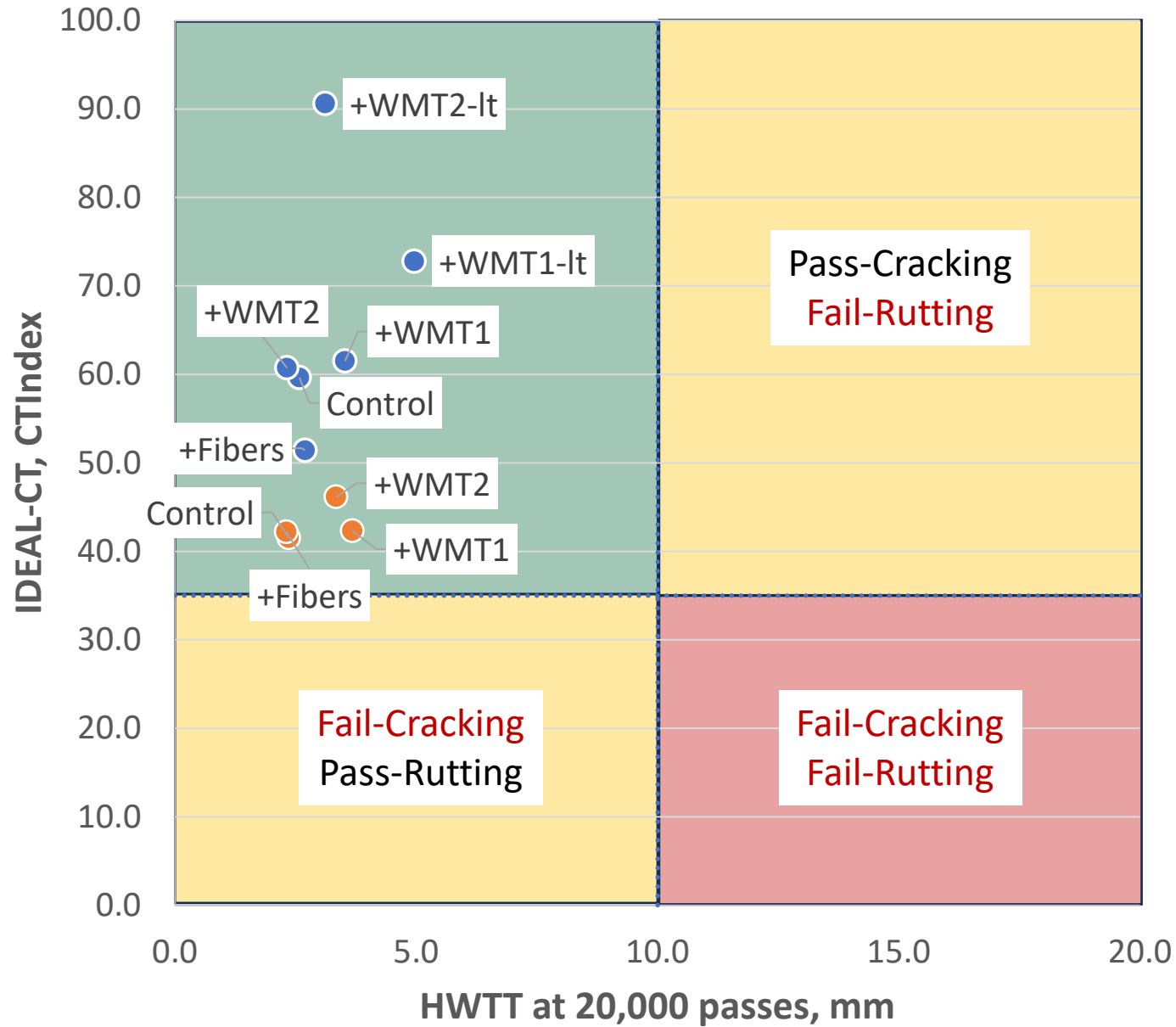
Lower temperature, same to slightly higher rutting susceptibility



- Satisfactory rutting performance for all the mixes
- Similar or higher strengths for +Fibers compared to the control
- +WMA PMLC mixes performing worse than control and Fiber mixes
- Lower strengths with lower mixing /compaction temperatures for WMAs



ALDOT Climate Challenge



BMD Approach



Taking the best of our results:

If our Mix was a Car:

- 1 more MPG
- 4 more HP
- And it's cheaper!

Cars Again



- NCAT will analyze the rest of the emissions data
- Contribute to the FHWA LCA Pave Database
- Training for ALDOT and Contractor Personnel on this material

**What's
next?**





Questions?

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