

New AASHTO Practice Accelerated Lab Friction Testing

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PAPA January 2020



Accelerated Lab Friction Test

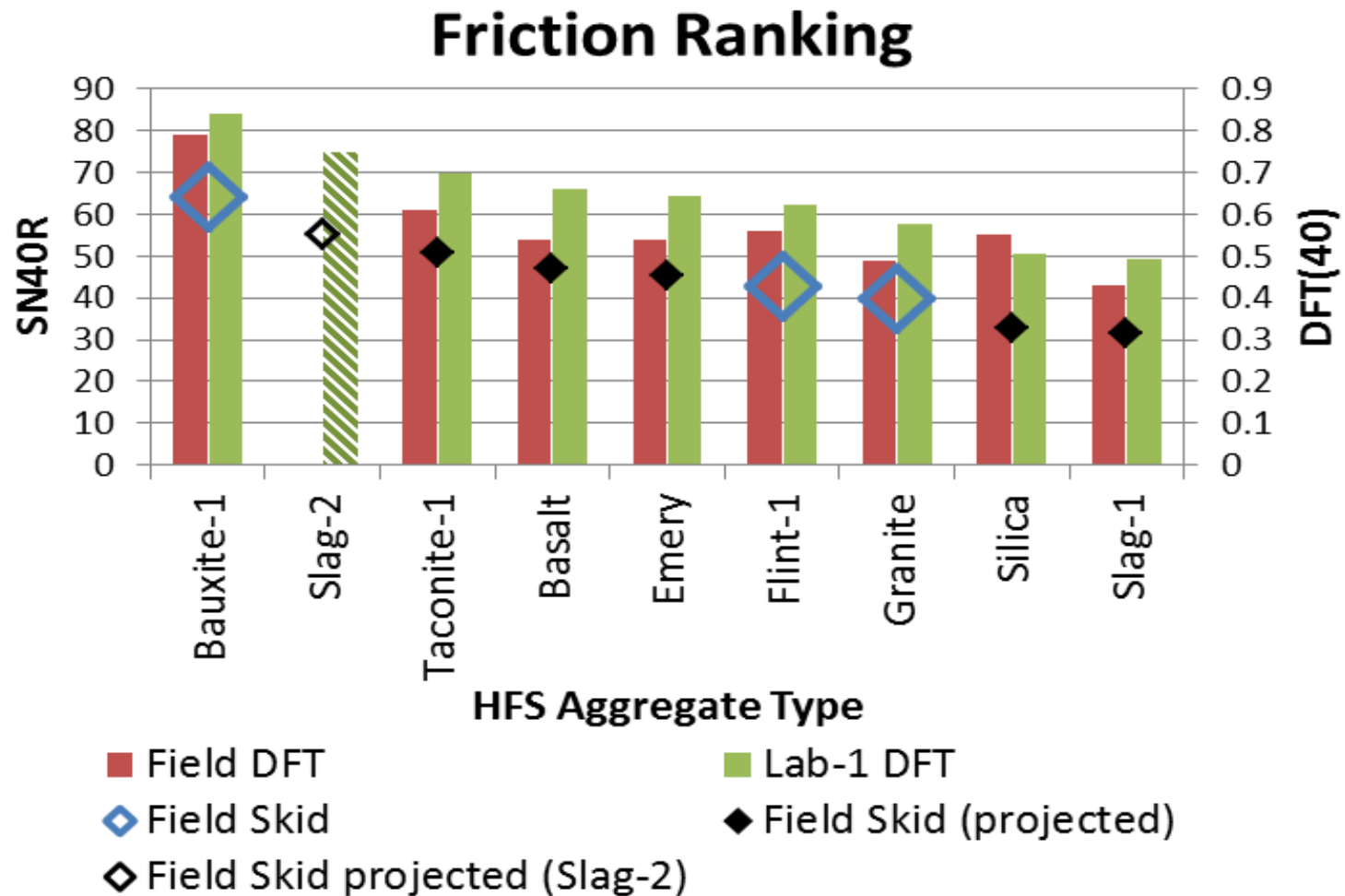
- Value
- What is measured
- Sample options
- Equipment
- Case Studies

W8-9 HFST Test Sections

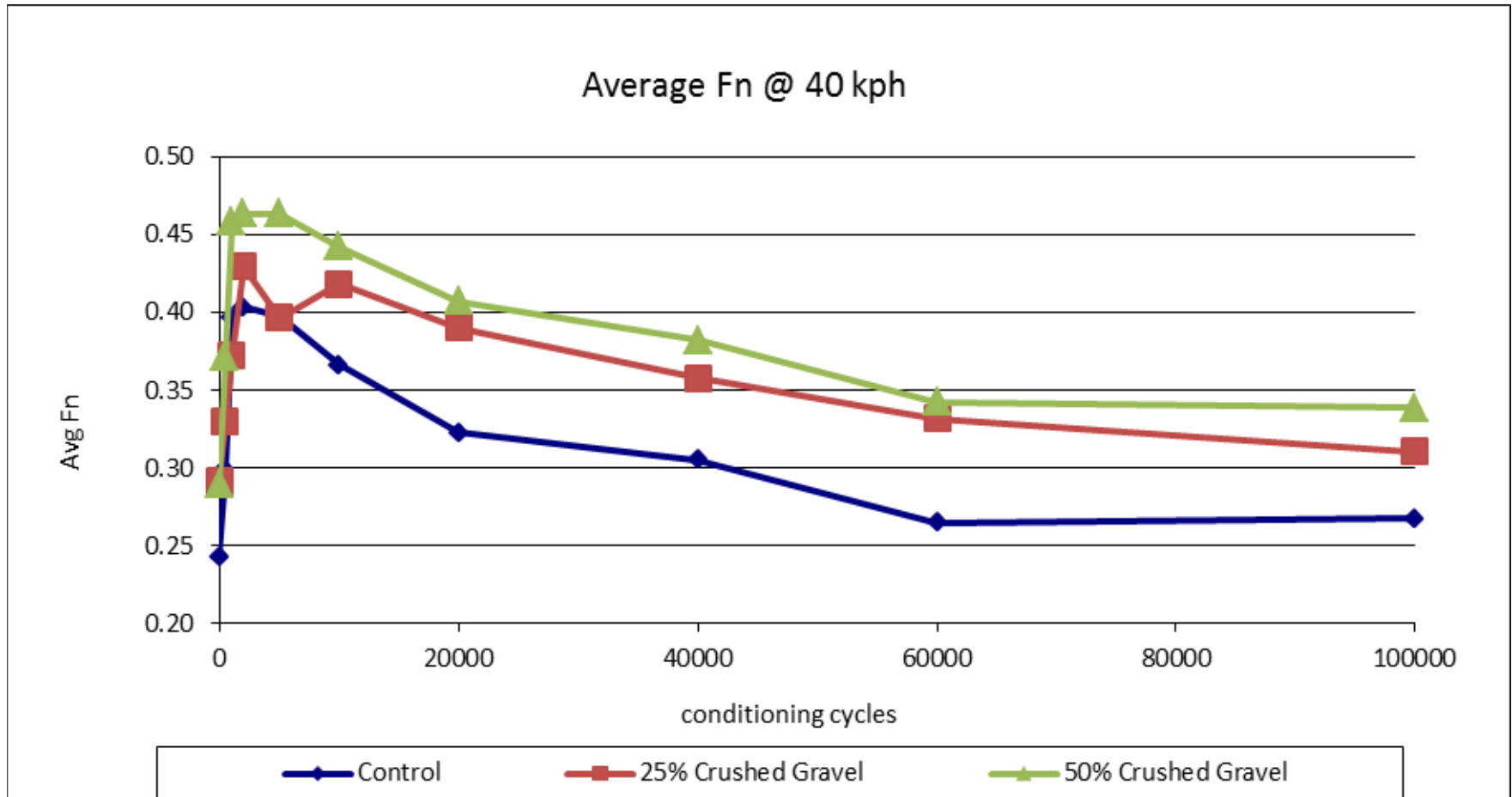
W9F - Taconite, MN
W9E – Al-Fe Oxide, OR
W9D – Slag, PA
W9C – Silica, OH
W9B – Basalt, WA
W9A – Chert, OK
W8B – Bauxite, China
W8A – Granite, WI



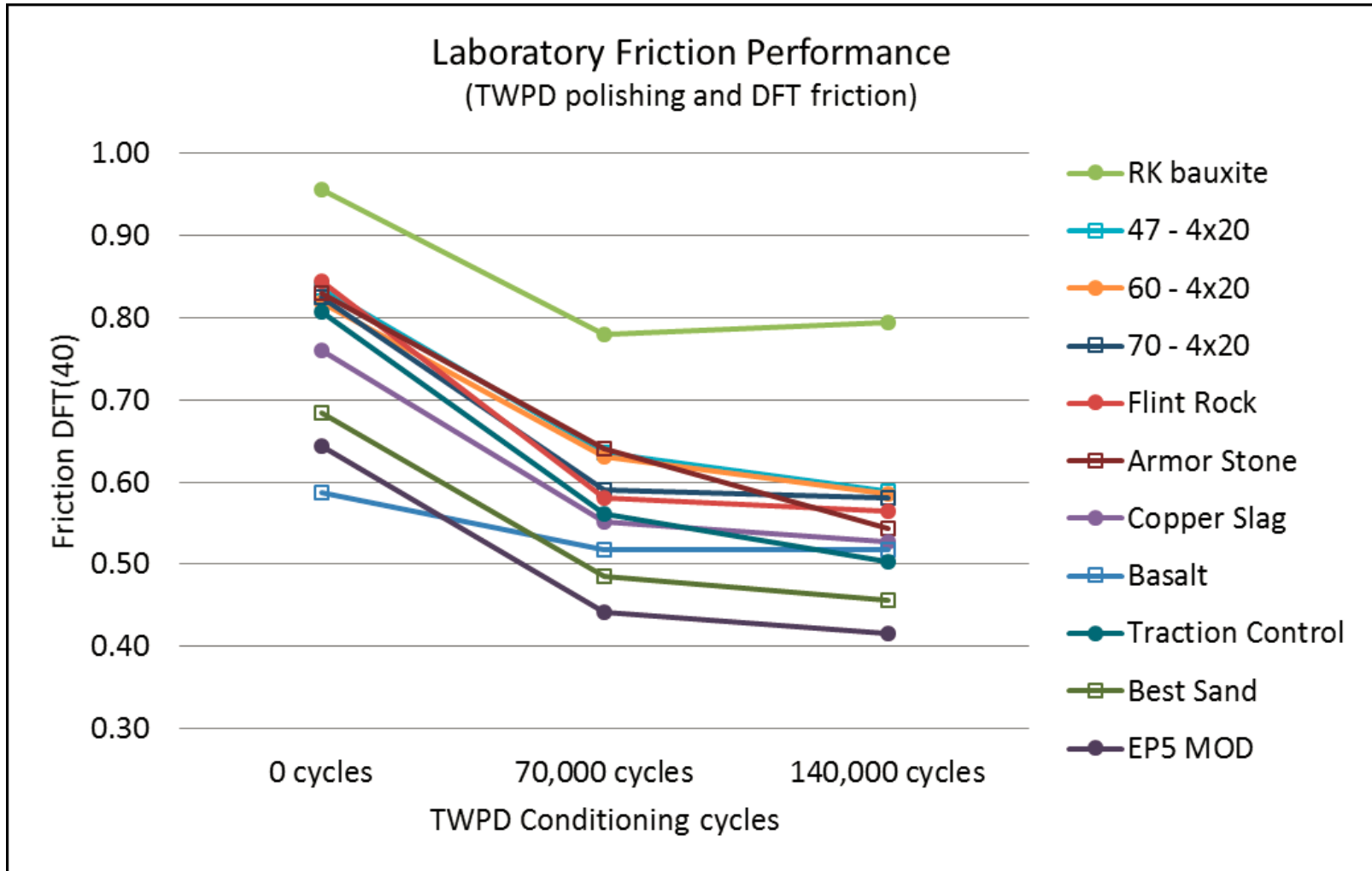
W8-9 HFST Test Sections



Friction Performance Curves



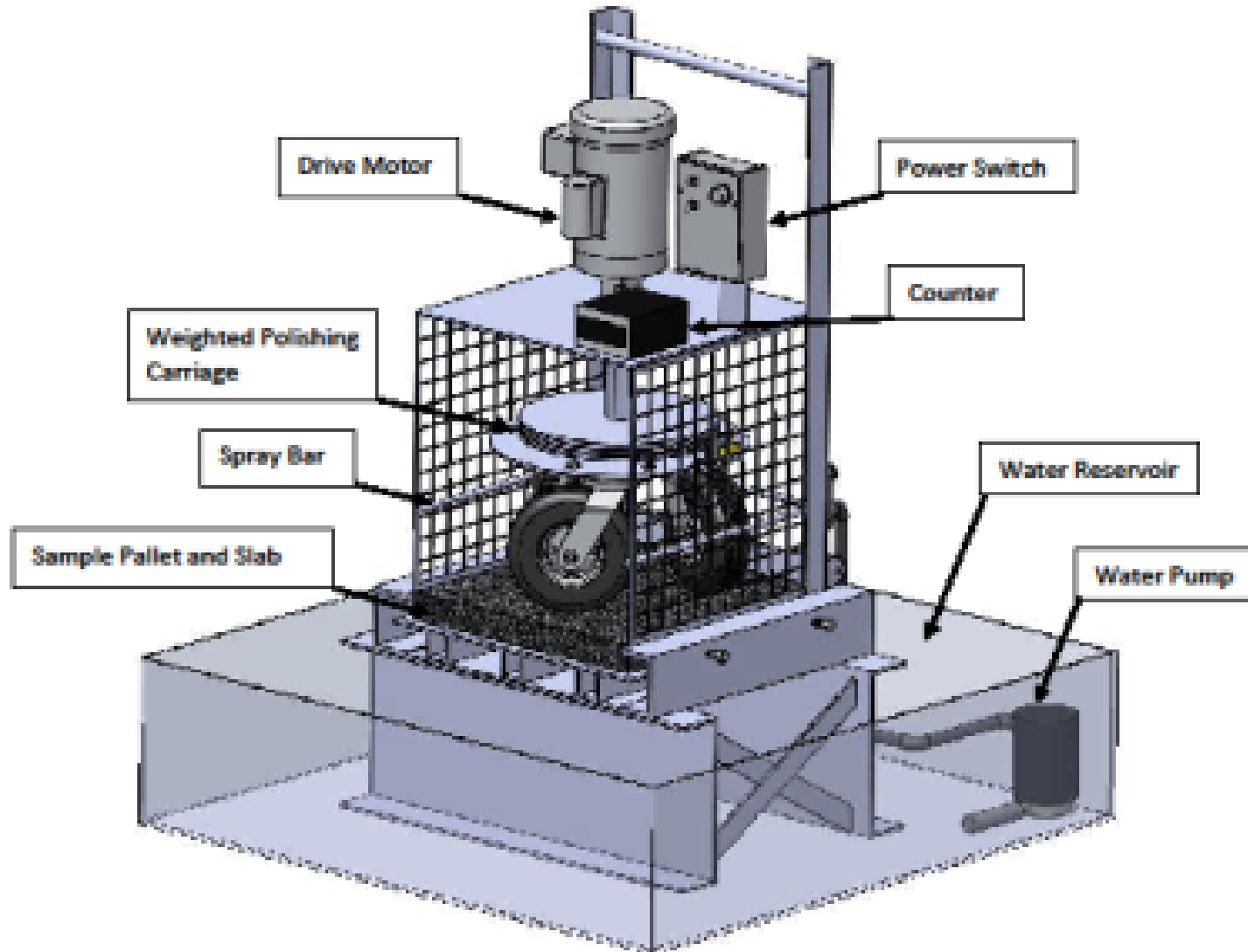
Terminal Friction Testing



Old Standard – British Pendulum



NCAT Three Wheel Polishing Device

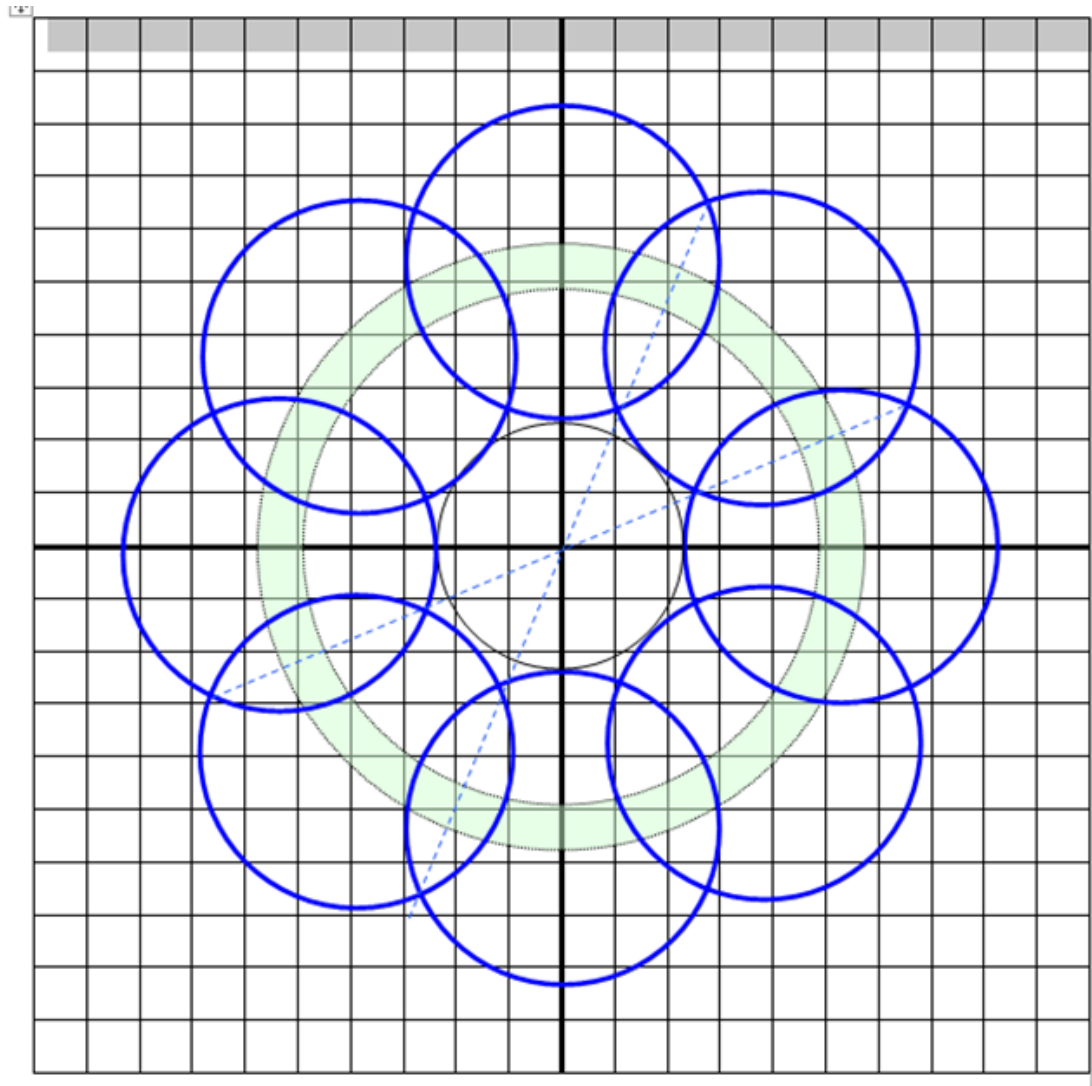


Specimen Preparation 20x20 slab



Figure 1 Modified Hamburg Slab Compactor

6" Gyrotory Ring Specimen (IN)

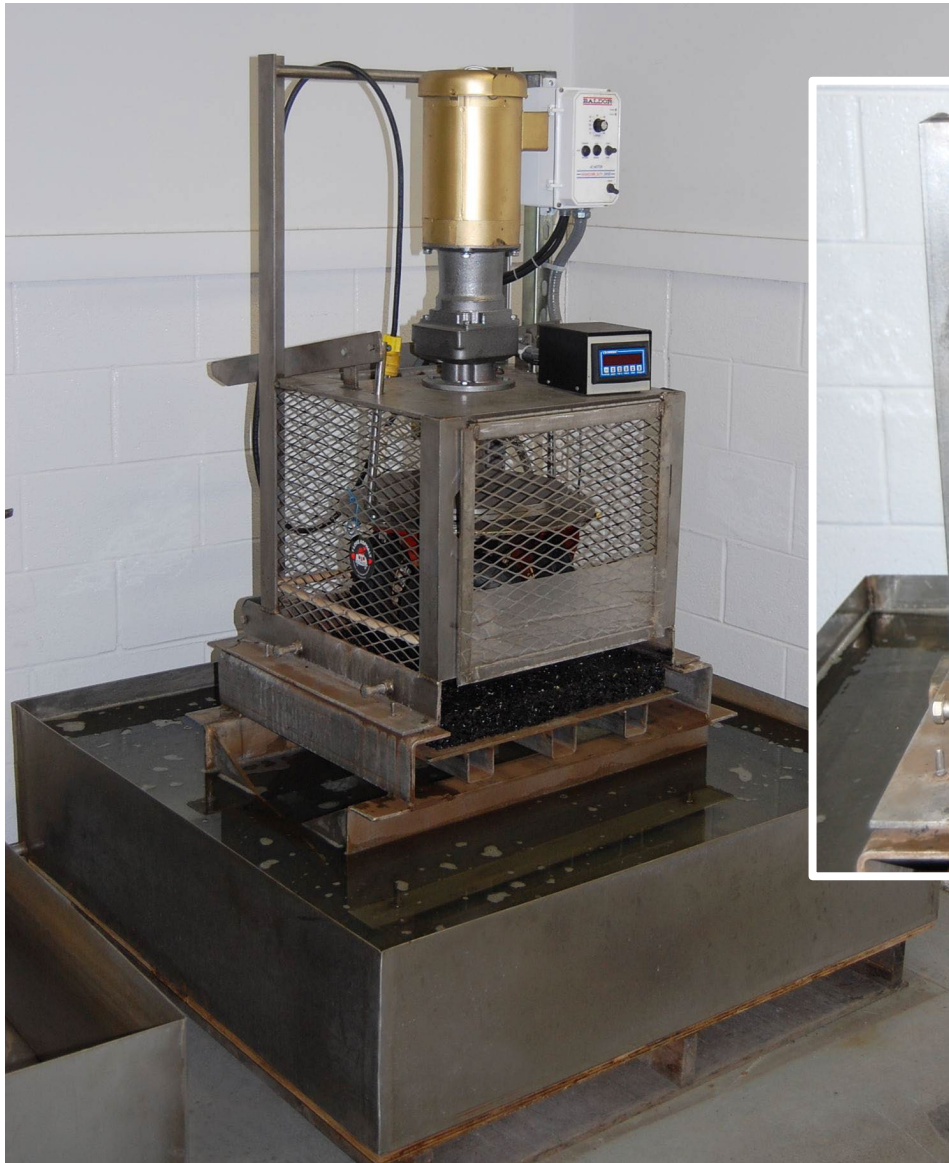


DFT / CTM measurement diameter 284 mm = 11.18 in

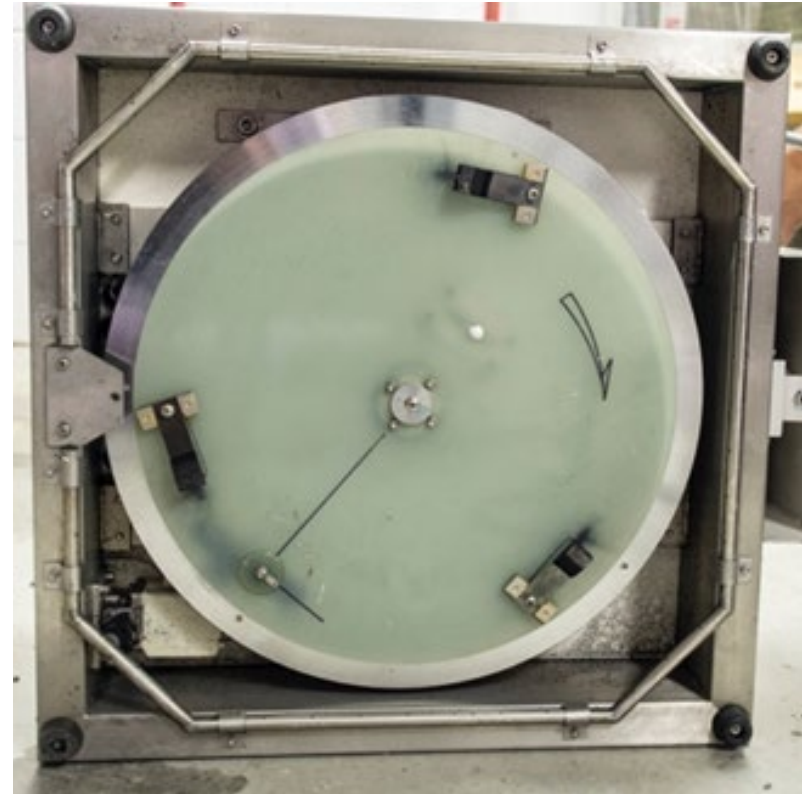
Aggregate Ring Specimen (MD)

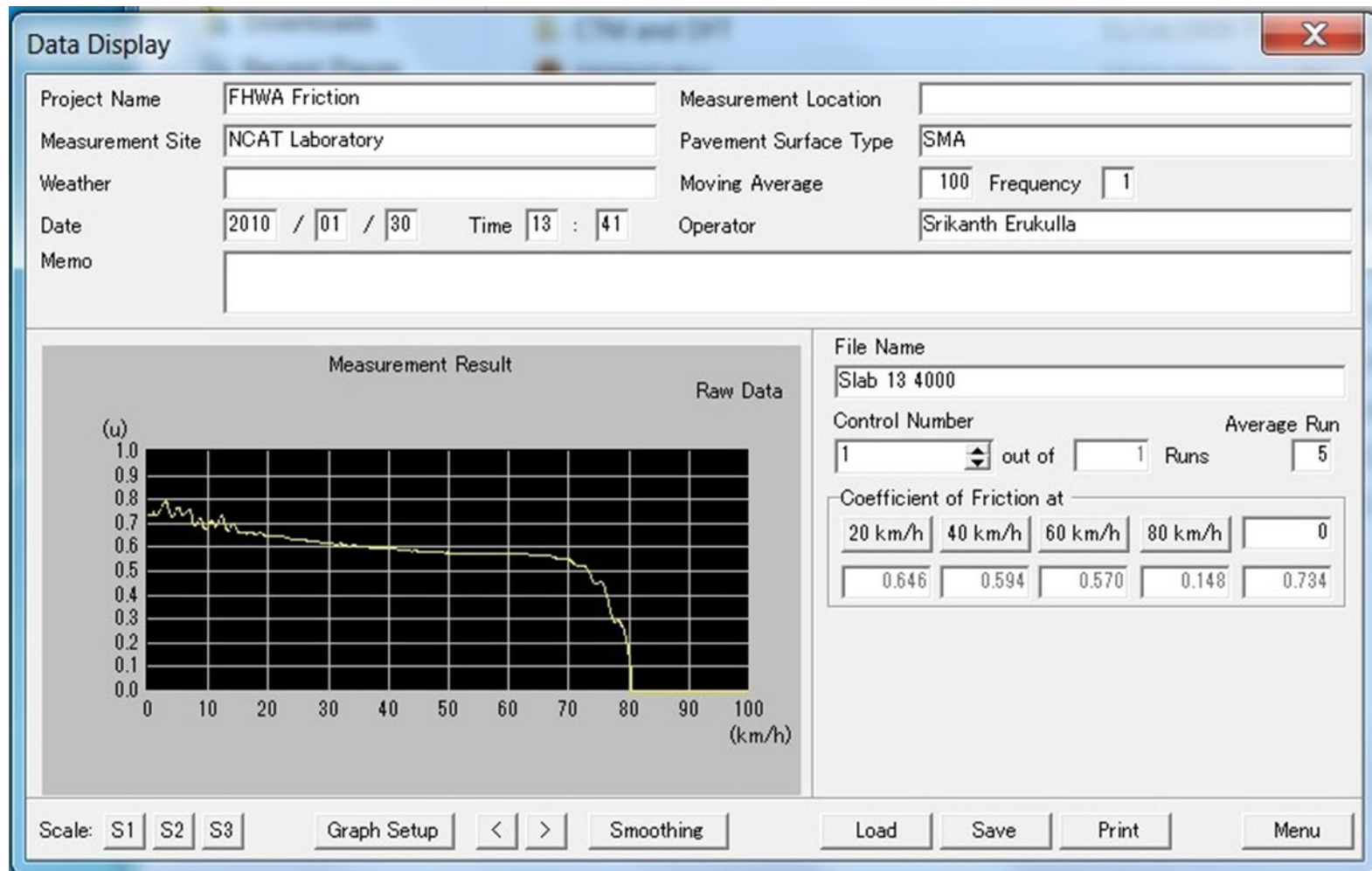


NCAT Three Wheel Polishing Device



ASTM Dynamic Friction Tester

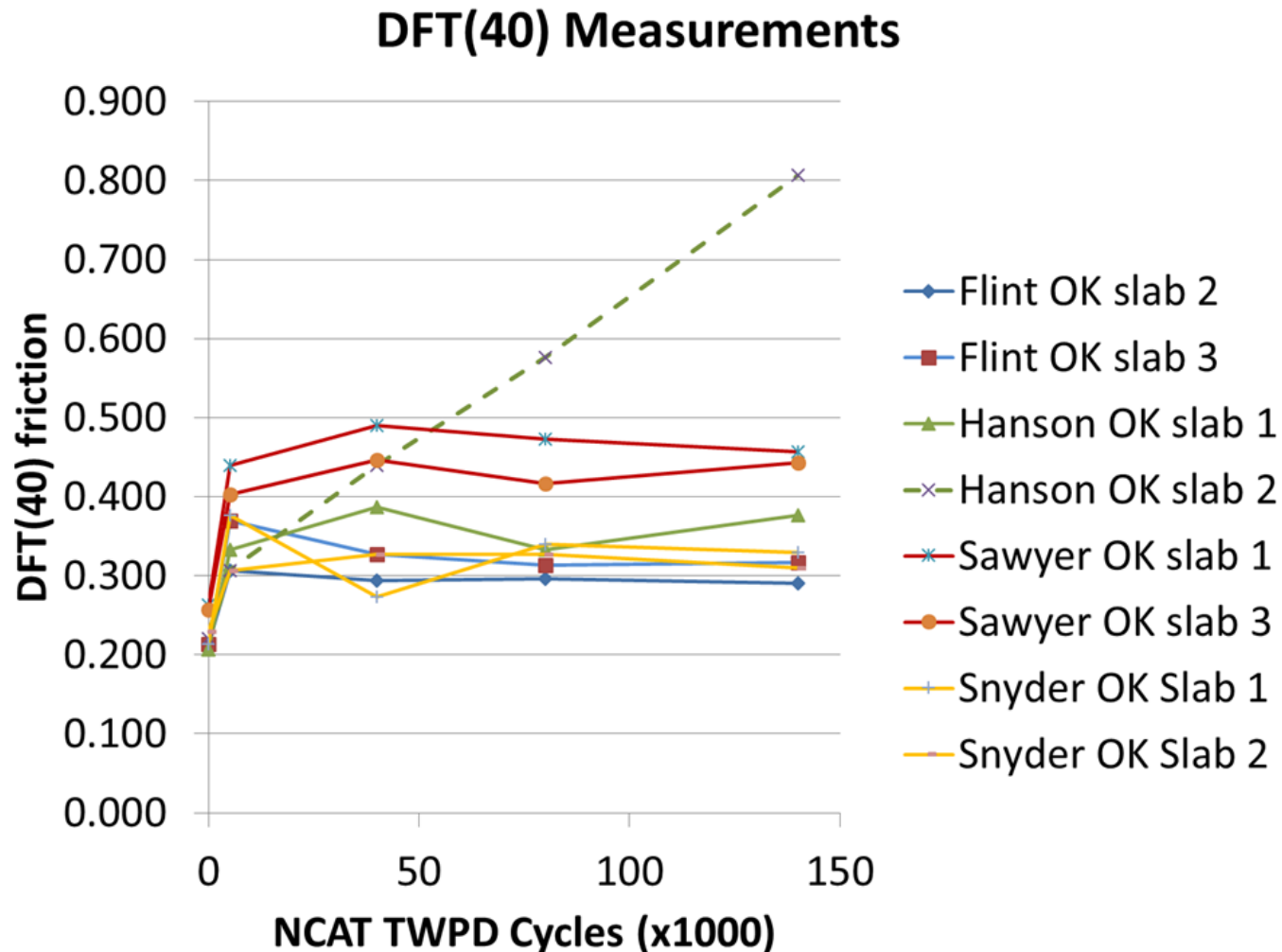




Alternative Friction Aggr. Studies

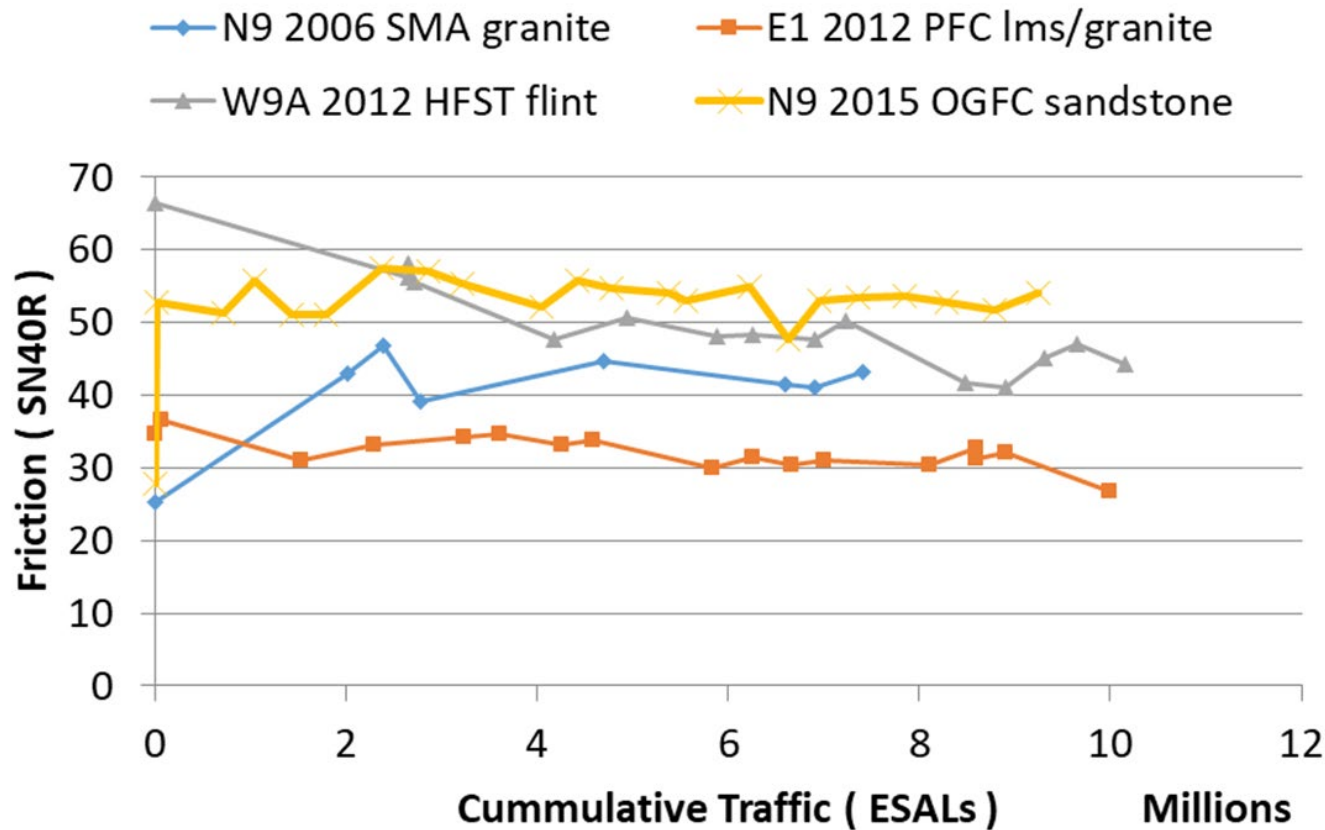
- OK DOT Optimize OGFC Aggregate
 - ▷ 4 aggregates, lab selection, TT performance
 - ▷ Sandstone on TT, N9, Sep-2015
- MI DOT Classify HFST Aggregates
 - ▷ 11 aggregates, lab TWPD/DFT
 - ▷ 2016

OK DOT Aggregate Selection Using Accelerated Lab Friction

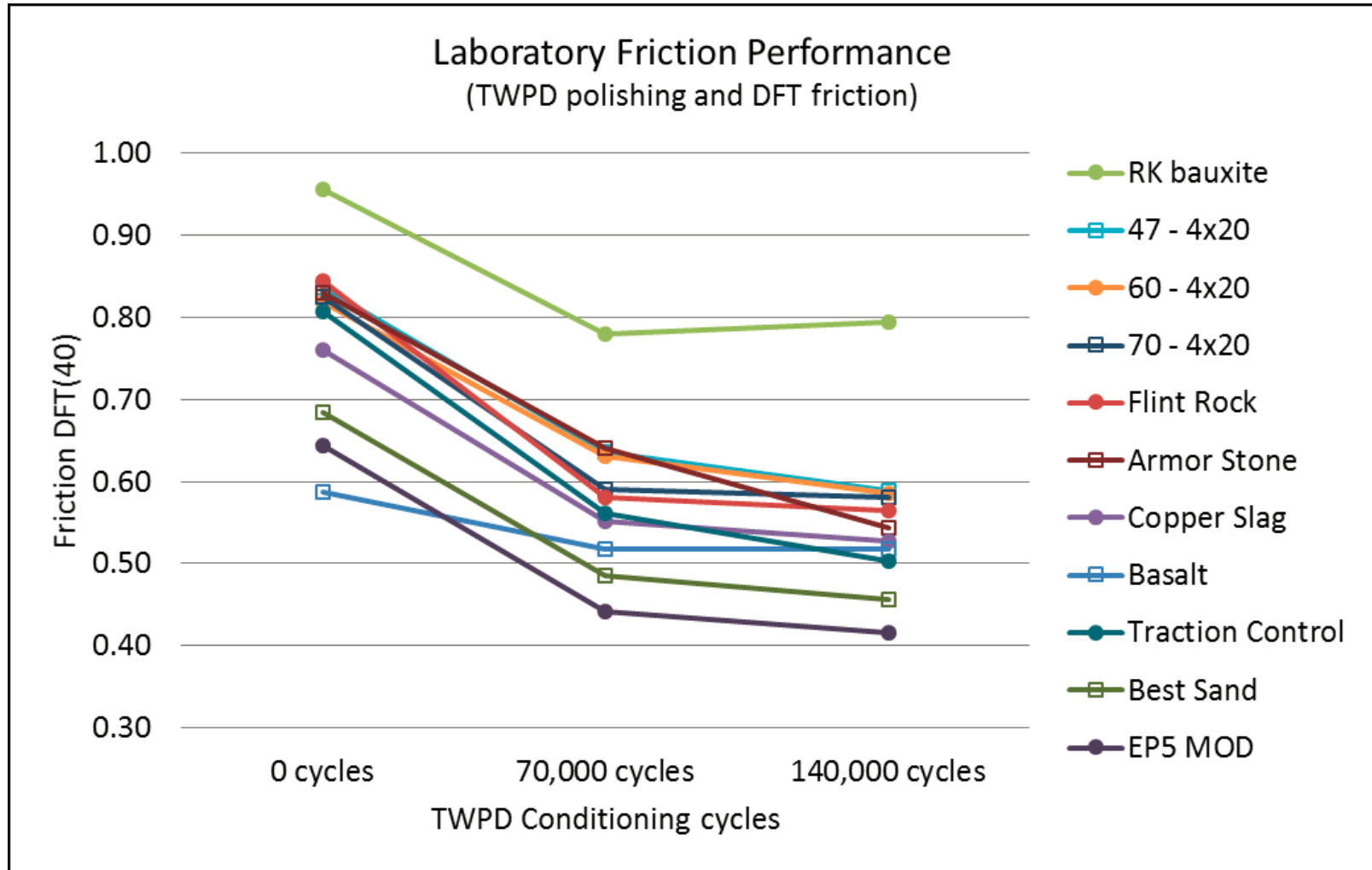


Other OK Pavement Surfaces

OK DOT Sections Comparison



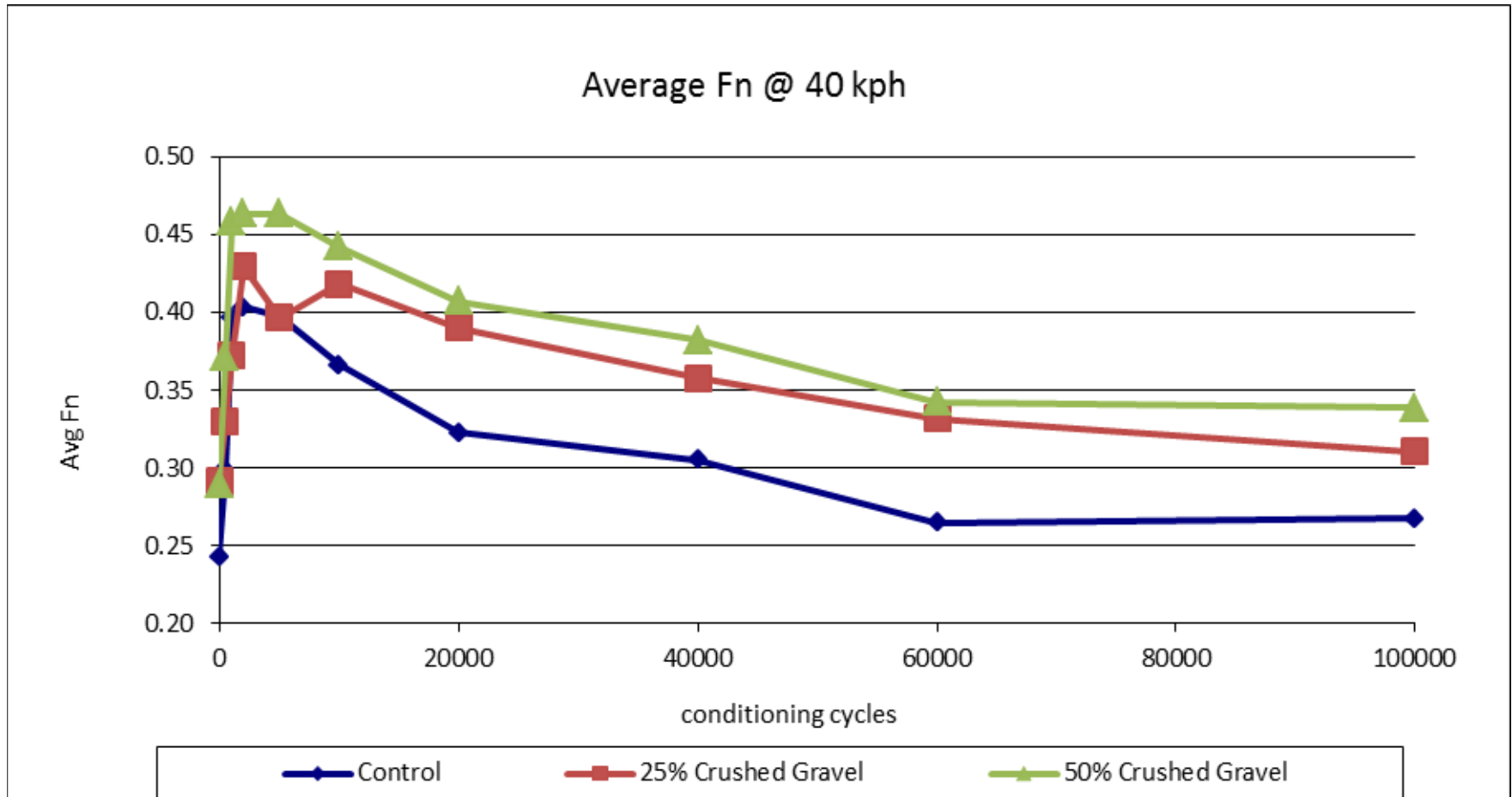
MI Terminal Friction Testing



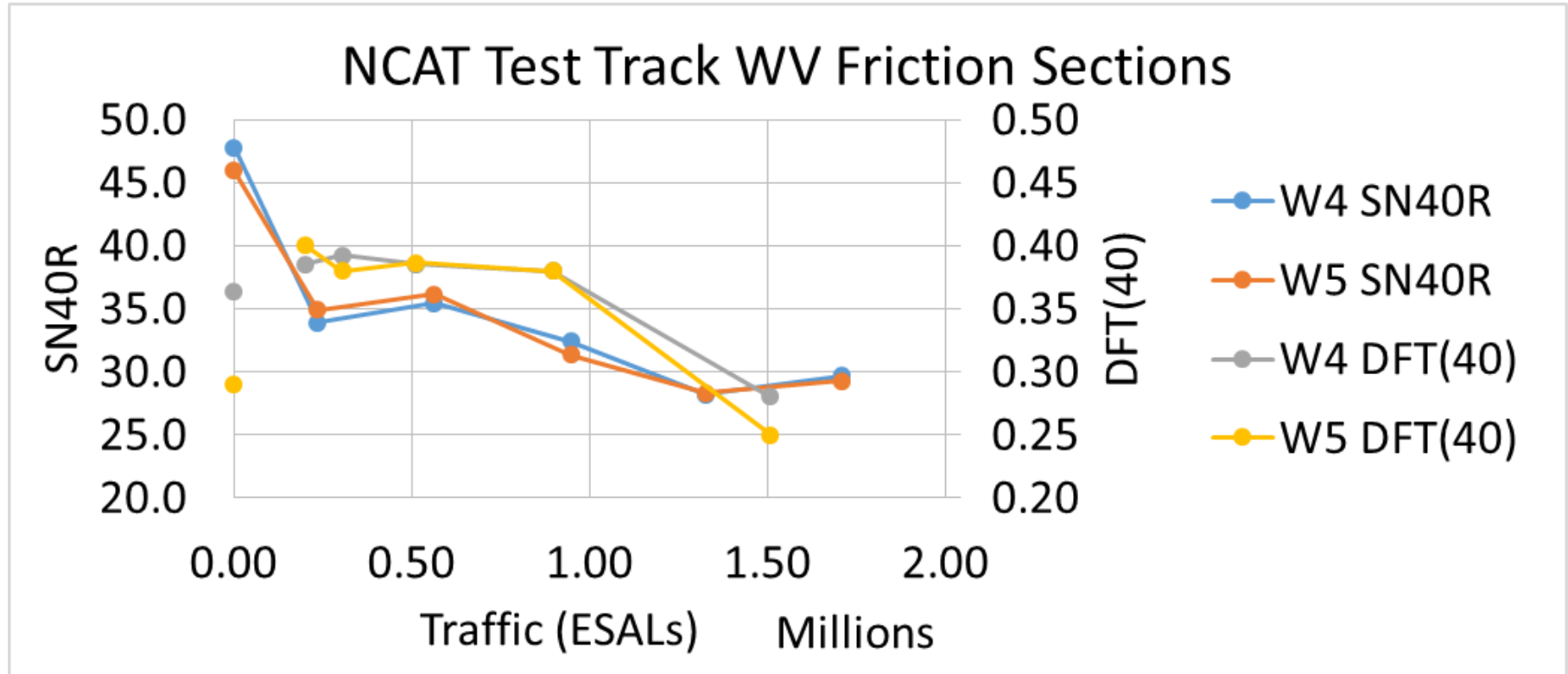
Friction Aggregate Studies

- MS DOT Improving Thin Asphalt Surfaces
 - ▷ Thin AC surfaces, 2 aggregates, lab TWPD/DFT
- WV DOT Use of Local Friction Aggregate
 - ▷ Aggregate proportion, Lab TWPD & TT
 - ▷ 50% dolomite std, study 70% and 90%
 - ▷ Placed Oct-2018

MS DOT – Lab Test Thin-lift Mix

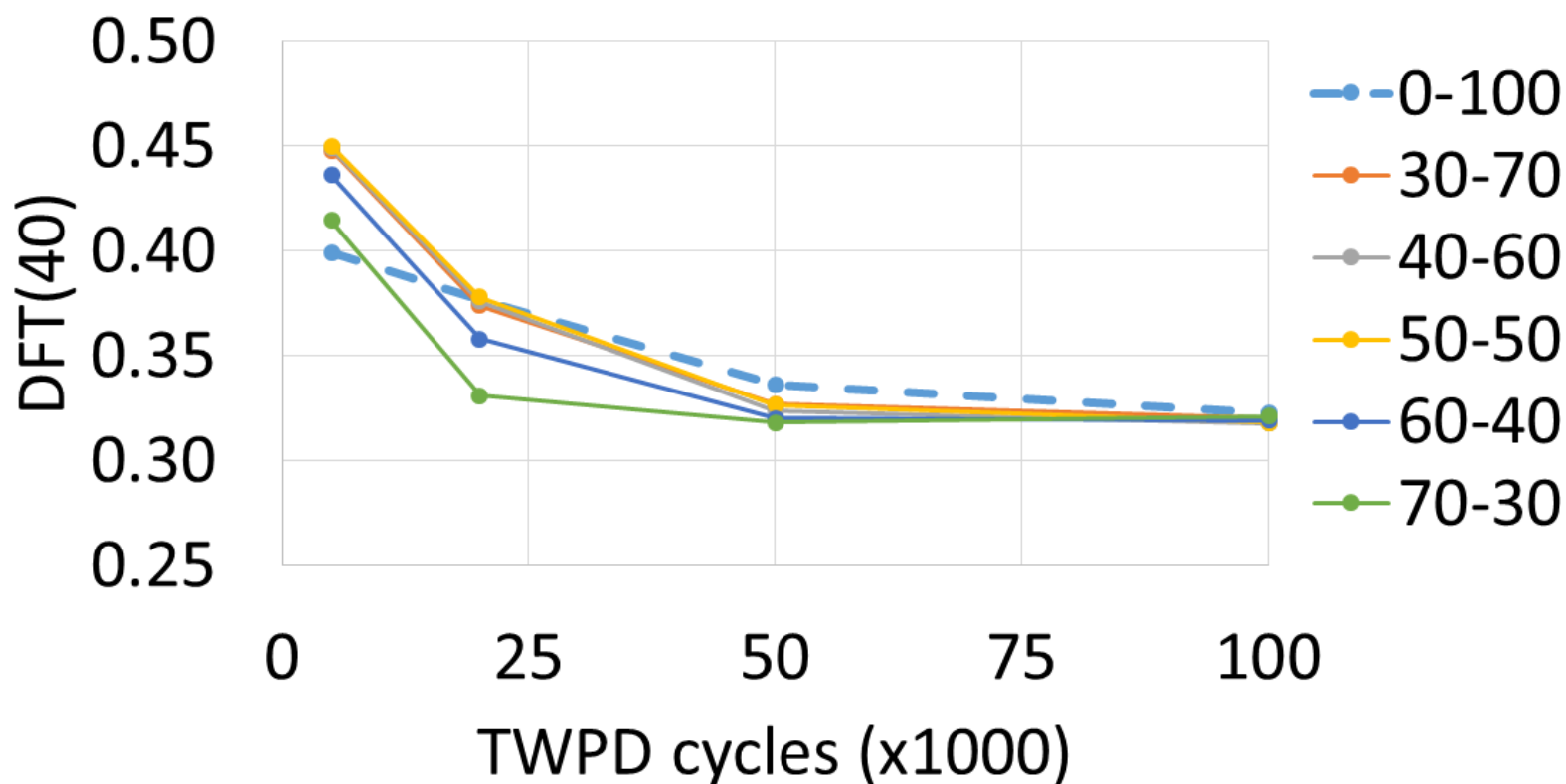


WV Study – Test Track



WV Study – Lab Results

Laboratory Slabs



Standard Practice for

Sample Preparation and Polishing of Asphalt Mixture Specimens for Dynamic Friction Testing

AASHTO Designation: R XX-XX

Technical Section: 2c, Asphalt–Aggregate Mixtures

/Standard Practice for

Sample Preparation and Polishing of Unbound Aggregates for Dynamic Friction Testing

AASHTO Designation: R xx-xx

Technical Section: 1c, Aggregates

An aerial photograph of a lush green forested area. A winding asphalt road curves through the middle of the frame. In the bottom right corner, there is a building with a green roof and a parking lot. The sky is overcast with grey clouds.

THANKS!

Any questions?
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