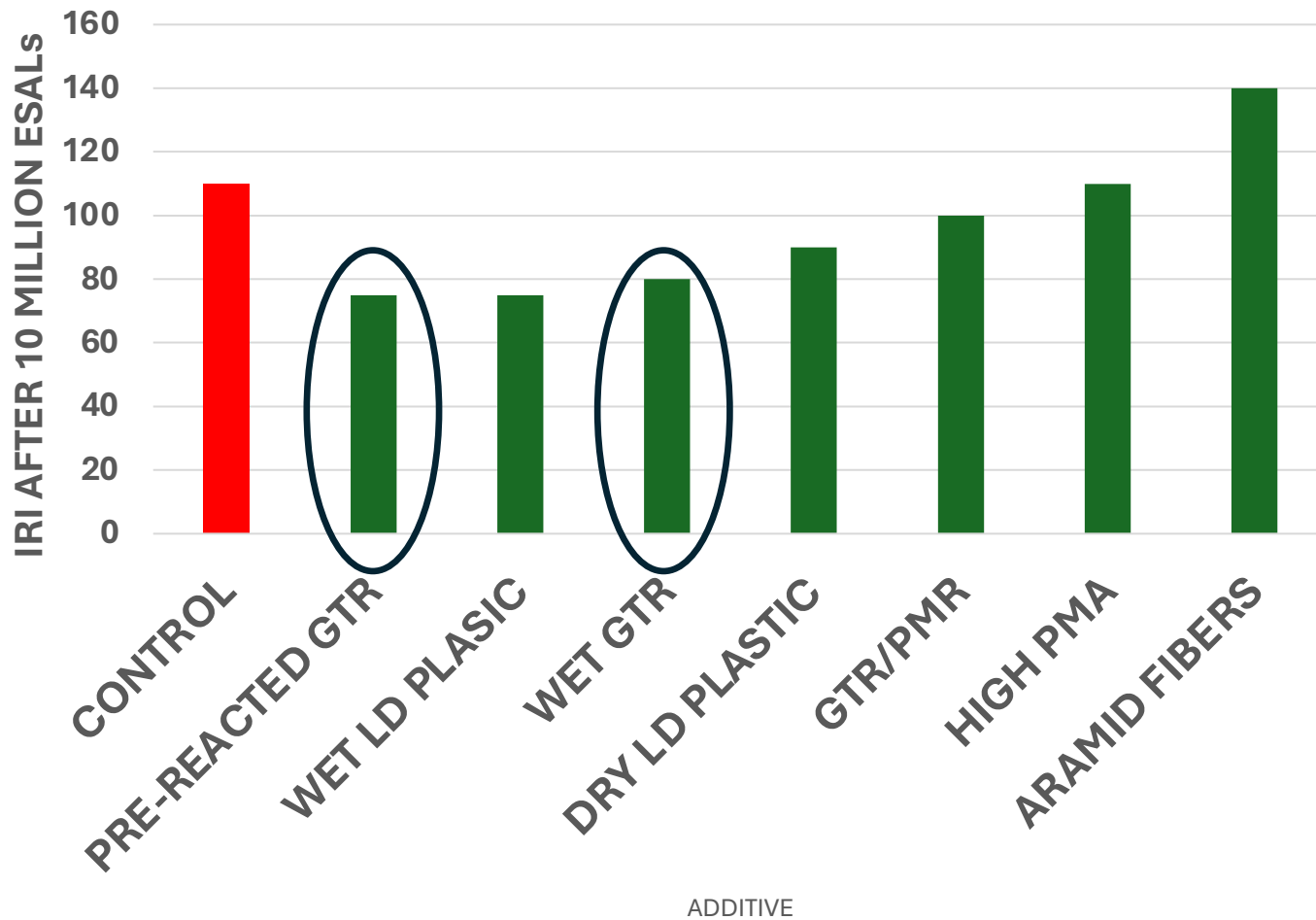


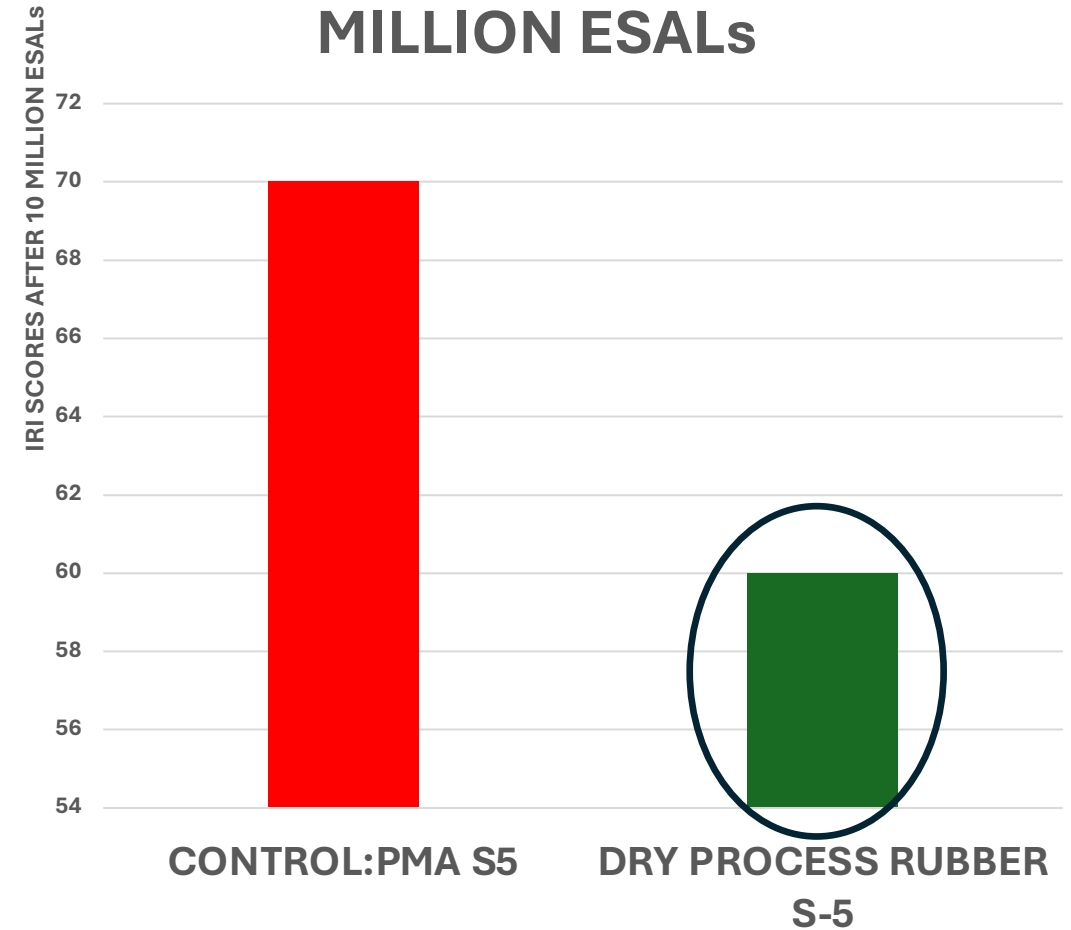
NCAT TEST PAVEMENTS: RUBBER MODIFICATION

- DIRECT COMPARISON: RUBBER VERSUS POLYMER (N-9) SURFACE MIX
 - RUBBER WAS MORE DURABLE
 - RUBBER WAS SMOOTHER
- WIDE COMPARISON OF ASPHALT ADDITIVES (PLASTICS, ARAMID FIBERS, RUBBER)
 - RUBBER WAS SMOOTHER
- DURABILITY AND SMOOTHER/FUEL ECONOMY DRIVE ROAD SUSTAINABILITY

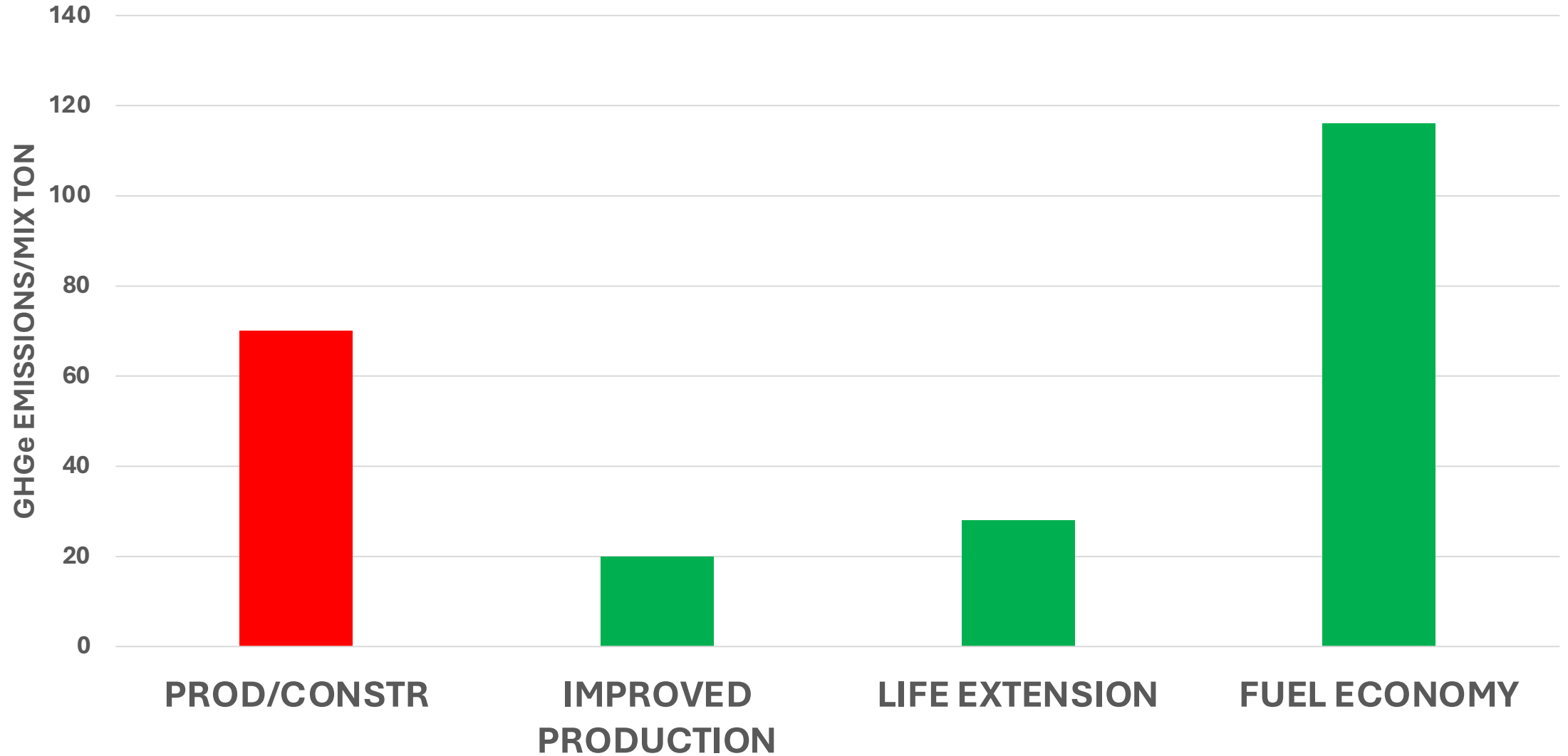
SURFACE ROUGHNESS (IRI) COMPARISONS FOR THE SAME MIX DESIGN, DIFFERENT ADDITIVES AFTER 10 MILLION ESALs, NCAT TRACK 2024



NCAT TEST TRACK SECTION N-9 IRI COMPARISON BETWEEN A POLYMER AND ECR-MODIFICATION AFTER 10 MILLION ESALs



RELATIVE SUSTAINABILITY IMPACTS: RUBBER-MODIFIED PAVEMENTS



RUBBER ASPHALT: TODAY, FUTURE

- ASPHALT INDUSTRY CHAINED TO LOW BID NEAR-TERM
 - NO \$\$ VALUE TO SUSTAINABILITY NEAR TERM
- RUBBER IN ASPHALT WON'T GROW WITHOUT A CURRENT VALUE PROPOSITION. WE DO...
 - LESS EXPENSIVE THAN POLYMERS (20% OF MARKET)
 - MORE DURABLE THAN UNMODIFIED ASPHALT (60% OF MARKET)
- WITH SUSTAINABILITY, SIGNIFICANT GTR BENEFITS
 - BETTER FUEL ECONOMY
 - LONGER PAVEMENT LIFE