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7. Author(s) Marion G. Pottinger				8. Performing Organization Report No. UMTRI-2013-28	
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16. Abstract <p>This report forecasts likely changes in passenger car and light truck fuel economy through 2025 as a result of projected tire evolution with respect to aspect ratio and design inflation pressure. Tire-material evolution over the last decade is expected to continue. Tire aspect ratios from 55 to 85 are examined, along with cold inflation pressures from 35 to 50 psi. The forecast fuel economy change is the primary factor considered in evaluating tire sustainability. The secondary factor considered is the change in raw material usage, which affects tire weight. The changes are predicted for the five vehicle powerplants now in use: gasoline, diesel, hybrid, plug-in hybrid, and battery electric. Vehicles from class A to class E plus pickup trucks are analyzed. This is done with consideration of expected changes in vehicle weight. Tire sizes that are likely to be used, as the vehicles change, are estimated.</p> <p>It is possible that operational tradeoffs may preclude tire changes that are desirable in terms of sustainability. To this end, probable ride and handling effects along the different possible tire-evolution paths are assessed. Aspects of ride that are considered are harshness, modal frequencies, and in-vehicle noise. Cornering in the ordinary driving range, stopping, and the limits of cornering are examined as aspects of handling. Effects on wet and on snowy surfaces are considered as well as behavior on dry surfaces.</p> <p>The conclusion reached is that the best tire technical path to follow from now until 2025 is to use higher-aspect-ratio tires operating at higher-cold-inflation pressures, provided that any negatives in ride and handling can be overcome in vehicle design. Styling questions are not considered in the report, but it is noted that these could be an important problem, since the tires on the technically desirable path will not have the appearance that customers have been accustomed to.</p>					
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