

**Table 4
Key Barriers to Expansion of Waste Tire Recycling**

Barrier	Crumb Rubber Production	Reuse		Crumb Rubber Demand				Civil Engineering	
		Retread	Used Tires	Paving	Turf Infill	Play/Mulch	Molded/Extruded	Non-Landfill	Landfill
Need for increased demand for TDM by manufacturers and for TDPs by product consumers	X			X	X	X	X	X	X
Concerns over insufficient quantity or quality of crumb rubber (including lack of fine-mesh material) and other TDM Supplies							X	X	
Tire storage regulations and concerns impede ability to supply projects with tire-derived materials								X	
Competition with conventional materials/products with favorable pricing or performance	X	X	X	X	X	X	X	X	X
Competition from out-of-state suppliers' tire-derived materials and products, sometimes with subsidies or operational cost advantages	X			X	X	X	X		
Insufficient quality standards and practices , or inadequate implementation and adoption	X			X		X	X		
Concerns over increasing imports of lower-tier tires from China at below-market prices , which compete with retread/reused tires and have low potential retreading/reuse themselves		X	X						
Lack of awareness of tire-derived products, performance or pricing benefits, and past experience	X	X		X	X	X	X	X	X
Perceived concerns over environmental, health, or safety risks		X	X		X	X			
Barriers to entry in use of TDM and TDPs , which may include lack of prior experience or knowledge of sources and needed adjustments to current practices, and required time/monetary investments	X			X			X	X	X
Long lead time and investment needed for feedstock conversion and new product development				X			X		
Inherent material characteristics of tire rubber limit potential applications				X		X	X	X	
California has a relatively small rubber product manufacturing industry that may limit the potential for increasing demand through feedstock conversion							X		
Most virgin rubber is used in tires but no California crumb rubber is used in tires , resulting in the need for large volume, non-traditional markets for recycled tires	X								
Government agency budget constraints force them to rely solely on the alternatives with the lowest initial bid instead of basing purchases on life-cycle savings over time				X	X	X	X		