

RAC, Overview

Margo Reid Brown: California is an innovative leader in diverting waste from landfills. One of our greatest success stories is using scrap tires to make *rubberized asphalt concrete*, or, RAC. Roads made with RAC not only keep 30 million tires out of landfills, they're safer, quieter, and more cost effective. I encourage you to become familiar with RAC! Consider its many benefits and work within your jurisdictions to specify its use in upcoming projects.

Woman: Californians generate 40 million scrap tires every year. Three quarters are recycled. CalRecycle's waste tire programs help to keep discarded tires from finding their way into streams and illegal stockpiles where they can release chemicals into the environment, provide a breeding ground for mosquitoes, and are a potential fire hazard. And for local governments, rubberized asphalt concrete, or, RAC, is a more cost-efficient, environmentally friendly alternative to traditional road paving.

Theron J. Roschen: The green aspects of rubberized asphalt concrete are important. The product used two thousand tires for a lane mile of paving two inches thick, and tire piles are significant problem in California.

One benefit to using RAC in the city of Roseville is the longevity of the product. This product lasts much longer and we don't have to do maintenance on the road as much... that is stretching out our maintenance dollars!

The RAC is quieter. If you travel over RAC on a highway or an interstate you feel a much quieter pavement... and it's also a very smooth pavement.

Unidentified Woman: Rubberized asphalt concrete is putting California's scrap tires to work! RAC is the environmentally and cost-effective choice for California. RAC lasts much longer than conventional materials, often 50% longer; saving on maintenance costs and reducing construction traffic.

Theron J. Roschen: The way the product is designed is, you can place more asphalt binder into the mix without it rutting, shoving, or bleeding. And that allows the pavement to last longer and not become brittle, longer in its lifecycle.

Gary Hicks: Some of the work that was done earlier by Caltrans showed that you can reduce the thickness by a factor of two and that help off-set some of the cost consideration.

Unidentified Woman: Long lasting roads give cities and counties substantial budget relief. With RAC money that local governments would have spent on repairs, is freed up for other uses.

Theron J. Roschen: Maintenance dollars are very flat with local jurisdictions and if they can invest in a superior product that lasts longer, they can save dollars down the road.

Unidentified Woman: City developers can save up to 30% by using RAC. That's as much as \$50,000 per lane mile compared to a traditional four inch thick asphalt overlay. The skid resistant rubber material in RAC reduces road way noise and improves traction, so drivers can make shorter, safer stops.

Theron J. Roschen: It's a blacker pavement and it remains black for a longer period of time and the color contrast with stripping can be significant, kind of an added safety feature.

Jerry Dankbar: A lot of our roads in Roseville; the houses back up to the arterial stretches of the roadway, and a little bit quieter road is good for our customers... our residents. We've actually gotten compliments on how quite the road is!

Theron J. Roschen: We studied several roadways, set-up microphones and compared the noise reduction before an overlay and after an overlay with conventional and rubberized asphalt. The results of that were that a conventional asphalt, you could receive about a 4 decibel reduction initially, but then that noise reduction dissipated rather quickly and was not any improvement, but with rubberized asphalt we saw a 6 decibel reduction initially and then followed up over time six years later, we still found a four decibel reduction! Four decibel reduction is significant, it's essentially cutting the traffic speed in half or cutting the traffic volume in half and it's clearly perceptual by the public.

Unidentified Woman: Over the last 40 years, RAC technology has been refined and can be applied in a variety of ways for roadway rehabilitation. It all begins when discarded tires are shredded and reduced to crumb rubber. There are two processes used to make RAC.

Theron J. Roschen: One is a *field blend* and the other is a *terminal blend*. The *field blend* has a mobile blender unit that comes to the area hot plant and melts the crumb tire with hot liquid asphalt at high temperature for a period of time and then is processed with the aggregate and placed on the pavement. The *terminal blend* occurs at the refinery where a finer buffing of recycled tires is placed in the oil at the refinery and then delivered to the hot plant and mixed with the aggregate in place.

Unidentified Woman: The decision on which one to use must be made by the local agency when plans and specifications are developed.

Gary Hicks: Right now the predominant use of RAC is in thin overlays to preserve what we have in place. We have a substantial investment of money in our existing infrastructure and what we need to do now is make sure we protect and preserve it, just like we would with your house, where you re-roof your house occasionally or re-paint it... we're trying to do the same thing with roads through pavement preservation, and RAC plays a key role in that process.

Unidentified Woman: For any project involving RAC, contacting CalRecycle is your first step.

Margo Reid Brown: CalRecycle provides a variety of grant programs. One of the most successful is our *rubberized asphalt concrete* grants or *RAC* grants. We work with local jurisdictions to help use these products for a first time, and couple that with technical assistance support during the process.

Theron J. Roschen: Through CalRecycle's help we can assist them in a design of an overlay, the specifications of the overlay, how to inspect it at the hot plant, how to inspect it on the grade, and how to maintain it long term.

Jerry Dankbar: If we can find a way to stretch our dollars, that's what we do, and CalRecycle has been a big part of that by giving us the right information to make informed decisions about where to use the product.

Theron J. Roschen : Rubberized asphalt has really achieved an equal status with conventional asphalts where it can be in the maintenance engineer's tool box and be provided as any other product.

Unidentified Woman: Local governments have discovered that using RAC is a win-win for everyone! They're saving money, making the roads quieter and safer, and improving our environment by putting scrap tires to work.

Theron J. Roschen: The community has embraced rubberized asphalt for the 'green' aspects and for the noise reduction they hear when they drive down the road.

Jerry Dankbar: The city of Roseville has completed over 17 RAC projects, all of which are performing very well and our meeting, or exceeding, our expectations.

Gary Hicks: Many people consider asphalt rubber or terminal blends to be a superior product to conventional mixes.

Unidentified Woman: Road-building success stories start with specifying the use of rubberized asphalt concrete.

Margo Reid Brown: So I encourage you to contact us to find out how RAC grants might be able to be utilized in your jurisdiction!