

Plastic, sustainable and quick: Road idea seeks takeoff

July 20 2015, by Nancy Owano



The word "plastic" has a general—and rather unpopular—connotation of everything that is not green and not sustainable. (Plastics supporters point out that only 4 percent of the world's oil production is used for plastics and much less energy is used to produce it, compared to other materials. Plastics are [durable](#) yet lightweight and thus save weight in cars, aircraft, packaging and pipework.)

A Dutch group of companies could also contribute in a dramatic way toward turning the plastics word around into something on the bright side of sustainable. They are introducing the concept of the PlasticRoad.

OK—only an idea still on [paper](#), they said on their site, but they said they are looking for partners for collaborating on a pilot and looking toward manufacturers in the plastics industry. The next stage they said, in getting it off paper and into motion would be testing in a lab for factors such as safety in wet and slippery conditions.

This would make plastics use a sustainable solution for improving our road structures. This time around, we would be seeing roads with lightweight design, demanding a fraction of conventional construction time, standing virtually maintenance-free, and with three times the expected lifespan.

The initiative could help to free the seas of '[plastic](#) soup.' As the concept goes, the recycled plastic is made into prefabricated road parts that can be installed in one piece. Using prefabricated parts and a [lightweight design](#) could make construction a simpler task. "Roads can be built in weeks instead of months. It is also much easier to control the quality of the road (stiffness, water drainage etc.)."

They said the road could handle temperatures as low as -40 degrees and as high as 80 degrees Celsius with ease and would be much more resistant to chemical corrosion. "Estimations predict that the lifespan of

roads will be tripled. That means less road maintenance and less-to-no traffic jams and detours."

VolkerWessels, the Dutch group of companies behind the PlasticRoad concept, said the [use](#) of plastic would be opening the door for innovations such as power generation, quiet road surfaces, heated roads and modular construction. The design also involves a "hollow" space for cables, pipes and rainwater.

Earlier this month, *The Guardian* reported that Rotterdam city council said it was considering piloting the new type of road surface. A source from the city council's engineering bureau said, "Rotterdam is a city that is open to experiments and [innovative](#) adaptations in practice. We have a 'street lab' available where innovations like this can be tested."

Evan Ackerman in *IEEE Spectrum*, meanwhile, examined the idea and posed some questions on safety: As the road sections would fit together like tiles, he said, [construction](#) would be quick. Also, the lightweight pieces could be used on poor soil without having to put down an expensive foundation first. "Will the plastic road be just as safe as an asphalt one in wet conditions?" he asked.

As for cost, Ackerman said the plastic [road](#) "almost certainly would be more expensive, but if it lasts three times longer than conventional roads, makes utility access easier, can be fabricated off-site, and takes less time to install, it seems possible that deploying these plastic roads might actually be cheaper in the long run."

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