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About three-quarters of today's average car, including the bulk of a steel frame, can be recycled.

PHOTOGRAPH BY DIANE COOK AND LEN JENSHEL

## REFERENCE

# The environmental impacts of cars, explained

Automobiles have a big footprint, from tailpipe emissions to road infrastructure. Learn more.

BY NATIONAL GEOGRAPHIC STAFF



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Cars can convey a sense of freedom and movement, not to mention style and status. But they also can have a big impact on the planet. Here's a few key areas to consider.

## Production and Destruction

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steel, rubber, glass, plastics, paints, and many more must be created before a new ride is ready to roll.

Similarly, the end of a car's life doesn't mark the end of its environmental impact. Plastics, toxic battery acids, and other products may stay in the environment. Fortunately, junkyard pile-ups are becoming much smaller than they were in the past. About three-quarters of today's average car, including the bulk of a steel frame, can be recycled.

Production, recycling, and disposal costs to the environment are difficult to quantify and largely beyond the control of most consumers. It's also true that most of an automobile's environmental impact, perhaps 80 to 90 percent, will be due to fuel consumption and emissions of air pollution and greenhouse gases that climate scientists say are driving global warming. Fortunately, the level of that impact is very much under the control of the driver.

## Fuel Costs

Petroleum products raise environmental red flags even before they are burned. Extracting them from the earth is an energy-intensive process that can damage local ecosystems. Shipping fuels can also consume a lot of energy, and creates an occasional environmental disaster such as an oil spill. As world demand rises, and unconventional fuel sources, such as oil sands, become more economically viable, the ecological impacts of petroleum extraction might also increase dramatically. That's one more reason why fuel efficiency is so important.



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It's also partly why electric-powered vehicles can help reduce environmental impacts, because they don't burn fossil fuels.

## Air Quality

Vehicles are America’s biggest air quality compromisers, producing about one-third of all U.S. air pollution. The smog, carbon monoxide, and other toxins emitted by vehicles are especially troubling because they leave tailpipes at street level, where humans breathe the polluted air directly into their lungs. That can make auto emissions an even more immediate health concern than toxins emitted high in the sky by industrial smokestacks.

## Infrastructure

Also difficult to quantify, another associated impact of cars is the building of roads to support them, as well as the urban sprawl that tends to follow in their wake. This issue can be difficult to tease out of other factors, such as population growth and resource consumption, but it is also not easily addressed by technological advancements like fuel efficiency and electric propulsion. Road building has a big impact on emissions and wildlife. 🟡

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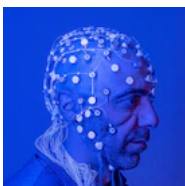
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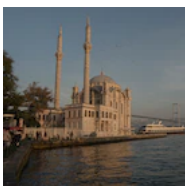
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