

# TRANSPORT

Every problem is just a solution in disguise



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**It's difficult to imagine addressing the climate crisis in any meaningful way without taking on automobiles.**

—Clayton Nall, professor, Stanford University

# BASIC 21<sup>ST</sup> CENTURY TRANSPORTATION NEEDS

FLY LESS  
MORE MASS TRANSIT  
RUNNING ON RENEWABLES

By 2040 it's estimated that an extra 1 billion cars will join the 1.2 billion already occupying our roads.

The environmental impact, plus the impact of the extra parking space and roads required, and the overcrowding in our cities, will be enormous.

Rather, a drastic decrease in the number of cars on our roads and the parking spots required is needed to avoid more environmental and health disasters.

We need to open up our cities to be more livable, by providing more mixed use, walkable community spaces and affordable housing that require less cars on the road and favoring mass transport and non-motorized transport to reach a zero emission output.

We also need to retrain those people forced out of work in the automotive industries, by creating green jobs that are relevant for people living in a 21<sup>st</sup> century green economy.





# Reducing Your Transportation Footprint

Climate Solutions » Reducing Your Carbon Footprint

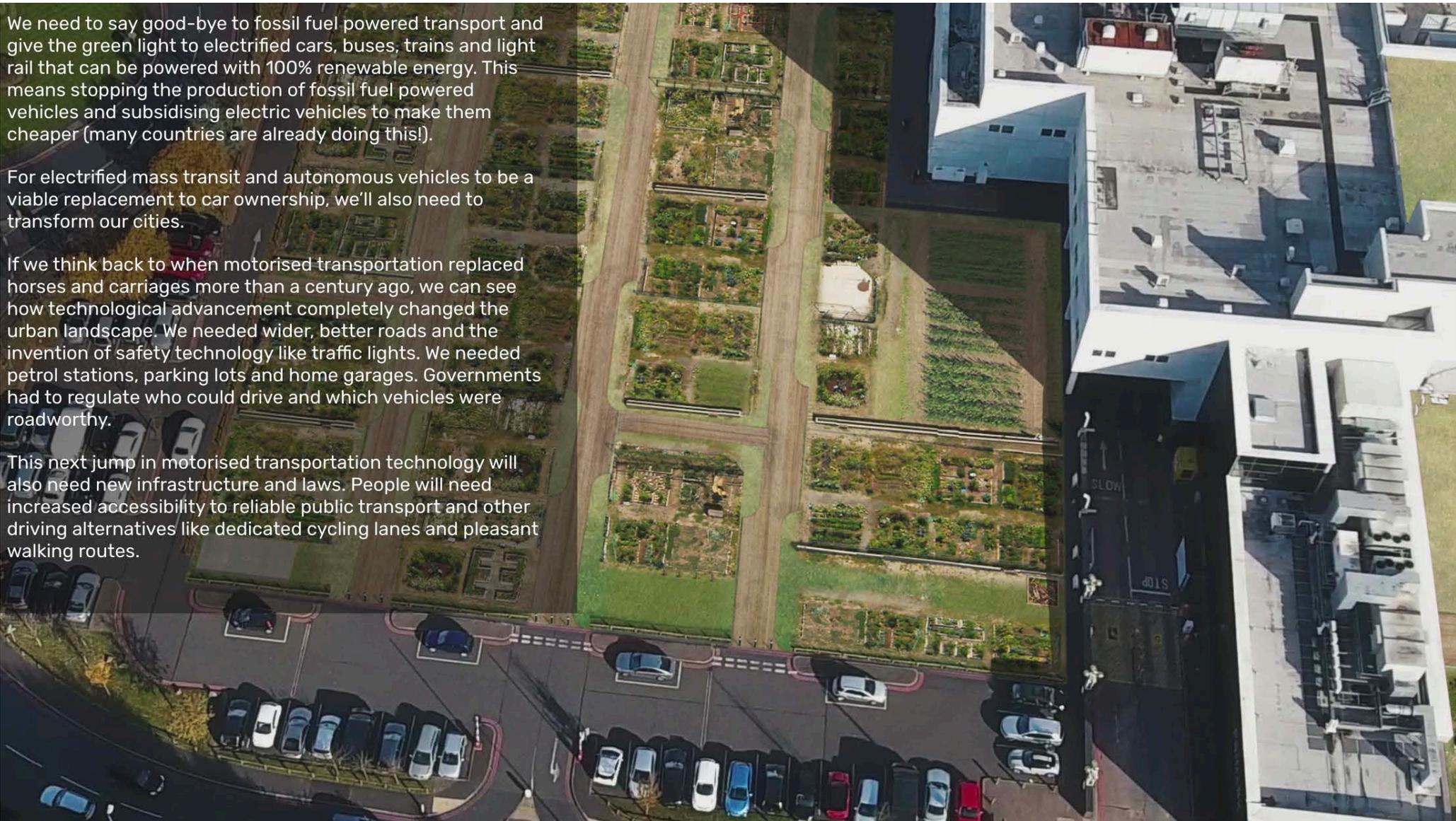
**Transportation is now the largest source of carbon emissions in the United States.** In many U.S. cities and towns, the personal automobile is the single greatest polluter because emissions from millions of vehicles on the road add up. To reduce greenhouse gas emissions, individuals can use cleaner modes of transportation to get around, from public transit to biking and walking.

We need to say good-bye to fossil fuel powered transport and give the green light to electrified cars, buses, trains and light rail that can be powered with 100% renewable energy. This means stopping the production of fossil fuel powered vehicles and subsidising electric vehicles to make them cheaper (many countries are already doing this!).

For electrified mass transit and autonomous vehicles to be a viable replacement to car ownership, we'll also need to transform our cities.

If we think back to when motorised transportation replaced horses and carriages more than a century ago, we can see how technological advancement completely changed the urban landscape. We needed wider, better roads and the invention of safety technology like traffic lights. We needed petrol stations, parking lots and home garages. Governments had to regulate who could drive and which vehicles were roadworthy.

This next jump in motorised transportation technology will also need new infrastructure and laws. People will need increased accessibility to reliable public transport and other driving alternatives like dedicated cycling lanes and pleasant walking routes.



Anyone who uses, operates, regulates, manufactures or fuels the transport sector needs to get on board for the transition. Governments need to develop coherent transport and climate change policies with incentives to encourage lower emitting vehicles, such as mandatory greenhouse gas emissions standards and electric vehicle targets. They'll need to implement transport plans and policies to ensure we can efficiently move around our major cities. Industry will need to start building our new transport fleet and the energy sector will need to transition to renewable.

While we wait for the rollout we can still make efforts to cut emissions from the transport sector. We can ride-share, car share, use public transport or, better yet, walk or cycle. We can reduce our travel footprint by choosing ground transport over flying whenever possible, carbon offsetting our flights when we do fly, or simply – by choosing to travel less! Most importantly we can stay informed and choose new, clean solutions when they emerge.

[JOIN ZERO CARBON COMMUNITIES](#)

[OFFSET YOUR FLIGHTS](#)





## WHAT IS THE BIG TAKEAWAY HERE?

Even if a transition to electric vehicles was made, it does nothing about the fact that the vast majority of Americans drive to work by themselves.

The US' carbon footprint depends more on where people live rather than what they drive.

For example, residents of lower Manhattan, for example, emit less than half as much carbon as residents of nearby Nassau County, New York, a commuter suburb with larger homes and higher rates of car ownership. (<https://coolclimate.berkeley.edu/maps>)

Providing residents with electric vehicles would have some effect on their carbon footprint, but the effect would be much larger if they simply moved closer to jobs, services and shopping.

There is also the problem of time. Americans own roughly 272 million cars (2017) (<https://www.statista.com/statistics/183505/number-of-vehicles-in-the-united-states-since-1990/>).

Only around 17 million, or 6%, are purchased new each year (<https://www.wardsauto.com/dealers/automakers-face-challenges-popular-used-vehicles>).

Therefore, even if 100% of new vehicles began running on electric power by 2030, it could take another decade before they reached the penetration necessary to significantly reduce emissions.

Rapidly expanding America's electric vehicle fleet has implications for the climate. Stokes estimates that meeting a 2030 target for transition would require roughly doubling America's electrical capacity.

Studies have found that if this additional capacity came from coal-fired power plants, the resulting rides wouldn't be significantly better for the climate than hybrid vehicles (<http://web.mit.edu/2.813/www/readings/LCAforPHEVs.pdf>).

Plus, the production of electric vehicles is itself a carbon-intensive process that involves mining cobalt and lithium for the battery and smelting steel for the frame.

Depending on how much you drive, a car that's 10 to 12 years old might actually be better for the environment than replacing it with an electric vehicle.

Then there are the knock-on effects. One of the most reliable statistics in urban planning is that when gas prices fall, people in the US drive more. Buying electric vehicles for millions of Americans could encourage them to spend more time on the road, worsening congestion and encouraging even more emissions. And electric cars are still cars: All of the other negative impacts of driving — from pedestrian deaths to the health effects of long commutes to the harmful microplastics shed by rubber tires — would remain firmly in place. (<https://www.latimes.com/environment/story/2019-10-02/california-microplastics-ocean-study>)

It's not enough to convert vehicles to electric. And even if it was, it's not likely to happen on a timeline that will address the carbon emissions problem. It's a real blind spot.

The United Nations Intergovernmental Panel on Climate Change projections show that the United States needs to electrify its vehicle fleet *and* significantly reduce driving by 2030 to keep global warming under 1.5 degrees Celsius.

In 2018, the California Air Resources Board estimated that even a tenfold increase in electric vehicle sales would still require residents to drive 25% fewer miles each year to reach the state's emissions targets. ([https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report\\_SB150\\_112618\\_02\\_Report.pdf](https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf))

No matter what, transitioning to clean energy has to involve a systematic reduction of energy demand by reducing the country's carbon footprints.

Otherwise you solve one problem and end up with a bunch of new ones (THIS IS THE DEFINITION OF A WICKED PROBLEM).

### **Characteristics of a "Wicked Problem"**

- Difficult to clearly define
- Many interdependencies and often multicausal
- Attempts to address the problem often lead to unforeseen consequences
- Frequently not stable
- Usually no clear solution
- Socially complex
- Rarely is the responsibility of only one stakeholder
- Solutions involve changing behaviors
- Can be characterized by chronic policy failure

# FLYING: there's a hierarchy

Don't fly, fly with the most efficient airline (always in economy), then offset.  
Check efficiency first: Use Atmosfair's airline ranking (Air France comes top).  
Choose your offset scheme – it must be verifiable, traceable and permanent.  
Only look at schemes that conform to the Verified Carbon Standard or Clean Development Mechanism.



## New York City banned cars from Central Park.



In addition to creating permanent, pedestrian-only zones in popular areas like Times Square, Herald Square, and Madison Square Park, New York City's car-free initiatives may lag behind those in European cities, but they're still far ahead of the curve in the US.

*Communities with strong public transportation can reduce the nation's carbon emissions by 37 million metric tons yearly.*

**Driving Commuter Choice in America**  
Expanding Transportation Choices Can Reduce Congestion, Save Money and Cut Pollution

***How are other countries managing this transition?***

**Rio de Janeiro closes its main boulevards to cars on weekends, between 9am-4pm, as does Bogatã on Sundays.**



**Athens joined a pledge to ban diesel cars by 2025.**



**Brussels is using cameras to enforce a fine for old vehicles.**



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Brussels recently [imposed a \\$400 fine](#) on diesel vehicles that enter the low-emission zone of its city center. The restrictions are [enforced via hundreds of security cameras](#) along the border, but environmentalists say they only apply to about 1% of the city's cars.

**Copenhagen's bike-friendly atmosphere discourages driving.**



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Copenhagen could soon benefit from a [nationwide policy in Denmark](#) that would ban the sale of new petrol and diesel cars starting in 2030, and the sale of hybrid cars starting in 2035.

**A court ordered Frankfurt to ban around 60,000 cars.**



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In September 2018, a federal court **ordered Germany's financial capital** to ban all but the newest versions of diesel vehicles — about 60,000 cars in total — by the following year.

**Berlin received a similar court order.**



A month after the court ruling in Frankfurt, Berlin was also **ordered to ban diesel cars** manufactured prior to mid-2015 in certain parts of the city. The ban is set to go into effect in April, at which point around 200,000 cars will be affected.

## **London could ban cars on half the streets in its city center.**



In October, at least half the roads in London's city center were dubbed "pedestrian priority" zones. The city hopes to deny access to cars, vans, taxis, and buses in these areas.

## Madrid banned older cars from its city center.



In December, Madrid began [restricting access](#) to gas-powered vehicles made prior to 2000 and diesel vehicles made prior to 2006. Exceptions are currently being made for cars with a private parking spot that are registered in advance. Come 2020, older diesel and gas-powered cars won't be allowed to enter at all.

**Milan is rolling out a series of bans.**



## Oslo's city center is on its way to becoming car-free



The Norwegian capital is on a mission to become carbon neutral by 2030, and restricting vehicles is a key part of its goal.



**In Paris, the first Sunday of every month is free of cars.**



**Closing almost all roads in 4 areas at the heart of the city**



**One Sunday, scientists recorded a 25% drop in nitrogen dioxide**

**A toxic gas from exhaust fumes that can cause breathing problems**

**Rome could help preserve its monuments by banning diesel cars.**



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## Mexico City prohibited driving on Saturdays



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Mexico City was once [the world's most polluted city](#), but has since improved its air quality thanks to a policy that prevented drivers from using their cars once per week.

## Dutch take cycling to a new level, with world's biggest multistorey bike park

In the Netherlands, where there are more bikes than people, serious money is being spent encouraging even more people to get on their bikes



▲ People cycle through Utrecht's multi-storey bike park, right next to the station, where users can cycle all the way to (electronically indicated) available slots. Photograph: Petra Appelho/BYCS

**I**n a nation with more bikes than people, finding a space to park can be a problem. The Dutch city of Utrecht is unveiling an answer at its railway station on Monday morning: the **world's largest multistorey parking area** for bicycles.

The concrete-and-glass structure holds three floors of gleaming double-decker racks with space for 12,500 bikes, from cargo bikes that hold a family

It is part of a strategy in which hundreds of millions of euros are being devoted to enhancing cycling infrastructure across the Netherlands, a nation so fervent about its two-wheelers that it is applying to add cycling to its inventory of **intangible heritage**.

Utrecht is promoting cycling as part of a "healthy urban living" policy. "We are counting on biking as a healthy and sustainable form of transport for a growing city," said the deputy mayor, Victor Everhardt. "Cycling is in the genes of people from Utrecht and in 1885 it built the Netherlands' first bike lane. Every day, 125,000 cyclists go through the city centre to work, school and the station, and the world's largest bike park sits perfectly in this global cycling city."



▲ The parking space houses three floors of double-decker bike racks. Photograph: Michael Kooren/Reuters

The scale of Dutch investments shows cycling is about more than just the issue of transportation, according to **BYCS**, a social enterprise behind a network of international cycle mayors. "The bike park in Utrecht shows you need massive investments into cycling infrastructure parking, cycle lanes and great architecture, but we believe this is one of the most impactful things a city can do," said its strategy director, Adam Stones. "If you look at it as transformation - how it addresses mental and physical health, brings communities together and addresses resource use and the environment - you put more weight behind it."



Would you like to see fewer cars in your area?

WHAT ARE THE ISSUES AT PLAY IN THE US THAT ARE INHIBITING SIMILAR TRANSITIONS AWAY FROM CAR CULTURE AND TOWARD NON-MOTORISED FORMS OF TRANSPORT?

There are complicated issues at play.

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America's once magical – now mundane – love affair with cars ...

Before politicians will propose denser housing or better public transport, they need a base of constituents who want them. In most of the United States, decades of disinvestment and sprawl have made it all but impossible for those constituencies to form.

If you don't live in a place where anything other than driving is a viable option, then the specter of losing your car or cheap gas is pretty terrifying.

Electric vehicle subsidies enrich automakers, but there is little infrastructure in place to support electric vehicles, and our electricity still comes from fossil fuels.

Rural voters are unlikely to find gas taxes and bike lanes appealing.

Environmental advocacy groups generally don't lobby for reductions in car use as many don't think it's an efficient use of their limited resources.

The theory in climate advocacy has always been to go after the gettable tons first. That means prioritizing areas where federal regulations can reduce carbon emissions quickly and painlessly. At the federal level, that means tightening regulations on power plants.

Promoting urban density, public transport and reductions in driving just aren't worth the political capital it would cost to achieve them.

Policies to reduce driving also pose a communication challenge. It's hard to connect seemingly unrelated policy areas like housing density to carbon emissions. Many people think of climate change as a problem caused by fossil fuel companies, not their own commuting habits.

But perhaps the greatest challenge is how few people can imagine living in places that don't require driving.

In the US, people struggle to understand how public transit would improve their lives because the transit is shitty in so many places, they assume it will always be awful and will make it harder for them to get around.



**DO YOU THINK IT'S POSSIBLE TO BAN CARS IN US CITY CENTERS?**

## **CHANGES ARE POSSIBLE.....**

**International experience indicates that a future with less driving may not be the dystopia voters and politicians in the US fear.**

Restrictions on cars in European cities have been overwhelmingly popular (<https://www.citylab.com/transportation/2019/07/madrid-car-ban-street-map-city-politics-mayor-court-decision/594487/>).

Decongestion changes in Stockholm and London were loathed before they were implemented but beloved soon after.

In 2016, Barcelona closed streets to cars in one, a move which proved so popular, that after citywide demand, it is replicating the program in five more neighborhoods neighborhood (<https://www.vox.com/energy-and-environment/2019/4/9/18300797/barcelona-spain-superblocks-urban-plan>).

Helsinki has gone further, with an ambitious municipal master plan to make car ownership pointless.

Finland's capital is building a 'mobility on demand' system that integrates all forms of shared and public transport in a single payment network that could essentially render private cars obsolete.

# A larger question is how do we change our national narrative to encourage public transit, from a narrative that currently stigmatizes it in most of the country, to one that integrates it into a connected living experience?



**If we don't have enough public transportation options, we must ask for more! Engage your city officials and tell them that good public transportation options are important to you, and good for the community.**  
For more tips on driving efficiently visit the [Fuel Economy website](#).

If we cut out commuting by one day a week, and theoretically made it a car-free day, we could not only reduce our gasoline usage by 20%, but could reap a whole lot more health benefits, a win-win situation.

Carpooling is another way to save money, time, frustration and gasoline. According to a 2013 report by the National Resources Defense Council, if daily commuters in the US carpoled 20 days a month, it would reduce driving costs by 40-50 percent. (<https://www.nrdc.org/sites/default/files/driving-commuter-choice-IP.pdf>)

If you're the driver, carpooling would save you \$1,100 a year, and trading off with other drivers would reduce wear and tear on your car.

Carpools are not active in Fort Myers, though FGCU has Zipcars available to students, faculty and staff. The service is a membership-based hourly or daily car rental option that offers a cost-effective transportation alternative to the FGCU community.

Optimal driving techniques can also help you cut emissions and save money in a gasoline-powered car. Hard acceleration and braking can waste fuel and lower your mileage by 33 percent on the highway and 5 percent around town, according to the Dept. of Energy.

DOE studies show that for every 5 miles per hour you drive over 60 miles per hour, fuel economy is lowered by 7 percent, so go easy on the brakes and gas pedal. You can also lower impacts by reducing time spent idling and using overdrive and cruise control. And because a properly-maintained vehicle can improve your gas mileage and fuel economy by 4 percent, remember to have your vehicle tuned up, tires inflated, and oil and air filter cleaned out regularly.

Individuals can save almost \$10k a year by taking public transportation instead of driving. Moreover, this mode can lead to substantial environmental benefits. If your commute is 20-miles round trip, a switch to public transportation could lower your carbon footprint by 4,800 pounds annually.

US households that produce the least amount of carbon emissions are located near a bus or rail line. The people in those households drive an average of 4,400 fewer miles annually compared to similar households with no access to public transit.

Communities with strong public transport can reduce the nation's carbon emissions by 37 million metric tons annually. To achieve a similar reduction in carbon emissions, every household in New York City, Washington, D.C., Atlanta, Denver and Los Angeles combined would have to completely stop using electricity. (<https://www.c2es.org/content/reducing-your-transportation-footprint/>)