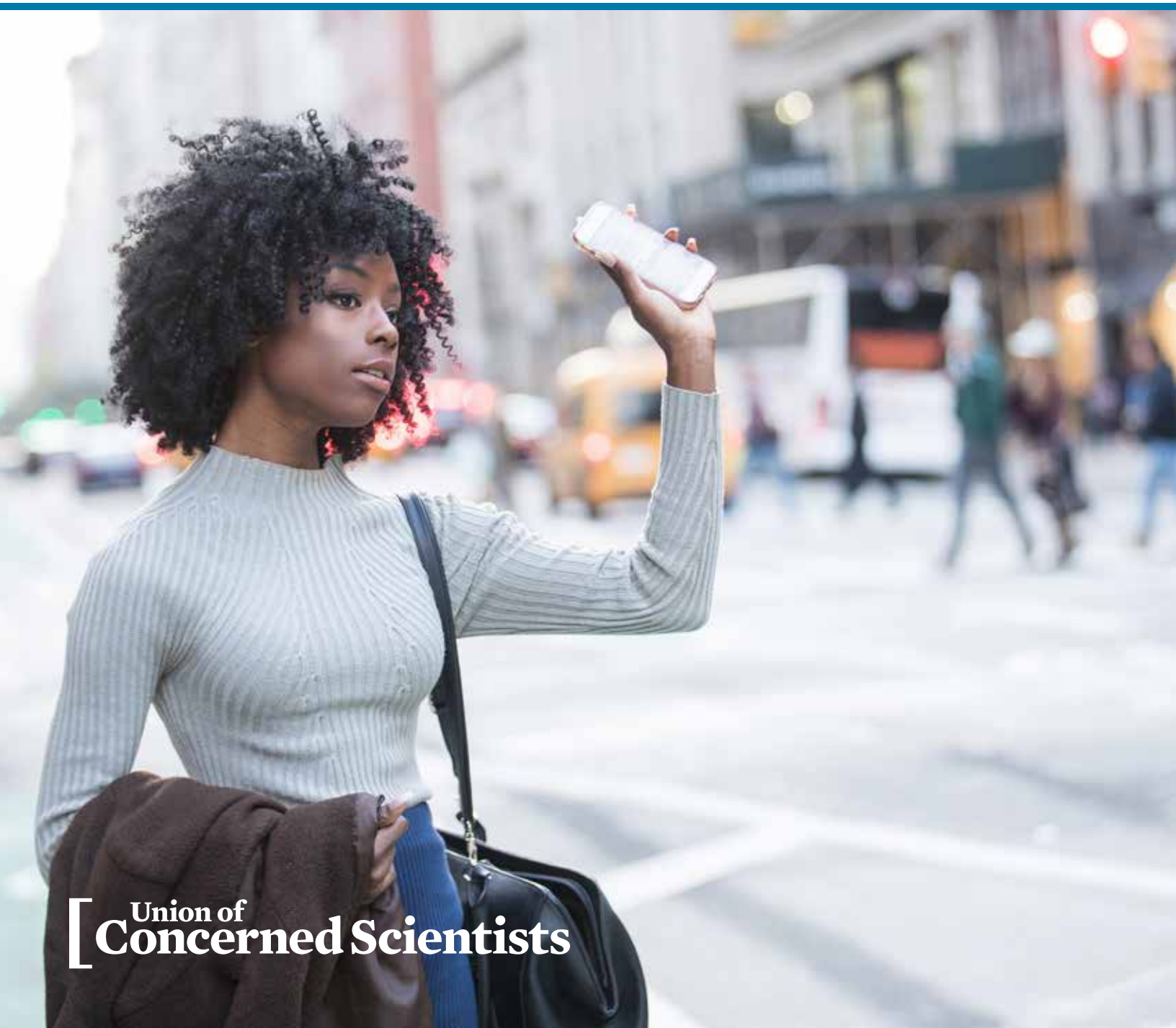
Ride-Hailing's Climate Risks

Steering a Growing Industry toward a Clean Transportation Future



Union of Concerned Scientists

Since Uber introduced ride-hailing in 2010, the industry has grown rapidly around the world. As of 2018, Uber had accumulated more than 10 billion trips globally; Lyft had accounted for more than 1 billion trips (Uber 2018; Lyft 2019a).

Today, ride-hailing trips outnumber taxi trips (Figure 1). They outnumber taxi trips by more than two to one in New York City (Schneider 2019a); and in San Francisco, intracity ride-hailing trips outnumber taxi rides by a margin of 12 to 1 on a typical weekday (SFCTA 2017). While ride-hailing remains a small fraction of overall vehicle travel, 2018 data for six major US cities indicate that such trips account for 2 to 13 percent of vehicle miles in the downtown areas (Fehr and Peers 2019). This dramatic rise has been enabled in part by the success of ride-hailing companies in avoiding many of the regulatory limitations placed on traditional taxis (Box 1) (James 2018).

Cities across the United States are feeling the rise of the ride-hailing industry, most acutely in urban cores, and they struggle to keep up with impacts ranging from declining mass transit ridership to increasing congestion. And the industry's continued growth presents an even deeper challenge: rising climate pollution. Ride-hailing trips today result in an estimated 69 percent more climate pollution on average than the trips they displace. Fortunately, the industry can implement several strategies to address the negative impacts of ride-hailing and contribute to a low-carbon transportation future. It must move rapidly to electrify vehicles, increase pooled

Anthony Eyring/UCS

Ride-hailing has become ubiquitous in cities throughout the United States and the world. Even though ride-hailing vehicles tend to be more efficient than the fleet as a whole, the rise of ride-hailing has led to increased global warming pollution due to additional miles traveled between hired rides and people shifting from lower-carbon modes such as mass transit.

Cover photo: Mat Hayward/Adobe Stock

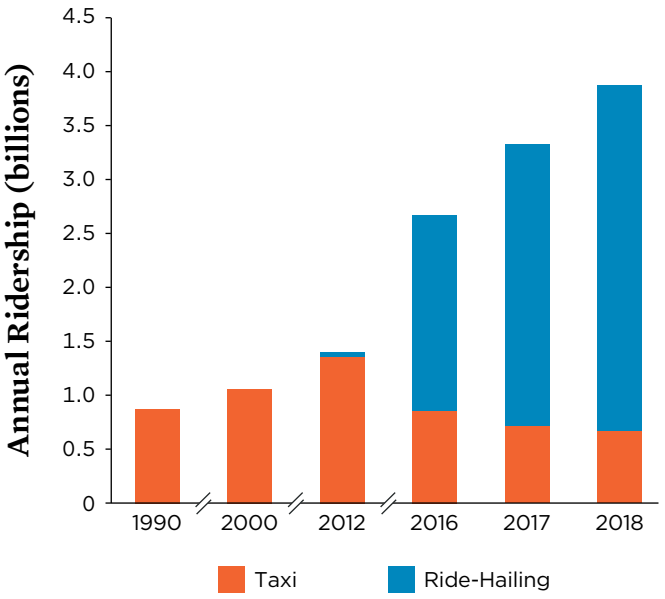
BOX 1.

What about Taxis?

Ride-hailing vehicles are similar to taxis in many ways: they often compete for riders, for example, and deadhead miles contribute to the pollution and congestion impacts of both travel modes. But they also have key differences. Notably, cities have regulated taxis for decades. Most cities limit the number of taxis and require wheelchair-accessible vehicles; some have persuaded taxi owners to move toward hybrid vehicles. In contrast, ride-hailing regulations are very much a work in progress, even as numbers of ride-hailing trips vastly surpass taxi trips in US cities.

This report focuses on ride-hailing, but many of its findings and recommendations apply to taxis as well. For example, electrification, increased pooling, and improved coordination with mass transit would lessen the negative impacts of taxi service on transportation systems and the environment.

FIGURE 1. Ride-Hailing Ridership in the United States Is Rising Rapidly, Vastly Surpassing Taxi Ridership



Since Uber and Lyft's introduction, ride-hailing has quickly displaced taxis and led to an overall increase in for-hire vehicle ridership.

SOURCE: PRIVATE COMMUNICATION WITH BRUCE SCHALLER ON JANUARY 22, 2020, UPDATING HIS ANALYSIS IN SCHALLER 2018.

trips, and complement mass transit. Governments can support those efforts with smart policies that reduce pollution and support efficient, equitable transportation systems. And individuals can make informed choices among transportation options to reduce congestion and pollution, and encourage companies to offer cleaner options.

Ride-hailing is a climate problem for two primary reasons. First, a typical ride-hailing trip is more polluting than a trip in a personal car, mainly as a result of "deadheading"—the miles a ride-hailing vehicle travels without a passenger between hired rides. The second reason is that ride-hailing is not just replacing personal car trips; instead, it is increasing the total number of car trips. In the absence of ride-hailing, many would-be ride-hailing passengers would take mass transit, walk, bike, or forgo the trip.

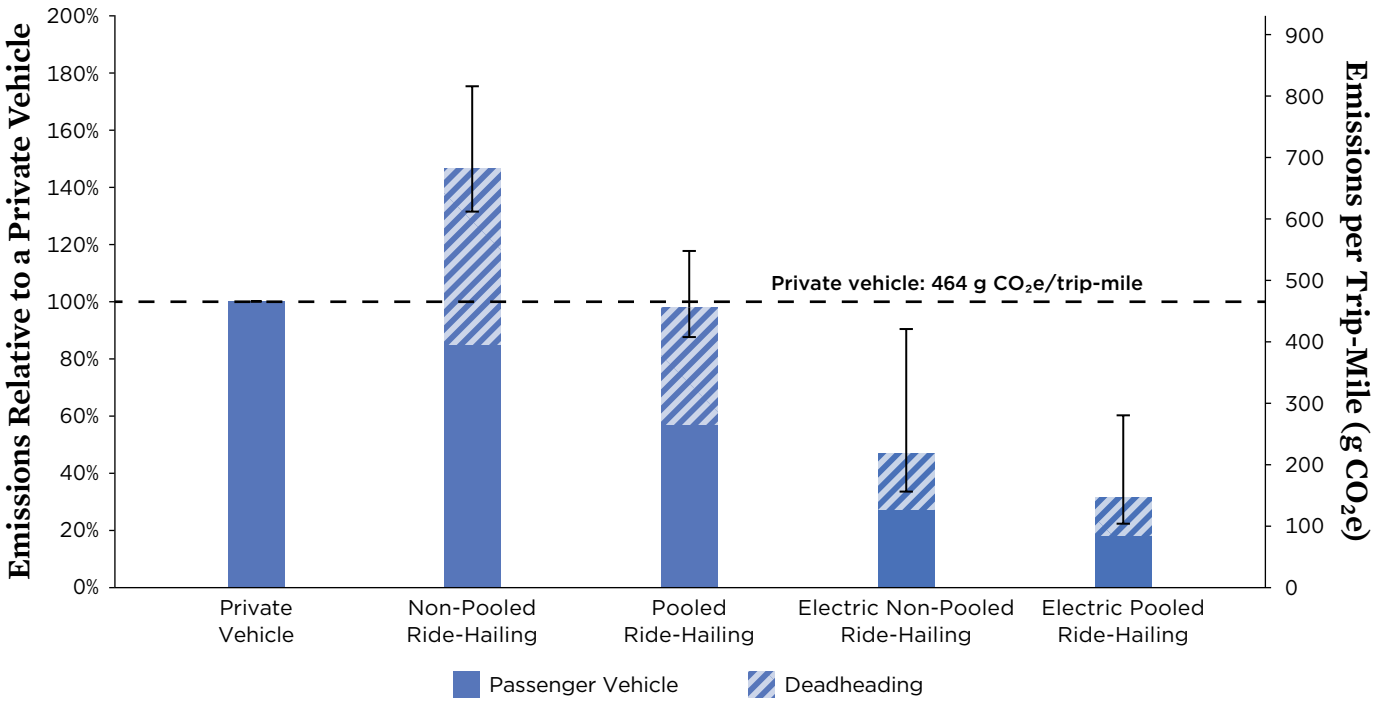
Ride-Hailing Trips vs. Personal Car Trips

While the average ride-hailing vehicle is newer and more fuel-efficient than the average personally owned vehicle, the extra miles associated with deadheading result in higher per-trip emissions. This is particularly true for non-pooled rides, when passengers travel directly to a destination without stopping to pick up other passengers. Based on publicly available ride-hailing data for seven major US metropolitan areas, as well as data from several other sources, UCS estimates that a non-pooled ride-hailing trip generates about 47 percent greater emissions than does a private car trip in a vehicle of average fuel efficiency (Figure 2, p. 4).[1]

That said, replacing personal car trips with ride-hailing can be a good choice for the climate when customers pool rides or use ride-hailing to connect with mass transit, or when ride-hailing drivers use electric vehicles (EVs). Ride-hailing has made it easier to "pool" a ride, with two or more travelers going in a similar direction and sharing a trip.[2] When two travelers share a ride-hailing vehicle for at least half of their trip, it can essentially eliminate the climate disadvantage of ride-hailing compared with two private car trips (and compared with a non-pooled ride-hailing trip has about 33 percent lower emissions). Ride-hailing can also facilitate the use of mass transit, by providing a convenient connection to a train or other form of

A non-pooled ride-hailing trip is 47 percent more polluting than a private car ride.

FIGURE 2. When Is Ride-Hailing Better for the Climate than Using a Private Vehicle?



A pooled trip in an EV is the lowest-carbon option for ride-hailing, while non-pooled trips in today's ride-hailing vehicles produce about 47 percent more emissions than a trip of the same length in a private vehicle.

Note: Results are based on data from seven US metropolitan areas. The private vehicle trip assumes a fuel economy of 23.8 miles per gallon. A pooled trip is assumed to displace two vehicle trips, with the passengers sharing the ride for half of the distance of their trips. Error bars represent uncertainty in the percentage of deadheading miles. The error bars for electric trips (pooled and non-pooled) also include variability in electricity grid emissions among the seven metropolitan areas.

SOURCE: UCS METHODOLOGY DOCUMENT ONLINE, SECTION 2.

mass transit. When most of the trip is on mass transit, with at most a short connection by ride-hailing, the overall trip is less polluting than traveling the whole distance by car (Figure 3, p. 5). Furthermore, climate benefits occur when the ride-hailing vehicle is electric. An electric, non-pooled, ride-hailing trip can cut emissions by about 53 percent; an electric, pooled ride-hailing trip can cut emissions by about 68 percent compared with a private vehicle trip in the average car (or about 79 percent compared with a non-pooled ride-hailing trip).

Pooled trips and EVs can minimize, or even eliminate, the climate disadvantage of a ride-hailing trip, but only a small share of trips are pooled and there are very few EVs in ride-sharing fleets. While the data are limited, the California Air Resources Board reports that riders ask for pooled trips about 20 percent of the time (CARB 2019). However, a request for a pooled trip does not always result in a matching of riders; in addition, less than 1 percent of California ride-hailing trips, based on mileage, were in EVs in 2018.[3]

An electric, pooled ride-hailing trip can cut emissions by 68 percent compared with a private vehicle trip in the average car, or about 79 percent compared with a non-pooled ride-hailing trip.

Ride-Hailing vs. Other Transportation Modes

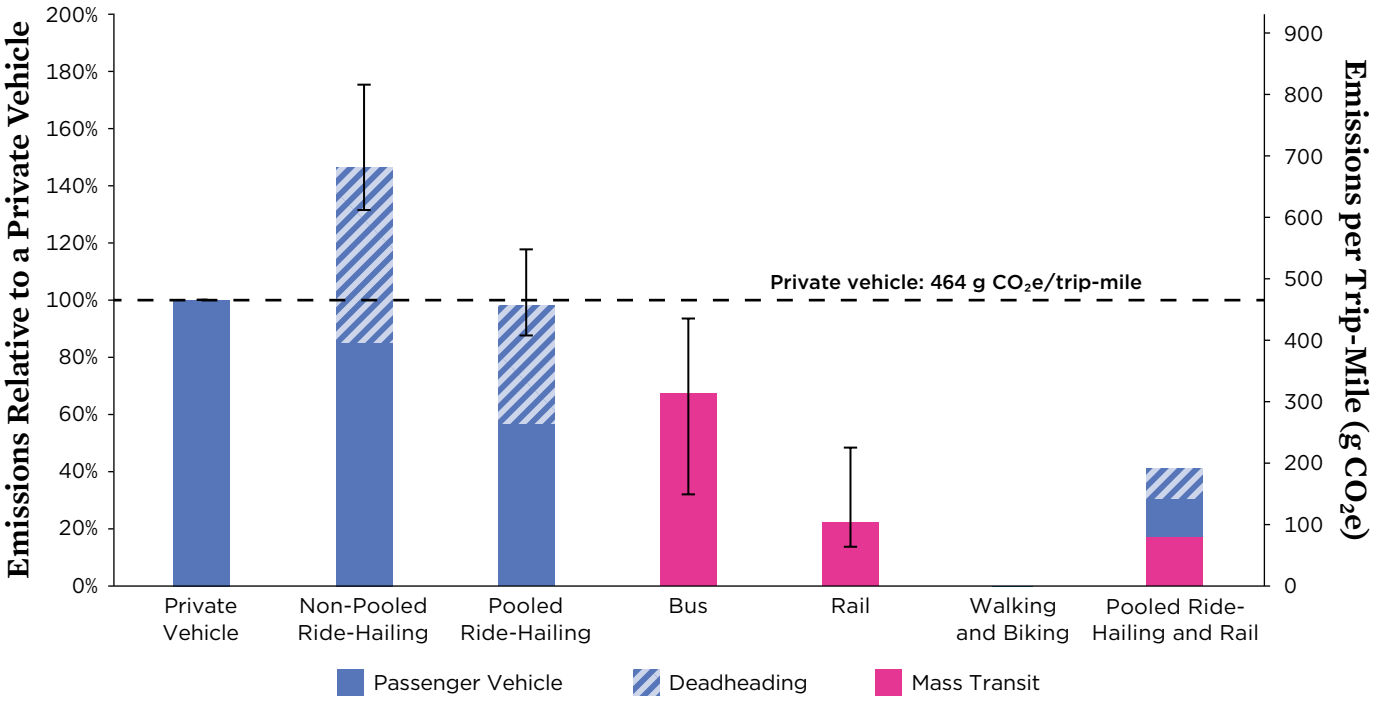
Ride-hailing is especially popular in dense urban areas, where they account for a larger overall share of driving than in less dense suburbs (Fehr and Peers 2019). However, urban areas are also where mass transit, walking, and biking are generally more heavily used for transportation, and all three travel modes produce fewer—or even zero—carbon emissions compared with cars (Figure 3). For this reason, ride-hailing trips in these areas often replace less-polluting modes. Using ride-hailing in place of the lower-carbon modes will result in a larger increase in emissions than replacing a private car trip. However, using ride-hailing to connect to mass transit can result in a less-polluting overall trip, if the combined trip replaces a car trip.

A survey of ride-hailing users across California asked riders what they would have done if they had not taken a ride-hailing vehicle (Figure 4, p. 6) (Circella et al. 2019). The survey

Eleanor Fort/UCS

In urban areas, many residents rely on mass transit, walking, and biking. As ride-hailing gains popularity, it is more often displacing these low- and zero-carbon transportation options, leading to higher emissions.

FIGURE 3. Emissions Impact of Ride-Hailing vs. Other Travel Modes

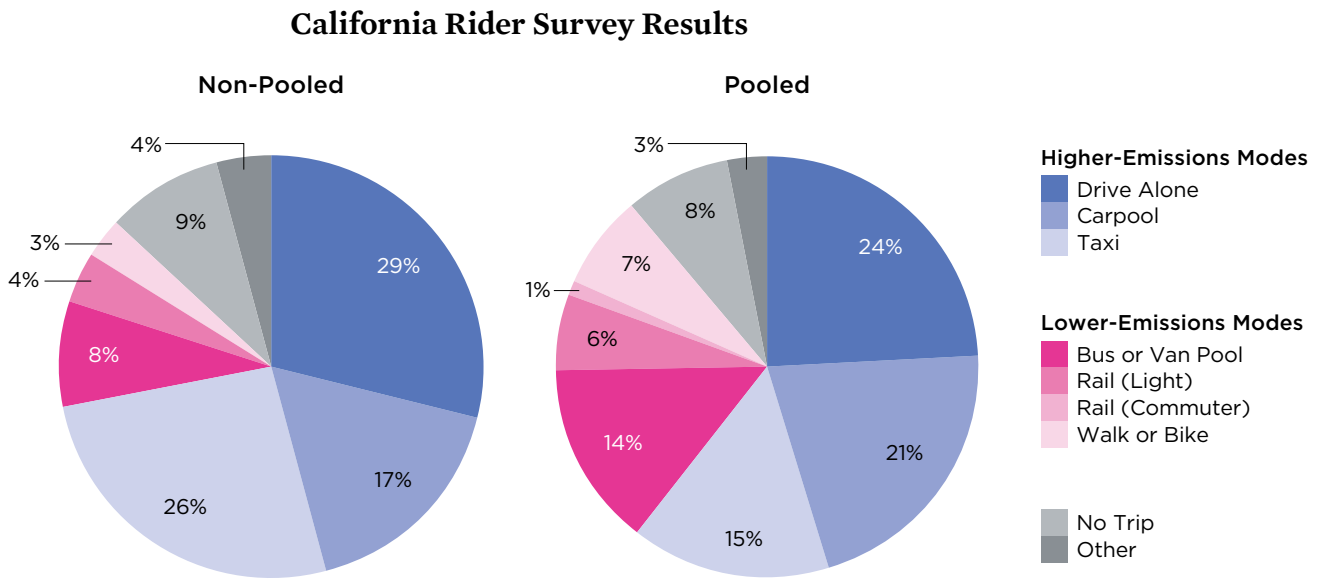


In urban areas, rail, bus, walking, and biking are lower-carbon alternatives to ride-hailing. Rail and bus also help reduce congestion. Using ride-hailing to enable a passenger to use mass transit instead of driving is also a lower-carbon alternative.

Note: Car and ride-hailing emissions are per trip-mile, regardless of how many people are in the vehicle on the same trip, but emissions are adjusted for pooled trips. Bus and rail data are emissions per passenger based on average occupancy in the same seven metropolitan areas as in Figure 2. The error bars for ride-hailing represent uncertainty in the percentage of deadheading miles. Error bars for bus and rail emissions represent variability among cities. Mass transit emissions do not indicate how emissions would change with increased ridership. Bus and rail operate on fixed schedules and are often less than fully utilized, so additional passengers do not always increase emissions.

SOURCE: UCS METHODOLOGY ONLINE DOCUMENT, SECTION 3.

FIGURE 4. Travel Modes Displaced by Ride-Hailing



Rider surveys in California indicate that 24 percent of non-pooled rides and 36 percent of pooled trips would have been by mass transit, walking, or biking, or not taken at all. In other words, ride-hailing users often would have used lower-carbon modes rather than cars.

SOURCE: CIRCELLA ET AL. 2019; UCS METHODOLOGY ONLINE DOCUMENT, SECTION 4.

found that 24 percent of non-pooled rides would have been taken in a lower-carbon mode such as mass transit, walking, or biking, or the rides would not have occurred at all. For pooled rides, the share of lower-carbon modes displaced is even higher at 36 percent. Other surveys, conducted primarily in urban areas, have found even higher percentages of displaced low-carbon travel modes. For example, a survey of seven cities found that more than half of urban ride-hailing trips displaced cleaner modes (Clewlow and Mishra 2017).

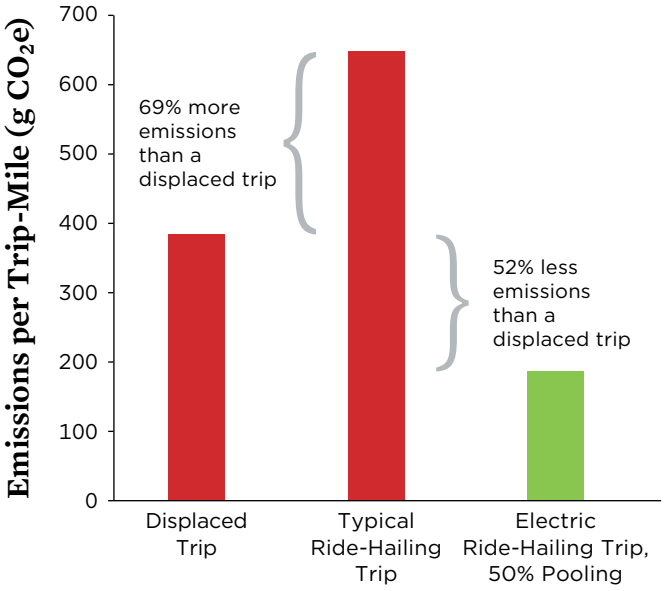
Combining the share of displaced trips reported by Giovanni Circella and his colleagues with data from other sources on emissions of transit modes, we calculated emissions from displaced trips (Circella et al. 2019).[4] Pooled an estimated 15 percent of the time,[5] a typical ride-hailing trip today is 69 percent more polluting than the transportation options it displaces (Figure 5, p. 7). In urban areas, ride-hailing displaces a higher share of low-carbon trips, so the impact of ride-hailing on pollution is even greater.[6] However, if ride-hailing companies switch to EVs and increase the share of pooling to 50 percent, emissions would be 52 percent lower than the displaced trips.

Pooled, electric ride-hailing is a key strategy for mitigating increases in emissions. However, while ride-hailing can get much less polluting with electrification and greater pooling, mass transit can also get cleaner—for example, by converting to electric buses (O'Dea 2019). Moreover, mass transit, biking, and walking provide other benefits in terms of reduced congestion and improved livability, especially in dense urban areas.

billy1125/Creative Commons (Wikimedia Commons)

While ride-hailing can get cleaner by using electric vehicles, so can mass transit. This bus between downtown Boston and Logan Airport runs part of each trip on power from overhead electrical wires.

FIGURE 5. Ride-Hailing Trips Are About 69% More Polluting than the Trips They Displace



Emissions from a typical ride-hailing trip (pooled 15 percent of the time) are about 69 percent higher than the average of the displaced trips it replaces. If ride-hailing companies increase pooling to 50 percent and convert to electric vehicles, they can reduce emissions by about 52 percent compared with the displaced trips.

SOURCE: UCS METHODOLOGY ONLINE DOCUMENT, SECTION 5.

The Impact of Ride-Hailing on Congestion

While electrifying ride-hailing can significantly reduce climate pollution, such trips still increase total vehicle miles and congestion, which can increase the global warming and air pollution from other cars that get stuck in traffic. Moreover, traffic congestion has additional negative impacts, including increases in noise, crashes, and difficulty in biking or walking. Also, the burdens of increased driving and congestion are not confined to drivers or distributed equally across racial groups; disproportionately, they harm the health and quality of life of people living close to heavily traveled and congested roads (Reichmuth 2019).

Because ride-hailing displaces a mix of private car trips and cleaner travel modes and increases deadheading miles, it increases the total amount of car traffic, especially in urban areas where ride-hailing has grown most rapidly. One study found that ride-hailing in urban areas adds about 2.6 miles for each mile of personal driving it replaces (Schaller 2018). Those additional miles significantly worsen congestion.

A typical ride-hailing trip is about 69 percent more polluting than the trips it replaces, and can increase congestion during peak periods.

A recent study found that average speeds in San Francisco decreased by three miles per hour (mph), from 25.6 mph in 2010 to 22.2 mph in 2016; half that decrease was due to increased ride-hailing (Erhardt et al. 2019). In Manhattan, taxi and ride-hailing trips almost doubled between 2010 and 2017, with average speeds in the central business district falling from 9.1 mph in 2010 to 7.1 mph in 2017. In midtown Manhattan, taxis and ride-hailing accounts for more than 50 percent of total traffic (NYDOT 2019). New York City, which is unique in the United States in its low share of trips in private vehicles, is affected especially severely. In other major metropolitan areas, Uber and Lyft account for 1 to 3 percent of total vehicle miles traveled (VMT), rising to 2 to 13 percent in core counties of these metropolitan areas (Pangilinan 2019). Even a small percentage increase in VMT can have an outsized impact on congestion, particularly if ride-hailing continues its rapid growth without increases in ride pooling.

The Role of Ride-Hailing in a Low-Carbon Transportation System

Ride-hailing provides an attractive option for many travelers, including those who use it as an alternative to mass transit, walking, or biking. In areas without high-quality mass transit or adequate infrastructure for safe walking and biking, ride-hailing can increase mobility for households without their relying on personally owned vehicles. Yet in cities and suburbs across the country, ride-hailing is increasing vehicle travel, climate pollution, and congestion. Electrifying ride-hailing and increasing the number of rides that are pooled are essential actions for managing the industry's climate pollution. However, those strategies alone will address neither the increases in vehicle miles traveled nor rising congestion concerns. For ride-hailing to contribute to better climate and congestion outcomes, trips must be pooled and electric, displace single-occupancy car trips more often, and encourage low-emissions modes such as mass transit, biking, and walking.

All road users contribute to congestion, and solutions should consider all travel modes and place a higher priority on moving people, not cars. Ride-hailing companies, governments, and consumers all have roles to play in ensuring that everyone has safe, efficient, affordable, and attractive transportation options that minimize congestion and pollution.

To address the negative pollution and congestion impacts from ride-hailing:

- The ride-hailing industry must take strong action to promote ride pooling, electrify vehicles, and facilitate connections to mass transit.
- Governments must provide the public with access to high-quality, multimodal transportation choices, prioritize the movement of people over cars, and ensure that all modes reduce pollution. They must adapt the rules of the road—for ride-hailing companies, mass transit, and other road users—to ensure access for everyone to safe, equitable, efficient transportation.
- Conscientious consumers can help, by making smart trip choices that lessen emissions and traffic congestion and by encouraging companies to offer cleaner options.

Kyle Conlon

In every region of the United States, the average electric vehicle is lower carbon than the average new gasoline vehicle. Electric ride-hailing vehicles, such as this one in Minnesota, can help reduce the industry's climate impact; ride-hailing companies should help drivers buy or lease these vehicles and provide access to high-speed charging.

RIDE-HAILING COMPANIES MUST ELECTRIFY THEIR FLEETS AND HELP MOVE MORE PEOPLE WITH FEWER CARS

- **Electrify ride-hailing.** It makes sense to accelerate the industry's transition to EVs since its vehicles travel many more miles each day than do typical cars. As a result, ride-hailing EVs offer both greater pollution benefits and substantial savings on fuel costs for drivers. Ride-hailing companies will need to address the barriers their drivers face in moving to EVs, especially higher vehicle purchase prices and limited access to convenient, cost-effective charging. The companies can help their drivers understand the benefits and capabilities of EVs and provide subsidies or other incentives to help drivers buy or lease such vehicles. Further, the companies can invest directly in charging infrastructure or work with EV-charging providers to increase access to high-speed chargers.
- **Connect to mass transit and active transportation.** Ride-hailing companies can encourage the use of high-capacity mass transit by providing first- and last-mile connections to it (see Box 2, p. 9). Such connections need not always be provided by additional single-passenger car rides, whether in a ride-hailing or personal vehicle; sometimes, bikes, scooters, neighborhood shuttles, pooled rides, or other modes offer better choices and are more appropriate to a specific context.
- **Increase pooling.** Ride-hailing companies can increase pooled rides by offering attractive pricing, increasing marketing, and improving the convenience of pooled services.
- **Share data and collaborate with cities.** To adapt to rapidly changing transportation patterns, cities need data on all kinds of travel modes, traditional and new. Ride-hailing companies should provide local officials with information essential to making smart decisions on transportation policy, street design, and investment while protecting privacy, avoiding discrimination, and ensuring equitable access and mobility.
- **Support low-carbon ride-hailing policies.** Ride-hailing companies should collaborate with local and state governments to speed the transition to a clean and equitable transportation future. They should not seek state or federal laws that preempt effective local solutions.

Governments must provide access to high-quality, multimodal transportation choices, prioritizing the movement of people over cars.

BOX 2.

Promising Paths Forward, Coast to Coast and Beyond

A number of diverse and innovative initiatives are taking steps in the right direction. If successful efforts are replicated broadly, they will have a meaningful impact on decreasing pollution and congestion from ride-hailing.

CALIFORNIA PROMOTES POOLING AND ELECTRIFICATION WITH A STANDARD FOR CLEANER RIDE-HAILING

In 2018, California enacted legislation to establish a Clean Miles Standard that will require ride-hailing companies to cut emissions and transition their fleets to EVs.[7] The law focuses on emissions per passenger mile rather than emissions per vehicle mile, giving companies flexibility to increase pooling as part of strategies to meet the emissions standard. At the same time, converting ride-hailing fleets to EVs is a key goal of state policy.

CHICAGO STRUCTURES RIDE-HAILING FEES TO ENHANCE EQUITY AND ENCOURAGE THE USE OF POOLING AND MASS TRANSIT

Chicago's rapid growth in ride-hailing has increased congestion and drawn passengers away from mass transit, particularly in dense, affluent neighborhoods that already have excellent transit options. In 2019, the Chicago City Council approved changes in the ride-hailing fee structure to support three city goals: managing congestion, supporting mass transit, and advancing equitable mobility. The new fee structure charges passengers the most for single-person rides to or from the downtown area during rush hours, with lower fees for pooled rides. Reduced fees outside the core downtown area recognize the important options ride-hailing provides in areas less well served by mass transit. Pooled rides are much more common in low-income neighborhoods (Irvin 2019).

Elizabeth Irvin/UCS

In 2019, Chicago implemented ride-hailing fees to encourage people to take mass transit downtown, while reducing fees for pooled rides in areas less well served by transit.

Metrolink

In California's San Bernardino County, the regional rail system partnered with Lyft to provide discounted rides between select train stops and the local airport. Offering "last-mile" connections from mass transit to a final destination can make it more likely for people to use transit instead of drive the whole distance.

CONNECTING PEOPLE TO MASS TRANSIT WITH FIRST MILE/LAST-MILE SOLUTIONS

Today, ride-hailing competes with and draws riders away from mass transit. However, connecting ride-hailing to mass transit has the potential to provide convenient, affordable travel while increasing mass transit ridership and reducing congestion. Lyft and Uber have begun adding information on mass transit options to their apps in certain markets. Denver Uber riders can pay for mass transit rides through the Uber app. Yet much remains to be done to integrate ride-hailing and mass transit effectively and in a manner that helps get riders to mass transit and takes cars off the road instead of the other way around.

COLORADO, LONDON, AND CHINA SEE RIDE-HAILING COMPANIES START DEPLOYING EVS

EVs feature prominently in the vision for a clean future described by ride-hailing companies. In a few markets, Lyft has rolled out a "green mode" to enable riders to select a hybrid or EV, and it has established an EV rental option for drivers. Recently, Lyft announced that it had deployed 200 long-range EVs in its Express Drive rental program in Denver, leveraging a change in Colorado law that allows EV rideshare fleets to qualify for the same $5,000 tax credit that is available to private consumers (Lyft 2019b).

When London announced plans to ban non-EVs from the city center, Uber responded by adding a fee to all rides in order to fund a grant program that helps drivers buy EVs. In China, the ride-sharing company Didi Chuxing has 250,000 EVs in its operation, accounting for a 1.3 percent share of its fleet, five times higher than any US ride-hailing company (Slowik, Fedirko, and Lutsey 2019).

PUBLIC POLICIES MUST ADAPT THE RULES OF THE ROAD TO CHANGING CIRCUMSTANCES

Many decisions about transportation infrastructure are made locally, but state and federal policies and funding heavily influence those decisions. Smart local decisions backed up by sensible state and federal regulatory and funding frameworks can contribute to clean, equitable, efficient transportation systems.

- **Invest in mass transit and infrastructure for walking and biking.** As the ride-hailing industry adds demand for car trips to transportation systems already overburdened by driving, policymakers must ensure that alternatives that decrease driving—such as mass transit, walking, and biking—are safe, affordable, and convenient. Investments in transit electrification can reduce air pollution in high-traffic corridors and reduce operating costs over the long term. Bus mass transit can be improved with bus-only lanes, streamlined boarding procedures, redesigned routes, and technology to give mass transit priority at traffic signals. Transit agencies can partner with ride-hailing companies to facilitate connections that bring more people to mass transit.
- **Enact policies to electrify the ride-hailing industry.** States, cities, and utility commissions can encourage or require ride-hailing companies to move rapidly toward electrification. For example, California regulators are developing pollution and zero-emissions-vehicle standards for ride-hailing companies (Box 2). Also, cities and utilities can assist in the siting and deployment of vehicle-charging infrastructure. And as cities consider fees on ride-hailing trips, assessing lower fees on electric rides can help make zero-emissions vehicles more economically attractive (Slowik, Wappelhorst, and Lutsey 2019).
- **Encourage pooling.** Policymakers can encourage pooling by giving high-occupancy vehicles access to special lanes, reducing tolls or other fees for such vehicles, and designing streets to facilitate the safe, convenient pickup and drop-off of ride-hailing passengers.
- **Enable smart local decisionmaking with supportive federal policy.** Many key transportation decisions take place at the state and local levels, but state and federal funding and regulations can help—or hinder—local solutions. Federal and state policymakers should provide local jurisdictions with flexibility to use available funding in the manner that best addresses local needs. Federal and state laws and regulations should not limit the ability of local jurisdictions to address local pollution, congestion, and access challenges.

miodrag ignjatovic/iStock

Policymakers can encourage pooling by providing incentives to ride-hailing vehicles such as access to special lanes and reduced tolls. They can also support electrification of the ride-hailing industry by assessing lower fees on electric and pooled rides.

INDIVIDUALS CAN MAKE SMART CHOICES

- **Get involved.** Let ride-hailing companies know you expect them to accelerate their efforts to increase pooling and electric vehicle options. Ask your elected representatives at local, state, and federal levels to adopt policies supporting safe, clean, and equitable transportation choices.
- **Manage your own total driving mileage.** Walk, bike, use mass transit, or combine trips.
- **Use ride-hailing wisely.** Use ride-hailing part of the way or some of the time to facilitate increased use of less-polluting modes. For example, take a ride-hailing vehicle to the train or subway station rather than all the way to your destination.
- **Choose pooled and electric rides.** When taking a ride-hailing trip, ask for pooled or electric options where they are available.

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ACKNOWLEDGMENTS

This report was made possible by the generous support of the William and Flora Hewlett Foundation, and UCS members.

The report team would like to express thanks to the following individuals for their invaluable advice, technical guidance, and/or review of the report: Peter Slowik, International Council on Clean Transportation; Alan Jenn, University of California–Davis; Giovanni Circella, University of California–Davis; Alejandro Henao, National Renewable Energy Laboratory; and Elizabeth Irvin, formerly at the Center for Neighborhood Technology and now with the Union of Concerned Scientists.

Organizational affiliations are listed for identification purposes only. The opinions expressed herein do not necessarily reflect those of the organizations that funded the work or the individuals who informed or reviewed it. The Union of Concerned Scientists bears sole responsibility for the report's content.

ENDNOTES

1 Except where otherwise noted, calculations are the authors'. The methods and data sources are described in the methodology, available online at www.ucsusa.org/resources/ride-hailing-climate-risks.

2 This report distinguishes between pooled trips and vehicle occupancy. For example, it does not count it as a pooled trip when two members of a family travel from the same origin to the same destination, whether they use their own vehicle or hire a ride. A pooled trip combines at least two separate trips—for example, a ride-hailing passenger requests a pooled ride, and the company matches that trip with another passenger's request.

3 The California data are specifically for fuel cell EVs, battery electric vehicles, or plug-in hybrids (CARB 2019). Chicago data indicate that about 60 to 75 percent of requests for pooled rides result in a match with other riders (Schneider 2019b).

4 See UCS methodology online document, section 4, for details.

5 The 15 percent figure assumes that 20 percent of riders request a pooled ride, with a 75 percent match rate. See UCS methodology online document, section 5.

6 As noted, other surveys have suggested that an even larger share of the displaced rides in urban areas comes from mass transit, biking, walking, or taking no trip at all, leading to a lower emissions estimate for the displaced trip. The surveys differ in methodology as well as when and where they were conducted. The Circella et al. survey sampled all of California, not just urban areas; the results are conservative in terms of predicting that most displaced travel would have been by car. At the other end of the spectrum, Regina Clewlow and Gouri Shankar Mishra (2017), who surveyed seven cities, found that most of the displaced trips were from low-carbon modes; the displaced trip would be less than half as polluting as the value in Figure 5.

7 California Clean Miles Standard and Incentive Program: Zero-Emission Vehicles, Senate Bill 1014. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1014.

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Ride-Hailing's Climate Risks

Steering a Growing Industry toward a Clean Transportation Future

Ride-hailing is an attractive option for many travelers, and can increase mobility for households who lack a private vehicle. Yet in communities across the country, ride-hailing is increasing vehicle travel, climate pollution, and congestion.

The explosive growth of ride-hailing services, including Uber and Lyft, is increasing climate pollution and urban congestion. As the climate crisis becomes even more urgent, it is more important than ever for the ride-hailing industry to contribute to a lower-carbon, more sustainable transportation system. Fortunately, the industry can implement several strategies to address the negative impacts of ride-hailing and contribute to a low-carbon transportation future. It must move rapidly to electrify vehicles, increase pooled trips, and complement mass transit. Governments can support those efforts with smart policies that reduce pollution and support efficient, equitable transportation systems. And individuals can make informed choices among transportation options to reduce congestion and pollution, and encourage companies to offer cleaner options.

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FIND THIS DOCUMENT AND METHODOLOGY ONLINE:
www.ucsusa.org/resources/ride-hailing-climate-risks

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