

Colorado's free-fare public transit initiative didn't reduce ground-level ozone, but may have other benefits

August 14 2024, by Sarah Kuta



Riders board a city bus in Denver. Credit: Regional Transportation District (RTD)

Grant Webster is a big fan of public transit—he takes the bus multiple times a week from his home in east Boulder to the CU Boulder campus, where he's working on a Ph.D. in economics.

So, two years ago, when he heard about Colorado's new ["Zero Fare for](#)

[Better Air](#)" campaign, he was intrigued.

The premise was simple: During the month of August 2022, the state's Regional Transportation District (RTD) waived fares for all bus and train rides. With this free perk, state leaders hoped to encourage Coloradans to leave their cars at home and take [public transit](#) instead. They expected this incentive to reduce ground-level [pollution](#) during peak ozone season.

As a bus rider, Webster was optimistic, too. But as an economist, he wanted to see the data.

"When they came out with this policy, I was like, 'Hey, I ride the bus, I think that's a cool idea,'" he says. "But I was also curious. Has anybody studied whether these policies actually work?"

Now, he has an answer to that question. "Zero Fare for Better Air" did not significantly reduce [ozone pollution](#) in Colorado, Webster reports in a [new paper](#) published in the journal *Transportation Research Part A: Policy and Practice*.

Using air pollution, weather, ridership and traffic data, Webster found that public transit ridership did increase during the month of free fares—by roughly 15% to 20%. But even though bus and train travel got a boost, car traffic volumes stayed roughly the same.

"The increase in ridership doesn't seem to be reducing the number of cars on the roads," he says. "It might just be transit users taking more rides, or people using RTD that weren't going to take the ride to begin with."

Informing policy

Roughly 2% of commuters in the Denver metro area use public transit as their main daily form of transportation—and the proportion is likely even smaller in other parts of the state. So, while public transit ridership saw a sizable bump percentagewise, this bump wasn't enough to reduce ozone pollution.

For Colorado to see a 1% decrease in ozone pollution, public transit ridership would need to increase by 74% to 192%, Webster finds.

"Even if we had this big increase in ridership, it's still such a small proportion of commuters, in terms of total pollution contributors, that we wouldn't expect a huge decrease in ozone pollution overall," he says.

"The transit infrastructure, the whole environment we live in here in Colorado ... people are really reliant on their cars. You'd need a much bigger switch of people's transit behaviors for this policy to be affecting overall air pollution."

The findings are a bit of a bummer, but Webster says they're important nonetheless. They could help policymakers use their limited dollars in different ways—ones that might be more effective at reducing pollution.

The "Zero Fare for Better Air" campaign was funded by Colorado Senate Bill 22-180 and offered in partnership with the Colorado Energy Office. RTD brought back the campaign for a second year in 2023 and expanded it to include both July and August, while Webster's research was still underway. But, in 2024, it axed the program, citing state budget constraints.

Webster also points out that, while the campaign didn't reduce ozone pollution as intended, it may have had other [economic benefits](#), such as making public transit more affordable for low-income individuals or introducing new riders to the system.

Also, his findings only apply to Colorado, where overall ridership is relatively low. The picture might look very different in cities and states with more robust transit infrastructure and a higher proportion of public transit commuters, he adds. So, policymakers elsewhere shouldn't completely rule out similar initiatives in their locales.

"In places like New York City or Washington, D.C., this type of policy might have completely different implications," he says.

Consider other incentives

Overall, the findings suggest that, when deciding whether to drive or take public transit, the cost of the fare is not the most important factor in commuters' decision-making process. And that's an important takeaway: To change commuters' behavior, policymakers may need to consider other, more compelling incentives.

"When you talk about getting to work, there are so many factors at play," Webster says. "What's traffic going to be like? How far away is the bus station? How long do I have to wait? Can I leave in the middle of the day to go run an errand?"

More broadly, as policymakers look for novel ways to slow or halt human-caused climate change, the study also demonstrates the value of considering possible solutions through an economic lens.

"Economics provides a lot of good tools for studying these types of environmental policies," Webster says. "Can we incentivize people to change their behavior and, as a result, change an environmental outcome? It's a super important time to focus on the environment and our human impacts on it. And economics can play a role in studying these issues."

More information: Grant Webster, Free fare for better air? Evaluating the impacts of free fare public transit on air pollution, *Transportation Research Part A: Policy and Practice* (2024). [DOI: 10.1016/j.tra.2024.104076](https://doi.org/10.1016/j.tra.2024.104076)

Provided by University of Colorado at Boulder

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