

The Impact of the COVID-19 Recovery on California Transportation Revenue: A Scenario Analysis through 2040

Project WP 2054
December 2020

Asha Weinstein Agrawal, PhD, Hannah King, Martin Wachs, PhD, and Jeremy Marks

The COVID-19 public health emergency has affected every aspect of life in California, reducing social and economic activity. Less activity translates to less travel, and less travel leads to less revenue generated from taxes on motor fuels. As California emerges from the COVID-19 crisis and returns to more normal levels of activity, the state must plan transportation system operations and maintenance in the context of deep uncertainty regarding future revenue.

To help decision makers navigate that uncertainty, we used spreadsheet models to estimate the impacts that different economic recovery scenarios from the COVID-19 pandemic would have on state-generated transportation revenue. Because it is not possible to anticipate future economic conditions, travel volumes, and vehicle markets with certainty, we created six potential economic recovery scenarios and projected future transportation revenue in California through 2040 under each.

The scenarios illustrate the revenue consequences of plausible alternative future economic conditions, vehicle fleet mixes, and levels of travel. There is no certainty that the future will resemble any of the chosen scenarios, but they nevertheless help state leaders assess and design policies to achieve desired outcomes.

Study Methods

The study used a tested spreadsheet model and well-known data sources to project transportation revenues generated by California's Senate Bill 1 (2017) package of taxes and fees. These are taxes on gasoline and diesel fuel, plus two annual fees levied on vehicles. One fee, the Transportation Improvement Fee (TIF), varies the rate according to the vehicle's value. The other fee, the Road

Improvement Fee (RIF), is a flat annual fee assessed on Zero Emission Vehicles (ZEVs).

We created six potential economic recovery scenarios and projected future transportation revenue in California through 2040 under each. These scenarios assumed different annual state VMT, light-duty vehicle fleet size, light-duty ZEV fleet size, light-duty ZEV vehicle values, and the diesel share of the heavy-duty fleet.

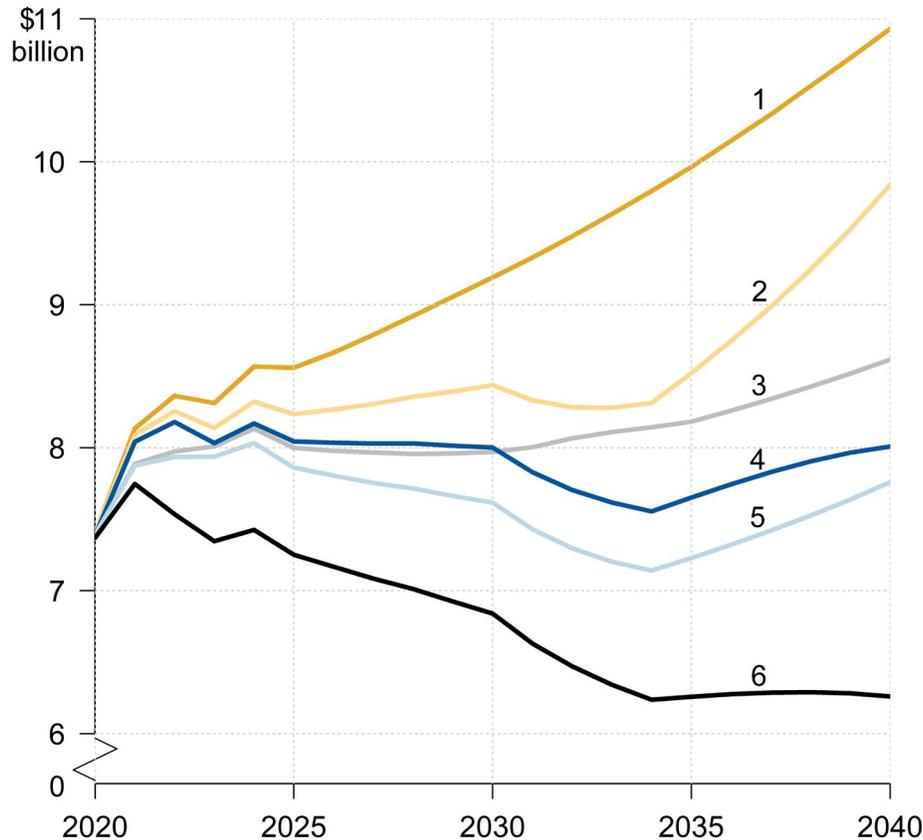
The projected cumulative revenue raised between 2020 and 2040 varies across the scenarios by more than \$40 billion.

Findings

The figure shows the revenue projections under all scenarios.

Key findings include:

- The projections from the six scenarios demonstrate that annual California transportation revenue by 2040 could range widely, from as little as \$6.5 billion to as much as \$10.9 billion, if the assumptions and conditions used to create particular scenarios are realized over time.
- The projected cumulative revenue raised between 2020 and 2040 varies across the scenarios by more than \$40 billion.
- In 2020, taxes on fuels will generate roughly three-quarters of state-generated transportation revenue. By 2040, however, taxes on fuels will generate a much smaller percentage of overall revenue. For example, in four of the six scenarios they generate less than a quarter of revenues.



Total Projected State Revenue Under the Six Scenarios, 2020–2040 (in 2020 dollars)

Policy Implications

The study findings highlight the need for California’s policy leaders to prepare a long-term strategy for raising adequate transportation revenues that takes into account the wide variation that will arise from different mixes of ICE vs. ZEV light-duty vehicles, light-duty fleet sizes, light-duty ZEV values, and annual state VMT. Should the state achieve its policy goals of reducing carbon emissions from the transportation sector, policymakers may wish to change the structure of taxes to “replace” the revenue lost from fuel taxes. For example, our spreadsheet models show that the gap in revenue between the scenarios that generate the most and the least fuel tax revenue in 2040 could be raised by supplementing the existing tax structure with a new road-user charge of one cent per mile.

To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2054

About the Authors

Asha Weinstein Agrawal, PhD, is Professor at San José State University, Hannah King is a doctoral student at UCLA, Martin Wachs, PhD, is Professor Emeritus of the University of California, and Jeremy Marks, MURP, is a Public Administration Analyst at UCLA’s Institute of Transportation Studies.



MTI is a University Transportation Center sponsored by the U.S. Department of Transportation’s Office of the Assistant Secretary for Research and Technology and by Caltrans. The Institute is located within San José State University’s Lucas Graduate School of Business.