The NC FIRST Commission was created in March 2019 to evaluate North Carolina's transportation investment needs. Their job is to advise the Secretary of Transportation of new or better ways to ensure that critical financial resources are available in the future. As part of this process, we'll be looking for input from you, the people of North Carolina! This brief reviews the funding approaches that other jurisdictions—both across the nation and around the world—are using to pay for their transportation systems, especially roads and bridges.

How Other States and Countries Are Paying for Transportation Investments

Overview

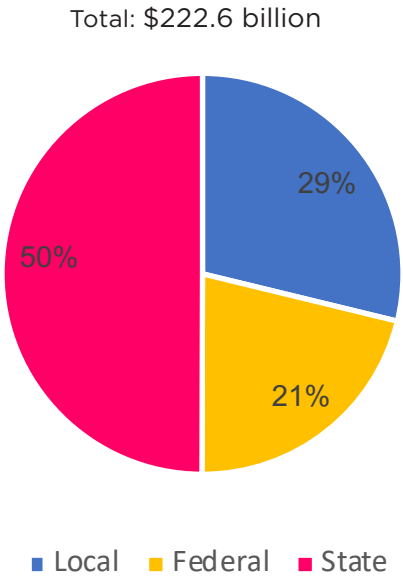
States across the country, including North Carolina, now face a well-documented and worsening transportation funding crisis as dedicated revenues fail to keep up with infrastructure investment needs. Fuel taxes—still the primary source of state and federal transportation funding—are on the decline due to improvements in vehicle fuel efficiency, changing travel patterns, and, in many cases, the plummeting purchasing power of cents-per-gallon taxes in light of inflation and rising construction costs. Moving forward, electric and alternative fuel vehicles are expected to erode fuel tax revenues still further. These challenges have prompted many states to take actions that increase or modernize their transportation revenue sources. Other countries around the world also offer alternative approaches to consider as North Carolina explores how to ensure sustainable funding for its transportation system into the future.

How are other states paying for transportation investments?

In the United States, states provide half of all funding for highways (**Figure 1**)[1] as well as revenues for public transit, aviation, rail, and other transportation modes. In general, transportation funding in this country has long been rooted in a "user pay" principle, which says that the people who benefit most from using a particular public service, like transportation infrastructure, should bear more of the associated costs.

Consistent with this idea, states have tended to rely heavily on fuel taxes when paying for transportation projects, supplemented by vehicle-related fees, taxes, and tolls—all of which (more or less) link how much you use the system to how much you pay toward its upkeep. To keep the connection clear, these revenues are typically dedicated in law so that they can only be used for transportation purposes. States have also, however, turned to a variety of other revenue streams to support transportation investments.

Figure 1: Total Expenditures for Highways in the U.S., 2014



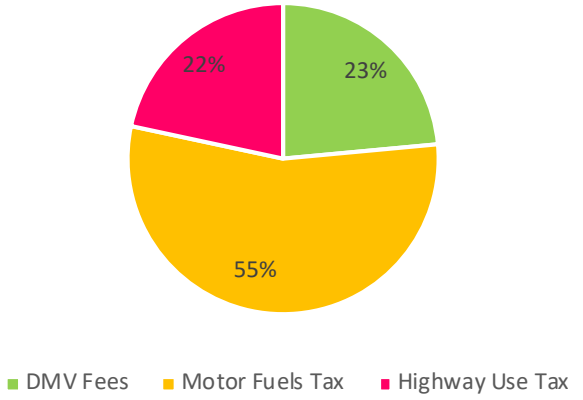
[1] U.S. Department of Transportation (most recent data available as of 2019)

Fuel taxes. Every state in the nation levies taxes of some kind on gasoline and diesel, and these taxes continue to be the main source of state-level funding for roads and bridges nationwide. In North Carolina, fuel taxes account for 55 percent of state revenues for transportation investments (**Figure 2**).[2]

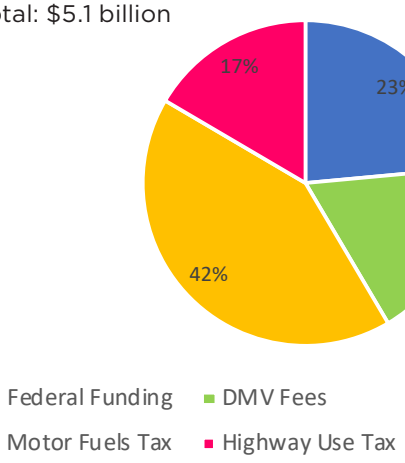
Fuel tax rates vary widely across the states, with combined federal, state, and local taxes on gasoline ranging from about 33 cents per gallon in Alaska up to 79 cents per gallon in California. As of January 2020, North Carolina's total gas tax falls just above the U.S. average (**Figure 3**).[3]

Figure 2: N.C. Department of Transportation Revenue Sources, FY 2020

State Revenue Sources Only
Total: $3.9 billion

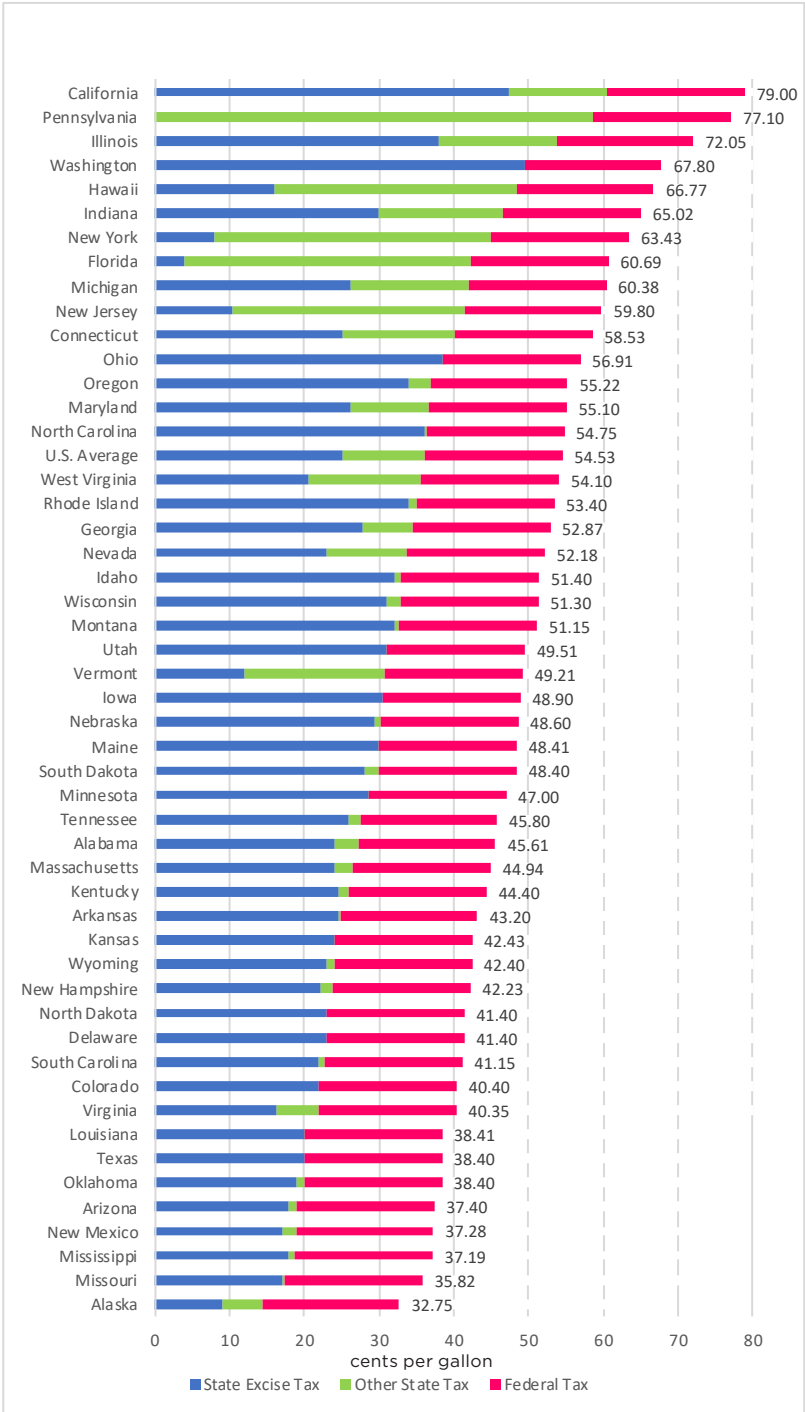


All Revenue Sources
Total: $5.1 billion



Note: Excludes receipt supported funding of $0.1 billion

Figure 3: Gasoline Motor Fuel Taxes as of Jan. 1, 2020



[2] North Carolina Department of Transportation. For more details about North Carolina's fuel tax, see the NC FIRST Commission's Issue Brief: Edition 1: *The NC Motor Fuels Tax* at www.ncdot.gov/about-us/how-we-operate/finance-budget/nc-first/Pages/resources.aspx.
[3] American Petroleum Institute

However, gas taxes are in trouble. Revenues are not keeping up with investment needs due to more fuel efficient vehicles and changing driving patterns. Moreover, the federal motor fuel tax and most state fuel taxes are at fixed, cents-per-gallon rates that lose purchasing power as costs go up. The federal gas tax, for example, has stagnated at 18.4 cents per gallon since 1993 and has lost more than 40 percent of its value.[4]

To keep these revenues viable, 31 states have raised their state gas taxes since 2013, and a growing number have structured their fuel taxes to keep pace with the economy. To date, at least 22 states, including North Carolina, have variable-rate gas taxes that are periodically adjusted based on inflation, fuel prices, or other factors.[5] Further, most states tax at least some alternative vehicle fuels, with a few—including Iowa and Pennsylvania—imposing per-kilowatt-hour taxes on electricity that is used to propel vehicles.[6]

Vehicle fees and taxes. In addition to fuel taxes, most states use vehicle-related fees and taxes to pay for transportation projects. Vehicle-related fees often include registration or title fees on passenger vehicles as well as truck registration fees based on gross vehicle weight and permit fees for oversize or overweight vehicles. In North Carolina, revenues from various DMV fees—including driver license fees and vehicle title, registration, and inspection fees—provided 23 percent of the state's transportation funding last year. Starting this July, North Carolina will be one of just two states, along with Pennsylvania, to index these kinds of fees to inflation.

In nearly half the states, taxes on vehicle sales, leases, or rentals also support transportation programs. About 22 percent of North Carolina's total state revenues for transportation comes from highway use taxes on vehicle title transfers, leases, and rentals.[9] Other related approaches in the states include special fees on rental vehicles (Colorado, Florida, Minnesota, Rhode Island, Wisconsin) and sales taxes on auto parts and accessories (Michigan, Minnesota).

To capture revenues from vehicles that might otherwise sidestep the fuel tax system, many states have enacted special fees or taxes on electric and alternative fuel vehicles. Although electric vehicles account for less than one percent of vehicles on the road today and only two percent of new sales nationwide, their popularity is expected to grow, further weakening fuel tax revenues.

In response, 28 states now have additional registration fees for electric vehicles; the fees range from $50 to $213 per year and several are indexed to inflation or otherwise structured to grow over time. At least 16 of these states also have fees for some or all hybrid vehicles.[10] North Carolina's annual electric vehicle fee is currently $130,[11] compared to the approximately $200 per year an average driver contributes in state gas taxes.

Tolls. As other revenue streams are stretched thin, many consider tolls—perhaps the most direct user fees that are widely used for state-level transportation funding—to be an important option for paying for road construction and maintenance. In just over half the states, a state agency or quasi-state authority charges tolls for the use of specific roads or bridges. The resulting revenues are often mandated by state law to be spent on those toll facilities or related costs. At the same time, a handful of states prohibit some or all uses of tolls or require legislative approval first.[12]

As part of their tolling strategies, several states now use "congestion pricing" models where toll rates are varied to manage traffic demand. These include express lanes and high-occupancy toll lanes that adjust tolls by time of day or real-time traffic levels. Another variation is "cordon pricing," where one pays a toll to drive into or within a congested area, usually a city center. Last year, New York enacted a law to establish, in Manhattan, America's first cordon charge program.[13] In another unusual approach, Rhode Island now has some truck-only tolls to more closely tie the greater impact from heavy vehicles to those users' investment in state bridges.[14]

[4] Congressional Budget Office
[5] National Conference of State Legislatures (NCSL); Transportation Investment Advocacy Center (TIAC), American Road and Transportation Builders Association; Rall (2016), *Transportation Governance and Finance: A 50-State Review of State Legislatures and Departments of Transportation (Second Edition)*, AASHTO.
[6] 2019 Iowa House File 767; Pa. Cons. Stat. Ann. tit. 75, §9002 and §9004; Pennsylvania Department of Revenue. Iowa's tax will become effective on July 1, 2023.
[7] Rall. This resource details every transportation revenue source for any mode that was known to be authorized in law or in use in the states as of 2016, including other, less common vehicle fees and taxes.
[8] For more details about North Carolina's DMV fees, see the NC FIRST Commission's Issue Brief: Edition 6: *N.C. Division of Motor Vehicle Fees* at www.ncdot.gov/about-us/how-we-operate/finance-budget/nc-first/Pages/resources.aspx.
[9] For more details about North Carolina's vehicle taxes, see the NC FIRST Commission's Issue Brief: Edition 3: *The North Carolina Highway Use Tax* at www.ncdot.gov/about-us/how-we-operate/finance-budget/nc-first/Pages/resources.aspx.
[10] NCSL; National Governors Association; TIAC; state statutes
[11] The registration fee for electric vehicles will increase on July 1, 2020, based on a statutorily required quadrennial adjustment (N.C. Gen. Stat. §20-4.02).
[12] Rall
[13] N.Y. Vehicle and Traffic Law §§1701 et seq.; 2019 N.Y. Laws, Chap. 59
[14] R.I. Gen. Laws §§42-13.1-1 et seq.; RhodeWorks

The N.C. Department of Transportation (NCDOT) has three active toll facilities—including express lanes on I-77—and revenues that topped $65 million in FY 2019. Four more projects are under contract or in development.[15] By law, NCDOT may establish up to 11 toll road projects in total.[16]

Mileage-based user fees. As gas taxes have fallen, interest has grown in the potential of a user-pay approach that charges people based on how many miles they drive rather than how much gas they buy, thereby unlinking transportation revenues from fuel consumption. In 2015, Oregon launched a voluntary, per-mile road usage charge program that is now open to any passenger vehicle that gets more than 20 miles per gallon. As of this year, Utah has its own opt-in program for electric and hybrid vehicles.[17] In addition, Kentucky, New Mexico, New York, and Oregon levy mandatory fees on commercial trucks based on both weight and miles traveled—two major factors that affect how much wear-and-tear is imposed on roadways by heavy vehicles.[18]

General funds and other funding sources. An alternative to the "user pay" principle that has dominated the conversation about transportation funding in the U.S. is the idea that transportation infrastructure and services are a "public good," meaning that everyone in society benefits. Because we all rely on goods, services, workers, or customers that move from place to place, the health of our transportation system is therefore an issue that concerns not just individual travelers, but everyone.

Consistent with this view, more than half the states have supplemented traditional transportation funding with general taxation, either through legislative appropriations from the general fund or by dedicating a portion of general sales taxes to transportation purposes.[19] The federal government has done the same, propping up the federal Highway Trust Fund with $140 billion in general fund transfers since 2008 as highway and public transit outlays have continued to outpace dedicated revenue streams. Using general revenues has weakened the link between taxes paid and direct use of the system; it has also made it possible to continue transportation programs despite ongoing challenges with fuel taxes.

States now use more than 80 kinds of revenue sources to pay for transportation. Some of the less common, non-user-fee approaches include cap-and-trade auction proceeds (California), casino taxes (Arkansas, Massachusetts, Mississippi), cigarette taxes (Idaho, Illinois), documentary stamp taxes (Florida), electric power taxes (South Carolina), hotel fees (Georgia), income taxes (Oklahoma), oil and gas production taxes (Texas), and severance taxes (Arkansas, Wyoming).[20]

How are other countries paying for transportation investments?

A review of transportation funding models around the world reveals two key findings. First, U.S. states have already implemented, in some form, every dedicated user-pay revenue source that is known to be in use in other countries. These include fuel taxes (Brazil, China, Israel, New Zealand), vehicle fees and taxes (China, New Zealand), and tolls (many, including some truck-only tolls in Europe and "cordon charges" in Singapore and Sweden). And in the area of mileage-based user fees, U.S. states are leading. Although no jurisdiction in the world levies per-mile fees on all users, some nations have distance-based charges for heavy trucks. Among those, New Zealand alone includes lighter vehicles, and only those powered by diesel or other fuels not taxed at the source. In this regard, then, the more comprehensive programs and pilots that are underway in the U.S. are innovative on a global scale.[21]

[15] North Carolina Turnpike Authority
[16] N.C. Gen. Stat. §136-89.183
[17] Or. Rev. Stat. §§319.883 et seq.; Utah Code Ann. §§72-1-213 et seq.; state websites
[18] Rall; Congressional Budget Office
[19] Rall
[20] Rall; TIAC
[21] Eno Center for Transportation; Global Legal Research Center, The Law Library of Congress; National Surface Transportation Infrastructure Financing Commission; Organisation for Economic Co-operation and Development; national websites

The second striking finding is that far more other countries pay for transportation investments through the general government budget, rather than with dedicated user-pay revenues. The Eno Center for Transportation conducted an international study in 2014 and found that "the U.S. approach to funding transportation infrastructure is actually unique among developed nations. Most other industrialized nations use general funds to invest in their transportation programs and do not dedicate gas taxes to transportation."[22] Among the many nations that tax motor fuels, only a handful set aside those revenues, even in part, for road construction and maintenance; the rest lump gas tax revenues into the general fund.[23]

A general fund model can allow greater flexibility in spending decisions; facilitate more goal-oriented, interagency solutions; and free transportation agencies from over-reliance on a small number of revenue sources. And despite concerns that transportation would then have to compete with other government programs in the budget process, Eno found that other countries have developed mechanisms to ensure stable, predictable transportation funding levels without dedicated trust funds, and have been able to effectively "maintain and expand their transportation infrastructure to a level of service and functionality that is at least comparable to the United States"[24] with our not-so-sustainable dependence on fuel taxes.

Conclusion

As North Carolina seeks an effective, long-term transportation investment strategy, other states and countries can offer intriguing options for consideration. In the U.S., states are at the forefront of seeking smart solutions to the ongoing transportation funding gap, with hundreds of relevant bills in play in 2020 alone.[25] But in light of social, economic, and technological shifts that are eroding traditional fuel tax revenues, state and federal decision makers are confronted with the larger question of whether to "mend," "end," or "blend" the existing user-pay system for funding transportation.[26]

To mend the system would involve raising and redesigning user-pay taxes or fees so that the proceeds can continue to meet investment needs. To end it, states could embrace the international trend and replace user-pay systems with general fund models, structured to balance flexible, creative problem-solving with sustainable funding levels. Or, states could blend user-pay revenues with general fund commitments, thereby solidifying and codifying a hybrid approach that is already commonly in use nationwide. Whichever path is chosen, there is little doubt that states will continue leading the way.

[22] Eno Center for Transportation

[23] This includes several countries that previously had a dedicated fuel tax model and deliberately transitioned away from it. South Africa, for example, used a dedicated fuel tax until 1986, and then moved to general fund appropriations plus tolling. England had dedicated fuel taxes until 1936, Australia until 1959, and Japan until 2008.

[24] Eno Center for Transportation

[25] For transportation bills under consideration in the states, see www.ncsl.org/research/transportation/ncsl-transportation-funding-finance-legis-database.aspx, transportationinvestment.org/research/state-legislation/, fundingfinance.transportation.org/state-transportation-revenue-packages, and fundingfinance.transportation.org/state-transportation-funding-proposal%E2%80%8B-tracker/.

[26] Many thanks to the Eno Center for Transportation, which has outlined a similar three-pronged choice at the federal level, and especially to Eno's Jeff Davis, who offered the "end" or "mend" language in his testimony before the NC FIRST Commission on July 12, 2019.