



Ohio's roadmap to clean transportation

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Motivated in large part by federal incentives in the American Recovery Plan Act (ARPA), Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA), states are making big investments to bring down the financial and ecological costs of transportation. As a top-10 state for energy consumed by the transportation sector (we rank 6th in the nation);¹ total vehicle miles travelled (also 6th) and interstate system size (5th), Ohio has a lot of room to improve.²

The transportation sector is Ohio's second-largest energy consumer, accounting for 24.9% of all energy consumed in Ohio.³ The resulting carbon emissions harm Ohioans' health and compromise our air, soil, and water. For families and businesses alike, the increasing economic cost of fossil fuel dependence is not sustainable. Ohio must work to bring down these costs. Developing a sustainable, equitable clean transportation strategy and efficient public transit systems will do just that.

It is going to require some major improvements: Ohio currently ranks 33rd in the nation for public transit use.⁴ Although 68 public transit systems serve Ohioans across the state,⁵ 25 of the state's 88 counties do not have their own transit system.⁶ Some rely on "mobility management" to fill gaps for certain residents, but five counties in Ohio did not receive any public transit services at all in 2020.⁷

Poor access to sustainable transit options – exacerbated by Ohio's car-centric transportation system – reduces the quality of life in our state. Transportation equity improves access to the things that make communities healthier, safer, and more prosperous – like access to education, employment opportunities, medical care, grocery stores, and other social and recreational activities.

Better public transit would also increase usage, which is understandably poor. Like most states, Ohio saw a drop in public transit use at the start of the pandemic, but the downward trend in transit ridership isn't new: Between 2008 and 2018, Ohio's transit ridership decreased by 27.4%.⁸ In 2022, only one percent of Ohioans regularly used public transit to get to work– less than a third of the national average.⁹

Several factors could be responsible for dwindling public transit usage in Ohio. First, Ohio's public transit system has endured chronic underinvestment from the state. State funding for public transit amounts to \$6 per person each year, compared to the national average of \$60.¹⁰ With so little state funding, regional transit authorities (RTAs) rely heavily on local sources to fund their operations and capital expenses. When that isn't enough, local transit providers are forced to cut routes, reduce frequency, raise fares, and take transit vehicles out of service. As a result, public transit becomes less convenient

¹ ["State Transportation Sector Energy Consumption,"](#) Bureau of Transportation Statistics.

² ["Citizens Guide to Transportation Funding in Ohio,"](#) Ohio Department of Transportation, February 2023.

³ ["Ohio State Profile and Energy Estimates,"](#) U.S. Energy Information Administration, 2021.

⁴ ["The State of Poverty in Ohio,"](#) Ohio Association of Community Action Agencies, 2023.

⁵ [2023 Facts Book,](#) Ohio Department of Transportation.

⁶ ["The State of Poverty in Ohio,"](#) Ohio Association of Community Action Agencies, 2023.

⁷ ["Status of Public Transit in Ohio,"](#) March 2023, with 2022 data, Office of Transit, Ohio Department of Transportation.

⁸ ["Ohio Transportation by the Numbers,"](#) Bureau of Transportation Statistics, January 2020.

⁹ ["State Transportation Statistics: Commute Mode,"](#) Bureau of Transportation Statistics, 2022.

¹⁰ ["The State of Poverty in Ohio,"](#) Ohio Association of Community Action Agencies, 2023.

and reliable, fewer people use it, and the system takes in even less money to sustain itself. It's a negative feedback loop that policy makers could interrupt with adequate funding.

Sprawl may be another factor contributing to low ridership. Ohio is the 10th most densely populated state in the U.S., but the number of people living in Ohio's larger cities declined between 2000 and 2010,¹¹ while the surrounding suburbs have seen substantial population growth. Columbus and the Youngstown area are the only exceptions. However, the former had considerable growth in the suburban areas, and the latter had a larger decline in the center city area. So, even though Ohio has a greater population density than most states, our communities are spreading farther apart, leaving many Ohioans isolated from their neighboring communities and the resources they need to thrive. This trend – also known as urban or suburban sprawl – presents unique challenges for local transportation planners to ensure the overall connectivity of more densely populated areas in Ohio.

As jobs and other family-sustaining resources become less concentrated in core cities, it becomes more difficult to meet communities' transportation needs with affordable and efficient public transit. The result is greater dependence on cars and increasing **transportation burdens**: the percentage of household income spent on vehicles, fuel, insurance, transit fares, or other transportation-related costs. In the U.S., transportation costs are the second-largest household expense, following housing-related costs.¹² A typical transportation burden for a family is around 13% of their total income, whereas low-income households may spend up to 30% of their income just to get where they need to go.

Transportation burdens are disproportionately high for Black, Hispanic,¹³ and American Indian communities, and people living in apartments or mobile homes.¹⁴ That is why any plans to improve transportation access should focus on transportation equity.

Transportation equity in Ohio

According to the U.S. Department of Transportation (DOT),¹⁵ 30% of all Ohioans — more than 3.5 million — live in neighborhoods that are especially likely to be “experiencing burdens that investments in transportation can mitigate or reverse.” For the purposes of this report, we will call them **transportation investment priority (TIP) communities**. To identify these census tracts, DOT uses a complex model¹⁶ that includes some factors that

¹¹ “[Ohio Statewide Transit Needs Study](#),” Ohio Department of Transportation, Figure 12, p. 35, January 2015.

¹² “[Understanding Transportation Energy Burdens](#),” by Shruti Vaidyanathan, Peter Huether, and Ben Jennings, American Council for an Energy-Efficient Economy, May 2021.

¹³ Hispanic is the term used by the U.S. Census Bureau to describe people of Spanish-speaking origin or ancestry, but not their race. The grouping is not a perfect match for populations described by terms such as “Latine” or “Latinx,” though in many cases it can be used as a proxy. For more information see [Pew Research Center's article, “Who is Hispanic?”](#)

¹⁴ “[Equitable Transportation Community \(ETC\) Explorer](#),” U.S. Department of Transportation.

¹⁵ DOT's [Equitable Transportation Community \(ETC\) Explorer](#) includes an interactive map that identifies census tracts with greater transportation burdens due to underinvestment in transportation assets.

¹⁶ DOT's transportation equity model includes some 50 factors related to transportation safety and access, climate risk, health and social well-being, and more. Census tracts in or above the 65th percentile of this measure are indicated by

may not appear to be transportation-related (such as the level of risk from climate disasters). As a result, the label “TIP” is very broad; one TIP community may look entirely different from another.

Still, it is a useful way of looking at transportation equity. Examining different community characteristics across the state will help policymakers address unique, place-based transportation needs. Meaningful consideration of the varying levels of disconnect across – and within – Ohio’s communities can lead to equitable transportation policy and funding priorities to improve transportation for all Ohioans.

TIP communities up close

Of Ohioans living in TIP communities, 61% live in urban census tracts and 39% in rural tracts.¹⁷ Of all Ohioans who live in urban communities, 26% live in TIP tracts. In rural communities, it’s 41%.

Figure 1

Many Ohioans live in communities that could benefit from public transportation investments

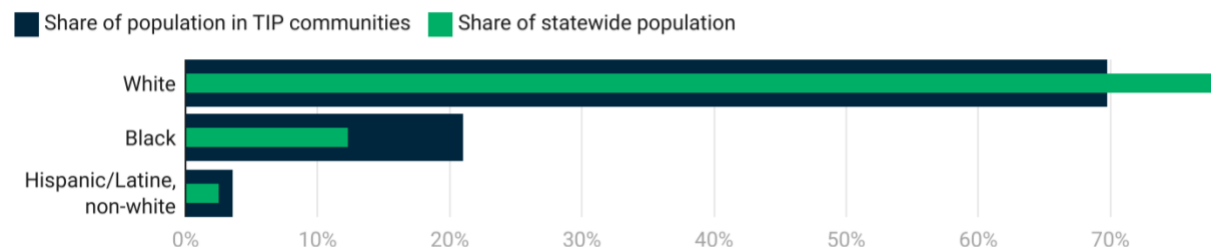


Source: US Department of Transportation ETC Explorer.

Due to a long history of red-lining and other forms of economic exclusion, Black Ohioans are significantly overrepresented in TIP neighborhoods. Figure 2 compares the populations of TIP tracts to the state population overall. Even though 12.3% of Ohio’s population is Black, Black Ohioans make up 21% of the population in TIP tracts and only 8.6% of the population in non-TIP tracts. Conversely, white Ohioans account for 78.8% of the state population, while representing 69.8% of TIP communities and 82.7% of non-TIP tracts.¹⁸

Figure 2

Race in TIP communities doesn't align with statewide shares



the ETC Explorer as “experiencing disadvantage.” For details see [the “Methodology” section of DOT’s “ETC Explorer” website](#).

¹⁷ Rural and urban census tracts are determined using a binary variable offered by the ETC Explorer. Definitions for urban and rural may vary depending on an array of considerations, so the binary indicator may leave out important nuances across geographic contexts (urban, suburban, and rural).

¹⁸ American Community Survey 5-Year Data, U.S. Census Bureau, 2018-2022.

Source: US Department of Transportation ETC Explorer; 5-year ACS Data (2018-2022).

Disparities in transportation burdens correspond to other economic disparities as well. For example, the median household income is significantly lower in TIP tracts than elsewhere. Households in TIP tracts are more likely to be without a vehicle, and more likely to be without internet access. The tables below illustrate these disparities as they occur in urban and rural areas.

Figure 3
TIP communities have lower household incomes, less access to private vehicles and internet

		Average Median Household Income	Percentage of households without a vehicle	Percentage of households without internet access
Rural	Non-TIP	\$72,835	5.1%	11.5%
	TIP	\$56,298	7.9%	14.3%
Urban	Non-TIP	\$86,321	5.3%	6.7%
	TIP	\$44,040	15.2%	14.6%

Source: US Department of Transportation ETC Explorer; 5-year ACS Data (2018-2022).

Ohioans living in TIP tracts spend a larger share of their income on transportation costs than those in non-TIP tracts. In TIP tracts, the average percentage of median income spent on transportation is 29.6%, almost 12 percentage points more than the average for non-TIP tracts (18%). The disparity varies by geographic context, i.e., rural versus urban.

Figure 4
Transportation burdens are higher in TIP tracts, urban & rural

Median transportation burdens in TIP & non-TIP communities, rural vs. urban

Community	Rural	Urban
TIP	18.5%	25.4%
Non-TIP	14.7%	13.1%

Source: US Department of Transportation ETC Explorer; 5-year ACS Data (2018-2022).

Vehicle ownership has important implications for Ohioans' public transit needs. Data from the American Community Survey show that 7.4% of households statewide do not have access to a personal vehicle.¹⁹ Not surprisingly, vehicle ownership is more concentrated in non-TIP communities, where just 5.2% of households are without a vehicle. In TIP tracts, about 1 in every 8 households (12.4%) does not have reliable access to a personal vehicle.

Transit access in Ohio's urban areas

¹⁹ American Community Survey 5-Year Data, U.S. Census Bureau, 2018-2022.

In many TIP tracts, improving public transit access could directly reduce barriers to economic security while enhancing health and environmental outcomes. One way to measure transit access is with **transit frequency**: the number of transit options available within a tract during peak travel times, per square mile.²⁰ By that measure, TIP and non-TIP tracts vary significantly — even within a small radius in a single metro area. And access does not address the problem of affordability; in fact, where transit is relatively frequent, it is also often cost-prohibitive.

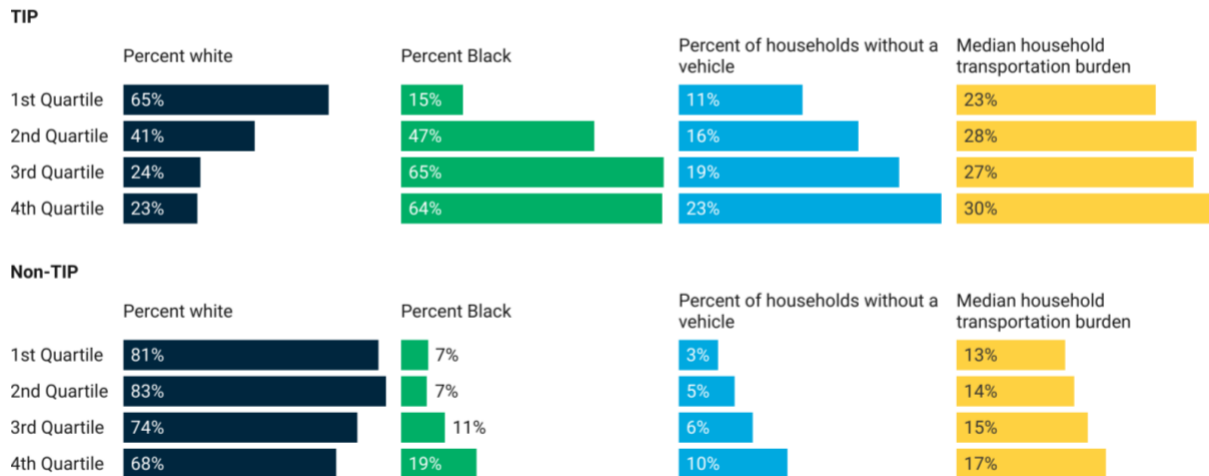
At first glance, data from the ETC show a negative correlation between income levels and transit access: County subdivisions with lower median incomes appear to have access to more frequent transit services. Since urban and rural census tracts are indicated by a binary variable, there's no clear distinction between urban and suburban tracts. Tracts in the lowest quartile of transit frequency per square mile likely include more sparsely populated suburban communities, which tend to be more affluent, offer less robust transit systems and have a larger share of white residents. Additionally, public transit provision is generally more accessible in urban communities regardless of socioeconomic context, which can additionally influence vehicle ownership rates since urban areas are more concentrated and less car reliant.

Further disparities emerge among county subdivisions in the lowest quartile of transit frequency when data are disaggregated back to the census tract level. Table 3 displays how household characteristics vary between TIP and non-TIP tracts by quartile of transit frequency in which the respective county subdivisions fall. Black community members are consistently overrepresented in TIP tracts within each quartile, while the reverse is true for the white populations. Further, TIP tracts located in county subdivisions with the greatest frequency in transit services have the highest average transportation costs as a share of median household income. This suggests a deep need for more affordable transit options to serve those without access to a personal vehicle and with the highest transportation burdens.

²⁰ The ETC tool calculates transit frequency using General Transit Feed Specification data and the EPA's Smart Location Database (2021). To measure transit access, transit frequency data from the ETC tool were aggregated to the county subdivision level. After finding the quartiles for county subdivision-level transit frequency, the data were then disaggregated back to the census tract level to find tract-level differences within each quartile of county-subdivision-level transit frequency. Since [county subdivisions tend to match the boundaries of municipalities or townships](#), this approach can determine which localities offer more frequent transit services using a broader geographic scope.

Figure 5 Transportation burdens rise as transit frequency increases, while vehicle ownership rates decline

Differences between TIP and non-TIP communities, by quartile of transit frequency in tracts' respective county subdivision



Source: US Department of Transportation ETC Explorer; 5-year ACS Data (2018-2022).

Transportation needs in Ohio's rural and Appalachian regions

Ohio's rural and Appalachian communities have unique transportation needs, since households and essential resources are more sparsely distributed than in their urban counterparts. Residents in rural areas are more likely to advocate for new services in areas without any transit, while urban residents are more interested in expanding existing services or adopting mobile apps and other technology.²¹

Compared to urban areas, Ohio's average rural community has 84% fewer jobs available within a 45-minute commute. People living in rural communities also travel farther on average to get to a medical facility. As a result, rural and Appalachian community members without adequate transportation access are often disconnected from resources needed to meet their social, health, and economic needs.

Ohio's Rural Transit Program coordinates public transportation services for areas with populations of less than 50,000 residents. The program includes 38 transit systems serving 48 counties.²² Planning efficient rural transit programs requires a high level of coordination across agencies and jurisdictional boundaries. Since households and common destinations are less concentrated in rural areas, rural transit often involves demand-response, or dial-a-ride, services instead of fixed routes. However, dial-a-ride services often have long wait times and broad pick-up time windows due to complicated scheduling processes, and low demand in population-sparse areas can harm the financial viability of rural transit services overall.

²¹ "Ohio Statewide Transit Needs Study," Ohio Department of Transportation, January 2015.

²² "Rural Module Reporting Manual," U.S. Department of Transportation, Federal Transit Administration, Office of Budget and Policy, September 2023.

Compared to their urban and suburban counterparts, Ohio's rural communities tend to have older populations and greater shares of individuals with disabilities — both groups that are especially likely to be unable to drive, regardless of their access to a vehicle.²³

Due to decades of state budget policy and spending revenue on tax breaks for the wealthiest Ohioans rather than on bringing better services and supports to rural families, rural Ohio communities tend to have lower median household incomes and education levels, less internet access and health care coverage, and worse health outcomes than urban and suburban communities.²⁴ These disparities are even more stark in Ohio's Appalachian counties. The policy choices that have created these conditions are varied and complexly interrelated; no single policy solution will correct them. But reliable, affordable public transit will help meet current transportation needs and adapt to changes in the future.

For too long, policymakers have neglected the transportation needs of Ohioans, especially in urban, rural, and Appalachian communities. Too often this means a higher transportation burden for people already facing myriad barriers to economic stability and better health.

Implications of transportation inequity

Ohio's transit services vary across regions, but overall, public transit is unevenly distributed and inefficient, even in densely populated areas. One way to measure the overall quality of local public transit is by considering whether services improve access to employment opportunities or health care services. Ohio's public transit systems do neither very well, and serve the transportation needs of Black and Latine²⁵ communities, women, and people with low incomes especially poorly.²⁶

In Ohio's largest cities, there are only enough jobs easily accessible by public transit to employ 27% of the workforce.²⁷ This figure does not account for job qualifications. The largest share of Ohio's workforce — workers whose formal education ended with high school — have a harder time accessing jobs than those with more credentials.²⁸ The jobs they qualify for tend to be more spread out, often in suburbs with little transit connectivity.²⁹ Overall, jobs are more accessible by public transportation for people who live closer to core city areas — where housing costs are typically unaffordable for individuals or families with lower incomes — and job access via transit is lower for communities with higher unemployment levels and lower median household incomes.

²³ ["Summary Assessment of Older Ohioans,"](#) by Reem Aly, Hailey Akah, and Zach Reat, Ohio Department of Aging, June 2020.

²⁴ ["Ohio Rural Health Improvement Plan,"](#) Ohio Rural Health Association, June 2021.

²⁵ "Latine" is a gender-neutral alternative to "Latino" and "Latina." It affirms that gender is not binary while conforming to conventions of Spanish grammar. When we write about individuals, we defer to the language they prefer. Policy Matters consults with stakeholders on preferred terminology and will continue to do so.

²⁶ ["A Long Ride to Work: Job Access and Public Transportation in Northeast Ohio,"](#) by Brett Barkley and Alexandre Gomes-Pereira, Federal Reserve Bank of Cleveland, November 2015.

²⁷ ["Assessing Job Accessibility and Equity by Public Transport in the Four Largest Cities of Ohio,"](#) by Nusrat Jahan Tabassum and Md Saiful Alam, Research Square (preprint), December 2023.

²⁸ ["A Long Ride to Work: Job Access and Public Transportation in Northeast Ohio,"](#) by Brett Barkley and Alexandre Gomes-Pereira, Federal Reserve Bank of Cleveland, November 2015.

²⁹ Same as above.

Another critical function of public transit is connecting people to health care. Ohioans in Columbus, Cincinnati, Toledo, Akron, and Dayton experience racial and economic disparities in hospital access via public transit.³⁰ Most cities feature low health care access via public transit for households with low incomes, undocumented Ohioans, communities with high unemployment, youth and seniors, and women. And although Clevelanders in these population groups have higher access compared to the rest of the study area – partially because of Cleveland’s robust health care system – Cleveland has the largest accessibility gap between communities with higher socioeconomic burdens and the whole population.

Access to efficient, affordable public transit is essential for communities already facing challenges to economic security and social mobility. Disparities in job access via transit have alarming implications for workers with lower wages, many in roles that don’t have the option of working remotely.³¹ Inadequate health care access also contributes to worse health outcomes, which exacerbates financial stressors and increases transportation burdens for Ohioans in TIP communities.

Transportation funding in Ohio

Ohio’s regional transit authorities receive state funding through the budget, including money from the General Revenue Fund (GRF) (comprising state tax dollars), the Federal Highway Administration, and the Federal Transit Administration. At the local level, RTAs finance their operations through a variety of other sources, including sales tax, property tax, funding from local governments, public-private partnerships, economic development revenues, and fare revenues.

Around 70% of Ohio’s public transit funding is from local taxes, including sales, property, and income tax. With additional contributions from local governments, local funding mechanisms account for more than 75% of transit funding in Ohio.³² Heavy reliance on local funding for public transit can reduce transportation equity. If a community faces rising unemployment and lower income levels, the resulting decline in local tax revenue can lead to a drop in transit funding, followed by fewer transit services and lower ridership overall.³³ If transit authorities are forced to make service cuts as a result, people in these communities may face greater barriers to employment, beginning a vicious cycle that state funding can interrupt.

State funding for public transit

In the biennial budget for fiscal years 2024-25, Ohio appropriated \$37 million per year for public transportation from the GRF.³⁴ Ohio allocated additional federal funding for public transit – \$57.4 million in 2024, and \$63 million in 2025 – using transfers from the Federal

³⁰ [“Evaluation of accessibility and equity to hospitals by public transport: evidence from six largest cities of Ohio,”](#) by M.S. Alam, N.J. Tabassum, and A.I. Tokey, BMC Health Services Research, June 2023.

³¹ [“Ensuring the intertwined post-pandemic recoveries of downtowns and transit systems,”](#) by DW Rowlands and Tracy Hadden Loh, Brookings, August 2023.

³² [“Citizens Guide to Transportation Funding in Ohio,”](#) p. 17, Ohio Department of Transportation, February 2023.

³³ [“Ohio Statewide Transit Needs Study,”](#) Ohio Department of Transportation, January 2015.

³⁴ [HB 23 Transportation Budget](#), 135th General Assembly, Ohio Legislative Service Commission.

Transit Administration.³⁵ The 2024-25 transportation budget also includes \$1.6 million per year from “other” sources, referring to local matching funds for the federal Specialized Transportation Program,³⁶ which finances vehicle purchases for transportation beyond fixed-route services (i.e., senior and paratransit services).³⁷

This is a significant improvement from 2018 and 2019: In each of those years, state funding for public transit was just \$7.36 million.³⁸ This progress suggests that some in state government recognize the need for a better-funded public transit system. Still, that increase did too little to bring Ohio in line with norms among other states.

On average, about 13.9% of each state’s public transit funding comes from state budgets. Ohio does not come close: In 2022, the state provided just 4% of funding for public transit.³⁹ ODOT recommends that by 2025, at least 10% of public transit funding be provided by state sources.⁴⁰

Figure 6 displays the state share of public transit funding from 2018 through 2022, along with the national average for each respective year and Ohio’s ranking among the 50 states. Ohio’s ranking for state share of transit funding has consistently improved since 2018, when we ranked among the worst states in the nation. We ranked a little higher in terms of per-capita funding for public transit. Ohio has made improvements in both areas but remains in the bottom half of states — well below the national average — for both metrics. Still, the outlook isn’t entirely grim: These upward trends indicate a critical opportunity to build on our momentum and advance transportation equity for all Ohioans.

³⁵ [Department of Transportation Greenbook](#), LBO Analysis of Enacted Transportation Budget, August 2023.

³⁶ The Federal Transit Administration provides 80% of funding for the program, but since local agencies must match the remaining 20%, this budget line item is not included in the calculations of state funding for public transit.

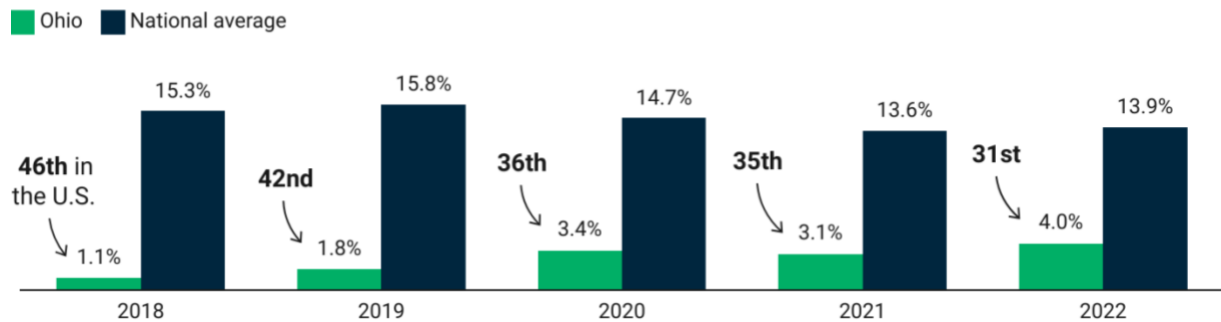
³⁷ [Department of Transportation Redbook](#), Legislative Budget Office (LBO) Analysis of Executive Transportation Budget Proposal, February 2023.

³⁸ Here and in all budget conversations, it is worth noting that this kind of “flat funding” (funding that stays at the same level from year to year) isn’t really flat, because it loses some of its value to inflation. In fact, flat funding amounts to a budget cut equivalent to the inflation rate between the beginning of the budget cycle and the end. For example, from July 2018 through June 2019. (Ohio’s two-year budget cycle), the buying power of \$7.36M fell to \$7.24M. (See the Bureau of Labor Statistics’ [CPI Inflation Calculator](#).)

³⁹ State funding shares are from the [National Transit Database \(NTD\) 2022 TS1.1 Total Funding Time Series dataset](#), the most recent data available collected from transit agency reports to the Federal Transit Administration. State funding sources include general fund, transportation fund, and reduced reporter funds.

⁴⁰ [“Ohio Statewide Transit Needs Study.”](#) Ohio Department of Transportation, Figure 12, page 35, January 2015.

Figure 6
Ohio ranks near the bottom for state share of transit funding, 2018-2022



Source: National Transit Database TS1.1 – Total Funding Time Series.

Trends in Ohio's transportation priorities

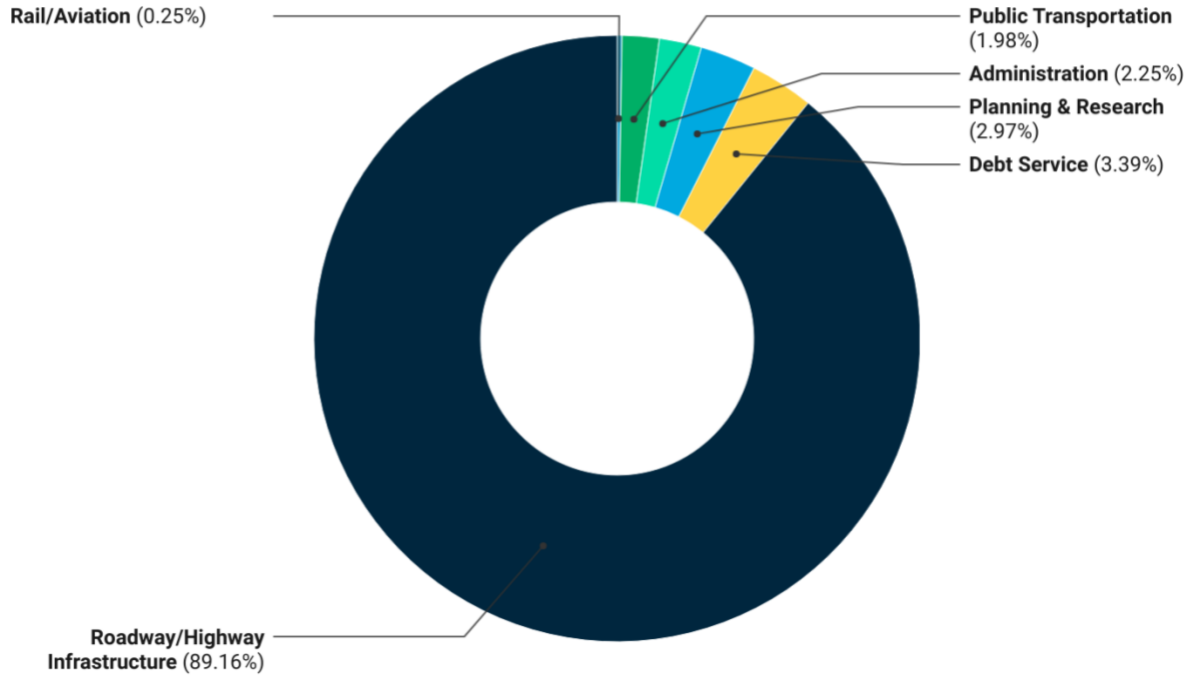
Historically, Ohio's legislators have not prioritized public transit spending.⁴¹ Between FY12 and FY20, public transit's share of the total transportation budget ranged from less than 1% to 1.8%. Transit funding only surpassed 2% of the transportation budget in FY21 (2.6%) and FY22 (2.4%), falling below 2% again in FY2023-25. The chart below shows how Ohio's 2025 transportation budget was allocated. Public transit itself received just under 2% of the total transportation budget, roughly \$37 million from the GRF, and \$64.6 million from federal sources and local matching funds.

⁴¹ "How Ohio funds public transit," by Wendy Patton, Policy Matters Ohio, May 2017.

Figure 7

Less than 2% of Ohio's Transportation Budget goes to public transportation

Distribution of HB 23 transportation appropriations* in FY 2025



*Includes state public transit funding from the GRF, appropriated by the state operating budget (HB 33). A comprehensive list of each budget line item, listed by category, is available in the appendix.

Source: HB 23 Transportation Budget Appropriation Spreadsheet.

The current transportation budget increased appropriations for the Department of Development's Roadwork Development Program, which finances road improvements or new road construction near economic development projects to accommodate anticipated increases in nearby traffic. Originally allocated \$15.2 million each year through the transportation budget, supplemental appropriations from the operating budget doubled funding for the Roadwork Development Program in FY24 and raised program funding to \$25.2 million in FY25.⁴²

In 2024, GRF funding for public transit systems across the state is only \$5.6 million more than the amount appropriated for the Roadwork Development Program – which facilitates access to specific economic development project sites via private transportation. Although connecting workers to the jobs created by large-scale economic development projects is a reasonable use of state dollars, it's important to ensure these investments generate sustainable, equitable outcomes for the communities in which the projects take place. If a project warrants large state investments to improve its accessibility for surrounding communities, then legislators

⁴² [Department of Development Greenbook](#), LBO Analysis of Enacted Budget, p. 24, August 2023.

must also consider public transit needs for those who lack reliable personal transportation.

For example, the transportation budget earmarks \$20 million over two years for the Intel project in New Albany under the Roadwork Development Program.⁴³ In July of 2023, Governor DeWine and ODOT announced another \$90 million investment to improve roadways and intersections around Intel's construction sites in Delaware, Franklin, and Licking counties⁴⁴ — almost \$16 million more than GRF funding for public transit in the 2024-25 transportation budget. Moreover, 17.5% of the population Delaware, Franklin, and Licking County residents live in a TIP census tract, and 6.4% of households don't own a vehicle. Among the 119,528 households in TIP tracts, 13.4% don't own a vehicle, compared to 4.9% in non-TIP tracts.

Consequently, public spending on car infrastructure around economic development sites favors only a subset of Ohioans in specific geographic regions. Though road improvements near these projects may be necessary, complementing these investments with funding for public transit expansions would have broader benefits for communities, workers, and the environment.

Public transit, electric vehicles, and the clean energy transition

Ohio's economy and Ohioans' well-being depend on how well we manage the transition to clean energy. That transition requires accessible, sustainable transportation systems that involve a mix of clean transportation modes, including integrated public transit systems, safe bike lanes, and walkable communities. Electric vehicle (EV) infrastructure is also important, though policymakers may be allowing it to overshadow more effective, equitable solutions.

Substantial federal investments provisioned by the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) are accelerating Ohio's expansion of EV infrastructure. The BIL and IRA contain several federal funding mechanisms to support the transition in the U.S., including grants and loan programs for EV manufacturing and charging infrastructure, along with tax credits to incentivize EV purchases.

Ohio was the first state to activate an EV charger station with funding from the BIL's National EV Infrastructure Program (NEVI). Through the NEVI Program, Ohio will receive over \$140 million to build a network of EV chargers across the state's highway system, expanding access to public charging stations. Construction is in process for 23 charging locations selected for the first round of the NEVI Program's deployment, and 22 locations have been selected for round 2, with an anticipated 15 sites to be selected for round 2B in the Fall of 2024.⁴⁵

ODOT's rapid deployment of NEVI funding represents a state-level commitment to reducing transportation sector emissions. However, only four of the 23 Round I NEVI

⁴³ [Department of Development Greenbook](#), LBO Analysis of Enacted Budget, p. 24, August 2023.

⁴⁴ ["Gov. DeWine Announces New Targeted Investments for Silicon Heartland Transportation Improvements."](#) July 2023.

⁴⁵ [National Electric Vehicle Infrastructure Formula Program \(NEVI\)](#), DriveOhio, Ohio Department of Transportation.

chargers are sited in TIP communities, and Ohio's EV strategy will not produce equitable outcomes for 7.4% of Ohio households without access to a vehicle. There are also consistent racial and economic disparities in EV adoption, further underscoring the importance of developing policy priorities rooted in equitable transportation solutions.

EV Affordability: Equity Issues

Although new EVs are more expensive than new internal-combustion engine (ICE) vehicles, the gap may be shrinking. While the average cost of any new vehicle (EV or ICE) climbed slightly from 2022 to September 2023, the average EV price dropped from over \$65,000 in 2022 to \$50,683 during that time. Average EV price did increase at the beginning of 2024,⁴⁶ but the overall trend is downward, as automakers direct more attention to developing affordable EV models.

Car-buyers may soon be more likely to look past EVs' higher sticker price, as long-term savings become clearer. Switching to an EV can generate substantial savings on other ownership costs, like fuel and maintenance, ultimately reducing a family's transportation burden.⁴⁷ Using current data about comparable models' single-tank / single-charge range and statewide average gasoline and electricity prices, Energy Innovation Policy & Technology's EV Fill Up Savings tool estimates fuel savings for a variety of popular models.

Average estimated savings for Ohio:

\$25.50 for a sedan

\$19.04 for an SUV

\$30.55 for a pickup truck.

[Use the Fill Up Savings tool](#) to see average savings in other states, or to get more information on specific models.

Of course, the up-front cost of an EV purchase is typically too high a barrier for the households that would benefit most from the savings. And since the greatest savings come from charging an EV at home,⁴⁸ during off-peak hours, even Ohioans who can afford the down payment won't be able to maximize their benefits unless they can also afford to own a home with off-street parking where they can install an EV charger.⁴⁹

Considering that EV buyers are disproportionately college-educated white men in households with at least two vehicles and an average annual income between \$125,000 and \$150,000,⁵⁰ the immediate benefits of public investments in EV infrastructure are unlikely to make access more equitable across race, gender, and economic lines.

⁴⁶ ["The Average Price of an Electric Car Keeps Dropping \(2024 Update\),"](#) CarEdge, March 2024.⁴⁷ ["How Much Does It Cost to Fill Up an Electric Vehicle Vs. a Gas-Powered Car?"](#) Energy Innovation Policy & Technology, August 2023.

⁴⁷ ["How Much Does It Cost to Fill Up an Electric Vehicle Vs. a Gas-Powered Car?"](#) Energy Innovation Policy & Technology, August 2023.

⁴⁸ Like all Ohio rate-payers, EV owners with residential chargers pay more per kilowatt hour of electricity than residents of 31 other states—due in part to legislation passed because of bribes paid to legislators and other policymakers by the electric utility company FirstEnergy. See [this coverage by the Ohio Capital Journal](#).

⁴⁹ ["The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure,"](#) National Renewable Energy Laboratory, 2024.

⁵⁰ ["EV Consumer Behavior,"](#) Fuels Institute, Electric Vehicle Council, June 2021.

However, investment at the scale of BIL and IRA does make a broader, more equitable transition possible in the future.

Federal opportunities to accelerate equitable EV access in Ohio

In addition to direct federal infrastructure spending, the IRA offers an array of federal tax credits to “save families money on their energy bills and accelerate the deployment of clean energy, clean vehicles, clean buildings, and clean manufacturing.”⁵¹ To incentivize EV purchases and ease affordability issues, the IRA provides a federal tax credit to some buyers of some EVs, depending on factors outlined by the White House.

Typically, tax credits provide a refund on taxes already paid. But as of 2024, EV dealers can register with the IRS to apply the credits at the time of sale, reducing the upfront cost to buyers.

These tax credits are nonrefundable: Their value can’t exceed a household’s total federal tax liability. So even if someone with a lower income can finance an EV, they may not be able to maximize the tax credits. For example, if in 2024 a single filer made \$37,729 — the average per capita income in Ohio⁵² — then they would owe \$3,207.48 in federal taxes. The credit would reduce that to zero, but the remaining value — another \$4,292.52, more than half of the maximum \$7,500 credit — would be lost.

Leveraging federal tax credits for public benefits: Direct pay

IRA-provisioned tax credits incentivize private investments in clean energy projects, while offering another unprecedented opportunity known as direct pay. Normally, tax credits are only available to private entities with federal tax liabilities. For the first time ever, state and local governments (and other tax-exempt entities like nonprofits) can reap the benefits of federal tax credits in the form of direct pay.

The IRA’s direct pay options reduce the overall costs of investing in clean energy assets and zero-emission technologies, ultimately enabling local governments to conserve public dollars by investing in renewable energy assets like solar, in turn reducing emissions and creating local jobs in clean energy sectors. Commercial clean vehicle credits are among the crucial direct pay options available to tax-exempt entities interested in electrifying their public transit fleet.

Expanding EV access: Local examples

Localities across the state should mobilize to unlock the benefits of federal financing mechanisms for clean transportation. Previous local efforts can offer a framework for developing a community-centered clean transportation plan. The City of Columbus, for example, has partnered with Smart Columbus to implement a vehicle electrification program for both public and private sector fleets. The same partnership also launched a pilot program to offer e-bike rebates for qualified residents – a great strategy to promote active transit, which could be mirrored in more rural areas to connect people to regional transit hubs. A partnership between the City of Oberlin and Oberlin College administers

⁵¹ [“Clean Energy Tax Provisions in the Inflation Reduction Act,”](#) The White House.

⁵² Comparable to median annual earnings for the 175,420 Ohioans who work as laborers and freight, stock, or material movers (\$37,600) and nursing assistants (\$38,030).

an electric carshare program, with four EVs available to any resident or Oberlin College student. Despite the relatively small fleet, the program has seen some success, although at \$8 per hour, residents and students have cited financial barriers to their participation in the program.⁵³

[Learn more about direct pay opportunities](#) with the tools and resources provided by the Congressional Progressive Caucus Center, including fact sheets, implementation guides, and frequently asked questions.

Clean transportation initiatives beyond EVs

It makes sense that electrifying personal vehicles is a high priority for those interested in improving air quality and related health outcomes: Private transportation modes create the majority of emissions in the transportation sector which, in the U.S., produces more greenhouse gas emissions than any other.⁵⁴ However, too strong an emphasis on EV infrastructure could reduce the benefits of the clean energy transition in Ohio.

First, urban communities' car-centrism harms economic activity because a large share of land use in core downtown areas is limited to road and parking infrastructure. On average, parking accounts for 20% of land area in downtowns across the U.S.⁵⁵ Parking takes up more space in Ohio's downtown areas compared to the national average, with parking using 25% to 29% of the land in downtown centers in Cleveland, Columbus, Dayton, and Toledo.⁵⁶ Further, public transit systems are less reliable and efficient when they are "choked by parking and traffic"⁵⁷ – and in turn, ridership dwindles. Reducing car reliance in downtown areas opens expansive opportunities for land use in urban communities – like improving walkability, expanding green space, and facilitating commercial growth. Simply, urban communities are more likely to thrive when they are less constrained by roads and parking.

Second, the shift to EVs may not be as effective for reducing transportation sector emissions in Ohio, compared to other states. A recent analysis found that adopting an EV would lower greenhouse gas emissions and transportation energy burden – or the amount of household income spent on fueling a vehicle – for more than 90% of vehicle-owning households in the U.S. However, emissions reductions and financial savings are lower in the Midwest due to fewer clean energy sources powering our electricity grid, higher electricity prices relative to other states, and lower fuel efficiency levels due to drive-cycle and temperature-related factors.

Ohio's generation mix is characterized by a heavy reliance on fossil fuels, with renewable sources representing 4% of electricity generated in Ohio.⁵⁸ While EVs do not produce tailpipe emissions, the generation source for electricity used to charge them influences

⁵³ ["Two Electric Cars Added to City-College Fleet for Resident, Student Rental,"](#) by Alexa Stevens and Cal Ransom, February 2023.

⁵⁴ ["Sources of Greenhouse Gas Emissions,"](#) U.S. Environmental Protection Agency.

⁵⁵ ["Ensuring the intertwined post-pandemic recoveries of downtowns and transit systems,"](#) by DW Rowlands and Tracy Hadden Loh, Brookings, August 2023.

⁵⁶ ["Parking Lot Map,"](#) Parking Reform Network.

⁵⁷ ["Ensuring the intertwined post-pandemic recoveries of downtowns and transit systems,"](#) by DW Rowlands and Tracy Hadden Loh, Brookings, August 2023.

⁵⁸ ["Ohio State Energy Profile,"](#) Analysis: Renewable energy, U.S. Energy Information Administration, 2022.

net emissions reductions, due to “upstream” emissions.⁵⁹ Using electricity generated by carbon-intensive sources like coal reduces EVs’ overall effectiveness for decarbonization efforts. In Ohio – where natural gas represents the majority of electricity generation (54%), followed by coal (28%) – EV travel generally emits less than travel via conventional vehicles, but net emissions reductions lag other regions.

Further, EVs are less energy efficient than public transportation and modes of active transport, like walking or biking. Electric bikes require 91% less energy than EVs traveling the same distance, while walking and bicycling use 93% and 96% less energy, respectively.⁶⁰ Moreover, motorized public transit options like passenger rail and buses are both more energy efficient and less emissive than personal vehicle transportation⁶¹ – and the environmental benefits of increasing public transit use will only grow over time, as efforts to electrify Ohio’s transit fleet and decarbonize the electricity grid accelerate.

Connecting Ohio’s communities with increased state transit funding

Consistent, equitable public transit funding is critical for meeting the transportation needs of those who are more likely to rely on public transit as their primary mode of transportation, including adults aged 65 or older, individuals with disabilities or lower incomes, and households without access to a personal vehicle.⁶² By shifting state resources from road and highway infrastructure to public transit, Ohio can reduce overall emissions, improve access to grocery stores, healthcare facilities, education and employment opportunities, and other critical goods and services.

With better state support for public transit services, transit agencies will be less reliant on funding raised locally. If public transit provision is less contingent on local economic conditions, local administrators will be less likely to face difficult decisions to cut services for communities facing financial hardship due to deficient local revenues. For example, when Lorain County Transit faced a severe budget shortfall in 2009 due to falling sales tax revenue, the agency was forced to eliminate transit services for the entire county starting in 2010.⁶³ Nearly 15 years later, Lorain County residents still lack public transit services despite ongoing transit redevelopment efforts.

Investments in public transportation infrastructure has direct economic benefits to sustain financial stability for transit agencies and for residents. For individuals and families, a well-funded transit system can reduce travel times and costs of owning and operating a personal vehicle. Current transit riders would see lower travel times thanks to greater efficiency and frequency. Moreover, larger investments in public transportation could increase ridership levels, leading to greater revenue for transit agencies. Coupled with higher revenues, better state support would enable RTAs to

⁵⁹ [“Smog Vehicle Emissions,”](#) U.S. Environmental Protection Agency.

⁶⁰ [“Improving the Quality of Walking and Cycling in Cities: Summary and Conclusions,”](#) International Transport Forum, 2024.

⁶¹ [“Global Mobility Report 2022: Tracking Sector Performance,”](#) Sustainable Mobility for All, 2023.

⁶² [“Ohio Statewide Transit Needs Study,”](#) Ohio Department of Transportation, January 2015.

⁶³ [“Lorain County Transit bus routes will be eliminated after Dec. 31,”](#) by Karen Farkas, Cleveland.com, December 2009.

reduce fare rates or offer discounted fares for populations with low incomes. By enhancing transit systems' reliability and efficiency, public transportation options would appeal to a broader group of current and potential transit riders – which can produce economic benefits for those who opt for traveling via personal vehicles. Increased transit ridership will improve travel times, costs, and reliability for drivers, thanks to lower congestion on roads and highways – this leads to improved road safety (corresponding with lower insurance costs) and lower fuel costs, which tend to be higher when you spend more of your travel time sitting in traffic.⁶⁴

A well-funded, well-connected public transportation system can also stimulate economic growth, productivity, and economic security by connecting community members to resources necessary for meeting their basic and social needs. For example, people who don't have access to a personal vehicle will be able to access job opportunities more consistently and affordably, bolstering financial security for individuals and families and strengthening the labor market overall. In addition to improving employment access – and arguably more importantly – public transportation can connect Ohioans to healthy food options, education opportunities, healthcare, and other critical goods and services.

A roadmap to clean transportation in Ohio

Making necessary improvements in public transit infrastructure across the state will not be cheap. However, the overall cost of maintaining a robust public transportation system in urban communities is *lower* than the cost of maintaining infrastructure for car-dependent communities – without even considering social and environmental benefits.⁶⁵ Increased state support can directly raise ridership numbers by improving transit systems' efficiency and frequency, generating greater local funding in turn. Because public transit preferences hinge on reliability, frequency, and convenience of transit options,⁶⁶ greater state investment in Ohio's public transit systems can undoubtedly improve ridership levels. In the long term, well-funded transit systems can generate economic benefits – for individuals, families, and communities more broadly – and improve the health and resilience of communities facing disproportionate burdens from rising pollution levels.

Public transit systems across the state have seen a huge injection of federal and state funds in recent years, largely due to increased federal formula funding, new or expanded grant programs, and federal tax credits delivered by the BIL and IRA. In 2023, the Federal Transit Administration awarded \$29.3 million to the Ohio Department of Transportation to finance approximately 69 low- or zero-emissions buses to replace existing diesel buses or expand transit fleets across the state. Several of Ohio's RTAs received funding from the same program to upgrade transit infrastructure and improve the quality of local transit

⁶⁴ [“Economic Impact of Public Transportation Investment: 2020 Update,”](#) American Public Transportation Association (APTA), April 2020.

⁶⁵ [“How to unlock public transport for climate and sustainable development: Six areas for Action,”](#) Sustainable Mobility for All, 2022.

⁶⁶ [“Evaluation of accessibility and equity to hospitals by public transport: evidence from six largest cities of Ohio,”](#) by M.S. Alam, N.J. Tabassum, and A.I. Tokey, BMC Health Services Research, June 2023.

services. At the same time, the BIL and IRA have provided substantial funding for Ohio's highways, roads, and public EV chargers.

Robust transit systems facilitate effective climate action while enhancing the mobility and connectivity of Ohio's communities. If Ohio's transportation decarbonization efforts remain centered on EVs, then equitable, long-term outcomes for TIP communities are unlikely. With historic federal funding for transportation infrastructure, Ohio should address historical underinvestment in its public transit systems by adjusting state funding priorities to complement those at the federal level.

Appendix

Categorized appropriation line items for FY25, used for Figure 7

ALI	ALI Title	Appropriation
Administration		\$115,593,642
779491	Administration - State	\$115,593,642
Debt Service		\$174,000,000
772433	Infrastructure Debt Reserve - State	\$-
772430	Infrastructure Debt Reserve Title 23-49	\$-
772438	Major New State Infrastructure Bond Debt Service - Federal	\$132,500,000
772437	Major New State Infrastructure Bond Debt Service - State	\$18,500,000
770003	Transportation Facilities Lease Rental Bond Payments	\$23,000,000
Planning & Research		\$152,668,866
150701	Local Transportation Improvement Program	\$64,000,000
150402	Local Transportation Improvement Program - Operating	\$323,792
772504	Ohio Highway Transportation Safety	\$1,600,000
771412	Planning and Research - Federal	\$57,095,074
771411	Planning and Research - State	\$29,650,000
776672	Strategic Transportation and Development Analysis	\$-
Public Transportation		\$101,588,932
775452	Public Transportation - Federal	\$63,004,296
775454	Public Transportation - Other	\$1,570,000
775470	Public Transportation - State*	\$37,014,636
Rail/Aviation		\$13,036,429
777472	Airport Improvements-Federal	\$405,000
777475	Aviation Administration	\$6,699,938
777477	Aviation Infrastructure Bank - State	\$2,400,000
777615	County Airport Maintenance	\$620,000
776475	Rail - Federal Rail Administration	\$-

ALI	ALI Title	Appropriation
776664	Rail Transportation - Other	\$2,911,491
Roadway/Highway Infrastructure		\$4,578,687,971
772604	Brent Spence Bridge Corridor - Federal	\$-
772605	Brent Spence Bridge Corridor - Other	\$-
772603	Brent Spence Bridge Corridor - State	\$-
110654	Gasoline Excise Tax Fund - County	\$340,043,583
110652	Gasoline Excise Tax Fund - Municipal	\$394,427,748
110653	Gasoline Excise Tax Fund - Township	\$204,020,669
110960	Gasoline Excise Tax Fund*	\$-
776462	Grade Crossings - Federal	\$14,068,961
772723	Highway Construction - Bonds	\$94,450,000
772422	Highway Construction - Federal	\$1,950,000,000
772424	Highway Construction - Other	\$83,500,000
772421	Highway Construction - State	\$734,000,000
772425	Highway Construction - Turnpike	\$-
772428	Highway Infrastructure Bank - Bonds	\$83,950,000
772426	Highway Infrastructure Bank - Federal	\$5,750,500
772427	Highway Infrastructure Bank - State	\$15,099,500
773431	Highway Maintenance - State	\$640,427,010
772431	Roadway Infrastructure Bank - State	\$3,750,000
195629	Roadwork Development	\$15,200,000
Total		\$5,135,575,840