REPORT TO THE LEGISLATURE PURSUANT TO ACT 148 OF 2024, SECTION 35

Report of the Vermont Transportation Funding Study

January 15, 2025

Submitted to

The Vermont House and Senate Committees on Transportation

Submitted by

Vermont Agency of Transportation

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Executive Summary

The Vermont Assembly directed the Agency of Transportation to oversee a study with the following elements:

1. **Evaluate Current Funding**: Assess Vermont's current transportation funding, including the stability of existing revenue sources and distribution methods.
2. **Analyze Future Trends**: Examine factors likely to affect Vermont's multimodal transportation system, such as inflation, safety needs, racial equity, electric vehicles, and climate change.
3. **Explore New Funding Options**: Investigate innovative funding approaches and alternative solutions used by other states.
4. **Assess MBUF Feasibility**: Evaluate how a mileage-based user fee (MBUF), along with other funding mechanisms, could provide sustainable funding.
5. **Project Revenue Scenarios**: Deliver a report on projected transportation revenue scenarios through 2030, highlighting potential new funding sources.

This report is submitted to the House and Senate Committees on Transportation, the House Committee on Ways and Means, and the Senate Committee on Finance in accordance with the requirements of Act 148.

Prior Relevant Studies and Analysis in Vermont

Vermont AOT's 2013 and 2016 studies analyzed funding options to address transportation shortfalls, estimating annual needs at $700 million against $450 million in revenues. The 2013 study identified declining fuel taxes as a long-term issue, prompting a modest gas tax increase. The 2016 study focused on the impact of a 10% drop in gas consumption from 2005 to 2014, evaluating 22 revenue options. While neither study proposed specific solutions, they informed legislative action, including a battery electric vehicle (BEV) and plug-in hybrid electric vehicle (PHEV) infrastructure fee and the framework for a mileage-based user fee (MBUF) program to sustain transportation funding.

Best Practices from Other States

Over the past decade, U.S. states have explored alternatives to declining transportation revenues caused by improved fuel efficiency and rising electric vehicle use. Many states, including Vermont, rely on transportation taxes and fees to fund their budgets, but declining fuel tax receipts have prompted studies to assess funding needs and identify sustainable solutions. Recent efforts include EV fees, tolls, per-mile fees, and various indirect taxes, but outcomes remain mixed, with some states enacting measures like EV fees and others still considering legislation. Vermont's challenges mirror national trends, as states seek diversified and resilient revenue mechanisms to fund multi-modal infrastructure needs. Notable examples summarized in Table ES- 1 include New Hampshire's evaluation of highly efficient vehicles, Pennsylvania's enactment of EV fees, and Nevada's exploration of alternative revenue

options. Overall, these efforts highlight the urgency of addressing long-term transportation funding gaps while aligning with equity and sustainability goals.

Table ES- 1. Summary of Transportation Revenue Studies in Other States, 2020-Present

State	Year Completed	Purpose: Explore Options to…	Outcome
New Hampshire	2023	Assess alternative fuel and highly fuel-efficient vehicles to make up for declining fuel taxes ("road toll")	No action yet taken
Maine	2020	Increase transportation funding near-term and long-term (primarily highways and bridges, secondarily multi-modal)	No action taken in 2020 due to COVID-19; General fund transfer in 2023
Massachusetts	Ongoing	Provide long-term, sustainable, multi-modal transportation funding	Study not yet complete
Nevada	2022	Provide long-term, sustainable revenue to the State Highway Fund (with secondary consideration for multi-modal)	Several bills in consideration, including EV fees, reallocation of vehicle excise taxes
Ohio	2023	Make up for declining fuel tax revenues to the state highway fund	No action yet taken
Illinois	2023	Address revenue lost to vehicle electrification	Study not yet released
Pennsylvania	2021	Sustainably fund near-term and long-term, multi-modal transportation needs	EV fee enacted in 2024

Primary Sources of Transportation Funding in Vermont

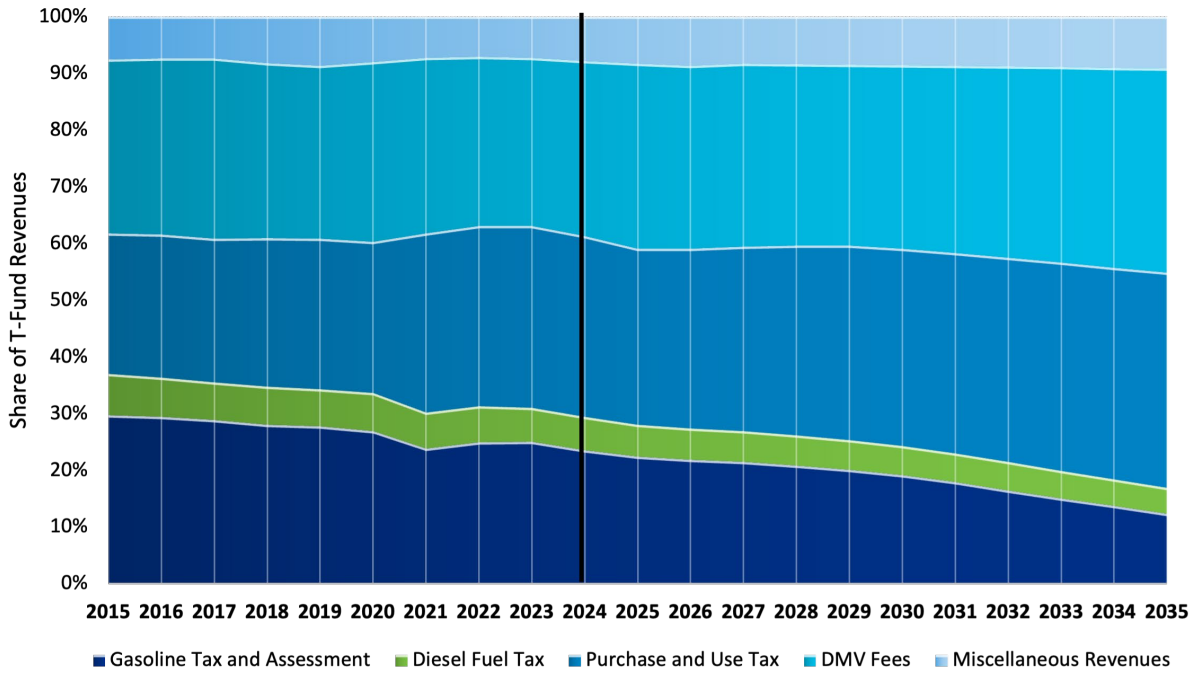
The operation and maintenance of Vermont's transportation system are primarily funded by federal and state sources. Deposits into the state's Transportation Fund (T-Fund) are as follows:

- **Fuel Taxes:** Vermont levies fixed and variable gas and diesel taxes, including assessments based on retail fuel prices, with revenues supporting the Transportation Fund (T-Fund) and the Transportation Infrastructure Bond Fund (TIB Fund).
- **Vehicle Purchase & Use Tax:** A 6% tax on new and registered vehicles, with 4% allocated to the T-Fund and 2% to the Education Fund, providing a significant and growing share of transportation funding.
- **DMV Fees:** Charges for vehicle registrations, licenses, and permits, steadily increasing to support transportation operations and infrastructure.
- **Other Revenues:** Includes overweight permits, jet fuel taxes, and inspection fees, contributing a smaller, fluctuating share to the T-Fund.
- **Federal Funding:** Approximately 54% of Vermont's annual transportation funding comes from federal programs like the Federal Highway Administration, mainly for capital projects.

Gasoline tax revenues, once a major source of funding for the T-Fund, have declined due to reduced gasoline consumption since 2005. This decline is attributed to a relatively flat growth in vehicle miles traveled (VMT), state investments in transit, rail, park-and-rides, and carshare programs, the growth of hybrid and electric vehicles, and federal fuel economy standards.

Additionally, the AOT is implementing extensive plans and strategies to reduce dependency on fossil fuels and cut transportation-related carbon emissions through its Climate Action Plan and Carbon Reduction Strategy. AOT has actively invested in statewide initiatives to enhance electric vehicle charging infrastructure, lower the cost of electric vehicle ownership, and improve public transportation, biking, walking, and rail options. Hence, the yield from gasoline tax revenues will continue to decline, making this funding source less reliable in the future (Figure ES- 1).

Figure ES- 1: Share of T-Fund Revenues



Transportation Funding Needs in Vermont – 10 year and Longer Term

A preliminary 10-year estimate of the costs required to maintain, operate, and administer Vermont's transportation system is presented below (Table ES- 2). This estimate was developed through discussions with various program offices and an analysis of capital program documents. The focus is on basic needs, which include the costs necessary to keep the existing transportation system in good repair, along with some new construction primarily related to transit and rail improvements.

Table ES- 2. Preliminary 10-Year Transportation Cost Estimates (millions)

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Pavement Needs (NHS and Non-NHS)	$198.5	$208.4	$218.8	$229.7	$241.2	$253.3	$265.9	$279.2	$293.2	$307.9
Bridge Needs (NHS and Non-NHS) (Includes Long Town Bridges)	$187.4	$196.8	$206.6	$217.0	$227.8	$239.2	$251.2	$263.7	$276.9	$290.8
Rail	$51.8	$52.7	$53.7	$54.7	$57.7	$58.8	$59.9	$61.1	$62.3	$63.6
Roadway Reconstruction/Improvements	$82.7	$86.8	$91.2	$95.7	$100.5	$105.5	$110.8	$116.4	$122.2	$128.3
Safety and Traffic Operations	$59.5	$62.5	$65.6	$68.9	$72.4	$76.0	$79.8	$83.8	$88.0	$92.4
Aviation	$13.0	$18.9	$25.9	$39.2	$16.4	$29.0	$29.6	$26.3	$29.7	$30.0
Public Transit	$58.5	$59.1	$60.2	$58.6	$58.4	$57.1	$58.7	$59.7	$60.3	$61.5
Bike and Pedestrian	$21.7	$13.2	$13.2	$15.4	$16.3	$15.0	$15.4	$16.0	$16.2	$16.1
Transportation Alternatives	$3.4	$4.9	$5.0	$4.9	$4.8	$5.1	$5.2	$5.3	$5.3	$5.5
Park and Ride	$1.2	$2.5	$2.5	$2.0	$2.1	$2.4	$2.3	$2.3	$2.3	$2.4
Maintenance and Buildings	$114.1	$114.9	$117.8	$123.7	$129.9	$136.4	$143.2	$150.4	$157.9	$165.8
Environmental Policy and Sustainability	$30.4	$20.5	$1.0	$1.0	$1.0	$1.1	$1.1	$1.1	$1.2	$1.2
Central Garage	$24.1	$24.7	$25.4	$26.1	$26.9	$27.7	$28.5	$29.4	$30.3	$31.2
Policy and Planning	$14.5	$14.9	$15.4	$15.8	$16.3	$16.8	$17.3	$17.8	$18.3	$18.9
Rest Area	$2.3	$1.9	$1.9	$2.0	$2.1	$2.0	$2.1	$2.1	$2.1	$2.2
Finance and Administration	$25.5	$26.6	$27.6	$28.7	$29.9	$31.1	$32.3	$33.6	$35.0	$36.4
Town Highway Programs	$47.5	$48.4	$49.4	$50.3	$51.3	$52.3	$53.4	$54.5	$55.6	$56.8
Program Development Administration	$34.6	$35.4	$36.3	$37.4	$38.5	$39.7	$40.9	$42.1	$43.4	$44.7
DMV	$49.3	$50.4	$51.8	$53.0	$51.8	$54.1	$55.7	$57.4	$59.1	$60.8
Total Needs	**$1,020.1**	**$1,043.6**	**$1,069.2**	**$1,124.3**	**$1,145.5**	**$1,202.6**	**$1,253.5**	**$1,302.1**	**$1,359.3**	**$1,416.2**
Estimated Funding Gap (Needs – Revenues)	($316.8)	($379.0)	($392.5)	($436.2)	($449.0)	($498.5)	($541.8)	($582.6)	($631.7)	($680.2)

When contrasted with the projected revenue over the same duration, the estimated funding gap for unconstrained needs is projected to be approximately $317 million starting in FY 2026. This gap is expected to widen due to significantly increased construction costs and the added pressure of inflation on operating expenses. As these financial challenges persist, the funding gap is anticipated to grow.

Trends and Policies Influencing Transportation Funding

Key trends, policies, and factors shaping transportation infrastructure and funding in Vermont and throughout the United States were identified. These trends reflect shared challenges at the state and federal levels. Awareness of these trends can help policymakers shape transportation revenue mechanisms most effectively to address challenges.

- **Construction Cost Inflation:** Rising highway construction costs, up 54% since 2020, outpace general inflation, straining Vermont's transportation budgets and delaying projects. Federal Infrastructure Investment and Jobs Act (IIJA) funds offer temporary relief but do not fully offset cost surges.
- **Technological Advancements:** Autonomous vehicles (AVs) and smart traffic systems improve safety and efficiency. Vermont supports AV testing and smart infrastructure through its Transportation Management Center, ensuring real-time traffic management and future-ready systems.
- **Equity and Accessibility:** Vermont focuses on improving rural transit and equity by expanding access where possible and reducing costs for underserved populations. Federal Justice40 goals allocate funding to disadvantaged communities, addressing historical transportation inequities.
- **Climate Resilience and Sustainability:** Vermont aligns with federal efforts to enhance infrastructure resilience to climate impacts. Strategies include reevaluating road designs post-2023 flooding and pursuing net-zero emissions by 2050 through its Climate Action Plan.
- **Transition to Electric Vehicles:** EV adoption disrupts fuel tax revenue. Vermont leverages federal funding for EV infrastructure while exploring alternative revenue models to maintain sustainable transportation funding.

Meeting the Transportation Funding Challenge

Before identifying viable alternative revenue mechanisms, Guiding Principles were developed to help evaluate how each potential revenue mechanism performs relative to the goals and policy priorities identified as important in Vermont. The Guiding Principles and revenue criteria summarized in Table ES-3 largely mirror the criteria applied in Vermont's 2016 Funding Alternatives Study. A thorough review was conducted of tax principles and revenue evaluation criteria used in several other states, as well as principles recommended by tax foundations and industry associations.

Table ES- 3. Guiding Principles and Revenue Criteria

Revenue Stream Considerations	
Revenue Potential	The extent to which the option is capable of generating significant revenue.
Revenue Sustainability	The extent to which the option self-adjusts or can be adjusted easily from year-to-year to provide a stable, reliable source of revenue that tracks with transportation demand, regardless of changes in vehicle technologies, ownership, fuel sources, or consumer spending.
Revenue Flexibility	The extent to which the mechanism is appropriate for a wide range of investments (and different transportation modes) and can be redirected to meet changing needs.

Implementation and Administration Considerations	
Appropriateness for State-Level Implementation	The appropriateness of statewide implementation, including consideration of the impact on local governments.
Ease/Cost of Implementation, Administration and Enforcement	The ease and cost to implement, administer, and enforce relative to the revenue-raising potential.
Economic Efficiency and Impact Considerations	
Promotion of Efficient Use	The extent to which the mechanism provides incentives for efficient use of the system by influencing travel choices and behavior.
Consistency with State Climate Goals and Other Transportation-related State Goals and Policies	The extent to which the mechanism is consistent or can be aligned with state climate goals and other state goals and policies related to the transportation sector.
Equity Considerations	
User and Beneficiary Equity	The extent to which the mechanism can be structured to recover a reasonable share from those who directly use or otherwise benefit from the funded investment.
Equity Across Income Groups	The extent to which the mechanism limits costs for those who face the most difficulty in paying.
Geographic Equity	The extent to which the cost allocation and impact of the mechanism can be structured to match the geographic distribution of the benefit.

Alternative Revenue Options Evaluated

Based on preliminary analysis and discussions with Vermont Agency of Transportation, the following eight alternative revenue mechanisms were advanced for detailed analysis.

- **Gasoline Tax Indexing**: Gas tax indexing periodically adjusts gas tax rates in response to inflation or other economic indicators. Indexing helps gas tax revenue keep pace with inflation in roadway construction materials and other related costs.
- **Diesel Tax Indexing**: Indexing the state's diesel tax would work as described above for indexing the gas tax: the diesel tax would be periodically adjusted in response to inflation or other economic indicators.
- **Mileage Based User Fee for Light Duty (<10,000 lbs.) vehicles:** A mileage-based user fee (MBUF) is a per-mile charge that is collected from vehicle owners based on their total distance traveled during the mileage reporting period (i.e., each month, quarter or year).
- **Transportation Network Company Fee:** Transportation Network Companies (TNCs) connect drivers using their own vehicles with passengers by offering prearranged transportation services for payment through an online application or platform (like smartphone apps).
- **MPG-Based Registration Fee:** Currently, Oregon is the only state that bases its vehicle registration fees on a vehicle's miles per gallon (MPG), as rated by the U.S. Environmental Protection Agency.
- **Tire Fee:** Many states assess a tax on the sale of tires at the time of purchase primarily to fund tire recycling and disposal, ranging from $0.25 to $5 per tire. States that tax tires (other than general retail sales taxes) charge flat rates or vary the rate based upon tire weight or diameter.

Results of Evaluation and Comparison of Alternative Revenue Options

Both a quantitative and a qualitative analysis was conducted of each revenue mechanism. Quantitative analysis focused on the financial performance of the revenue mechanism, while qualitative analysis focused on how the mechanism performed on an administrative and policy basis.

The results of the evaluation are reflected in three tables below: overall revenue potential for each of the alternative revenue mechanisms (Table ES- 4); long-term growth trends for each mechanism (Table ES- 5); and evaluation results against each of the Guiding Principles and revenue criteria (Table ES- 6):

Table ES- 4. Potential Revenue Generation, 10-year period

Potential Revenue Generation	Fiscal Year (millions)									
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Gasoline Tax Indexing	$33.1	$33.8	$34.0	$33.9	$33.2	$31.9	$30.1	$28.2	$26.3	$24.4
Diesel Tax Indexing	$18.3	$18.5	$18.9	$19.2	$19.2	$18.8	$18.5	$18.0	$17.5	$16.9
MBUF – Light-Duty EVs	$5.7	$8.3	$12.4	$18.0	$24.1	$30.3	$38.2	$46.5	$55.2	$64.4
MBUF – Light-Duty vehicles (excl. EVs)*	---	---	$111.4	$110.8	$109.9	$107.4	$103.3	$98.8	$94.1	$89.0
MBUF – Medium- and Heavy-Duty EVs	$1.9	$2.7	$3.6	$4.8	$6.1	$7.5	$9.2	$11.1	$13.2	$15.6
Retail Delivery Fee	$10.9	$11.3	$11.7	$12.2	$12.6	$13.0	$13.4	$13.8	$14.2	$14.7
TNC Fee	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
MPG-Based Registration Fee	$8.9	$10.0	$11.5	$13.3	$15.2	$17.1	$19.4	$21.6	$23.9	$26.2
Tire Fee	$1.7	$1.7	$1.7	$1.7	$1.7	$1.7	$1.7	$1.7	$1.7	$1.7

*Assumes the gas tax is repealed when MBUF for all light duty vehicle is enacted. Assumes transition starts in FY 2028.

Gas tax revenues avoided from EVs and higher fuel-efficient vehicles are becoming more prominent as the penetration of these vehicle types increases in the state (Figure ES- 2). By 2035, the gas tax revenue collections avoided from EVs is projected to be about $31 million. Overall, the avoided revenues from EVs exceed those resulting from highly fuel-efficient vehicles alone, as the state currently has a slightly higher number of EVs on the road compared to highly fuel-efficient vehicles.

Figure ES- 2. T-Fund Gas Tax Revenue Collections Avoided due to Adoption of EVs and Fuel-efficient Vehicles

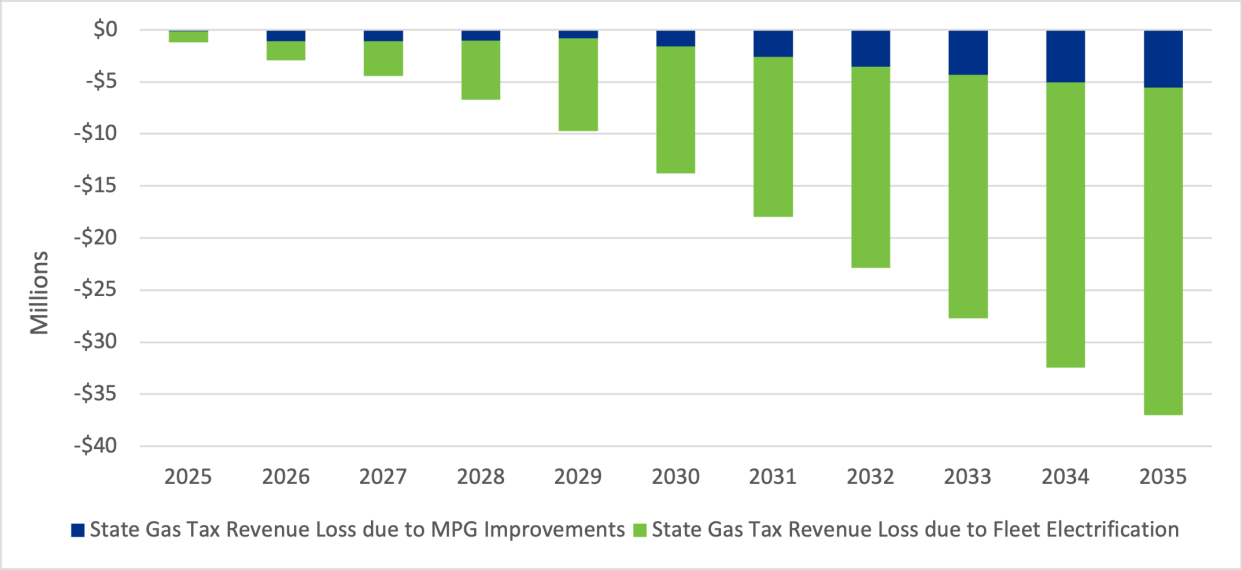


Table ES- 5. Potential Revenue Generation Trends, 10-year period

Long-Term Revenue Growth Trends	
Gasoline Tax Indexing	↓
Diesel Tax Indexing	↓
MBUF - LDV	↑
MBUF – MDV/HDV	↑
Retail Delivery Fee	↑
TNC Fee	↑
MPG-Based Registration Fee	↑
Tire Fee	↑

Table ES- 6. Evaluation of Revenue Options against Guiding Principles and Revenue Criteria

Revenue Mechanisms	Revenue Potential	Revenue Sustainability	Revenue Flexibility	Appropriateness for State-level Implementation	Ease/Cost of Implementation, Administration and Enforcement	Promotion of Efficient Use	Consistency with State Climate Goals and Other Transportation-related State Goals and Policies	User and Beneficiary Equity	Equity Across Income Groups	Geographic Equity
Gasoline Tax Indexing	🟡	🔴	🟢	🟢	🟢	🟢	🟢	🟡	🔴	🔴
Diesel Tax Indexing	🟡	🔴	🟢	🟢	🟢	🟡	🟡	🟡	🔴	🟡
Mileage-Based User Fees: Light Duty Vehicles	🟢	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟡	🟡
Mileage-Based User Fees: Medium and Heavy-Duty Vehicles	🟡	🟢	🟢	🟢	🟡	🟡	🟡	🟢	🟡	🟡
Retail Delivery Fees	🟡	🟢	🟢	🟡	🟡	🔴	🟡	🟢	🟡	🟢
Transportation Network Company Fees	🟡	🟡	🟢	🟢	🟡	🟡	🟡	🟢	🔴	🟢
MPG-Based Registration Fee	🟡	🟢	🟡	🟡	🟢	🔴	🟢	🟡	🔴	🟡
Tire Fees	🟡	🔴	🟡	🟡	🟢	🔴	🔴	🔴	🔴	🟡

🟢 Mechanism is capable of **strong alignment** with guiding principle

🟡 Mechanism is capable of **some alignment** with guiding principle

🔴 Mechanism is **poorly capable** of alignment with guiding principle

1.0 Introduction

1.1 Legislative direction to conduct this study

Pursuant to Act 148 (2024), the Vermont General Assembly directed the Vermont Agency of Transportation (AOT) to conduct a study to identify and evaluate innovative transportation funding sources that can provide sustainable and predictable funding for Vermont's transportation infrastructure. The General Assembly recognized that declining motor fuel tax due to increasing fuel efficiency, the adoption of electric vehicles and rising construction costs are rendering the current funding model unsustainable. As a result, Vermont must identify new and innovative funding mechanisms, such as mileage-based user fees (MBUF) and other funding solutions to support maintenance, repair, and growth of the transportation infrastructure.

The Vermont Assembly directed the Agency of Transportation to oversee a study with the following elements:

1. **Evaluate Current Funding**: Assess Vermont's current transportation funding, including the stability of existing revenue sources and distribution methods.
2. **Analyze Future Trends**: Examine factors likely to affect Vermont's multimodal transportation system, such as inflation, safety needs, racial equity, electric vehicles, and climate change.
3. **Explore New Funding Options**: Investigate innovative funding approaches and alternative solutions used by other states.
4. **Assess MBUF Feasibility**: Evaluate how a mileage-based user fee (MBUF), along with other funding mechanisms, could provide sustainable funding.
5. **Project Revenue Scenarios**: Deliver a report on projected transportation revenue scenarios through 2030, highlighting potential new funding sources.

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1.2 Prior relevant studies and analysis in Vermont

In response to legislative directives, Vermont AOT conducted funding alternatives studies in 2013 and 2016. Both studies, which serve as foundational references for the current study, examined a range of revenue mechanisms and their potential to provide sustainable funding for Vermont's transportation needs. Although AOT undertook the two studies in time frames with important contextual differences, the approach and findings remain useful.

The 2013 study of state funding was undertaken amid federal negotiations over transportation reauthorization, a process that created great uncertainty for Vermont. As a small, rural state with a

relatively small tax base, Vermont has historically relied more heavily on federal funding than most states. The 2013 study estimated the total "basic needs" of Vermont's transportation system at approximately $700 million per year against available revenues of approximately $450 million. To fill the gap, the study examined 15 revenue mechanisms, including 11 existing mechanisms and four new options. Each option was assessed against its revenue generating capability and nine qualitative criteria spanning revenue stream considerations, implementation and administration, economic efficiency and impact, and equity considerations. In part due to the study, the legislature enacted a modest increase in gasoline taxes in 2013.[1]

Although the 2013 report identified declining fuel taxes as a long-term consideration, the 2016 study was undertaken explicitly and exclusively in response to the threat. Citing the steady decline in gasoline consumption in Vermont by more than 10 percent over the period 2005 to 2014, the study reviewed examples of efforts to address the problem in other states and presented 22 specific options for Vermont, 11 of them existing and 11 of them new. Using the same rubric as the 2013 report to assess each option against its revenue generating capability and nine qualitative evaluation criteria, the report concluded that motor fuel tax declines would exacerbate the $240+ million per year shortfall identified previously.

Although neither study recommended specific paths forward, they set the stage for an ongoing legislative conversation about how to address declining motor fuel tax receipts, which led to enactment of an infrastructure fee on Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV) and the framework for a mileage-based user fee (MBUF) program in 2023 and 2024. MBUF would be applied to BEVs for the transportation fund in lieu of the infrastructure fee, which is currently directed to charging infrastructure at multiunit dwellings and workplaces.

1.3 Best practices from other states

Over the past decade, states across the U.S. have conducted various studies exploring transportation revenue alternatives. Motivators for these studies include addressing the decline in revenue from traditional sources like fuel taxes (due to increased fuel efficiency and the rise of electric vehicles, which contribute less or not at all to fuel tax revenues), diversification of revenue sources, and multi-modal funding needs. Some states conduct revenue alternatives studies regularly to assess the alignment between needs and resources and to inform legislative changes in funding policy.

Vermont is not alone in exploring transportation revenue options. Like Vermont, most states rely primarily on transportation taxes and fees at the state level to fund their transportation budgets. In just the past several years, a number of states have undertaken transportation revenue studies of varying scopes and scales, some as analytical efforts by the state transportation agency, others with the input and guidance of stakeholder task forces or special committees. The purposes of the studies varied, although most centered on how to address the long-term challenge of declining fuel tax receipts. Given the magnitude of the challenge, the outcomes thus far are mixed, with some states enacting EV fees,

[1] https://www.governing.com/archive/gov-how-vermont-raised-its-gas-tax.html

but most still working through the legislative process to determine pathways forward. Table 1 summarizes seven transportation revenue studies, including three in New England states and four from elsewhere around the country.

Table 1: Summary of Transportation Revenue Studies in Other States, 2020-Present

State	Year Completed	Purpose: Explore Options to…	Outcome
New Hampshire	2023	Assess alternative fuel and highly fuel-efficient vehicles to make up for declining fuel taxes ("road toll")	No action yet taken
Maine	2020	Increase transportation funding near-term and long-term (primarily highways and bridges, secondarily multi-modal)	No action taken in 2020 due to COVID-19; General fund transfer in 2023
Massachusetts	Ongoing	Provide long-term, sustainable, multi-modal transportation funding	Study not yet complete
Nevada	2022	Provide long-term, sustainable revenue to the State Highway Fund (with secondary consideration for multi-modal)	Several bills in consideration, including EV fees, reallocation of vehicle excise taxes
Ohio	2023	Make up for declining fuel tax revenues to the state highway fund	No action yet taken
Illinois	2023	Address revenue lost to vehicle electrification	Study not yet released
Pennsylvania	2021	Sustainably fund near-term and long-term, multi-modal transportation needs	EV fee enacted in 2024

Collectively, the seven states summarized in Table 1 explored over 30 funding mechanisms as categorized and summarized below:

- **Fuel taxes**: flat gasoline and diesel excise tax increases, indices to inflation and/or fuel economy, sales tax, price-based excise taxes.
- **Vehicle fees**: flat, weight-based, fuel economy-based, fuel type-based, age-based, value-based.
- **Direct usage fees**: tolls, per-mile fees, weight-distance fees, parking taxes.
- **Indirect usage fees**: battery tax, tire tax, insurance tax, EV charging electricity tax (at home and/or at public charging stations), TNC fees, rental car taxes, vehicle sales taxes, auto parts and services sales taxes.
- **Licensing fees**: vehicle plates, vanity plates, title fees, emissions fees, inspection fees, driver license fees.
- **Other freight-related fees**: retail delivery fees, value-added tax, container fees.
- **Miscellaneous**: fines, transfers from the general fund (sales, property, income, and/or corporate taxes), land development fees.

1.4 Practical Take-aways

The work of other states provides several practical take-aways that can be carried forward:

- **Highlighting the misalignment between investment needs and funding levels**. Conducting a comprehensive needs assessment is fundamental for accurately understanding the scope of transportation system funding demands. However, the assessment need not be precise. Few states fund transportation at levels that approach, match, or exceed even basic needs. In most studies, providing high-level estimates of basic needs in categories such as maintenance and preservation, capital improvements, and multi-modal opportunities quickly outpaces available funding, but it nonetheless offers a benchmark against which to measure future revenue options. Vermont's 2013 assessment and recent efforts related to its transportation asset management plan and long-range transportation plan represent key inputs into a comprehensive current picture of evolving needs, which will be further informed by forward projection of demographic, technological, environmental, and social trends.
- **Articulating revenue principles**. Clearly articulating guiding revenue principles ensures that any funding approach aligns with the values of stakeholders and decisionmakers. Revenue principles provide a framework that aligns funding strategies with broader policy goals, such as sustainability, economic growth, and equity. Principles also allow stakeholders and decisionmakers to make judgments and decisions informed by values and comprehensive comparative analysis rather than preconceived notions. Studies over the past decade have drawn on a common pool of revenue principles, and Vermont's prior efforts largely align with the principles adopted in other states. Carrying forward the consensus revenue principles and applying them in the current study can foster trust in the process and the outcomes. A discussion of principles is included in Chapter 4 of this report.
- **Distilling revenue options**. Given the wide range of mechanisms studied by states, including Vermont twice in the past 11 years, a deep assessment of all options may not prove valuable to decisionmakers. Instead, distilling the revenue options up front through a qualitative screening based on prior studies can help to quickly reduce the viable approaches of greatest value to decisionmakers. For example, the only transportation-related tax bases large enough to generate meaningful revenue to fund a statewide program are vehicles, fuel, and road usage. With vehicle fuel efficiency and electrification accelerating, the gap in fuel tax revenues reduces the realistic field to a relatively small pool of vehicle fees and direct usage charges. Other mechanisms can provide ancillary revenue, which is helpful in building a package of funding options that create a diversified portfolio for the state. This relatively smaller pool of mechanisms – approximately a dozen – can then be carried forward for more detailed quantitative analysis and assessment against guiding principles.
- **Diversifying the revenue portfolio**. Relying on a single revenue source is generally considered a risk to meeting transportation needs. Studies show that a mix of funding mechanisms, including traditional sources (e.g., fuel taxes on legacy vehicles), innovative approaches (e.g., direct usage charges), and complementary strategies (e.g., certain vehicle fees, retail delivery fees), is essential for a resilient and flexible funding stream. While diversification is not a suitable criterion or guiding principle to apply to individual revenue mechanisms, combinations of

mechanisms can help mitigate the risks of declining revenue from any one source, provide more consistent funding, and spread the cost burden more equitably across various user groups and constituencies. Additionally, whereas a single mechanism may perform well against one or a few guidance principles, layered funding strategies can more effectively address multiple principles in combination, providing for stronger overall performance relative to Vermont's priorities.

2.0 Sources and Uses of Transportation Funding in Vermont

The operation and maintenance of Vermont's transportation system are primarily funded by federal and state sources. On average, federal funds contribute 54% of the annual funding, while state funding sources cover the remaining 46%. Major federal funding sources include the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), and National Highway Traffic Safety Administration (NHTSA). The amount of federal funding increased in recent years due to appropriations from the Bipartisan Infrastructure Law (BIL), which significantly increased funding across various programs. Federal funds are primarily designated for capital projects, such as the construction, reconstruction, and enhancement of highways and bridges on eligible Federal-aid routes. Although limited, certain federal funds are allocated to support operational projects and specialized programs, including efforts to reduce carbon emissions, enhance safety, and promote electrification. Federal funds usually require a matching contribution, typically 80% federal and 20% non-federal, though there are exceptions for interstate highways and some safety projects.

State funds are mainly derived from "user fees" paid by vehicle owners and drivers, which are deposited into the Transportation Fund (T-Fund). The T-Fund serves as the primary state funding source for AOT, including the Department of Motor Vehicles (DMV), and supports highway enforcement activities of the Vermont State Police. Additionally, there is a sub-fund called the Transportation Infrastructure Bond Fund (TIB Fund), which is primarily used to pay the debt service on TIB bonds for long-term capital projects. This sub-fund is financed through a dedicated assessment on gas and diesel.

The T-Fund includes revenue from gas and diesel taxes, purchase and use taxes (P&U), fees on vehicle registrations and licenses, and other miscellaneous sources. AOT uses these funds to match federal funds, operate DMV, distribute grants to municipalities, and maintain the transportation system. A 10-year trend analysis of T-Fund revenues reveals an increase from $261.3 million in FY 2015 to $303.0 million in FY 2024, reflecting an average annual growth rate of 1.7% (Figure 1). Over the 10-year period, Vermont's T-Fund shows several notable trends. Gasoline and diesel tax revenues have both declined. In contrast, Purchase and Use tax revenues have increased, making this source increasingly significant for the T-Fund, accounting for approximately 32% of the total in recent years (2021-2024). DMV fees have shown a steady increase over the years, while miscellaneous revenues have fluctuated but generally trended upward. Overall, the T-Fund is relying more on Purchase and Use taxes as gasoline and diesel revenues decrease. A 10-year trend analysis of the TIB-Fund shows revenue fluctuations from 2015 to 2024, with a notable peak in 2023 at $22,285,325. Overall, the average revenue is almost $17 million over the analysis period (Figure 2).

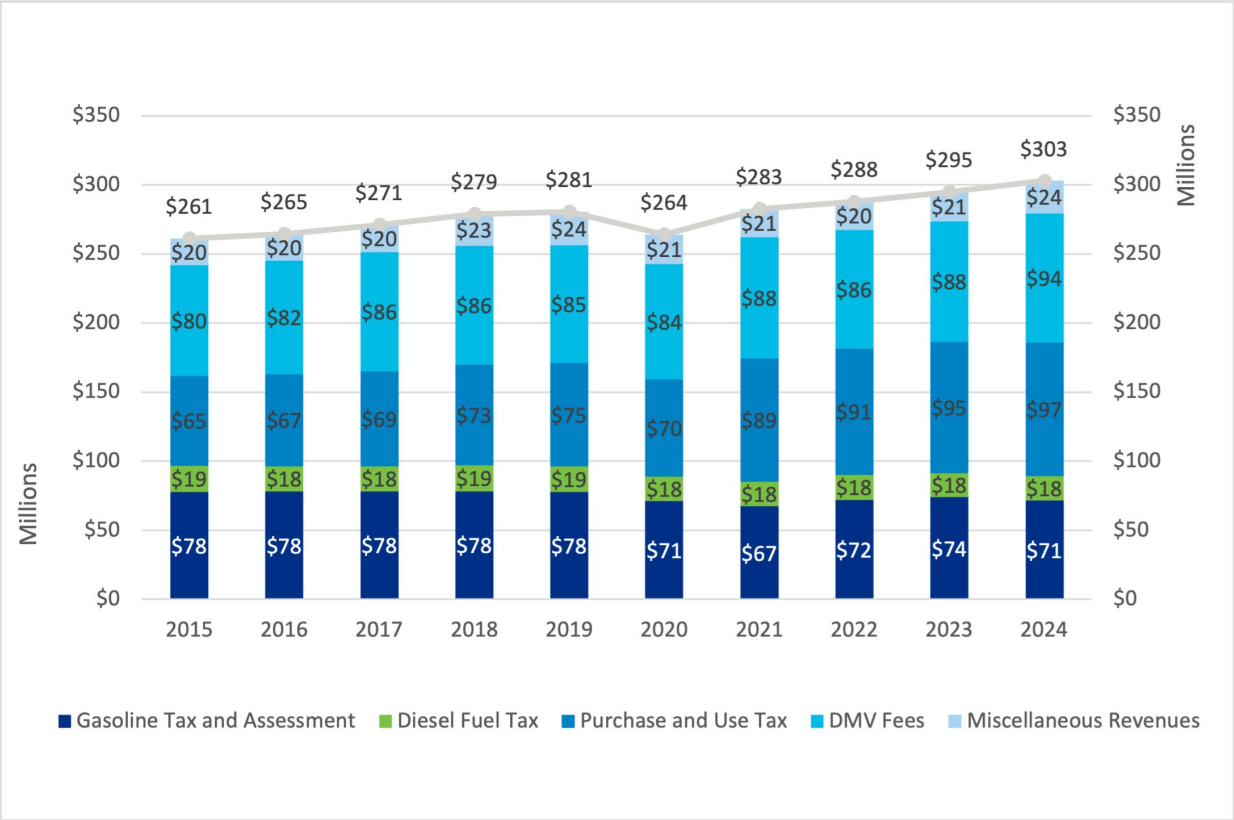
- **Gasoline Taxes.** Vermont has a blended gas tax system comprised of fixed taxes and two variable assessments that are calculated quarterly based on tax-adjusted retail price. All gas taxes and assessments are levied as cents per gallon at the distributor level and collected by DMV monthly. Vermont's fixed gas tax is 13.1 cents per gallon. However, only 11.345 cents per gallon is deposited into the T-Fund. The remaining amount supports the DUI Enforcement Special Fund, Fish and Wildlife Fund, Department of Forests, Parks and Recreation, and the

Petroleum Cleanup Fund. The federal government levies an additional 18.4 cents per gallon, a rate unchanged since 1993, which goes to the Highway Trust Fund to distribute to states in support of the federal-aid highway program and public transit.

The two variable gasoline assessments consist of a 4% Motor Fuel Tax Assessment (MFTA) deposited into the T-Fund and a 2% Motor Fuel Transportation Infrastructure Assessment (MFTIA) to the TIB Fund. Assessments are calculated based on the tax adjusted average retail price of regular gas during the prior quarter. The assessments are converted from a percentage to a cent per gallon equivalent. Vermont has both minimum and maximum rates for the MFTA. The MFTA is calculated as the greater of 13.4 cents per gallon or 4% of the tax-adjusted retail price, but it cannot exceed 18.0 cents per gallon. The MFTIA is set at a minimum of 3.96 cents per gallon and no maximum.

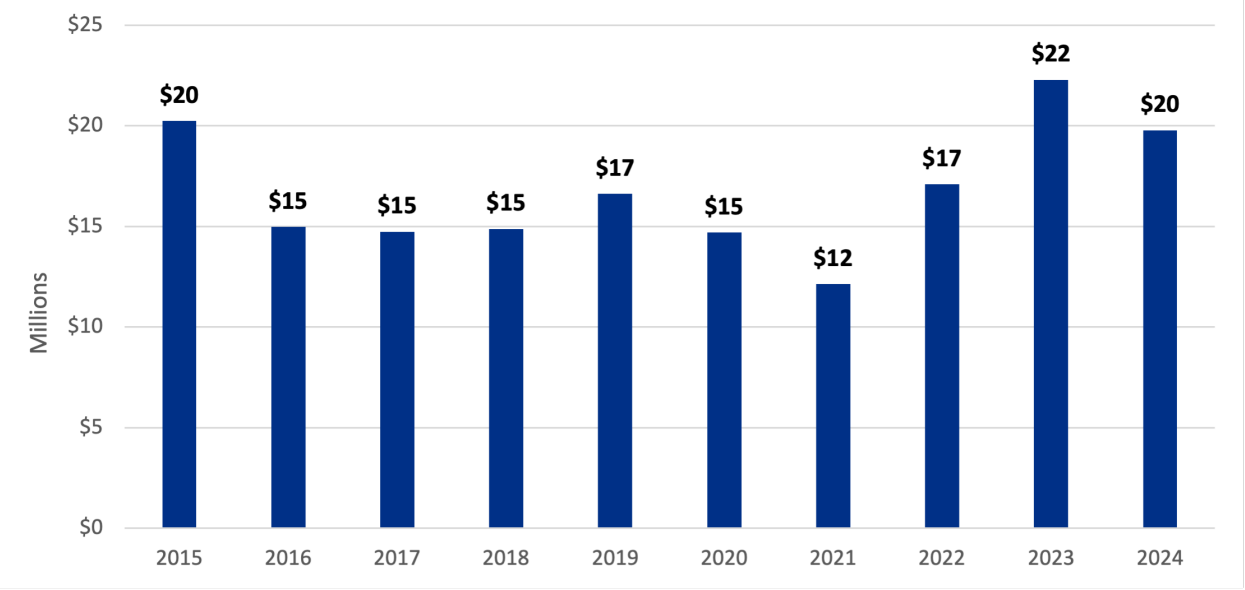
- **Diesel Taxes.** Vermont levies 2 fixed taxes on diesel that are dedicated for transportation. The fixed taxes include a 28 cents per gallon that goes to the T-Fund and a 3 cents per gallon that goes to the TIB Fund. The federal government levies an additional 24.4 cents per gallon that goes to the Highway Trust Fund.
- **Motor Vehicle Purchase & Use Tax.** Vermont's Motor Vehicle Purchase & Use Tax is a one-time tax applied on motor vehicle purchases or initial registrations. The tax rate is 6% and applies to various types of vehicles, including cars, trucks, motorcycles, and motorboats. Vermont also imposes a 9% tax on vehicle rentals. This tax is applied to the rental price of vehicles and is collected by rental companies at the time of the transaction. Four percent (4%) of Motor Vehicle Purchase and Use Tax revenues is allocated to the T-Fund and 2% to the Education Fund. Currently, the Purchase and Use Tax holds the largest share of the T-Fund in Vermont.
- **Department of Motor Vehicle (DMV) fees.** Motor vehicle fees play a crucial role in Vermont's state transportation revenues, accounting for the second highest share of total T-Fund revenues. These fees encompass a variety of charges for vehicle registrations, licenses, permits, and endorsements. Motor vehicle fees have remained stable and even increased over the past decade, thanks to periodic adjustments that keep pace with inflation.
- **Other Miscellaneous revenues.** Vermont's miscellaneous revenues consist of various smaller sources that collectively represent roughly 8% of the annual revenues deposited in the T-Fund. These sources include overweight permits, jet fuel sales tax, railroad income, traffic civil penalties, inspection sticker fees, and title certificate fees.

Figure 1. Historical T-Fund Revenues by Fiscal Year



Source: August 2024 Transportation Revenue Detail, Vermont Joint Fiscal Office

Figure 2. Historical TIB-Fund Revenues by Fiscal Year



Source: August 2024 Transportation Revenue Detail, Vermont Joint Fiscal Office

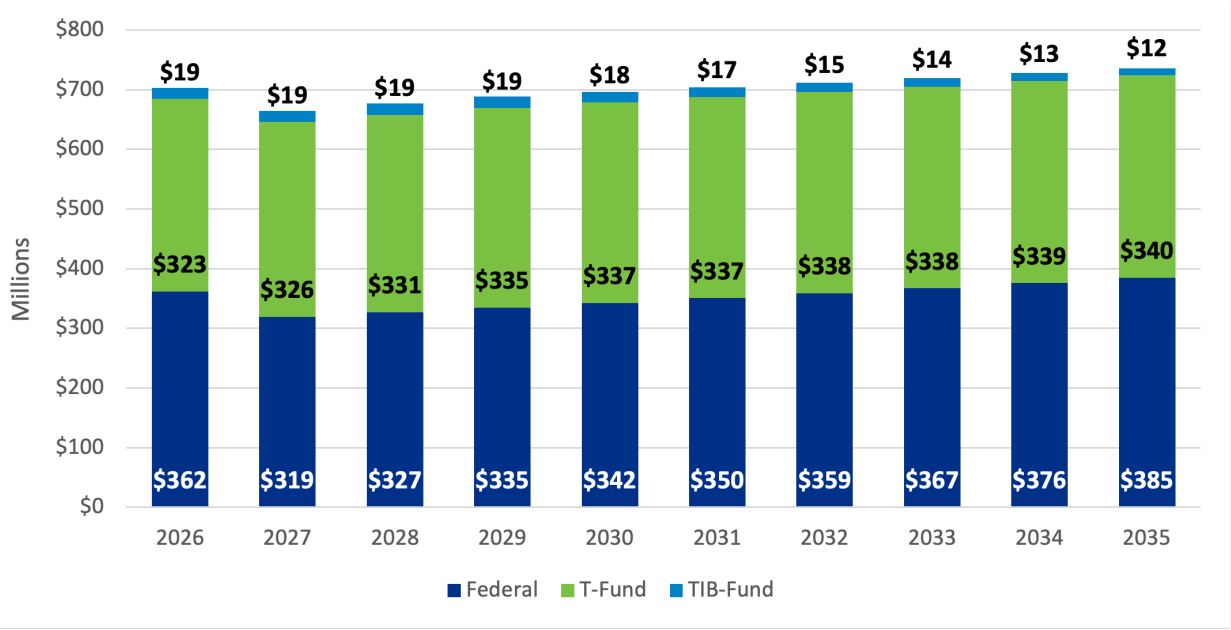
2.1 Transportation Revenue Yields – 10 Year Forecast of Existing Sources

Revenue forecasts are based on current federal funding programs, including those established by the Infrastructure Investment and Jobs Act (IIJA), and state revenue sources to support multi-modal transportation investments. The assumptions reflect existing funding policies and revenue that is reasonably expected to be available over the next 10 years. Discretionary federal grants awarded on a competitive basis are not included in the constrained forecast as they are not considered a recurring source of revenue. Table 2 summarizes the projected federal and state funding, expressed in nominal dollars. Gross funding expected from federal and state sources in FY 2026 is estimated at $703.3 million and expected to increase to $736.0 million in FY 2035 (Table 2). Figure 3 illustrates the revenue projections combined from federal funds, T-Funds, and TIB-fund sources.

Table 2. Federal and State Funding Forecast (millions)

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
FHWA: Core Highway Programs	$291.0	$298.3	$305.8	$313.4	$321.3	$329.3	$337.5	$346.0	$354.6	$363.5
FHWA: General Fund Bridge Program	$45.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
FHWA: General Fund Electric Vehicle Program	$4.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
FTA Funding (Formula grants)	$16.0	$16.0	$16.0	$16.0	$16.0	$16.0	$16.0	$16.0	$16.0	$16.0
FAA Funding (Entitlement Funds)	$5.2	$5.2	$5.2	$5.2	$5.2	$5.2	$5.2	$5.2	$5.2	$5.2
TOTAL FEDERAL	$361.7	$319.5	$326.9	$334.6	$342.4	$350.5	$358.7	$367.1	$375.8	$384.6
Gasoline	$70.6	$70.2	$69.1	$67.3	$64.4	$60.3	$55.6	$50.9	$46.4	$41.9
Diesel	$17.8	$17.6	$17.6	$17.4	$17.4	$17.1	$16.8	$16.4	$15.9	$15.4
Purchase and Use	$102.2	$106.3	$110.7	$114.7	$117.0	$119.3	$121.7	$124.2	$126.6	$129.2
Motor Vehicle Fees	$104.3	$105.2	$106.0	$106.9	$109.0	$111.2	$114.0	$116.7	$119.5	$122.2
Other Revenues	$27.8	$27.0	$27.6	$28.3	$28.7	$29.2	$29.6	$30.0	$30.5	$30.9
T-Fund, Revenues	$322.7	$326.4	$330.9	$334.5	$336.5	$337.2	$337.7	$338.2	$338.9	$339.7
TIB Fund, Fuel Assessment Revenues	$18.9	$18.7	$18.8	$19.0	$17.5	$16.5	$15.3	$14.2	$13.0	$11.7
TOTAL (FEDERAL AND STATE)	$703.3	$664.6	$676.7	$688.1	$696.5	$704.2	$711.7	$719.5	$727.6	$736.0

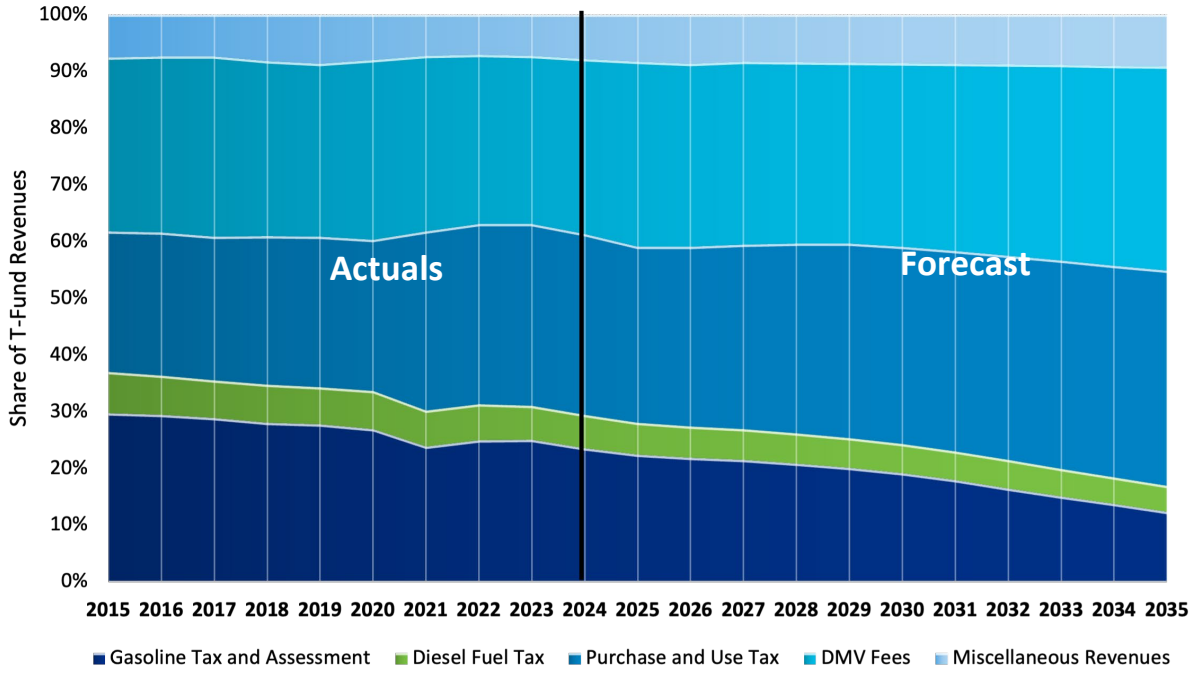
Figure 3. Transportation Funding Forecast (Federal and State)



The T-Fund and TIB Fund revenue forecasts for FY 2026 through FY 2029 are derived from the July 2024 Consensus Revenue Forecast developed by the Vermont Legislative Joint Fiscal Office. For FY 2030 through FY 2035, CDM Smith developed the forecasts using historical trends and the consensus forecasts as a baseline, while also considering trends related to the adoption of electric and alternative fuel vehicles as outlined in the Climate Action Plan Strategy and the Carbon Reduction Strategy. In addition to the anticipated electrification of the vehicle fleet, the revenue projection methodology also considers improvements in the Corporate Average Fuel Economy (CAFE) standards for new light- and heavy-duty vehicles, as outlined in the 2023 Annual Energy Outlook published by the U.S. Energy Information Administration.

Gasoline tax revenues, once a major source of funding for the T-Fund, have declined due to reduced gasoline consumption since 2005. This decline is attributed to a relatively flat growth in vehicle miles traveled (VMT), state investments in transit, rail, park-and-rides, and carshare programs, the growth of hybrid and electric vehicles, and federal fuel economy standards. Additionally, the AOT has implemented extensive plans and strategies to reduce dependency on fossil fuels and cut transportation-related carbon emissions through its Climate Action Plan and Carbon Reduction Strategy. AOT has actively invested in statewide initiatives to enhance electric vehicle charging infrastructure, lower the cost of electric vehicle ownership, and improve public transportation, biking, walking, and rail options. Hence, the yield from gasoline tax revenues will continue to decline, making this funding source less reliable in the future (Figure 4).

Figure 4. Share of T-Fund Revenues



2.2 Transportation funding needs – 10 year and longer term

Table 4 presents a preliminary 10-year estimate of the costs required to maintain, operate, and administer Vermont's transportation system. This estimate was developed through discussions with various program offices and an analysis of capital program documents. The focus is on basic needs, which include the costs necessary to keep the existing transportation system in good repair, along with some new construction primarily related to transit and rail improvements. A brief description of the needs by programmatic category:

- **Pavement and Bridge Needs**. Pavement and bridge needs were estimated using the TAMP report from December 2022 as the baseline. With discussions with AOT asset management team, the 2024 TAMPs estimate were escalated by an annual rate of 5%, considering inflationary pressures and reconstruction projects. AOT is required to inspect all bridges of 20-ft span or greater (considered "long structures") on all interstate, state and town highways. The inventory also includes long structures on town highways which are eligible for federal funding.
- **Rail:** Vermont maintains an active rail program for both freight and passenger rail. Rail needs reflect operating subsidies for two intercity passenger rail services: the Ethan Allen Express and the Vermonter. Needs also include capital expenditures for to account for State of Good repair, 286 Upgrades, eliminating Vertical clearances, and improve rail crossings, and general rail division administration and project management (Appendix A provides a detailed breakdown). Needs grow at an average annual rate of 2.3%. Needs were provided by the Rail and Aviation Bureau
- **Roadway reconstruction and improvements.** Roadway reconstruction and improvements needs include rebuilding existing roads to improve their structural integrity and lifespan, and minor

roadway improvements (e.g., minor lane additions, sidewalks and shoulders as appropriate). Needs were estimated using AOT Capital Program estimates for FY 2024 through FY 2026 as the baseline and adjusting these estimates by an average annual escalation rate of 5% given increased inflationary pressures but lower than the National Highway Cost index, which has averaged a 5.7% annual increase from 2003 to 2024.

- **Safety and Operations:** Highway safety and operations needs were estimated using the 3-year average from the AOT Capital Program estimates for FY 2024 through FY 2026 as the baseline. After 2024, we escalated the baseline by an average annual rate of 5% for the remaining years.
- **Aviation.** The aviation capital program consists of 9 airports in Vermont and provides capital improvements to maintain airports in a state of good repair. AOT primarily uses Federal Aviation Administration funds for these airport improvements. Therefore, aviation needs have only a marginal impact on state transportation funds. Needs were provided by the Rail and Aviation Bureau and include administration and maintenance needs (Appendix A provides a detailed breakdown).
- **Public Transit.** The work categories cover a range of public transit initiatives and administrative functions. Post-COVID, operating costs and overheads have increased by 20-30% due to inflation. AOT has also seen increased demand from the aging population, particularly through the "Older Adults and Persons with Disabilities" demand response program. Transit needs include operating assistance for urban providers like Green Mountain Transit, preventive maintenance, and rural technical assistance. Programs for older adults and persons with disabilities, job access/reverse commute, and intercity bus service are also included. Capital projects address general public needs and new transit facility construction, with plans for three new facilities and upgrades to aging facilities statewide (Appendix A provides a detailed breakdown).
- **Town Highway Program.** AOT administers two town highway grant programs: the Town Highway Structures Program and the Town Highway Class 2 Program. The state annually appropriates funds for state aid to town highways based on the mileage of Class 1, 2, and 3 town highways. Other local transportation programs include supplemental aid and non-federal disaster grants. For the class 2 program, it was decided to use a constant amount of $8.6M per year according to 19 VSA 306(h). For the state highway structures program, a constant value of $7.2 million over the forecasting period was used per 19 VSA 306 (e)(1).
- **Climate Needs.** Climate needs encompass several key categories: public transit, bike and pedestrian infrastructure, transportation alternatives, park and ride facilities, and environmental policy and sustainability. Estimates were developed using the Capital Program estimates from FY 2026 through FY 2028 as the baseline and escalating future needs by inflation. Environmental policy and sustainability include EV charging infrastructure, EV incentive programs through FY 2027, and resiliency projects. This report does not consider the full extent of the revenue and expenditures needed to meet the State's obligations under the Global Warming Solutions Act, leaving that analysis to a concurrent legislative study exploring the climate, business and household impacts of Vermont joining a cap-and-invest program.
- **Other Transportation Needs.** This category includes the Department of Motor Vehicles, AOT administrative and planning functions, rest areas, and other miscellaneous items. Needs estimates were collected from DMV projections and the others were developed based on the

Capital Program estimates from FY 2026 through FY 2028. Beyond FY 2028, needs estimated assuming an escalation rate of 3%.

The cost estimates shown in Table 3 are unconstrained, which means that they are not restricted by the amount of funding that is available now or anticipated to become available in the future. They are therefore merely estimates that could be modified as methods and assumptions are improved, or asset management systems are enhanced. All estimates are presented in the dollars of the year they are expected to be spent. The current estimate of the annual transportation needs is $1,020 million for FY 2026, but it is projected to rise to $1,416 million by FY 2035. Pavement and bridge needs account for approximately 40% of the total annual needs' estimates.

Climate resiliency and carbon reduction strategies have been key investment considerations over the past four years, involving collaboration across various modal divisions and interagency coordination. These efforts aim to proactively mitigate the impacts of climate change and natural disasters on Vermont's transportation system while implementing strategies to reduce greenhouse gas emissions from the transportation sector. Climate-related investments are predominantly achieved through investments in the following categories: Bike and Pedestrian, Active Transportation Alternatives, Park-and-Ride facilities, Public Transit, Rail, and Environmental Polity and Sustainability projects (e.g., EV charging infrastructure, resiliency projects). Annual climate related needs are estimated at $145 million over the ten-year period.

The estimated funding gap for unconstrained needs is projected to be approximately $317 million starting in FY 2026. This gap is expected to widen due to significantly increased construction costs and the added pressure of inflation on operating expenses. As these financial challenges persist, the funding gap is anticipated to grow. The funding gap assumption is predicated on recent inflation pressures. Construction costs, however, can vary based on trends in commodity prices. Unlike the broader Consumer Price Index, the Highway Construction Index is heavily influenced by the cost of commodities and can decline when significant decreases in the value of commodities occur. Should this occur, the funding gap could be lower.

Table 3. Preliminary 10-Year Transportation Cost Estimates (millions)

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Pavement Needs (NHS and Non-NHS)	$198.5	$208.4	$218.8	$229.7	$241.2	$253.3	$265.9	$279.2	$293.2	$307.9
Bridge Needs (NHS and Non-NHS) (Includes Long Town Bridges)	$187.4	$196.8	$206.6	$217.0	$227.8	$239.2	$251.2	$263.7	$276.9	$290.8
Rail	$51.8	$52.7	$53.7	$54.7	$57.7	$58.8	$59.9	$61.1	$62.3	$63.6
Roadway Reconstruction/Improvements	$82.7	$86.8	$91.2	$95.7	$100.5	$105.5	$110.8	$116.4	$122.2	$128.3
Safety and Traffic Operations	$59.5	$62.5	$65.6	$68.9	$72.4	$76.0	$79.8	$83.8	$88.0	$92.4
Aviation	$13.0	$18.9	$25.9	$39.2	$16.4	$29.0	$29.6	$26.3	$29.7	$30.0
Public Transit	$58.5	$59.1	$60.2	$58.6	$58.4	$57.1	$58.7	$59.7	$60.3	$61.5

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Bike and Pedestrian	$21.7	$13.2	$13.2	$15.4	$16.3	$15.0	$15.4	$16.0	$16.2	$16.1
Transportation Alternatives	$3.4	$4.9	$5.0	$4.9	$4.8	$5.1	$5.2	$5.3	$5.3	$5.5
Park and Ride	$1.2	$2.5	$2.5	$2.0	$2.1	$2.4	$2.3	$2.3	$2.3	$2.4
Maintenance and Buildings	$114.1	$114.9	$117.8	$123.7	$129.9	$136.4	$143.2	$150.4	$157.9	$165.8
Environmental Policy and Sustainability	$30.4	$20.5	$1.0	$1.0	$1.0	$1.1	$1.1	$1.1	$1.2	$1.2
Central Garage	$24.1	$24.7	$25.4	$26.1	$26.9	$27.7	$28.5	$29.4	$30.3	$31.2
Policy and Planning	$14.5	$14.9	$15.4	$15.8	$16.3	$16.8	$17.3	$17.8	$18.3	$18.9
Rest Area	$2.3	$1.9	$1.9	$2.0	$2.1	$2.0	$2.1	$2.1	$2.1	$2.2
Finance and Administration	$25.5	$26.6	$27.6	$28.7	$29.9	$31.1	$32.3	$33.6	$35.0	$36.4
Town Highway Programs	$47.5	$48.4	$49.4	$50.3	$51.3	$52.3	$53.4	$54.5	$55.6	$56.8
Program Development Administration	$34.6	$35.4	$36.3	$37.4	$38.5	$39.7	$40.9	$42.1	$43.4	$44.7
DMV	$49.3	$50.4	$51.8	$53.0	$51.8	$54.1	$55.7	$57.4	$59.1	$60.8
Total Needs	**$1,020.1**	**$1,043.6**	**$1,069.2**	**$1,124.3**	**$1,145.5**	**$1,202.6**	**$1,253.5**	**$1,302.1**	**$1,359.3**	**$1,416.2**
Estimated Funding Gap (Needs – Revenues)	($316.8)	($379.0)	($392.5)	($436.2)	($449.0)	($498.5)	($541.8)	($582.6)	($631.7)	($680.2)

3.0 Trends and Policies Influencing Transportation Funding

This chapter identifies key trends, policies, and factors shaping transportation infrastructure and funding in Vermont and throughout the United States. These trends reflect shared challenges at the state and federal levels. Awareness of these trends can help policymakers shape transportation revenue mechanisms most effectively to address challenges.

3.1 Top trends, policies, and factors affecting Vermont's multimodal transportation system

Below are the top identified trends and policies from around the United States, presented in synthesis form, with relevancy to Vermont's consideration of new funding approaches.

3.1.1 Construction Cost Inflation

Inflation in highway construction costs has significantly outpaced inflation in the general economy, as measured by the Consumer Price Index (CPI). Between 2020 and the first quarter of 2023, construction costs rose by more than 54%, according to the Federal Highway Administration's National Highway Construction Cost Index (NHCCI), compared to an 8% increase in the CPI during the same period. The impact on highway construction projects across the nation has been significant, straining budgets and forcing state departments of transportation (DOTs) to alter their project construction and spending plans.

In Vermont, between 2018 and 2023, AOT reported notable price increases in key construction activities and materials, including a 36% increase in common excavation; a 66% increase in traffic signs; and a 43% increase in white line striping.

Rising costs have caused significant disruptions to highway construction projects. Many state DOTs are stretching out project timelines, breaking them into phases to accommodate budget constraints. For example, the Central Susquehanna Valley Thruway (CSVT) project in Pennsylvania was originally designed and approved at $670 million, with construction to begin in 2019. After a series of project cost increases and subsequent redesigns, the latest estimates are now at $938 million, with a revised completion date of 2027.[2] In Washington state, WSDOT has had to split large projects into smaller segments, extending construction timelines by several years to ensure sufficient funding[3]. In some cases, projects are being postponed indefinitely. Delays not only disrupt the timelines for critical infrastructure improvements but also exacerbate safety and congestion issues in affected areas.

Federal funding through the Infrastructure Investment and Jobs Act (IIJA) provides at least a temporary source of supplemental funding to states. The IIJA allocates $295 billion for transportation-related infrastructure projects over the five-year funding cycle, including significant resources dedicated for

[2] *PennDOT modifies completion schedule for central Pa. thruway project*, PennLive.com, March 8, 2024.
[3] *Prices skyrocket on WA transportation projects, and fewer contractors want the jobs*, Seattle Times, September 21, 2023.

highway construction. While these funds provide temporary relief, they do not fully offset the rapid rise in costs, increasing pressure on new or existing transportation revenue sources to fill funding gaps.

3.1.2 Technological Advancements

Technological advancements are a key trend that could reshape transportation infrastructure in the future, making systems smarter, safer, and more efficient. Autonomous vehicles (AVs), smart traffic management and intelligent transportation systems are addressing challenges posed by traffic congestion and traffic safety.

AVs use sensors, cameras, radar, and artificial intelligence to navigate vehicles with limited (or no) human input. AVs have the potential to improve safety by reducing human-error-related accidents, which account for 94% of crashes, according to the National Highway Traffic Safety Administration (NHTSA). Cities such as Phoenix, Arizona, are piloting AV programs, with companies like Waymo operating self-driving taxis. While AVs could potentially optimize mobility for underserved populations, widespread adoption of AVs faces hurdles, including regulatory challenges, liability concerns, and the cost of required infrastructure upgrades (e.g., better roadway signage and pavement striping), not to mention the cost of the vehicle technologies themselves.

In 2019, the Vermont Legislature enacted the Automated Vehicle Testing Act (23 V.S.A Chapter 41) that directed AOT and other Vermont agencies to adopt policies and programs to support AVs. AOT developed comprehensive guidelines and an application process for technology companies to test AVs on public roads. The resulting guidelines include safety requirements, operational protocols, and reporting obligations for AV operators. In February 2021, Springfield became the first Vermont town to authorize AV testing on its local roadways.

Smart traffic management and intelligent transportation systems use technologies such as sensors, cameras, and connected infrastructure to improve traffic flow and reducing congestion. By collecting real-time data, these systems can adjust traffic signals, reroute vehicles, and provide drivers with updates. AOT operates its Transportation Management Center (TMC) as a central hub for monitoring and managing transportation operations across Vermont. Operating 24/7, it collects and disseminates real-time traffic information, coordinates incident responses, and communicates with various agencies and the public to ensure safer, smooth traffic flow.

3.1.3 Equity and Accessibility

The increased attention on equity issues in transportation is influencing how policymakers and transportation planners approach infrastructure projects. Equitable transportation systems aim to provide all individuals—regardless of income, race, or geographic location—access to reliable and affordable transportation options.

Many transportation systems in the U.S. were developed in ways that disproportionately affected low-income communities and communities of color. The construction of highways in the mid-20th century often bisected minority neighborhoods, displacing residents and isolating communities. Today, many of these communities face limited access to transit options, further exacerbating economic and social inequalities.

To address these historical inequities, FHWA's Justice40 program establishes a goal that at least 40% of federal investments in climate and other public infrastructure benefit disadvantaged communities. This includes investments in public transit, multimodal transportation options (including bike and pedestrian paths), and infrastructure improvements in underserved areas.

Public transit is a critical area of focus for improving equity. Underserved communities often rely on public transportation as their primary means of travel, yet many experience unreliable service, long commutes, or inadequate service territories. Cities have invested in expanding bus and rail networks to connect transit-dependent residents with job centers, schools, and healthcare facilities. Rural areas, which often lack sufficient transit options, are also receiving increased attention. Programs like the Federal Transit Administration's Rural Transit Assistance Program provide funding and technical support to improve rural mobility.

In Vermont, efforts to address transportation equity include improving public transit options in rural areas and ensuring that low-income households can access affordable transportation. Vermont public transit providers have focused on increasing access to transit for rural and economically disadvantaged populations by offering fare-free routes in some areas. Unfortunately, like other transit systems in the U.S., Vermont transit providers are currently having to re-evaluate or cut spending through service reductions to address its budgetary constraints[4], including consideration of higher vehicle registration fees for certain vehicles or a road usage fee on delivery vehicles[5].

3.1.4 Climate Resilience and Sustainability

Adapting infrastructure to withstand the impacts of climate change has become a critical priority across the U.S. Communities nationwide face increasingly severe and frequent weather events, including hurricanes, flooding, wildfires, and prolonged droughts. Rising sea levels, particularly along coastal regions, threaten transportation networks, utilities, and housing. These challenges highlight the urgent need for infrastructure that is not only durable but also adaptable to a changing climate.

The federal government has made substantial commitments to improving the resilience of infrastructure against these challenges. The Infrastructure Investment and Jobs Act (IIJA), signed into law in 2021, dedicates $46 billion to climate resilience projects, which is in addition to $50 billion for energy-sector resilience projects. These funds target various projects, such as improving stormwater systems, reinforcing bridges and roads against flooding, and wildfire prevention measures in vulnerable regions like California and the Pacific Northwest. The federal legislation encourages integrating climate considerations into long-term planning and design standards.

An example of this approach can be found in Vermont, where record rainfall in 2023 caused catastrophic flooding, destroying roads, bridges, and homes. Recovery efforts included reevaluating roadway designs to withstand future flooding, thus aligning with federal priorities for sustainable reconstruction.

[4] Report on Federal Sources for Public Transit Nonfederal Match, Vermont Public Transportation Association, submitted to the Legislature January 2024. ES-1.
[5] Ibid., at ES-2.

The move toward climate-resilient infrastructure also considers social equity. Vulnerable communities, often disproportionately impacted by climate-related disasters, are prioritized in federal funding allocations. For example, programs under the IIJA aim to provide resources to improve public transportation, thereby encouraging more equitable disaster preparedness.

While climate resilience involves planning, designing, and developing the transportation system to withstand the impacts of climate change, carbon reduction goals are aimed at limiting or reducing harmful carbon emissions from the transportation sector. Vermont's Climate Action Plan (CAP) calculates that the state's transportation sector alone is responsible for 40% of emissions and sets a goal to achieve net zero emissions by 2050. To address this, AOT has developed a comprehensive Carbon Reduction Strategy (CRS) that outlines various policies, programs, and other important considerations for reducing carbon emissions. In furtherance of this initiative, AOT has been allocated federal funding of $32 million spanning fiscal years 2022 through 2026 to help funding projects designed to reduce transportation emissions.

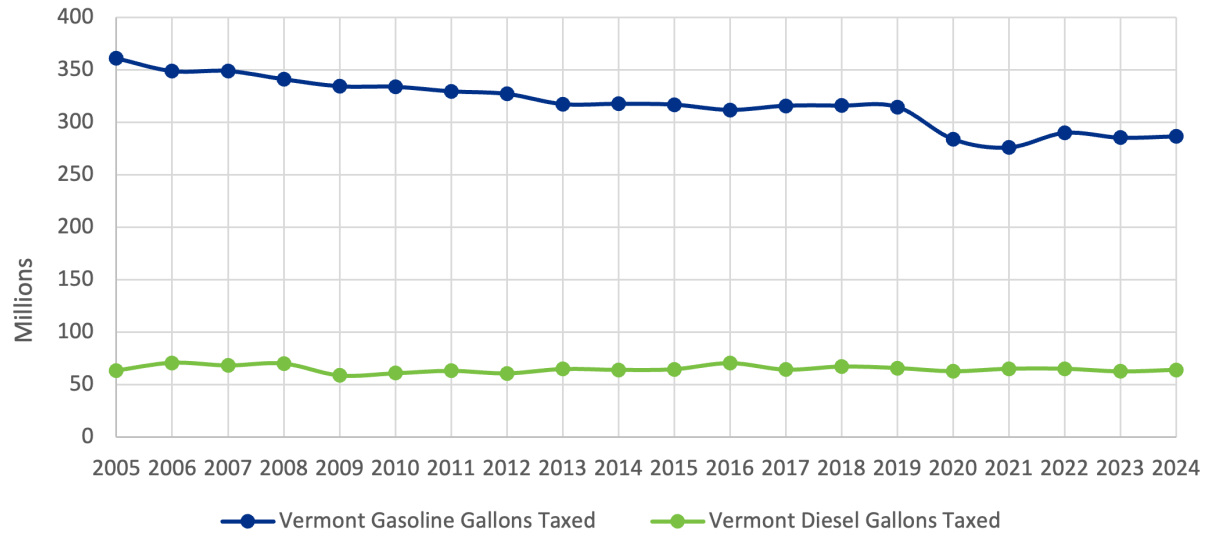
3.1.5 Transition to Fuel-Efficient and Electric Vehicles (EVs)

The transition to electric vehicles (EVs) has the potential to transform transportation energy sources, improve vehicle emissions, and accelerate the development of new methods for funding roadways. However, this shift presents challenges, including the need to develop extensive EV charging networks and the need to expand consumer adoption of EVs.

One of the most significant impacts of the EV transition is the demand for improved energy infrastructure – particularly a nationwide network of EV charging stations. EVs require charging infrastructure that accommodates diverse locations and charging speeds. To address this need, the Infrastructure Investment and Jobs Act (IIJA) allocated $7.5 billion across the states specifically for publicly accessible EV charging infrastructure. The resulting National Electric Vehicle Infrastructure (NEVI) program seeks to create a wide-area network of 500,000 chargers by 2030, with a focus on highway corridors, rural areas, and underserved communities.

As evidenced by this study, the transition to EVs also disrupts traditional transportation funding models and compels states to find transportation funding alternatives. Historically, state and federal transportation programs have relied heavily on fuel taxes, which are assessed per gallon of gasoline or diesel. As EVs gain market share and internal combustion engine vehicles become more efficient, fuel tax revenues are declining (Figure 5). This poses challenges for funding road maintenance and infrastructure projects, prompting states to explore alternative revenue models.

Figure 5. Historical Gallons of Gasoline and Diesel Taxed in Vermont (2005 – 2024)



Source: July 2024, Vermont Joint Fiscal

One solution under development in several states is mileage-based user fees (MBUF), also known as road usage charges (RUC). Under this system, drivers pay based on the number of miles they drive rather than the amount of fuel consumed. In the 2023 legislative session, the Vermont Legislature enacted Act 62, which authorized the development of a mileage-based user fee (MBUF). The legislation directs Vermont to prepare to implement an MBUF system that would collect mileage fees from all battery electric vehicles (BEVs) starting July 1, 2025 and sets aside State matching funds for a potential federal grant to support implementation. Additionally, the legislation required an exploration of the feasibility of collecting fees on kilowatt-hours dispensed through certain electric vehicle charging stations in order to capture out-of-state EV travel. Given FHWA delays in issuing the Notice of Funding Opportunity for the Strategic Innovation in Revenue Collection Program, the target date of July 2025 is unlikely. However, in November 2024, FHWA awarded Vermont $3 million through the program to implement a program on July 1, 2026.

3.2 Relevance of these trends for new revenue mechanisms

Given these key trends, policies, and factors, the remaining question is how new transportation revenue mechanisms might support or respond to these trends. The following considerations should be given when evaluating potential new transportation funding methods:

- **Revenue mechanisms that are responsive to inflation**. Consideration should be given to revenue mechanisms that tend to track with inflation, without the need for frequent changes in rates or other legislative interventions.
- **State revenue sources and/or local options to support transit**. Public transportation provides a critical service for disadvantaged and underserved communities: it enhances job access, helps address social isolation, improves health outcomes, and allows vulnerable Vermonters to take full advantage of programs offered by state agencies and non-profits. The need to sustain or

enhance service levels is critical to improving equity and accessibility. Authorization of new revenue sources – whether for statewide collection or as a local-option for local governments – should consider the funding needs for public transportation, whether serving rural or more urbanized areas.

- **Affordability for lower-income households**. Consideration should be given to the ability of lower-income households to manage the cost of any new transportation revenue mechanism. This could be achieved through different rate structures, the availability of rebates, credits, or discounts, or the ability to spread payments out over a period of time.
- **Supportive of new project priorities**. Emerging threats from the changing climate require departments of transportation – including the federal government – to allocate funding to design and develop more resilient infrastructure. Although not strictly a revenue source issue, consideration must be given to the depository accounts for new revenue and the possibility of reprioritizing projects and programs to reflect the need for resilient infrastructure.
- **Flexible use of revenue.** Strategies identified in Vermont's CRS include expansion of multimodal transportation options (bike, pedestrian, transit), targeted subsidies for micromobility, transit electrification and clean vehicles; and travel demand management programs to encourage less carbon-intensive means of travel. In evaluating potential new transportation revenue mechanisms, consideration should be given to the broad array of funding needs to support Vermont's CRS.
- **Electric vehicles as a new revenue source**. The need to identify new transportation revenue sources beyond motor fuel taxes must be carefully balanced against the imperative to transition the gas and diesel-powered vehicle fleet to zero-emission electric vehicles. Potential new revenue sources should be evaluated with both of these imperatives in mind, assessing the extent to which the revenue source can be configured and reconciled with vehicle fleet transition goals.

4.0 Meeting the Transportation Funding Challenge

4.1 Revenue Mechanism Issues to be Addressed

Identifying viable alternative transportation funding mechanisms in Vermont requires addressing several complex and interrelated challenges. Consideration and evaluation of alternative revenue mechanisms must carefully balance these factors, recognizing that no single approach can comprehensively address all issues. Below are key considerations that must be weighed to meet the transportation funding challenge:

- **Reduced Fuel Consumption**: Vermont's reliance on fuel taxes as a primary source of transportation revenue is increasingly unsustainable. Advances in vehicle fuel efficiency and the growing adoption of electric and alternative-fuel vehicles erode the revenue base derived from traditional fuel taxes. This trend necessitates a shift toward funding mechanisms that are not tied to fuel consumption, such as mileage-based fees as approved for development in Vermont[6], to ensure long-term financial stability.
- **Economic Volatility**: Transportation funding mechanisms reliant on vehicle sales, such as Vermont's purchase and use tax, are vulnerable to economic downturns. During recessions, consumer spending on vehicles declines sharply, as evidenced during the 2008–2009 Great Recession when Vermont's Transportation Fund experienced shortfalls[7]. Diversifying revenue sources to include more stable options could help mitigate the risk of sudden revenue declines during economic recessions.
- **Inflation**: Traditional transportation revenue streams often fail to keep pace with inflation, particularly the steep inflation in highway construction costs. Without regular adjustments, mechanisms like fixed fuel tax rates lose purchasing power over time. Options that are indexed to inflation or include automatic adjustments can help maintain the value of collected revenues.
- **Increasing Travel Demand**: Growing vehicle miles traveled (VMT) and public transit ridership can strain existing transportation budgets. Revenue mechanisms requiring frequent legislative changes, such as periodically increasing fees or taxes, create administrative and political challenges. Revenue mechanisms that naturally align with growth in travel demand can minimize the need for frequent legislative adjustments.
- **Disproportionate Impacts:** Fixed-rate fees, such as flat vehicle registration charges, disproportionately affect low-income households by failing to scale with vehicle usage. This regressivity presents equity concerns, as these households often pay a larger percentage of their income on such fees. Mechanisms that align costs with usage, such as mileage-based user fees or tiered pricing models, can promote fairness while addressing funding needs.

[6] Act No. 62 (H.479), enacted by the Vermont Legislature in 2023,
[7] Achieving Prosperity Through Affordability: Fiscal Year 2009 Executive Budget Recommendations, James H. Douglas, Governor of Vermont. January 22, 2008.

4.2 Guiding Principles and Evaluation Criteria

This section describes the Guiding Principles and Revenue Evaluation Criteria ("revenue criteria") that are applied in analyzing the potential alternative revenue mechanisms (Table 4).

The revenue criteria largely mirror the criteria applied in Vermont AOT's 2016 Funding Alternatives Study. A thorough review was conducted of tax principles and revenue evaluation criteria used in several other states, as well as principles recommended by tax foundations and industry associations. In the end, the criteria used in 2016 proved to be the most comprehensive, cogent, and useful, with a few modifications.

Table 4. Guiding Principles and Revenue Criteria

Revenue Stream Considerations	
Revenue Potential	The extent to which the option is capable of generating significant revenue.
Revenue Sustainability	The extent to which the option self-adjusts or can be adjusted easily from year-to-year to provide a stable, reliable source of revenue that tracks with transportation demand, regardless of changes in vehicle technologies, ownership, fuel sources, or consumer spending.
Revenue Flexibility	The extent to which the mechanism is appropriate for a wide range of investments (and different transportation modes) and can be redirected to meet changing needs.
Implementation and Administration Considerations	
Appropriateness for State-Level Implementation	The appropriateness of statewide implementation, including consideration of the impact on local governments.
Ease/Cost of Implementation, Administration and Enforcement	The ease and cost to implement, administer, and enforce relative to the revenue-raising potential.
Economic Efficiency and Impact Considerations	
Promotion of Efficient Use	The extent to which the mechanism provides incentives for efficient use of the system by influencing travel choices and behavior.
Consistency with State Climate Goals and Other Transportation-related State Goals and Policies	The extent to which the mechanism is consistent or can be aligned with state climate goals and other state goals and policies related to the transportation sector.
Equity Considerations	
User and Beneficiary Equity	The extent to which the mechanism can be structured to recover a reasonable share from those who directly use or otherwise benefit from the funded investment.
Equity Across Income Groups	The extent to which the mechanism limits costs for those who face the most difficulty in paying.
Geographic Equity	The extent to which the cost allocation and impact of the mechanism can be structured to match the geographic distribution of the benefit.

4.3 Shortlisted Alternative Revenue Options

Based on preliminary analysis and discussions with Vermont Agency of Transportation, the following alternative revenue mechanisms were advanced for detailed analysis. Full descriptions, quantitative, and qualitative analysis follows in Chapter 5:

- Gasoline Tax Indexing
- Diesel Tax Indexing
- Mileage Based User Fee for Light Duty (<10,000 lbs.) vehicles
- Mileage Based User Fee for Medium and Heavy Duty (>10,000 lbs.) vehicles
- Retail Delivery Fee
- Transportation Network Company Fee
- MPG-Based Registration Fee
- Tire Fee

4.4 Other Revenue Sources Not Analyzed

Below are five additional sources of potential revenue for transportation that were not advanced for detailed analysis in this study.

- **Weight-distance tax**: A weight-distance tax is imposed on heavy trucks based on their weight and the distance they travel on public roads. This tax structure aims to ensure that vehicles contributing more to road wear and tear pay proportionately for infrastructure maintenance. Three states (Oregon, New Mexico, and New York) collect weight-distance taxes for trucks over 26,000 pounds. The per-mile amount varies based on a truck's weight and number of axles. Kentucky collects a flat amount per mile driven for all trucks 60,000 pounds and over.

  The tax is determined by multiplying the vehicle's weight (gross or registered weight) by the number of miles traveled on public roadways in the taxing jurisdiction. Motor carriers must maintain detailed record of tonnage and miles traveled, then file the information along with the applicable tax.

  While a weight-distance tax is capable of generating significant revenue, there are other existing revenue mechanisms that already aim to capture the weight impacts of heavy trucks (e.g., truck weight fees). Since a mileage-based user fee on diesel vehicles is already analyzed in this report, the mileage component of weight-distance taxes is already being explored, to the extent that heavy vehicles are predominantly fueled with diesel (estimated to be at least 75%).

- **Vehicle property tax**: This revenue mechanism (also known as vehicle ad valorem tax, or motor vehicle excise tax), is a tax levied on the ownership of a vehicle and collected at the time of vehicle registration. It is sometimes confused with a vehicle registration fee, since typically both are due and payable during the annual registration renewal processes. Vehicle property taxes are typically determined by formula, where the value of a specific vehicle is assessed a tax (usually expressed as a percentage, e.g., 4% of the assigned vehicle value).

Vehicle property taxes exist in some form in 27 states, but in many cases the taxes are imposed for the benefit of towns and cities (e.g., in Connecticut), or for public transit systems (e.g., Sound Transit in the greater Seattle/Central Puget Sound area).

Vehicle property taxes have advantages as transportation revenue mechanisms: if applied on a statewide basis, the tax can generate a very significant amount of revenue – in some states, as much as the state gas tax. Another advantage is that the overall value of vehicles increases over time as new, more expensive vehicles enter the fleet; thus, revenues collected also increase, since the property tax is levied as a percentage of vehicle value. However, vehicle property taxes also have disadvantages, particularly from a public acceptance standpoint. Since the basis of the tax is the "value" of a specific vehicle, there's often disagreement on how much a used vehicle is worth, given the individual characteristics and condition of each person's vehicle. Some states have in the past made changes to the valuation method to increase revenue collections - and consequently faced voter backlash, resulting in citizen-driven initiatives to repeal the tax entirely.

This revenue mechanism did not make the list of options advanced for more detailed analysis because Vermont already collects a Purchase and Use tax on newly registered vehicles where the basis of this tax is a vehicle's value. In addition, a forecast of estimated revenue from a vehicle property tax is hindered by the lack of available data on the exact value of Vermont's existing vehicle fleet.

- **Earmarks of General Fund revenue sources or revenue transfers**: Revenue support for transportation budgets can extend beyond specifically enacted transportation taxes and fees. Some states have either routinely or periodically bolstered their transportation budgets with transfers of revenue from their state's General Fund. Other states may impose a general tax statewide (e.g., a state sales tax) that is primarily used for general government purposes, while earmarking a specific portion of that tax to be deposited and used for transportation purposes. These two forms – transfers (one-time or ongoing), and earmarks of specific revenue at the source of taxation – are the most common approach to using General Funds to bolster transportation budgets at the state level.

  At least 38 states now allocate some form of General Fund revenue for transportation purposes. On average, the amount is relatively small – 5.8% of the state's transportation budget - but there is a wide range of funding levels among the states. The state transportation budgets that are most reliant on General Funds are New Mexico (27.1%), the District of Columbia (25.9%), and Alaska (19.4%). However, those states have relatively small annual transportation budgets. The states with the largest General Fund supplements for their transportation budgets are Utah ($2 billion, although about $1 billion is one-time funding), New York ($1.79 billion, ongoing), and Pennsylvania ($1.145 billion, ongoing).

  The option of transferring money from Vermont's General Fund on an ongoing basis or slicing off a percentage of a General Fund revenue source and earmarking it for transportation, was not considered or analyzed for this study for several reasons. First, reallocating existing funds or fund sources is not "new" revenue to the state – it is simply redirecting revenue that was already being collected. Second, while the transportation sector might benefit from this

approach, it forces competition for other important policy priorities, such as education or healthcare. This injects significant uncertainty into the transportation funding pipeline, an unsustainable approach for projects that require years of advance planning. Finally, while transferring General Funds to support the Transportation Fund remains a tool in legislators' toolbox, it is typically used sparingly, only in the most pressing of circumstances, and the strategy cuts both ways: in many states, transportation funds have been shifted to the state's General Fund to meet other urgent needs of government. For these reasons, no further analysis was conducted on this approach.

- **Lease of state-owned rights-of-way**: Some states have explored creative ways to utilize their existing state-owned rights-of-way to generate additional revenue. The approaches range from leasing existing roadways to private companies for operation of the state highway as a tolled facility, to attempts to lease state-owned properties adjacent to highways to be developed and operated as travel plazas or other retail amenities, to leasing similar properties for renewable energy projects like solar panels or telecommunication infrastructure (e.g., cellular towers).

  In order to assess the revenue potential of a program that leases state-owned rights-of-way, at minimum, the following issues would need to be addressed:

  - Clarify the intended purpose of the proposed use of the rights-of-way: maximize revenue, or advance other important public policies?
  - Establish property entitlements: ownership and/or legal interest in the land or airspace
  - Assess federal and state laws and policies that govern the use of the rights-of-way
  - Inventory state-controlled rights-of-way that are viable for commercial or other developmental use
  - Assess economic viability of various alternative uses of the land or airspace in the state's inventory
  - Gauge market interest in the potential alternative uses of the rights-of-way
  - Develop a financial model or pro forma for the potential alternative uses

  Vermont Agency of Transportation is currently conducting a study that examines the potential use of highway rights-of-way for commercial or other private purposes. Once that study is complete, the results could answer many (if not all) of the issues raised above, thereby allowing a revenue estimate of this policy to be developed.

- **Carbon taxes or fees (including cap-and-invest):** Recognizing the urgency of climate change, Vermont is exploring a cap-and-invest program as a strategy to support meeting the State's requirements for cutting climate pollution. This strategy involves setting a cap on greenhouse gas emissions and requires polluters to purchase permits for each ton emitted. These funds are then reinvested in clean energy initiatives, transportation equity, and community resilience projects. In 2024, the Vermont Assembly enacted Act 148, which mandated a study on the feasibility of cap-and-invest, focusing on its potential to reduce emissions from the transportation and buildings sectors. While the full report will not be issued until February 2025,

preliminary findings from the cap-and-invest study were recently released. The initial findings are that:

- Vermont's participation in a cap-and-invest program could support additional progress towards meeting the 2030 emission reduction requirements.
- Future allowance prices, which are a key determinant of both emissions reductions and economic and household cost impacts, are uncertain under both the Western Climate Initiative (WCI) and the New York Climate Initiative (NYCI), but are likely to be higher under WCI.
- A cap-and-invest program that includes the residential, commercial and industrial sectors has the potential to improve administrative efficiency; this approach could be an alternative to the Clean Heat Standard currently under consideration by the Legislature. An all-fuels cap-and-invest program would increase the overall magnitude of emission reductions achieved by the program.
- A low-carbon fuel standard implemented alongside a cap-and-invest program could increase the likelihood of achieving the emission reduction requirements of the Global Warming Solutions Act (GWSA), Act 153 (2020), but would add administrative complexity. Currently no neighboring state is pursuing a low-carbon fuel standard. Absent a neighboring or regional partner to share the costs of program administration, establishment of a Vermont-only program would result in an increase in cost to compliance entities, and ultimately consumers, as compared to participation in a multi-jurisdictional program.

Vermont's interest in cap-and-invest aligns with its broader climate goals, which include reducing greenhouse gas emissions by 40% below 1990 levels by 2030 and 80% by 2050. In addition to investing in renewable energy sources and promoting energy efficiency to meet these goals, cap-and-invest could offer a comprehensive approach to climate change mitigation efforts. However, because cap-and-invest is largely viewed as a funding source to achieve climate goals, it was not evaluated in this study as a viable, long-term funding source for road and bridge maintenance.

5.0 Analysis of Transportation Revenue Options

This section describes and analyzes eight different alternative revenue mechanisms. Each alternative revenue mechanism is briefly described, followed by a summary of the results of the quantitative and qualitative analysis. This section concludes with a table showing the composite results to enable easier comparisons between the different mechanisms.

5.1 Gasoline Tax Indexing

Description: Gas tax indexing periodically adjusts gas tax rates in response to inflation or other economic indicators. Indexing helps gas tax revenue keep pace with inflation in roadway construction materials and other related costs.

The District of Columbia and 22 states index their per-gallon fuel excise tax rate to inflation. In 2016, Georgia became the first state to automatically adjust its per-gallon fuel tax rate for fleet fuel economy (Georgia also indexes their gas tax to the more commonly used Consumer Price Index, or CPI). Specific formulas and points of taxation vary among the states that index their gas tax, but all states share the common purpose of collecting a user fee (gas tax) that strives to provide roadway funding roughly proportional to the cost of providing operations and maintenance of the system.

Basis for analysis: The gas tax indexing analysis is based on the current fixed rates that are deposited into the T-Fund (i.e., 11.345 cents per gallon). The variable rates for the assessment portion remained consistent throughout the forecasting period – for purposes of analysis, 2.4% annual inflation index.

5.1.1 Revenue Stream Considerations

Despite the assumed annual increase of 2.4% in fuel tax rates, the revenue projections for gasoline show a decline over time. For gasoline, the indexed tax revenue starts at $33,120,000 in 2026 and peaks at $33,989,000 in 2028. However, it then gradually decreases, reaching $24,363,000 by 2035 – even with indexing. This trend indicates that while indexing the gas tax rates initially boosts revenue, the overall decline in revenues over the period is likely due to the increasing adoption of electric vehicles (EVs) and more fuel-efficient vehicles entering the fleet.

Revenue Potential: Modest. Indexing the current fixed rate of 11.345 cents per gallon helps to counteract the loss of purchasing power from this revenue mechanism over time. By implementing indexing, it is projected to generate an additional $776,400 in revenue by FY 2026 (Figure 6). By 2035, this additional revenue is expected to increase by $5.1 million compared to a scenario without indexing. While the financial benefits of indexing are significant, it is important to note that gas tax revenues are anticipated to decline due to the increasing prevalence of more fuel-efficient vehicles, including electric vehicles.

Revenue Sustainability: Below average. While automatic annual increases in the gas tax tied to an inflation index certainly helps bolster gas tax revenue in the short run, over time as fleet MPG increases, fewer and fewer gallons of gasoline will be sold, making gasoline – even with indexing – less sustainable over the long run.

Revenue Flexibility: Above average. Current gas tax revenues are deposited into the T-Fund where it can be used for multimodal purposes. It follows that revenue resulting from indexing the gas tax would similarly be deposited into the T-Fund. Unlike many other states, Vermont's gas tax revenue is eligible for expenditure on a wide range of transportation purposes.

5.1.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Fuel taxes are among the least costly to collect, with collection costs estimated at 2% of revenue. Fuel tax evasion rates and enforcement expenses are also quite low, estimated to be no more than 1% of revenue. Since indexing is an administrative calculation conducted just once per year, the marginal cost of this revenue mechanism is negligible.

Appropriateness for State-Level Implementation: Above average. Indexing the state's gas tax is simply a rate adjustment. For purposes of this analysis, it's assumed that the distribution of proceeds would mirror the state's gas tax, which is collected at the statewide level where most of the proceeds are deposited into the state's Transportation Fund (including the Transportation Infrastructure Bond Fund). Revenue in the T-Fund is subject to appropriation by the state legislature.

5.1.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Above average. Broadly considered, the price of fuel does influence travel demand and modal choice. When fuel prices are comparatively high, vehicle miles traveled tends to flatten or even drop. However, fuel taxes are only a small component of the price that drivers pay at the pump – about 16% as of December 2024 (both state and federal). By itself, additional taxes paid from indexing gas at an assumed rate of 2.4% is probably insufficient to cause a shift travel demand or modal choice, but this revenue mechanism is aligned with encouraging efficient system use.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Above average. Although indexing fuel taxes is probably insufficient by itself to cause reductions in the use of gas-powered vehicles, over time, the cumulative effect of inflationary increases in the total price of gas can help nudge consumers to consider transitioning to zero-emission vehicles which cost less to operate (especially fueling costs).

5.1.4 Equity Considerations

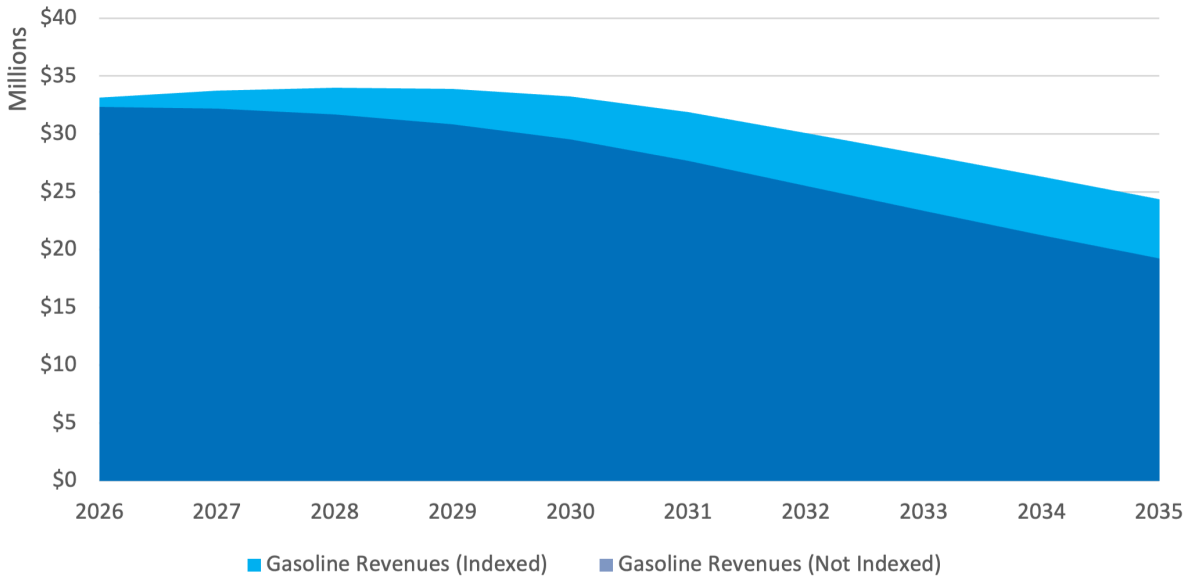
User and Beneficiary Equity: Average. As vehicle fuel economy increases, the share of gas tax contributions to the maintenance and preservation of the roadways is gradually shifting, resulting in larger proportionate contributions from other revenue sources, such as the Purchase and Use tax. An inflation index can somewhat increase the share of funding contributions from drivers (users).

Equity Across Income Groups: Below average. Fuel-efficient and electric vehicle ownership increases with household income. As a result, lower-income households bear an increasing share of indexed fuel taxes per mile driven.

Geographic Equity: Average. People who must drive longer distances to reach services will, on average, consume more fuel for their miles driven and thus pay more in gas taxes. Indexing the gas tax to

inflation will continue this effect. The potential for disparate impacts on longer-distance travelers is the tradeoff for revenue mechanisms based on user fees.

Figure 6. T-Fund Gasoline Tax Revenues by Indexing



5.2 Diesel Tax Indexing

Description: Indexing the state's diesel tax would work as described above for indexing the gas tax: the diesel tax would be periodically adjusted in response to inflation or other economic indicators.

At least 10 states have some form of indexing for diesel fuel. Adjustments in the tax are typically made once per year, although some states adjust more frequently.

Basis for analysis: The diesel tax indexing analysis focused solely on the current fixed rates for diesel (i.e., 28 cents per gallon) that is deposited into the T-Fund. For analysis purposes, the variable rate for the indexed portion remained consistent throughout the forecasting period – 2.4% inflation was assumed.

5.2.1 Revenue Stream Considerations

Despite the assumed annual increase of 2.4% in diesel tax rates, the revenue projections for diesel show a decline over time (Figure 7). Diesel indexed tax revenue begins at $18,264,000 in 2026, peaks at $19,173,000 in 2029, and subsequently declines to $16,936,000 by 2035. This trend indicates that while indexing the diesel tax rate initially boosts revenue, the overall decline in revenues over the period is likely due to more fuel-efficient diesel, electric, or other alternative fueled vehicles entering the fleet.

The results of the evaluation of indexing the diesel tax are largely the same as for indexing the gas tax, with any differences noted below.

Revenue Potential: Moderate. Indexing the current fixed rate of 28 cents per gallon helps to counteract the loss of purchasing power from this revenue mechanism over time. By implementing indexing, it is projected to generate an additional $428,000 in revenue by FY 2026. By 2035, this additional revenue is expected to increase by $1.5 million compared to a scenario without indexing. While the financial benefits of indexing are significant, it is important to note that diesel tax revenues are anticipated to decline due to the increasing prevalence of more fuel-efficient medium- and heavy-duty vehicles, including electric vehicles.

Revenue Sustainability: Below average. While automatic annual increases in the diesel tax tied to an inflation index certainly helps bolster tax revenue in the short run, over time as fleet MPG increases, fewer and fewer gallons of diesel will be sold, making diesel taxes – even with indexing – less sustainable over the long run.

Revenue Flexibility: Above average. Current diesel tax revenues are deposited into the T-Fund where it can be used for multimodal purposes. Revenue resulting from indexing the diesel tax would similarly be deposited into the T-Fund. Unlike many other states, Vermont's diesel tax revenue is eligible for expenditure on a wide range of transportation purposes.

5.2.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Fuel taxes are among the least costly to collect, with collection costs estimated at 2% of revenue. Fuel tax evasion rates and enforcement expenses are also quite low, estimated to be no more than 1% of revenue. Since indexing is an administrative rate-setting calculation conducted just once per year, the marginal cost of implementing and enforcing this revenue mechanism is negligible.

Appropriateness for State-Level Implementation: Above average. Indexing the state's diesel tax is simply a rate adjustment. For purposes of this analysis, it's assumed that the distribution of proceeds would mirror the state's current diesel tax, which is collected at the statewide level where most of the proceeds are deposited into the state's Transportation Fund (including the Transportation Infrastructure Bond Fund). Revenue in the T-Fund is subject to appropriation by the state legislature.

5.2.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Average. Broadly considered, the price of fuel does influence travel demand and modal choice – but considering the majority of diesel fuel users are medium and heavy-duty commercial vehicles (e.g., trucks), there are significantly fewer alternative transportation options for this segment of vehicles. Nonetheless, as fuel prices increase, even owners of heavier commercial vehicles seek opportunities to lower their fueling costs. By itself, additional taxes paid from indexing diesel at an assumed rate of 2.4% is probably insufficient to cause diesel vehicle owners to shift travel patterns. Nonetheless, indexing diesel taxes is aligned with encouraging efficient system use.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Average. Although indexing fuel taxes is probably insufficient by itself to cause reductions in the use of diesel-powered vehicles, over time, the cumulative effect of inflationary increases in the total price of fuel can help nudge heavier vehicle drivers to consider transitioning to more fuel-efficient vehicles. In

the coming decade, cleaner electric and hydrogen-powered medium and heavy-duty vehicles could begin to displace some portion of the diesel-powered fleet.

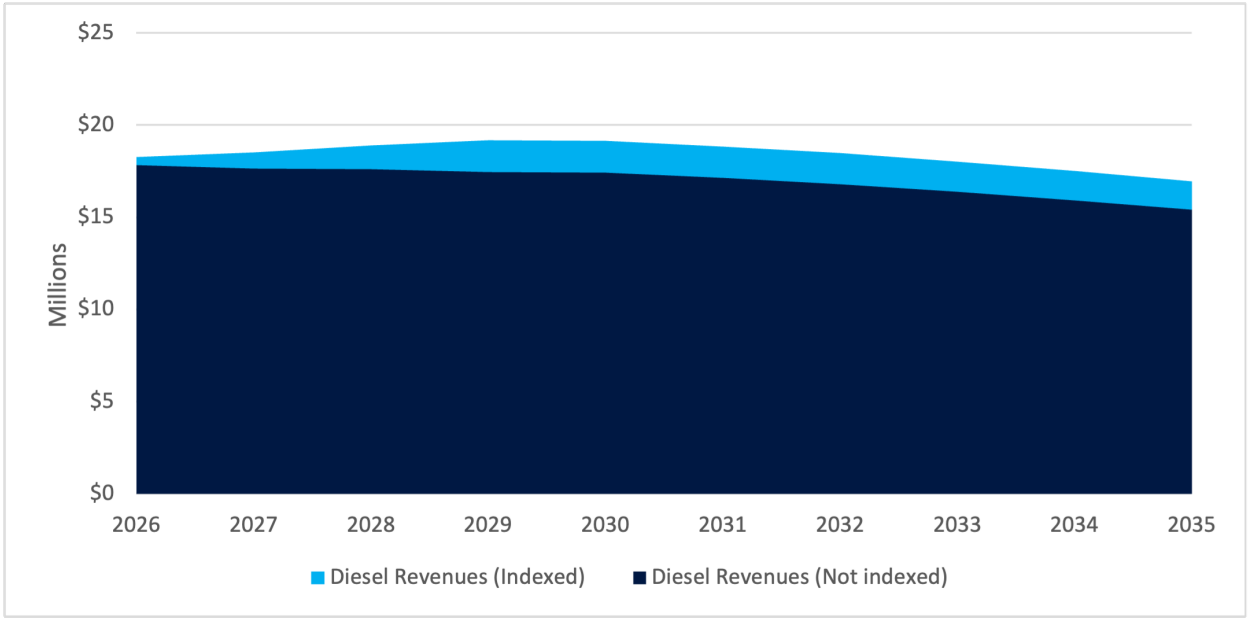
5.2.4 Equity Considerations

User and Beneficiary Equity: Average. As vehicle fuel economy increases, the share of fuel tax contributions to the maintenance and preservation of the roadways is gradually shifting, resulting in larger proportionate contributions from other revenue sources, such as the Purchase and Use tax. An inflation index can somewhat increase the share of funding contributions from drivers, helping reinforce the user-pay principle.

Equity Across Income Groups: Below average. Fuel-efficient and electric vehicle ownership increases with household income. As a result, lower-income drivers will bear an increasing share of indexed fuel taxes per mile driven. This may be of less concern for diesel-powered vehicles since they are predominantly commercial vehicles, but to the extent that individual owner-operators of heavier diesel-powered vehicles must cover their own operating costs, there could be negative implication for income equity, depending on the income characteristics of the individual diesel vehicle driver.

Geographic Equity: Average. People who must drive longer distances to reach services or deliver goods will consume more fuel for their miles driven and thus pay more in diesel taxes. Indexing the diesel tax to inflation will continue this effect.

Figure 7. Diesel Indexed Tax Revenue



5.3 Mileage-Based User Fees: Light Duty Vehicles (under 10,000 lbs.)

Description: A mileage-based user fee (MBUF) is a per-mile charge that is collected from vehicle owners based on their total distance traveled during the mileage reporting period (i.e., each month, quarter or year). There are many methods of collecting distance traveled data and setting rates, which can vary by vehicle or owner characteristics. Four states have now enacted laws to collect mileage-based fees from light duty passenger vehicles weighing less than 10,000 pounds: Oregon, Utah, Virginia, and Hawaii. Vermont's legislature directed that an implementation plan be developed that would enable the state to collect an MBUF upon final legislative approval.

Basis for analysis: The MBUF rate for Vermont is estimated at 1.78 cents per mile for light-duty vehicles starting in 2026. This rate is calculated using the formula: today's gasoline tax rate with statewide average fuel economy at the time of enactment of the last gasoline tax increase in 2013 (estimated 19 miles per gallon, or MPG). The baseline rate was further adjusted by 3.6% to account for the ongoing operational costs to administer and collect MBUF. The starting rate 1.78 cents per mile increases every year by the average consumer price index of 2.4%. The revenue potential was calculated first for vehicles powered by battery electric technology (Figure 8), meaning they do not consume fossil fuels, as Vermont has directed development of this revenue mechanism; then again in 2028 if MBUF were applied to gas-powered and hybrid vehicles. When these two vehicle segments are combined, the result shows revenue potential if MBUF were applied to all light duty passenger vehicles (Figure 9).

5.3.1 Revenue Stream Considerations

For LDVs, mileage-based user fee revenues are expected to grow from $5,709,000 in 2026 to $153,384,000 in 2035, reflecting a substantial rise due to increased adoption and usage of electric vehicles. Further results of the evaluation of mileage-based user fees for light duty vehicles is summarized below.

Revenue Potential: Significant. Although revenue collections would be modest during the early start-up phase of implementing an MBUF, within 10 years the revenue grows significantly, to $153 million as detailed above, assuming the gas tax is repealed when MBUF for all light duty vehicle is enacted.

Revenue Sustainability: Above average. Unlike fuel taxes that are susceptible to eroding revenue yield on a per mile basis, mileage-based fees keep pace with increases in demand on the transportation system (as measure by vehicle miles traveled) since the fees are a direct function of vehicle miles traveled.

Revenue Flexibility: Above average. It is assumed that a mileage-based fee would be deposited into the state's T-Fund where it can be used for a wide range of transportation purposes.

5.3.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Average. As a completely new way to pay for roadways, mileage-based fees come with higher start-up costs than other well-established revenue mechanisms (e.g., vehicle registration fees). Similarly, collecting and processing miles traveled data from all vehicles subject to a mileage-based fee will cost more to administer than fuel taxes (where

taxes are paid by wholesale distributors of motor fuel). However, Vermont is much better positioned to implement a mileage-based user fee on light duty vehicles than most states, for two reasons: first, the Vermont Department of Motor Vehicles has already made substantial progress in modernizing its IT system, which is essential for managing motor vehicle records and registrations in the state – including various taxes and fees owed on those vehicles. Most states are still struggling with legacy computer systems that are not capable of accommodating more advanced vehicle data requirements like MBUF. Second, Vermont is one of only 15 states to have a program in place for mandatory motor vehicle inspections, where odometer readings are already collected. Since this activity is already occurring, the additional incremental task of validating a vehicle's odometer mileage within the DMV database is only a marginal effort (and therefore, MBUF cost). Further, Vermont has been awarded $3 million in a federal Strategic Innovation for Revenue Collection (SIRC) grant to support implementation of MBUF for electric vehicles. For these reasons, the ease/cost of implementing an MBUF on light duty vehicles in Vermont is estimated to be 3-5% once a program has scaled up.

Appropriateness for State-level Implementation: Above average. Because a mileage-based fee relies heavily on the state's motor vehicle registry to properly identify and collect payment from vehicle owners, this revenue source is ideal for state collection and use. One state (Hawai'i) is currently seeking to extend its recently enacted mileage-based fee on electric vehicles to allow counties to opt in to the fee, collecting an additional county-specific mileage charge.

5.3.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Above average. With a focus on "metered use" of the public roadways, a mileage-based fee is expected to promote efficient use of the system. Unlike motor fuel taxes that are buried in the price of fuel paid at the gas pump, or vehicle registration fees that do not vary based on system usage, MBUF is a transparent charge for exact use of the roadway system that is presented to drivers for payment in the form of a mileage statement or invoice. Awareness of driving costs can be expected to result in more efficient use of the system.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Average. A mileage-based user fee in its most basic form would be paid by all vehicles regardless of a vehicle's emissions profile, MPG rating, or fuel source. However, depending on the policy preferences of Vermont public officials, different MBUF rates (or discounts) could be provided based on vehicle emissions profile, fuel type, etc. Therefore, MBUF is capable of further aligning with the state's climate goals if elected officials decide to configure the revenue mechanism in this way. Another advantage of MBUF is that drivers would receive a detailed statement each month detailing both their miles driven (and resulting MBUF charges), and, for gas-powered vehicles, detail on the number of gallons of gas purchased to fuel their driving. Numerous studies in behavioral economics and consumer behavior research have shown that when consumers are presented with the full, transparent cost of their usage, they are more likely to take action to conserve resources. Similar usage statements have been provided

to consumers by electric utilities and have resulted in reduced energy consumption rates of 5-15% on average[8].

5.3.4 Equity Considerations

User and Beneficiary Equity: Above average. A mileage-based fee system assesses all road users directly and in proportion to their consumption of public roadways. The nexus between user fees and benefits is strong.

Equity Across Income Groups: Average. An MBUF falls equally on all users per mile driven; therefore, the incidence is proportionally greater on lower income households, much like other transportation taxes and fees (fuel taxes, vehicle registration fees, etc.). However, total miles driven tends to increase with income, so the total MBUF tax burden falls more on higher-income households. A study conducted by the University of Vermont's Transportation Research Center examined the financial and equity impacts of replacing Vermont's state gas tax with a mileage-based user fee (MBUF). The research analyzed data from over 360,000 Vermont vehicles and found that, on average, rural and low-income households would experience a smaller tax burden under an MBUF compared to the current gas tax system. This is primarily because these households tend to drive less fuel-efficient vehicles, leading them to pay more under a fuel tax system. The study also noted that most Vermont households would see minimal differences in their annual tax burdens when switching to an MBUF, with an average increase of $23 per year. However, rural and low-income households would generally pay less than their urban and higher-income counterparts.[9]

Geographic Equity: Average. People who must drive longer distances to reach services or deliver goods will consume more fuel for their miles driven and thus pay more in usage-based taxes, whether those are direct like MBUF, or indirect like motor fuel taxes. This is the inherent tradeoff involved with a direct user fee like MBUF, which is most tightly based on the user-pays principle. However, a recent study by the University of Vermont found that because rural residents tend to drive older, less fuel-efficient vehicles than average, they would generally pay less than urban residents under a MBUF system as compared to the gas tax[10].

[8] Darby, S.J. (2006), *The Effectiveness of Feedback on Energy Consumption: A Review for DEFRA of the Literature on Metering, Billing, and Direct Displays. Environmental Change Institute*, University of Oxford.
[9] Data-Driven Analysis of Rural Equity and Cost Concerns for Mileage-Based User Fees in Vermont, University of Vermont Transportation Research Center, 2022.
[10] Ibid.

Figure 8. Projected MBUF Revenue for Light-duty Electric Vehicles

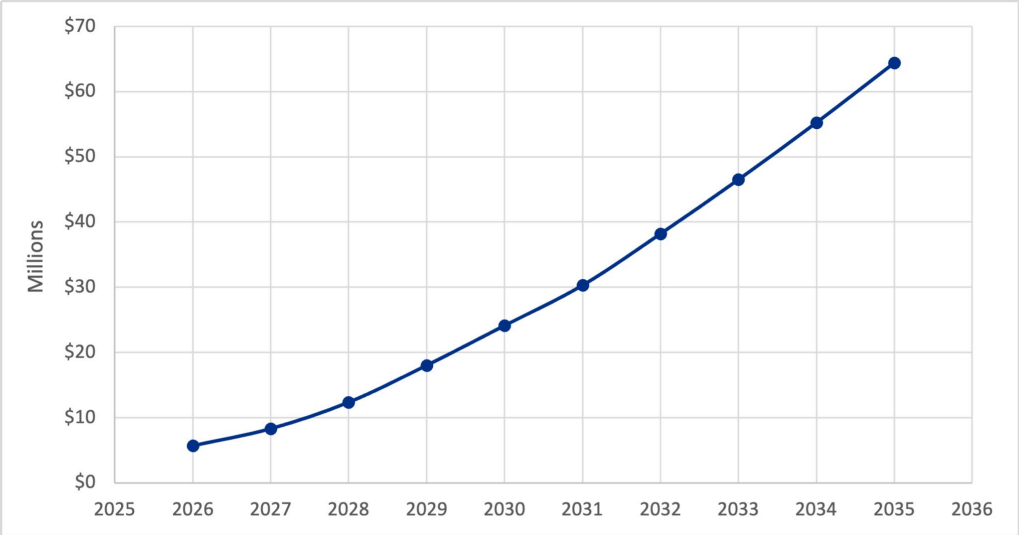
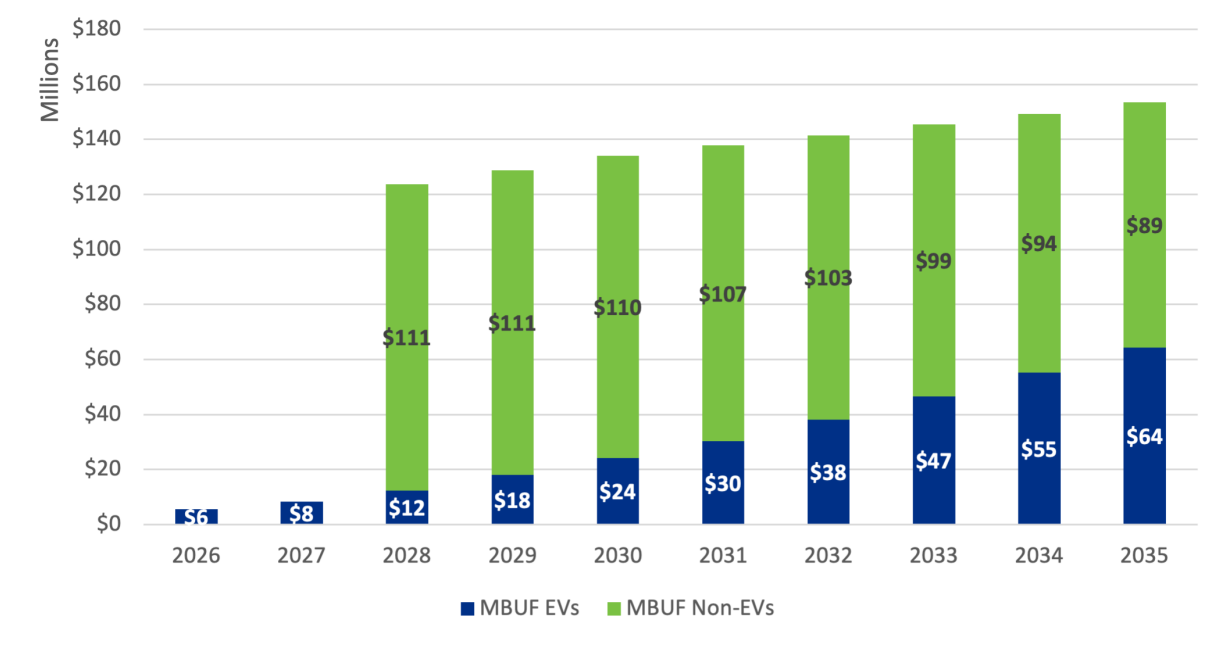


Figure 9. Projected MBUF Revenue for Light-duty Vehicles (showing EVs and non-EVs breakdown)



Note: Gross revenue potential assumes the gas tax is repealed when MBUF for all light duty vehicle is enacted.

5.4 Mileage-Based User Fees: Medium and Heavy-Duty Vehicles (over 10,000 lbs.)

Description: Nearly identical to the revenue mechanism above for light duty vehicles, this mileage-based user fee is a per-mile charge determined by the actual distance traveled by medium and heavy-

duty vehicles weighing greater than 10,000 pounds. In this instance, the primary sector that would pay are heavier vehicles typically used for commercial purposes. The 10-year revenue projection is limited to electric vehicles for medium- and heavy-duty vehicle categories as more studies would have to be conducted to determine specific rate policies applicable for different weight-band categories and the regulatory environment in which these vehicles operate in Vermont and the Northeast region.

Basis for analysis: For policy planning purposes, the average MBUF rates were set at 3.47 cents per mile for medium-duty vehicles and 5.46 cents per mile for heavy-duty vehicles. These rates were calculated using today's diesel tax rate with the average fuel economy. For vehicles weighing over 10,000 pounds, different average MPG rates were assumed due to their greater variability in fuel economy compared to lighter vehicles. The fuel economy of these larger vehicles is influenced by a range of factors, including vehicle weight, road gradient, speed, and terrain. Given that manufacturers of vehicles above 10,000 pounds are not required by the EPA to label the fuel economy, CDM Smith leveraged average MPG values for medium- and heavy-duty vehicles based on findings from previous studies,[11] which served as a suitable starting point for planning and exploratory efforts. However, the MPG is not sufficient to adequately represent the wear and tear that medium- and heavy-duty vehicles incur on the road, placing constraints on the revenue-neutral strategy for these vehicle classes. The baseline rates were further adjusted by 5% to account for the ongoing operational costs to administer and collect MBUF. The starting rates increase every year by the average consumer price index of 2.4%.

5.4.1 Revenue Stream Considerations

Medium- and heavy-duty electric vehicle revenues are projected to increase from $1,890,000 in 2026 to $15,578,000 in 2035, indicating a strong upward trend driven by the expansion of electric medium- and heavy-duty fleets to achieve the goals of Vermont's Climate Action Plan (Figure 10).

The results of the evaluation of a mileage-based user fee for medium and heavy-duty electric vehicles are largely the same as for MBUF for light duty passenger electric vehicles weighing under 10,000 lbs., with any differences noted below.

Revenue Potential: Moderate. Although revenue collections would be modest during the early start-up phase of implementing an MBUF, within 10 years the revenue grows from about $1.9 million to $15.5 million in 2035, as detailed above. While this is a meaningful amount of revenue, it is less robust than MBUF for light duty vehicles as the rate of fleet conversion to electric trucks will be slower than that for the passenger fleet segment.

Revenue Sustainability: Above average. Unlike fuel taxes that are susceptible to eroding revenue yield on a per mile basis, mileage-based fees keep pace with increases in demand on the transportation system (as measure by vehicle miles traveled) since the fees are a direct function of vehicle miles traveled.

[11] National Research Council. 2010. Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles. Washington, DC: The National Academies Press. https://doi.org/10.17226/12845.

Revenue Flexibility: Above average. It is assumed that a mileage-based fee on medium and heavy- duty electric vehicles would be deposited into the state's T-Fund where it can be used for a wide range of transportation purposes, just as is the state diesel tax.

5.4.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Average. As a completely new way to pay for roadways, mileage-based fees come with higher start-up costs than other well-established revenue mechanisms (e.g., vehicle registration fees). Similarly, collecting and processing miles traveled data from all vehicles subject to a mileage-based fee will cost more to administer than fuel taxes (where taxes are paid by wholesale distributors of motor fuel). However, over time as these programs scale up, the cost of collection is expected to fall to around 5%, which is similar to collection costs for other metered public utilities.

Appropriateness for State-level Implementation: Above average. Because a mileage-based fee relies heavily on the state's motor vehicle registry to properly identify and collect payment from vehicle owners, this revenue source is ideal for state collection and use. One state (Hawai'i) is currently seeking to extend its recently enacted mileage-based fee on electric vehicles to allow counties to opt in to the fee, collecting an additional county-specific mileage charge.

5.4.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Average. With a focus on "metered use" of the public roadways, a mileage-based fee is expected to promote efficient use of the system. Unlike motor fuel taxes that are buried in the price of fuel paid at the gas pump, or vehicle registration fees that do not vary based on system usage, MBUF is a transparent charge for exact use of the roadway system that is presented to drivers for payment in the form of a mileage statement or invoice. For the passenger fleet, awareness of driving costs can be expected to result in more efficient use of the system by those drivers. However, in the medium and heavy-duty fleet, the cost-of-driving is much more known and understood, even without an MBUF. This segment of vehicles is more limited in their ability to change travel patterns, and very limited in their ability to shift travel modes.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Average. A mileage-based user fee in its most basic form would be paid by all medium and heavy-duty vehicles regardless of a vehicle's emissions profile, MPG rating, or fuel source. However, depending on the policy preferences of Vermont public officials, different MBUF rates (or discounts) could be provided based on vehicle emissions profile, fuel type, etc. Therefore, MBUF is capable of aligning with the state's climate goals if elected officials decide to configure the revenue mechanism to advance those policy goals.

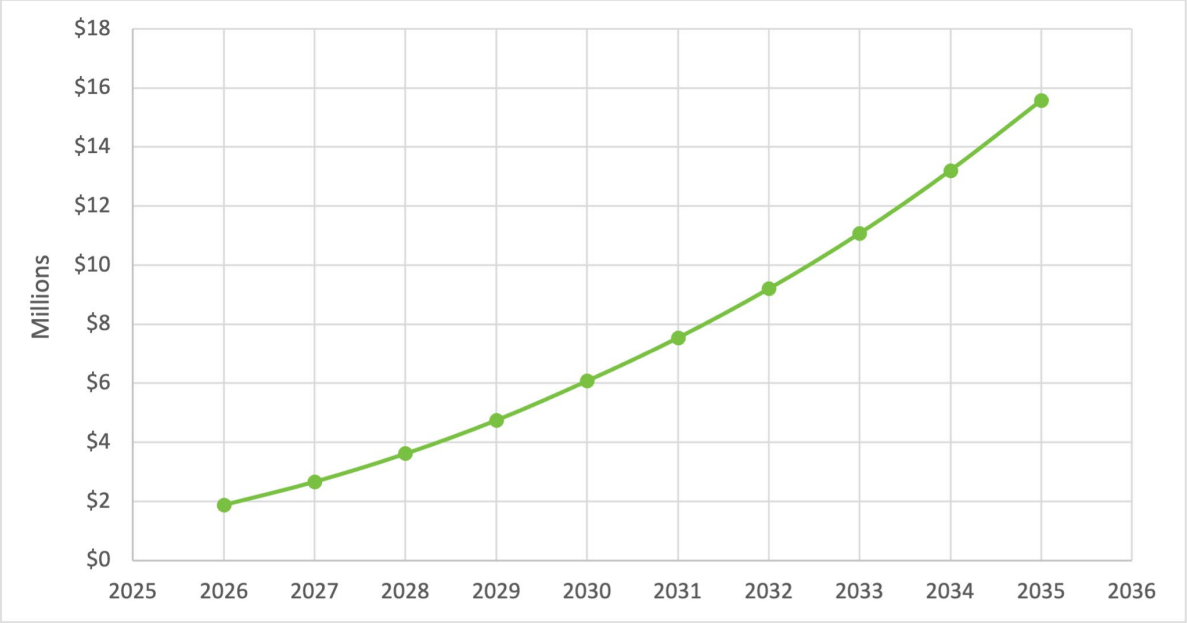
5.4.4 Equity Considerations

User and Beneficiary Equity: Above average. A mileage-based fee system assesses all road users directly and in proportion to their consumption of public roadways. The nexus between user fees and benefits is strong.

Equity Across Income Groups: Average. An MBUF falls equally on all users per mile driven. However, whether this mechanism promotes income equity depends on the personal income characteristics of the owner/operator of the medium/heavy-duty vehicle.

Geographic Equity: Average. It's unclear whether an MBUF applied to medium and heavy-duty vehicles would have any disparate impact at all based on geography, since these vehicles tends to operate in commercial fleets and vehicle usage is more likely to be strictly for business purposes.

Figure 10. MBUF on Medium- and Heavy-Duty Electric Vehicles



5.5 Retail Delivery Fees

Description: A Retail Delivery Fee (RDF) is a mechanism designed to generate revenue by imposing a fee on the delivery of tangible personal property to an address within a state. The fee is collected by retailers and then remitted to the state. Colorado and Minnesota are the only two states that have implemented a RDF to address shortfalls in transportation funding due to declining fuel tax revenues and increasing infrastructure demands. While Minnesota's fee (50 cents) is higher than Colorado's (29 cents), Minnesota only imposes the fee if the total sale price of goods to be delivered is $100 or more. Furthermore, in Colorado, businesses which have annual sales of $500,000 or less are not subject to the fee. Similarly, in Minnesota, businesses which have annual sales of $1 million or less are not subject to the fee.

Basis for analysis: The revenue potential in Vermont was estimated by leveraging data from Colorado to inform the underlying assumptions, combined with the Project Team's experience in forecasting Retail Delivery Fee revenues in Washington State. Revenue estimates were normalized based on population, and assuming an RDF fee of $0.30 per package with no exemptions for retailers.

5.5.1 Revenue Stream Considerations

If imposed at the rate of 30 cents per package, revenues in Vermont could range from $10 million in 2026 to around $14 million by 2035 (Figure 11).

Revenue Potential: Moderate. While revenue could more than double to $28 million per year by 2035 if the per-package fee was increased to 75 cents, this rate could be viewed as excessive when compared to Colorado (29 cents) or at least high when compared to Minnesota (50 cents).

Revenue Sustainability: Above average. The fee is imposed on each order made, so as more on-line orders are submitted and e-commerce grows, the total revenue generated increases as well.

Revenue Flexibility: Above average. As a new revenue type with no obvious analog in Vermont, legislators can choose where to deposit the proceeds – presumably, in the T-Fund – but they have flexibility to earmark the revenue (or at least some portion of it) for other policy purposes.

5.5.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Average. The fee would require new transaction reporting and payment systems, requiring companies that deliver packages to accommodate this new fee in their accounting systems. Smaller companies might face more challenges of collecting this fee. On the other hand, Vermont already collects a sales tax on goods sold, so shipping companies are familiar administering state level taxes on goods sold with proceeds reported and payable to the State of Vermont. Additionally, after receiving extensive feedback from businesses, Colorado amended the retail delivery fee law to exempt certain small businesses from paying the fee and made the remittance process to the state easier. These changes were also adopted in the Minnesota law.

Appropriateness for State-level Implementation: Average. The two states that have a Retail Delivery Fee (Colorado and Minnesota) each retain the revenue for state appropriations. However, at least two other states that have examined Retail Delivery Fees (Nevada and Washington) have found that it might be a good revenue source for local governments, since delivery of goods to local businesses and residences impacts city streets and county roads.

5.5.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Below average. While a fee for each delivery would incur a small cost, the amount of the fee is likely too low to cause consumers to reconsider their delivered purchases.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Average. Although this fee does impose an incremental (yet small) cost for use of the transportation system which in turn would encourage more efficient use, the greater opportunity to align with the state's climate goals is if the fee were imposed at different rates based on the emissions profile of the delivery vehicle, e.g., deliveries made to the customer in a zero-emission vehicle could pay a reduced fee amount. This has not yet been implemented as a policy in other states but remains a possibility.

5.5.4 Equity Considerations

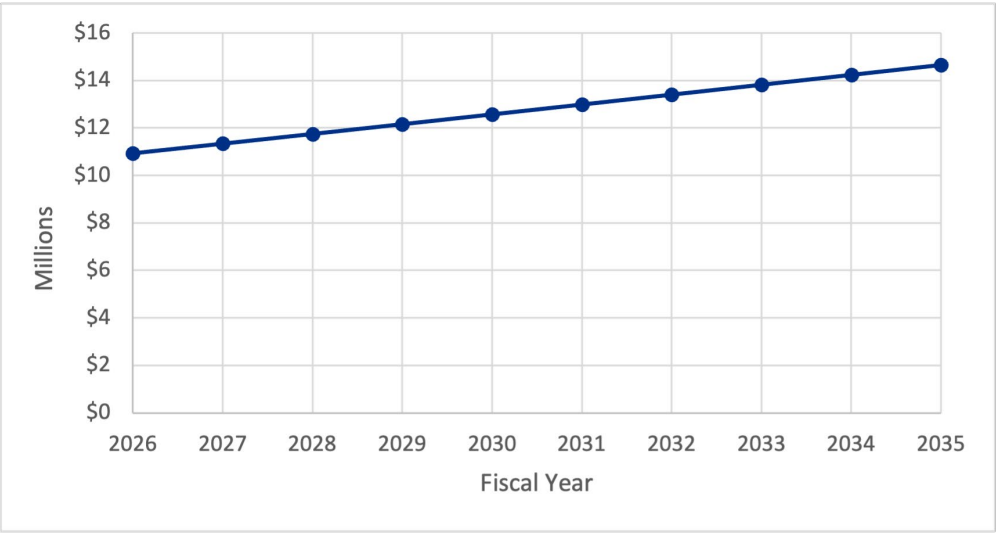
User and Beneficiary Equity: Above average. The Retail Delivery Fee is a user fee that would likely be passed along to the beneficiaries of the delivered package. The nexus to user and beneficiary equity

would be even stronger if the proceeds of the fee are deposited into the T-Fund and used to maintain and improve public roadways.

Equity Across Income Groups: Average. While a Retail Delivery Fee is a fixed amount and does not scale or otherwise reflect differences in household income, it may appear to have modest regressive impact as lower-income households would pay the same fixed fee for delivered goods as higher-income households. However, a recent study completed in Washington revealed that the retail delivery fee would have a greater impact on higher income and more urban households as these groups spend more annually on retail deliveries. As a result, the burden of this fee falls slightly higher on those with higher average incomes and those who live in more urban areas.

Geographic Equity: Above average. As a fixed amount, the Retail Delivery Fee does not increase the cost of the delivered goods based on travel distance from the seller of the goods. Residents all throughout Vermont would pay the exact same amount, regardless of whether they live in urban, suburban, or rural areas.

Figure 11. Revenue Potential of a Retail Delivery Fee



Note: Nominal dollars.

5.6 Transportation Network Company Fees

Description: Transportation Network Companies (TNCs) connect drivers using their own vehicles with passengers by offering prearranged transportation services for payment through an online application or platform (like smartphone apps). States and local jurisdictions have implemented various fees on TNCs to generate revenue for transportation infrastructure. These fees are typically assessed per ride or as a percentage of the fare. In Massachusetts, a flat 20-cent fee is assessed to address the impact of transportation network services on municipal roads, bridges and other transportation infrastructure. In Connecticut, a flat 25-cent fee is assessed per trip. The states of Wyoming, New York, Hawaii, and Alabama, along with South Dakota, South Carolina, Rhode Island, Nevada, and Iowa, collect fees based on the total fare of each ride, with an average value of 3.8%.

Basis for analysis: Revenue from TNC fees in Vermont was estimated by normalizing revenue data from South Carolina based on population. A gross revenue of $40 per resident was assumed, with a TNC fee set at 3%.

5.6.1 Revenue Stream Considerations

Revenues are projected to be approximately $781,000 in 2026 and are expected to remain relatively stable, reaching around $792,000 by 2035 (Figure 12).

Revenue Potential: Below average. As a less-populated state and predominantly rural, a modest TNC fee of 3% would generate less than a $1 million per year.

Revenue Sustainability: Average. Revenues generated from a fee applied as a percentage of the fare will depend on market dynamics, including the supply and demand for these services. The dynamic pricing structure of these TNC providers allows for revenue growth, as it adjusts to real-time market conditions. This approach is generally more effective than a fixed fee per ride, which can lose the purchasing power over time if not adjusted for price increases.

Revenue Flexibility: Above average. As a new revenue source in Vermont, legislators can choose where to deposit the proceeds – presumably, in the T-Fund – but they have flexibility to earmark the revenue (or at least some portion of it) for local jurisdiction or other policy purposes as warranted.

5.6.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Above average. TNC fees would either be absorbed by the ride-share companies (less likely) or delineated as a line-item charge and collected from customers using these services, as is the case in the states that have enacted TNC fees. Since other taxes and fees are already detailed and collected from customers, the additional of one more line item for TNC fees should have minimal impact.

Appropriateness for State-level Implementation: Average. Although explored as a potential state funding source, some states either share revenue with local governments or allow local governments to be the direct beneficiaries of TNC fees on the grounds that the most value use of the public roadway for TNCs is their “curb space” – i.e., providing locations for safer passenger pick up and drop offs with all of the attendant implications for traffic flow and pickup zone regulation on city streets.

5.6.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Average. Although the amount of TNC fees paid does scale with the total revenues generated, the amount of the fee is likely too low to trigger consideration of alternative modes of travel for TNC customers.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Average. TNC fees perform very similar to Retail Delivery Fees discussed in Section 5.5. Although this fee imposes an incremental (yet small) cost for use of the transportation system (as measured by passenger trips) which in turn should encourage more efficient use, the greater opportunity to align with the state’s climate goals is if the fee were imposed at different rates based on the emissions profile of the vehicle, e.g., passenger rides made in a zero-emission vehicle could pay a reduced fee amount. It’s

possible that this policy approach would not be needed, as both Uber and Lyft have announced plans to provide all of their passenger trips in electric vehicles by 2030.

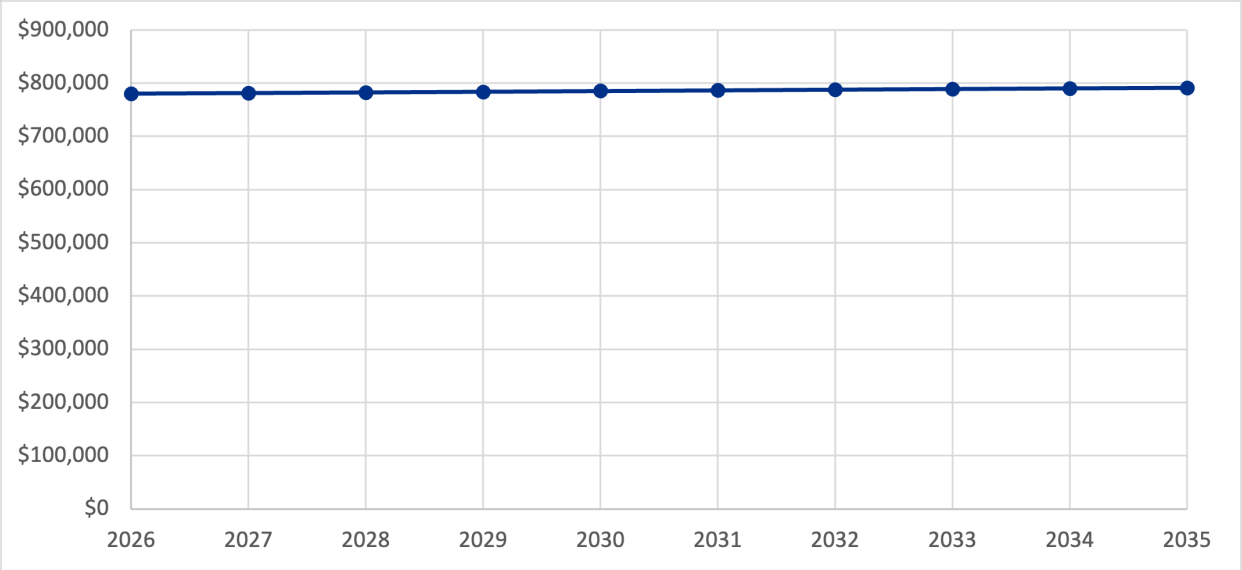
5.6.4 Equity Considerations

User and Beneficiary Equity: Above average. TNC fees are a user fee that would be passed along to the beneficiaries (in this case, passengers). The nexus to user and beneficiary equity would even stronger if the proceeds of the TNC fee are deposited into the T-Fund and used to maintain and improve public roadways.

Equity Across Income Groups: Below average. If a TNC fee scales based on distance and time (i.e., fare), it has a modest regressive impact as lower-income households would pay the same fee for passenger rides as higher-income households.

Geographic Equity: Above average. If levied as a fixed fee, the TNC fee does not impose any greater cost on people who need a longer-distance ride. In this configuration, residents all throughout Vermont would pay the exact same amount, regardless of whether they are traveling to in urban, suburban, or rural areas. However, if the TNC is imposed as a percentage of the value of the trip (e.g., 3% fee on the TNC's charge to customers), then it could have a disproportionate impact on those who need rides to further destinations (say, more rural areas).

Figure 12. Revenue Potential of TNC Fees



5.7 MPG-Based Registration Fee

Description: Currently, Oregon is the only state that bases its vehicle registration fees on a vehicle's miles per gallon (MPG), as rated by the U.S. Environmental Protection Agency. For a two-year registration period, Oregon imposes $126 on vehicles with a 0-19 MPG rating; $136 for vehicles 20-39 MPG; and $156 for vehicles rated 40 MPG or higher.

This tiered system results in higher registration fees for more fuel-efficient vehicles. The rationale is to collect higher fees to offset the reduced fuel tax revenue from these vehicles, as they consume less fuel and, consequently, contribute less to fuel tax collections, which are a primary source of funding for transportation infrastructure.

Basis for analysis: Revenue from MPG-Based registration fees was treated like Virginia's Highway Use Fee, where owners of fuel-efficient vehicles pay an additional registration fee on top of the traditional vehicle registration fee in Vermont. The analysis assessed the revenue yield by applying the surcharge only to light-duty vehicles with combined fuel economy of 25 MPG or greater. For a one-year registration period, CDM Smith assumed a surcharge fee of $25 on vehicles with a combined 25-30 MPG rating; $55 for vehicles 31-50 MPG; $77 for vehicles 51-79 MPG, and $89 for vehicles rated 80 MPG or higher (i.e. electric vehicles). These rates are illustrative for policy planning purposes and were calculated by estimating the difference between the state gas taxes paid by a vehicle with a combined 23.0 MPG rating and those paid by vehicles within each MPG category. The estimates considered the current average fuel efficiency of the vehicle fleet, current fuel tax policies, and the average miles driven by Vermonters.

5.7.1 Revenue Stream Considerations

Revenues could range from $8.8 million in 2026 to around $26.2 million by 2035 (Figure 13). Starting on January 1, 2025, EV and PHEV owners in Vermont will be subject to an infrastructure fee, which serves as a proxy for MPG-based registration fees specifically for these vehicles. The MPG-based registration approach would encompass a broader range of other fuel-efficient and hybrid vehicles entering the market to compensate for reduced fuel tax revenues. The revenue estimated by adding a registration surcharge to other fuel-efficient and hybrid vehicles based on MPG are close to $48 million over the analysis period, or $4.8 million per year.

Revenue Potential: Moderate. An MPG-based registration fee that is structured so the most fuel-efficient vehicles (who pay the least in fuel taxes) pay a higher annual fee, then scaling down the fee based on different tiers of vehicle MPG, is expected to raise significant a moderate amount of revenue.

Revenue Sustainability: Above average. Unlike typical registration fees where all vehicles pay the same amount, this fee is designed to account for ever-increasing fuel economy and electrification of the passenger vehicle fleet, so that as fleet MPG increases, any tax losses in gasoline sales would be offset by increased revenue from this scaled MPG-based vehicle registration fee.

Revenue Flexibility: Average. Revenue from vehicle registration fees in Vermont is legally earmarked for transportation-related purposes and cannot be used for unrelated expenses. This ensures that the funds directly contribute to maintaining and improving the state's transportation system.

5.7.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Average. Vehicle registration systems are already in place and collecting registration fees in Vermont. If enacted, an MPG-based registration fee would require the DMV to use a rate table that charges differential rates according to MPG tier of the vehicle. This may require an additional data field in the vehicle licensing system: combined city/highway fuel economy ratings as determined by the U.S. Environmental Protection Agency. With

this additional piece of information for each vehicle, an MPG-based fee could be calculated and collected.

Appropriateness for State-level Implementation: Above average. By law, vehicle registration fees must be deposited into the Transportation Fund and be used for transportation purposes. As with the current vehicle registration fee, the proceeds of an MPG-based fee would most likely be used to support state appropriations of T-Funds for state transportation purposes.

5.7.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Below average. Fixed annual fees (like vehicle registration fees) do not scale up based on usage. Since the full annual fee must be paid up front at the time of registration renewal, there is no incentive to conserve vehicle miles traveled or to shift to other transportation modes.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Above average. Taxes and fees that can be assessed based on vehicle characteristics – such as vehicle emissions, or fuel efficiency, etc., are able to align with the state's climate goals because detailed policies can be crafted incentivize innovation and consumer adoption. Although the MPG-based Vehicle Registration Fee that was modeled for this study rests on a simple graduated fee schedule, more targeted policies could be crafted that provide exemptions, discounts, credits, or other incentives for drivers of specific types of vehicles.

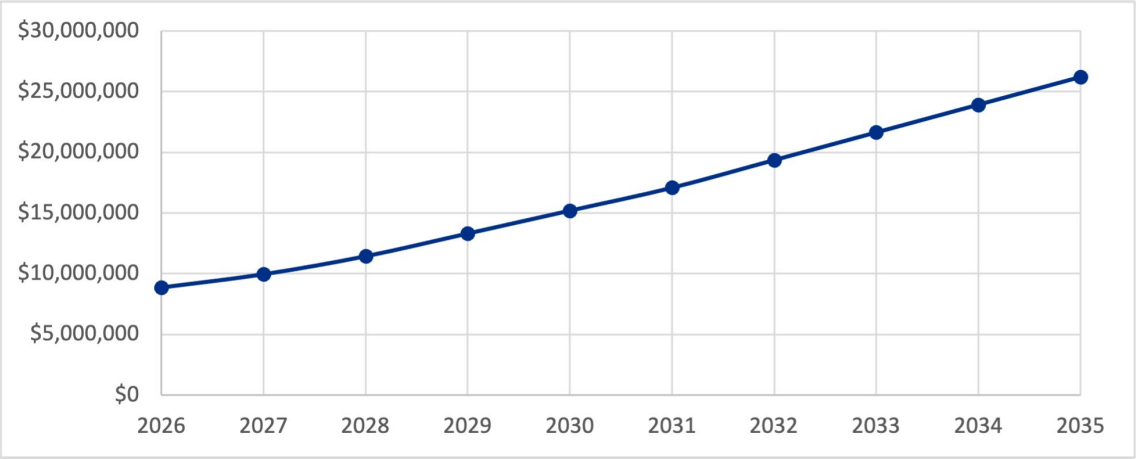
5.7.4 Equity Considerations

User and Beneficiary Equity: Average. Fixed vehicle fees that do not vary according to roadway usage are considered a type of "user fee," but without a strong linkage, and are sometimes referred to as "roadway access fees" since payment of the fee is required to drive on roadways, but once paid, there is no incentive to drive less.

Equity Across Income Groups: Below average. Vehicle registration fees are considered regressive as both upper-income and lower-income households pay the same amount, but as a proportion of household income, the impact as greater on the lower-income households. One way in which an MPG-based fee might be an improvement on typical single-rate registration fees is due to the fact that higher-income individuals tends to buy newer, more fuel efficient (or electric) vehicles. Since this fee charges those vehicles more, the MPG-based vehicle registration fee could be considered less regressive than the standard vehicle registration fee approach.

Geographic Equity: Average. MPG-based vehicle registration fees do not pose any geographic equity concerns as the fee does not vary based on amount of travel, location of travel, or type of community (rural, urban, etc.).

Figure 13. Revenue Potential of MPG registration fees



5.8 Tire Fees

Description: Many states assess a tax on the sale of tires at the time of purchase primarily to fund tire recycling and disposal, ranging from $0.25 to $5 per tire. States that tax tires (other than general retail sales taxes) charge flat rates or vary the rate based upon tire weight or diameter. The federal government applies a tax only on tires used by heavy trucks as a funding mechanism for the federal Highway Trust Fund.

Basis for analysis: The revenue estimates were based on the composition of the vehicle fleet, categorized into Light-Duty Vehicles (LDVs), Medium-Duty Vehicles (MDVs), and Heavy-Duty Vehicles (HDVs). Given the variability in tire numbers, especially for MDVs and HDVs due to different configurations, the following average assumptions were made: 4 tires for LDVs, 8 tires for MDVs, and 18 tires for HDVs. Additionally, it was assumed that 30% of the vehicle fleet needs to replace tires every year.

5.8.1 Revenue Stream Considerations

The revenue projections from a potential Tire Fee of $2 per tire show a gradual increase from 2026 to 2035 (Figure 14). Starting at $1,684,000 in 2026, the revenues are expected to grow modestly each year, reaching $1,708,000 by 2035.

Revenue Potential: Modest. The amount of revenue that can be generated is directly related to the replacement cycle for vehicle tires in Vermont. More revenue could be generated by a higher tire fee, but this could result in unintended and adverse consequences for roadway safety if drivers delay replacing worn tires due to high fees (e.g., $50 per tire).

Revenue Sustainability: Below average. Although the more a vehicle drives the sooner tires will wear out and need replacement, most tires are designed to last at least 60,000 miles, meaning the average driver would only need to replace tires about once every 5 years. In addition, as a fixed fee amount, the revenue raised from a tire tax does not track with inflation, resulting in stagnant revenues.

Revenue Flexibility: Average. While a tire fee represents a new form of transportation funding and therefore can be deposited wherever legislators decide, there may be expectations and pressure to use the proceeds for environmental cleanup of tires or other transportation-related pollutants. This expectation is derived from how other states tend to use the proceeds of their tire fees.

5.8.2 Implementation and Administration Considerations

Ease/Cost of Implementation, Administration, and Enforcement: Average. Tire retailers in Vermont would need to add the additional fee to their point-of-sale payment systems, so there would be some setup costs involved with this fee.

Appropriateness for State-level Implementation: Above average. A tire fee most closely resembles Vermont's purchase and use tax, with revenue collected and appropriated primarily at the state level.

5.8.3 Economic Efficiency and Impact Considerations

Promotion of Efficient Use: Below average. The tire fee is only indirectly (and weakly) related to vehicle usage, with the fee collected only after 5-7 years of driving. Furthermore, if implemented as other states have, the amount of the fee is expected to be low – perhaps only $5 per tire. Both of these supports the conclusion that a tire fee is a poor tool for promoting efficient use of the system.

Consistency with State Climate Goals and Other Transportation-related State Goals and Policies: Below average. While a tire fee may have some relation to environmental cleanup (assuming at least a portion of the proceeds are used for this purpose, as they are in some other states), the more significant issue is the potential negative impact such a fee has on other transportation-related goals and policies – particularly for motor vehicle safety. If the fee is imposed in an amount that generates meaningful revenue to fund the transportation system (say, $25 per tire), it also runs the risk of discouraging vehicle owners from replacing worn tires. This has been cited by traffic safety advocates as a reason to avoid taxing new tires.

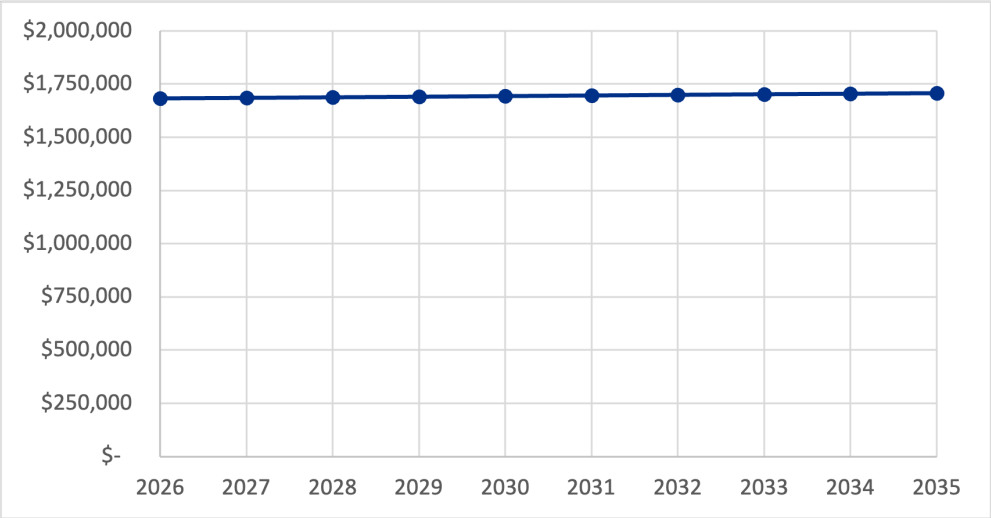
5.8.4 Equity Considerations

User and Beneficiary Equity: Below average. While roadway users would presumably pay the fee on new tire purchases, this is an indirect fee – the item of taxation is a vehicle part, not a fee directly tied to usage. Furthermore, if the modest proceeds from the fee are not spent on roadway maintenance and upkeep, there is little nexus between payment of the fee and benefits derived by those who pay it.

Equity Across Income Groups: Below average. Flat rate, compulsory fees like vehicle registration fees and a tire fee tend to be regressive, as they impact lower-income households harder than higher income households (when measured as a percentage of household income). Also problematic is that if drivers avoid replacing worn tires because the fees are unaffordable, the fee may also impose inequitable safety risks to lower-income households.

Geographic Equity: Average. Vehicle owners who must drive further to reach goods and services may accumulate more total miles driven over the course of a year. Higher miles driven, sooner, would result in the need to replace tires earlier than the average driver. In this sense, people who live in rural areas may be impacted differently than urban drivers.

Figure 14. Revenue Potential for Tire Fees



5.9 Comparison of Revenue Options

Table 5. Comparison of Revenue Options

Revenue Mechanisms	Revenue Potential	Revenue Sustainability	Revenue Flexibility	Appropriateness for State-level Implementation	Ease/Cost of Implementation, Administration and Enforcement	Promotion of Efficient Use	Consistency with State Climate Goals and Other Transportation-related State Goals and Policies	User and Beneficiary Equity	Equity Across Income Groups	Geographic Equity
Gasoline Tax Indexing	🟡	🔴	🟢	🟢	🟢	🟢	🟢	🟡	🔴	🔴
Diesel Tax Indexing	🟡	🔴	🟢	🟢	🟢	🟡	🟡	🟡	🔴	🟡
Mileage-Based User Fees: Light Duty Vehicles	🟢	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟡	🟡
Mileage-Based User Fees: Medium and Heavy-Duty Vehicles	🟡	🟢	🟢	🟢	🟡	🟡	🟡	🟢	🟡	🟡
Retail Delivery Fees	🟡	🟢	🟢	🟡	🟡	🔴	🟡	🟢	🟡	🟢
Transportation Network Company Fees	🟡	🟡	🟢	🟢	🟡	🟡	🟡	🟢	🔴	🟢
MPG-Based Registration Fee	🟡	🟢	🟡	🟡	🟢	🔴	🟢	🟡	🔴	🟡
Tire Fees	🟡	🔴	🟡	🟡	🟢	🔴	🔴	🔴	🔴	🟡

🟢 Mechanism is capable of **strong alignment** with guiding principle

🟡 Mechanism is capable of **some alignment** with guiding principle

🔴 Mechanism is **poorly capable** of alignment with guiding principle

Appendix A – Needs Analysis

Appendix A.1 – Needs Analysis, Public Transit (millions)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
STATE PUBLIC TRANSPORTATION FUNDS	$9.4	$9.9	$10.2	$10.5	$10.8	$11.0	$11.3	$11.6	$12.0	$12.3
VTRANS ADMINISTRATION	$0.8	$0.8	$0.8	$0.8	$0.9	$0.9	$0.9	$0.9	$0.9	$0.9
OPERATING-CMAQ/CRP	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0	$5.0
GMT URBAN ASSISTANCE - CMAQ/CRP	$2.0	$2.0	$2.1	$2.1	$2.3	$2.3	$2.3	$2.3	$2.3	$2.5
OPERATING - 5311 FORMULA	$4.9	$5.0	$5.0	$5.3	$5.3	$5.5	$5.5	$5.5	$5.7	$5.8
INTERCITY BUS SERVICE	$0.9	$0.9	$0.9	$0.9	$0.9	$0.9	$0.9	$0.9	$0.9	$0.9
ADMINISTRATIVE SUPPORT	$3.2	$3.2	$3.3	$3.3	$3.5	$3.5	$3.6	$0.4	$3.8	$3.8
GMT-URBAN PREVENTIVE MAINTENANCE	$2.0	$2.1	$2.1	$2.2	$2.2	$2.3	$2.3	$2.3	$2.5	$2.5
RURAL PREVENTIVE MAINTENANCE	$3.3	$3.3	$3.3	$3.3	$3.5	$3.5	$3.5	$3.5	$3.5	$3.5
RURAL TECHNICAL ASSISTANCE	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.3	$0.3	$0.3
OLDER ADULTS & PERSONS WITH DISABILITIES PROGRAM	$4.0	$4.3	$4.5	$4.5	$4.6	$4.8	$4.8	$5.0	$5.2	$5.2
JOB ACCESS/REVERSE COMMUTE	$0.4	$0.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
GO VERMONT/STATEWIDE MARKETING	$0.4	$0.4	$0.4	$0.4	$0.4	$0.4	$0.4	$4.3	$0.4	$0.4
MTI GRANT PTROGRAM	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5
CAPITAL - GENERAL PUBLIC	$10.8	$14.5	$14.5	$15.0	$15.5	$15.0	$15.0	$15.0	$15.5	$15.5
CAPITAL ASSISTANCE - ELDERLY AND DISABLED	$0.4	$0.4	$0.4	$0.4	$0.4	$0.5	$0.0	$0.5	$0.5	$0.5
TRANSIT FACILITIES - NEW CONSTRUCTION	$0.1	$6.0	$6.0	$6.0	$3.0	$2.5	$1.0	$1.0	$1.0	$1.0
TOTAL TRANSIT NEEDS	$47.9	$58.5	$59.1	$60.2	$58.6	$58.4	$57.1	$58.7	$59.7	$60.3

Appendix A.2 – Needs Analysis, Rail (millions)

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operating Services											
Vermonter	$7.0	$7.2	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Ethan Allen Express	$2.8	$3.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Bennington/Manchester	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Capital Projects	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
State of Good Repair	$7.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
286 Upgrades	$24.0	$24.0	$24.0	$24.0	$24.0	$26.0	$26.0	$26.0	$26.0	$26.0	$26.0
Vertical Clearances	$0.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0	$1.0
Rail crossings	$2.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Rail Division, Admin, Project Management, Property Mgt	$6.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Needs	$49.9	$35.3	$25.0	$25.0	$25.0	$27.0	$27.0	$27.0	$27.0	$27.0	$27.0

Appendix A.3 – Needs Analysis, Aviation (millions)

	2025	2026	2027	2028	2029	2030	2031
Aviation Capital Program							
KMPV	$0.10	$0.12	$0.12	$0.15	$15.75	$0.28	$3.90
KFSO	$4.75	$0.51	$3.71	$1.24	$0.55	$0.31	$3.58
KVSF	$0.72	$0.47	$0.31	$16.41	$0.53	$1.24	$6.76
KCDA	$0.00	$0.00	$0.59	$0.30	$0.50	$7.26	$0.30
6BO	$0.58	$0.49	$1.27	$0.41	$0.07	$0.11	$2.67
KMVL	$0.94	$4.62	$0.00	$0.48	$0.26	$0.13	$0.16
KEFK	$0.55	$0.00	$0.73	$0.00	$13.03	$0.16	$2.27
KRUT	$6.98	$0.50	$5.89	$0.65	$1.78	$0.15	$0.19
Bennington	$2.88	$0.42	$0.28	$0.08	$0.48	$0.31	$2.60
Statewide	$0.31	$0.53	$0.00	$0.00	$0.00	$0.00	$0.00
Admin/Maintenance/Facilities	$4.51	$5.33	$0.00	$0.00	$0.00	$0.00	$0.00
Total Needs	$ 22.31	$ 12.98	$ 12.89	$ 19.71	$ 32.94	$ 9.95	$ 22.43