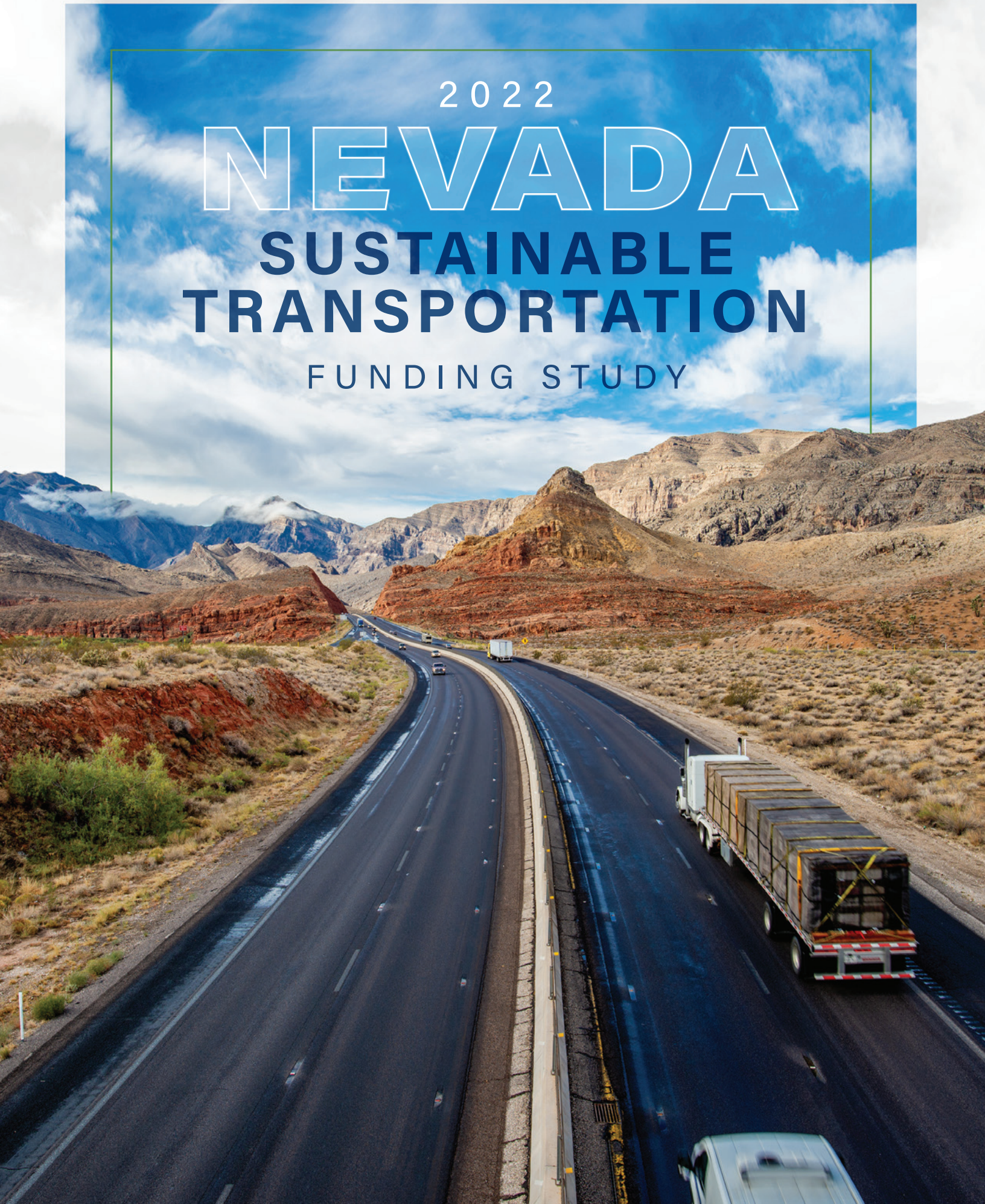

2022

NEVADA

SUSTAINABLE TRANSPORTATION

FUNDING STUDY

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Legislative and Public Agencies

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RTC of Southern Nevada
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Las Vegas Valley Water District for hosting several public meetings and providing technology support from southern Nevada.

AGC of Nevada, gracious hosts and providing support for AWG public meetings in northern Nevada.

December 21, 2022

Dear Honorable Members of the Nevada Legislature,

It is my honor to report that the Nevada Sustainable Transportation Advisory Working Group (AWG), created in Assembly Bill 413 of 2021, has completed the mission you assigned us. We are now providing our findings, conclusions, and recommendations for your consideration in the 2023 legislative session and beyond.

Relying on the perspectives and expertise of a diverse group of 29 AWG members, beginning in July 2021 we held 11 public meetings over the next 18 months. As directed, we examined statewide transportation funding challenges, especially the financial sustainability of the State Highway Fund, while also considering approaches that reflect user-pay principles, are capable of improving social equity, and align with state goals for reducing carbon emissions.

During the course of our work, we identified and analyzed over 25 possible transportation revenue mechanisms, applying both quantitative and qualitative criteria to ensure only those mechanisms best suited for Nevada were carried forward for further analysis. After only a few meetings, it became apparent that no single revenue mechanism is capable of providing financial sustainability for the transportation system in both the near term and long term. For this reason, the AWG has identified and recommends a small set of revenue mechanisms that when phased over the course of the next 10 or so years, can provide the desired financial sustainability for Nevada's transportation system.

Between our public meetings, our project team conducted outreach efforts to share updates on the AWG's progress with stakeholders and constituencies all across the state. Feedback from these outreach meetings helped shape the final recommendations. While a small number of AWG members have remaining concerns or, in some cases, oppose specific aspects of the recommendations, the findings, conclusions, and recommendations reflected in the final report are overwhelmingly supported by the 29-member AWG.

We recognize that much work remains to advance sustainable transportation funding options for Nevada. Although the AWG's work is complete, I believe I speak for all of the members in expressing our commitment to continue working for more sustainable and fair transportation funding approaches for Nevada in the months and years to come.

Sincerely,

Virginia Bax-Valentine, P.E.

Virginia Bax-Valentine, P.E.
Chair
Nevada Sustainable Transportation Advisory Working Group

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1.0 Executive Summary

1.1 The transportation funding problem facing Nevada

Nevada's population boom continues at historic levels, placing ever greater demand for travel on the state's transportation infrastructure system. To meet these demands to maintain a safe, reliable transportation system through strategic investment in system preservation, maintenance, and long-range expansion, state and local governments require appropriate levels of reliable, long-term funding.

Statewide transportation projects, programs, and operations for the system managed by the Nevada Department of Transportation (NDOT) will require at least $16.9 billion over the next 10 years. Funding from state and federal sources are expected to cover approximately $10.7 billion of this amount, leaving a funding gap of at least $6 billion over this 10-year period.

Local authorities also face growing transportation needs that outstrip available revenues. Collectively, metropolitan planning organizations and county governments have annual unfunded transportation needs of over $500 million per year.

To add to the challenge, construction cost escalation—17 percent (%) in the 12 months between the fourth quarter of 2020 and 2021—is making it more difficult for public works agencies to strategically add capacity to the system and maintain transportation facilities in a state of good repair.

Table ES1: 10-year transportation needs

Category	Low Estimate	High Estimate
Total Need	$16,997 million	$22,613 million
Anticipated Revenue	$10,784 million	$10,784 million
Unfunded Backlog	$6,213 million	$11,829 million
One-year Average Unfunded Backlog	$621 million	$1,183 million

Note: All totals are rounded to the nearest million.

Reliance on a mechanism in decline: Motor fuel taxes

The federal, state, and county funding that Nevada relies on for its transportation system are derived primarily from taxes on motor fuels. As the only usage-based transportation fee, fuel taxes provide sustainable revenue only if fuel (gasoline and diesel) consumption continues to grow. However, recent trends and near-term forecasts suggest the opposite will occur, causing revenue to decline and leading to an even wider gap between available funding and system needs.

There are two primary factors driving the decline in fuel consumption. First, the fuel economy of Nevada's fleet of over two million light-duty, internal combustion engine (passenger) vehicles is improving, expected to reach an average of more than 32 miles per gallon by 2040, representing a 50% increase in less than 20 years. Recent Corporate Average Fuel Economy (CAFE) standards require automakers to improve the fuel economy of new gasoline-powered vehicles by 8% annually through 2025 and 10% from 2025 to 2026, reaching a lab-tested average of 49 miles per gallon across all new light-duty cars and trucks for model year 2026.

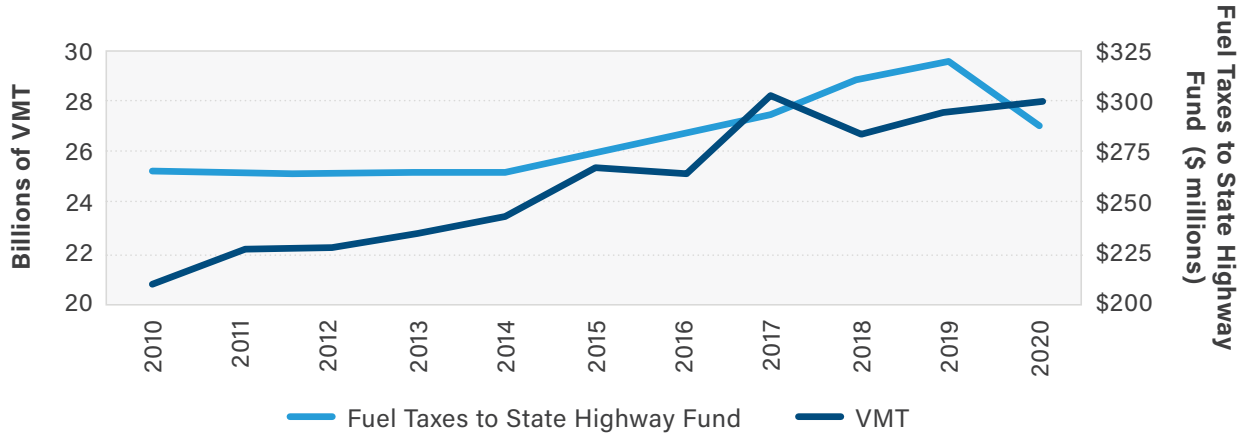
The other major contributor to declining fuel consumption is consumer adoption of zero-emission vehicles (ZEVs)[1]. Although the number of ZEVs in Nevada's fleet is currently around 20,000 (representing 1% of the total passenger vehicle fleet), as of the first quarter of 2022, ZEVs now represent nearly 8% of new vehicle sales in the state, ranking fifth in the nation. Under regulations adopted by California's Air Resources Board in August 2022, 100% of new sales are required to be ZEVs by 2035 in that state and several others. Models developed in the course of the Nevada Sustainable Transportation Funding Study

[1]Zero-emission vehicles include fully battery-electric vehicles, plug-in hybrid electric vehicles, and hydrogen fuel cell electric vehicles. However the term "electric vehicles (EV)" is used when referring only to plug-in vehicles.

suggest that up to 25% of passenger miles driven by the end of next decade will be done without consuming taxable motor fuels.

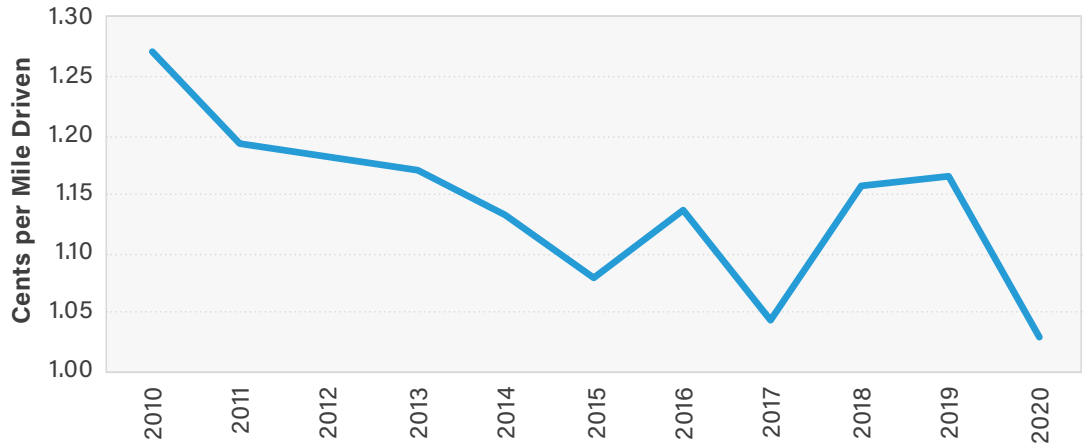
These developments, especially improved vehicle fuel economy in the past decade, have already led to a 20% decline in gasoline consumption per mile driven since 2010 and are expected to lead to a further decline of 50% by 2040.

The State Highway Fund is the primary recipient of all statewide taxes and fees related to motor vehicle usage. Based on current revenue sources and projections, this fund will continue to fall short of historical funding levels on a per-mile basis. Currently, owners of electric vehicles (EVs) are not contributing to federal, state, or local gasoline taxes. Although this currently represents a small loss of revenue to the State Highway Fund and counties, the fiscal impact will increase in severity, representing a significant funding problem for Nevada's transportation system in the coming years as the state transitions the light-duty vehicle fleet toward ZEVs. Counties that rely on fuel tax revenue are also at risk from eroding fuel tax revenue and the resulting equity challenges of this erosion in the future.



Source: Consultant analysis of data provided by NDOT

Figure ES1: VMT compared to fuel tax deposits to the state highway fund



Source: Consultant analysis of data provided by NDOT

Figure ES2: Cents of fuel per tax per mile driven to State Highway Fund

How other states are addressing the problem

Nevada is not alone in facing revenue challenges due to increasing adoption of fuel-efficient vehicles and ZEVs. Nearly every state relies on motor fuel taxes as a major source of transportation funding. Most now recognize the conundrum of relying on fossil fuel consumption to fund critical infrastructure.

To address this challenge, states have taken various actions. Many have simply raised their motor fuel excise tax rates. One state, Georgia, has indexed the motor fuel tax to fuel economy, such that the tax rate increases to make up for lost revenue as fuel consumption declines. Other states have enacted a range of taxes and fees on vehicle registration, and several have begun diverting a portion of general funds such as sales taxes to transportation purposes.

To date, 31 states have enacted annual registration surcharges on EVs ranging from $50 to $225. The principle behind this policy is to collect fees from EV owners because they do not contribute for EV usage through fuel taxes. Unlike fuel taxes, flat fees do not correlate with road usage, but they are relatively simple to administer if collected along with other vehicle registration fees. These EV surcharges generate little revenue today but are expected to grow over time as the number of registered ZEVs grows.

To preserve the usage-based principle of the motor fuel tax, over 30 states have researched road usage charges (RUCs), or per-mile fees, on light-duty vehicles, with 10 states completing pilot tests and three (Oregon, Utah, and Virginia) enacting operational programs. The operational programs all offer vehicle owners a choice between (1) paying a flat annual registration surcharge or (2) reporting miles driven and paying by the mile. Motorists can report miles driven in several ways, ranging from self-reporting of odometer readings to using in-vehicle technology that wirelessly reports miles driven.

Three states (Iowa, Oklahoma, and Kentucky) have recently enacted taxes on electricity consumed by electric vehicles at public charging stations, where approximately 15% of electric vehicle charging occurs. The first of these tax programs will go live in 2023. These three states designed the public charging station tax to mimic fuel taxes on out-of-state vehicles using their roads while implementing a flat annual registration surcharge on in-state vehicles. Oklahoma has established a RUC task force in parallel with its registration surcharge and electricity tax on out-of-state vehicles to explore and pilot per-mile fees.

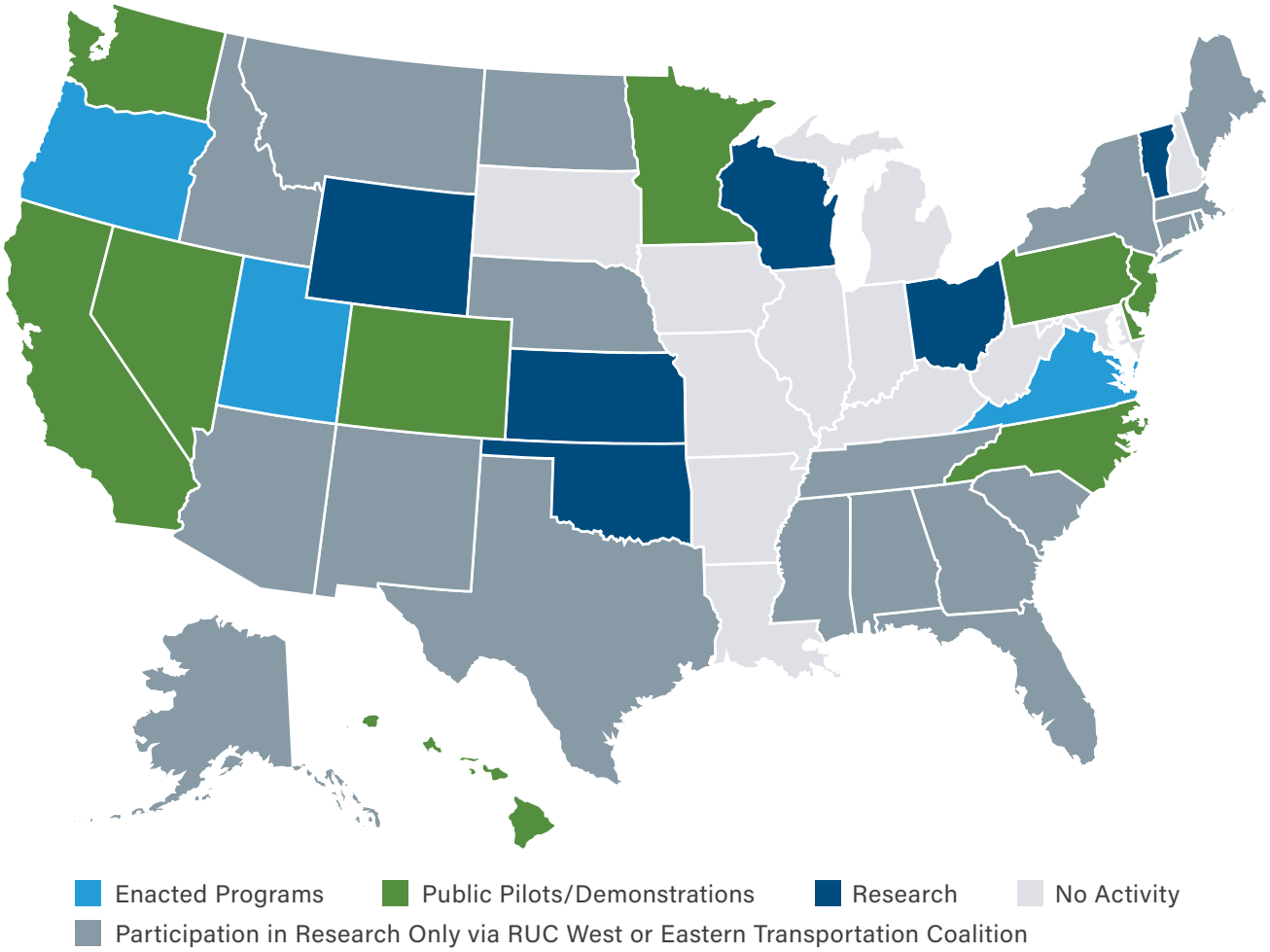


Figure ES3: Road usage charge activities in the United States

1.2 Investigating sustainable transportation funding options—the Advisory Working Group's charge and deliberative process

During the 2021 session, the Nevada Legislature enacted Assembly Bill (AB) 413, which drew on the previous year's work conducted pursuant to Senate Concurrent Resolution 3. Passed unanimously by both the Nevada Assembly and Senate, AB 413 established an Advisory Working Group (AWG) and charged the AWG with investigating the transportation funding needs of the state and providing recommendations for future sustainable funding options in light of the state's interest in transitioning to ZEVs.

Pursuant to the requirements and policy parameters established by the Nevada Legislature, the AWG adopted a formal charter during its first meeting:

> *"An examination of the financial sustainability of the State Highway Fun must be undertaken and the recommendations must be included in the final report due to the Legislature by December 31, 2022. This must include an assessment of at least two alternative transportation funding approaches that have been identified. Consistent with AB 413, new approaches to multimodal transportation funding for all users must take into account the need to improve social equity, user equity, and reduce GHG [greenhouse gas] emissions. Finally, the role that land use and smart growth strategies can play must be considered."*

This charter served as the starting point for the AWG's development of guiding principles and analysis of new sustainable revenue mechanisms in Nevada.

Organizations and expertise identified in AB 413:

- Metropolitan planning organizations
- Environmental agencies and organizations
- Clean energy
- Tax policy expertise
- Local, county, tribal, state, and federal agencies with expertise in transportation and clean energy
- The Nevada Resort Association
- The Chairs of the Nevada Senate and Assembly Standing Committees on Growth and Infrastructure
- Organized labor
- Local chambers of commerce
- Entities that represent or promote the interests of minority groups in Nevada

The AWG undertook a deliberative process spanning 11 meetings over 17 months to achieve its central mission of identifying sustainable funding strategies for Nevada's transportation system. The process began with identifying guiding principles for assessing alternative funding mechanisms. Next, the AWG surveyed a wide range of possible revenue mechanisms—30 in all, including approaches taken in other states. The AWG assessed the mechanisms according to the adopted guiding principles and identified the most promising mechanisms for further analysis.

Financial Sustainability

Yielding sufficient revenue that correlates with ongoing maintenance needs and demand for future transportation needs, regardless of changes in population, vehicle technologies, ownership, travel patterns, fuel sources, or consumer spending.

Sufficiency

Generating sufficient revenue over targeted investment time frames for existing and future transportation infrastructure needs.

User Equity

Recovering a proportionate share of the costs from those who use the transportation network.

Social Equity

Improving the distributional impact on historically underserved communities and low-income households.

Flexibility

Funding a wide range of transportation-related projects, programs, or priorities across various agencies to meet the needs of system users across all modes.

Greenhouse Gas Emissions

Aligning with state transportation greenhouse gas reduction goals.

Transparency/Efficiency and Ease of Compliance

Being simple to explain, with awareness of how funds are used, is cost-effective, and readily administered at statewide and local levels.

As part of this assessment, the AWG specifically considered the two concepts required by AB 413: Utah's RUC program and the Natural Resource Defense Council (NRDC) energy-based user fee system. These two concepts share several similar mechanisms. Both call for indexing the rate of motor fuel taxes to inflation, and both call for charging ZEV owners a fee per mile driven. The NRDC concept calls for indexing motor fuel tax rates to total fuel consumption in addition to inflation, such that the per-gallon rate rises if fuel consumption declines, and the rate falls if fuel consumption increases. The NRDC concept also calls for a variable per-mile rate on ZEVs based on the energy efficiency of the vehicle as rated by the Environmental Protection Agency, whereby the rate declines with increasing energy efficiency. For example, an owner of a ZEV with an energy efficiency rating of 120 miles per gallon equivalent (known as MPGe) would pay 25% less per mile driven than an owner of a ZEV rated at 90 MPGe.

The AWG often found guiding principles in conflict for certain mechanisms. As a result, the AWG examined prioritized mechanisms as in various combinations of packages in order to address more principles effectively than any one mechanism could address alone. The AWG adopted its findings and conclusions based on analysis and member deliberations on individual mechanisms and packages of mechanisms. Those, in turn, serve as the foundation for the recommendations to the Nevada Legislature. Finally, the AWG examined the mechanisms prioritized for further analysis in combination. Based on the analysis and member deliberations, the AWG adopted findings and conclusions. Those, in turn, serve as the foundation for the recommendations to the Nevada Legislature.

1.3 The Advisory Working Group's findings, conclusions, and recommendations

The AWG focused its efforts on identifying appropriate mechanisms for generating transportation revenue and did not make a recommendation or proposal to raise revenue in any specific quantity or at any specific tax or fee rate. Instead, the AWG made a series of recommendations that collectively offer to the Nevada Legislature a blueprint for how to deploy several funding mechanisms in the near term and long term capable of providing sustainable funding that aligns with the guiding principles adopted by the group.

The following recommendations represent the AWG's consensus on a course of action that the Nevada Legislature should consider, with important conditions or limitations noted. For greater context, the full report includes a summary of the AWG's reasoning and considerations raised during their deliberations, including instances of divergent viewpoints and differences of opinion on the adopted recommendations.

Recommendation 1

Nevada should institute a mileage-based charge to capture road usage by zero-emission vehicles, while setting the stage for a future transition away from the gas tax.

While developing a mileage-based RUC, Nevada should enact a special registration fee on ZEVs, collected at the time of vehicle registration renewal. The amount of the fee should be proportionate to the amount an average ZEV uses on public roadways.

The mileage-based RUC for ZEVs should offer drivers a choice between a charge based on actual miles traveled or a fixed annual fee, allowing unlimited driving during the year. The fixed annual fee should be set higher than the equivalent mileage-based charge for an average ZEV.

An initial mileage-based RUC should build upon state law requiring vehicle owners to report odometer readings to the Nevada Department of Motor Vehicles with registration renewals. Final effective dates for implementing a mileage-based RUC for ZEVs should be aligned with the Nevada Department of Motor Vehicles's ongoing information technology system modernization effort.

Recommendation 2

Because revenue from the gas tax is declining as vehicles become more fuel efficient and operate on electricity or other alternative fuels, the Nevada Legislature should replace the fuel tax with a per-mile RUC on all new vehicles by 2035.

Recommendation 3

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Nevada Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

Increasing the uniform rate of the state fuel excise taxes (gasoline and special fuels).

Indexing the portion of state and federal fuel taxes not already indexed (outside of Clark and Washoe Counties) to keep pace with construction cost increases over time, while limiting increases to a 10-year rolling average of the Producer Price Index for Highway and Street Construction, with a maximum annual cap on inflationary adjustments.

Enabling county commissions to enact inflation adjustments to the county's portion of fuel taxes, with the same indexing formula and limitations as statewide fuel taxes.

Increasing vehicle registration fees to provide modest revenue for highway purposes.

Directing 100% of the state portion of the governmental services tax (GST) to the State Highway Fund.

Recommendation 4

In collaboration with other public agencies, NDOT, metropolitan planning organizations, and local governments (cities and counties) should (1) conduct assessments of their current and projected transportation projects and service-level funding gaps and (2) regularly share this information with elected officials, stakeholders, and the public.

The AWG envisions a phased approach to transitioning away from the gas tax. The following timing and specific dates are suggested as a starting point for legislative consideration.

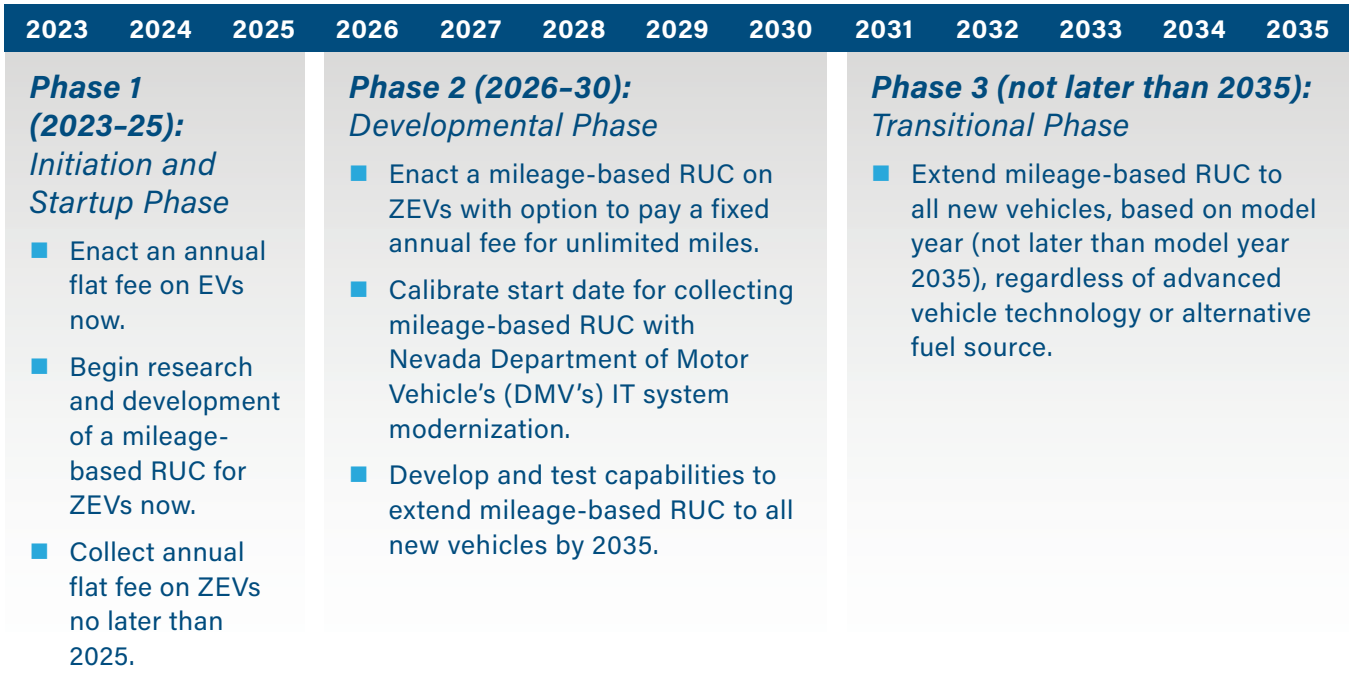


Figure ES4: Phases, sequencing, and estimated timelines for action

2.0 AWG and Policy Imperatives

2.0 The Sustainable Transportation Funding Advisory Working Group and Transportation Policy Imperatives in Nevada

2.1 The legislative directive and the Advisory Working Group's adopted charter

Faced with the growing needs of the statewide transportation system and the erosion in fuel tax revenue from increasingly more fuel-efficient and EVs, the need for sustainable transportation funding is only expected to become more acute. The Nevada Legislature, however, took notice of this emerging fiscal challenge.

In 2019, the Nevada Legislature passed Senate Concurrent Resolution No. 3 (SCR 3), which directed the Interim Legislative Committee on Energy to conduct a study to consider alternative solutions to fund the transportation system in Nevada.

The Legislative Committee on Energy, chaired by Assemblywoman Monroe-Moreno, undertook the SCR 3 study. The study was advised by legislators and stakeholders from various public, civic, business, and social sectors in Nevada. Their charge was to consider alternative solutions for funding the transportation system, the benefits of using EVs, and the cost of transportation-related pollution, including greenhouse gas emissions. However, the group soon realized that in addition to maintaining the current transportation infrastructure, the state needed to consider other aspects of transportation funding, including equity between those paying for roadways relative to use, how the state funds multimodal transportation, and how land-use planning impacts transportation. In addition, the SCR 3 interim committee recognized that prior to making any recommendations to the Nevada Legislature, a more in-depth study should closely examine the various funding models, including approaches under development in other states.

The Advisory Working Group must study the following during the 2021–2022 interim:

- Needs of all users of different modes of transportation, including bicyclists, pedestrians, drivers of motor vehicles, and public transit users
- Social and user equity
- Reduction of greenhouse gas emissions
- Sustainability of the State Highway Fund including, without limitation, an analysis of the Natural Resources Defense Council funding model presented to the Legislative Committee on Energy on August 24, 2020, and Utah's Road Usage Charge Program
- Role of land use and smart growth strategies in reducing transportation emissions and improving system efficiency and equity

Based on these determinations, the Legislative Committee on Energy voted unanimously to recommend that the Nevada Legislature establish a working group to study transportation funding alternatives and related policy goals in much greater detail, beginning in July 2021 and ending in December 2022. In 2021, Assemblywoman Monroe-Moreno introduced AB 413. AB 413 drew on the previous year's work conducted pursuant to SCR 3. Passed unanimously by both the Nevada Assembly and Senate, AB 413 established an Advisory Working Group (AWG) and charged the AWG with investigating the transportation funding needs of the state and providing recommendations for future sustainable funding options.

The AWG comprised individuals representing organizations with a specific interest in—or responsibility for—managing a financially sustainable and environmentally friendly multimodal transportation network. These members belong to nonprofit organizations, public agencies, and private companies throughout the various public, civic, business, and social sectors in Nevada. Each member of the AWG had three primary responsibilities:

1. Participate in deliberations in an open, constructive manner to help the group arrive at findings, conclusions, and recommendations.
2. Provide relevant information and perspectives to help improve the research and broader understanding.
3. Actively and accurately share information with others.

Organizations and expertise identified in AB 413:

- Metropolitan planning organizations
- Environmental agencies and organizations
- Clean energy
- Tax policy expertise
- Local, county, tribal, state, and federal agencies with expertise in transportation and clean energy
- Chairs of the Nevada Senate and Assembly Standing Committees on Growth and Infrastructure
- Organized labor
- Local chambers of commerce
- Nevada Resort Association
- Entities that represent or promote the interests of minority groups in Nevada

AB 413 required the AWG to study transportation funding options that, at a minimum, would provide long-term financial sustainability for the State Highway Fund while considering the needs for greater social and user equity as well as the need to reduce GHG emissions from the transportation sector. Alongside the transportation funding options, AB 413 also required the AWG to consider the role that land use and smart growth strategies play in transportation costs, reducing emissions, and improving system efficiency and equity. Finally, AB 413 directed the AWG to study at least two specific models for achieving sustainability of the State Highway Fund: Utah's RUC and a fuel tax indexing and fuel efficiency-adjusted RUC concept put forth by the NRDC.

Pursuant to the requirements and policy parameters established by the Nevada Legislature, the AWG adopted a formal charter during its first meeting. This charter served as the starting point for the AWG's development of guiding principles and analysis of new sustainable revenue mechanisms in Nevada. The charter provides that:

> *"An examination of the financial sustainability of the State Highway Fund must be undertaken and the recommendations must be included in the final report due to the Legislature by December 31, 2022. This must include an assessment of at least two alternative transportation funding approaches that have been identified. Consistent with AB 413, new approaches to multimodal transportation funding for all users must take into account the need to improve social equity, user equity, and reduce GHG [greenhouse gas] emissions. Finally, the role that land use and smart growth strategies can play must be considered."*

2.2 Policy imperative: Reducing carbon emissions from the transportation sector

In Nevada, the transportation sector accounts for 35 percent (%) of the state's greenhouse gas emissions, making the sector the largest contributor of greenhouse gases.[2] As a result, reducing emissions from the transportation sector has become a focus in the state's overall efforts to mitigate the effects of climate change. The state has developed a robust set of goals, strategies, and policies to reduce emissions and combat climate change. These have included adoption of low- and zero-emission vehicle regulations, developing low-carbon fuel standards, closing loopholes in inspections for certain vehicles, and providing incentives for the purchase of fuel-efficient and zero-emission vehicles. While emissions from the Nevada's transportation sector represent a small fraction of emissions from the United States as a whole, the state has nonetheless recognized its role in reducing its reliance on fossil fuels and the imperative to reduce greenhouse gas emissions.

In 2019, Nevada enacted Senate Bill 254, which codifies aggressive emissions-reduction goals: 28% below 2005 levels by 2025, 45% by 2030, and net zero by 2050. Based on current policy, the Nevada Division of Environmental Protection (NDEP) estimates that Nevada is on track to reduce economy-wide greenhouse gas emissions by 24% in 2025 and by 26% in 2030. These estimates, however, fall short of the statewide goals. As a result, new mitigation-focused policies, programs, investments, and regulations are needed to meet these goals and put the state on the path toward realizing net-zero greenhouse gas emissions by 2050. Thus, the focus on reducing greenhouse gas emissions in the transportation sector remains a top priority for policymakers, making the incorporation of greenhouse gas reduction goals an imperative in any study of future transportation funding.

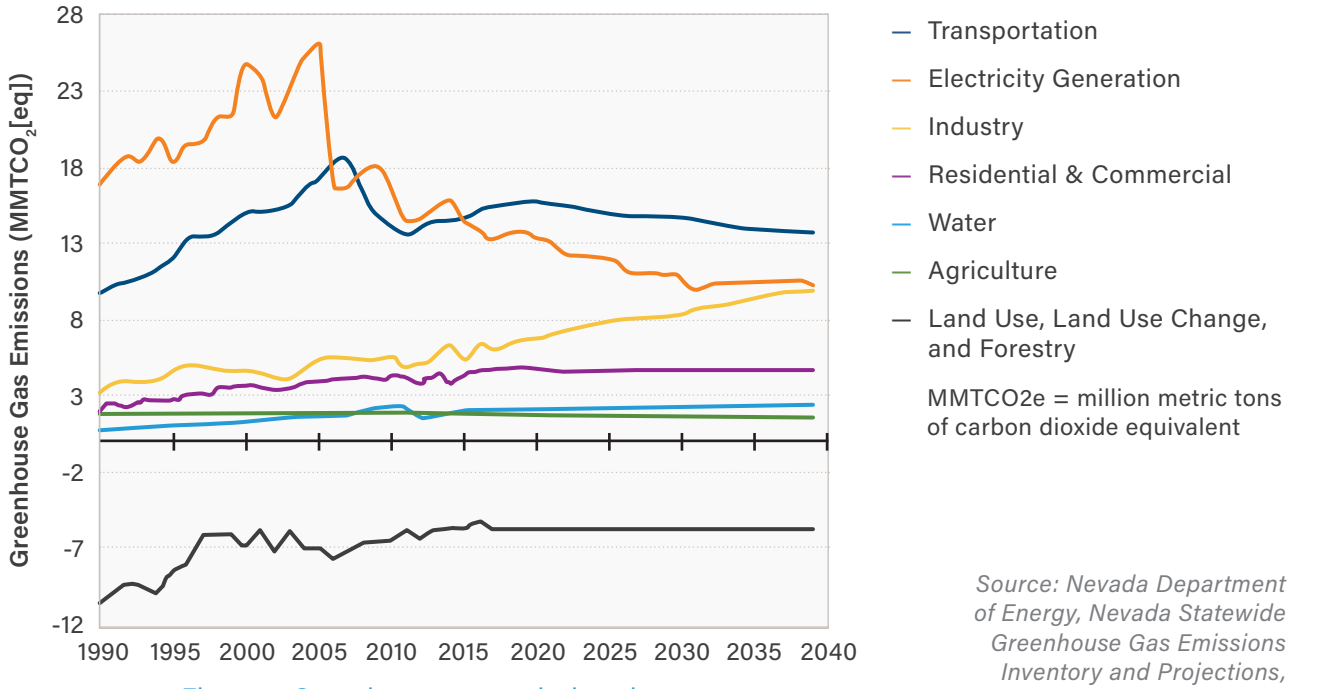


Figure 1: Greenhouse gas emissions by sector

Source: Nevada Department of Energy, Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2041 (2021)

[2]While motor vehicles account for the majority of these emissions, aircraft and rail emissions also produce significant amounts of GHG. Aircraft operations alone are estimated to comprise between 20-30% of transportation sector emissions.

2.3 Policy imperative: Addressing equity in transportation funding

Transportation can be a powerful engine of opportunity, providing people with vital links to jobs, education, and other resources. However, this opportunity can only be created if the transportation system itself provides fairness in mobility and accessibility to meet the needs of all community members.

In the past, a transportation system was evaluated based on speed: how quickly a system can move a person from one location to another. However, as our economy—and our society—has evolved, speed and efficiency are now just two of many factors used to evaluate how well a transportation system serves its users. Now, criteria such as safety, accessibility, environmental impact, and social impact are increasingly important factors.

Because of the increasing importance placed on how well the transportation system serves all residents of Nevada, AB 413 requires the AWG to evaluate issues of equity in future transportation funding mechanisms. The legislation charged the AWG with studying the role social and user equity play in transportation funding.

In transportation, there are generally two ways to evaluate how well a system serves its community: social equity and user equity. Social equity refers to the process of improving the distributional impact of revenue mechanisms on historically underserved communities. For example, when evaluating social equity, policymakers may look at where and how the revenue collected is being used, ensuring that all members of a community have equal access to the transportation system. User equity, by contrast, focuses on making sure that any revenue mechanism recovers a proportionate share of the costs from those who use the transportation network. The focus here is instead on the users of the system, ensuring that those who use and benefit directly from the system more, pay more.

While there is no single, correct way to evaluate equity in transportation, the AWG considered multiple perspectives and impacts of equity and undertook different methods to analyze these issues when identifying future revenue mechanisms. This approach led to a broader and more inclusive analysis of revenue alternatives, the recommendations of which align with the goals of ensuring user and social equity in Nevada's transportation system. Section 4.0 provides details on how equity factored into the evaluation of sustainable transportation revenue mechanisms.

2.4 Policy imperative: Promoting a more sustainable transportation system using land

According to the 2020 census, Nevada had the fifth-fastest-growing population in the country. Strong economic growth coincided with this population growth. While these trends are generally good for the Nevada economy, they also bring policy challenges. One of those challenges is the increasing use of land and development and the demands that use and development places on public services such as transportation.

Because of the interconnected nature of land-use patterns and the demands those patterns place on transportation resources, AB 413 required the AWG to study "[t]he role of land use and smart growth strategies in reducing transportation emissions and improving system efficiency and equity." As such, the AWG was tasked with identifying ways to harmonize land use and development with Nevada's limited transportation resources.

Linking transportation and land use refers to the process of guiding development and expansion of communities with the goal of better coordination of land use and transportation that accommodates pedestrian and bike safety and mobility, enhances public transportation service, improves road network connectivity, and includes a multimodal approach to transportation. Thus, the choices a community makes about land use affect the viability of transportation options, which make the link to land-use policy a critical part of any conversation about sustainable transportation.

During the AWG's March 2022 meeting, members analyzed the link between land use and sustainable transportation as well as the constraints Nevada law places on land use. AWG members determined that land use and sustainable growth policies are deeply intertwined with more than just transportation policy and are linked to other policy areas, including environmental, housing, energy, water, tourism, and agriculture policy.

3.0 Funding Gap

3.0 Nevada's Transportation System: A Widening Funding Gap

3.1 Overview of Nevada's multimodal transportation system

The transportation network is key to Nevada's growth and competitiveness as well as the mobility and safety of its residents. Nevada's transportation system includes federal and state highways and bridges, county and city roadways and associated facilities for walking and biking, public transit systems, two major rail corridors that provide both freight and Amtrak passenger service, four commercial service airports, and 45 general aviation airports.

Nevada's roadway network

The roadway network is critical to Nevada's economy and the quality of life of its residents. Nearly 28 billion miles are traveled each year on Nevada roadways.

Through its wide range of responsibilities, the Nevada Department of Transportation (NDOT) plays a critical role in supporting Nevadans, businesses, and visitors. One of NDOT's crucial functions is the maintenance of state and federal roads, which include interstate, U.S., and state highways. Despite these highways accounting for about 14% of total roadways in Nevada, highways maintained by NDOT carry nearly 50% of the vehicle traffic in the state, including 70% of all truck traffic and 68% of heavy truck traffic.

County roads and city streets (collectively, "local roads") comprise 34,064 centerline miles and 87,301 lane miles of Nevada's roadways. While the NDOT-managed state highway system carries much more traffic per mile, the local roadway system is more extensive, representing about 86% of total lane miles in the state, carrying just over 50% of all vehicle miles traveled.

Source: NDOT, One Nevada Transportation Plan, 2020 Quick Facts & Figures

Figure 2: State and local roadway network

Transit systems in Nevada

While there are transit services provided to some degree throughout the state, the largest transit operations are in Clark County (Las Vegas metropolitan area) and Washoe County (Reno metropolitan area). These two transit systems alone provide over 99% of total transit trips in Nevada. In 2019, the Regional Transportation Commission of Southern Nevada (RTC of Southern Nevada) provided more than 64 million trips, while the Regional Transportation Commission of Washoe County (RTC Washoe) provided over eight million trips.

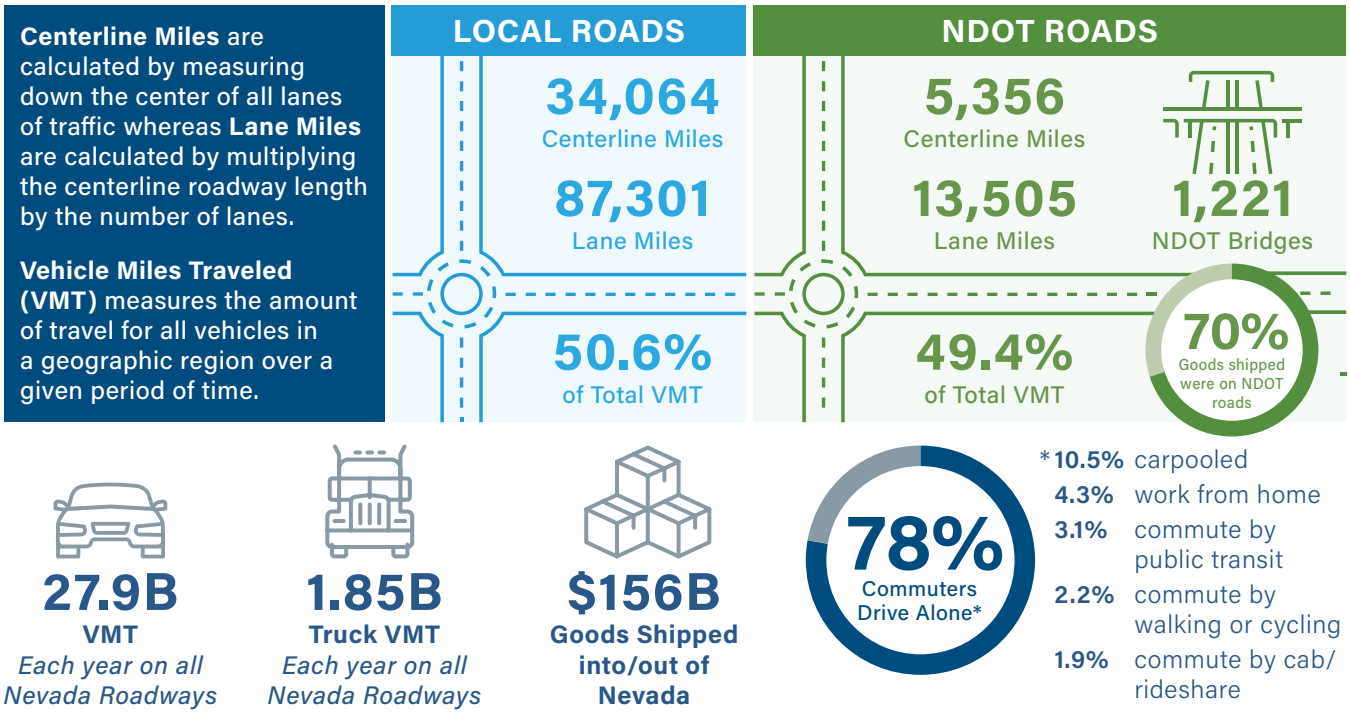
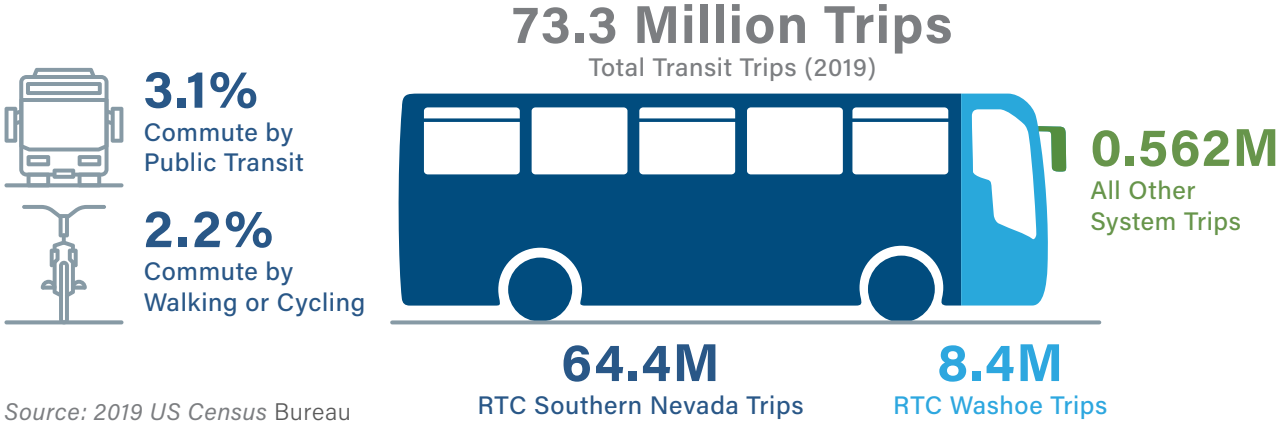


Figure 3: Nevada roadway overview



Source: 2019 US Census Bureau

Figure 4: Transit trips

Rail service in Nevada

Two major rail routes serve Nevada: the Overland Route and the South-Central Route. Together, the Union Pacific Railroad and Burlington Northern Santa Fe (BNSF) Railway provide service on 1,805 track miles within the state. More than 5.6 million tons of goods were shipped on these rails in 2016. Freight rail movements account for about 25% of all freight ton-miles of all modes exported from Nevada.

The State of Nevada is statutorily prohibited from operating rail and has no state funding sources available for rail expenditures. Passenger rail in the state is served by Amtrak, solely on the Overland Route. Amtrak operates the California Zephyr through Northern Nevada, connecting Reno, Winnemucca, and Elko to the San Francisco Bay Area and Chicago. This service runs daily in each direction.

Brightline West, a private consortium, is planning a high-speed rail line between Las Vegas and Victorville, CA, near Los Angeles. Construction is expected to begin in 2023, with passenger service planned to begin in 2026.

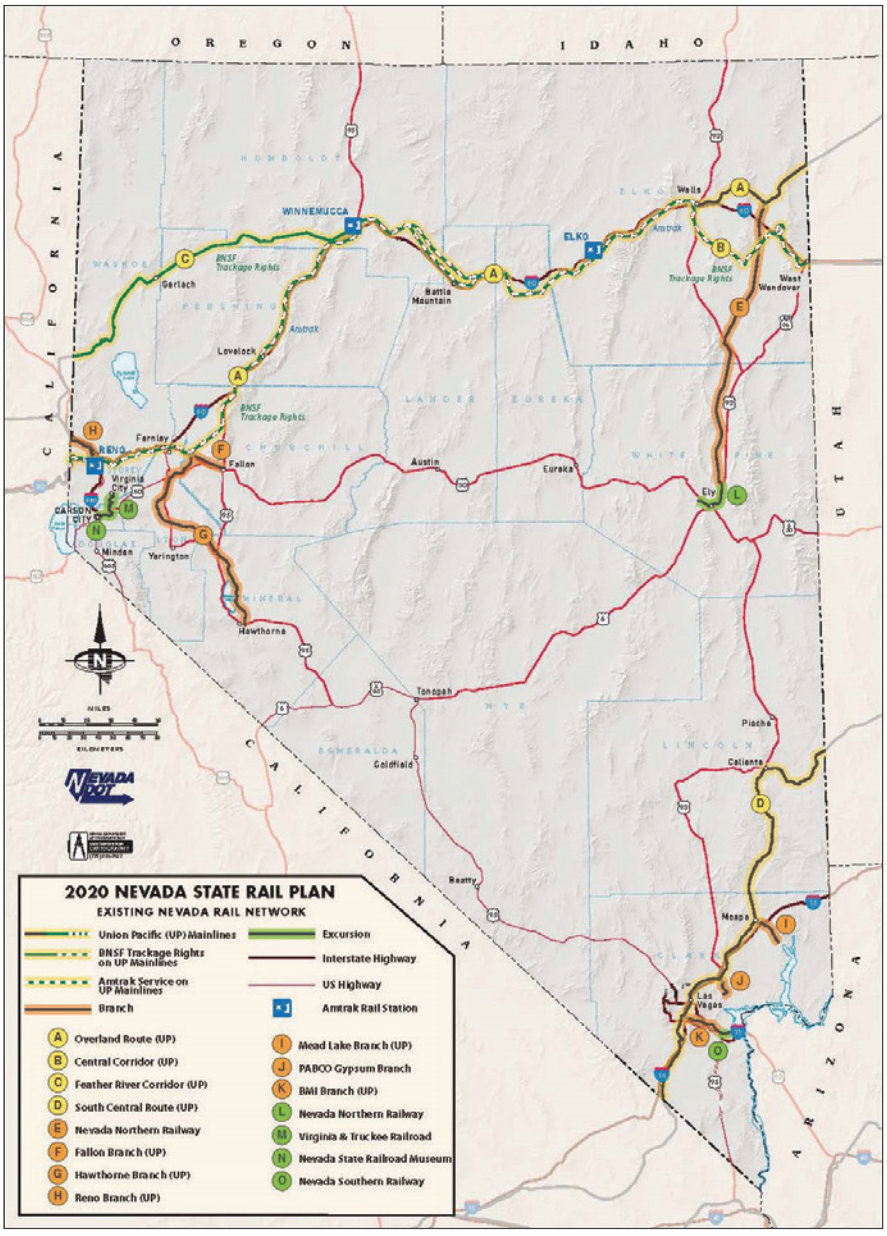


Figure 5: 2020 Nevada state rail plan

Airports in Nevada

Nevada's commercial airports play a critical role for both passengers and freight. In 2016, more than 350 million pounds of domestic air cargo moved through Nevada's major commercial airports.

In 2017, nearly 53 million passengers arrived and departed through Nevada airports. Year after year, McCarran International Airport in Las Vegas consistently ranks in the top 10 busiest U.S. airports by total passenger boardings.

Jurisdictions and governance of Nevada's transportation system components

On a statewide basis, NDOT plans, operates, maintains, and administers the state highway system and federal highway program within Nevada and administers the federal rural transit program, which provides funding for basic passenger connectivity for rural areas of the state.

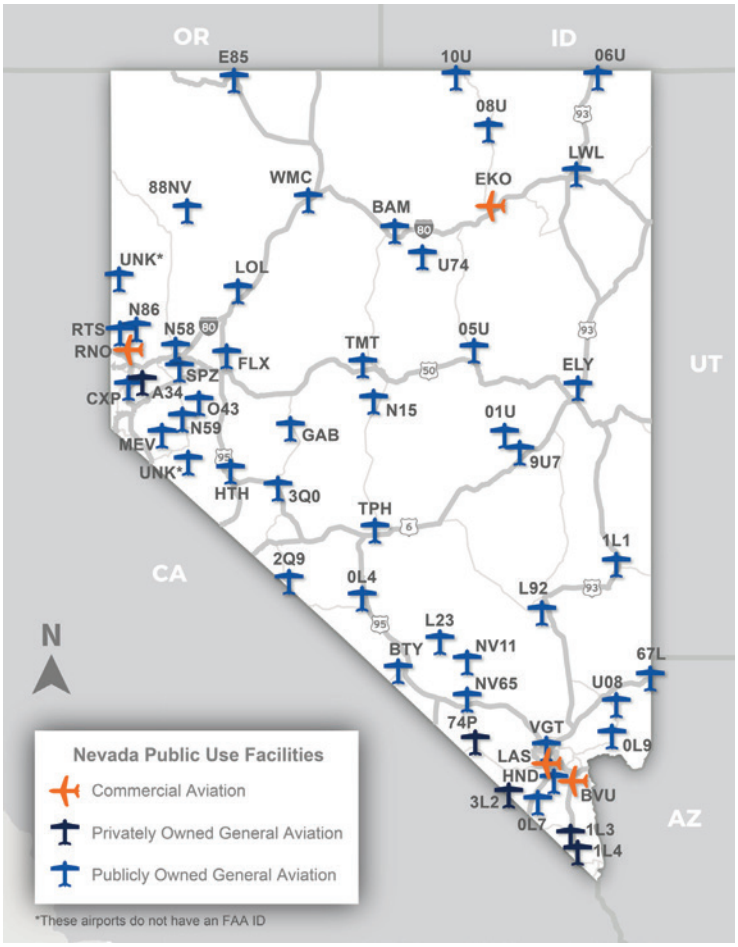


Figure 6: Nevada public use airports

Regional transportation commissions, metropolitan planning organizations, counties, cities, and a specially designated bistate planning agency each have responsibilities within their respective jurisdictions (Figure 9).

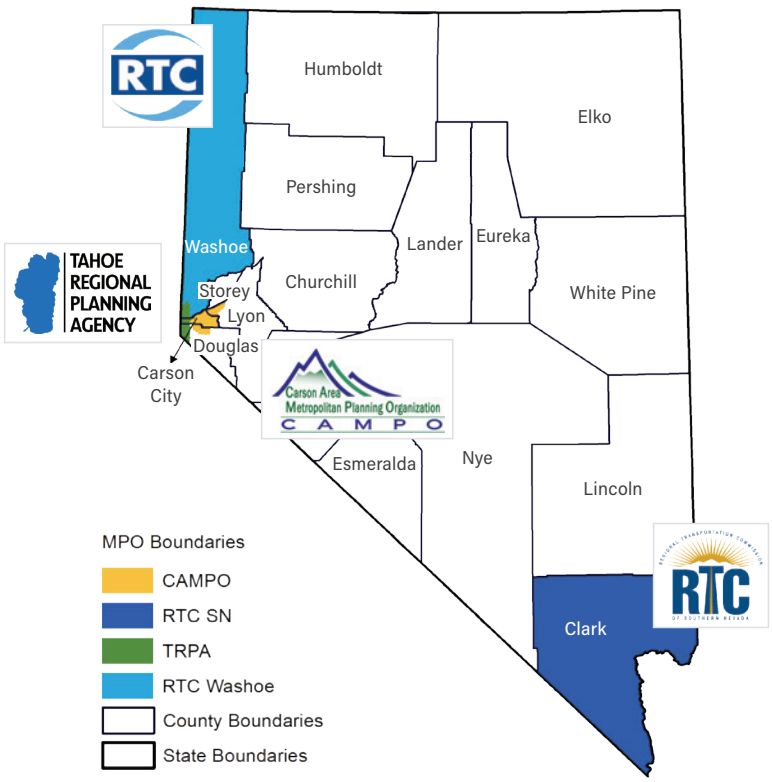
RTC of Southern Nevada manages public transit, traffic management, construction funding, and transportation planning in Clark County, Nevada's most populous region, representing approximately 75% of the state's population.

RTC Washoe also manages public transit services, construction funding, and transportation planning in Washoe County, Nevada's second most populated area, with about 15% of the population.

The Carson Area Metropolitan Planning Organization (CAMPO) conducts transportation planning and manages construction funds for Carson City and parts of Douglas and Lyon Counties.

The Tahoe Regional Planning Agency (TRPA) is a unique organization formed to represent the shared interests between California and Nevada in managing and protecting Lake Tahoe and the surrounding area. TRPA provides regional planning, development and regulatory oversight, and environmental protection for the Lake Tahoe region. The Tahoe Transportation District is a project delivery and transit operations partner serving this area.

Cities and counties each conduct planning, funding, and construction of transportation facilities in their respective jurisdictions.



NEVADA Department of Transportation

Plans, operates, maintains, and administers the state highway system and federal highway program within Nevada as well as the state and federal rural transit program.

RTC of Southern Nevada

Manages public transit, traffic management, construction funding, and transportation planning in Southern Nevada.

RTC of Washoe County

Manages public transit, construction funding, and transportation planning in Washoe County.

Carson Area Planning Organization

Manages construction funding and transportation planning for Carson City and parts of Douglas and Lyon Counties.

Tahoe Regional Planning Agency

Provides regional planning, development and regulatory oversight, and environmental protection for the Lake Tahoe region.

Local Governments

Cities and counties administer local roads and perform local planning.

Figure 7: Jurisdictions and governance of transportation in Nevada

3.2 Transportation funding needs on the state and local systems

Nevada's population boom continues at historic levels, placing great demand for transportation services on the entire system. U.S. census data shows that Nevada had the fifth-fastest-growing population, adding 15% of its population between 2010 and 2020.

Construction cost escalation of just over 17% in 12 months, between the fourth quarters of 2020 and 2021, increased the difficulty for NDOT and regional and local agencies to strategically add capacity to the system, maintain transportation facilities in a state of good repair, and meet baseline service levels.

With this as a backdrop, the Legislature enacted AB 413, directing the AWG to study the multimodal transportation needs of the state and recommend funding options that provide long-term financial sustainability for Nevada's transportation system. AB 413 specifically references the need to stabilize the State Highway Fund, which is the depository account for state fuel tax revenue and vehicle-related fees. The State Highway Fund is the primary funding account for operating, maintaining, preserving, and improving the state's highway system. The downward forces on the State Highway Fund—especially on its largest revenue source, the motor fuel tax—are discussed in more detail in Section 3.3.

To assess which funding options are best suited to provide longer-term financial stability, the AWG heard presentations from NDOT, metropolitan planning organizations (MPOs), counties, cities, and other planning organizations that referenced the longer-term (20-year) transportation system plans and needs. In some instances, 10-year funding needs were presented, because that time frame involves more certainty for budgeting purposes.

The 10-year funding needs are presented for the NDOT-managed state highway system and other NDOT programs. Thereafter, the funding needs for RTC of Southern Nevada and RTC Washoe are highlighted, followed by information provided on local government funding needs (counties and cities, including the Carson City area and the Tahoe region).

NDOT's funding needs for the statewide transportation system

In response to AWG member inquiries and interest, NDOT directed a review of their current and future transportation funding needs by an outside consulting firm. The information provided in this section is a high-level summary of the results. More detailed information on the methodology, sources of information, and results is available from NDOT upon request.

NDOT's transportation needs have been grouped into the following broad categories:

Roadway and bridge preservation

Transportation system management and operations (TSMO)

Roadway capacity

Rural transit

Bicycle/ pedestrian

Facilities

Administrative

Several categories of transportation needs were not estimated in this analysis. These include, but are not limited to, local roadway operations and expansion, urban transit, aviation, railroads, and nonhighway transportation technologies. The administrative costs included in the estimate represents only NDOT's current staffing and programs. If funding levels were increased to address unmet transportation system needs, NDOT's cost of delivering a new construction program and maintenance costs would rise in conjunction; however, such additional costs are not included in the cost estimates. Additionally, the cost estimates do not include potential future increases in staffing levels nor state employee salary adjustments.

The 10-year high and low estimates of transportation needs are summarized in Table 1.

Table 1: Summary of 10-year transportation needs

Category	Low Estimate	High Estimate
Preservation	$2,957 million	$2,957 million
TSMO	$83 million	$83 million
Capacity	$11,520 million	$16,568 million
Rural Transit	$173 million	$173 million
Bicycle/Pedestrian	$653 million	$1,221 million
Facilities	$689 million	$689 million
Administration	$922 million	$922 million
Total	$16,997 million	$22,613 million
One-year Average	$1,701 million	$2,261 million

Note: All totals are rounded to the nearest million.

Table 2 contrasts projected revenue against the identified funding needs, demonstrating the resulting unfunded backlog of transportation projects and programs.

Table 2: Summary of 10-year transportation needs, revenue, and unfunded backlog

Category	Low Estimate	High Estimate
Total Need	$16,997 million	$22,613 million
Anticipated Revenue	$10,784 million	$10,784 million
Unfunded Backlog	$6,213 million	$11,829 million
One-year Average Unfunded Backlog	$621 million	$1,183 million

Note: All totals are rounded to the nearest million.

As illustrated above, there is roughly $621 million of unfunded transportation needs per year for the NDOT-managed state transportation system under a low estimate scenario, and $1.18 billion per year of identified NDOT system funding needs under a high estimate scenario. Table 1 shows the categories of funding by percentage for the low and high estimates. Table 2 compares the total needs and anticipated revenues for the low and high estimates, illustrating a backlog in funding to meet the anticipated needs.

Regional and local transportation funding needs

Feedback from Nevada's MPOs was focused on concerns about inadequate funding to increase (or in some cases, maintain existing) transit services. The federal government is often a funding partner for transit capital expenses, but other than an infusion of one-time relief funding during the COVID-19 pandemic, the federal government is not a source of funding for transit operations. Research revealed that Nevada is one of only four states in the United States that does not provide dedicated funding to help support urban transit operations. As a result of inadequate funding levels, several areas in Nevada have demands for increased transit service that cannot be met.

One of the major obstacles to state-level funding support for transit is the lack of revenue sources that are eligible to be used for transit. The single largest transportation funding source is the gas tax. However, like most states, Nevada's constitution requires that motor fuel tax revenue and other roadway user fee revenues be expended only on roadway-related projects.

RTC of Southern Nevada has been assessing their current transit service levels relative to available revenues and has found that even with a short-term infusion of federal relief funding, their transit operations will face a significant funding shortfall in the 2026 to 2027 timeframe just to maintain existing service levels. In addition, the growth within Clark County has increased the need to expand service to meet the needs of the region. Preliminary estimates suggest 10-year transit funding needs of approximately $454 million for operations, and $79 million for capital, not including investments that would be needed to implement RTC of Southern Nevada's On Board Mobility Plan.

RTC Washoe has identified several service expansion projects that remain unfunded, including extending existing rapid bus lines to provide more efficient service and constructing a new transit maintenance facility. The agency's 2050 Regional Transportation Plan implies a 10-year cost of approximately $229 million to provide desired service levels ($86 million for operations, and $148 million in capital projects).

TRPA has identified the need to increase the frequency of bus service within the Tahoe region but lacks funding to meet the demand for services. For capital needs, a new maintenance facility is also needed but remains unfunded. Over a 10-year horizon, the funding needs for TRPA are estimated at $189 million (including capital costs for a new maintenance facility in Nevada).

CAMPO's unfunded transportation needs are primarily focused on increasing the frequency of service along existing transit routes and a downtown transit center. CAMPO and Lyon County are actively coordinating the logistics for a 5 or 6-day a week service which would replace the lifeline service. Like other jurisdictions, the Carson City area lacks sufficient funding to provide these services. The 10-year operating cost for these services is estimated to be $1.1 million and the capital cost of the transit center is estimated to be approximately $2.3 million, for a total of $3.4 million in unfunded need over the next 10 years (not including the cost of upgrading lifeline service for scheduled 5 or 6-day service).

3.3 Current sources, uses, and challenges with existing transportation revenue mechanisms

Nevada residents and road users contribute about $1.4 billion per year through a variety of state and local transportation taxes and fees to support transportation investments by state, regional, county, and municipal agencies. Not included in this annual investment amount are proceeds from bond sales (i.e., borrowed money that must be repaid from existing taxes and fees); general fund tax revenues such as sales and property taxes, even if some of those funds occasionally are transferred to support transportation; and revenue from the federal gas tax and other federal-level transportation user fees.

State and local governments impose a variety of revenue mechanisms to support transportation investments, largely based on taxation of fuel and vehicles, but 10 sources stand out.

Table 4: 10 Major sources of transportation funding in Nevada

Revenue source	Imposed by (last increased)	Rate	Est. FY2020 revenue ($ millions)
Fuel tax (gasoline + diesel) to State Highway Fund	State (1992)	$0.173/gal gasoline, $0.265 diesel	$ 197
County option flat per-gallon fuel taxes	All counties (2016, Nye County)	$0.04–0.09/gal	$ 171.6
Washoe fuel tax indexing	Washoe County (2010)	$0.389/gal motor fuel $0.345/gal special fuel	$ 56.6 $ 18.6
Clark fuel tax indexing	Clark County (2016)	$0.157/gal motor fuel $0.157/gal special fuel	$ 93.2 $ 17.3
Driver license fees	State (2009)	$23.25/4-year passenger license	$ 17.2
Vehicle registration fees	State (2005)	$33/passenger vehicle	$ 175.1
Motor carrier fees	State	$48+ $12/1k lbs 10–26k lbs $17/1k lbs 26k+ lbs	$ 38.3
Various DMV fees	State (2015)	e.g., $36 out-of-state title fee	$ 100.6
County taxes, licenses and fees (primarily county portion of GST)	Counties		$ 393.4
Governmental services tax (GST)	State (1991)	4% of adjusted MSRP	$ 61.8

State tax and fee revenue represents just under half of the total amount contributed by Nevada residents and road users. In 2020, state-imposed taxes and fees for transportation totaled $681 million, or 48% of the total amount contributed by Nevada taxpayers. The motor fuels tax (gas tax) and the special fuels tax (diesel) provide the largest single source of funding for the state, providing 42% of the revenue. Vehicle registration fees, including the GST, are the largest source of revenue derived from state taxes and fees on drivers and vehicles (34%). Taxes and fees composing the remaining 24% include miscellaneous Nevada Department of Motor Vehicles (DMV) fees such as license plate fees and emissions control fees.

Counties receive slightly more than half of Nevada transportation tax and fee revenue, driven in part by fuel taxes but primarily by vehicle-related fees. Counties receive a guaranteed share of fuel tax collections, referred to as the "mandatory" county gas tax. Counties also may enact an additional fuel tax (optional county fuel tax). As of 2021, all but four counties have enacted an additional nine-cent county fuel tax. Esmeralda, Eureka, Lincoln, and Storey each enacted an additional-cent county tax only. Finally, both Clark and Washoe Counties enacted provisions that allow them to adjust their fuel tax rates for inflation, resulting in additional revenue for those counties.

42%
Fuel Tax
State gas taxes and special fuels (diesel) taxes

34%
Taxes on Vehicles and Drivers
Vehicle registration fees, motor carrier fees, driver license fees

24%
All Other Taxes and Fees
DMV and public safety revenue, other taxes and fees

*Bond proceeds not included because they are not "revenues collected."

Figure 8: State tax and fee revenue by category

39%
Fuel Tax
Mandatory and optional county gas taxes; inflation indexes on gas tax and special fuels tax (Clark and Washoe); and alternative fuels taxes

43%
Taxes on Vehicles and Drivers
County taxes, licenses and fees on motor vehicles, primarily the county portion of the governmental services tax

9%
All Other Taxes and Fees
Impact fees, sales tax, etc

*Based on 2019 data

Figure 9: County fuel taxes, licenses, and fee revenue*

Like all states, Nevada is heavily dependent on fuel taxes to generate funding for highways, bridges, local roadways, and activities related to maintaining and operating these facilities. Reliance on motor fuel taxes rests on a simple premise: Nevada road users pay for the cost of the roadways through fixed fees that act as access charges (such as vehicle registration fees) and through usage charges (fuel taxes). However, the details are not as simple. With 70 individual line items specifying distinct tax rates or rate formulas for various types of fuel destined for various jurisdictions, and corresponding direction on how to invest the revenues collected from each individual tax, Nevada fuel tax statutes are among the nation's most complex.

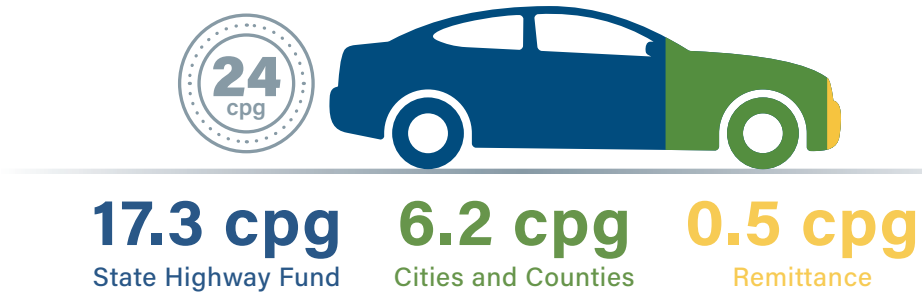


Figure 10: State-imposed motor fuel (gas) tax, cents per gallon

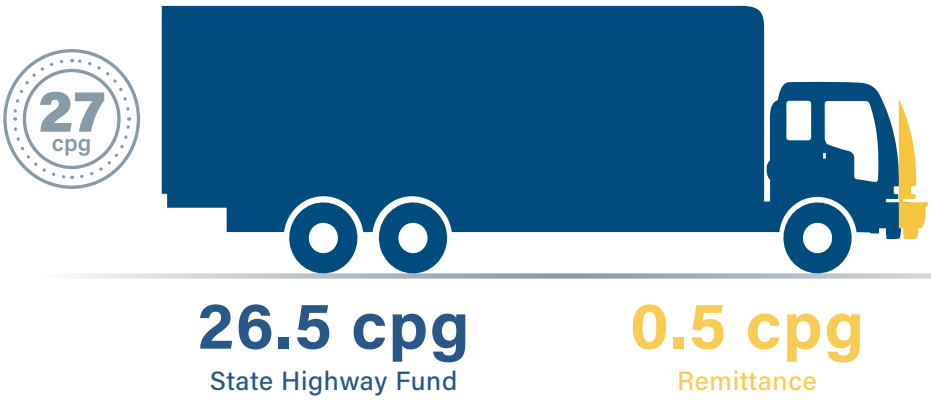


Figure 11: State-imposed special fuel (diesel) tax, per gallon

State-imposed fuel taxes

The State of Nevada taxes all motor fuel (gasoline) distributed in Nevada for highway purposes at a flat rate of 24 cents per gallon. This tax rate reflects the sum of five individual statutory taxes set at distinct rates with distinct distribution formulas. The bulk of the revenue from this tax, equivalent to 17.3 cents per gallon, goes to the State Highway Fund. Revenue corresponding to 6.2 cents per gallon is distributed according to three separate formulas spelled out in statute to counties and cities. The remaining 0.5 cents per gallon goes to the fuel distributors to compensate them for collecting and remitting the tax to the state.

Similarly, the State of Nevada taxes all special fuel (diesel) distributed in Nevada for highway purposes at a flat rate of 27 cents per gallon. Almost all this revenue, equivalent to 26.5 cents per gallon, is deposited into the State Highway Fund. The remaining 0.5 cents per gallon goes to the fuel distributors to compensate them for collecting and remitting the tax to the state.

Optional county-imposed fuel taxes

Optional county fuel taxes are more complex. County fuel taxes comprise 62 individual line items in Nevada statute, 60 of which are not flat per-gallon rates, but formulas tied to cost indices ("fuel revenue indexing") that vary by county, fuel type, and index type. Most of the county option taxes also require an election by voters or ordinance by elected county officials before the county option tax becomes law.

Collectively, as of 2021, county motor fuel (gasoline) taxes are imposed at rates varying between 4 cents per gallon and 47.9 cents per gallon.[3] Special fuel (diesel) taxes also vary by county, from no additional tax to 5 cents per gallon. Of these additional taxes, fuel distributors retain 2% of gross receipts. The remaining 98% is distributed to the county in which it was sold.[4]

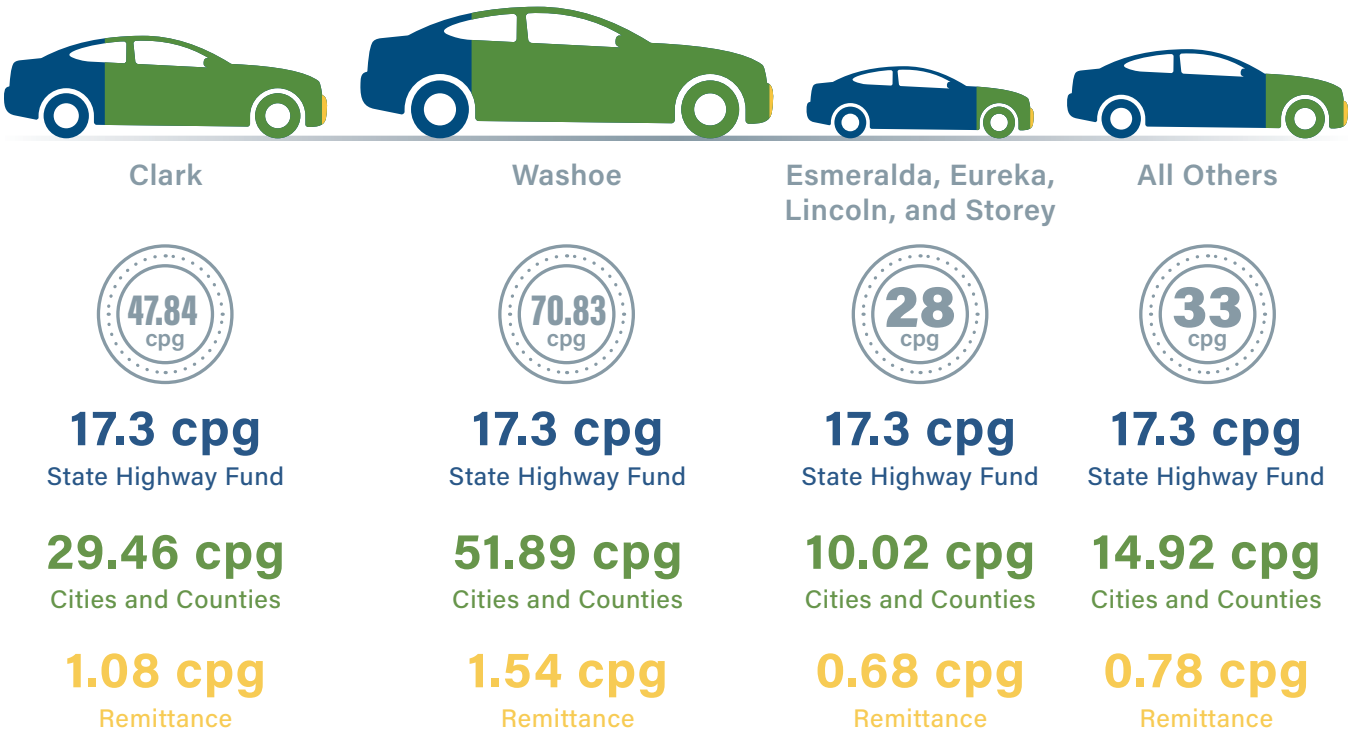


Figure 12: Distribution of county-imposed fuel taxes

[3]County motor fuel tax rates as of July 1, 2021, include Esmeralda, Eureka, Lincoln, and Storey Counties at a flat 4 cents per gallon; Clark County at 24.7 cents per gallon (of which 9 cents is flat and the remainder is a collection of 12 taxes indexed to the producer price index for highway and street construction); Washoe County at 47.9 cents per gallon (of which 9 cents is flat, 36.3 cents is a collection of 12 taxes indexed to the producer price index for highway and street construction, and 2.7 cents is a collection of eight taxes indexed to the consumer price index); and all other counties (including Carson City) at a flat 9 cents per gallon.

[4]A portion of fuel tax collected on fuel sold in Clark County is directed to the State Highway Fund for expenditure on projects in Clark County.

Uses and restrictions on transportation revenues

A large portion of transportation revenues are legally restricted and can only be spent for transportation purposes. By far, the largest portion of restricted revenues must be spent on highway-related purposes.

There are two primary ways revenues become legally restricted: through laws enacted by the legislature that narrowly define how the money can be spent (statutory restrictions) or state constitutional provisions that restrict the use of the revenue.

All states except Alaska have some level of requirement that motor fuel taxes be spent on transportation. The most common restrictions require that gas tax revenue be used strictly for "highway purposes"—24 states have this constitutional restriction. Most of these states also restrict the expenditure of other motor vehicle-related taxes and fees, especially vehicle and driver license fees.

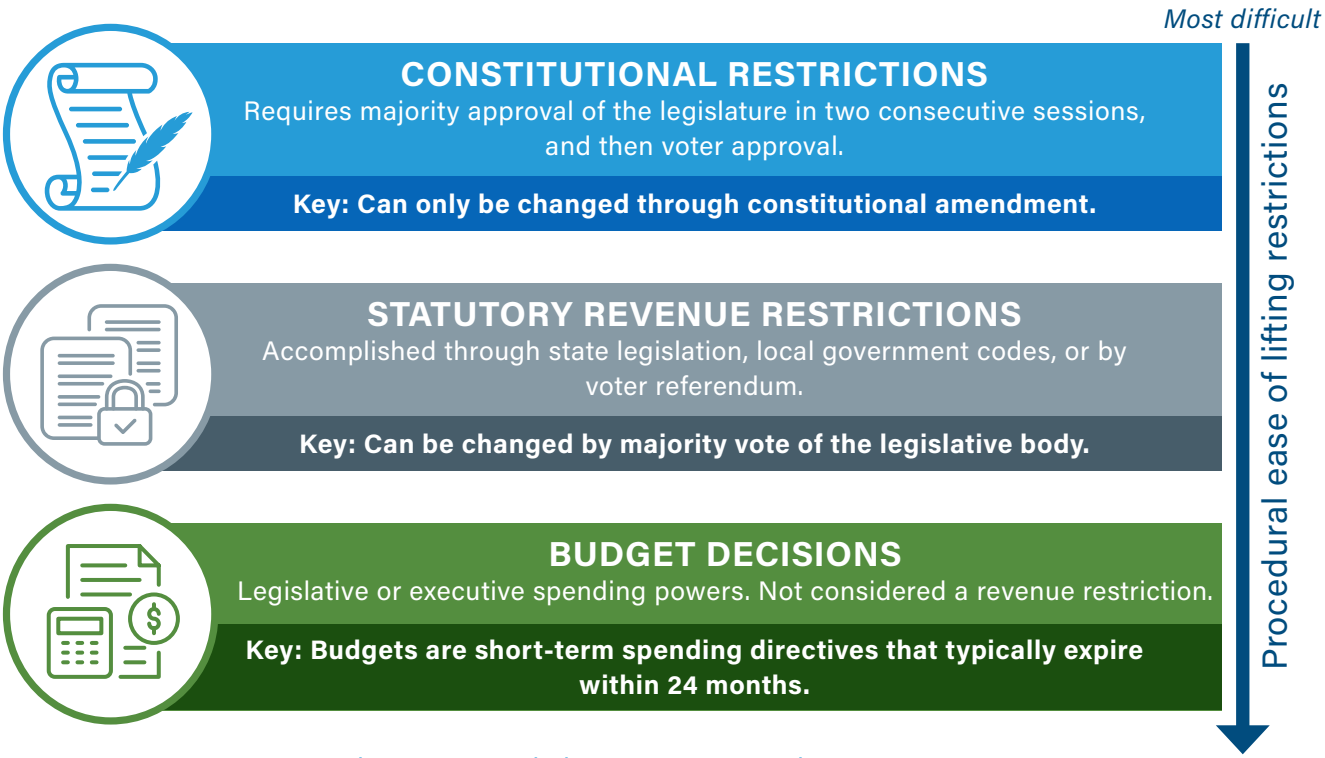


Figure 13: Restrictions on transportation revenues

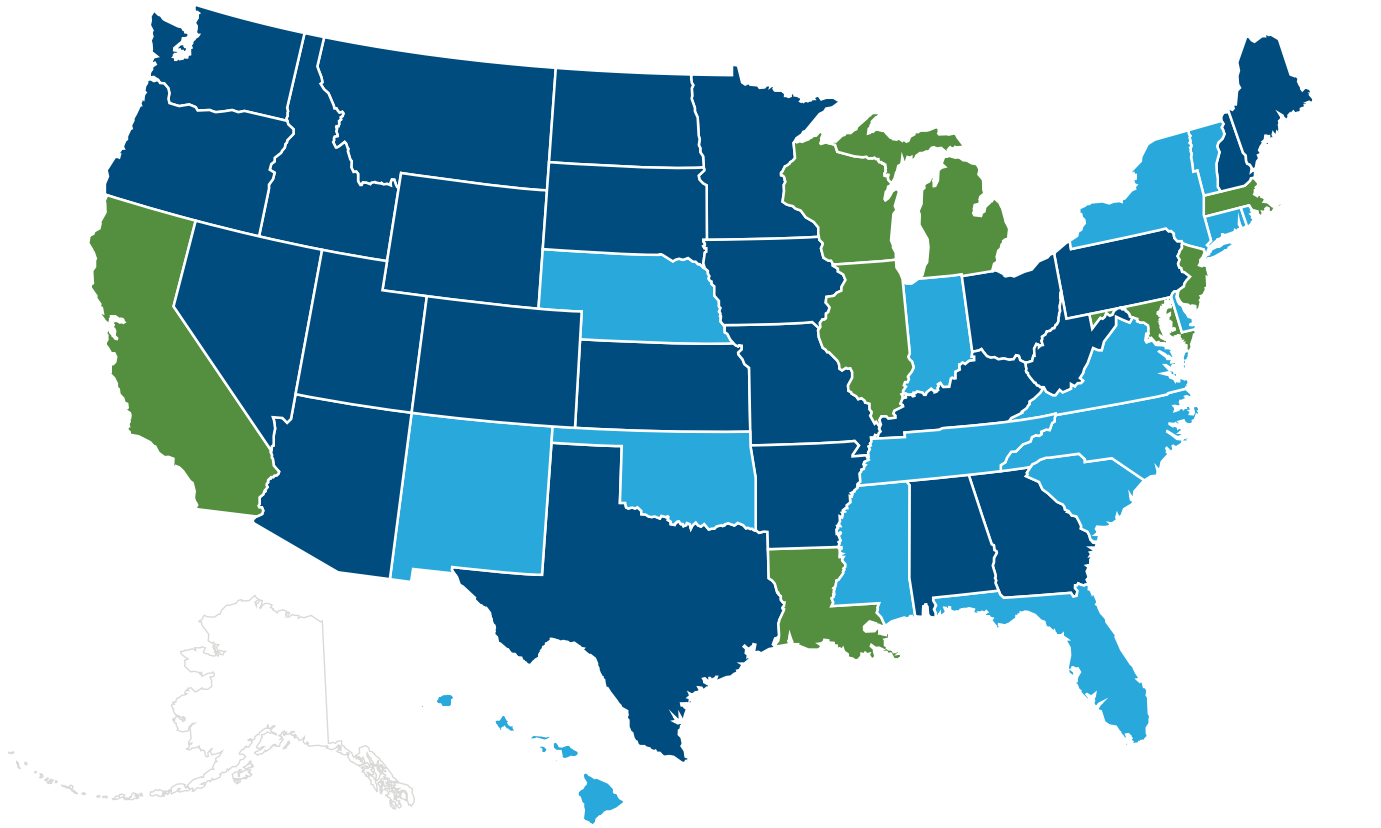


Figure 14: States with restrictions on fuel tax revenue

1919: Oregon is the first to impose a 1 cent per gallon tax on motor vehicle fuel.

1929: All states have enacted gas taxes.

1932: Federal gas tax is enacted for deficit reduction (and later, national defense).

Great Depression: States begin to divert gas taxes to other social programs (example: unemployment benefits).

1935: Automobile clubs and concerned citizens begin to press legislatures to pass laws requiring "highway revenue" to be spent exclusively for "highways."

1940: Nevada voters pass constitutional amendment requiring state gas tax and motor vehicle related fees to be spent on highway purposes.

1944: Proposed national highway system calls for states to provide matching funds for construction of the federal highways.

1956: Federal Interstate System is created and financed with periodic increases in the federal gas tax (plus 10% state matching funds).

In 1937 and again in 1939, the Nevada Legislature approved a constitutional amendment that required motor fuel taxes, vehicle registration, and driver licenses fees to be used exclusively for the construction, maintenance, and repair of public highways. This amendment was approved by voters in 1940. In 1962, a further amendment clarified that any taxes based on the value of a vehicle (ad valorem property tax) were not subject to these highway-only spending restrictions.

The State Highway Fund

Like many states, Nevada has a special account, the State Highway Fund, where restricted revenues (e.g., gas taxes, vehicle and driver license fees) must be deposited. Under current law, funds from this account can only be used for the construction, maintenance, repair, and administration of the highway system.

Within the context of Nevada's system-wide multimodal transportation needs—including the need to improve equity and reduce greenhouse gas emissions—AB 413 requires the AWG to specifically study the sustainability of the State Highway Fund.

Examples of allowable uses of State Highway Fund deposits include:

- Construction, maintenance, repair, and administration of highways
- Licensing and registration of vehicles
- Public safety and patrolling of the highways

Examples of unallowable uses of State Highway Fund deposits include:

- Public transit equipment and operations
- Freight and passenger rail
- Bicycle and pedestrian facilities (unless part of a larger roadway project and within highway rights of way)

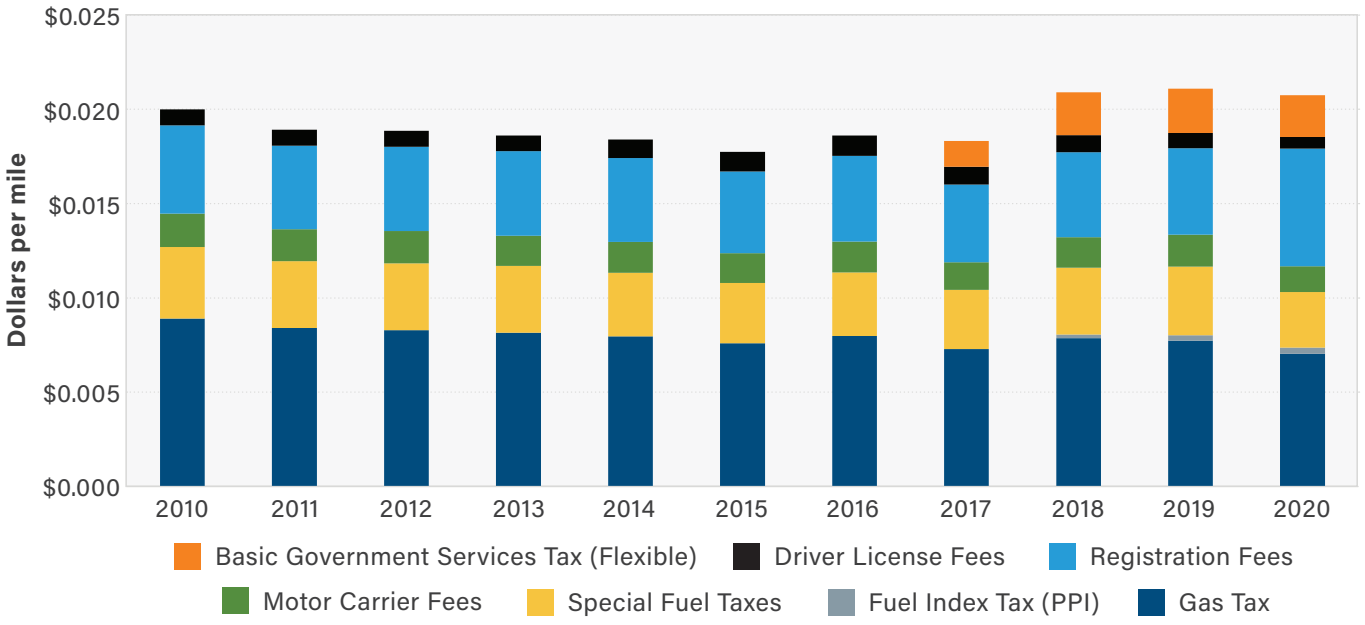


Figure 15: State Highway Fund revenue per mile driven

Challenges to State Highway Fund sustainability: Declining fuel tax revenues

The State Highway Fund, by statute, aligns with the allowable uses of fuel tax and vehicle registration fees in accordance with Article 9, Section 5 of the Nevada Constitution. This does not preclude the deposit of additional revenue mechanisms, such as the basic GST or a general tax such as sales taxes, into the State Highway Fund per request of NDOT. Several recent trends, all expected to persist, affect the sustainability of the current funding sources for the State Highway Fund:

- On one hand, growth in population and economic activity in Nevada are increasing the taxable base of vehicles and leading to an increase in number of miles traveled by Nevada motorists. Vehicle miles traveled in the state has increased 34% since 2010.
- On the other hand, improved vehicle fuel economy and the increased adoption of zero-emission vehicles is undermining revenue from excise and inflation-indexed fuel taxes. On a per-mile-driven basis, fuel tax deposits to the State Highway Fund have declined 19% since 2010, from 1.27 to 1.03 cent per mile.

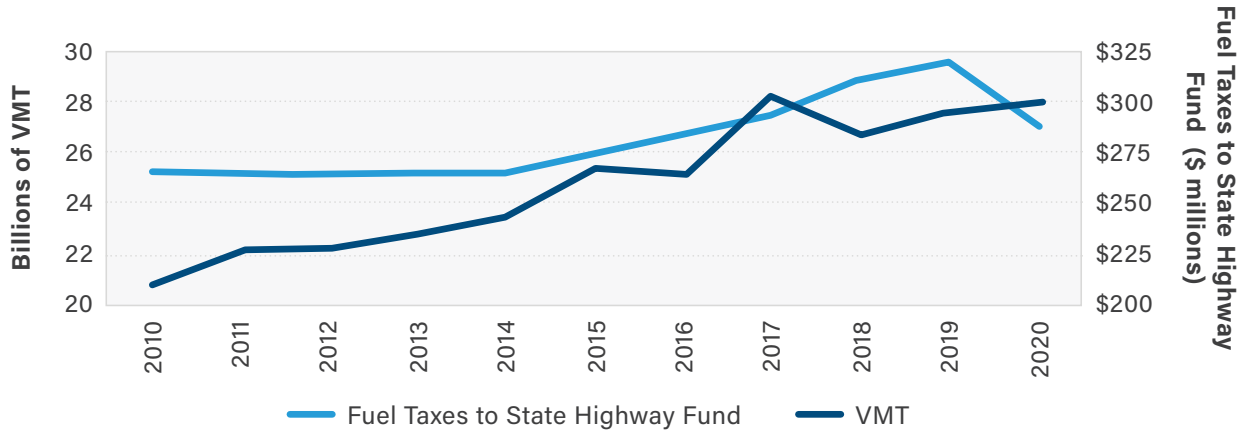


Figure 16: VMT compared to fuel tax deposits to the state highway fund

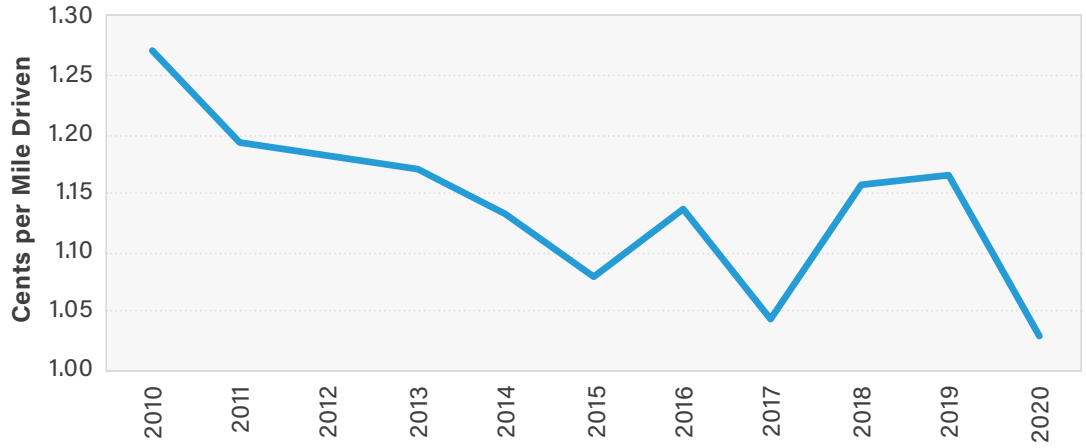


Figure 17: Cents of fuel per tax per mile driven to State Highway Fund

These competing forces have led to only modest growth in total State Highway Fund revenue from fuel taxes and registration fees, putting pressure on the state to find additional revenue. This has been accomplished by supplementing the State Highway Fund with revenue from other tax and fee mechanisms, including a portion of the basic GST.

The future of motor fuel taxation as a sustainable revenue source is uncertain as passenger vehicles become more fuel efficient and increasingly electric powered. Based on U.S. Environmental Protection Agency (EPA) fuel economy ratings, the average fuel economy, expressed as miles per gallon (MPG), for approximately 1.8 million Nevada light-duty passenger vehicles registered as of June 2021 has been determined. This represents over 80% of the state's total passenger vehicle fleet.

In comparison, diesel tax receipts from medium and heavy trucks (including commercial trucks) have helped bolster the State Highway Fund account balances, because these heavier vehicles are not subject to the same aggressive fuel economy regulations as passenger vehicles (e.g., federal Corporate Average Fuel Economy [CAFE] standards for light-duty vehicles) so the revenue contributed per mile has not diminished at the same rate as passenger vehicles. However, as heavier vehicles incorporate more advanced engine technologies, become increasingly more fuel efficient, and become powered by alternative fuels (e.g., hydrogen), the method of taxation will require reexamination, likely beyond 2030.

As the chart below shows, newer passenger vehicles in Nevada tend to have a flatter MPG distribution with a higher mean compared to older vehicles. The mean MPG among model year 1985 vehicles is 17.4, compared to 17.8 for model year 1995 vehicles, 19.3 for model year 2005, and 23.5 for model year 2015.

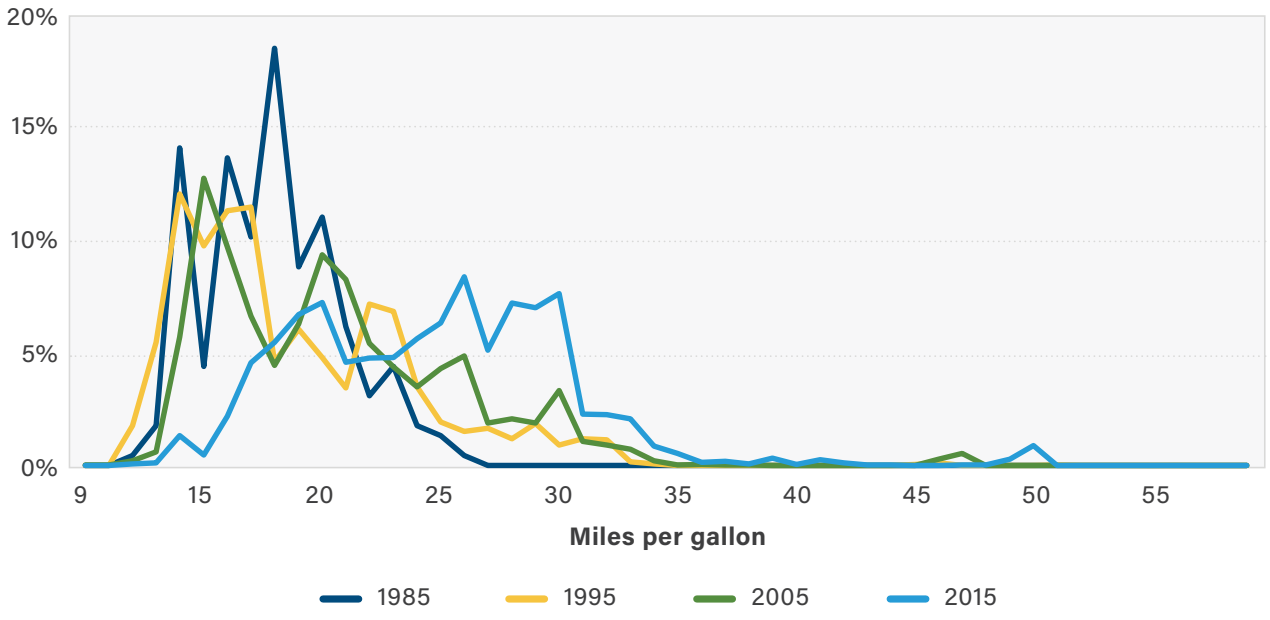


Figure 18: Nevada's light-duty vehicle fleet's MPG improving over time

Additional pressures on transportation revenue sources

Aside from the trends impacting State Highway Fund revenue sources, the fund faces external challenges. These fall into two broad categories: pressure to extend existing revenues further as buying power declines and growing competition for limited funding sources.

Cost increases in projects funded from the State Highway Fund, as reflected in the construction cost index below, put pressure on the fund because its revenue sources are not indexed.

Increases in demand for investment in transportation infrastructure and services at the local level (cities, counties, and RTCs) and among non-highway travel modes (public transportation and active modes) put pressure on overall resource allocation across the state. Lawmakers must wrestle with the optimal allocation of scarce flexible funding sources (i.e., those not constitutionally restricted).

Once constructed, roadways must be maintained for their full life cycle—a cost that also increases over time but is not reflected in construction cost estimates.

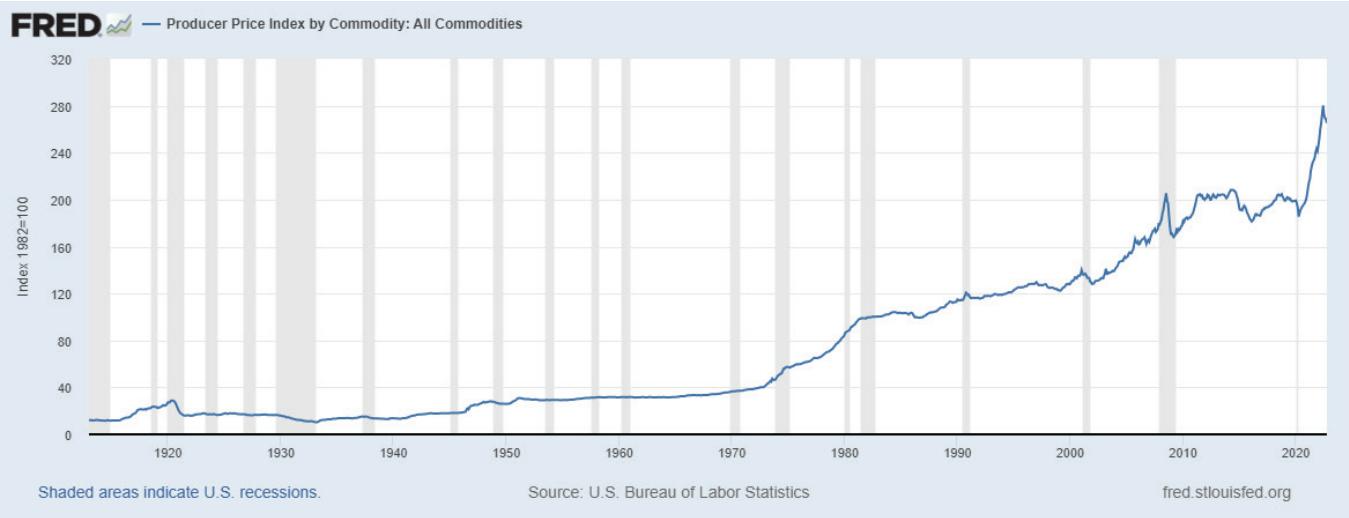


Figure 19: Inflationary effects on highways, streets, and transportation services

3.4 Federal funding for Nevada's transportation system

Federal funding is provided to Nevada through ongoing distributions known as "apportionments" from the federal Highway Trust Fund. Funds can be used for surface transportation projects in Nevada as well as transit systems. The majority of state apportioned federal transit funding is distributed directly to transit agencies, primarily for use on capital projects only.

The federal government determines the funding levels for each of these purposes. The primary revenue source for the federal Highway Trust Fund is the federal gas tax, which is currently 18.4 cents per gallon. The federal gas tax has not been increased since 1993.

Historically, federal funding has contributed approximately 45% of NDOT's total budget. In November of 2021, President Biden signed a new five-year transportation reauthorization, the Infrastructure Investment and Jobs Act (IIJA), also referred to as the Bipartisan Infrastructure Law. Nationwide, IIJA provides $550 billion in infrastructure funding over a five-year period, 2022–2026. The infrastructure bill includes funding for roads, bridges, transit, water, resilience projects, and broadband communications.

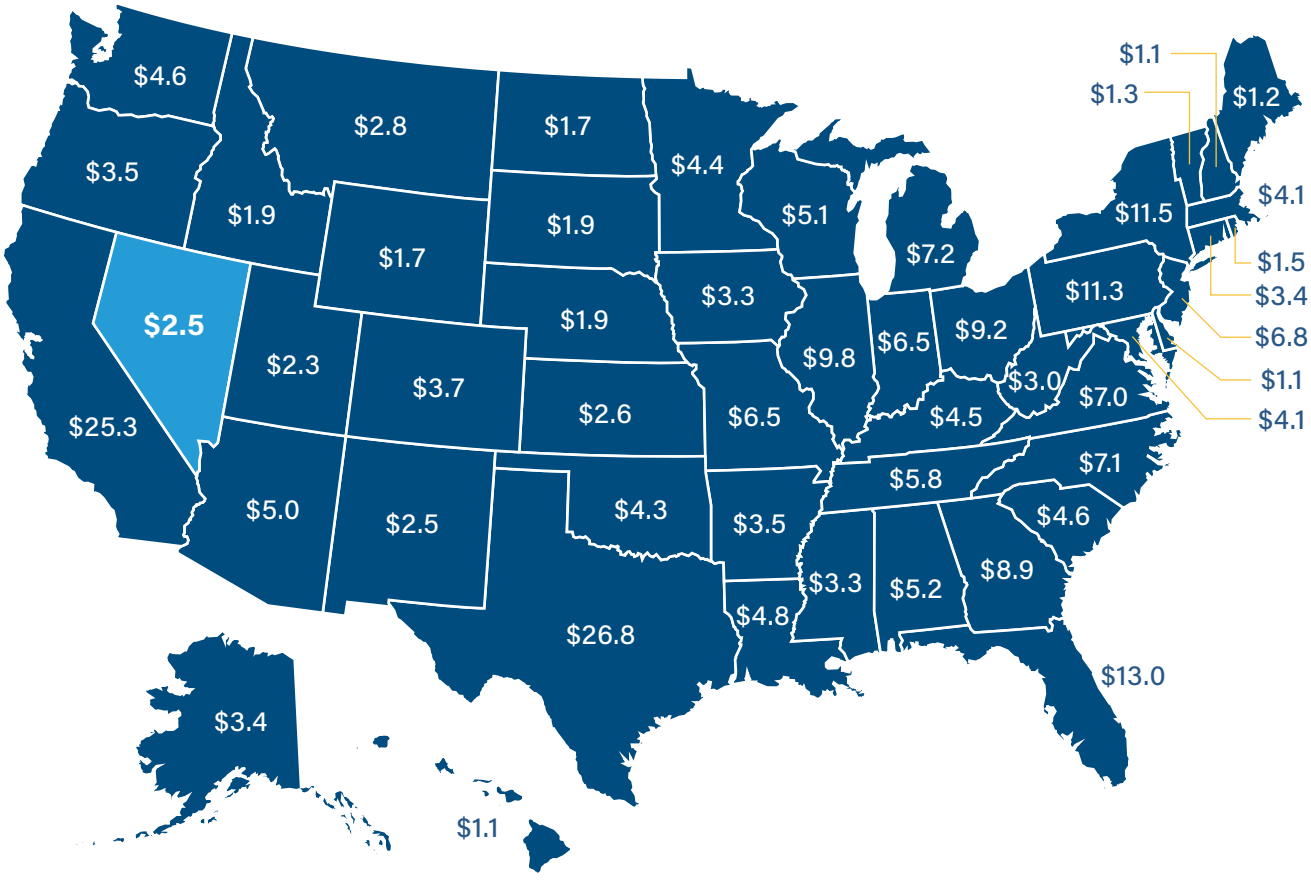


Figure 20: Estimated total highway formula funding over the next 5 years in billions

Nevada is expected to receive approximately $3.2 billion in transportation-related funding over the five-year period, which includes $462 million in transit funding for distribution to transit agencies and $2.7 billion in highway-related programs. Of this amount for highways, $2.4 billion is available for NDOT's existing highway programs; the remaining $385 million must be used for new, formula-based programs created by the federal act.

In the aggregate, IIJA provides historic federal investment in the nation's infrastructure. After accounting for distributions to other civil infrastructure (e.g., water, wastewater treatment, broadband) and allocation of funding for new federal formula and competitive grant programs such as EV charging infrastructure, NDOT expects to receive a moderate increase for its highway program over the five-year period. NDOT estimates that for 2022, the federal funding increase to existing programs will be about 20%, which represents a 10% increase to NDOT's overall capital budget. Over the life of the bill, NDOT anticipates approximately $100 million in additional federal funding spread across multiple programs.

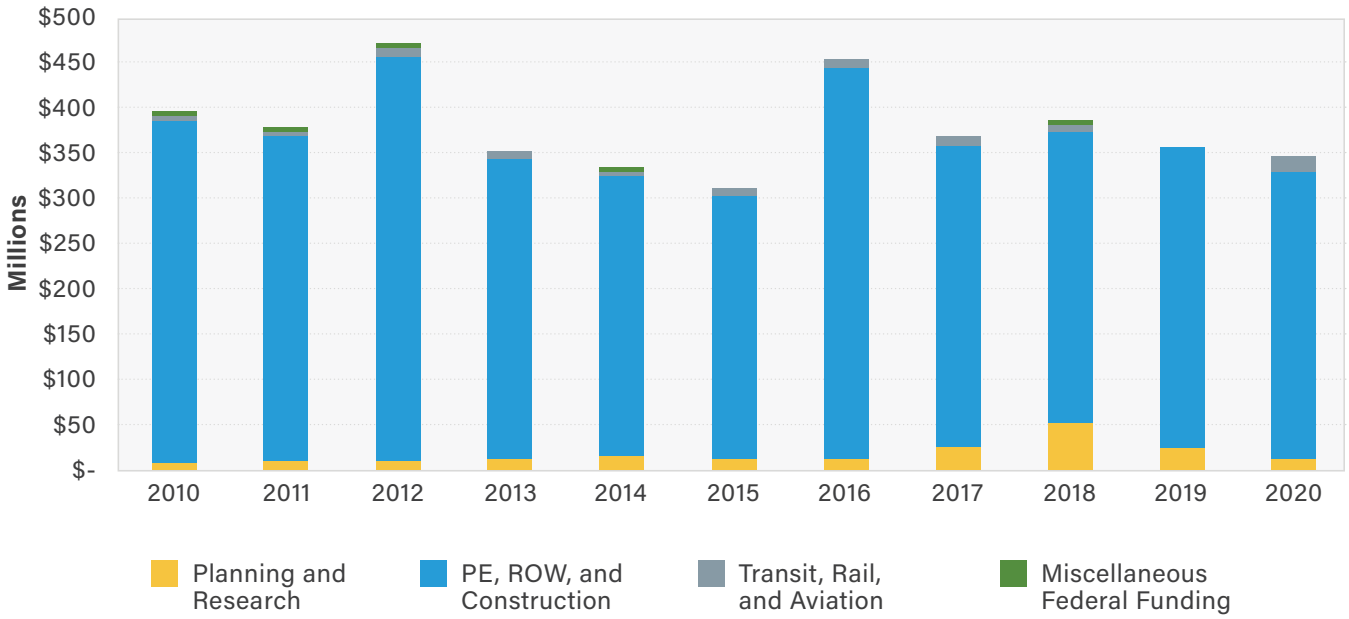


Figure 21: Historical and projected federal funding levels for NDOT

3.5 Findings and Conclusions

Findings

- Nevada's population boom continues at historic levels, placing great demand for transportation services on the entire system.
- Construction cost escalation of 17% in just 12 months, between the fourth quarter of 2020 and the first quarter of 2022, is making it more difficult for NDOT and regional and local agencies to strategically add capacity to the system and maintain transportation facilities in a state of good repair.
- Statewide transportation projects, programs, and operations for the NDOT-managed system will require at least $16.9 billion over the next 10 years. Current funding levels from state and federal sources are only expected to cover approximately $10.7 billion of this amount, leaving a likely funding gap of at least $6 billion over this 10-year period.
- In addition to state needs, local authorities face growing needs that outstrip available revenues. MPOs in the state and county governments have annual transportation funding needs for both operations and capital projects that are currently unfunded.
- User fees compose the vast majority of existing funding for Nevada's transportation system, including:
    - Gasoline and diesel taxes. Nevada's transportation system remains heavily reliant on raising revenue from gasoline and diesel taxes; on a statewide basis, these remain the largest single source of funding for roadways.
    - Fuel revenue indexing. Fuel revenue indexing has proven a valuable transportation funding mechanism. Over 75% of fuel gallons purchased in Nevada are currently subject to periodic adjustments in tax rates. These voter-approved mechanisms provide dedicated funding for state and local projects within the approving county's boundaries.
    - Taxes and fees on vehicles and drivers. These taxes and fees compose more than a third of all transportation funding in Nevada and remain an important component for system funding. For county governments, vehicle taxes—especially the GST—represents the single largest transportation revenue source.
- The Nevada state constitution restricts the expenditure of gas taxes and fees from motor vehicle usage to highway-related projects and purposes. The only current statewide source of funding flexible enough to be used for all transportation modes and purposes is a portion of the GST. The majority of GST revenues at the state and local levels are currently allocated to purposes other than transportation.
- Nevada is one of only four states in the United States that does not provide some form of dedicated state funding to help support local transit.

- As the only usage-based transportation fee, fuel taxes provide sustainable revenue only if fuel (gasoline and diesel) consumption continues to grow. However, recent trends and near-term forecasts suggest the opposite will occur.
    - Continued improvements in the fuel economy of Nevada's fleet of over two million light-duty, internal combustion engine (passenger) vehicles is expected to reach an average of over 32 MPG by 2040, representing a 50% increase in less than 20 years.
    - Another contributor to declining fuel consumption is consumer adoption of EVs. Although the number of EVs in Nevada's fleet is currently around 20,000 (representing 1% of the total passenger vehicle fleet), as of the first quarter of 2022, EVs now represent nearly 8% of new vehicle sales in the state (ranking fifth in the nation). Under regulations adopted by California's Air Resources Board in August 2022, 100% of new sales are required to be zero-emission vehicles by 2035 in that state and several others. Models developed for the AWG suggest up to 25% of passenger miles driven by the end of next decade will be via ZEVs.
    - These developments have already led to a decline in gas tax revenue per mile driven of 20% since 2010 and are expected to lead to a further decline of 50% by 2040.
    - As heavier vehicles incorporate more advanced engine technologies, become increasingly more fuel efficient, and in the future are powered by alternative fuels (e.g., hydrogen), Nevada's reliance on diesel taxes as a user fee will require reexamination, likely beyond 2030.
- All vehicles are subject to the GST and registration fees. Gasoline-powered vehicles contribute gas taxes, with the average vehicle owing about $320 per year in federal, state, and county fuel taxes. Battery electric vehicles are not subject to federal, state, or county gas taxes.
- The State Highway Fund is the primary recipient of all statewide taxes and fees related to motor vehicle usage. Based on current revenue sources and projections, this fund will continue to fall short of historical funding levels on a per-mile basis. As vehicle fleet fuel efficiency and consumer adoption of ZEVs grows, per-mile revenue will continue to erode.
- The Bipartisan Infrastructure Law recently enacted by Congress will result in a modest increase in federal funding for the State Highway Fund. However, the amount of new funding available is insufficient to backfill the state's funding gap between identified needs and projected revenues nor does it correct for the growing divergence between fuel tax receipts and system usage.

Conclusions

- The statewide transportation system is currently significantly underfunded. As population and travel demand continue to grow, placing increased demands on the system, state and local governments require additional funding to meet these demands to maintain a safe, reliable transportation system.

- Regional and local transportation systems are also significantly underfunded. Nevada's transportation system operates as an interconnected network to move people and goods, regardless of mode and ownership. Currently, owners of battery electric vehicles are not contributing to federal, state, or local gas taxes. Although this currently represents a relatively small loss of revenue to the State Highway Fund and counties, the fiscal impact will increase in severity, representing a significant funding problem for Nevada's transportation system in the coming years as the state transitions the light-duty vehicle fleet toward zero-emission vehicles.

- Furthermore, the fact that some vehicle owners are paying little or no gas tax undermines the fairness of the historical user-pay model of Nevada's transportation system.

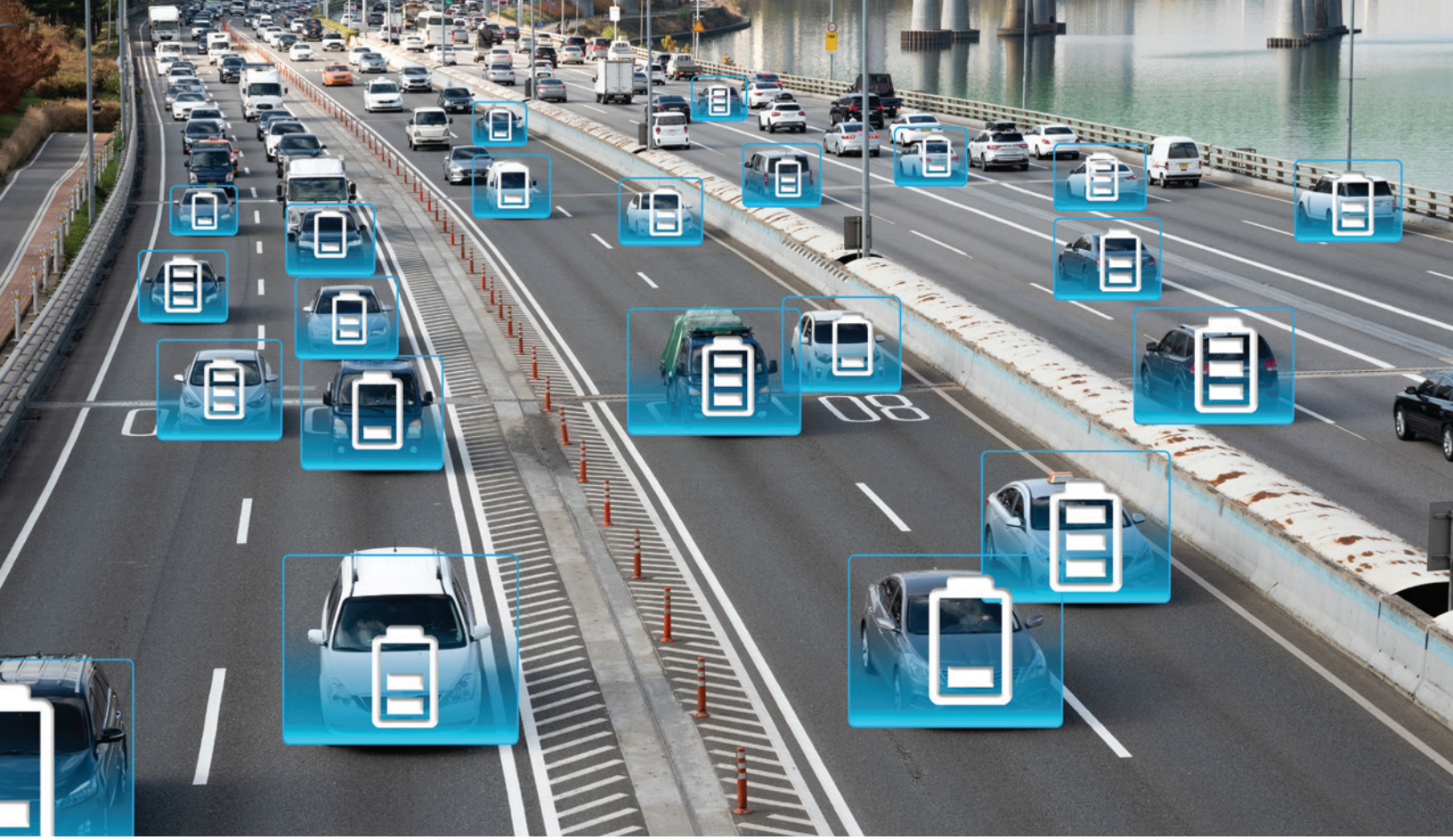
- Counties and regions that significantly rely on fuel tax revenue are also at risk from eroding fuel tax revenue and the resulting equity challenges of this erosion in the future.

- Fuel taxes and fees related to motor vehicle usage must be spent on roadway purposes and therefore are an inflexible source of funding. Motor fuel taxes cannot be used for other important transportation system elements, such as protected bicycle and pedestrian pathways or transit and paratransit services.

- While fuel revenue indexing has proven valuable as a local and regional transportation funding source, it is not available throughout the entire state, thereby depriving less-populated counties of a viable source of funding for local transportation projects.

- More information is needed on the opportunities and impacts the new federal Bipartisan Infrastructure Law presents for NDOT and regional and local governments.

4.0 Funding Strategies



4.0 Investigating Sustainable Transportation Funding Strategies

The AWG undertook a deliberative process spanning 11 meetings over 17 months to achieve its central mission of identifying sustainable funding strategies for Nevada's transportation system. The process began with identifying guiding principles for assessing alternative funding mechanisms. Next, the AWG surveyed a wide range of possible mechanisms, including approaches taken in other states. The AWG assessed the mechanisms according to the adopted guiding principles and identified the most promising mechanisms for further analysis.

As part of this assessment, the AWG specifically considered the two concepts required by AB 413: Utah's RUC and the NRDC's energy-based user fee system. Each of these two concepts comprises several funding mechanisms. This section includes a description and analysis of the two concepts.

Finally, the AWG examined the mechanisms prioritized for further analysis in combination. Based on the analysis, the AWG adopted findings and conclusions. Those, in turn, serve as the foundation for the recommendations synthesized by the AWG, presented in Section 5.0.

4.1 Guiding principles

As described in Section 2.1, the AWG adopted a charter reflecting the requirements of AB 413. Subsequently, the AWG worked to develop and adopt principles to guide its exploration of alternative funding mechanisms that could combine to form a long-term sustainable funding strategy. The charter itself reflected the underlying objective of the AWG, along with the rudiments of several guiding principles. For example, AB 413 and the charter required the AWG to consider "social equity" in devising transportation revenue policy recommendations. By elaborating on this two-word phrase, the AWG could articulate a more precise, meaningful, long-term principle related to social equity for assessing tax policy alternatives.

In developing its guiding principles, the AWG reviewed numerous references and examples, including classical economics literature and the more recent Association of International Certified Professional Accountants' taxation principles. Given the strong linkages between transportation and other policy priorities such as climate change, economic development, and land use, and given the long-term nature of the solution sought, the AWG looked beyond conventional principles. Examples from similar efforts in other states provided further ideas for AWG consideration.

Importantly, the AWG recognized that guiding principles should not serve as "pass/fail" criteria for assessing any prospective solutions. Moreover, the AWG would not use the principles as the basis for an explicit quantitative scoring of specific funding concepts. Rather, the principles guided the AWG's qualitative assessment across the range of funding mechanisms presented.

Tax Principles, International Association of Certified Professional Accountants

Accountability to taxpayers: Accessibility and visibility of information on tax laws and their development, modification, and purpose are necessary for taxpayers.

Appropriate government revenues: Tax systems should have appropriate levels of predictability, stability, and reliability to enable the government to determine the timing and amount of tax collections.

Certainty: The tax rules should clearly specify how the amount of payment is determined, when payment of the tax should occur, and how payment is made.

Convenience of payment: Facilitating a required tax payment at a time or in a manner that is most likely convenient for the taxpayer is important.

Economic growth and efficiency: The tax system should not unduly impede or reduce the productive capacity of the economy.

Effective tax administration: Costs to collect a tax should be kept to a minimum for both the government and taxpayers.

Equity and fairness: Similarly situated taxpayers should be taxed similarly.

Information security: Tax administration must protect taxpayer information from all forms of unintended and improper disclosure.

Simplicity: Simple tax laws are necessary so that taxpayers understand the rules and can comply with them correctly and in a cost-efficient manner.

Neutrality: Minimizing the effect of the tax law on a taxpayer's decisions regarding how to conduct a particular transaction or whether to engage in a transaction is important.

Transparency and visibility: Taxpayers should know that a tax exists and how and when it is imposed upon them and others.

Minimum tax gap: Structuring tax laws to minimize noncompliance is essential.

Revenue principles used in other state funding explorations

North Carolina Future Investment Resources for Sustainable Transportation Commission (2020–2021)

- Avoid near-term harm
- Develop durable options
- Diversify and broaden funding streams
- Support user pays principle
- Adhere to principles of fundamental fairness

Indiana Transportation Revenue Alternatives Study (2014–2015)

- Potential revenue yields
- Ease of implementation and enforcement
- Revenue sustainability and predictability
- Public support
- Business climate friendliness

Washington Road Usage Charge Steering Committee (2012–2021)

- Transparency
- Complementary policy objectives
- Cost-effectiveness
- Equity
- Privacy and data security
- Simplicity
- Accountability
- Enforcement
- User options
- System flexibility and interoperability
- Phasing

Pennsylvania Transportation Revenue Options Committee (2021)

- User pays
- Be fair
- Diversify the revenue base
- Build in predictability and stability
- Index to inflation
- Reduce funding restrictions
- Ensure near-term feasibility
- Simplify administration
- Learn from other states

Many funding mechanisms and proposals can address the core objective of sustainable revenue, but the key for the AWG was to craft a solution that does so consistently with many or all of the guiding principles articulated at the outset. During its September 2021 meeting, AWG members participated in a facilitated work session to identify their preferred guiding principles. Starting from concise words or phrases, AWG members elaborated on their thoughts, views, and preferences. In addition, members expressed thoughts regarding the relative importance (or nonimportance) of any given concept and introduced additional concepts not already listed for consideration.

At its November 2021 meeting, drawing on the results of the first facilitated discussion, the AWG revisited its draft principles. Following revision and fine-tuning, the AWG adopted the guiding principles. The vote to adopt the principles was unanimous.

AWG Adopted Guiding Principles

Financial Sustainability: Yielding sufficient revenue that correlates with ongoing maintenance needs and demand for future transportation needs, regardless of changes in population, vehicle technologies, ownership, travel patterns, fuel sources, or consumer spending.

Sufficiency: Generating sufficient revenue over targeted investment time frames for existing and future transportation infrastructure needs.

User Equity: Recovering a proportionate share of the costs from those who use the transportation network.

Social Equity: Improving the distributional impact on historically underserved communities and low-income households.

Flexibility: Funding a wide range of transportation-related projects, programs, or priorities across various agencies to meet the needs of system users across all modes.

Greenhouse Gas Emissions: Aligning with state transportation greenhouse gas reduction goals.

Transparency/Efficiency and Ease of Compliance: Being simple to explain, with awareness of how funds are used, is cost effective, and readily administered at statewide and local levels.

4.2 Identification of funding options

To organize its assessment of funding strategies, the AWG surveyed a wide range of transportation funding mechanisms in use in Nevada and across the United States. Through background briefing materials and presentations, the AWG considered over 30 mechanisms grouped into categories.

FUEL TAXES

The most common form of indirect usage charging, taxes on fuels used to propel motor vehicles have been enacted at the federal level and in all 50 states, 49 of them with the exclusive purpose of generating revenue primarily or entirely to fund roads and bridges.

VEHICLE-RELATED FEES

Vehicle-related fees aim to recover the costs of vehicle licensing but can also serve as a convenient tool for revenue generation.

DIRECT USAGE FEES

Increasingly common are a variety of direct usage-based fees that assess charges on system users based on actual consumption of or impacts on the transportation system.

FREIGHT-RELATED FEES

As a key user of the transportation system, freight can contribute through revenue mechanisms in addition to fuel taxes, vehicle fees, and direct usage fees.

INDIRECT USAGE FEES

Beyond fuel taxes, other indirect usage fees include taxes and fees on materials and products that serve as inputs to the use of the transportation system, such as tires, electricity, and batteries.

EXTERNALITY TAXES

Examples of such taxes and fees include:

- **Congestion pricing such as express toll lanes and cordon pricing.** The primary purpose of congestion pricing on roadway systems is to manage demand across a corridor or network to reduce congestion and delays, which is achieved by increasing the price to temporarily suppress demand.
- **Certain vehicle-related fees.** Some countries assess high taxes on the purchase of undesirable vehicles such as those with low fuel economy.
- **Carbon taxes.** Taxation of carbon emissions has been introduced in other countries to discourage emissions from burning fossil fuels in general, including from transportation sources. Similar to carbon taxes, cap-and-trade programs have been enacted in California, Washington, and 11 states in the Northeast.

In addition to the above six categories, the AWG distinctly considered general revenue. The primary mechanisms for general tax revenue nationally are sales, property, income, and payroll taxes. The policy choice to appropriate funds from general revenue to transportation purposes is almost always available to lawmakers and, when taken, often temporary. Many examples exist of state or local governments appropriating general fund revenue to transportation or even dedicating a defined proportion of general fund revenue (or of a specific general fund mechanism) to transportation at least temporarily.

Motor fuel taxes

Motor fuel taxes are the largest source of transportation revenue in the United States, generating $89 billion at federal, state, and local levels in 2019. Every state and the District of Columbia imposes a per-gallon fuel excise tax. Every state but Alaska dedicates all or most fuel tax revenue to roads and bridges. In addition, a variable fuel tax rate based on the percentage of price is used by 13 states. This is distinct from a state retail sales tax on fuel, which is imposed by four states. The District of Columbia and 13 states index their per-gallon fuel excise tax rate to inflation, and five states allow local-option fuel taxes, such as counties. One state, Georgia, indexes the fuel tax rate to vehicle fleet fuel economy and inflation. Cumulative fuel-based taxes are highest in Pennsylvania (59 cents per gallon), lowest in Alaska (9 cents per gallon), and average 30 cents per gallon nationally. In addition, the federal government taxes gasoline at 18.4 cents per gallon and diesel at 24.4 cents per gallon to fund the federal Highway Trust Fund.

Fuel tax rate formulas and points of taxation vary, but the purpose is to recover costs proportional to usage.

Table 5: Different approaches to fuel taxes, by type of tax

Type of fuel tax	Description	Examples
Flat per-gallon excise fuel tax	The most common form of fuel taxation, flat per-gallon excise taxes, impose a tax that does not vary unless the rate is adjusted by legislation. At the federal level, the gasoline tax has been 18.4 cents per gallon since 1993 (24.4 cents per gallon for special fuels).	Federal + all 50 states
Excise tax with inflation index on per-gallon rate	Although the precise statutory constructions vary, inflation-indexed fuel taxes effectively adjust the flat per-gallon excise fuel tax rate by increasing automatically it in proportion to a measure of inflation such as consumer price index (CPI) or producer price index (PPI).	AL, DC, FL, GA, IL, IN, MD, MI, NV (Clark & Washoe only), NY, NC, RI, UT, VA
Variable-rate tax based on the price of fuel	Variable-rate taxes based on the price of fuel can be considered a hybrid between per-gallon excise taxes and sales taxes. The tax is formulated as a per-gallon tax rate (rather than a percent of price), but the rate itself is updated periodically based on fuel prices.	AR, CA, CT, KY, MD, NE, NJ, NY, OH, PA, UT, VT, WV
Excise tax with fuel efficiency index on per-gallon rate	In 2016, Georgia became the first state to automatically adjust its per-gallon fuel tax rate automatically for fleet fuel economy. Georgia also has an inflation index.	GA
County-option fuel taxes	Several states allow counties and/or municipalities to impose fuel taxes distinct from the state fuel tax. Typically, the tax is collected from the distributor on taxes destined for fueling stations in the subject county. County fuel taxes, as in Florida and Nevada, can have variable rates.	FL, HI, IL, NV, OR
Sales tax on fuel	Distinct from variable-rate excise taxes, several states impose a general retail sales tax on fuel. However, revenue from these sales taxes are not dedicated to transportation.	HI, IL, IN

Vehicle registration fees

Vehicle registration fees are the second-largest category of transportation funding nationally. Basic fees to cover licensing costs are sometimes accompanied by taxes on characteristics such as vehicle weight, age, or value. Forty-three states and the District of Columbia collect vehicle-related fees, most commonly title fees and periodic licensing fees, to cover the cost of administering the licensing and registration service and system. In addition, many states collect vehicle-related taxes and fees at the time of annual registration in a range of formats. These include flat fees, excise taxes (based on vehicle value), weight taxes, and propulsion-specific taxes (currently only EVs face specific special charges in some states; engine displacement taxes have been proposed but not adopted). Licensing fees are typically dedicated funding streams necessary for the operation of the vehicle registry and often safety (e.g., state patrol), with additional taxes funding roads, transit, and other transportation investments.

Weight taxes. Fourteen states assess a weight tax due at the time of vehicle licensing or registration. The fees are assessed based upon classification or in a graduated manner. For example, Maryland imposes a $135 fee for vehicles up to 3,700 pounds and $187 for those over. In contrast, New York collects a $26 fee on the first 1,650 pounds then $1.50 for each 100 pounds thereafter. The fees are assessed annually or biennially, with multiyear purchase options available in some states.

Age-based fees. Four states use registration fees based on vehicle age: Idaho, Montana, Utah, and Wyoming. Fees range significantly, with vehicles zero to four years old charged $217 in Montana, while vehicles one to two years old in Idaho are charged $69.

Motor vehicle excise taxes (MVETs). MVETs, also referred to as property taxes, are typically paid based upon the depreciated value of the vehicle. They are assessed at multiple levels of government in the United States, including state, county, municipal, and special jurisdictional boundaries. For example, Sound Transit, the Regional Transportation Authority in metropolitan Seattle, assesses a 1.1% tax on the current value of vehicles, within the three-county area of its jurisdiction. Indiana and Massachusetts authorize counties and municipalities to assess MVETs. Vehicles in 27 states are subjected to a "property tax," the highest rate being in Virginia at 4.05%. Nevada assesses a GST based on vehicle value, with revenue currently dedicated in part to transportation purposes and split between the state and counties.

Heavy vehicle registration fees. Nearly every state imposes registration fees on heavy vehicles. For interstate carriers over 26,000 pounds, registration fees are "apportioned" among all states and provinces in which the fleet operates based on miles driven in each state, similar to how the International Fuel Tax Agreement (IFTA) collects and allocates fuel taxes among heavy vehicles across jurisdictions.

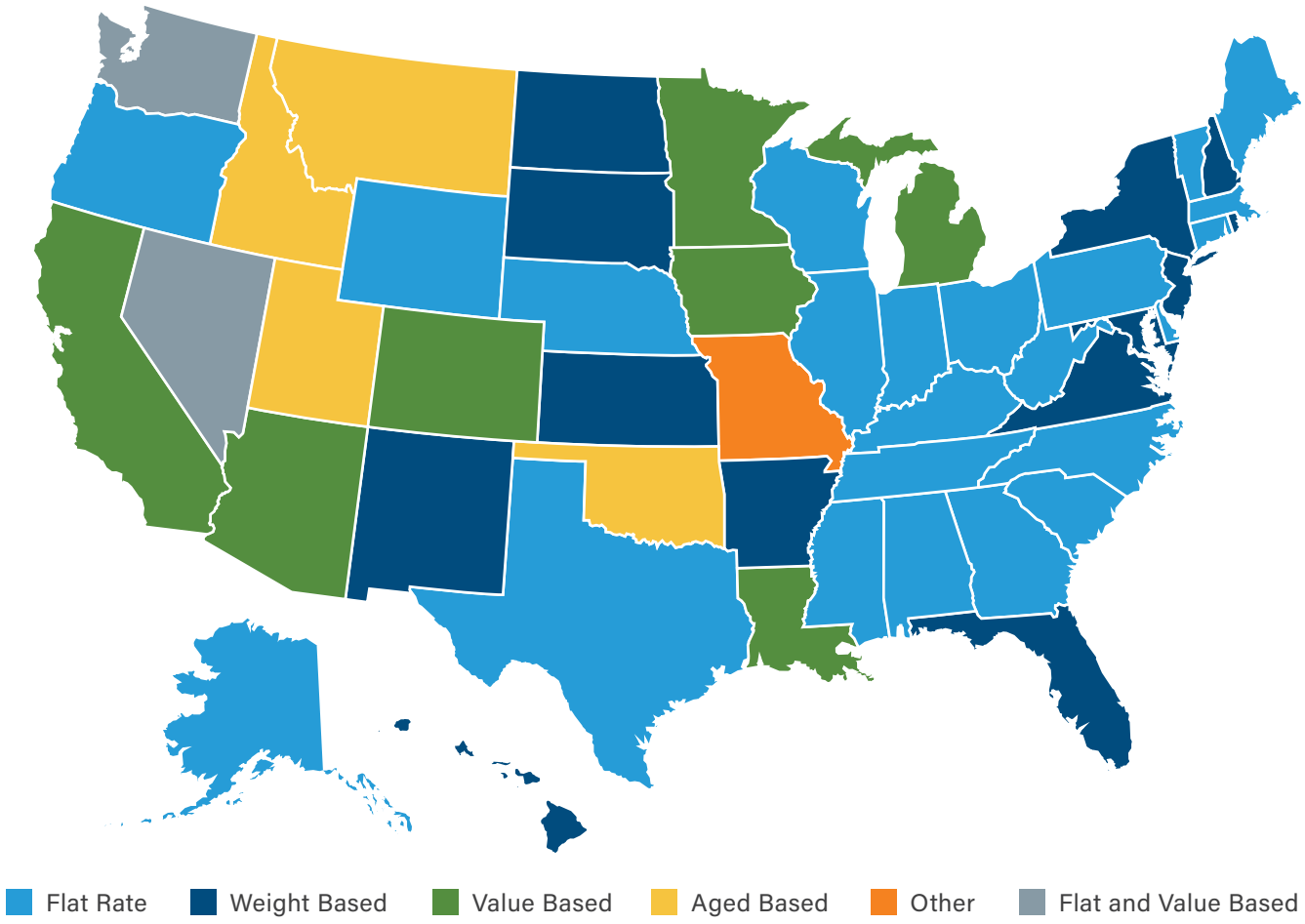


Figure 22: Conventional vehicle fees in the U.S.

Increasingly, vehicle fees are based on engine type or fuel economy. As of 2022, 30 state legislatures have enacted special fees for plug-in EVs, and of these, half also assess fees on plug-in hybrid vehicles and/or hybrid vehicles. The fees range from $50 in Colorado and Hawaii to $225 for EVs in Washington. The fees, typically assessed at annual registration, are designed to compensate for the loss of fuel tax revenue represented by road usage of these vehicles. However, several states assess an additional EV fee to support the construction of charging stations.

Oregon is the first state to adopt a tiered registration fee based on estimated MPG, based on the rationale that owners of higher MPG vehicles should pay more to make up for road usage costs they avoid by paying less gas tax. Owners of vehicles under 20 MPG pay $61 per year, while owners of vehicles rated 20 to 39 MPG pay an additional $10 per year ($71 total). Owners of vehicles 40 MPG and higher pay a $15 surcharge per year ($76 total), and owners of EVs pay a $92 surcharge per year ($153 total). Owners of EVs and vehicles rated 40 MPG and higher enjoy a lower cost of registration ($43, $18 less than the base charge) per year if they enroll in the state's distance-based charging program. Missouri and New Hampshire Legislatures have also explored tiered registration fees based on MPG, but neither has enacted the policy.

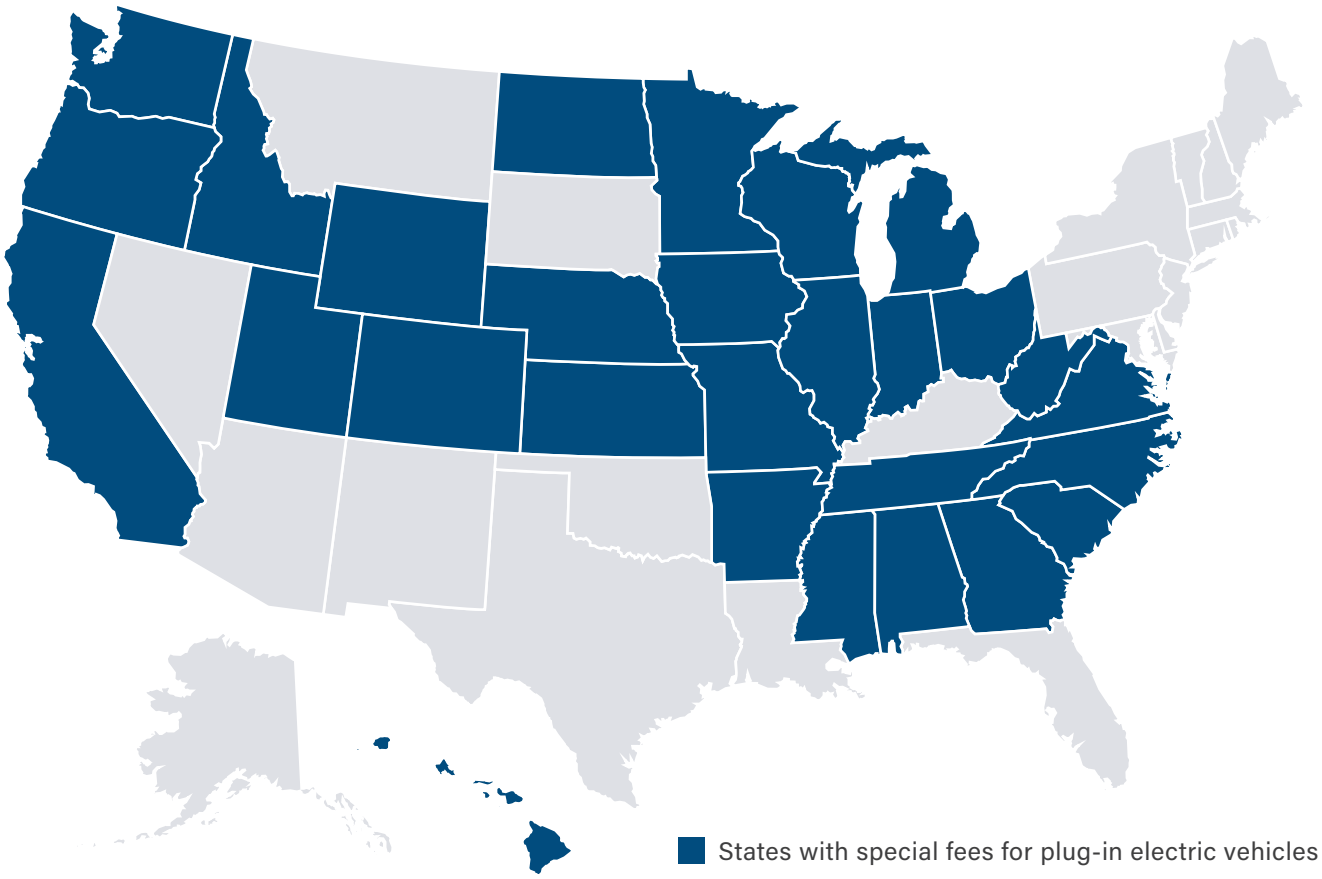


Figure 23: Special fees for plug-in electric vehicles

Direct usage charging

Tolling is the most common form of direct usage charging in the United States, but its application is limited primarily to high-volume highway segments, bridges, and tunnels. Puerto Rico and 34 states have at least one tolled highway, bridge or tunnel, covering a combined 5,998 miles. The growth and extent of toll facilities is relatively slow, despite exceptions to the federal ban on tolling on the vast majority of projects receiving federal highway funds. Exceptions to the general ban include new facilities or the reconstruction or replacement of existing facilities. Overall, 58% of tolled miles nationally are part of the Interstate System, and the Northeast accounts for the highest concentration of facilities.

The three largest operators of tolled roads by mileage are the Oklahoma Turnpike Authority (605 miles), Florida Turnpike Authority (594 miles), and New York State Thruway Authority (570 miles), while the three largest agencies by revenue are the New Jersey Turnpike Authority ($1,444 million, 2019), The Port of New York and New Jersey ($1,668 million, 2019), and New York Metropolitan Transit Authority (MTA) Bridges and Tunnels ($2,071 million, 2019). Flat toll amounts per toll point are the most common, with some facilities tolled based on distance between toll points. Variable rates are increasingly prevalent to modulate demand, with a secondary purpose of generating revenue. High-occupancy vehicle (HOV) to high-occupancy toll (HOT) lane conversions are one major growth area for tolling. Conversions typically occur where HOV lanes are not meeting performance criteria and variable rates coupled with increased occupancy requirements are implemented to increase travel speeds.

Distance-based usage charging has emerged in several states, with pilot tests of the mechanism in 10 others. Oregon began investigating RUC in 2001, enacted a law in 2013, and launched the ORe*GO* program July 1, 2015. Today, ORe*GO* is eligible to any vehicle rated over 20 MPG. Participants pay 1.8-cent-per-mile (cpm) and receive credits for fuel taxes paid. They also avoid registration surcharges for high-MPG and EVs. Users can choose between multiple account managers and reporting methods, including GPS and non-GPS options. GPS users receive exemptions for out-of-state miles traveled.

Beginning in 2020, electric and hybrid vehicle owners in Utah were given the option to pay a 1.5-cent-per-mile fee in lieu of annual registration surcharges. Fees are capped at what the annual flat fee would be for the vehicle at the time of registration. Participants report miles via a plug-in device that counts miles driven or in-vehicle telematics. As of 2022, only EVs are eligible for the program. As of 2023, the per-mile fee will drop to 1-cent-per-mile, and the flat fee will increase. The Utah Legislature has examined options for extending the program to all light-duty vehicles by the end of the decade to avoid fuel tax revenue erosion while preserving the state's user-pay paradigm.

In 2020, Virginia enacted a mileage-based fee on all vehicles rated over 25 MPG. Vehicles may pay a flat fee, which increases with MPG, or opt to enroll in the mileage-based system, for which the per-mile rate increases with MPG. The program, called Mileage Choice, launched July 1, 2022, and now has over 6,000 vehicles enrolled.

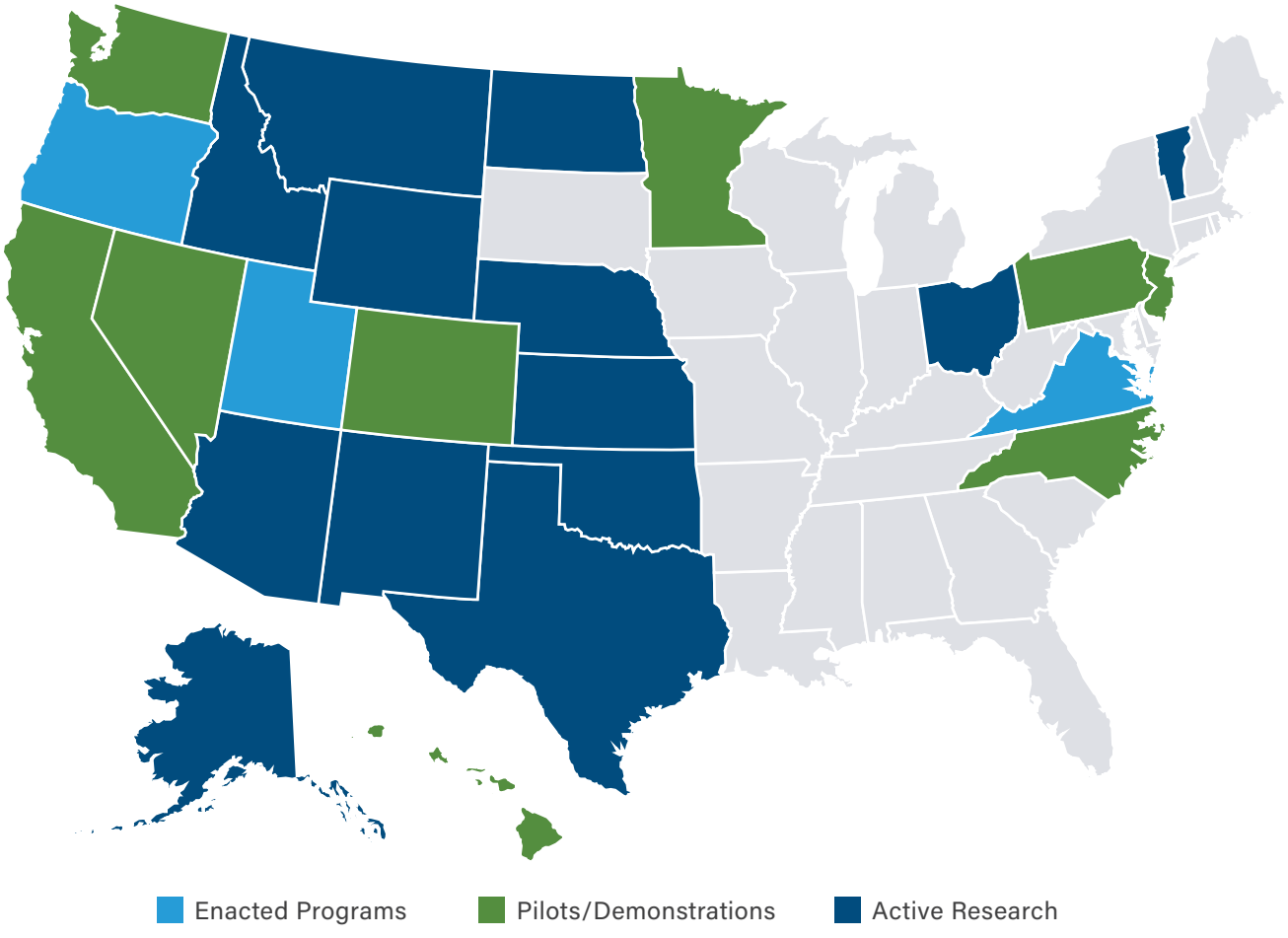


Figure 24: Mileage-based fee activity in the United States

The Surface Transportation System Funding Alternatives Program (STSFA) provides grants to states to demonstrate user fee mechanisms such as RUC. To date, over a dozen states and regional consortia have received funding to conduct demonstration projects.

Charging for heavy vehicle usage based on distance and weight exists in four states, with a fifth enacted in 2021. Four states currently collect weight-distance taxes: Oregon, New York, Kentucky, and New Mexico. Weight-distance or weight-mile taxes are assessed on a per-mile basis, with the rate varying by vehicle weight and number of axles. The tax is intended to compensate for additional damage done to roadways by heavier vehicles. For example, Oregon assesses a distinct rate for every 2,000-pound weight increment between 26,001 and 80,001 pounds going from 6.54 to 21.5 cpm. Vehicle owners over 80,001 pounds pay between 17.01 and 30.25 cpm depending on the number of axels.

Other states' rates and subject vehicle definitions differ. In Oregon and New Mexico, owners of vehicles over 26,000 pounds must report and pay weight-mile taxes, whereas owners of vehicles over 18,000 pounds are subject in New York, and only those over 59,999 pounds are subject to this tax in Kentucky. Oregon's weight-mile tax is the most mature program and collects the greatest amount of revenue—over $400 million per year. Notably, truck owners paying the weight-mile tax in Oregon do not pay taxes on diesel fuel.

In the mid-20th century, over 20 states collected weight-distance or ton-mile taxes. Many states eliminated their programs in favor of diesel taxation owing to uneven enforcement and challenges from the trucking industry. Nevada repealed its weight-distance tax in 1989. More recently, Oregon has added an electronic reporting option (2015), Rhode Island has implemented a truck-only toll on all major highways and bridges (2019), and Connecticut has enacted a weight-mile tax (2021) scheduled to begin operating in 2023.

TABLE "A" FOR ALL TYPES OF FUEL (OVER 26,000 LBS)

COLUMN A WEIGHT GROUP	COLUMN B MILLS (1/10 OF 1 CENT) PER MILE	**COLUMN C DOLLARS PER MILE* DECIMAL FRACTION**	COLUMN A WEIGHT GROUP	COLUMN B MILLS (1/10 OF 1 CENT) PER MILE	**COLUMN C DOLLARS PER MILE * DECIMAL FRACTION**
26,001 - 28,000	65.4	.0654	52,001 - 54,000	109.3	.1093
28,001 - 30,000	69.3	.0693	54,001 - 56,000	113.4	.1134
30,001 - 32,000	72.4	.0724	56,001 - 58,000	118.1	.1181
32,001 - 34,000	75.7	.0757	58,001 - 60,000	123.5	.1235
			60,001 - 62,000	129.9	.1299
34,001 - 36,000	78.6	.0786			
36,001 - 38,000	82.7	.0827	62,001 - 64,000	137.1	.1371
38,001 - 40,000	85.8	.0858	64,001 - 66,000	144.9	.1449
40,001 - 42,000	88.9	.0889	66,001 - 68,000	155.2	.1552
			68,001 - 70,000	166.2	.1662
42,001 - 44,000	92.2	.0922	70,001 - 72,000	177.1	.1771
44,001 - 46,000	95.3	.0953			
46,001 - 48,000	98.4	.0984	72,001 - 74,000	187.3	.1873
48,001 - 50,000	101.6	.1016	74,001 - 76,000	196.9	.1969
50,001 - 52,000	105.4	.1054	76,001 - 78,000	206.4	.2064
			78,001 - 80,000	215.0	.2150
			80,001 AND OVER	USE TABLE B	

*NOTE - Column C converts mills per mile to dollars per mile by moving the decimal point three places to the left. Multiply the decimal fraction by the Oregon Taxable Miles for the amount of tax due for each weight.

Figure 25: Weight distance tax table (Oregon)

Freight taxes

Other freight-specific taxes have been proposed but remain rare in practice. Freight can be subjected to a range of specific fees because of a higher degree of regulation and monitoring of freight-related trips. User fees applicable to freight are container fees, bulk cargo fees, and combined license fees. Container fees and bulk cargo fees typically have restrictions on their spending, targeting the movement of containers or the bulk good. Most container fees are assessed on a flat rate to fund maintenance and operations, such as Indiana's $10 per container fee, while others are intended to induce behavioral changes such as the Port of Los Angeles and Long Beach, where fees are assessed only during peak congestion periods to shift movements to off-peak hours.

Other fees proposed on freight, but not yet enacted in the United States, are higher per-mile fees on freight traffic, just as Germany does. A surcharge on the value of commercial activity conducted on roadways, alternatively a value-added tax on road freight, has also been proposed but not enacted in any state.

Indirect usage fees

Several states have examined indirect usage fees on driving. Indirect usage fees are an attempt to correlate taxes with the amount of road consumption (driving). Fuel taxes are the most notable indirect usage fee, having historically served as a proxy for road usage taxes, at a lower cost to assess than taxing drivers directly for actual road usage. Like fuel taxes, fees on batteries, tires, and electricity have been proposed as indirect usage fees because they represent essential vehicle components for driving.

Batteries. California assesses a $1 fee on the sale of lead-acid batteries to finance the cleanup of lead battery acid recycling facilities. However, no states tax car batteries (whether internal combustion or electric) to fund transportation. Electric or hybrid vehicles could theoretically be taxed based upon the presence of battery technology or based on battery capacity.

Tires. 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 rate based upon tire weight or diameter. The federal government applies the tax only on tires for heavy trucks as a funding mechanism for the federal Highway Trust Fund.

Electricity. Oklahoma, Iowa, and Kentucky have enacted a tax on electricity, measured in kilowatt hours (kWh) at EV charging stations. In all three states, the tax applies to nonresidential EV charging facilities to capture revenue from EVs visiting from other states, at rates ranging from 2.6 cents per kWh (Iowa) to 3 cents per kWh (Oklahoma and Kentucky). Given the present infeasibility of taxing the kWh used in home-charging EVs (where over 80% of charging occurs), each state requires in-state EV owners to pay a flat annual registration surcharge. As part of its legislation, Oklahoma also set up a RUC task force to examine distance-based charging.

Externality taxes

Emissions and congestion are two major negative impacts or "external costs" of roads. Taxing emissions and congestion are two forms of tax known as a Pigouvian taxes, or "sin" taxes. The concept is simple: tax undesirable activities or behaviors to reduce their occurrence. Charging for congestion or emissions is rare in the United States.

Congestion pricing comes in several categories. Cordon-based charges such as those found in Stockholm and Milan charge for entering a defined area. Most commonly, cordon charges impose a fee upon entrance to or exit from a defined geographic area. Area charges assess a fee on all vehicles within an area whether the trip originated there or not. Finally, zonal charges are collections of smaller zones with differentiated rates being assessed upon each entry or exit into the subzones. The second major category is facility or network specific: priced lanes (also known as express lanes or managed lanes), variably tolled roadways, and system-wide charges. HOT lanes are an example of priced lanes, while users of Singapore's "strategic-road-network" are subject to variable rates dependent upon the time of day.

Other than express toll lanes, now common across the United States, congestion pricing has not found favor. To date, only New York has enacted a congestion charge for lower Manhattan. Implementation will occur following an environmental review process.

Carbon pricing to discourage emissions likewise remains rare in the United States.

Cap-and-Trade. Cap-and-trade establishes costs for carbon emissions by limiting the overall units of carbon allowed to be admitted within a jurisdiction and charging for the privilege to do so. Emissions are reduced over time by decreasing the annual allowance of credits, which correspondingly increase the cost to emit. Cap-and-trade has largely been applied to stationary emitters such as power plants and industrial plants rather than mobile emitters. However, cap-and-trade systems have been extended to the transportation system in California by extending coverage to large distributors of natural gas and petroleum. Washington enacted a cap-and-trade program set to begin in 2023, while an 11-state consortium of northeastern states launched the Regional Greenhouse Gas Initiative in 2020. Unlike a carbon tax, cap-and-trade does not generate revenue for collection by government.

Low-Carbon Fuel Standard (LCFS). Although not a revenue mechanism, an LCFS seeks to reduce the carbon intensity of fuel production and use through regulation. The standards examine the production as well as consumption of fuels and through regulations and fees induce suppliers to reduce intensity. Suppliers can reduce intensity by improving the efficiency of their production processes, producing and/or blending low-carbon biofuels, and purchasing credits generated by low-carbon fuel providers.

Carbon Tax. A carbon tax sets a price on 1 metric ton of carbon dioxide, which is approximately the amount of societal harm that ton will cause if emitted. The quantity of foregone emissions is therefore determined by the market, not a hard cap. Governments may levy the tax at any point in the supply chain, from the point of fuel production (upstream) through distribution (midstream) to the ultimate emitter (downstream). Historically, applying the fee upstream was considered the most feasible technically and administratively. The major drawback of this approach is that the cost of the fee is not transparent to the end consumer, becoming masked in the per-gallon price of fuel. A transparent downstream tax introduces a personal responsibility element that is nonexistent when price changes are observed at the pump. Visible taxes with attributable purposes are more likely to cultivate behavioral changes than purely economic factors. To date, no U.S. jurisdiction has enacted a carbon tax at any point in the supply chain.

General funding for transportation

Transportation appropriations to states' general funds are especially common at the local level. The federal government and most states use general fund revenues to cover transportation funding shortfalls. Every year since 2008 the gap between the spending authorized by Congress and the revenues collected in the Highway Trust Fund are covered by U.S. Department of the Treasury general fund transfers. Through late fiscal year 2021 these outlays have totaled $143.6 billion.

Of the 50 states and District of Columbia, 38 used general fund revenues for transportation funding in 2019. However, among those 38 states, general fund transfers accounted for only 5.8% of total transportation outlays. New Mexico, the District of Columbia, and Alaska accounted for the highest proportion of general fund outlays at 27.1%, 25.9%, and 19.4%, respectively. The three highest in absolute terms were New York, Pennsylvania, and Texas at $1.79 billion, $1.145 billion, and $651 million, respectively.

Local governments use general funds only to a slightly higher degree in roadway and transportation spending than state governments. In 2018, highways and roads accounted for the fifth-largest general fund outlay for state and local government general expenditures nationally, totaling 6% of all direct spending, or $187 billion. Local governments also rely on general fund revenue for transit operations, largely funded through sales, property, income, and payroll taxes. For example, Oregon assesses a payroll tax on residents within the TriMet service district (metropolitan Portland) and a statewide transit payroll tax on all Oregon workers. Both taxes are paid by the employer.

Summary of funding mechanisms

The table on the following page summarizes the extent to which other states use the funding mechanisms surveyed by the AWG and whether each mechanism already exists in Nevada.

Table 6: Summary of various types of transportation taxes

Category	Type of tax	Used in Nevada?	States used in
Fuel taxes	Flat per-gallon excise fuel tax	Yes	50
	Excise tax with inflation index on per-gallon rate	Yes (Washoe & Clark Counties only)	7
	Variable-rate tax based on the price of fuel	No	13
	Sales tax on fuel	No	4
	Local-option (county) fuel taxes	Yes	5
	Excise tax with fuel efficiency index	No	1
Vehicle fees	Basic license fees	Title & registration	50
	Value	Yes (GST)	27
	Weight	Heavy vehicles only	14
	Fuel economy	No	2
	Engine type	No	30
	Age	No	4
Direct usage-based fees	Tolls	No	35
	Road usage charge (light vehicles)	No	3
	Weight-distance tax	Repealed in 1989	5
Other freight sector fees	Container fees	No	2
	Value-added tax on freight traffic	No	0
	Parcel delivery fee	No	1
Indirect usage fees	Batteries, tires, electricity	No	3 (kWh)
General fund transfers	General fund transfers	Yes	38
Pigouvian taxes	Congestion charges	No	1
	Carbon taxes	No	0

4.3 Other states' transportation revenue strategies

To provide context to its effort, the AWG reviewed recent legislative packages addressing long-term transportation funding.

Colorado

In 2021, Colorado enacted several new transportation revenue sources to provide $5.3 billion over a 10-year investment horizon. Revenue-related highlights from the bill include:

- An additional 2-cents-per-gallon fee on gasoline and diesel beginning in 2022 that increases each year by 1 cent, up to 8 cents total by 2032. This fee will then be indexed to construction cost inflation and adjusted annually after 2032.
- A new 27-cent fee on deliveries made by services like Amazon, FedEx, and Grubhub.
- A 30-cent fee on Uber and Lyft rides, with annual increases based on the Consumer Price Index. The fee would be discounted 50% for people carpooling or riding in an EV.
- An increase in special registration fees for electric and hybrid vehicles to reach tax parity between what owners of average gas vehicles pay in fuel taxes.
- Federal stimulus funds and transfers from the state general fund are included.

About 10% of the total package ($568 million) is earmarked for public transit and pedestrian improvements, while $724 million (14%) will be dedicated to several programs to accelerate the transition to EVs. The remaining $4 billion will be spent on maintenance, new construction, and debt service for highway construction bonds. Of the $5.3 billion, 10-year revenue package, about $3.8 billion (72%) comes from new taxes and fees, while the rest comes from Colorado's general fund and federal stimulus money.

Illinois

The comprehensive, six-year Rebuild Illinois funding package, enacted in 2019, will generate $33.2 billion in transportation revenue from diverse sources. Highlights from the revenue package include the following:

- Taxes increased by 19 cents per gallon on gasoline and 24 cents per gallon on diesel and special fuels.
- The motor fuels tax rates will be indexed to inflation based on the Consumer Price Index.
- Annual vehicle registration fees were increased by $50. Other assorted vehicle-related fees were also increased.
- Truck registration fees were also increased by $50 for trucks 8,000 pounds or less and by $100 for trucks that weigh more than 8,000 pounds.
- A new $100 registration surcharge on EVs is imposed in lieu of motor fuel taxes.
- Over a five-year period, revenue from the sales tax on motor fuels will be shifted from the General Fund to the Road Fund. The sales tax on motor fuels is 6.25%. For five consecutive years, 1% of the 6.25% total will be shifted, so that by 2025, the Road Fund will receive 5% of the total.

Before the enactment of Rebuild Illinois, the state had not increased its gasoline tax since 1990. The law created a new Transportation Renewal Fund as the depository account for the increased fuel tax revenue, with funds dedicated to critical transportation projects—about 80% road and bridge projects and 20% rail and transit capital projects.

The previous registration fee for EVs had been $34 every other year (or $16 per year), while owners of all other vehicles paid $101. The new revenue measure removes the discounted fee for EVs, so EV owners now pay the same as all other vehicle registrations. At the same time, an additional registration fee of $100 was enacted for EVs.

Ohio

In 2019, Ohio enacted changes to its transportation funding policy, including an increase in gas and diesel taxes, general fund transfers for transit, and new fees on plug-in vehicles. Specifically:

- A 10.5-cent-per-gallon tax increase on gasoline and a 19-cent-per-gallon increase on diesel fuel
- A new annual registration fee of $200 for EVs and a $100 fee for plug-in hybrid vehicles
- A general revenue fund transfer of $70 million for public transportation

Of the $70 million in transit funding, $16.6 million is directly distributed among the 27 transit agencies, with the remaining $53.4 million earmarked for multiple grant programs aimed at assisting transit capital needs (i.e., vehicle purchases and preventive maintenance projects) and programs to enhance mobility for seniors and individuals with disabilities.

A provision that would have indexed the fuel tax was removed in the final negotiations. Instead, the legislation created the Ohio Road to the Future study committee to examine long-term needs and alternative funding mechanisms for the future, including a mileage-based charge.

Utah

Between 2015 and 2019, Utah enacted a series of transportation measures, each building upon the prior one, focusing on fuel tax indexing, local-option sales taxes, and RUC as an alternative to special surcharges on EVs. Collectively, the measures resulted in the following:

- Authorization for local-option sales tax for highways and transit
- Replacement of the state's cents-per-gallon fuel tax with a percentage tax per gallon on the average wholesale price of fuel, indexed to inflation (CPI)
- Implementation of a RUC as an alternative to EV registration surcharges, along with a directive for the Utah Department of Transportation to study and recommend approaches for transitioning the entire fleet of light-duty vehicles to a RUC by 2031

The legislature authorized local governments to enact a sales and use tax that could be used for highways and/or transit funding at the discretion of the local government.

EVs and alternative fuel vehicles were already subject to a flat fee surcharge in addition to their regular vehicle registration fee. The legislature allows drivers to choose which to pay: Utah's RUC, which is based on actual miles traveled, or the special registration surcharge. If EV owners opt for Utah's RUC, the amount they owe would be capped so that it does not exceed the amount they otherwise would have paid under the special registration surcharge.

4.4 Assessment of funding mechanisms

The AWG began its assessment of funding alternatives by reviewing the information about each of the 28 mechanisms summarized in Section 4.2, including a description of how each mechanism functions, how many states use it, and whether and how Nevada currently uses it. The AWG screened several mechanisms from further consideration based on this initial review, including port container fees (not relevant or significant to Nevada), insurance taxes (consensus lack of feasibility), and tolling (consensus lack of viability), leaving 25.

Next, the AWG reviewed a qualitative scoring of each of the remaining 25 mechanisms relative to each of the guiding principles it adopted. For scoring purposes, the guiding principle of "transparency/ease of collection" was separated into two distinct principles given that the two concepts frequently found themselves in conflict: greater transparency can lead to more difficulty administering a tax or fee. The qualitative scoring amounted to a "traffic light" (red-yellow-green) approach. A green score means the mechanism has a good ability to address the guiding principle, a yellow score means the mechanism has a moderate ability to address the guiding principle, and a red score means the mechanism has a poor ability to address the guiding principle.

In some cases, there was tension between two or more principles that required the AWG to consider tradeoffs or to frame the tension in a complementary manner by looking at mechanisms in combination. For example, increasing the GST, Nevada's vehicle property tax, performs well for the principles of financial sustainability, sufficiency, and social equity; however, it cannot align well with the principle of reducing greenhouse gas emissions since newer, cleaner ZEVs and low-emission vehicles tend to have higher valuations. Pairing a mechanism like this with another mechanism that scores well on greenhouse gas emissions alignment is a way to build a package of mechanisms that complement one another, leading to higher likelihood that the overall strategy performs well against the principles collectively.

The assessment combined quantitative and qualitative analyses. First, to assess sufficiency, each mechanism was evaluated by determining what rate of tax would generate an additional $100 million per year in 2021. For example, a per-gallon excise motor fuel tax of 7.2 cents statewide on gasoline and diesel would have generated an additional $100 million. To raise a similar amount through taxing tires, the state would have to impose a $50-per-tire excise tax. Given the high rate of tax relative to the cost of the underlying object (tires), a tire tax rates poorly for sufficiency, whereas a fuel tax of 7.2 cents represents a small fraction of fuel costs, so it rates higher for sufficiency.

Next, the financial sustainability of each mechanism was assessed by comparing its projected revenue generation over the period through 2040 to the expected growth in highway system usage as measured by VMT. For example, the figures on the following page illustrate the performance of two mechanisms–fuel excise taxes

on the left and GST on the right. On the left, fuel excise taxes remain flat, while VMT grow nearly twofold over the next two decades. By contrast, GST revenue more than doubles over the next two decades, outpacing the rate of growth of VMT.

In addition to quantitatively assessing sufficiency and financial sustainability, the AWG considered the qualitative performance of each mechanism relative to the other six guiding principles. Figure 28 on the following page summarizes the scoring of the 25 mechanisms against the eight guiding principles. A green score indicates that a mechanism is capable of strong alignment with the guiding principle. For example, all forms of fuel taxation are capable of strong alignment with the principle of efficiency in administration given the simplicity and low cost of collecting fuel taxes. A red score indicates that a mechanism is poorly capable of alignment with a guiding principle. For example, a street utility fee is difficult to align with user equity given that taxes or fees on real estate are difficult to correspond with road usage, more so even than flat fees on vehicle ownership. Finally, a yellow score indicates that a mechanism is capable of some alignment with the guiding principle. For example, a vehicle fee based on age, where owners of older vehicles pay less, is capable of some alignment with the user equity principle, because there is a general correlation between vehicle age and road usage: newer vehicles are driven more and owners of those would pay more, while older vehicles are driven less and owners of those would pay less, on average.

The AWG reviewed each of the 25 mechanisms across the guiding principles, scoring them quantitatively and qualitatively, for 200 individual scores in all. Members occasionally advocated for different individual scores. For example, one member, the Nevada Trucking Association, argued that assessing taxes on plug-in electric vehicle electricity is strongly capable of alignment with the efficiency principle. Another member, NV Energy, argued that metering electricity consumption by plug-in electric vehicles would require installation of submeters at individual residences of EV owners, an undertaking not presently feasible or cost-effective. For most scores, the AWG came to an agreement on the overall assessment while acknowledging individual differences of opinion. In addition, members used the scores to guide identification of promising long-term sustainable funding mechanisms but did not use the scoring exercise as the final decision mechanism in determining its recommendations.

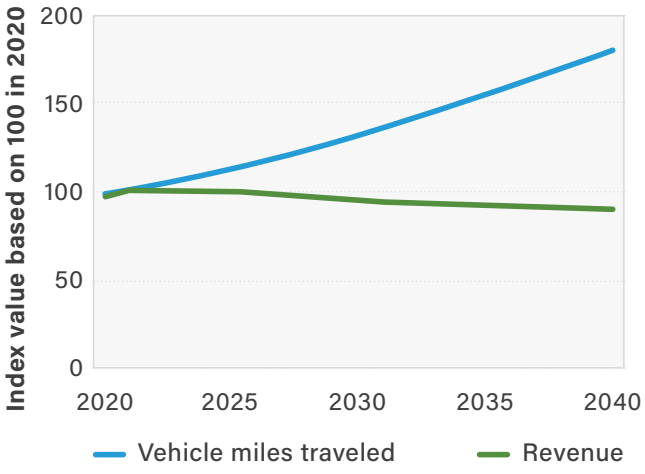


Figure 26: Vehicle miles traveled vs. gasoline tax revenue, 2020–2040

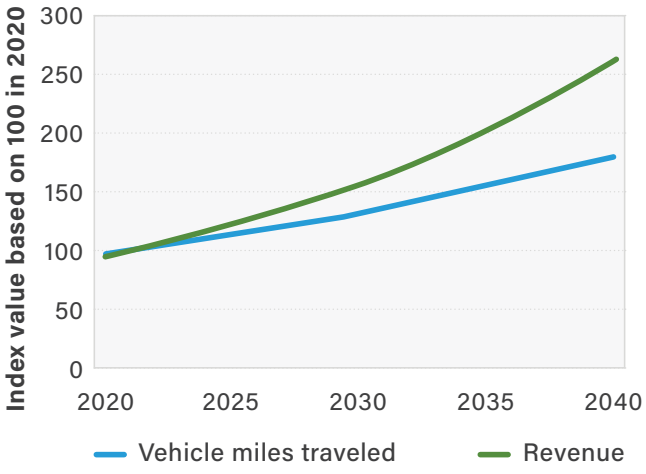


Figure 27: Vehicle miles traveled vs. GST revenue, 2020–2040

Mechanism	Tax rate required to generate $100 million in 2021	Financial sustainability	Sufficiency	User equity	Social equity	Flexibility	GHG emissions	Transparency	Efficiency
Increase value-based rate of governmental services tax	Additional 0.12% of vehicle value (current average is around 0.7%)	🟢	🟢	🟡	🟢	🟢	🔴	🟡	🟡
Add a distance-based charge for light-duty vehicles	$0.004 per mile driven	🟢	🟢	🟢	🟡	🔴	🟡	🟢	🟡
Cordon charges in urban areas	$1.37 per trip (LV downtown only)	🟡	🟡	🟢	🟡	🟢	🟢	🟢	🔴
Add fee based on vehicle age	"$55 <5 yrs old $45 5-9 yrs old $35 10-14 yrs old $25 15-19 yrs old $15 20+ yrs old"	🟡	🟢	🟡	🟢	🔴	🟡	🟢	🟡
Add a weight-distance-based charge for medium- and heavy-duty vehicles	$0.061 per mile driven	🟢	🟢	🟢	🟡	🔴	🟡	🟢	🔴
Parcel delivery fees	$0.74 per delivery	🟢	🟡	🟡	🟡	🟢	🟡	🟡	🟡
Street utility fee	$80 per household	🟢	🟢	🔴	🟡	🟢	🟡	🟡	🟡
Add fee based on vehicle weight	Average of $40 per vehicle per year	🟢	🟡	🟢	🟡	🔴	🔴	🟢	🟡
Add fee based on vehicle engine type	$100 per EV plus $39.13 for all others per year	🟢	🟢	🟡	🟡	🔴	🔴	🟢	🟡
Ride-share surcharges	11%	🟡	🔴	🟡	🟡	🟢	🟡	🟡	🟢
Add fuel efficiency index to flat per-gallon excise tax	$0.094 per gallone indexed at avg of 4% per year	🟢	🟢	🔴	🔴	🔴	🟢	🔴	🟢
Add a tax on EV batteries	$2 per kWh battery capacity per year	🟡	🔴	🟡	🟢	🟢	🔴	🟡	🟡
Carbon tax	$38 per ton CO2	🔴	🟡	🔴	🟡	🟢	🟢	🟡	🟡
Land use impact fees	1% of development value	🟢	🟢	🔴	🟡	🟢	🟡	🔴	🔴
General funds	N/A	🟢	🟢	🔴	🔴	🟢	🔴	🔴	🟢
Increase flat rate of per-gallon excise tax (gasoline and diesel)	$0.072 per gallon	🔴	🟢	🟡	🔴	🔴	🟡	🟡	🟢
Increase basic license fee	$40 per vehicle per year	🟡	🟡	🟡	🔴	🔴	🟡	🟢	🟡
Add fee based on vehicle fuel economy rating	"$100 per 50+ MPG $60 for 40-50 MPG $50 for 30-40 MPG $40 20-30 MPG $30 <20 MPG"	🟡	🟢	🟡	🟡	🔴	🔴	🟡	🟡
Add a tax on tires	$50 per tire	🟡	🔴	🟡	🔴	🟢	🟡	🟡	🟡
Add a tax on EV electricity consumed	$0.02 per kWh consumed	🟡	🔴	🟡	🟢	🟢	🔴	🟡	🔴
Value added tax on goods movement	2% on all trucking costs	🟢	🟡	🟡	🔴	🟢	🟡	🔴	🔴
Add inflation index to flat per-gallon excise tax rate	$0.072 per gallon indexed at 2% per year ends at $0.104	🔴	🟢	🟡	🔴	🔴	🟡	🔴	🟢
Add variable-rate excise tax based on price of fuel	2.9% of 2021 annual avg price	🔴	🟢	🔴	🔴	🟡	🟡	🔴	🟢
Payroll tax	2% of gross wages	🟡	🟡	🔴	🔴	🟢	🔴	🔴	🟡
Add sales tax based on price of fuel	2.3% of spot price in Dec 2021	🔴	🟡	🔴	🔴	🟡	🟡	🔴	🟡

Figure 28: Scoring summary of the 25 mechanisms against the Guiding Priciples

4.5 Examination of Utah's road usage charge and NRDC's energy-based charge

AB 413 directed the AWG to study at least two specific models for achieving sustainability of the State Highway Fund: Utah's RUC and an efficiency-adjusted RUC concept established by the NRDC.

Origins and background of road usage charging

RUC emerged early in the century as a concept for assessing direct charges on road users. With the advent of highly fuel-efficient and zero-emission vehicles, state transportation agencies predicted future declines in revenue from taxing fuels, confounding the already-prevalent challenge of excise fuel taxes keeping pace with inflation. Since Oregon began actively exploring the concept in 2001, 38 states and the federal government have conducted research into RUC for light-duty vehicles, either alone or in collaboration with a regional consortium like RUC America or the Eastern Transportation Coalition. Three states have enacted RUC programs, and 10 have conducted pilot tests of the concept. Nevada conducted research on the topic in 2009–2011, including a small-scale pilot test in collaboration with the University of Nevada. Seen as a fuel tax replacement, research to date has focused on flat per-mile rates for all miles driven, with revenue collected aimed at supporting state and local investment in roads and bridges.

RUC requires states to gather one piece of information not already commonly found in vehicle registries: miles driven over a defined period. There are many ways to gather this data, including several that require no new in-vehicle technology or processes.

Safety inspection odometer mileage collection. Sixteen states require a vehicle safety inspection, and most of them collect an odometer reading as part of this process. Hawaii recently completed a successful demonstration using odometer readings collected at vehicle inspections as the basis for a RUC.

Emissions testing odometer mileage collection. Twenty-two states require vehicle emissions testing in some or all areas, including Clark and Washoe Counties in Nevada. Nevada DMV collects annual mileage data from emissions testing as part of a pilot program and stores it with vehicle records. DMV has created one automated validation rule, with others contemplated to improve accuracy of odometer values reported by emissions inspectors. To date, no state has tested using such data for a RUC program.

Self-reported odometer mileage collection. As part of its pilot program, Nevada DMV requires vehicle owners outside Clark and Washoe Counties to self-report odometer mileage on the honor system upon registration renewal. DMV estimated for the AWG that 82% of vehicle owners required to self-report odometer readings comply. Although no state in America has tested using self-reported mileage for a RUC program yet, Washington will become the first in 2022–2023. Internationally, the State of Victoria in Australia currently requires EV owners to self-report odometer readings annually upon registration renewal and pay a per-kilometer fee of 2.5 cents.

Most states exploring RUC have also experimented with automated methods of reporting miles driven.

Smartphone applications. A popular prospective method of reporting miles driven is through a fit-for-purpose smartphone application. Several states have tested a variety of approaches to reporting miles using smartphones. The simplest involves using the phone's camera to take a photo of the odometer and upload it for processing. Other applications have attempted to use the smartphone as the mileage measuring device, but this approach has not yet proven viable for revenue operations because of the inability to reliably associate one smartphone with one vehicle at all times.

Plug-in devices. The most common approach to reporting miles driven in pilots since 2011 has been via devices that plug into a vehicle's on-board diagnostic (OBD-II) port, located under the steering column on most vehicles manufactured after 1996. This small device calculates miles driven using speed data from the vehicle's on-board computer and wirelessly transmits data via the cellular network for processing. Optionally, the device can detect the vehicle's location using a GPS antenna to facilitate exemptions for miles driven off road or out of state. Ten states have tested this technology. Oregon's program is open to any technology that meets the state's mileage reporting standards, but to date, only plug-in devices have been qualified. Utah offers plug-in devices as the primary option for reporting miles in its program.

Native automaker telematics is the information and communication system built into vehicles, such as General Motors's OnStar. In 2016, California was the first state to successfully demonstrate using native automaker telematics to report miles driven in a RUC system. In 2020, Utah launched its operational RUC program and relies on native automaker telematics for some vehicle models to report miles driven (Tesla Models Y and 3 are incompatible with the plug-in device method because they do not have OBD-II ports and, therefore, must use telematics to transmit mileage data). The Eastern Transportation Coalition and Minnesota recently completed pilots using telematics data as the basis for RUC mileage reporting.

States deploying RUC as a revenue mechanism face numerous policy decisions.

Subject vehicles. Fundamental to a RUC program is identifying in law the vehicles subject to the charge. Several states have researched RUC as a policy for all vehicles. However, given the challenge of transitioning revenue mechanisms rapidly, programs and research to date have focused on vehicles that consume little or no fuel (and thus owners pay little or no gas tax), including electric and high-MPG vehicles. Other possibilities exist. For example, the only large-scale RUC program in the world, New Zealand, applies to all diesel cars.

Setting rates. A key policy choice for state legislatures is how to set the rate per mile for a RUC. Rates can vary by numerous factors including vehicle type, fuel efficiency, location of the registered owner's residence, income of the registered owner, and more. Early RUC programs examined the possibility of varying the per-mile rate by location of miles driven, but this required location data, which proved unpopular with the public, has largely been abandoned.

Exemptions and refunds. Along with setting rates, legislatures often prescribe exemptions. Examples include mileage exemptions for driving in other states, on private property, or on private roads. Other examples include vehicle exemptions for transit vehicles, state-owned vehicles, or emergency vehicles. Some programs have explored or allowed credits equal to gas taxes paid against RUC owed.

Local-option RUC. Most states collect fuel taxes and distribute funds by formula to cities, counties, and other local jurisdictions. This can be done in a RUC program but can be more politically complex if the local tax itself is set by local jurisdictions, as is done with the fuel tax in Nevada and several other states. Hawaii, whose counties collect more fuel tax than the state, has explored this issue through its RUC pilot program.

Transition. Given the unlikelihood of sudden enactment of a RUC program for all vehicles, states pursuing programs must balance the "startup" phase with the need for a transition. Oregon, for example, set up its RUC program with no intent of generating revenue in the short term. Rather, the intent was to establish a revenue mechanism using a small number of vehicles with little revenue at risk, gradually expanding the program in the future to address declining gas tax receipts.

Authorized agency. RUC laws must direct one or more agencies to collect the charge. Virginia tapped its DMV. In Oregon and Utah, the state Departments of Transportation operate the programs, but in close collaboration with the administrators of the state's vehicle registry that serves as a basis for identifying subject vehicles, creating account relationships with subject vehicle owners, and enforcing payment.

Others. States have addressed a range of other issues such as visitor travel, interstate interoperability, privacy protection, and distributional impacts.

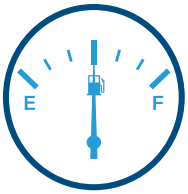
Setting rates is among the policy issues that legislatures enacting RUC must confront. There are many variables to consider.

Cost recovery versus revenue replacement. Building on the user-pay principle, cost recovery is a methodology policymakers can use to set per-mile rates. Analysis of the road network, its growth, and future demand generates estimates of the future capital, operations, and maintenance costs for roads. Allocating costs attributable to light-duty vehicles allows for calculation of the tax and fee rates that can generate revenue needed. More commonly, RUC is proposed as a *replacement* revenue mechanism for fuel taxes. Under this approach, the simplest method for calculating a per-mile rate is to divide the revenue currently generated by the gas tax by the number of miles driven. Regardless, the result is a base rate per mile driven for all light-duty vehicles.

Weight. To the extent the vehicle registry includes reliable measures of vehicle weight, it is possible to vary the base per-mile rate based on vehicle weight. Vehicles weighing less than about 10,000 pounds have equivalently negligible impacts on road surfaces. From a *cost impact perspective* there is no justification for varying the rate charged to owners of light-duty vehicles by their weight, irrespective of whether the vehicle is a compact sedan or a large SUV.

Size. As with weight, vehicles weighing less than about 10,000 pounds represent similar demand for travel. In traffic engineering terms they all represent one "passenger car equivalent." Only medium- and heavy-duty trucks represent sizes with a demand profile that may justify higher rates.

Propulsion type. The range of technologies available for vehicle propulsion has proliferated in recent years. Consumers may choose from diesel, gasoline, gas hybrid, diesel hybrid, plug-in hybrid, all-electric, fuel cell, and natural gas. Nearly all cars, regardless of propulsion type, are responsible for some emissions to varying degrees. However, vehicle propulsion type does not make any difference on road impacts. Although electric cars tend to weigh significantly more than their gasoline counterparts because of batteries, as mentioned above, this weight difference is negligible when it comes to road surface impacts.



Vehicle fuel economy. Passenger cars receive a fuel economy rating from the EPA. Each rating consists of three numbers: city, highway, and combined MPG. With the advent of EVs, the EPA created an "MPGe" rating. Although EVs consume no motor fuel, the MPGe rating offers consumers a measure of the vehicle's overall energy efficiency relative to gasoline-powered vehicles.

Miles driven. Miles can be charged differently based on where and when they are driven, although doing so requires drivers to report their location. It is also possible to vary rates based on how many miles a given vehicle is driven, e.g., offering a standard exemption or a discount on miles driven over a certain amount.

Owner characteristics. It is conceivable to vary the per-mile rate based on characteristics of the vehicle's owner such as income and residence location.

One variable to consider in setting per-mile rates is vehicle fuel efficiency. The case for switching from fuel taxes to RUC is driven primarily by two factors: sustainability and equity. RUC can generate sustainable revenue because the amount of revenue generated is proportional to the amount of driving. As demand for driving increases, so does revenue available to support maintaining and operating the road network, regardless of what is fueling the vehicles–gasoline, electricity, hydrogen, and so on.

At the same time, a RUC can support equitable contributions from vehicle owners based on their usage. The chart below depicts the relationship between fuel taxes and MPG, using the Clark County gasoline tax for illustrative purposes. The higher the MPG (horizontal axis), the lower the amount a vehicle owner pays per mile driven in fuel taxes (vertical axis). The average vehicle in Clark County is rated 21.7 MPG (city-highway) combined. With a combined state and county fuel tax of 47.8 cents per gallon, that average vehicle contributes 2.2 cents for each mile driven. By contrast, a vehicle rated at 15 MPG contributes about 50% more at 3.3 cpm driven, while a vehicle rated at 45 MPG contributes about 80% less at 0.5 cpm driven. EV owners do not currently contribute.

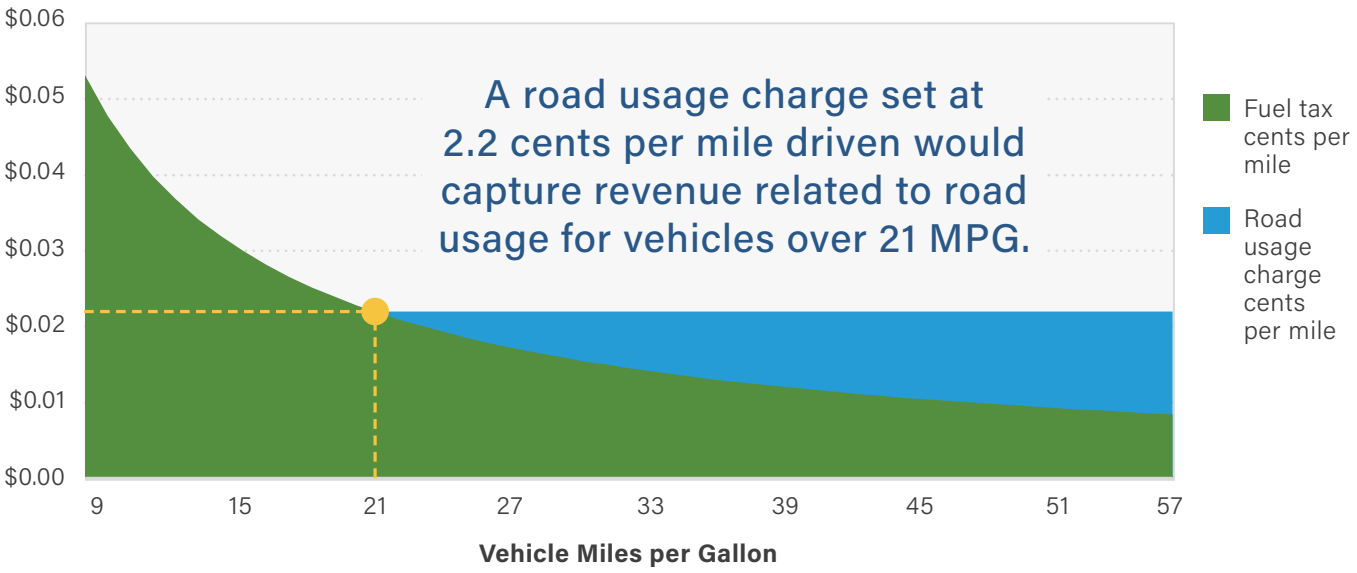


Figure 29: Fuel tax paid per mile driven in Clark County (excl. federal tax)

There are several ways a RUC program could use MPG as a factor in per-mile rates.

- A RUC program could apply only to vehicles rated above a certain MPG. For example, applying a RUC of 2.2 cpm to vehicles rated 22 MPG and higher would ensure all vehicles pay at least that much, while vehicles rated below 22 MPG would continue to pay fuel taxes at a higher effective rate per mile. In this case, to ensure those vehicles above 22 MPG do not pay more than 2.2 cpm total, they could be credited back the fuel tax they paid at the pump, either through estimation or measurement of fuel consumed (both methods have been tested in other states).
- A RUC program could provide discounted rates for vehicles in certain MPG categories. For example, the rate could be tiered, with owners having vehicles above 30 MPG paying only 2 cpm.
- A RUC program could adjust RUC rates based on the vehicle's MPG rating.

An efficiency-adjusted RUC program calculates the per-mile rate based on the energy efficiency of a vehicle's operations. A 2011 paper by David Greene argues for a per-mile fee as a long-term solution to road funding through user fees.[5] However, based on the cost and complexity of instrumenting a RUC in the early part of the century, Greene puts forth a "bridge" proposal to tax all energy used in transportation called the Indexed Roadway User Toll on Energy (IRoUTE). The author argues that IRoUTE, which taxes all energy consumed in surface transportation and indexes the rate of taxes to both fuel efficiency and inflation, can create a long-term sustainable funding.

The author identifies several shortcomings with IRoUTE:

- First, the concept is not suitable for assessing heavy-vehicle contributions to roads, which the author argues would be more effective via a weight- and distance-based charge.
- Second, because its primary purpose is road funding, IRoUTE does not effectively or directly address greenhouse gas emissions.
- Third, Greene recognizes that taxing energy is a "second-best" solution to taxing usage (miles driven), and it does not include a viable mechanism for taxing the energy consumed by EVs (recognizing the logistic challenges of attempting to do so).

In addition, the paper does not address social equity impacts of the concept.

[5]Greene, D.L.. 2011. "What is greener than a VMT tax? The case for an indexed energy user fee to finance U.S. surface transportation." *Transportation Research Part D: Transport and Environment* 16, 6 (August): 451–458.

Utah's road usage charge policy

In 2018, Utah became the second state to create a RUC program in law for light-duty vehicles. Launched in January 2020, owners of battery electric vehicles and plug-in hybrid and hybrid vehicles could choose between paying a flat annual registration surcharge or a distance-based charge. The legislature had previously enacted annual registration surcharges for alternative fuel vehicles and wanted to offer owners of those vehicles a usage-based fee as an alternative. As of 2022, 30 states have flat registration surcharges in place for alternative fuel vehicles.

Owners of vehicles subject to Utah's surcharge are eligible to enroll in the RUC program. In 2020, this included battery electric vehicles and plug-in hybrid and hybrid vehicles. Accompanying the legislation was an update to the method of assessing motor fuel taxes such that the rate of fuel taxation now adjusts with the 3-year rolling average price of gasoline and CPI, ensuring that the per-gallon rate of motor fuel taxation stays flat or increases.

In the 20 months following enactment, Utah focused primarily on building the necessary administrative and technology features for a functional RUC program, including selection of mileage reporting options, creation of interfaces between the Utah Department of Transportation (UDOT) and the DMV, design of system specifications and business rules, and procurement of a vendor to provide mileage reporting and payment services to customers. Following system testing and communication with the public via mailers to eligible vehicles, the program launched on January 1, 2020. Among the over 50,000 eligible vehicles, so far about 4,000 are enrolled in the RUC program, with owners of the other 46,000 opting to pay the flat registration surcharge.

Recently, the Utah Legislature enacted several changes to the program. First, hybrid and plug-in hybrid vehicles are no longer eligible. Second, the per-mile fee for battery electric vehicles will drop to 1 cent per mile beginning in 2023, equivalent to what an owner of a 40 MPG vehicle pays in state gas taxes. The flat fee will increase to $130, meaning that any battery electric vehicle owner that drives 13,000 miles or less in a year would benefit from enrolling in the RUC program and paying by the mile. Finally, the Utah Legislature directed UDOT to plan for transitioning the remainder of the vehicle fleet to the RUC program by 2031.

Table 7: Utah's RUC program mileage rates

Vehicle type	2021 annual surcharge rates	2021 RUC rate
All-electric	$120	
Plug-in hybrid electric	$52	- or - 1.5 cents/ mile
Hybrid	$20	

Subject vehicles. Utah's RUC program is currently open to enrollment by owners of EVs in lieu of paying the annual flat fee (surcharge).

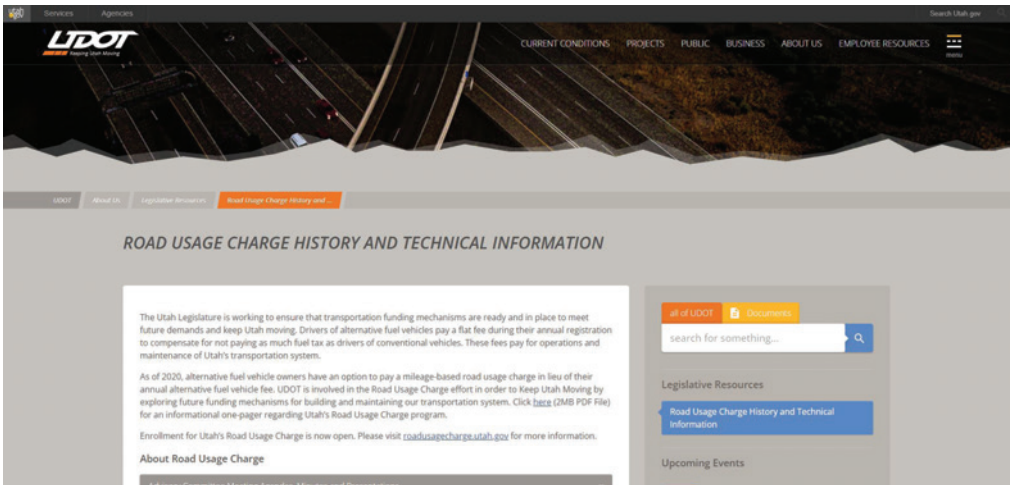
Rate setting. The EV annual flat fee (surcharge) is designed to recover costs of road usage from vehicle owners that pay no fuel tax. Beginning January 1, 2023, all vehicle owners who enroll in the RUC program will pay 1 cent per mile instead of the surcharge of $130. The amount any vehicle owner pays in RUC in one year is capped at the amount of the annual surcharge. Both the per-mile fee and the annual registration surcharge are indexed to inflation, in addition to scheduled stepwise increases in the rates that by 2033 will take them to about 1.8 cpm and $300 per year, respectively.

Exemptions and refunds. Since Utah's RUC serves as an option in lieu of the annual registration surcharge, there is no fuel tax credit or refund, nor exemptions for miles driven off road or out of state. The state is studying whether to offer such refunds or exemptions in the future.

Transition. Anticipating a large-scale transition to more fuel-efficient vehicles and ZEVs, the Utah Legislature is exploring pathways for extending the RUC program to all vehicles in the state by 2031.

Further Reading

UDOT RUC history and technical information, https://www.udot.utah.gov/connect/about-us/legislative/road-usage-charge-history/



NRDC energy-based charge concept

The NRDC is an international environmental advocacy organization. Among the issue areas of interest to the organization are climate change and electrification of the vehicle fleet. NRDC regards the annual surcharges on EVs that 30 states have enacted to replace gas tax revenues as punitive toward EV owners and detrimental to clean vehicle adoption goals. In response, NRDC has put forward a modified form of the IRoUTE concept that features three specific rate setting recommendations, two for the fuel tax and one for RUC, along with a recommendation for applying mechanisms to vehicles by propulsion type.

The NRDC concept borrows the notion of "decoupling" from the electric utility sector. Given the advent of energy-efficient appliances, electric utilities risked declining profits as consumers purchased less electricity. Decoupling removes the relationship between demand for consumption and revenue, allowing utilities to adjust rates to cover their fixed costs without depending on more volume of sales. Its purpose is to remove the incentive for utilities to sell more energy in order to generate more profit.

Applied to transportation, NRDC's concept calls for decoupling road funding from road usage. It accomplishes this by indexing the fuel tax rate to the inverse of fuel consumption: as fuel consumption increases, the rate of fuel taxation declines; and as fuel consumption declines, the rate of fuel taxation increases. The result of this is to keep fuel tax revenue constant each year, regardless of trends in fuel consumption. On top of this, the concept calls for indexing the rate to inflation. The net result is that fuel tax receipts would be a fixed amount, set to increase with inflation, but no longer be linked to demand for fuel consumption.

The tables below illustrate two scenarios for how this combination of indices would work in practice.

Table 8: Different scenarios for applying NRDC's proposed energy-based charge

Measure	Scenario 1	Scenario 2
Fuel tax rate, start	$0.25/gal	$0.25/gal
Inflation	+ 2%	+ 1%
Fuel consumption	- 1%	+ 2%
Fuel tax rate, end	$0.2575/gal	$0.2475/gal

Table 9: Rate change over time, by vehicle MPGe type, under NRDC's proposed energy-based charge concept

Fee Component	25 MPG	90 MPGe	130 MPGe
Gas tax per mile	1.91 cents	0 cent	0 cent
RUC per mile	0 cent	0.53 cent	0.37 cent
Total per 10k miles	$191	$53	$37

Since battery electric vehicles do not consume gasoline, NRDC recommends creating a new fee. Rather than setting a rate per mile for all vehicle owners to pay as in the Utah model, NRDC proposes adjusting the rate based on the vehicle's MPGe. For example, taking the Clark County combined state and county fuel tax of 47.8 cents per gallon, an owner of a 90-MPGe EV would pay 47.8 ÷ 90 = 0.53 cpm in RUC. This equates to $53 per 10,000 miles. The rate would change over time as the rate of the fuel excise tax changes.

Further Reading

NRDC, "A Simple Way to Fix the Gas Tax Forever," https://www.nrdc.org/experts/max-baumhefner/simple-way-fix-gas-tax-forever

Assessment of road usage charge rate setting concepts

The Utah and NRDC models both reflect a combination of three concepts: fuel tax indexing, RUC for light-duty vehicles, and engine type fees for alternative fuel vehicles (notably EVs). Both models recognize that the vehicle fleet is improving in fuel economy and the share of EVs in increasing. The fundamental difference is that Utah's model seeks to preserve the relationship between road usage and road funding, while NRDC's model seeks to end the relationship through decoupling.

Under current policy, the amount paid by vehicle owners in Utah for every 10,000 miles they drive is reflected in the chart below. The rate setting policy reflects an attempt by the state to create sustainable funding while ensuring that all vehicle owners pay a certain minimum amount for road usage. This model preserves the linkage between road usage and road revenue, recognizing the role that demand for travel plays in costs of system preservation, maintenance, expansion, and improvement. It also sets the state up for a sustainable revenue future as the vehicle fleet migrates toward the right of the chart. When all vehicles in Utah are EVs, a mechanism will be in place to recover revenue related to their road usage in proportion to the costs they impose, without requiring upward pressure on fuel tax rates for vehicles remaining on the left side of the chart.

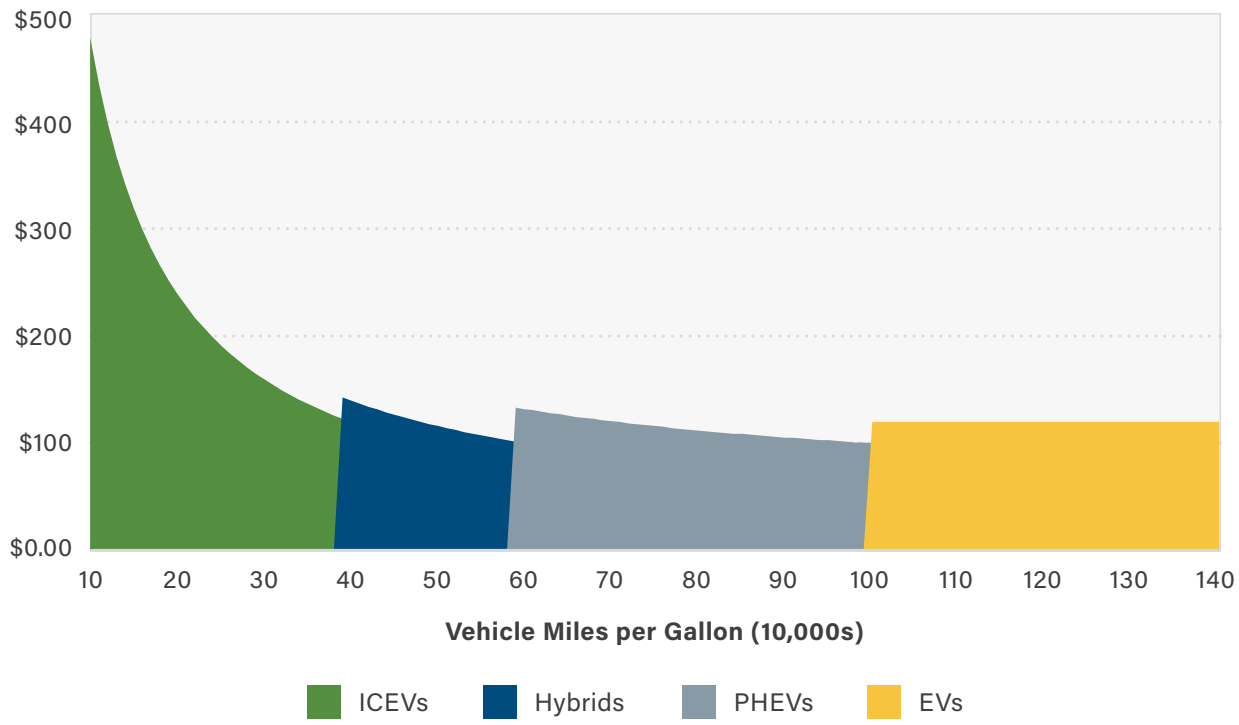


Figure 30: Per-mile Utah fuel tax plus road usage charge for every 10,000 miles, by vehicle MPGe (Utah's RUC program)

The NRDC model transforms transportation from a usage-based funding model to an energy-based funding model in which road usage no longer has an impact on road revenue. Whether fuel consumption increases or decreases, the amount of revenue collected will remain the same over time, with an increased allowance for inflation. By fixing revenues to cover the fixed costs of transportation infrastructure today, with an adjustment for inflation only, transportation agencies have no apparent incentive for more travel demand because future increases in travel demand will not yield additional revenue to invest in building more infrastructure.

The rate per mile driven paid by vehicle owners is expressed in the chart below, with vehicle owners in the dark blue shaded area paying per mile through motor fuel taxation and vehicle owners in the light blue shaded area paying per mile through an MPGe-adjusted RUC.

Figure 32 below illustrates what owners of several example vehicle types would pay under the current fuel tax rates (state and county) in Clark County under this model.

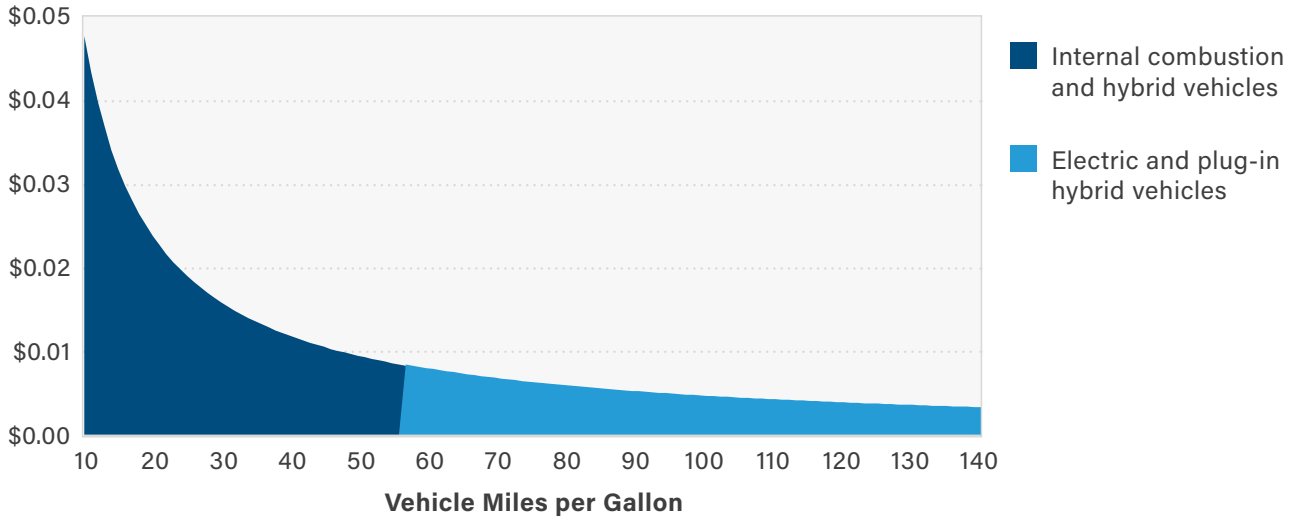


Figure 31: Per-mile road usage fees by vehicle MPGe (NRDC's proposed concept)

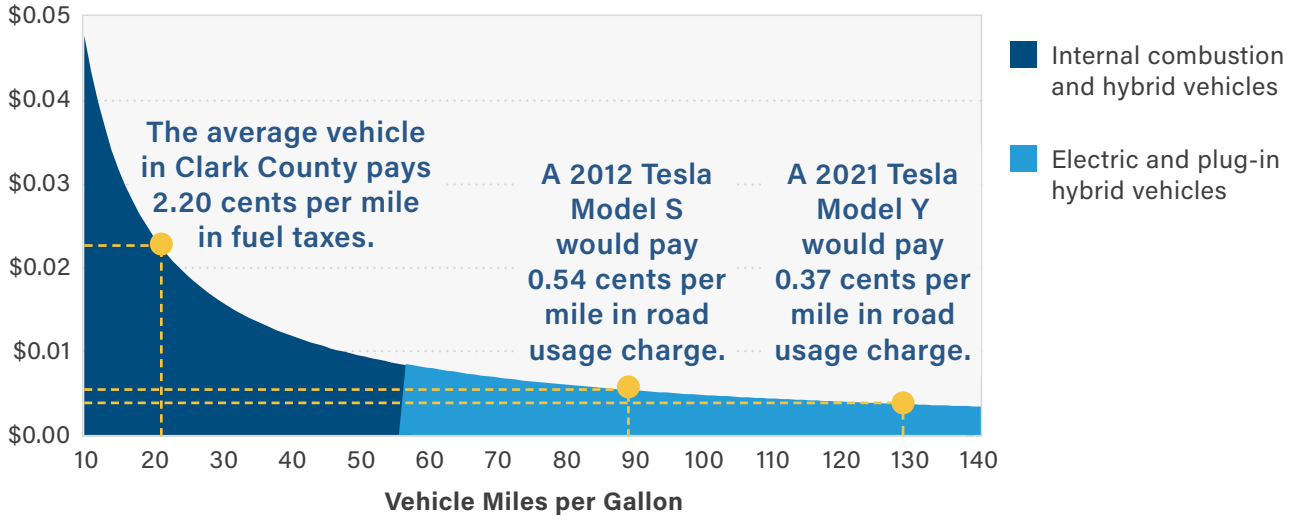


Figure 32: Effects of per-mile road usage fees by vehicle MPGe (NRDC's proposed concept)

The NRDC concept calls for indexing the fuel tax rate to inflation and to a negative measure of total fuel consumption. As total fuel consumption declines, the tax rate increases, and vice versa. In the near term, this will lead to a reduction in the fuel tax rate. In the long term, it will lead to increases in the fuel tax rate. The table below illustrates what owners of several example vehicles would pay per 10,000 miles driven if the fuel tax for Clark County doubled to 96 cents per gallon. Owners of more-energy-efficient vehicles pay less, while owners of less-energy-efficient vehicles pay more.

Table 10: Per-mile rates and cost per 10,000 miles by vehicle type in Nevada

Vehicle	MPGe	Per-mile rate	Road usage fees paid per 10k miles
2011 F-150	17	2.81	$281
Average Clark County vehicle	21.7	2.20	$220
2015 Toyota Prius	48	1.00	$100
2012 Model S	89	0.54	$54
2021 Model Y	129	0.37	$37

4.6 Sorting mechanisms

Following the quantitative-qualitative assessment of mechanisms and review of the Utah and NRDC models, the AWG undertook a selection process to sort and prioritize transportation funding mechanisms for further analysis over two meetings. The process included discussion, debate, voting, and sorting of mechanisms into categories. This process resulted in the removal of 15 mechanisms from further analysis, identification of four mechanisms as best suited for local (rather than statewide) revenue, and identification of six mechanisms for near-term and/or long-term sustainable transportation funding. The list below summarizes the results of this deliberative process.

Long-term sustainable revenue

- Distance-based charge for light-duty vehicles (RUC)
- Increase in governmental services tax (GST) dedicated to transportation (flexible funding)

Near-term revenue

- Increase rate of flat per-gallon gas and diesel excise tax
- Increase basic vehicle license fee
- Add statewide inflation index to fuel excise taxes
- Distance-based charge for ZEVs, with option to pay a flat fee in lieu of reporting miles**

Best suited for local funding

- Street utility fee
- Cordon charge
- Ride-share surcharge
- Land use impact fee

Not recommended for further analysis at this time

- Parcel delivery fee
- Tire tax
- Vehicle engine type fee
- Carbon tax
- Vehicle weight fee
- Vehicle MPG fee
- Vehicle age fee
- Fuel efficiency index on fuel taxes
- Fuel sales tax
- Weight-distance tax for medium and heavy trucks
- EV electricity tax
- EV battery tax
- Payroll tax
- Value added tax on goods movement
- General fund transfers
- Variable-rate excise tax based on fuel price
- Income tax*
- Tolling*

**indicates mechanisms removed for consideration during initial review by AWG, prior to full assessment*

***indicates mechanism synthesized by AWG during discussion of alternatives for further analysis*

4.7 Mechanisms in combination

In conjunction with its deliberations to identify the most viable mechanisms for long-term transportation funding, the AWG received briefings on several illustrative packages of how mechanisms could work in combination to generate sustainable near-term and long-term funding.

The project team developed three samples for the AWG by relying on mechanisms still under active consideration by the AWG. These mechanisms were ones that rated highly across the guiding principles and that collectively could raise between $400 and $600 million of new revenue annually by year 6 (regardless of which recipients, programs, or exact projects are ultimately funded), while addressing the core AB 413 requirement to identify a sustainable State Highway Fund source for the future. The table below summarizes the three packages presented to the AWG as inputs to its deliberations:

Table 11: Revenue packages

	Scenario 1	Scenario 2	Sample 3
Near-term funding:	■ 10 cent gas tax increase, plus 1 cent/yr for 6 years (renewable) ■ Additional vehicle registration fee based on model year ranging from $15 to $45	■ Phased in gas tax increase (6 cents per year for 3 years), indexed to fleet fuel efficiency ■ Basic vehicle registration fee increase to $75 (up from $33 per year)	■ Gas tax increase by 15 cents, indexed to inflation and fleet fuel efficiency ■ Registration fee increase based on vehicle MPG, ranging from $30 to $60 per year
Flexible funding sources:	■ 0.2% GST increase earmarked for transportation ■ $0.50 fee per delivery	■ Increase in Transportation Connection (rideshare) tax by 2% ■ 2% sales tax surcharge on tires, batteries, and miscellaneous auto parts	■ Carbon tax on motor fuels of $40 per metric ton
Longer-term sustainable funding:	■ Gradual transition to a road usage charge for light duty vehicles, starting at 1 cent/mi and increasing by 0.1 cent/mi per year thereafter	■ Gradual transition to a road usage charge for light duty vehicles, starting at 1 cent/mi and increasing by 0.1 cent/mi per year thereafter	■ Gradual transition to a road usage charge for light duty vehicles, starting with a 3 cents/mi charge on ZEVs in 2030

To examine how each of the above packages performs, the project team prepared for the AWG a series of charts illustrating existing (baseline) funding mechanisms along with projected future revenue, on an inflation-adjusted, per-mile-driven basis. As illustrated below, current State Highway Fund revenue sources generated 2.1 cpm driven in 2021, with that figure expected to decline to 1.4 cpm driven by 2040 (in 2021 dollars). To sustain existing revenue sources, the state must find a combination of funding sources that keeps the inflation-adjusted, per-mile-driven revenue flat, not declining. And to address the current backlog of needs, the state would need to increase funding from 2.1 cpm to about 4 cpm.

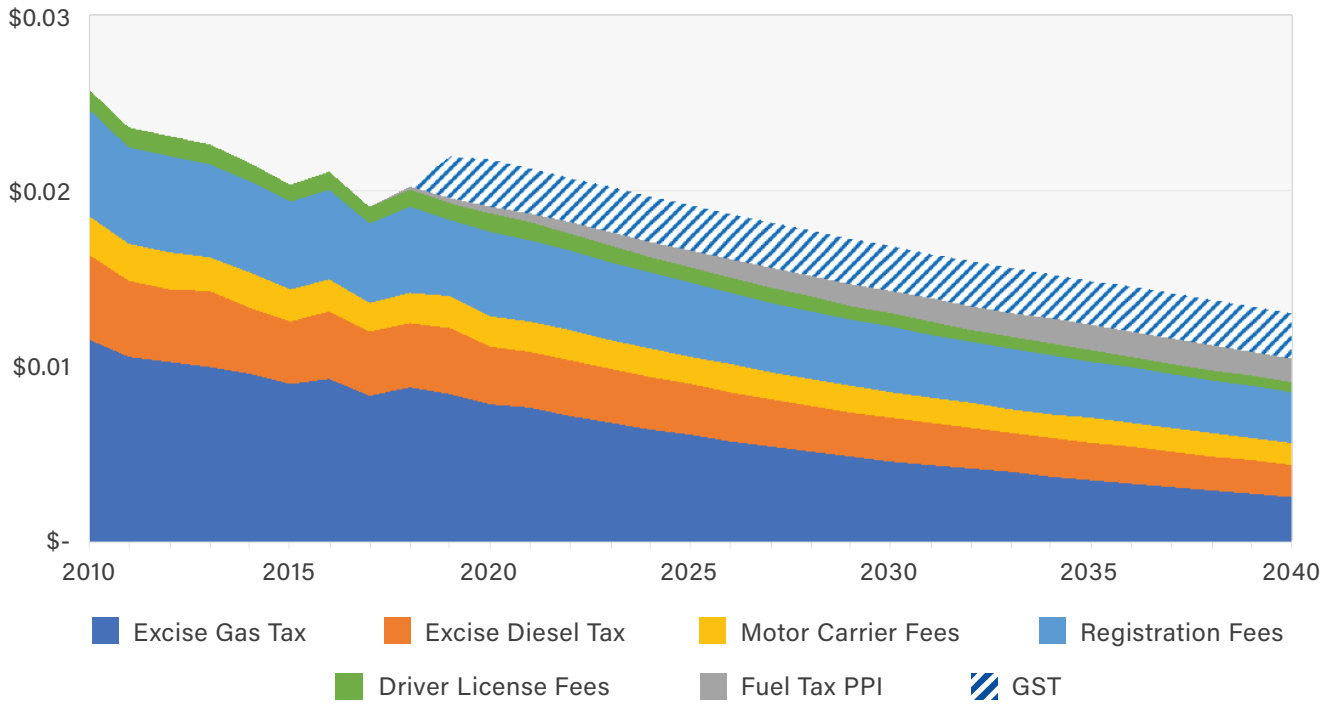


Figure 33: State revenue per VMT under status quo policy (2022 dollars)

The following charts represent the contributions of the three sample packages to sustainable transportation funding. Although none of the three quite reaches 4 cpm driven, all three do significantly address the gap between current funding levels and identified needs, and all three represent more sustainable revenue strategies by flattening the decline under the status quo policy. This combination of rate increases addresses most of the backlog of needs and creates a sustainable highway funding strategy.

Scenario 1 relies primarily on fuel tax increases, the introduction of a RUC, and increase in GST to fill the gap and create a sustainable funding strategy, with the model year fee and delivery tax as modest contributors to the total package.

Also shown below, Scenario 2 relies primarily on fuel taxes and the introduction of a RUC for sustainable funding, with vehicle license fees, vehicle parts sales taxes, and for-hire (rideshare) excise tax increases contributing modestly to the total package. Although this particular combination of fee increases does not address the full backlog of needs, it is capable of funding a majority of the backlog and is financially sustainable.

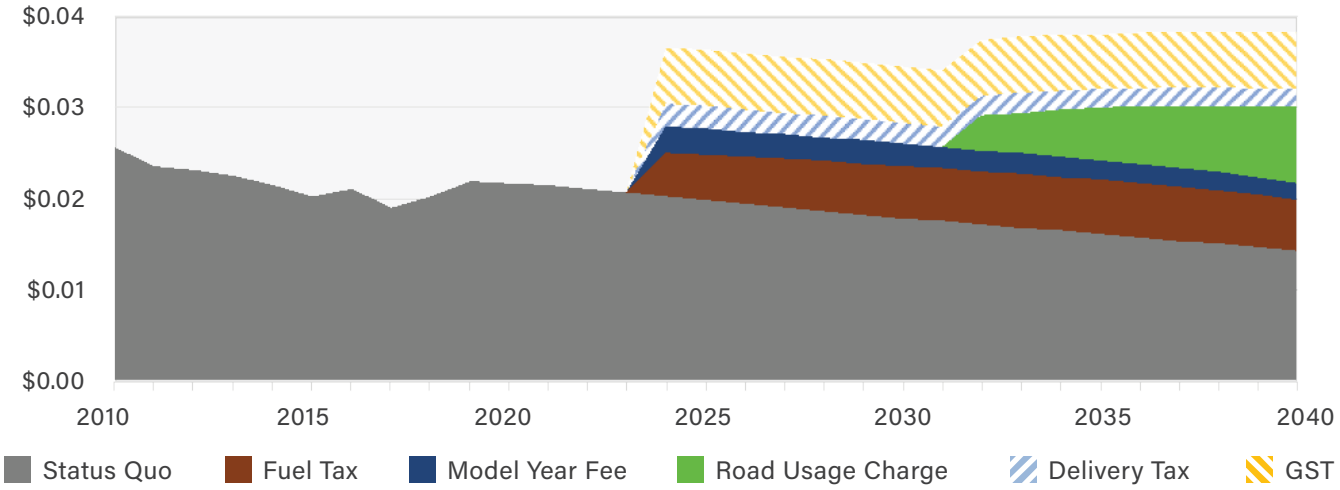


Figure 34: Scenario 1

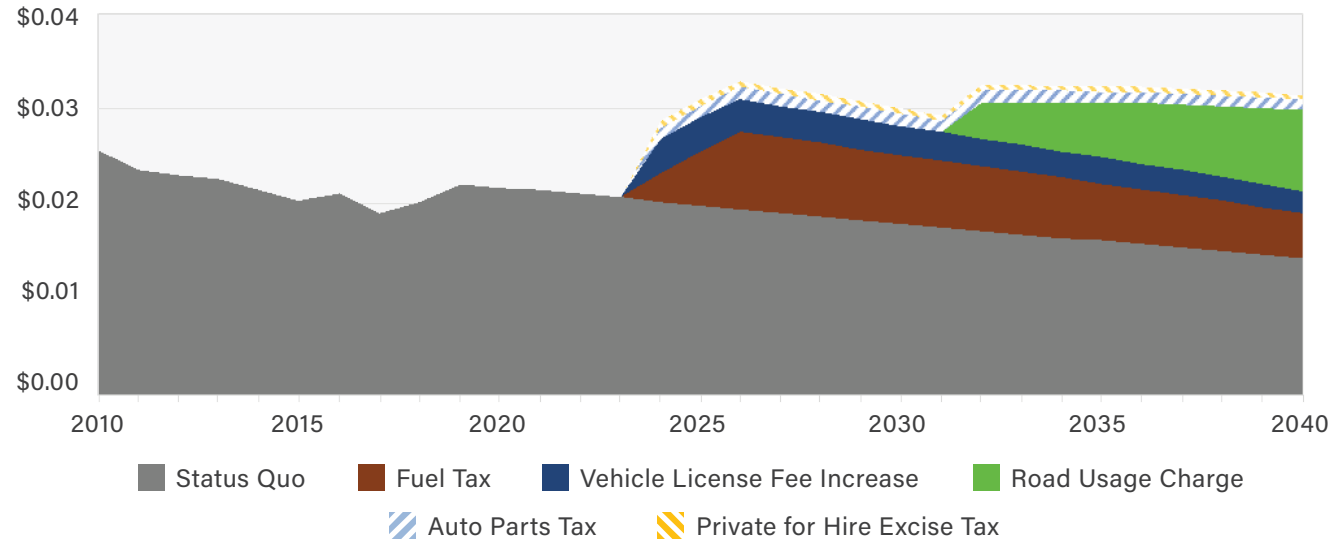


Figure 35: Scenario 2

As shown below, Scenario 3 likewise relies primarily on fuel taxes and the introduction of a RUC for sustainable funding, with an MPG-based vehicle fee and a carbon tax contributing somewhat to the total package. Although this combination of fees does not address the full backlog of needs, it does create a more sustainable revenue as the RUC compensates for declining fuel tax receipts. However, even this scenario experiences continued erosion of revenue because of the increased reliance on fuel taxes in the later years.

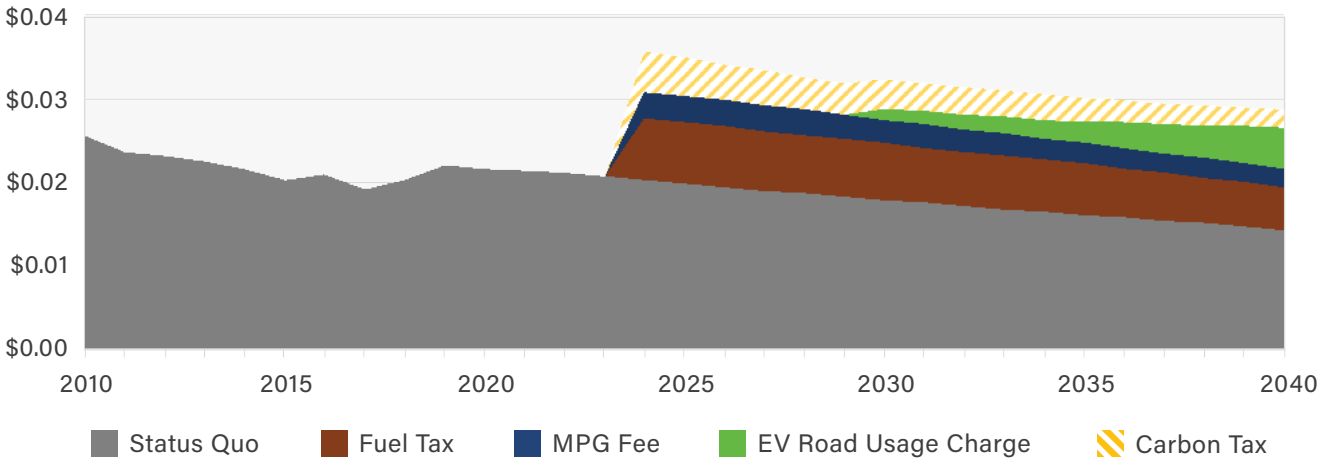


Figure 36: Scenario 3

4.8 Findings and conclusions

Findings

- Successful transportation funding initiatives from other states relied on a combination of increases to existing transportation user fees and authorization of new mechanisms so that collectively, the combination of sources generated sufficient revenue for both highway and multimodal purposes.
- In addition to each revenue mechanism's potential to provide sufficient and sustainable funding, the AWG considered other factors (as reflected in the guiding principles), including but not limited to the extent to which the tax or fee is related to system usage, whether the tax or fee is capable of aligning with Nevada's climate and environmental goals and policies, and whether the tax or fee disproportionately impact households with incomes below the federal poverty rates irrespective of transportation system usage.
- A direct tax on carbon emissions may be, in the long run, be the most effective tool for capturing the externalities caused from gas-powered vehicles. However, such an approach requires further research and consideration of how to allocate cost responsibility across all carbon emitters—not just gas-powered passenger vehicles.
- In narrowing the list of revenue mechanisms capable of providing sustainable transportation funding, a wide range of options were considered, ranging from general state taxes to taxes on automotive parts, to direct carbon taxes. The AWG found many of these options either poor fits for Nevada or not capable of generating sufficient revenue to be considered a viable source of transportation system funding.
- No single revenue mechanism proved capable of providing financially sufficient, long-term sustainable and flexible revenue for Nevada's transportation needs at reasonable rates. Therefore, the AWG finds that a few or several different sources will be required to meet Nevada's future transportation system funding needs.
- While some revenue mechanisms performed well relative to the quantitative and qualitative criteria reflected in the AWG's guiding principles, the following were found to be better suited as revenue options for local governments: street utility fees, cordon or areawide charges, rideshare surcharges, and land use impact fees.
- Nevada's statewide gasoline excise tax is currently 23.8 cents per gallon and has not been increased in 30 years. The lack of periodic adjustments to the statewide portion of the per-gallon tax, either by the legislature or through smaller automatic increases tied to construction costs, has impaired the ability of this revenue source to fund a growing backlog of projects.
- Vehicle registration fees are an important contributor to the State Highway Fund, providing approximately 37% of its funding over the past decade. Like the state gas tax, these fees are not indexed to inflation and have lost purchasing power over time. Raising these fees may be appropriate to generate some level of funding for the State Highway Fund, but the level of increases must take into account the disproportionate impact they have on fixed-income and low-income households.

- The GST revenue is tied to the value of vehicles, so as the price of new vehicles increases, the GST generates proportionately more revenue. One advantage of the GST is that it tends to keep pace with inflation and therefore is a more sustainable revenue source for the long term.
- As a transportation funding source, the GST is flexible—the state constitution does not restrict GST expenditures solely to highways. However, because of this flexibility, the GST is heavily relied upon by other state and local agencies to fund a wide range of government programs—not just transportation.
- While the GST currently provides funding for state transportation programs, these funding levels can vary greatly from year to year based on legislative priorities, making the revenue source inherently less reliable for long-term financial planning.
- As of July 2022, 30 states impose some form of an annual vehicle registration surcharge on EVs because owners of EVs do not pay federal, state, or local gas taxes. The amount of these fees range from a low of $50 to a high of $225. As an alternative to flat-rate annual registration surcharges, three states have enacted mileage-based fees for EVs. The advantage of mileage-based fees is that the amount vehicle owners pay varies based on actual roadway usage.
- Thirty-nine states have studied or pilot tested road usage charging as a way to fund transportation in the future, while three states (Oregon, Utah, and Virginia) have enacted and implemented such programs.
- The AWG examined other potential sources of flexible, sustainable transportation funding. A fixed fee to be paid by sellers of goods delivered to consumers was specifically examined as a new transportation funding mechanism. To date, only one state has imposed such a fee, and several questions and unresolved issues remain about whether this revenue mechanism is a viable option for Nevada.
- Options for increasing private sector involvement in funding transportation improvements were also discussed and considered by the AWG. Because of the magnitude of transportation funding needs across the state, partnerships with private businesses are unlikely to provide significant financial contributions to the State Highway Fund. However, transportation agencies may be able to capture emerging opportunities to partner with the private sector and leverage new technologies to improve system performance or to provide more limited matching funds on a project-by-project basis.

Conclusions

- Nevada faces both a near-term and a long-term transportation funding problem. The recommendations to the legislature should differentiate between the two, as the causes, potential approaches, and timing to address each differ.

- In developing a mix of sustainable transportation revenue sources, at least one state funding mechanism should be flexible enough to provide direct distributions to transit agencies to supplement local revenue sources as a means of ensuring essential operating services are maintained.

- A revenue mechanism capable of reflecting *direct usage* of the roadways—a RUC—is the most promising long-term, sustainable approach for eventually replacing the gas tax. However, several operational details require further consideration before a RUC can be implemented as a broad-scale future successor to the gas tax, and over time, the legislature would need to make policy choices regarding rate setting by vehicle type.

- To address the more immediate, near-term need for funding, Nevada should rely on established tax and fee mechanisms to generate more revenue, primarily by raising rates of existing taxes and fees. Adjustments to or extensions of existing revenue mechanisms require less systems development time and staff training or agencies that must administer transportation taxes and fees.

5.0 Recommendations

5.0 Recommendations to the Nevada Legislature

Each prior section of this report includes findings and conclusions. Findings constitute factual statements based on information or data the AWG considers relevant and important for assessing transportation funding options. Conclusions represent the AWG's collective interpretation and judgment related to the findings.

Drawing on the findings and conclusions, the recommendations detailed in this section represent the AWG's consensus on a course of action that the Nevada Legislature should consider, with important conditions or limitations noted. For context, a summary of the AWG's reasoning and considerations raised during deliberations accompanies each recommendation. In addition, to provide the Nevada Legislature with the full range of perspectives for each recommendation, where differences of opinion remain, these views are noted along with an explanation of the stated reasons for the divergent viewpoint.

The recommendations in Section 5.1 represent a framework for funding that can sustain Nevada's *long-term* future transportation needs. Section 5.2 recommends a framework of funding mechanisms best suited to address Nevada's *near-term* backlog of transportation projects, services, and priorities. Rate tables showing the revenue potential for each identified revenue mechanism accompany recommendations in Sections 5.1 and 5.2 as a finding. The AWG did not recommend specific rates of increase for any one mechanism. Instead, the recommendations collectively represent a framework for near- and long-term funding that carry consensus support of the AWG and that are capable of generating a level of funding to meet current and future needs.

Section 5.3 includes a summary of the AWG's deliberations on the need for a deeper examination of land-use regulations that impact a wide range of public issues, including transportation, housing, resource management, and economic development. Ultimately, the AWG could not coalesce around a recommendation on this topic. Finally, Section 5.4 recommends that NDOT and local agencies assess their system needs and regularly report this information to elected officials and the public. This section also includes the AWG's views on important timing considerations for enacting any new statewide revenue measures and the need for the Nevada Legislature to provide additional tools to enable local governments to fund their transportation systems.

5.1 Recommendations for sustainable transportation revenue mechanisms

Recommendation 1

Nevada should institute a mileage-based charge to capture road usage by zero-emission vehicles (ZEVs), while setting the stage for a future transition away from the gas tax.

Final vote: 19 in favor, 6 opposed.

While developing a mileage-based RUC, Nevada should enact a special registration fee on ZEVs, collected at the time of vehicle registration renewal. The amount of the fee should be proportionate to the amount an average ZEV uses public roadways.

The mileage-based RUC for ZEVs should offer drivers a choice between a charge based on actual miles traveled by the vehicle or a fixed annual fee allowing unlimited driving during the year. The fixed annual fee should be set higher than the equivalent mileage-based charge for an average ZEV.

An initial mileage-based RUC should build upon state law requiring vehicle owners to report odometer readings to the DMV during registration renewals. Final effective dates for implementing a mileage-based RUC for ZEVs should be aligned with DMV's ongoing information technology system modernization effort.

Recommendation 2

Because revenue from the gas tax is declining as vehicles become more fuel efficient and operate on electricity or other alternative fuels, the Nevada Legislature should replace the fuel tax with a per-mile RUC on all new vehicles by 2035.

Final vote: 22 in favor, 2 opposed.

Discussion

There is strong support among AWG members for the concept of a mileage-based charge for ZEVs in the near term and for a long-term, phased transition to a mileage-based charge for all vehicles to fund transportation. While there is broad agreement on features of an initial implementation phase for a mileage-based charge for ZEVs (including a flat annual fee on ZEVs during a developmental phase of this new system), there are more divergent ideas for various features of a RUC policy beyond the initial phase. The AWG agreed any future RUC system must be designed to avoid "double taxation" (i.e., so that drivers do not owe both a RUC and the gas tax) and that the system be designed with privacy measures aimed at protecting personally identifiable information (PII) from unwarranted intrusion. Several members encouraged the State of Nevada to pursue federal funding opportunities to further explore, test, and communicate with the public about a future RUC; other members felt including this directive to pursue federal funding could send mixed messages to the Nevada Legislature about the urgency of moving forward now to develop sustainable transportation funding mechanisms. While supportive of the recommendation, a couple of members want more clarity around whether local governments that currently rely on fuel tax revenue would also benefit from a future transition to a mileage-based RUC.

The AWG wanted to provide the Nevada Legislature with some degree of specificity regarding the time frames for each phase of development for a sustainable transportation revenue system. Although new federal CAFE standards requiring fleet-wide fuel economy of new vehicles to average 49 MPG to take effect beginning with model year 2026 vehicles, the AWG recognizes that more development time is likely needed—particularly for Nevada DMV, because the agency is expected to play an important role in administering a future mileage-based system. However, given the regulatory deadlines set by the federal government and a growing number of states to transition the passenger vehicle fleet to ZEVs, along with vehicle manufacturers' commitment to meeting these goals, the AWG believes Nevada must have an alternative to the state's fuel tax ready for new vehicles no later than 2035.

The director of the Nevada DMV has concerns about the staff workload, agency costs, and system adjustments required to administer a per-mile charge. One member representing environmental interests made clear that their further support for a mileage-based RUC may hinge on the specific rates proposed for different classes of light-duty vehicles, especially for fuel-efficient vehicles. Other members raised the possibility of applying different rates based on vehicle weight.

Differing views

Some members have doubts whether a per-mile charge system is capable of becoming operationally efficient at collecting transportation revenue, even when deployed at scale, and instead prefer a system that collects a fee based on kilowatt hours of electricity dispensed at EV charging stations at rates calibrated to match the rates per unit of energy of other motor fuels (e.g., diesel). Another member preferred the NRDC-proposed concept of a mileage-based charge where the per-mile rates vary based on a vehicle's carbon emissions, with owners of the most fuel-efficient vehicles paying the lowest rate and owners of the least fuel-efficient vehicles paying higher rates.

Findings accompanying Recommendations 1 and 2

The tables below summarize revenue potential from RUC.

Table 12: Implement a mileage-based road usage charge on electric vehicles in 2025

Rate per mile	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-year total
0.6 cent	$3.4	$4.4	$5.5	$6.8	$8.3	$10.2	$12.4	$15.1	$18.3	$22.1	$106.4
1 cent	$5.7	$7.3	$9.1	$11.3	$13.9	$17.0	$20.7	$25.2	$30.5	$36.8	$177.4
1.5 cents	$8.6	$10.9	$13.6	$16.9	$20.8	$25.5	$31.1	$37.7	$45.7	$55.2	$266.0
2 cents	$11.5	$14.5	$18.2	$22.5	$27.7	$34.0	$41.4	$50.3	$60.9	$73.7	$354.7
2.5 cents	$14.4	$18.2	$22.7	$28.2	$34.7	$42.5	$51.8	$62.9	$76.2	$92.1	$443.4

Table 13: Implement a mileage-based road usage charge on all vehicles beginning in 2035

Rate per mile	2035	2036	2037	2038	2039	2040	6-year total
0.6 cent	$215.5	$222.2	$229.1	$236.2	$243.5	$251.0	$2,196.7
1 cent	$362.2	$373.4	$385.0	$396.9	$409.2	$421.9	$3,691.8
1.5 cents	$543.3	$560.1	$577.5	$595.4	$613.9	$632.9	$5,537.8
2 cents	$724.4	$746.9	$770.0	$793.9	$818.5	$843.9	$7,383.7
2.5 cents	$905.5	$933.6	$962.5	$992.3	$1,023.1	$1,054.8	$9,229.6

5.2 Transportation revenue sources best suited to address immediate funding needs

Recommendation 3

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Nevada Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

A. Increasing the uniform rate of the state fuel excise taxes (gasoline and special fuels).

B. Indexing the portion of state and federal fuel taxes not already indexed (outside of Clark and Washoe Counties) to keep pace with construction cost increases over time, while limiting increases to a 10-year rolling average of the Producer Price Index for Highway and Street Construction, with a maximum annual cap on inflationary adjustments.

C. Enabling county commissions to enact inflation adjustments to the county's portion of fuel taxes, with the same indexing formula and limitations as statewide fuel taxes.

D. Increasing vehicle registration fees to provide modest revenue for highway purposes.

E. Directing 100% of the state portion of the governmental services tax (GST) to the State Highway Fund.

3A. Final vote: 15 in favor, 7 opposed.

3B. Final vote: 22 in favor, 1 opposed.

3C. Final vote: 19 in favor, 3 opposed.

3D. Final vote: 22 in favor, none opposed.

3E. Final vote: 18 in favor, 4 opposed.

Discussion

After examining more than 25 potential transportation revenue mechanisms, the AWG determined that the best options for addressing immediate funding needs are to tap existing revenue sources that are already being collected and require little development time. Recommended sources 3A through 3E above were found to have performed best relative to the AWG-adopted Guiding Principles (Section 4.4 of this report).

Although Recommendations 3A through 3E received majority support from the AWG, differences of opinion remain whether the Nevada Legislature should take immediate action to increase one or more of these revenue sources or whether such action should wait until certain economic conditions (especially inflation and gasoline prices) improve. Given that the primary legislative directive to the AWG was to investigate the suitability of various transportation funding *mechanisms*—that is, the specific methods for raising revenue—rather than developing proposed tax and fee increases for legislative action in 2023, the final adopted Recommendation 3 defers to the Nevada Legislature on the specific timing for any increases.

Indexing fuel taxes received broad support, as members felt that legislators and county commissioners ought to be (or already are) empowered to approve county fuel tax indexing by majority vote of the governing body, particularly in counties where the voters have already approved fuel revenue indexing ballot measures.

Raising vehicle registration fees was also broadly supported but with noted caveats. One member urged that any increase in vehicle registration fees be modest, because flat-rate fees paid by all drivers without regard to vehicle value or income will disproportionately affect low-income households. AWG members all agreed with this caveat and have included language in their Recommendation 3D recognizing the need for moderation.

There was strong support for Recommendation 3E to direct the state's portion of GST revenue to be deposited into the State Highway Fund and not be subject to legislative reappropriation to the state's general fund (i.e., used for non-transportation purposes).

In evaluating dozens of potential transportation funding mechanisms against both quantitative and qualitative criteria driven by the guiding principles (Section 4.4 and Appendix A), several revenue mechanisms ranked highly but were ultimately found to be better potential transportation revenue sources for local governments. The main feature that distinguishes these mechanisms from those recommended for state-level funding is their ability to impact land use and travel patterns at the local level. Street utility fees, cordon or areawide charges, rideshare surcharges, and land-use impact fees were all found best suited for local governments. The AWG concluded that these (and potentially other) revenue mechanisms are important tools for local transportation revenue and system management, and the Nevada Legislature should enable local governments to shape and enact these revenue mechanisms to best fit their community needs.

Differing views

Although viewing fuel tax increases as a feasible revenue-raising mechanism, several members were opposed to any recommendation that might be construed as proposing such increases in the 2023 legislative session. Three AWG members were opposed to commission approval of fuel tax indexing without a public vote, preferring instead the same process used in 2014 for approving a countywide fuel revenue indexing proposal. Four members were not in favor of redirecting GST revenue that is currently being used for other state government purposes to bolster the State Highway Fund.

Findings accompanying Recommendation 3

The tables below summarize revenue potential from each of the mechanisms suggested as most viable for near-term funding.

Table 14: Increase per-gallon excise tax rate of gasoline and diesel taxes (A)

Rate increase	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-year total
1 cent	$14.0	$14.0	$14.0	$14.0	$14.0	$14.1	$14.1	$14.2	$14.3	$14.3	$141.1
2 cents	$28.0	$28.0	$28.0	$28.0	$28.1	$28.2	$28.3	$28.4	$28.5	$28.7	$282.1
3 cents	$41.9	$41.9	$42.0	$42.0	$42.1	$42.3	$42.4	$42.6	$42.8	$43.0	$423.2
4 cents	$55.9	$55.9	$56.0	$56.1	$56.2	$56.4	$56.6	$56.8	$57.1	$57.4	$564.2
5 cents	$69.9	$69.9	$70.0	$70.1	$70.2	$70.4	$70.7	$71.0	$71.4	$71.7	$705.3
6 cents	$83.9	$83.9	$83.9	$84.1	$84.3	$84.5	$84.9	$85.2	$85.6	$86.1	$846.3
7 cents	$97.9	$97.9	$97.9	$98.1	$98.3	$98.6	$99.0	$99.4	$99.9	$100.4	$987.4
8 cents	$111.8	$111.8	$111.9	$112.1	$112.4	$112.7	$113.1	$113.6	$114.2	$114.8	$1,128.4
9 cents	$125.8	$125.8	$125.9	$126.1	$126.4	$126.8	$127.3	$127.8	$128.4	$129.1	$1,269.5
10 cents	$139.8	$139.8	$139.9	$140.1	$140.4	$140.9	$141.4	$142.0	$142.7	$143.5	$1,410.5
15 cents	$209.7	$209.7	$209.9	$210.2	$210.7	$211.3	$212.1	$213.0	$214.1	$215.2	$2,115.7
20 cents	$279.6	$279.6	$279.8	$280.2	$280.9	$281.8	$282.8	$284.0	$285.4	$286.9	$2,821.0

Table 15: Index portion of fuel taxes not already indexed
(state and federal taxes outside of Clark and Washoe Counties) (B)

Inflation rate	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-year total
2%	$2.8	$9.6	$14.6	$19.6	$24.9	$30.2	$35.8	$41.4	$47.3	$53.4	$281.5

Table 16: Increase vehicle registration fees (D)

Rate increase	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-year total
$10	$25.4	$26.0	$26.7	$27.4	$28.1	$28.9	$29.6	$30.4	$31.2	$32.0	$285.6
$20	$50.8	$52.1	$53.4	$54.8	$56.2	$57.7	$59.2	$60.7	$62.3	$63.9	$571.2
$30	$76.1	$78.1	$80.1	$82.2	$84.4	$86.6	$88.8	$91.1	$93.5	$95.9	$856.8
$42	$106.6	$109.4	$112.2	$115.1	$118.1	$121.2	$124.3	$127.6	$130.9	$134.3	$1,199.6

Table 17: Increase governmental services tax (E)

Effective rate increase	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	10-year total
0.05%	$47.2	$49.6	$52.2	$54.9	$57.7	$60.7	$63.8	$67.1	$70.6	$74.2	$597.8
0.10%	$94.3	$99.2	$104.3	$109.7	$115.4	$121.3	$127.6	$134.2	$141.1	$148.4	$1,195.7
0.15%	$141.5	$148.8	$156.5	$164.6	$173.1	$182.0	$191.4	$201.3	$211.7	$222.6	$1,793.5
0.20%	$188.7	$198.4	$208.7	$219.4	$230.8	$242.7	$255.2	$268.4	$282.3	$296.9	$2,391.4

5.3 Land use as a means of promoting a more sustainable transportation system

Discussion

Increasing population and economic growth have significantly increased the use and consumption of land in Nevada. At the same time, the demand for transportation services has increased, placing further strain on the resources available to accommodate this growth and demand for services. Recognizing this increased demand, the Nevada Legislature asked the AWG to consider the role land use has on the demand for transportation resources.

The AWG engaged in extensive discussions about the interaction of land use and transportation policy. There was broad agreement that the two policy areas impact one another; however, there was also recognition that many other policy areas, such as water, economic development, tourism, agriculture, and more also impact land use. While some members discussed conducting a separate study that would include all relevant policy areas and their impact on land use, others expressed concern about the scope of such a study. Ultimately, after considerable discussion, the AWG was unable to reach consensus on a recommendation on how best to address the issue of land use in transportation.

5.4 The importance of timing: current economic conditions, federal regulations, zero-emission vehicle adoption, and local transportation funding measures

Factors affecting timing for action

Where possible, the AWG provides recommended time frames for legislative action on sustainable transportation funding for Nevada. While some target dates are known (for example, when new federal CAFE standards take effect), it is extremely difficult to predict with any precision when other triggering events will occur (e.g., when inflation will abate and return to historical averages).

The AWG believes that all of the factors below should be taken into consideration by the Nevada Legislature in determining when to enact transportation funding measures:

- Growing backlog of transportation infrastructure maintenance and improvement projects
- Unmet demand for transportation services that provide essential mobility
- The rate of erosion in fuel tax revenue resulting from sales of more fuel-efficient vehicles and ZEVs
- Effective dates for new federal fuel economy and motor vehicle emissions regulations
- Current economic conditions (e.g., inflation, price of gasoline)
- Timing of other regional or local transportation revenue measures that require approvals
- Research, development, testing, and public communications lead times required to implement new revenue mechanisms

As a starting point, the AWG provides an estimated time line for three phases of a gradual transition away from Nevada's dependence on fuel taxes and incorporation of a mileage-based RUC in the future.

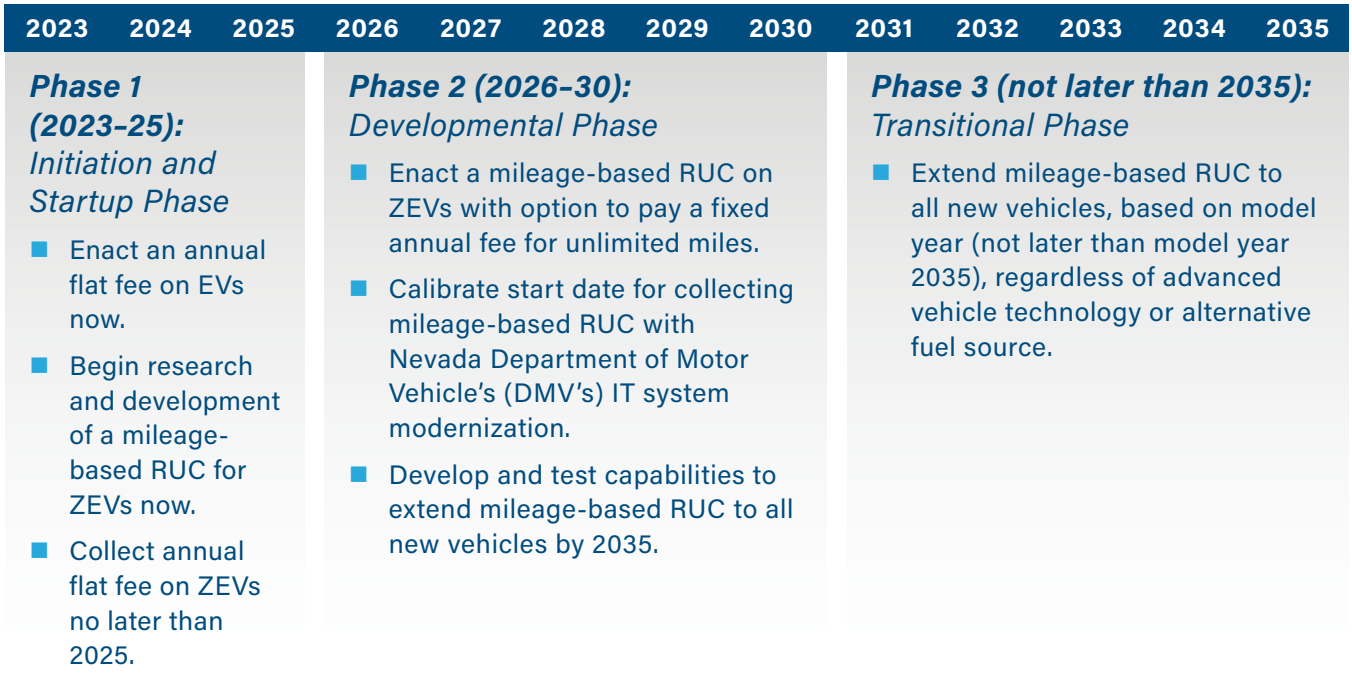


Figure 37: Phases, sequencing, and estimated timelines for action

Local funding measures and collaboration

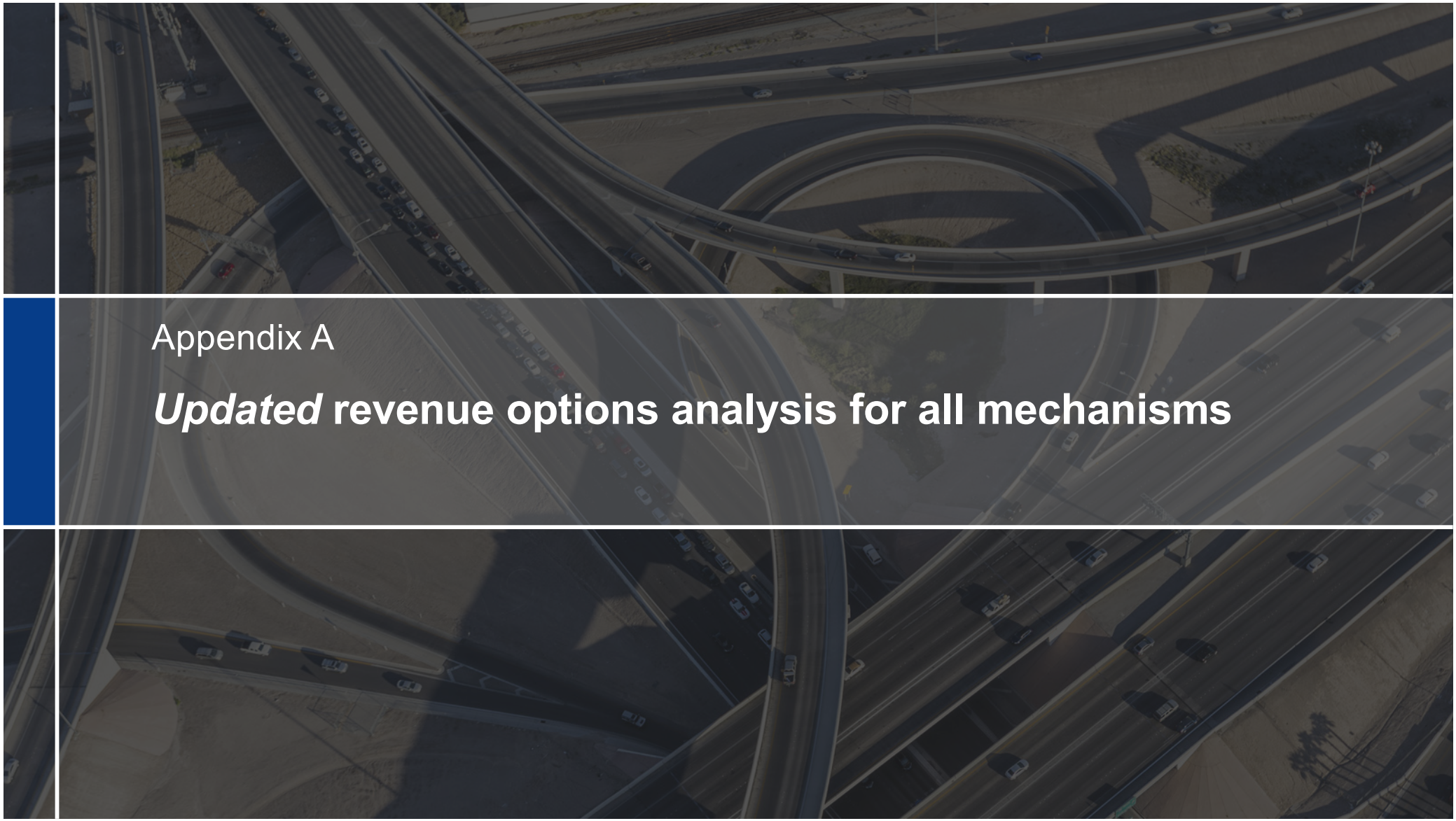
To ensure safety and mobility for all Nevadans, all transportation facilities and services must function as a seamless network, regardless of jurisdictional responsibilities. Both state and local governments should continue to work collaboratively to ensure that all components of the network—state highways, local transit operations, county and city roadways, and more—are sufficiently funded.

Recommendation 4

In collaboration with other public agencies, NDOT, MPOs, and local governments (cities and counties) should (1) conduct assessments of their current and projected transportation projects and service-level funding gaps and (2) regularly share this information with elected officials, stakeholders, and the public.

Final vote: 22 in favor, none opposed.

6.0 Appendix



Appendix A

Updated revenue options analysis for all mechanisms

GUIDING PRINCIPLES

Guiding Principles for Future Transportation Revenue Sources

Alone or in combination, transportation revenue sources should be capable of:

Financial Sustainability: Yielding sufficient revenue that correlates with ongoing maintenance needs; and demand for future transportation needs, regardless of changes in population, vehicle technologies, ownership, travel patterns, fuel sources, or consumer spending.

Sufficiency: Generating sufficient revenue over targeted investment timeframes for existing and future transportation infrastructure needs.

User Equity: Recovering a proportionate share of the costs from those who use the transportation network.

Social Equity: Improving the distributional impact on historically underserved communities and low-income households.

Flexibility: Funding a wide range of transportation-related projects, programs, or priorities across various agencies to meet the needs of system users across all modes.

Greenhouse Gas Emissions: Aligning with state transportation GHG reduction goals.

Transparency/ Efficiency and Ease of Compliance: Simple to explain, with awareness of how funds are used, cost-effective, and readily administered at statewide and local levels.

REVENUE MECHANISMS

Revenue mechanisms analyzed

Fuel taxes

1. Increase rate of flat per-gallon excise tax
2. Add inflation index to flat per-gallon excise tax rate
3. Add fuel efficiency index to flat per-gallon excise tax
4. Add sales tax based on price of fuel
5. Add variable-rate excise tax based on price of fuel

Vehicle fees

6. Increase basic license fee
7. Increase value-based rate of governmental services tax
8. Add fee based on vehicle weight
9. Add fee based on vehicle fuel economy rating
10. Add fee based on vehicle engine type
11. Add fee based on vehicle age

Usage-based fees

<u>Direct</u>

12. Add a distance-based charge for light-duty vehicles
13. Add a weight-distance-based charge for medium- and heavy-duty vehicles

<u>Indirect</u>

14. Add a tax on batteries
15. Add a tax on tires
16. Add a tax on EV electricity consumed

Other

17. Value added tax on goods movement
18. Parcel delivery fees
19. Ride-share surcharges
20. Cordon charges in urban areas
21. Carbon tax
22. Street utility fee
23. Payroll tax
24. Land use impact fees

Methodology for revenue option evaluation against the Guiding Principles

Financial Sustainability. To measure financial sustainability, we compare expected future changes in one aggregate measure of transportation demand (vehicle miles traveled, or VMT) against the expected revenue generated by each mechanism. To compare VMT with revenue, we index the value of both to 100 in the year 2021, then compare the trend through 2040. Total VMT is expected to grow statewide by 50% over that time frame, to an indexed value of 180. We compare the expected growth of each revenue mechanism to this VMT trend. Revenue mechanisms that match or exceed the pace of VMT growth are regarded as sustainable.

Sufficiency. For sufficiency, we offer two measures: (1) the tax rate required to generate $100 million in 2021 and (2) the net present value of the total revenue generated at that tax rate through 2040, using a discount rate of 4%. The tax rate offers an indication of reasonability. For example, a 9.4 cent per gallon fuel excise tax generates $100 million in 2021. Subjectively, 9.4 cents is a "reasonable" proportion of the total cost of fuel (less than 5%). By contrast, a tax of $50 per kWh of EV battery capacity would generate $100 million in 2021, which equals approximately $4,000 for a typical EV, or between 5-10% of the value of the vehicle each year. Subjectively this rate is not "reasonable," so the tax is not regarded as capable of the same level of sufficiency as the fuel tax.

User Equity. For this principle, we consider the degree to which each revenue mechanism recovers revenue from users of the transportation system and whether that recovery is equitable.

Social Equity. For this principle, we consider the degree to which each revenue mechanism impacts low-income households and/or the relative impacts of the mechanism by household income. Mechanisms which have a high impact or a high relative impact on low-income households score poorly.

Flexibility. This measure is binary. Either a revenue mechanism is subject to the state constitutional restrictions for highway spending, or it is not. Nevertheless, there are two hypothetical mechanisms for which it is unclear whether the constitutional restriction applies.

GHG Emissions. For this measure, we consider the degree to which a revenue mechanism is capable of aligning with or supporting Nevada's objective to reduce greenhouse gas emissions. For example, a tax on EV batteries could discourage adoption of such vehicles and be out of alignment with GHG reduction goals.

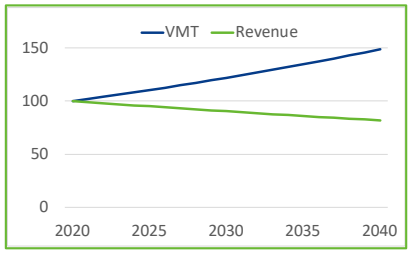
Transparency. This principle relates to the ability of taxpayers to see the revenue mechanism. We also assess the relative ability of end customers to understand the mechanisms and its personal impact on them.

Efficiency. Short of calculating the precise cost of collection of any mechanism, the evaluation offers relative assessments of the complexity of each mechanism. Existing efficient mechanisms such as excise fuel taxes score well.

Indicates Rating Change since January 2022 AWG meeting

Appendix: Updated revenue options analysis for all mechanisms

Presentation format of Guiding Principles assessment



Description of what currently exists in NV and how this mechanisms could take shape in NV.

Financial Sustainability and Sufficiency

A rate of **XXX per YYY** would generate $100 million in 2021.

This translates to a net present value of **ZZZ** over the period through 2040 at a 4% discount rate. As shown in the chart, revenue **declines | keeps pace with | increases** relative to usage as measured by VMT by an indexed value of **AA%**.

User equity
Qualitative discussion

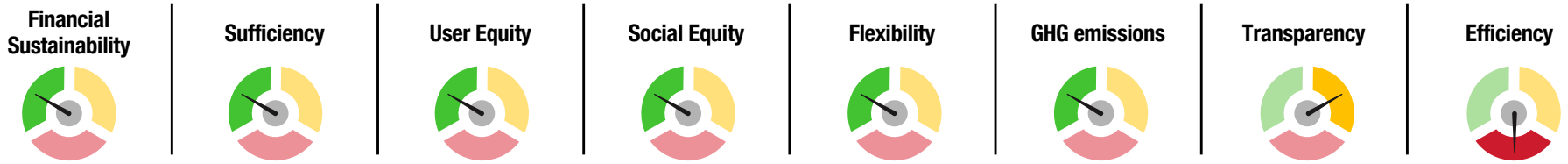
Social equity
Qualitative discussion

Flexibility
This revenue source **is | is not** subject to constitutional restrictions on spending.

GHG emissions
Qualitative discussion

Transparency
Qualitative discussion

Efficiency
Qualitative discussion

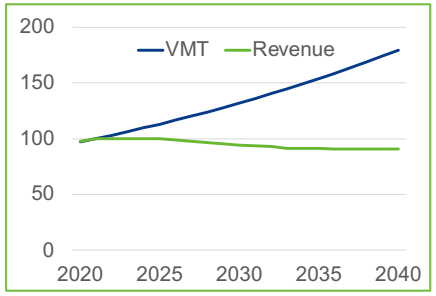


Mechanism is capable of strong alignment with guiding principle
Mechanism is capable of some alignment with guiding principle
Mechanism is poorly capable of alignment with guiding principle

Transparency rating upgraded to yellow

Appendix: Updated revenue options analysis for all mechanisms

1. Increase rate of flat per-gallon excise tax



Nevada's state fuel taxes includes 17.3 cents per gallon on gasoline and 27 cents per gallon on diesel, dedicated to the State Highway Fund. Increasing the rate of these existing per-gallon fuel excise taxes would generate additional revenue.

Financial Sustainability and Sufficiency

An additional rate of $0.072 per gallon of diesel and gasoline would generate $100 million in 2021. This translates to a net present value of $1.23 billion through 2040 at a 4% discount rate. This mechanism generates revenue that decline relative to demand for road usage, reaching 89% less in 2040.

User equity

Fuel taxes historically captured a share of revenue from users in an equitable manner. However, as the distribution of vehicle fuel economy grows, the share of contributions made through fuel taxes varies widely.

Social equity

Vehicle fuel economy increases with income. Lower-income vehicle owners bear a greater share of fuel tax increases on average, per mile driven.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

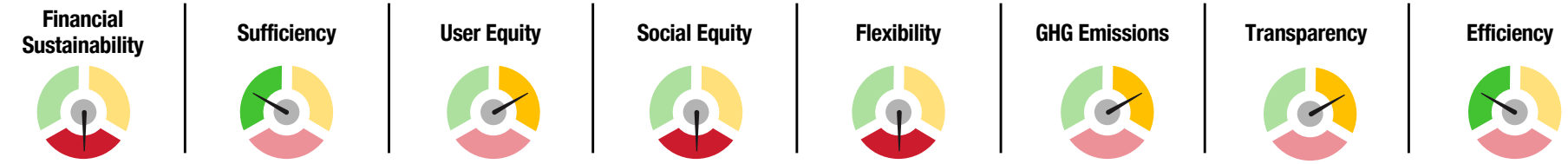
Excise fuel taxes alone historically have not significantly discouraged fuel consumption.

Transparency

While fuel taxes are invisible to end consumers, they are more apparent to commercial fleet operators due to the tax reporting requirements of these businesses.

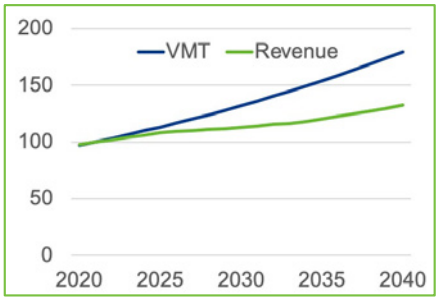
Efficiency

Fuel taxes are among the least costly to collect, with 2% of revenue going to fuel distributors and overall costs of administration less than 4%.



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

2. Add inflation index to flat per-gallon fuel excise tax rate



Although county fuel taxes contain inflation indices, Nevada's state fuel taxes do not. Adding one would increase the rate of the existing excise taxes each year to generate additional revenue.

Financial Sustainability and Sufficiency

An inflation index averaging 2% per year on top of a $0.072 per gallon excise tax would result in a rate of $0.104 per gallon by 2040. This translates to a net present value of $1.496 billion through 2040 at a 4% discount rate. This mechanism generates revenue that increases but slower than demand for road usage, reaching 47% less in 2040.

User equity

As the distribution of vehicle fuel economy increases, the share of contributions through fuel taxes changes. An inflation index shifts the share increasingly to lower MPG vehicles.

Social equity

Vehicle fuel economy increases with income. Lower-income households bear an increasing share of indexed fuel taxes per mile driven.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

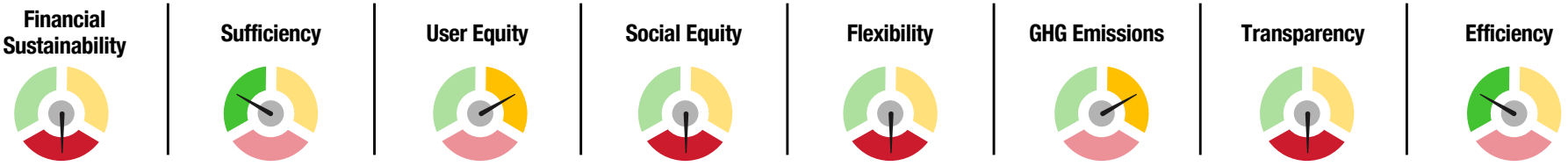
Excise fuel taxes with an inflation index historically have not significantly discouraged fuel consumption.

Transparency

Fuel taxes are invisible to end consumers.

Efficiency

Fuel taxes are among the least costly to collect, with 2% of revenue going to fuel distributors and overall costs of administration less than 4%.



Mechanism is capable of strong alignment with guiding principle
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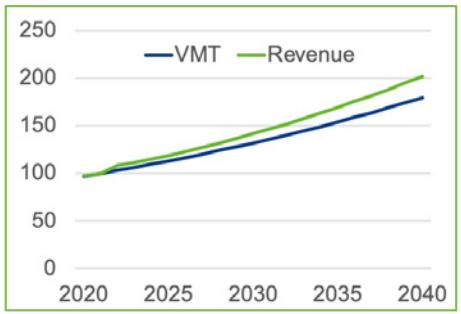
Mechanism is poorly capable of alignment with guiding principle

3. Add vehicle fuel economy index to flat per-gallon fuel excise tax rate



Georgia is the only state that currently indexes fuel taxes to vehicle efficiency. It uses 2014 as the baseline year and multiplies the excise tax by the increase in average fuel economy. Adding an index on fuel economy would increase the rate of fuel taxation along with increasing fuel economy.

Financial Sustainability and Sufficiency

A vehicle fuel economy index ranging from 3-5% per year on top of the $0.072 per gallon tax would increase the per gallon rate to $0.157 by 2040. This results in a net present value of $1.888 billion through 2040 at a 4% discount rate. Indexing fuel prices to fuel economy generates revenues faster than the demand for road usage, exceeding demand by 22% by 2040.

User equity

As the distribution of vehicle fuel economy increases, the share of contributions through fuel taxes changes. An inflation index shifts the share increasingly to lower MPG vehicles.

Social equity

Vehicle fuel economy increases with income. Lower-income households bear an increasing share of indexed fuel taxes per mile driven.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

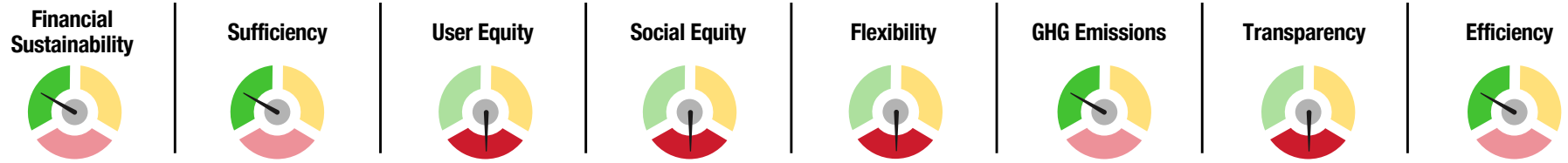
Excise fuel taxes historically have not discouraged fuel consumption. However, indexing rates to vehicle efficiency could place a sufficiently high burden on some vehicles to discourage their usage.

Transparency

Fuel taxes are invisible to end consumers.

Efficiency

Fuel taxes are among the least costly to collect, with 2% of revenue going to fuel distributors and overall costs of administration less than 4%.



Mechanism is capable of strong alignment with guiding principle
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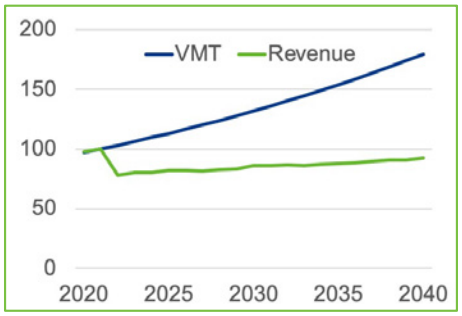
Mechanism is poorly capable of alignment with guiding principle

Efficiency rating downgraded to yellow

4. Add sales tax on the price of fuel



A sales tax applied at the point of purchase would generate additional revenue on top of a per-gallon excise tax. However, the amount generated would fluctuate with the price of fuel. There could be sharp spikes or declines as oil, and therefore gasoline and diesel prices at the pump, fluctuate.

Financial Sustainability and Sufficiency

A 2.3% sales tax on the spot price of gasoline as of December 2021 (approximately $3.07 per gallon) would generate $100 million in 2021. This translates to a net present value of $1.112 billion through 2040 at a 4% discount rate. Revenue would not keep pace with road usage, reaching 87% lower by 2040.

User equity

As the distribution of vehicle fuel economy increases, the share of contributions through fuel taxes varies. A sales tax would place a greater burden on lower MPG vehicles.

Social equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence.

Flexibility

Although excise taxes on fuel are subject to constitutional restrictions, it is unclear whether a sales tax would be subject to the same constraints, especially if it differs from the state's general sales tax rate.

GHG emissions

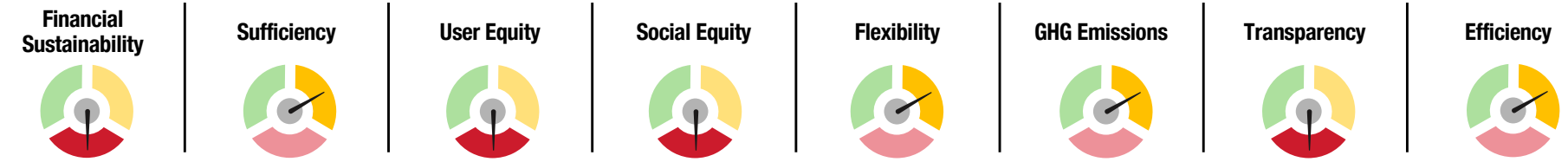
Like fuel excise taxes, sales taxes generally are not designed to be punitive or to discourage consumption of the product being taxed.

Transparency

Fuel taxes are invisible to end consumers.

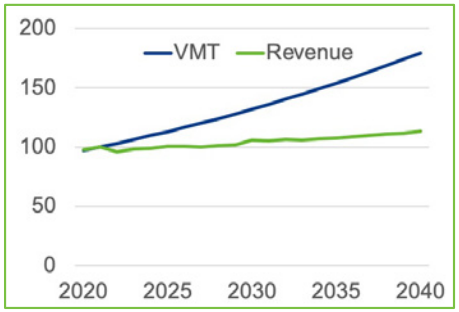
Efficiency

Fuel taxes are among the least costly to collect, with 2% of revenue going to fuel distributors and overall costs of administration less than 4%. However, when collected as a retail sales tax, several entities must collect, process and remit the tax proceeds.



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

5. Add variable-rate excise tax based on the price of fuel



A variable-rate excise tax is similar to a sales tax in that it applies to the price of fuel. However, rather than applying to the spot price, the tax is set periodically, for example yearly, based on the average price of fuel over the preceding year or the expected average price over the coming year. This approach has the effect of moderating spikes and sharp declines in revenue although they can still occur.

Financial Sustainability and Sufficiency

A 2.9% variable-rate excise tax on based on the 2021 average price of fuel of approximately $2.50 would generate $100 million in 2021. This translates to a net present value of $1.364 billion through 2040 at a 4% discount rate. Revenue would not keep pace with road usage, reaching 66% lower by 2040.

User equity

As the distribution of vehicle fuel economy increases, the share of contributions through fuel taxes varies. A variable-rate excise tax would place a greater burden on lower MPG vehicles.

Social equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence.

Flexibility

Although excise taxes on fuel are subject to constitutional restrictions, it is unclear whether a variable-rate tax would be subject to the same constraints, especially if it differs from the state's general sales tax rate.

GHG emissions

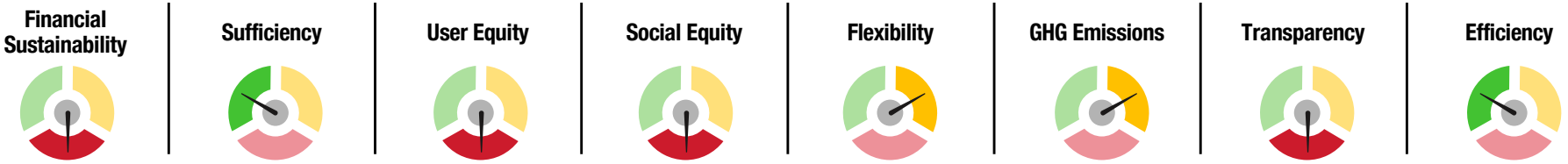
Like fuel excise taxes, variable-rate taxes generally are not designed to be punitive or to discourage consumption of the product being taxed.

Transparency

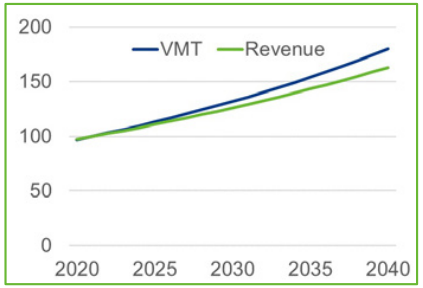
Fuel taxes are invisible to end consumers.

Efficiency

Fuel taxes are among the least costly to collect, with 2% of revenue going to fuel distributors and overall costs of administration less than 4%.



6. Increase basic vehicle registration fee for passenger vehicles



Passenger vehicles currently pay $33 per year for basic registration. A blanket fee increase for all passenger cars is a common means to collect revenue. This mechanism would not impact commercial vehicles.

Financial Sustainability and Sufficiency

A $40 additional basic registration fee per vehicle would generate $100 million in 2021. This translates to a net present value of $1.665 billion through 2040 at a 4% discount rate. The fee tracks relatively closely with the increase in road usage, with indexed revenues being 17% lower in 2040 than VMT.

User equity

The tax is somewhat equitable on a user basis since it falls evenly on all vehicles; however, it does not consider *usage.*

Social equity

Since the rate is fixed across all vehicles the incidence falls heaviest on those with the lowest incomes.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

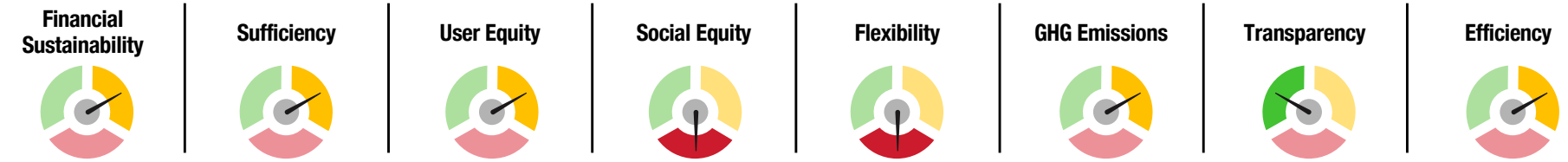
An increase in the basic vehicle license fee would not have an impact on GHG emissions since it does not vary with fuel consumption.

Transparency

Flat licensing fees are transparent and easy to understand since the fee is paid directly by customers.

Efficiency

Assessing a license fee is costlier than the fuel tax since it requires individual transactions. However, since it occurs as part of the existing vehicle registration process, the marginal cost includes transaction costs (credit card fees of about 3%).



Mechanism is capable of strong alignment with guiding principle
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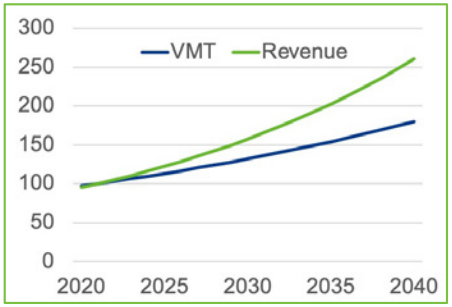
Mechanism is poorly capable of alignment with guiding principle

7. Increase vehicle value-based rate of governmental services tax (GST)



Nevada assesses a value-based "governmental services tax" on vehicles at 4% of the DMV Valuation, which is 35% of the manufacturer's suggested retail price (MSRP). Statutes provide a depreciation schedule based on vehicle age. The amount of revenue generated could be increased by increasing the tax rate, increasing the DMV Valuation percentage, or reducing the depreciation schedule.

Financial Sustainability and Sufficiency

The current GST is about 0.7% of the value of the entire state vehicle fleet. Increasing that to 0.82% would generate $100 million in 2021 and a net present value of $2.129 billion through 2040 at a 4% discount rate. This mechanism increases revenue faster than road usage, reaching 81% higher by 2040.

User equity

Value-based vehicle taxes capture revenue from users of the system, but do not correlate to system usage.

Social equity

Vehicle value-based taxes tend to perform well along lines of social equity since lower-income households tend to own older (therefore more depreciated) vehicles and lower-value vehicles.

Flexibility

This revenue source is not subject to constitutional restrictions on spending. Currently the vast majority is dedicated to uses other than transportation spending.

GHG emissions

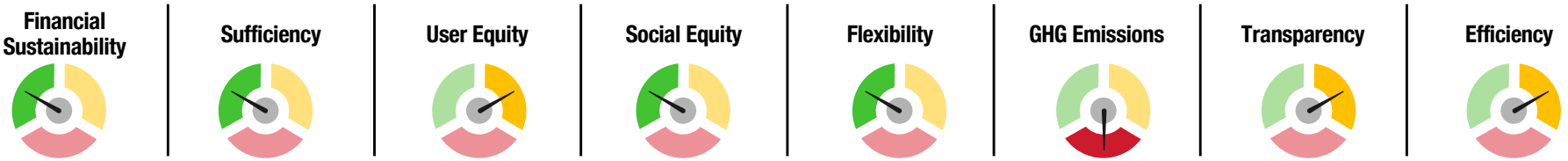
Zero-emission vehicles tend to be newer and more costly than other vehicles. Value-based taxes will result in higher tax incidence on owners and purchasers of such vehicles.

Transparency

Although transparent, the method of calculating vehicle value can be difficult to explain, resulting in questions and complaints from customers.

Efficiency

Assessing a vehicle value-based license fee is costlier than the fuel tax since it requires individual transactions. However, since it occurs as part of the existing vehicle registration process, the marginal cost includes transaction costs (credit card fees of about 3%).



Mechanism is capable of strong alignment with guiding principle
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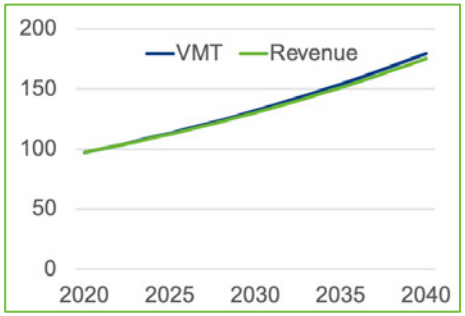
Mechanism is poorly capable of alignment with guiding principle

8. Add fee based on vehicle weight



Nevada assesses a weight-based registration fee on vehicles ranging from $33 to vehicles under 6,000 pounds to $1,360 for the heaviest vehicles. Increasing the schedule of weight-based fees on vehicles over 10,000 pounds would generate additional revenue.

Financial Sustainability and Sufficiency

Although difficult to estimate precise revenues from weight fees, it is estimated that an across-the-board rate increase of about 30% would yield $100 million in revenues in 2021. Assuming an annual growth rate of 3%, this would generate a net present value of about $1.727 billion through 2040 and would nearly track with road usage.

User equity

Weight-based registration fees directly assess users of the system. Since weight is a factor in road usage costs, weight-based fees better capture user costs than flat fees or value-based taxes.

Social equity

Typically heavier commercial vehicles bear the largest share of weight-based registration fees. These costs are passed on to end consumers in the form of higher prices.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

Zero-emission vehicles tend to weigh more than gasoline counterparts due to the weight of batteries, and would therefore bear a higher share of costs.

Transparency

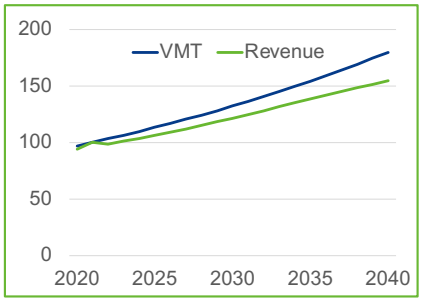
Weight-based fees are transparent and easy to understand since they are paid directly by customers.

Efficiency

Assessing a weight-based license fee is costlier than the fuel tax since it requires individual transactions. However, since it occurs as part of the existing vehicle registration process, the marginal cost includes transaction costs (credit card fees of about 3%).

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

9. Add fee based on vehicle fuel economy rating



This type of fee assesses a higher rate on vehicles with a higher EPA-rated miles per gallon. The fee can be coarse, with higher fees for vehicles in a range of MPG ratings, or fine, with a graduated rate for each increment of MPG. Where implemented this fee intends to work in conjunction with fuel taxes.

Financial Sustainability and Sufficiency

Assessing a fee of $30 for vehicles rated at less that 20 MPG, $40 for 20-29 MPG, $50 for 30-39 MPG, $60 for 40-59 MPG, and $100 for vehicles over 100 MPG would generate $100 million in 2021 and a net present value of $1.600 billion through 2040 when discounted at 4%. This mechanism lags VMT by 25% in 2040.

User equity

Alone this form of registration fee results in disparate contributions based on a vehicle factor that has nothing to do with roadway usage or impacts. However, in conjunction with a fuel tax, this type of fee can counteract revenue axes losses among vehicles that are not contributing through fuel taxation.

Social equity

Since more efficient vehicles are typically new, this fee would be somewhat progressive in its incidence.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

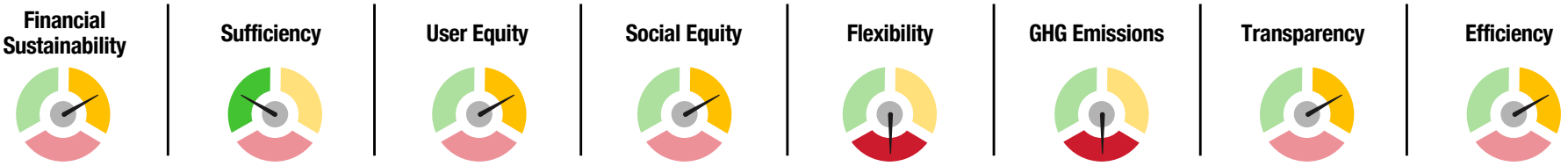
By itself, this mechanism creates a small but clear disincentive to adoption of cleaner vehicles.

Transparency

Although transparent to the end customer, the method of determining MPG can be difficult to explain and individual results vary widely from EPA ratings, resulting in questions and complaints from customers.

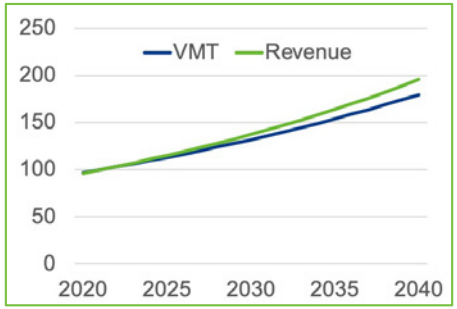
Efficiency

Assessing an MPG-based fee could occur as part of the existing vehicle registration process, but in addition to transaction costs (credit card fees of about 3%), it would require DMV to determine MPG of each vehicle, data which is not readily available for all makes and models.



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

10. Add fee based on vehicle engine type



Nearly 30 states have enacted annual registration surcharges on electric and/or hybrid vehicles to counteract the impact of increasing adoption of such vehicles on fuel tax revenues. Nevada could enact a similar fee based on engine type, namely a surcharge on electric vehicles.

Financial Sustainability and Sufficiency

Charging $100 for EVs would generate very little revenue in 2021 given the small population of EVs currently. A $100 surcharge on EVs coupled with a $39.13 surcharge on all other passenger vehicles would generate $100 million in 2021 and $1.870 billion through 2040, discounted at 4%. Revenue outpaces VMT by 43% in 2040.

User equity

The tax is somewhat equitable since it increases costs for vehicles with the lowest operating expenses.

Social equity

Since more EVs are typically newer, this fee would be somewhat progressive in its incidence.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

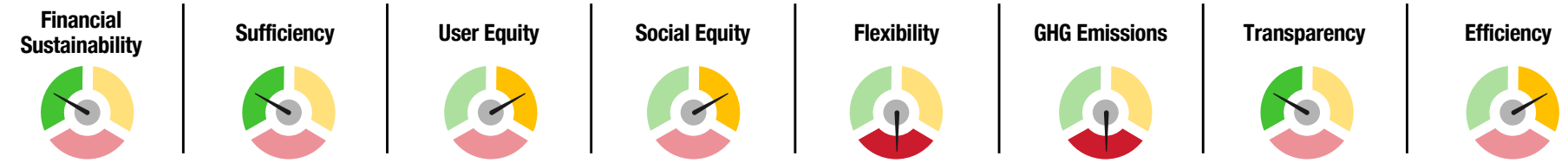
Charging an increasing rate base upon a vehicle's efficiency would disincentivize EV adoption, increasing GHG emissions.

Transparency

Licensing fees are transparent since the fee is paid directly.

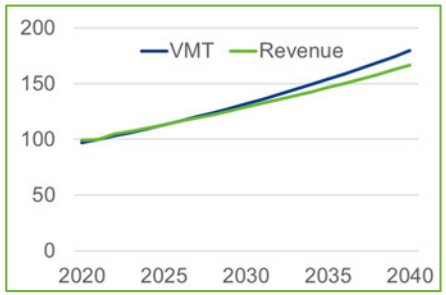
Efficiency

Assessing an engine type-based surcharge requires accurate collection of engine type data, but otherwise the cost is modest, amounting to additional transaction costs (e.g., credit card fees approximately 3%).



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

11. Add fee based on vehicle age



An age-based registration fee involves creating a schedule of fees that varies by vehicle age, with older vehicles paying less than newer vehicles.

Financial Sustainability and Sufficiency

Assessing a fee of $55 for vehicle less than 5 years old, $45 for vehicles between 5 and 10, $35 for vehicles 10 to 15, $25 for vehicles 15-20 and $15 for vehicles greater than 20 years of age would generate $100 million in 2021 and $1.702 billion through 2040 when discounted at 4%. Revenue nearly tracks with road usage, reaching 13% less than VMT in 2040.

User equity

The tax is has no direct relationship to road usage. However, new vehicles in general tend to be driven more than older vehicles, and the fee would be generated from road users.

Social equity

Since the fee decreases with vehicle age, the incidence would fall less on owners of older vehicles, which tend to be lower-income households.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

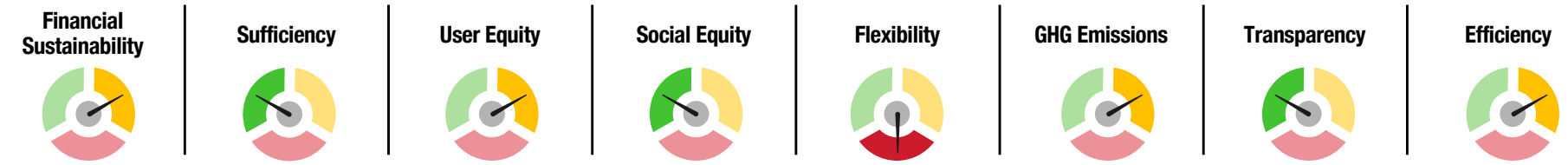
The fee would fall more heavily on newer vehicles which tend to be more fuel-efficient, electric and zero-emission vehicles. However, the difference in cost among vehicles could be modest as in the example rate schedule..

Transparency

Age-based fees are visible to end customers and straightforward to understand.

Efficiency

The marginal cost of an age-based registration fee is modest, on par with other vehicle registration surcharges given the need only to effect additional transaction costs at the time of registration.



Mechanism is capable of strong alignment with guiding principle
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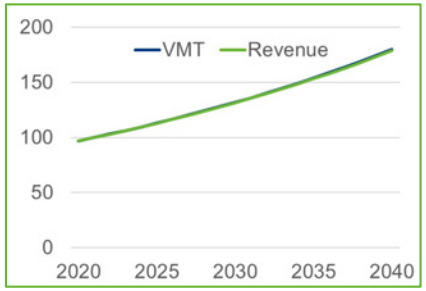
Mechanism is poorly capable of alignment with guiding principle

GHG emissions rating downgraded to yellow

Appendix: Updated revenue options analysis for all mechanisms

12. Road usage charge (RUC) for light vehicles



RUC assesses a fee based on distance traveled on the road network by light-duty vehicles. There are many methods of collecting distance traveled data and setting rates, which can vary by vehicle or owner characteristics.

Financial Sustainability and Sufficiency

A $0.004 per mile RUC would generate $100 million in 2021. This generates $1.744 billion in net present value through 2040 at a 4% discount rate. A RUC keeps pace with increases in VMT over the period since it is a direct function of VMT.

User equity

RUC assesses all road users directly and in proportion to their consumption.

Social equity

RUC falls equally on all users per mile driven; therefore, the incidence is proportionally greater on lower income households. However, total miles driven increases with income, so the total burden falls more on higher-income households.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

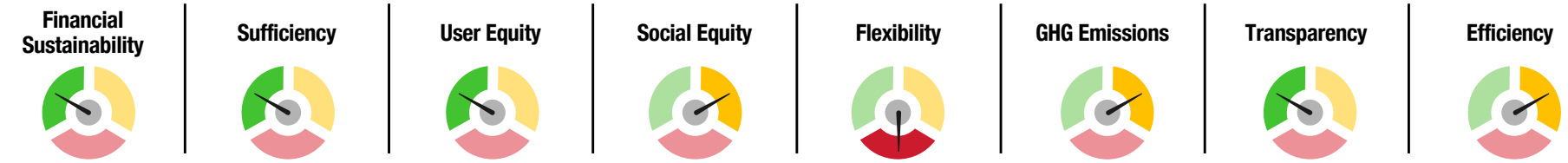
RUC in its most basic form falls equally on all vehicles regardless of efficiency and is a modest fee. Its capable of aligning more directly by varying rates based on emissions. However, the three states with RUC have not taken this approach.

Transparency

RUC is visible and simple to understand since it shows the amount charged and total miles driven, paid by end customers directly.

Efficiency

DMV collects annual miles driven data. A low-cost method of assessment would be to collect payment at the time of registration, which would incur additional transaction costs. Other methods of collecting mileage data are more costly.

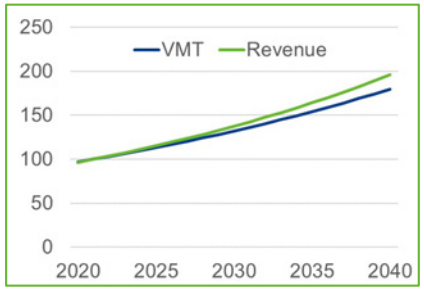


Mechanism is capable of strong alignment with guiding principle
Mechanism is capable of some alignment with guiding principle
Mechanism is poorly capable of alignment with guiding principle

GHG emissions rating downgraded to yellow

Appendix: Updated revenue options analysis for all mechanisms

13. Weight-distance tax for heavy vehicles



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.

Financial Sustainability and Sufficiency

A blended average rate of $0.061 per mile would generate $100 million in 2021. Through 2040 a weight-distance tax would generate $1.829 billion in net present value at a 4% discount rate. A weight-distance tax outpaces total VMT by 16% by 2040, because truck VMT are expected to grow faster than light-duty VMT.

User equity

A weight-distance tax can assess vehicles directly and proportionally to the costs imposed on the road system based on axle-weight.

Social equity

A weight-distance tax is largely passed through to all consumers via increased shipping prices.

Flexibility

This revenue source is subject to constitutional restrictions on spending.

GHG emissions

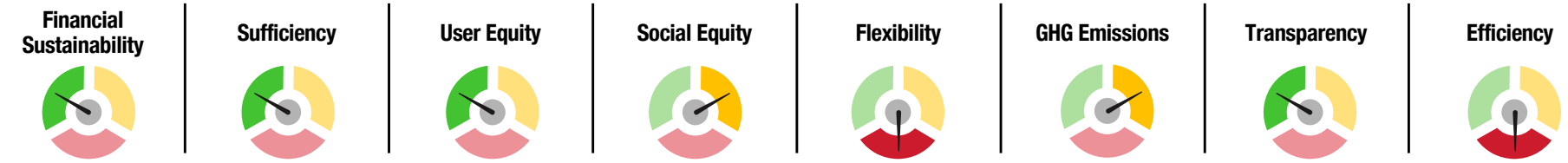
A weight-distance tax could result in optimizing miles traveled at declared weights, thereby lowering truck emissions. However, reconfiguring loads is not a common practice so this may prove difficult.

Transparency

A weight-distance tax is visible and easy to understand since it shows the amount charged and total miles driven, paid by fleets directly.

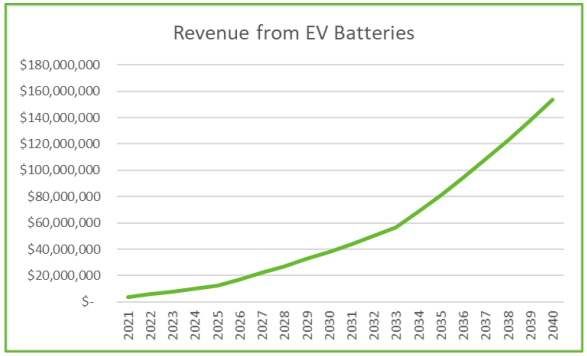
Efficiency

Although trucks already report miles traveled for IFTA and IRP, declaring and reporting weight and axle-counts adds complexity and cost for tax reporting and enforcement.



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

14. Electric vehicle battery taxes



Imposing an annual fee on battery size has limited revenue potential due to the reasonableness of rates. To raise significant revenues initially, the rates would be so high as to make owning an EV prohibitively expensive for most.

Financial Sustainability and Sufficiency

Assuming a rate of $2 per kWh of vehicle battery capacity and a battery size of 75 kWh, a battery fee assessed annually would generate approximately $4 million in 2021. Through 2040, a battery fee at this rate would generate $635 million in NPV at a 4% discount rate.

User equity

The fee increasing with larger batteries would mean owners who drive larger vehicles or need greater range would pay more, resulting in heavier road users paying more.

Social equity

The incidence of a battery fee would fall heaviest on high income households due to EVs high costs and current dominance by luxury brands.

Flexibility

The revenue is likely not subject to constitutional limits on its use.

GHG emissions

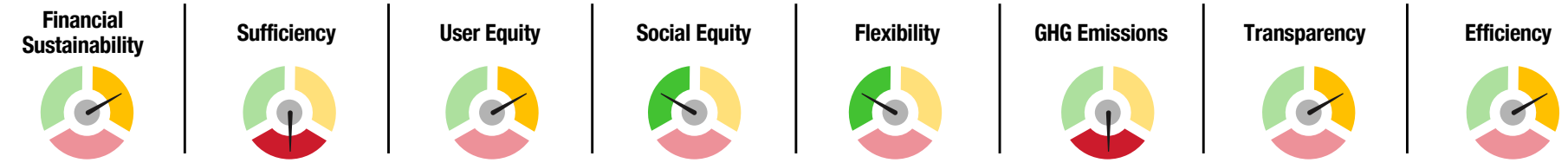
A fee on batteries would likely increase GHG emissions by making the purchase and operation of EVs less economical.

Transparency

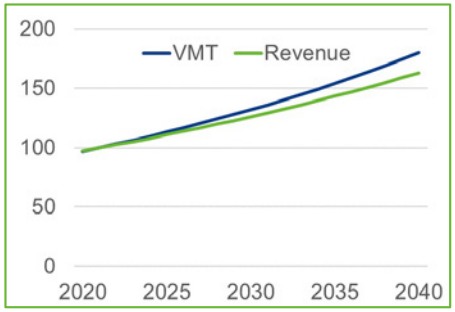
Age-based fees would be visible to end customers and straightforward to understand.

Efficiency

A battery fee assessed annually could be collected as part of the vehicle registration process, thus incurring additional transaction costs. However, it would also require DMV to determine battery capacity of each vehicle and associate this information to a transaction.



15. Tire excise taxes



One revenue mechanism associated with highway usage is assessment of a per-tire excise tax. The federal government taxes heavy vehicle tires. Currently, although sales taxes apply, there is no tire excise tax in Nevada.

Financial Sustainability and Sufficiency

Assessing a rate of $50 per tire and assuming every vehicle purchases four new tires every five years, a tire fee would generate $100 million in revenues in 2021 and $1.665 billion through 2040 discounted at 4%. Revenue does not keep pace with usage, lagging by 17% in 2040.

User equity

Given heavy road users wear out tires faster than light users, the fee would fall more heavily on those who drive more.

Social equity

The fee would fall equally on all users leading to a higher tax incidence on lower income individuals.

Flexibility

The revenue is likely not subject to constitutional limits on its use.

GHG emissions

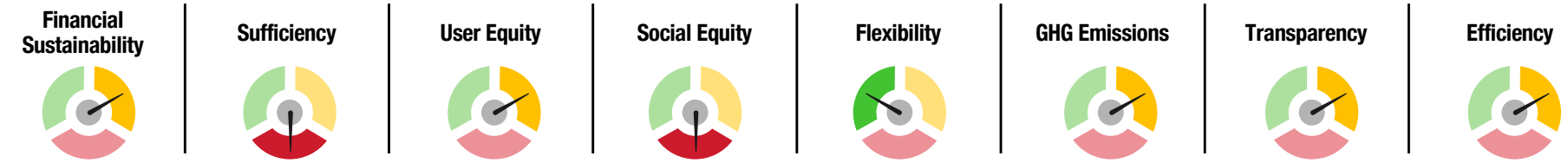
The fee would have little impact on GHG emissions since it is not associated with fuel consumption.

Transparency

Depending on the point of collection, consumers may or may not be exposed to the surcharge.

Efficiency

A tire fee would have a relatively low cost of collection since it could be imposed at the merchant level similar to a sales tax.



Mechanism is capable of strong alignment with guiding principle
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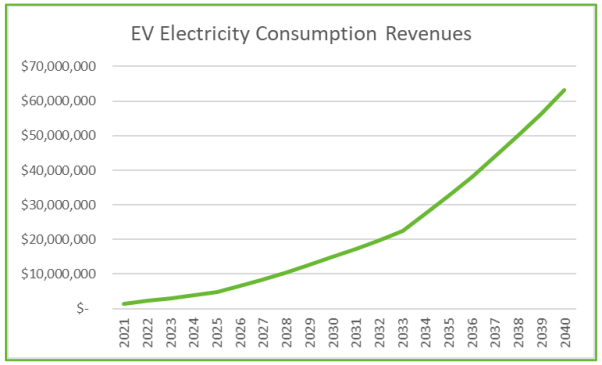
Mechanism is poorly capable of alignment with guiding principle

16. Taxes on electricity consumed by electric vehicles



Collecting a tax on EV electricity consumed is analogous to the gas tax for internal combustion engines. To generate substantial revenue this mechanism requires separate metering of electricity used to charge electric vehicles at public charging stations and at home where most charging occurs.

Financial Sustainability and Sufficiency

Given the low numbers of EVs, the kWh rate was set at $0.02 which is equivalent for the average EV to a gas tax of $0.094 per gallon on the average combustion engine vehicle. At this rate, $1.4 million would be collected in the 2021 and $254 million through 2040 in net present value at a 4% discount rate.

User equity

Charging based on electricity consumption would approximate usage, but individual results vary widely.

Social equity

The fee on electricity consumption for travel would likely be greater for higher incomes since they are more likely to drive more expensive larger and heavier vehicles that would correlate with greater electricity consumption.

Flexibility

The revenue is likely not subject to constitutional limits on its use.

GHG emissions

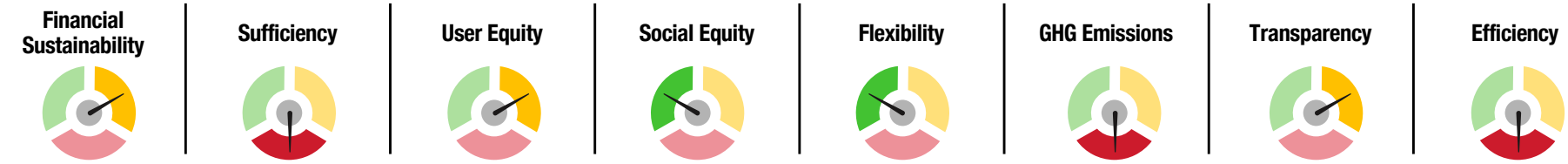
It is challenging to configure a tax on electricity used in zero-emission vehicles in a way that aligns with GHG reduction goals.

Transparency

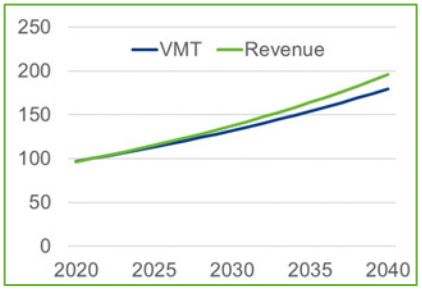
If the tax is collected by utilities, drivers may never notice it. If the tax is collected from end users, they may notice it but understanding declines as part of a larger utility bill.

Efficiency

This mechanism would require the installation sub-meters at each EV charging points (including residences) and assessment of taxes on kWh by utilities metered at those locations.



17. Fee on value of trucking costs



This mechanism involves placing a surcharge on goods movements as a function of the cost of moving those goods. Effectively this mechanism represents a Value Added Tax on transportation.

Financial Sustainability and Sufficiency

A tax rate of 2%, based on a flatbed per mile cost of $3.07, would generate $100 million in 2021 and $1.829 billion through 2040 assuming a discount rate of 4%. Revenues would outpace VMT by 16% by 2040.

User equity

The fee would fall equally on trucking operators and be a function of distances traveled. At least for heavy vehicles, the fee would indirectly correspond to roadway usage.

Social equity

The fee would increase the cost of shipping all goods, resulting in higher goods prices across the board.

Flexibility

The revenue is likely not subject to constitutional limits on its use.

GHG emissions

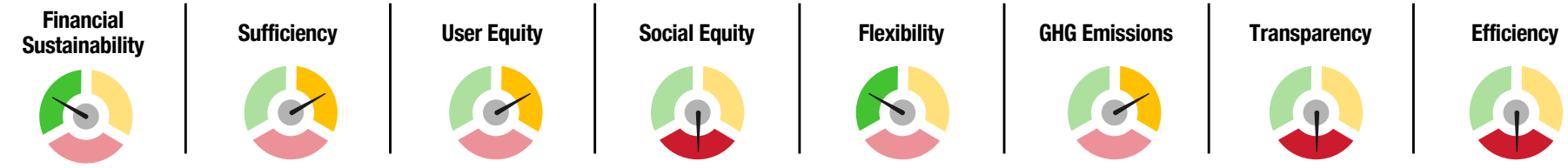
The fee is unlikely to have an impact on GHG emissions since the fee is not related to fuel consumption and would be passed through to consumers.

Transparency

Given the fee would be assessed within the supply chain and incorporated in the final cost of goods, the fee would not be apparent to eventual goods.

Efficiency

The fee would be difficult to assess and require significant new reporting requirements and processes likely infeasible for many operators.



Mechanism is capable of strong alignment with guiding principle
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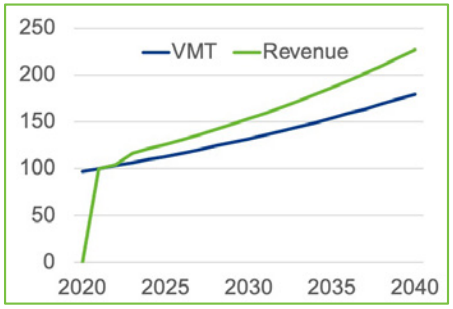
Mechanism is poorly capable of alignment with guiding principle

18. Parcel delivery fees



This mechanism involves placing a surcharge on parcel deliveries such as USPS, FedEx, UPS and Amazon. Colorado recently enacted a fee of $0.27 per delivery to generate additional revenue.

Financial Sustainability and Sufficiency

A per-delivery fee of about $0.75 would generate $100 million in 2021. The revenue mechanism would generate a net present value of $2.040 billion through 2040 and outpaces road usage, reaching 47% higher by 2040.

User equity

The fee would indirectly approximate road usage of largely medium-duty trucks, many of which are converting to electric and avoiding fuel taxes.

Social equity

The fee would increase the cost of direct-to-consumer shipping. The impact of this fee increase by income is indeterminate.

Flexibility

The revenue is likely not subject to constitutional limits on its use.

GHG emissions

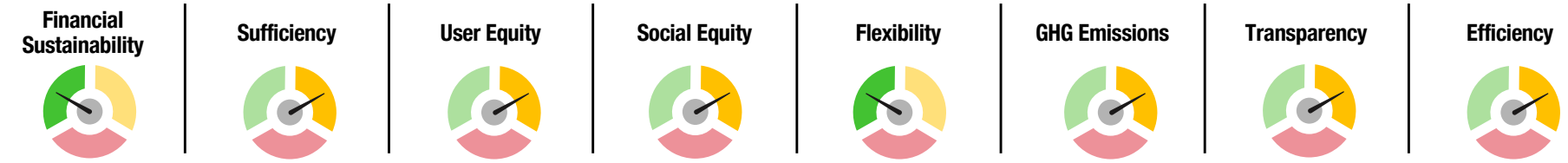
A parcel delivery fee is unlikely to encourage GHG emissions reductions by itself, given it is not the driving cost of operating delivery fleets.

Transparency

A parcel delivery fee would be transparent only to shippers unless directly passed on to consumers at the point of purchase.

Efficiency

The fee would require new reporting and assessment infrastructure and could be challenging to administer across all shippers.



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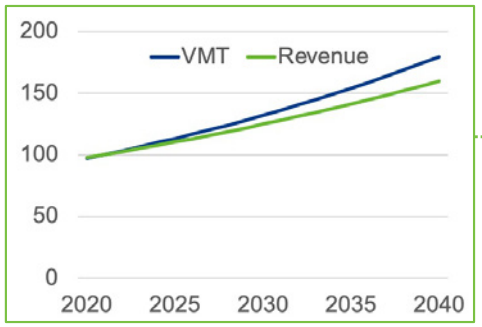
19. For-hire service surcharges



Nevada imposes a 3% excise tax on the value of all for-hire ride services including traditional taxis as well as services such as Uber and Lyft. The first $5 million in revenue each biennium is deposited in the State Highway Fund and available for transportation expenditures. This mechanism would increase the excise tax rate and dedicate the revenue to transportation.

Financial Sustainability and Sufficiency

An excise tax of approximately 11% on the price of for-hire rides would generate approximately $100 million in 2021. At that rate, it would generate a net present value of $1.608 billion through 2040. It would not keep up with road usage, falling 20% below by 2040.

User equity

A fore-hire ride service surcharge assesses a fee based on a portion of road usage. However, it does not assess fees based on distance or empty miles of for-hire operators.

Social equity

There is little data available on the average income of for-hire passengers. The impact of a surcharge by income is indeterminate.

Flexibility

The revenue is likely not subject to constitutional limits on its use.

GHG emissions

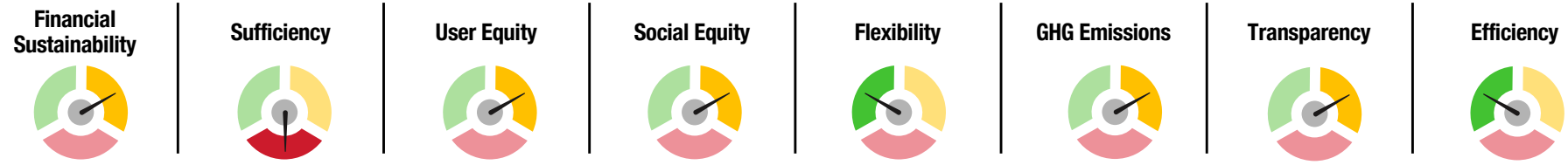
The fee is unlikely to have an impact on GHG emissions since the fee is not related to fuel consumption and would be passed through to consumers.

Transparency

For-hire ride service users see the tax rate and amount on their receipts, but it is a line-item among numerous taxes, fees, and commercial surcharges.

Efficiency

The cost of imposing a fee increase would be marginal given the infrastructure is already in place.



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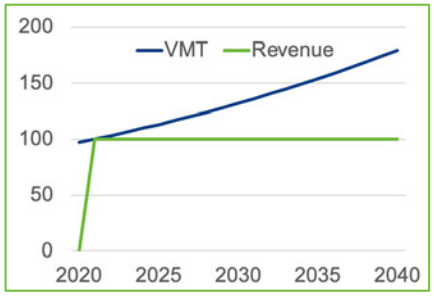
Mechanism is poorly capable of alignment with guiding principle

20. Cordon charge in congested areas



This mechanism involves assessing a fee on vehicles that enter officially-designated congested areas such Las Vegas and Reno at congested times. Such charges can take many forms, but the purpose is to use price to discourage driving and moderate traffic congestion, similar to “surge pricing” used by ride share companies.

Financial Sustainability and Sufficiency

For illustration purposes, a fee of $1.37 per trip along I-15 in downtown Las Vegas in both directions would generate $100 million in 2021. Absent any increases in capacity, this mechanism would generate a net present value of $1.313 billion through 2040, but would not keep up with overall road usage, falling short by 80% by 2040.

User equity

Cordon charges would directly fall on only those users of the system causing congestion and not other users.

Social equity

Depending on the details of how a cordon charge is designed, it could improve social equity by improving travel times for workers, through discounts for low-income drivers, and other mechanisms.

Flexibility

The revenue may be subject to constitutional limits on its use.

GHG emissions

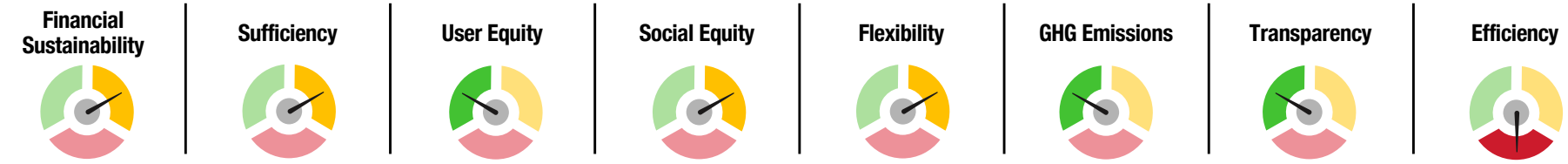
A cordon charge can double as an emissions fee, thereby discouraging emissions and congestion that exacerbates emissions.

Transparency

To be effective a cordon charge must be transparent and understandable to end users, otherwise it will not have the desired effect of discouraging driving at certain places and times.

Efficiency

Regardless of configuration, a cordon charge requires substantial infrastructure for detecting and billing individual vehicles.



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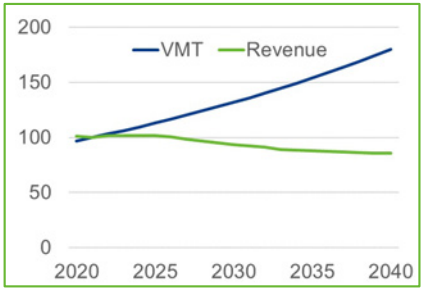
Mechanism is poorly capable of alignment with guiding principle

21. Carbon taxes



No states currently have a carbon tax, although several do have cap and trade systems, most notably California. A carbon tax involves assessing a fee on each ton of carbon dioxide emitted, which can be done "upstream" at the level of refineries and factories, "midstream" at fuel distributors (like the gas tax), or "downstream" on drivers.

Financial Sustainability and Sufficiency

Assessing a $38 per ton fee, translating to $0.10 per gallon, would raise $100 million in 2021 and a net present value of $1.242 billion through 2040 when discounted by 4%. When indexed to VMT, revenues would lag by 95% due to declining carbon emissions.

User equity

The taxes paid would not reflect the miles traveled due to the range of fuel economies in the vehicle fleet.

Social equity

Vehicle fuel economy increases with income. Lower-income vehicle owners will bear a greater share of carbon taxes on average, per mile driven. However, a carbon tax can be designed to refund revenues to low-income households to offset its regressive effects.

Flexibility

Revenue is not subject to constitutional limits on its use.

GHG emissions

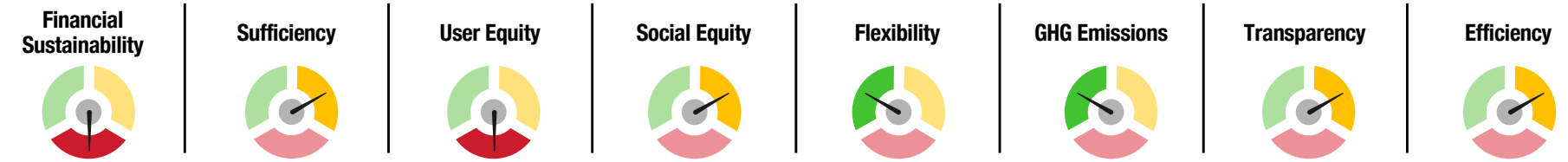
A carbon tax can have a major impact on reducing emissions by charging explicitly for and discouraging their creation.

Transparency

If assessed upstream, consumers would have little knowledge as to their costs or how their vehicle's MPG impacts their costs. If assessed downstream on consumers directly, a carbon tax could be highly transparent and even more effective at achieving reductions.

Efficiency

Where a carbon tax is levied would dictate the tax's efficiency. Upstream, it would likely have the same costs as the current fuel tax. If levied at the consumer level, it would have higher costs akin to vehicle registration fees or road usage charges.



Mechanism is capable of strong alignment with guiding principle
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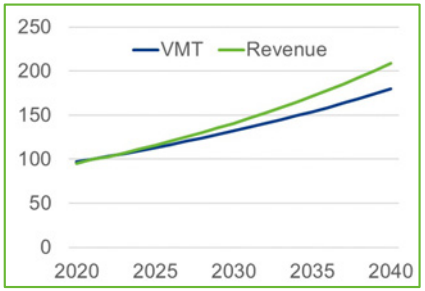
Mechanism is poorly capable of alignment with guiding principle

22. Street (or transportation) utility fee



A street utility fee would assess a statewide surcharge on residents and businesses based on the estimated road usage impacts of the property type.

Financial Sustainability and Sufficiency

To estimate the financial performance of this mechanism, an annual street utility fee per household was modeled. A rate of $80 per household per year would raise $100 million in 2021 and $1.881 billion through 2040 at a 4% discount rate. The mechanisms outpaces VMT growth by 29% in 2040.

User equity

A street utility fee does not bear a direct relationship to road usage and does not fall on road users.

Social equity

A utility fee could be constructed to reduce the per-household cost to multi-family units, thereby reducing the impact on low-income households and households near transit availability.

Flexibility

The revenue is not subject to constitutional limits on its use.

GHG emissions

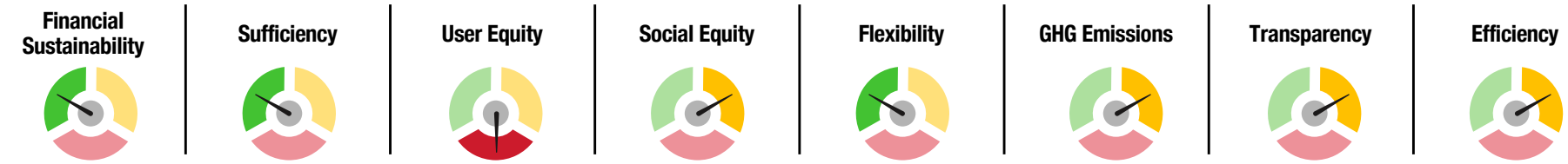
The fee does not have any connection to GHG emissions and would not alter their production. However, the fee could be constructed to impose higher rates for land uses that generate more traffic.

Transparency

The tax would likely be transparent if it appeared with other annually assessed taxes, although perhaps difficult for end customers to understand if bundled with other taxes, fees, and utility charges..

Efficiency

A street utility fee would be most efficiently collected as part of an existing mechanism such as property taxes or utilities, neither or which are assessed by the state. This would require an additional layer of coordination.



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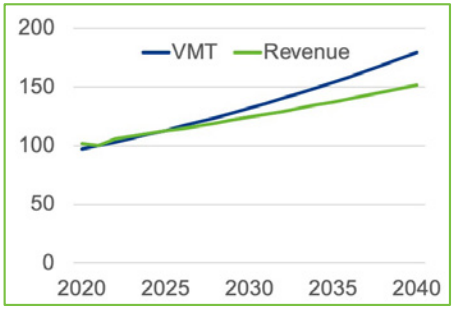
Mechanism is poorly capable of alignment with guiding principle

23. Statewide employer payroll tax



A statewide payroll tax would collect payments from employers as a function of wages paid, similar to the current Modified Business Tax in Nevada. Employers would pay a tax based on total wages, although currently in Nevada taxable wages are those about $50,000. Oregon is an example of a state that generates transportation revenue via a statewide payroll tax for transit, currently at 0.1%.

Financial Sustainability and Sufficiency

A tax of 0.2% on wages statewide would generate approximately $100 million in 2021. At a discount rate of 4%, the tax would collect $1.637 billion through 2040. However, the tax would not outpace VMT, lagging by 28% in 2040.

User equity

A payroll tax does not fall directly or indirectly on road users and bears no relationship to road usage.

Social equity

The tax would fall equally as a portion of all wages earned, making it a regressive source of taxation. Rates could not be varied by income due to the prohibition on collecting income tax from individuals.

Flexibility

The revenue is not subject to constitutional limits on its use.

GHG emissions

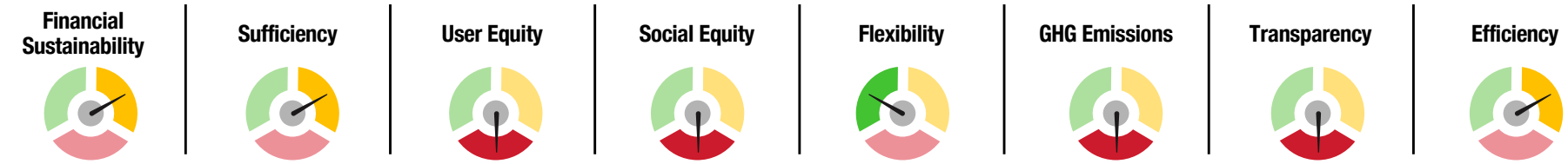
The tax would have no ability to impact on GHG emissions since it would not have any relationship to their formation.

Transparency

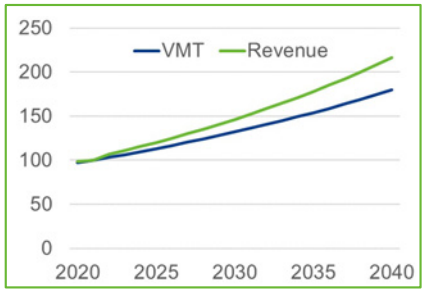
The tax would be visible to employers, may be visible to employees (appearing as a line item on pay stubs), and invisible to road users.

Efficiency

A state payroll tax could utilize the same mechanism as unemployment insurance; however it is unclear whether the Department of Employment, Training and Rehabilitation, which currently collects premiums, would be capable of implementing such changes.



24. Land use impact fee



A land use impact fee is imposed on developers based on the expected impacts of development on the transportation system. To approximate the performance of such a revenue mechanism, a statewide tax was assumed as a percentage of the overall spend on construction in the State of Nevada.

Financial Sustainability and Sufficiency

Assuming a tax rate of 1% and an annual growth rate in the construction sector of 4%, the tax would generate $100 million in 2021 and a net present value of $1.952 billion through 2040 at a 4% discount rate. Revenue outpaces VMT given the faster expected relative growth of the development sector, reaching 37% higher in 2040.

User equity

Impact fees have no direct relationship to road usage, and costs would not fall on road users directly or indirectly.

Social equity

The tax would be absorbed as a cost of doing business by developers and passed on to tenants and purchasers of property. Depending on the nature of a given development, abatements could allow for discounts or exemptions for developments targeted at low-income households.

Flexibility

The revenue is not subject to constitutional limits on its use.

GHG emissions

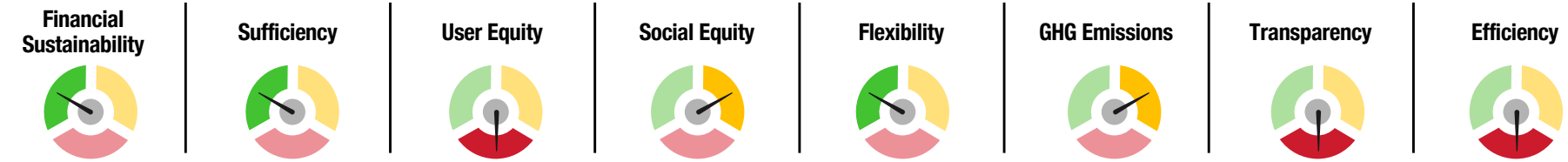
Depending on its formulation, the tax could be used to discourage developments that result in GHG emissions.

Transparency

End users would not discern or understand the tax.

Efficiency

A land use impact fee could be complex and costly to administer given the disparate number and type of developers and the lack of clarity around valuation of what gets taxed.



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 B – Final Report, Nevada Sustainable Transportation Funding Study

Record of votes on Final Recommendations

Advisory Working Group Meeting #11
November 9, 2022

Key:

- ☐ In favor of final recommendation
- ■ Opposed to final recommendation
- ■ Absent or not voting on final recommendation

Recommendation #1 (as amended)

Nevada should institute a mileage-based charge to capture road usage by zero-emission vehicles, while setting the stage for a future transition away from the gas tax.

While developing a mileage-based road usage charge, Nevada should enact a special registration fee on electric vehicles, collected at the time of vehicle registration renewal. The amount of the fee should be proportionate to the amount an average electric vehicle uses public roadways.

The mileage-based road usage charge for electric vehicles should offer drivers a choice between a charge based on actual miles traveled by the vehicle or a fixed annual fee allowing unlimited driving during the year. The fixed annual fee should be set higher than the equivalent mileage-based charge for an average electric vehicle.

An initial mileage-based road usage charge should build upon state law requiring vehicle owners to report odometer readings to the Nevada Department of Motor Vehicles (DMV) with registration renewals. Final effective dates for implementing a mileage-based road usage charge for electric vehicles should be aligned with DMV's ongoing information technology system modernization effort.

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 19-6	

Recommendation #2 (as amended)

Because revenue from the gas tax is declining and because vehicles are becoming more fuel efficient and operating on electricity or other alternative fuels, the Legislature should replace the fuel tax with a per-mile road usage charge on all new vehicles by 2035.

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 22-2	

Recommendation #3A (as amended)

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

A. Increasing the uniform rate of the state fuel excise taxes (gasoline and special fuels)

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 15-7	

Recommendation #3B

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

B. Indexing the portion of state and federal fuel taxes not already indexed (outside of Clark and Washoe Counties) to keep pace with construction cost increases over time, while limiting increases to a 10-year rolling average of the Producer Price Index for Highway and Street Construction, with a maximum annual cap on inflationary adjustments

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 22-1	

Recommendation #3C

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

C. Enabling county commissions to enact inflation adjustments to the county's portion of fuel taxes, with the same indexing formula and limitations as statewide fuel taxes

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 19-3	

Motion, second & discussion | Consideration of amendments | Voting on final adoption of recommendation (as amended)

Recommendation #3D

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

D. Increasing vehicle registration fees to provide modest revenue for highway purposes

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 22-0	

Recommendation #3E (as amended)

To address the current backlog of transportation projects and services while longer-term sustainable funding mechanisms are being developed, the Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by:

E. Directing 100% of the state portion of the Governmental Services Tax (GST) proceeds to the State Highway Fund.

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 18-4	

Recommendation #4 (as amended)

The AWG recommends that the state convene a special commission, either newly created or by enhancing the membership and scope of the existing State Land Use Planning Advisory Council, to examine the need for potential changes to state laws or regulations to help state and local governments more effectively manage and utilize land with respect to public services, public infrastructure, and natural resources.

The special commission should include representation from a broad range of public officials, industry sectors, organizations, and stakeholders, including but not limited to: state and local elected officials; state and local agencies that manage civil infrastructure, public services, and natural resources; regional planning organizations; chambers of commerce; tourism industry; utilities real estate developers; agriculture; building trades; natural resource industries; affordable housing organizations; organizations promoting civil rights; and other entities the Legislature deems essential for the commission's work. To the extent possible, members of the commission must represent the various geographic areas and ethnic groups of the state.

The commission should undertake a comprehensive study to examine current land use patterns and regulations and their impacts on land preservation, production, and development; availability and affordability of housing; cost, efficiency, and sustainability of transportation infrastructure and mobility services; preservation of agriculture; efficient use of energy and water; and finding a balance with economic growth and business development.

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
Bobzien	Maynard
Busselman	Moradkhan
Butler	Paskey
Creighton	Regan
Davis	Sanchez
Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 11-11	

Motion, second & discussion | Consideration of amendments | Voting on final adoption of recommendation (as amended)

Recommendation #5

In collaboration with other public agencies, NDOT, MPOs, and local governments (cities and counties) should conduct assessments of their current and projected transportation projects and service level funding gaps, and regularly share this information with elected officials, stakeholders, and the public.

Valentine (Chair)	Madole* (alt)
Desai (Vice Chair)	Martinovich
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Ely-Mendes	Silver* (alt)
Enos	Steele
Farmer	Swallow
Gomez	Taylor
Guthreau	Thomas
Jones	Wellman
Lawrence	
Tally: 22-0	

Prepared by

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