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[**reserved** for after AWG Nov 9 meeting – 5 pages]

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

2.1 The legislative directive and the AWG'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 electric vehicles, 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, 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 this study. This group comprised legislators and stakeholders from various public, civic, business, and social sectors in Nevada. Their charge was to consider alternative solutions for the transportation system funding, the benefits of using electric vehicles, 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 Legislature, a more in-depth study should closely examine the various funding models, including approaches under development in other states.

Based on these determinations, the Legislative Committee on Energy voted unanimously to recommend to the Legislature to establish a working group to study transportation funding alternatives and related policy goals, beginning in July 2021 and ending in December 2022. In 2021, Assemblywoman Daniele Monroe-Moreno introduced Assembly Bill (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.

[1- insert call out box showing the exact legislative language from AB 413]

The AWG comprises 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 organizations, agencies and 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; and (3) actively and accurately share information with others.

[**2**- insert callout box or similar showing the membership of the AWG]

The legislation required the AWG to study transportation funding options which, 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 greenhouse gas 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 road usage charge (RUC) and a fuel tax indexing and efficiency-adjusted RUC concept put forth by the Natural Resources Defense Council (NRDC).

Pursuant to the requirements and policy parameters established by the Nevada Legislature in AB 413, the AWG adopted a formal charter during its first meeting. 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 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.

2.2 Policy imperative: Reducing carbon emissions from the transportation sector

In Nevada, the transportation sector accounts for 35% of the state's greenhouse gas emissions, making it the largest contributor of greenhouse gases. 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.

[3- insert graph showing GHG emissions by sector in Nevada]

In 2019, Nevada enacted SB 254, which codified aggressive emission-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.

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 required 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. For more details on how

equity factored into the evaluation of sustainable transportation revenue mechanisms, see Section 4.0 .

2.4 Policy imperative: The role of land use in promoting a more sustainable transportation system

Based on 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.

Due to 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, 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 makes 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 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. Land use policies are intrinsically linked to other policy areas, including environmental, housing, energy, water, tourism, and agriculture policy.

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.

[**4**- insert map showing state and local roadway network]

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.

[**5-** insert graphic from August 2021 Briefing Book comparing state and local roadway system statistics – VMT, lane miles, etc.]

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 metro area) and Washoe County (Reno metro 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 over 64 million trips, while the Regional Transportation Commission of Washoe County (RTC Washoe) provided over eight million trips.

[**6**- insert transit trips graphic from August 2021 Briefing Book]

Rail service in Nevada

Two major rail routes serve Nevada: the Overland Route and the South-Central Route. Together, the Union Pacific Railroad and 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.

[**7**- insert map of major rail routes in Nevada from August 2021 Briefing Book]

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.

[**8**- insert map of Nevada's Public Use Airports from August 2021 Briefing Book]

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 as well as the state and federal rural transit program, which provides funding for basic passenger connectivity for rural areas of the state.

Regional transportation commissions, metropolitan planning organizations, counties, cities, and a specially designated bi-state planning agency each have responsibilities within their respective jurisdictions (see Figure **9** below).

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.

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

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.

[**9**- insert map showing jurisdictions and governance of transportation in Nevada from August 2021 Briefing Book]

3.2 Transportation funding needs on the state and local system

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 was the fifth fastest-growing state, adding 15% of its population between 2010 and 2020.

Construction cost escalation of just over 17% in just 12 months between Q4 2020 and Q4 2021 increased the difficulty for NDOT, 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 (SHF), which is the depository account for state fuel tax revenue and vehicle-related fees. The SHF is the primary funding account for operating, maintaining, preserving, and improving the state's highway system. The downward forces on the SHF–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, as that time frame involves more certainty for budgeting purposes.

Below, 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 below is a high-level summary of the results. More detailed information on the methodology, sources of information, and results is provided as Appendix **A**.

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 non-highway 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 ten-year high and low estimates of transportation needs are summarized in Table **10**.

[**10**- insert table from Needs Memo showing Summary of Ten-year Transportation Needs]

Table **11** below contrasts projected revenue against the identified funding needs, demonstrating the resulting unfunded backlog of transportation projects and programs.

[**11**- insert table: Summary of Ten-year Transportation Needs, Revenue and Unfunded Backlog from Needs memo]

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 scenario. Figure **10** shows the categories of funding by percentage for the low and high estimates. Figure **11** 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

[Placeholder material. This section to be updated in consultation with RTCs, counties, MPOs, cities]

Feedback from 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… [seek information directly from RTCSNV and TRAC about needs estimates, data, and descriptions to add here].

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.

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.

CAMPO's unfunded transportation needs are primarily focused on increasing the frequency of service along existing transit routes. Like other jurisdictions, the Carson City area lacks sufficient funding to provide these services.

[**12**- insert table: Estimated Unfunded Transit Needs, by Agency, with breakdown between operating estimates and capital estimates]

Taken as whole, the unfunded transit needs alone total over $500 million per year, not including major new capital initiatives such as the On Board Mobility Plan calling for a high-capacity transit network serving Clark County.

The Nevada Association of County Officials (NACO) has been working with their members to estimate local roadway funding needs. Four counties reported that at this time, they have adequate funding to support their local roadway needs. Recent estimates from 12 other counties demonstrated a county road funding shortfall totaling over $90 million per year. It should be noted that county cost estimates may reflect some projects also identified as funding priorities by MPOs.

Municipal transportation needs have not been individually tabulated for the 19 incorporated cities in Nevada. Although incorporated cities need to maintain their streets (including

"complete streets" programs that provide mobility not only for vehicles, but also pedestrian sidewalks and bicycle paths), there is overlap with city projects and programs already identified by RTCs, MPOs, and counties. Therefore, a specific transportation funding needs cost estimate has not been provided for the 19 incorporated cities.

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:

[**13**- insert table: page 24 of Briefing Book #2 showing 10 major sources of transportation funding in Nevada]

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 governmental services tax (GST), are the largest source of revenue derived from state taxes and fees on drivers and vehicles (34%). Taxes and fees comprising the remaining 24% include miscellaneous DMV fees such as license plate fees and emissions control fees.

[**14**- insert graphics from page 25 of Briefing Book #2 showing the breakdown of state tax and fee revenue, by source of taxation: fuel taxes, taxes and vehicles and drivers, and other taxes and 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 four-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.

[**15**- insert graphics from page 26 of Briefing Book #2 showing the breakdown of county tax and fee revenue, by source of taxation: fuel taxes, taxes and vehicles and drivers, and all other taxes and fees]

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.

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.

[**16**- insert graphics from page 22 of Briefing Book #2 showing distribution of fuel taxes to state, cities, and counties]

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 county elected officials before the county option tax becomes law.

Collectively, as of 2021, county motor fuel (gasoline) taxes are imposed at rates varying between four cents per gallon to 47.9 cents per gallon.[1] Special fuel (diesel) taxes also vary by county, from no additional tax to five cents per gallon. Of these additional taxes, fuel distributors retain two percent of gross receipts. The remaining 98% is distributed to the county in which it was sold.[2]

[1] 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 producer price index for highway and street construction, and 2.7 cents is a collection of eight taxes indexed to consumer price index); and all other counties (including Carson City) at a flat 9 cents per gallon.

[2] 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.

[**17-** insert graphics from page 23 of Briefing Book #2 show distribution of county-imposed fuel taxes]

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.

[**18**- Insert a new-and-improved graphic that illustrates the types of restrictions that apply to transportation revenues. Use graphic from p. 28 of Briefing Book #2 as source material]

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.

[**19**- insert map from p. 29 of Briefing Book #2 that shows states with restrictions on fuel tax revenue; update color coding so white-colored states are No Dedication of State Fuel Taxes (Alaska only), and statutory dedication of fuel taxes are a different color]

[**20**- insert call-out box showing timeline of gas tax development and restrictions in US, p. 29 of Briefing Book #2, 1919 to 1956]

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.

[**21**- insert callout box on Art. 9, Sec 5 of Nevada constitution from p. 30 of Briefing Book #2]

The State Highway Fund

Like many states, Nevada has a special account, the State Highway Fund, where restricted revenues (gas taxes, vehicle and driver license fees, etc.) must be deposited. 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:

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

[**22**- insert chart showing State Highway Revenue Per Mile Driven, 2010-2020 from p. 3 of Briefing Book #2]

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 per Article 9, Section 5 of the Nevada Constitution. This does not preclude the deposit of additional revenue mechanisms, such as the basic governmental services tax (GST) or a general tax such as sales taxes, into the State Highway Fund. However, once there, the funds are subject to allowable uses of the account as set in statute. 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.

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 government services tax (GST).

[**23**- insert graphs from p. 32 of Briefing Book #2 showing VMT compared to fuel tax deposits to the State highway fund; and graph showing cents of fuel tax per mile driven to the State Highway Fund. **Update with most recent available data*]

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 or 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, as these heavier vehicles are not subject to the same aggressive fuel economy regulations as passenger vehicles (e.g.,

federal 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. Mean MPG among vehicles Model Year 1985 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.

[**24**- insert charge from p.33 of Briefing Book #2 showing EPA's estimated Miles Per Gallon and % of Nevada's light duty vehicle fleet's MPG improving over time, 1985 – 2015. Update with more recent data if available]

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 since 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 lifecycle–a cost that also increases over time but is not reflected in construction cost estimates.

[**25**- insert graphic from p.34 of Briefing Book #2 showing inflationary effects on highways, streets, and transportation services, from FRED data, June 2015 – January 2021]

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. A limited amount of federal transit funding is distributed directly to transit agencies.

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 (BIL). 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.

[**26**- insert graphic showing Total Highway Formula Funding Estimates, by State, over next 5 years. P 10 of Jan 11 AWG Meeting PPT]

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 (water, wastewater treatment, broadband, etc.) and allocation of funding for new federal formula and competitive grant programs such as electric vehicle 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.

[**27**- insert updated information and graphic showing historical and IIJA-enhanced 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 Q4 2020 and Q1 2021 is making it more difficult for NDOT, 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 in the range of at least $6 billion over this 10-year period.
- In addition to state needs, local authorities face growing needs that outstrip available revenues. Collectively, MPOs in the state and county governments have annual transportation funding needs of over $500 million per year, in the aggregate.
- User fees compose the vast majority of existing funding for Nevada's transportation system, including:

- ✓ 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 (FRI) 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 comprise 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 Governmental Services Tax (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 electric vehicles. Although the number of EVs in Nevada's fleet is currently around 20,000 (representing 1% of the total passenger vehicle fleet), as of Q12022, 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 all-electric.
  - ✓ 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 paying about $320 per year in federal, state, and county fuel taxes. EVs 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 electric vehicles 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 under-funded. 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 under-funded. Nevada's transportation system operates as an interconnected network to move people and goods, regardless of mode and ownership. Currently, electric vehicles are not contributing 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 vehicles 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, transit and paratransit services, etc.
- 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, regional, and local governments.

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 road usage charge and the Natural Resource Defense Council's (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 **Error! Reference source not found.**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 (AICPA) 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.

[**28**- Call out box: Classical Principles (from Adam Smith's *Wealth of Nations*)]

- **Equity and fairness** — Similarly situated taxpayers should be taxed similarly.
- **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.
- **Effective tax administration** — Costs to collect a tax should be kept to a minimum for both the government and taxpayers.

[**29**- Call out box: Modern Principles (from AICPA's *Guiding principles of good tax policy*)]

- **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 as to how to carry out a particular transaction or whether to engage in a transaction is important.
- **Economic growth and efficiency** — The tax system should not unduly impede or reduce the productive capacity of the economy.
- **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.
- **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.

[**30**- Call out box: Examples of state transportation revenue guiding principles]

- 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
- 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
- Washington Road Usage Charge Steering Committee (2012-2021)
- Transparency
- Complementary policy objectives
- Cost-effectiveness
- Equity
- Privacy & data security
- Simplicity
- Accountability
- Enforcement
- User options
- System flexibility and interoperability
- Phasing
- Indiana Transportation Revenue Alternatives Study (2014-2015)
- Potential revenue yields
- Ease of implementation and enforcement
- Revenue sustainability and predictability
- Public support
- Business climate friendliness

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 non-importance) 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.

[**31-** Call-out box: 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 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.

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.

[**32**- graphic showing 6 types of tax and fee mechanisms: fuel taxes, direct usage fees, vehicle related fees, freight related fees, externality taxes, and indirect usage fees]

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 which 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, 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 with the purpose of discouraging 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 employed 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

[**33**- insert table showing different approaches to fuel taxes, by type of tax, with citations to states where utilized]

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 like vehicle weight, age, or value. All states but seven 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 electric vehicles 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 asses 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 multi-year purchase options available in some states.

Age-based fees. Four states employ age-based registration fees: Idaho, Montana, Utah, and Wyoming. Fees range significantly with those zero to four years paying $217 in Montana while vehicles one to two years of age in Idaho pay $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 governmental services tax 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.

[**34** – map showing vehicle fee types in United States]

Increasingly, vehicle fees are based on engine type or fuel economy. As of 2022, 30 states have enacted special fees for plug-in electric vehicles, 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 electric vehicles 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 electric vehicle fee to support the construction of charging stations.

Oregon is the first state to adopt a tiered registration fee based on estimated miles per gallon (MPG), based on the rationale that higher MPG vehicle owners should pay more to make up for road usage costs they avoid by paying less gas tax. Vehicles under 20 MPG pay $61 per year, while vehicles 20-39 MPG pay an additional $10 per year ($71 total), vehicles 40 MPG and higher pay a $15 surcharge per year ($76 total), and all-electric vehicles pay a $92 surcharge per year ($153 total). Electric vehicles 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 have also explored tiered registration fees based on MPG, but neither has enacted the policy.

[**35** – map showing states with tiered vehicle licensing fees]

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-aid 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 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 road usage charging (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 over 20 miles per gallon. Participants pay 1.8 cents per mile and receive credits for fuel taxes paid. They also avoid registration surcharges for high-MPG and electric vehicles. 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 electric vehicles are eligible for the program. As of 2023, the per-mile fee will drop to one 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 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.

[**36** – map showing states that have enacted mileage-based fees, and actively testing/have tested, and those researching mileage-based fees]

The Surface Transportation System Funding Alternatives Program (STSFA) provides grants to states to demonstrate user fee mechanisms like road usage charging. 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 [insert illustrative tax tables pictured at right] assesses a distinct rate for every 2,000-pound weight increment between 26,001 and 80,001 pounds going from 6.54 cents per mile (cpm) to 21.5 cpm. Vehicles over 80,001 pounds pay between 17.01 cpm and 30.25 cpm depending on the number of axels.

Other states' rates and subject vehicle definitions differ. In Oregon and New Mexico, vehicles over 26,000 pounds must report and pay weight-mile taxes, whereas 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, trucks 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.

Freight taxes

Other freight-specific taxes have been proposed but remain rare in practice. Freight can be subjected to a range of specific fees due to 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, like Indiana's $10 per container fee, while others are intended to induce behavioral changes like 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 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 since they represent essential vehicle components for driving.

Batteries. California assesses a one-dollar 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 heavy truck tires 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 electric vehicle charging stations. In all three states, the tax applies to non-residential electric vehicle charging facilities to capture revenue from electric vehicles 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 electric vehicles (where over 80% of charging occurs), each state requires in-state electric vehicles to pay a flat annual registration surcharge. As part of its legislation, Oklahoma also set up a road user charge task force to examine distance-based charging.

Externality taxes

Charging for congestion, a form of Pigouvian tax, is rare in the United States. 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.

Congestion pricing comes in several categories. Cordon-based charges like 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 sub-zones. 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. High-occupancy/toll (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 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 (RGGI) 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, LCFS seek to reduce the carbon intensity of fuel production and use through regulation. The standards look at 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; produce and/or blend low-carbon biofuels; purchase credits generated by low-carbon fuel providers.
- **Carbon Tax.** A carbon tax sets a price on one 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 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 United States jurisdiction has enacted a carbon tax at any point in the supply chain.

General funding for transportation

General Fund appropriations to transportation are especially common at the local level. The federal government and most states employ 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 Treasury general fund transfers. Through late FY2021 these outlays will have totaled $143.6 billion.

Of the 50 states and District of Columbia, 38 employed General Fund revenues to fund 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 employ general funds only to a slightly higher degree in roadway and transportation spending than state governments. In 2018 highways and roads accounted for the 5th 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 works. Both taxes are paid by the employer.

Summary of funding mechanisms

The table below summarizes the extent to which other states utilize the funding mechanisms surveyed by the AWG, and whether each mechanism already exists in Nevada.

[**37**- insert table summarizing types of taxes, by category; whether currently used in Nevada; and how many other states use this tax. Update table to match final version presented to AWG]

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 ten-year investment horizon. Revenue-related highlights from the bill include:

- An additional two cents per gallon fee on gasoline and diesel beginning in 2022 that increases each year by one cent, up to eight 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 electric vehicle.
- An increase in special registration fees for electric and hybrid vehicles to reach tax parity between what 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 electric vehicles. The remaining $4 billion will be spent on maintenance, new construction, and debt service for highway construction bonds. Of the $5.3 billion, ten-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:

- A 19-cent-per-gallon tax increase on gasoline and a 24-cent-per-gallon increase 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 electric vehicles 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.

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

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 electric vehicles 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 road usage charges as an alternative to special surcharges on electric vehicles. 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 and instead imposes a percentage tax per gallon on the average wholesale price of fuel, indexed to inflation (CPI).
- Implementation of a road usage charge as an alternative to electric vehicle 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 road usage charge by 2031.

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

Electric 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 road usage charge, which is based on actual miles traveled, or the special registration surcharge. If electric vehicle owners opt for Utah's road usage charge, the amount they owe would be capped so it does not exceed the amount they otherwise would have paid under the special registration surcharge.

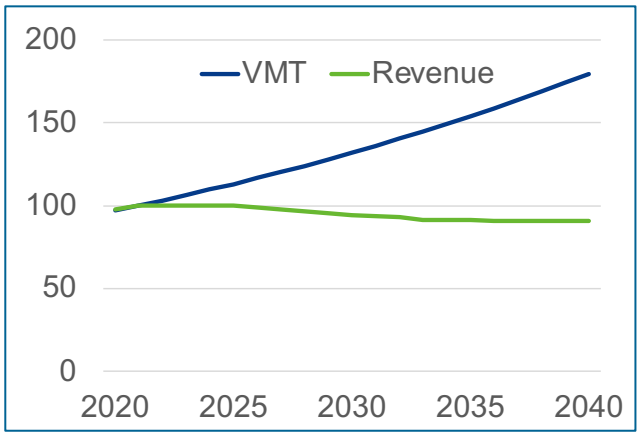
4.4 Assessment of funding mechanisms

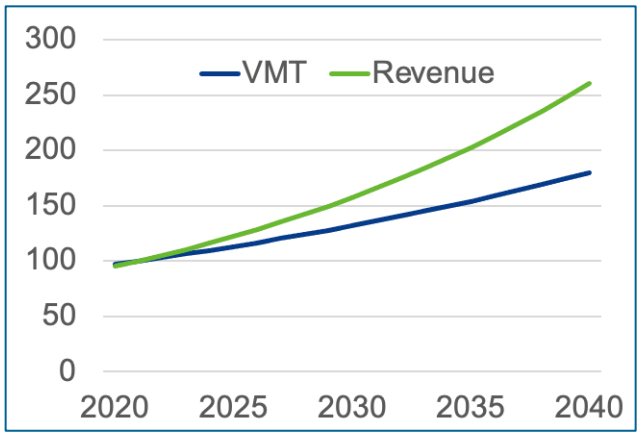
The AWG began its assessment of funding alternatives by reviewing the information about each of the 28 mechanisms summarized in Section 4.2 , including a description of how each mechanism functions, how many states utilize it, and whether and how Nevada currently utilizes it. The AWG screened several 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 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 governmental services tax (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 electric 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 analysis. 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 vehicle miles traveled (VMT). For example, the figure below illustrates the performance of two mechanisms–fuel excise taxes on the left and governmental services tax (GST) on the right. On the left, fuel excise taxes remain flat, while WMT grow nearly two-fold 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. The table below 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, moreso 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 in older vehicles pay less, is capable of some alignment with the user equity principle, since there is a general correlation between vehicle age and road usage: newer vehicles are driven more and would pay more, while oder vehicles are driven less and would pay less, on average.

[**38** – insert table summarizing the scoring (color-coded) of the 25 mechanisms against the Guiding Principles]

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 argued for different individual scores. For example, one member, the Nevada Trucking Association, argued that assessing taxes on electric vehicle electricity is strongly capable of alignment with the efficiency principle. Another member, NV Energy, argued that metering electricity consumption by electric vehicles would require installation of submeters at individual residences of electric vehicle owners, an undertaking not presently feasible or cost-effective. For most scores, the AWG came to 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 employ the scoring exercise as the final decision mechanism in determining its recommendations.

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 road usage charge (RUC) and an efficiency-adjusted RUC concept put forth by the Natural Resources Defense Council (NRDC).

Origins and background of road usage charging

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 check odometer mileage collection**. 16 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**. 22 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 vehicles outside Clark and Washoe Counties to self report odometer mileage upon registration renewal on the honor system. DMV estimated for the AWG that 82% of vehicles required to self-report odometer readings comply. Although no state in America has yet tested using self-reported mileage for a RUC program, Washington will become the first in 2022-23. 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.

  [**39** – insert map of states and status of researching, testing, or implementing RUC programs]

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 apps have attempted to use the smartphone as the mileage measuring device, but this approach has not yet proven viable for revenue operations due to 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 GM'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 road usage charge 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 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 and 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 the Department of Motor Vehicles. 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 vs. 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 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 (1) "passenger car equivalent" (PCE). 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 for road impacts. Although electric cars tend to weigh significantly more than their gasoline counterparts due to 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 U.S. Environmental Protection Agency (EPA). Each rating consists of three numbers: city, highway, and combined miles per gallon (MPG). With the advent of electric vehicles, the EPA created an "MPGe" rating. Although electric vehicles 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 drives, 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 doing the driving–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 miles per gallon (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 cents per mile driven, while a vehicle rated at 45 MPG contributes about 80% less at 0.5 cents per mile driven. Electric vehicles do not currently contribute.

[**40** – insert graphic showing Fuel Tax Paid per Mile Driven in Clark County – by average Clark Co vehicle]

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 above a certain MPG. For example, applying a RUC of 2.2 cents per mile 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 cents per mile 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 those above 30 MPG paying only 2 cents per mile.
- A RUC program could adjust RUC rates based on the vehicle's MPG rating.

[**41**- insert graphic showing how much average revenue would be derived in Nevada if rate was set at 2.2 cents per mile]

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.[3] 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 which 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:

[3] [1] Greene, David. 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,* 2011.

- 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, since its primary purpose is road funding, IRoUTE does not effectively or directly address greenhouse gas emissions.
- Third, Greene's paper 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 electric vehicles (recognizing the logistical challenges of attempting to do so).

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

Utah's road usage charge policy

In 2018, Utah became the second state to create a RUC program for light-duty vehicles in law. Launched in January 2020, electric, 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.

Vehicles subject to Utah's surcharge are eligible to enroll in the RUC program. In 2020, this included all-electric, 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 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 have enrolled in the RUC program, with 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 EVs will drop to 1 cent per mile beginning in 2023, equivalent to what a 40 MPG car pays in state gas taxes. The flat fee will increase to $130, meaning that any EV 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 Legislature directed UDOT to plan for transitioning the remainder of the vehicle fleet to the RUC program by 2031.

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

Rate setting. The electric vehicle annual flat fee (surcharge) is designed to recover costs of road usage from vehicles that pay no fuel tax. Beginning January 1, 2023, all vehicles who enroll in the RUC program will pay 1 cent per mile instead of the surcharge of $130. The amount any vehicle

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 will take them by 2033 to about 1.8 cents per mile 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 and electric vehicles, the Utah legislature is exploring pathways for extending the RUC program to all vehicles in the state by 2031.

Further reading. UDOT RUC History & Technical Information, https://www.udot.utah.gov/connect/about-us/legislative/road-usage-charge-history/

[**42**- insert table showing Utah's RUC program mileage rates, by type of vehicle, with annual caps]

NRDC energy-based charge concept

The Natural Resources Defense Council (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 electric vehicles 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 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.

[**43**- table showing two different scenarios for applying NRDC's proposed energy-based charge]

Since EVs do not consume gasoline, NRDC recommends creating a new fee. Rather than setting a rate per-mile for all vehicles 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, a 90-MPGe electric vehicle would pay 47.8 ÷ 90 = 0.53 cents per mile 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.

[**44**- insert table showing how rates would change over time, by vehicle MPGe type, under NRDC's proposed energy-based charge concept]

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, road usage charges 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 vehicles 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 vehicles 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 when 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.

[**45**- insert Per-mile Utah fuel tax plus road usage charge pr 10k miles, by vehicle MPGe]

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 increase 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 motorists is expressed in the chart below, with vehicles in the dark blue shaded area paying per mile through motor fuel taxation, and vehicles in the light blue shaded area paying per mile through an MPGe-adjusted road usage charge.

[**46**- insert Per-mile road usage fees by vehicle miles per gallon equivalent (MPGe)]

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

[**47**- insert chart showing what avg Clark Co driver pays in fuel taxes compared to energy-efficiency based road charge/NRDC model]

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 several example vehicles would pay per 10,000 miles driven if the fuel tax for Clark County drivers doubled to 96 cents per gallon. More energy efficient vehicles pay less, while less energy-efficient vehicles pay more.

[**48**- improve table below showing per-mile rates and cost per 10k miles by vehicle type in Nevada]

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 table below summarizes the results of this deliberative process.

[**49**- improve table below showing disposition of 24 potential revenue mechanisms after AWG deliberation]

Long-term sustainable revenue	Best suited for local funding	Not recommended for further analysis at this time	
Distance-based charge for light-duty vehicles (RUC)	Street utility fee	Parcel delivery fee	Weight-distance tax for medium and heavy trucks
Increase in governmental services tax (GST) dedicated to transportation (flexible funding)	Cordon charge	Tire tax	EV electricity tax
Near-term revenue	Ride-share surcharge	Vehicle engine type fee	EV battery tax
Increase rate of flat per-gallon gas and diesel excise tax	Land use impact fee	Carbon tax	Payroll tax
Increase basic vehicle license fee		Vehicle weight fee	Value added tax on goods movement
Add statewide inflation index to fuel excise taxes		Vehicle MPG fee	General fund transfers
Distance-based charge for EVs, with option to pay a flat fee in lieu of reporting miles**		Vehicle age fee	Variable-rate excise tax based on fuel price
		Fuel efficiency index on fuel taxes	Income tax*
		Fuel sales 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 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 sustainable State Highway Fund source for the future. The table below summarizes the three packages presented to the AWG as inputs to its deliberations:

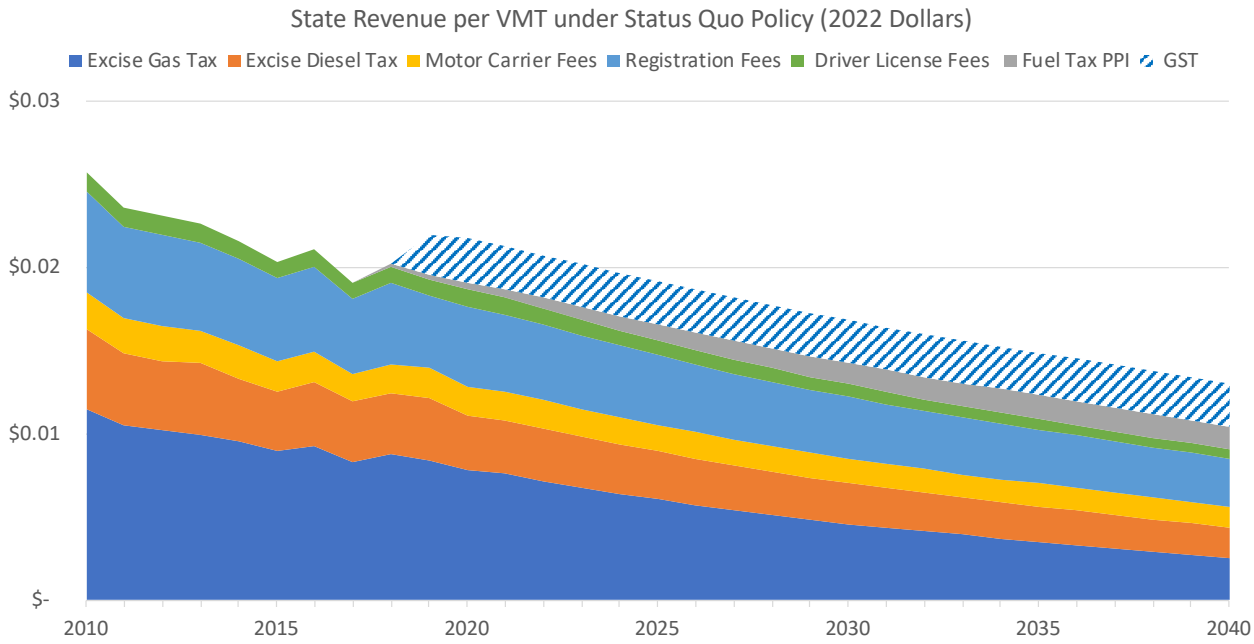
[**50**- improve formatting of table below showing 3 illustrative revenue packages]

	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 $30-60 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	• Gradual transition to a road usage charge for light duty vehicles, starting at 1 cent/mi	• Gradual transition to a road usage charge for light duty vehicles, starting at 1 cent/mi	• Gradual transition to a road usage charge for light duty vehicles,

sustainable funding:	and increasing by 0.1 cents/mi per year thereafter	and increasing by 0.1 cents/mi per year thereafter	starting with a 3c/mi charge on EVs in 2030

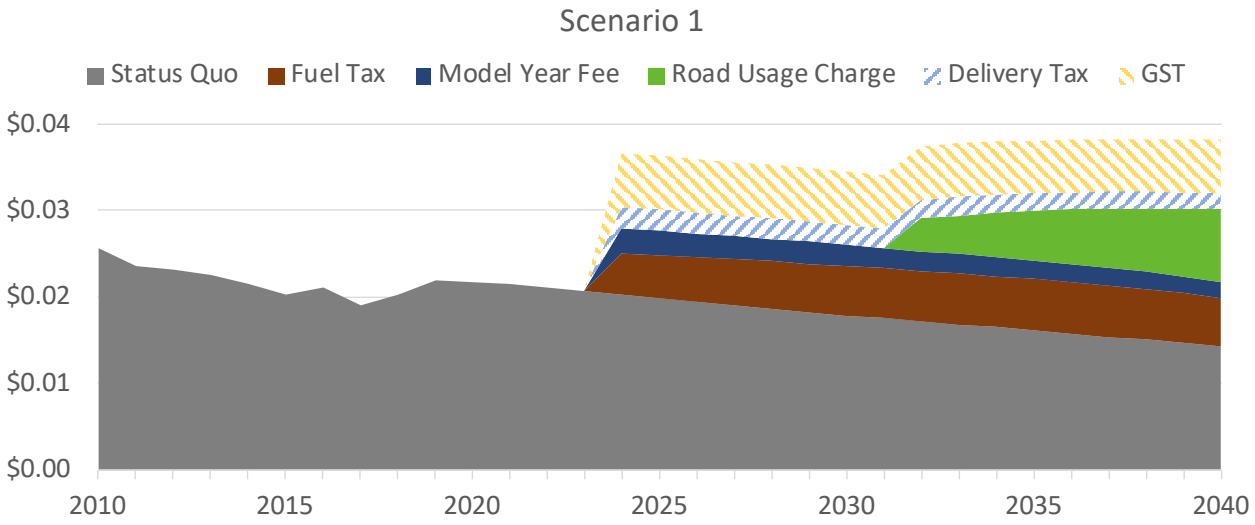
To examine how each of the above packages performs, the project team prepared for the AWG a series of charts illustrating existing (baseline) funding mechanisms along with projected future revenue, on an inflation-adjusted, per-mile-driven basis. As illustrated below, current State Highway Fund revenue sources generated 2.1 cents per mile driven in 2021, with that figure expected to decline to 1.4 cents per mile 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 cents per mile to about 4 cents per mile.

[**51**- improve graphics for chart below showing state revenue per mile traveled under business-as-usual (status quo) policies]



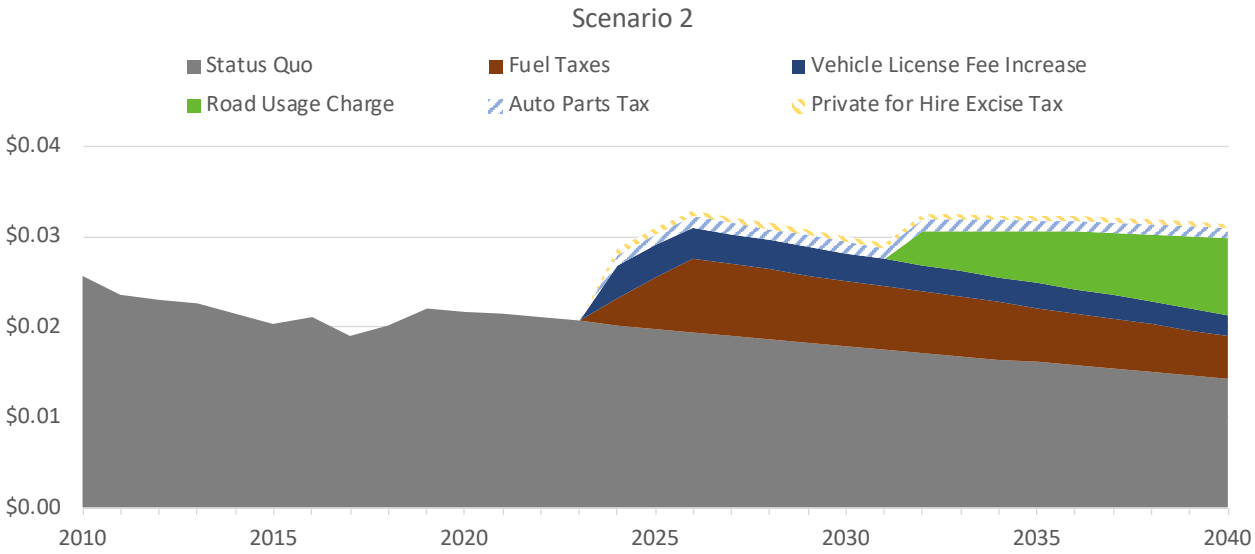
The charts below represent the contributions of the three sample packages to sustainable transportation funding. Although none of the three quite reaches 4 cents per mile driven, all three do significantly address the gap between current funding levels and identified needs, and all three represent more 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.

[**52**- improve graphics for chart below showing Revenue package Scenario 1]



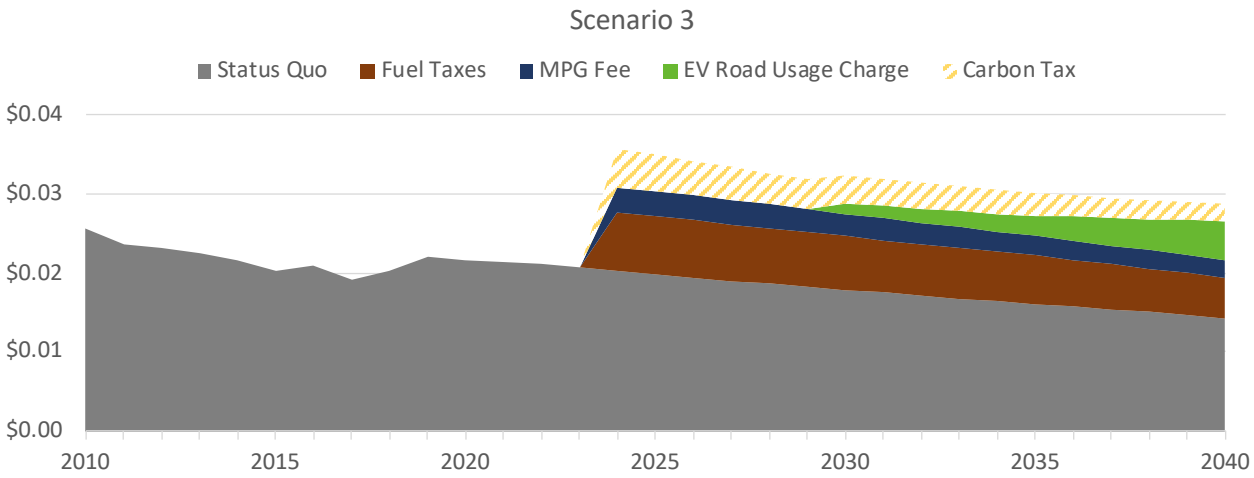
As shown above, scenario 1 relies primarily on fuel tax increases, the introduction of a road usage charge, and increase in GST to fill the gap and create a sustainable funding strategy, with the model year fee and delivery tax as modest contributors to the total package.

[**53**- improve graphics for chart below showing Revenue package Scenario 2]



As shown above, scenario 2 relies primarily on fuel taxes and the introduction of a road usage charge for sustainable funding, with vehicle license fees, auto parts sales taxes, and for-hire (ride-share) 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 does create sustainable.

[**54**- improve graphics for chart below showing Revenue package Scenario 3]



As shown above, scenario 3 likewise relies primarily on fuel taxes and the introduction of a road usage charge 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 road usage charge compensates for declining fuel tax receipts. However, even this scenario sees continued erosion of revenue due to the increased reliance on fuel taxes in the out years.

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 lower-income households irrespective of transportation system usage.
- A direct tax on carbon emissions may, in the longer 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 down 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 area-wide charges, ride-share surcharges, and land use impact fees.
- Nevada's statewide gas tax is currently 23.8 cents per gallon and has not been increased in 30 years. The lack of periodic adjustments to the per-gallon tax either by the legislature, or through smaller automatic increases tied to construction costs, has impaired the ability of this statewide 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 lower-income households.

- The Governmental Services Tax (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 longer term.
- As a transportation funding source, the GST is flexible – the state constitution does not restrict GST expenditures solely to highways. However, due to 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 longer-term financial planning.
- As of July 2022, 30 states impose some form of an annual vehicle registration surcharge on electric vehicles since 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 electric vehicles. The advantage of mileage-based fees is that the amount vehicles 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 as to 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. Due to 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. [Formerly Recommendation 2A]

- A revenue mechanism capable of reflecting *direct usage* of the roadways – a road usage charge – is the most promising longer-term, sustainable approach for eventually replacing the gas tax. However, several operational details require further consideration before a road usage charge 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 to the Nevada Legislature

Overview of findings, conclusions, and recommendations

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 Legislature with the full range of perspectives for each Recommendation, where differences of opinion remain, any opposition is 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 accompanies Recommendations in 5.1 and 5.2 as a Finding. The AWG did not come to a consensus on specific rates of increase for any one mechanism. Instead, the Recommendations collectively represent a framework of mechanisms 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 contains recommendations for a deeper examination of land use regulations that impact a wide range of public issues including transportation, housing, resource management, and economic development. 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 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 develop a mileage-based charge to capture road usage by electric vehicles, while setting the stage for a future transition away from the gas tax. [prior version: 3F]

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. [prior version: 3F]

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. [prior version: 3F]

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. [prior version: 3F]

Recommendation 2: As revenue from the gas tax declines as vehicles become more fuel efficient and operate on electricity or other alternative fuels, the Legislature should extend the per-mile road usage charge to all new vehicles by 2035. [prior version: 3G]

Discussion

There is strong support among AWG members for the concept of a mileage-based charge for electric vehicles in the near term and for a longer-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 electric vehicles (including a flat annual fee on electric vehicles during a developmental phase of this new system), there are more divergent ideas for various features of a road usage charge policy beyond the initial phase. The AWG agreed any future road usage charge system must be designed to avoid "double-taxation" (i.e., so that drivers do not owe both a road usage charge 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 road usage charge; other members felt including this directive to pursue federal funding could send mixed messages to the Legislature about the urgency of moving forward now to develop sustainable transportation funding mechanisms. While supportive of the Recommendation, a couple of members want to see more clarity around whether local governments that currently rely on fuel tax revenue would also benefit from a future transition to a mileage-based road usage charge.

The AWG wants to provide the Legislature with some degree of specificity regarding the timeframes 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 take effect beginning with Model Year 2026 vehicles, the AWG recognizes that more development time is likely needed – particularly for Nevada DMV, as 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 electric vehicles, along with auto 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.

While supportive of the general direction of the recommendation, one member representing environmental interests made clear that their further support for a mileage-based road usage charge 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.

Opposing views

Two AWG members do not support these recommendations. The representative for the Nevada Trucking Association doubts whether a per-mile charge system is capable of becoming operationally efficient at collecting transportation revenue, even when deployed at scale, and instead prefers a system that collects a fee based on kilowatt hours of electricity dispensed at electric vehicle charging stations at rates calibrated to match the rates per unit of energy of other motor fuels (e.g., diesel). The Director of the Nevada DMV has concerns about the staff workload, agency costs, and system adjustments required to administer a per-mile charge for electric vehicles.

Findings Accompanying Recommendations 1 and 2

The tables below summarize revenue potential from road usage charging.

[**55** – improve graphics for table below]

Table **55**: 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 cents	$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

[[**56** – improve graphics for table below]]

Table **56**: 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 cents	$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 Legislature should rely on adjustments to existing transportation revenue sources to generate needed funding by: [Preamble]

A. Increasing statewide fuel taxes (gasoline and diesel) [Prior version: 3Ai]

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 [Prior version: 3Aii], 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 [Prior version: 3C]

C. Enabling county commissions to enact inflation adjustments to the county's portion of fuel taxes [Prior version: 3B], with the same indexing formula and limitations as statewide fuel taxes [Prior version: 3C]

D. Increasing vehicle registration fees to provide modest revenue for highway purposes [Prior version: 3D]

E. Increasing the Governmental Services Tax (GST) and restricting the proceeds of the increase to transportation purposes. [Prior version: 3E]

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 for Transportation Revenue in Nevada (see Section 4, page – of this report).

Although Recommendations 3A through 3E above received majority support from the AWG, differences of opinion remain whether the 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 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 Legislature on the specific timing for any increases.

While indexing fuel taxes received broad support, there are differences of opinion on what the approval process should be to enact fuel tax indexing. Some members feel strongly that the approval process used in the past to index fuel taxes (i.e., requiring a majority vote of the public) should be applied to any future indexing provisions. Others believe that legislators and

county commissioners ought to be (or already are) empowered to approve fuel tax indexing by majority vote of the governing body, particularly where the voters have already approved fuel revenue indexing ballot measures. Recommendation 3C adopts the latter approach of allowing county commissions to enact indexing fuel taxes collected in their county; however, a substantial number of AWG members do not support this provision in 3C, even if they conceptually support indexing county fuel taxes.

Raising vehicle registration fees was also broadly supported, but with noted caveats. The Latin Chamber of Commerce urged that any increase in vehicle registration fees be modest, since flat rate fees paid by all motorists without regard to vehicle value or income will disproportionately affect lower income households. AWG members all agreed with this caveat and have included language in their Recommendation 3D recognizing the need for moderation.

There was unanimous support for Recommendation 3E to include a provision that the revenue raised from an incremental increase in GST must be restricted for transportation purposes 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 (see Section 4, and Appendix B), 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 area-wide charges, ride-share 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 Legislature should enable local governments to shape and enacted these revenue mechanisms to best fit their community needs. [Prior version: 2C, failed to gain majority support as Recommendation, but supported as a Finding/Conclusion]

Opposing views

As described above, several AWG members raised objections to commission approval of fuel tax indexing without a public vote. AWG members from the Nevada Taxpayers Association, the Nevada Farm Bureau Federation representing agricultural interests, the Las Vegas Chamber of Commerce, the Reno/Sparks Chamber of Commerce, the Nevada Trucking Association, the Nevada Resorts Association, and the representative for environmental interests, all stated that they cannot support Recommendation 3C if it contains commission-approval only to impose fuel tax indexing.

Findings Accompanying Recommendation 3

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

[[**57** – improve graphics for table below]]

Table **57**: 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

[58 – improve graphics for table below]

Table **58**: index portion of fuel taxes not already indexed (state and federal taxes outside of Clark and Washoe Counties)

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

[59 – improve graphics for table below]

Table **59**: increase vehicle registration fees

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

[60 – improve graphics for table below]

Table **60**: increase governmental services tax

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

Recommendation 4: The AWG recommends that the state convene a special commission, either newly created or by enhancing the membership and scope of the existing --- commission, 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; 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 encouraging sustainable economic growth and business development.

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 Legislature asked the Advisory Working Group to consider the role land use has on the demand for transportation resources.

After considering the role land use plays in the Nevada economy, the regulatory and statutory framework around which land is managed, and the work conducted in other states around land use, the AWG determined that an evaluation of land use in the state should involve more and broader industry sectors, stakeholders, and organizations. The AWG believes that transportation is one area of the Nevada economy that impacts the use of land and in order to effectively manage land in the state, a broader and more inclusive examination must occur.

Additionally, because land use is governed primarily at the local level, due consideration should be given to the role local governments play in managing land. Furthermore, the scope of any further Commission or Task Force should be explicitly defined in any legislation establishing such a commission. The AWG's recommendations are intended as a starting point for more detailed scoping by the Legislature.

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 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 and electric vehicles
- Effective dates for new federal fuel economy and motor vehicle emissions regulations
- Current economic conditions (inflation, price of gasoline, etc.)
- 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 timeline for three phases of a gradual transition away from Nevada's dependence on fuel taxes and incorporation of a mileage-based road usage charge in the future.

[61 - Create timeline graphic here: Phases, Sequencing, and Estimated Timelines for Action, to include info below:]

Phase 1 (2023-25): Initiation and Start-up Phase

- Enact an annual flat fee on electric vehicles now
- Begin research & development of a mileage-based road usage charge for electric vehicles now
- Collect annual flat fee on electric vehicles no later than 2025

Phase 2 (2026-30): Developmental Phase

- Enact a mileage-based road usage charge on electric vehicles, with option to pay a fixed annual fee for unlimited miles
- Calibrate start date for collecting mileage-based road usage charge with Nevada DMV's IT system modernization
- Develop and test capabilities to extend mileage-based road usage charge to all new vehicles by 2035

Phase 3 (not later than 2035): Transitional Phase

- Extend mileage-based road usage charge to all new vehicles, based on Model Year (not later than MY 2035), regardless of advanced vehicle technology or alternative fuel source

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 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. [Prior version: 1A and 1B, now combined for consistency]

6.0 Appendix

A. NDOT Statewide Funding Needs Assessment Memorandum
B. Evaluation of Revenue Mechanisms (link to Briefing Book)