

# Appendix A

External Advisory Committee



OHIO DEPARTMENT OF  
TRANSPORTATION

# Ohio Revenue Alternatives Study: External Advisory Committee

July 2023

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## 1. Introduction

Stakeholder input that represents the range of perspectives of state residents, organizations, and industries is critical to understanding the social and political challenges to effecting change. Stakeholders can help decision-makers obtain insights about how funding alternatives could affect Ohioans, provide important feedback and input on policy, lend meaningful credibility to the process, be a conduit for disseminating key messages, and increase public trust in the design of an alternative funding approach.

To accomplish these ends, ODOT established an External Advisory Committee (EAC) to serve an advisory role on the Revenue Alternatives Study. The EAC members and ODOT officials met for virtual and in-person discussions over a 16-month period, providing sustained feedback.

The EAC's advisory role—including its membership, responsibilities, and meetings—is described in greater detail in the sections that follow.

## 2. Committee Membership

The 17 EAC members represented a variety of Ohio community organizations, nonprofits, and industries. Among those represented included the construction industry, local and regional governments, transit organizations, environmental groups, and business groups. ODOT strategically selected members for their knowledge of the transportation industry and policy, as well as for their role in the success of Ohio's economy. Having representatives from distinct perspectives ensured advise on any new funding approach would be equitable for Ohioans of disparate transportation and all modes of motorized transportation.

**Table 1** details the EAC members and the unique perspective each brought to the committee.

Table 1: External Advisory Committee Members

Member	Perspective
Federal Highway Administration Ohio Division	Federal partner in Ohio highway funding and administrator of STSFA grant
County Engineers Association of Ohio	County roads and bridges funded by state motor vehicle fuel tax revenue
County Commissioners Association of Ohio	County interests
Ohio Township Association	Township interests
Ohio Municipal League	Representation of municipal governments
Ohio Association of Regional Councils – rural transportation planning organization representative & metropolitan planning organization representative	Rural and urban transportation planning and policy
American Automobile Association (AAA) Ohio	Automobile owners
Ohio Farm Bureau	Agriculture industry
Ohio Chamber of Commerce	Ohio business community
Clean Fuels Ohio	Alternative fuel vehicles – such as battery electric, natural gas, and hydrogen
Retail Merchants/Convenience Store Association	Partners in current state Motor Fuel Tax (MFT) revenue collection/potential partners in funding alternatives
Ohio Contractors Association	Highway and bridge contractors
American Council of Engineering Companies	Engineering consultants that design highway and bridge projects
Alliance for Automotive Innovation	Automobile manufacturers
Ohio Public Transit Association	Transit agencies
Ohio Manufacturers' Association	Manufacturing

### 3. Committee Responsibilities

The EAC was formed to provide advice on the various components of the study, including the public education campaign, focus group interviews, and the development and refinement of the list of alternative revenue mechanisms.

Members had three primary responsibilities:

1. Attend each meeting and participate in the EAC's deliberations in a constructive, solution-oriented manner.
2. Provide relevant information and perspectives that represented the members' constituencies.
3. Share information about the EAC's activities and progress with their constituencies, as broadly as possible.

Project team members aided this effort by supplying EAC members with presentations, articles, and other resources explaining the funding challenge and describing the Revenue Alternatives Study. By communicating these resources to their audiences, EAC members helped amplify

ODOT’s message about the need to create a sustainable funding future for Ohio’s roads and bridges.

## 4. Meetings

ODOT held the first EAC meeting in March 2022. The group met seven more times throughout 2022 and the first half of 2023 (Figure 1). These meetings included both in-person and virtual attendance, though in-person participation was strongly encouraged.

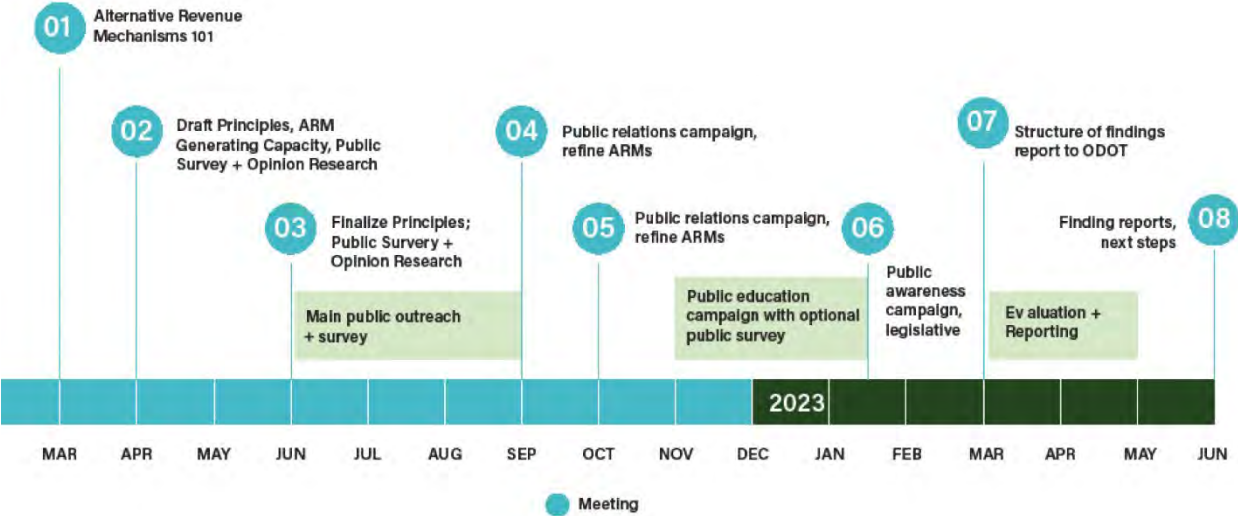
Each meeting was designed to build on the information shared at the previous meeting. For example, at the first meeting, the project team provided EAC members with an in-depth analysis of the current state of transportation funding in Ohio as well as an update on recent trends in transportation funding across the country, including an overview of how other states were addressing their chronic funding shortfalls. At the second meeting, the project team built on this foundation to introduce potential alternative revenue mechanism options for Ohio as it seeks to secure its transportation funding future.

EAC members engaged in discussions to evaluate viable funding alternatives for Ohio. In keeping with the EAC’s core goals, each member provided insights and advice for the study.

In May and June 2022, the project team conducted one-on-one meetings with each EAC member. These meetings provided insights on specific concerns or objectives of the project, input on how to make the meetings more engaging and efficient, and ideas for engaging stakeholder membership organizations and leveraging EAC member relationships and skills. These conversations provided information to ODOT and the project team to help inform the direction of the study.

To conclude the EAC, the project team conducted a second round of one-on-one interviews with each EAC member in May 2023 to allow them an opportunity to share feedback about the study and provide ODOT with additional insights as it moves forward.

Figure 1: External Advisory Committee Meeting Schedule



# Appendix B

## Key Findings from Exploratory Focus Groups Report



OHIO DEPARTMENT OF  
TRANSPORTATION



Ohio DOT Revenue Alternatives Study

# Key Findings from Exploratory Focus Groups

May 23, 2023



## Primary Objectives

- Understand residents' **baseline knowledge regarding road funding** in Ohio
- Understand residents' general **reactions to current road funding** in Ohio
- Understand residents' **reactions to alternative revenue mechanisms**, with a focus on the least understood concept - a mileage-based user fee
- Explore **trusted channels/sources for information** on transportation funding
- Ultimately, learn information to help with the development of the one-on-one interview guide and survey questionnaire (guidance about which topics will need to be addressed and to what extent; ideas about how to describe various concepts)



# Methodology

**Method:** Five 90-minute focus group discussions, held virtually (Zoom), with a diverse mix of 36 Ohioans

## **Qualification Criteria:**

- All participants owned or leased a vehicle they drove in Ohio in the past 12 months and expect to continue using them in 2022
- The sessions included people residing in various regions of the state: NE, NW, Central, SE, and SW Ohio
- Each focus group included a good mix of: urban/suburban/rural locations, age, race, and household income



# Overview of Focus Group Discussion Topics

- **Baseline knowledge of road funding in Ohio**
  - Awareness of state gas tax, amount, and when it last changed
  - Awareness of difference in registration fees by vehicle type (gas or diesel-powered, hybrid, or EV)
- **Reactions to the current funding structure**
- **Problems with current funding structure**
  - State gas tax is not sustainable
  - State gas tax is not equitable
- **Potential alternative funding concepts**
  - Participant ideas
  - Mileage-based user fee (MBUF) and MBUF mileage reporting options
- **Information and messaging preferences**

## PARTICIPANT DEMOGRAPHICS AND PERCEPTIONS OF ODOT

Region		<i>n=36</i>
Northeast	34%	
Northwest	16%	
Central	14%	
Southeast	12%	
Southwest	10%	

Community type		<i>n=36</i>
Urban	39%	
Suburban	33%	
Rural	28%	

Age		<i>n=36</i>
18-34	36%	
35-54	47%	
55+	17%	

Gender		<i>n=36</i>
Female	50%	
Male	50%	

Race/ethnicity		<i>n=36</i>
White	64%	
Non-white	36%	

Household income		<i>n=36</i>
Less than \$25,000	8%	
\$25,000 to \$50,000	19%	
\$50,000 to \$75,000	25%	
\$75,000 to \$100,000	22%	
More than \$100,000	25%	

Vehicle type		<i>n=36</i>
Gas or diesel	75%	
Hybrid	11%	
Electric	14%	

Participants were asked whether they were aware of the Ohio Department of Transportation (ODOT): almost all of the participants were aware.

Of those, the great majority had neutral (68%) or positive (29%) attitudes towards ODOT.

## #1.1

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# Education about the *sources of Ohio's road funding* is needed.

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There is a need for education about the ***sources of Ohio's road funding*** – many Ohio residents don't know:

- A state gas tax is a source of road funding
- How much the state gas tax is (*3 out of 36 participants were correct*)
- When the state gas tax last changed (2019)
- That vehicle registration fees differ by vehicle type (gas or diesel-powered, hybrid, or electric) (*about 2/3 were correct*)

This suggests that awareness of/memory for previous road funding education is limited.

## #1.2

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### **Education about how Ohio's road funding is used is needed.**

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There is a need for education about ***how Ohio's road funding is used***. Raising questions and discussion about the sources of Ohio's road funding automatically triggers questions about how the road funding is used, as well as skepticism that it is used and distributed fairly, efficiently, and effectively.

Participants are particularly concerned:

- The areas where they live and drive do not receive a fair portion of road funding
- That funding is not being used as efficiently and effectively as possible:
  - maximizing quality of materials per cost
  - avoiding wasted labor hours
  - implementing long-term solutions as opposed to patch jobs

#2

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**“If it’s not broken,  
don’t fix it.”**

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Without compelling numbers and/or graphics, the lack of sustainability of the state gas tax is not seen as enough of a problem to warrant a change, for some participants.

Although most participants understand the current funding structure may not be sustainable, many do not see an issue with simply paying more towards state gas tax each year.

#3

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**“It costs a lot to be poor.”**

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Most participants understand the argument that the state gas tax is experienced inequitably. They recognize the idea that lower-income individuals pay more as a common issue across several domains, even outside of transportation.

Many participants seem to care at least somewhat about this problem.

#4

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**The most favorable ideas for alternative revenue mechanisms include combining road funding into other taxes already in effect, usage-based charges, and flat fees.**

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**Most groups** said funds could be raised by:

- Folding taxes for road funding into other taxes, such as income and property taxes

**A couple of groups** said funds could be raised by:

- Mileage-based user fees
- Flat vehicle registration fees
- Pushing sales tax overall, or on specific items (vices)
- Tolls
- Reduce the need for road funding: invest in public transportation and incentivize ride sharing
- “There is no perfect solution”

#5

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**There are perceived pros and cons to the primary alternative revenue mechanisms discussed.**

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**Mileage-based user fee:**

- *Pros:* Equity/pay for the roads you use
- *Cons:* Monitoring issues and complexity

**Flat vehicle registration fee:**

- *Pros:* Simple, predictable (residents can predict what they'll pay), and visible (residents have a better idea of the amount of funds collected)
- *Cons:* Less equitable / not paying for the roads you use

**Other taxes (income, property, sales, or vice taxes):**

- *Pros:* Buried in previously existing tax; can adjust so those with higher income or higher assets pay more; vice taxes disincentivize vices
- *Cons:* Not tied to road usage in any way\*

\*Participants do not accept the obverse, that funding tied to road usage would be distributed to non-transportation applications



## #6.1

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# Overview of reactions to a mileage-based user fee

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About 2/3 of participants prefer a mileage-based user fee instead of the current state gas tax + vehicle registration approach. (Only the Central, SW, and SE groups were asked this question.)

Nearly all participants feel that a mileage-based user fee is somewhat or very fair.

Generally, they like the “pay for the roads you use” model, but they have several concerns about the implementation and outcome of a mileage-based user fee.

## #6.2

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### **Skepticism exists about the mileage-based user fee alternative - complexity.**

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The concept of a mileage-based user fee is complex. It can be difficult to understand, and there are many facets that raise questions and elicit skepticism.

- They worry they, or people in rural areas or who drive a lot, will need to pay a lot or pay more. Education may reduce the prevalence of this perception.
- They don't want to disincentivize fuel efficiency.
- They want to understand how commercial vehicles and heavy vehicles will be treated.
- Participants dislike the idea of being forced into an alternative funding solution – they would prefer to have options to choose from.

## #6.3

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### **Skepticism exists about the mileage-based user fee alternative - monitoring.**

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They have concerns with monitoring:

- Privacy concerns for location-based reporting
- Trust concerns with self-reporting
- Issues with how residents of other states driving through Ohio will be captured

#7

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**Mileage-based user fee messaging should emphasize replacement of the state gas tax and should provide concrete numbers.**

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*Unless it was conveyed strongly and early on in the messaging as a replacement for the state gas and the hybrid/EV registration surcharge, participants tended to assume the mileage-based user fee was an extra tax in addition to the current funding structure.*

Participants often *assumed they would pay more* with a mileage-based user fee than with the state gas tax unless concrete numbers were provided. Example numbers also helped them to understand the concept and the magnitude of the cost.

*A dedicated urban/rural analysis and information about how commercial vehicles will contribute may be beneficial.*

#8

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**Transportation organizations and elected officials are preferred as information sources about road funding changes.**

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Participants would like to learn about changes to road funding from:

- Transportation organizations such as ODOT and the BMV.
- Elected officials. Although participants mentioned elected officials should provide information about road funding changes, they don't necessarily trust the officials to provide non-politicized, unbiased information.

Regardless of the source, participants emphasized that remaining unbiased is important.



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KNOWLEDGE OF AND ATTITUDES TOWARD  
OHIO'S CURRENT ROAD FUNDING STRUCTURE

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### Most participants had low awareness of how Ohio's transportation infrastructure is funded.

Participants were told that in 2020, about \$3.5B in highway user revenue was collected to maintain the roads and bridges in Ohio, which includes projects such as changing roads or bridges, repaving, landscaping, cleaning, running traffic signals, winter maintenance such as salting and plowing, and managing vehicle crashes.

When asked to identify the sources of that money, a total of 6 participants across 3 groups mentioned the main source (gas taxes).

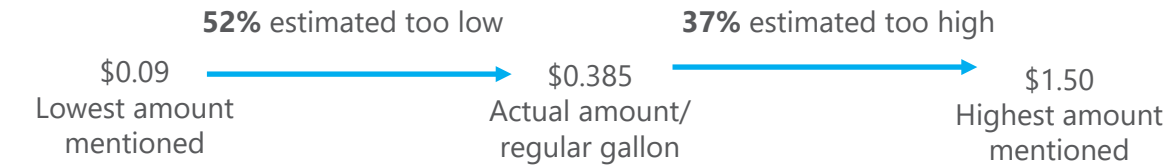
# 6/36



- 17 participants mentioned some form of taxes,
- 7 participants mentioned taxes (unspecified), and 4 mentioned some other kind of tax: income tax, property tax, or local tax.
- 4 participants said funding came from the federal government, and 2 said from grants (unspecified).
- 5 participants said funding came from other sources, including: the lottery, Ohio Department of Transportation, road tolls, county officials, or the "the city in general."
- 1 participant mentioned car registration fees.

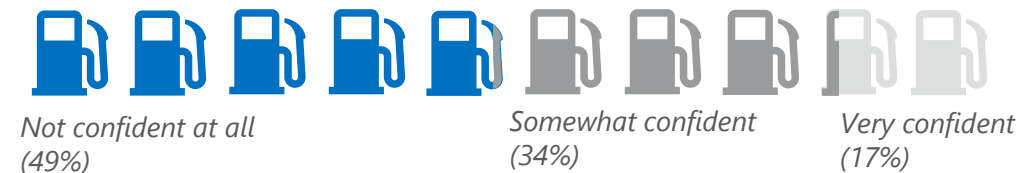
Most participants don't know what they pay per gallon towards the state gas tax. Out of the 27 participants who provided dollar estimates of the state gas tax amount, only 3 (11%) answered the correct amount per gallon of regular gasoline.

State Gas Tax Estimates



49%

Percent of participants who report they are "not confident at all" in their estimate.



Only a few participants recalled that the state increased the gas tax recently (e.g., 2019).

*Note: 6 participants provided percentage estimates, ranging from 3% to 18% of the price of gas excluding the tax.*

A majority know that registration fees differ based on whether vehicles are gas-powered, hybrid, or electric vehicles. The fee for gas-powered passenger vehicles is \$31; the fee for hybrids includes a \$100 surcharge (\$131), and the fee for electric vehicles includes a \$200 surcharge (\$231).

Registration Fee Knowledge

64%

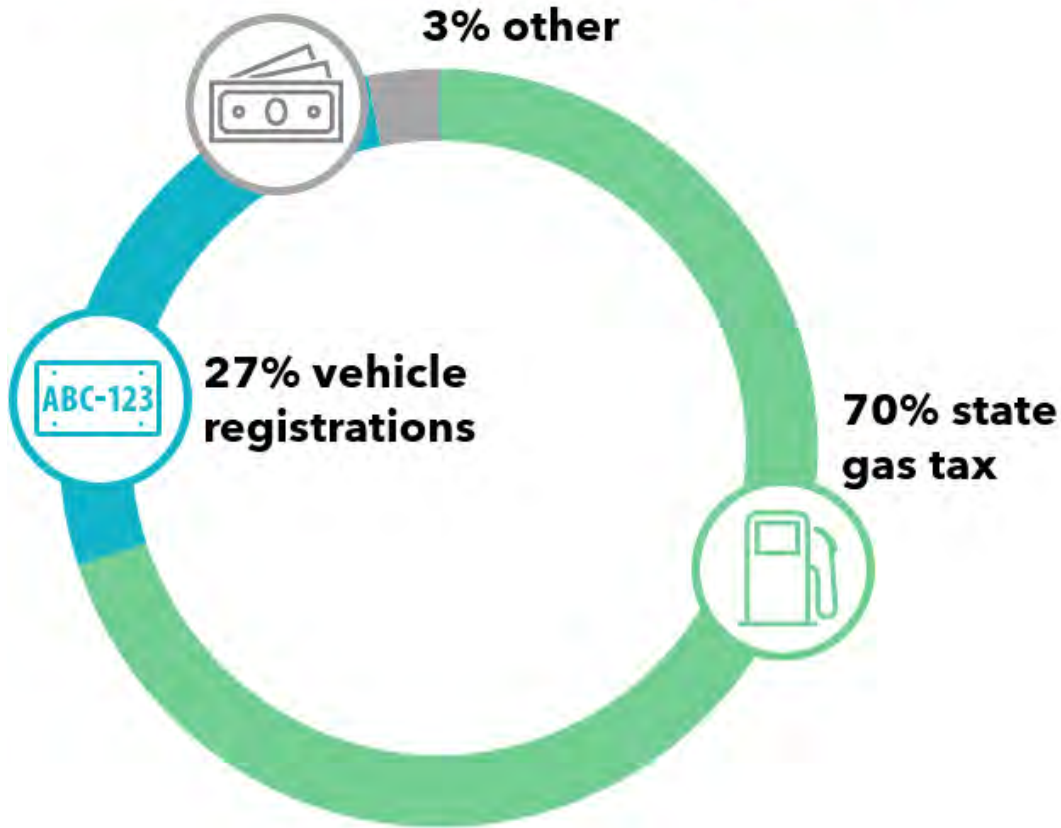
Percent of participants who report "registration fees are different"





Some participants recognized that the current funding structure is unsustainable and inequitable; they questioned how the funds are being used.

## Current Transportation Funding Sources



### Accounts for EV presence

- It makes sense for the vehicle registration piece to be there, to account for the presence of EVs (believed even by EV owners).

### Reliable sources of funding (for now)

- It makes sense to tax gas because it's an assured way to get the money needed for this infrastructure (you can't neglect buying gas).



### Unsustainable

- So much money comes from how much people drive (how much gas is used) but events like COVID-19 drastically reduce the amount people drive.  
- With more people being encouraged to get EVs, the amount of money earned from the state gas tax will decrease, and amount from vehicle registrations will need to increase.

### Inequitable

- Some people/entities who benefit from the roads don't seem to be contributing to their upkeep: e.g., public transportation users/those without cars, and trucking and shipping companies who use the state's roads.



### Questions about how funds are used

- Many participants asked how the money is distributed throughout the state/where funds are prioritized. This was connected to participants' issue with paying to fund roads when they don't see improvements to basic issues like potholes in their communities.



OHIO'S CURRENT ROAD FUNDING STRUCTURE –  
PERCEPTIONS OF SUSTAINABILITY AND EQUITY

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Participants were told...

*First, vehicles are becoming more efficient and getting better gas mileage. That is great for reducing harmful emissions and reducing pollution. However, over time less gas will be purchased, which means that without regular increases to the gas tax, less tax dollars will be collected to maintain our roads and bridges. However, vehicles will continue to cause the same amount of wear and tear on roads.*

*Looking ahead to the next few years, the state is projected to take in less money than it needs to maintain our roads and bridges. **Bottom line – the state gas tax by itself is not a sustainable solution.***

Many participants did see this argument as credible and were not surprised to learn that the state gas tax would not provide enough funding to ensure quality infrastructure. These participants...

**Believe that standards for vehicle efficiency will continue to increase over time, leading to less gas consumption.**

“For me, it's not surprising, because the car I have, it gets almost 50 miles per gallon of gas, and I imagine even a newer car gets even more mileage, so that's not surprising.”

“We're all being encouraged to buy newer cars that are either hybrid or are more gas efficient, so it's almost this weird paradox where we're going to tax you - the state benefits when you use a lot of gas, but everything they're saying is get cars that are more efficient, hybrid or electric, so I don't think it's a sustainable model.”

**See road use, and accordingly gas consumption, as highly variable due to events like the COVID-19 pandemic.**

“It makes complete sense...with COVID, our structure about how we work is different. A lot of people are working from home now, you're doing school from home, you are moving to be closer to where you are, so we're not on the road as much as we used to [be].”

**Agree that EVs are not contributing enough to the current funding structure.**

“I feel like more and more cars are becoming electric on the road. I'm really seeing it. I'm noticing it and I feel like these people that have electric cars and I'm guilty of it, I feel like I'm benefiting, and I feel like I'm not getting taxed other than my vehicle registration...and that hurts my wallet but at the same time too that's offset [by the] gas.”

“I know they have the state registration fee on all vehicles, and that it's higher for electric vehicles and hybrids, but I find it interesting that...the hybrid owners and the electric owners aren't paying more like we are. I understand that they don't use gas, but they're still using the roads. I don't think it's proportionate.”

However, other participants reacted negatively to this information, because they don't recognize a sustainability problem or don't believe that funding for roads is being used efficiently or effectively. These participants...

**Some participants did not necessarily see a problem with the sustainability of the current gas tax, not minding an increase at the pump if it meant roads would actually get fixed.**

"I don't think that structure is significant in percentage to pay. I'd probably pay the two cents. Literally."

"I guess I wouldn't mind the increase of the tax if I actually seen a visible occurrence of it actually being [put] to use."

**Feel that infrastructure funding is wasted on quick fixes, instead of making roads built to last.**

"Why can't our roadways [adapt like technology improvements to cars] in terms of staying around long enough and being able to take additional stress and additional traffic over them...it's relating to figuring out how you can get cement or building materials to last a lot longer. Apparently other countries can do it so I'm not sure why we are not able to come up to that but there should be something."

**Distrust that tax dollars are allocated properly, in general.**

"I think I'd want to know exactly how the state is spending it because no matter how much you pay in there's always not enough money for this and there's not enough money for that. I think I'd want to know are they being efficient on how they're spending that money or are they being wasteful before you start charging people more."

**Hesitate to contribute to funding when they don't see improvements in their area.**

"Because if you look at Ohio's roads and then you go across to Kentucky, their roads don't look as bad as ours do. Money doesn't go as far as it used to, and yet they still want to keep taking and taking out your pocket to fix roads where they don't fix any."



*Regional Differences: Participants from Southwest Ohio emphasized poor road quality, bringing comparison to Kentucky's roads.*

Participants were then told...

*A gas tax means motorists pay different amounts for the same usage of the roads. Consider a few examples:*

- a. A person who owns an older vehicle with poor gas mileage has to refuel more often. That means they are likely to pay more in state gas taxes each year as compared to a person who owns a newer vehicle with better gas mileage.*
- b. Because people who own electric vehicles do not buy gas for those vehicles, they don't pay state gas tax at all. Instead, they pay a flat fee -- \$231 -- when they register their vehicles each year.*
- c. There is also research to suggest that lower-income individuals are less likely to own electric vehicles, because electric vehicles are more expensive. At the same time, lower-income and rural individuals are also more likely to own older vehicles with poor gas mileage. Both of those factors lead to lower-income and rural individuals being likely to pay more than others in state gas tax.*

Many participants agreed that the gas tax is inequitable (at least somewhat unfair) due to the disproportionate amount of funding taken from non-EV users, low-income individuals, and rural individuals. These participants felt it was unfair because...

**EV users might use the road just as much, causing equal wear as individuals who drive gas-powered vehicles.**

"I feel like it should be kind of like the same no matter what car you have. If it's electric or a gas, it's all same kind of wear on the roads, so I figured it wasn't fair."

"I would just say it's not fair because we are all using the road. It doesn't matter if my car is electric or someone has gas."

**Low-income individuals already suffer the high cost of being poor, and can't afford electric vehicles that avoid the gas tax.**

"We always end up getting most from the middle or lower classes. It's from the people that can least afford it. That your gas goes up. Your mortgage goes up. Your school. Everything goes up and our salaries are not going up."

"It's sad to think and put it the way that the more money you have, the less that you'll spend because you can afford the hybrid cars where everyone else they can't afford it - and yet they're still paying more in gas versus the ones that can [afford it]. It's not fair at all. The system is not fair at all period to the working or the lower class."

"It's unfortunate for them that they have a worse gas mileage car, but they might not have much of a choice....that's all they can afford, that's all they can run with."

**Rural individuals have to use more gas to get to basic needs and may also be paying into road infrastructure when they fill up farm equipment that doesn't see road use. EVs are also seen as more inaccessible in rural communities.**

"I think the other thing to think about too is if you live in rural Ohio like I do, it's 15 miles into Athens for me which is the closest town. If I buy an electric vehicle am I going to have access to a charging station? Rural Ohio is the last place to get anything."

"Also, those in rural areas, a lot of times they have tractors and other things that use gas. They are paying not only registration, but they may have a lot of different vehicles that are not necessarily for the city."

However, some participants felt that the gas tax was fairly equitable, because...

**EV users might not be getting that much benefit over gas users in the cost of transportation overall.**

“But at the same time, too, with those electric cars, you got to imagine how much the cost is to zap it up or whatever.”

“That's a lot of money at one time that they'd have to pay. Yeah, they should help to take care of the roads and stuff, but not a big chunk at one time. That's a lot to ask for anybody, especially even just to buy a hybrid car like that.”

**There should be some incentive for driving vehicles that are better for the environment.**

“[It's] annoying that I'm getting dinged for having an electric vehicle. I'm not using gas. I'm helping the environment.”

“I think it depends on your political agenda or what you believe but if you believe that incentivizing electric vehicles for the greater good and just the green aspect of it... I feel like they get a break now because eventually it's all going to catch up.”

**They weigh this with other factors, some unrelated to personal transportation costs.**

“So in gas, I am actually probably saving money in gas along with living because it's just way too expensive to live in Columbus or even near it...So people who live out in the country actually pay less depending on what they own and how much they make and if they have another person that lives with them and however many kids they have and that kind of thing compared to living in town.”

“I was just thinking that it's unfortunate that people with cars with less gas mileage are paying more, but I think that's part of the reason why sometimes we have public transportation and things like that, because then that's avail – and maybe it's not ideal...but at least they have that option that they could get places with that, versus having to pay that higher tax or whatever. So that may not be an answer, but at least they would still have transportation.”





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# IDEAS FOR BETTER WAYS TO FUND TRANSPORTATION

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Participants suggested a range of other ideas for funding Ohio's roads. In a majority of groups, at least one participant mentioned the idea of folding taxes for road funding into already existing taxes on income or property. This solution appealed to participants because the amount someone contributes to road funding could be dependent on their means.

"Realistically, the only fair way to do it is if you – don't get me wrong, I don't want another income tax – but is if you made it as part of the income tax. So if you're going off the idea that – so they're lower income, they're driving the older cars because they can't afford as much. If you have a flat income tax of – a flat part of the income tax that just automatically goes to roads and bridges and all that stuff, I think that's the only way you're going to make it fair – as fair as possible – is if everybody's getting taxed the same rate on the money they make."

"I was thinking income tax and property tax for certain properties that are valued above a certain percentage. Whatever that relative value of the region might be used that way. We could say fairly that a house in a rural community might typically be less than a house in a city. We could still appropriately price how much that income tax should be directed towards roads. Not necessarily out of the simple fairness that they're driving more or that they, we just said from a sense of these are public goods and everybody should stand for that public good. It's not, it's still not necessarily fair."

**A participant mentioned they would rather pay more in their property taxes than see prices at the pump go up because of an increasing gas tax.**

"No, that's high already now, so if [the gas tax] went up more, it'd be just more paying at the pump, so I would say, if it came out like in your house taxes or something, that would be all right.."

**Other ideas mentioned by participants included:**

- Flat vehicle registration fees
- Mileage-based user fees
- Pushing sales tax overall, or on specific items like fast food or cigarettes
- Tolls
- Reduce the need for road funding: invest in public transportation and incentivize ride sharing
- Lottery tickets
- Taxing casinos

Many participants liked the idea of a transparent fee that they would pay every year, based on how much road funding is needed, and spread across all drivers. This solution seems to mitigate the excuse for lack of funding and allows them to know exactly how much they are paying towards road funding.

**A flat fee could provide enough funding for roads while placing more accountability on the organizations in charge of infrastructure improvements, rather than on the behavior of individual drivers.**

"What they should do is figure out how much they need every year to maintain and fix and whatever and go maybe based on that. You know, do a percentage or whatever for so many years and then adjust it as needed...So that way at least we have decent roads."

"I also think [a flat fee] is shifting some of the ownership to where it should be. As far as who's monitoring as far as controlling, so that way we start holding accountability if things are not done, because you've received all of this money. And we can see that that's going there, in essence, versus right now with just the tax, I don't know where that money goes. I have no idea."

"And the thing is people hate being nickel and dimed. If they know this is what they're going to pay for the year, this is what they're going to pay for the year. Not I want ten dollars here, I want \$20 here, I want another ten here. I want another five here. Just what do I owe?"

**Participants also want those with lesser means to have the option to pay this fee in lesser amounts, but without a lot of administration.**

"I think there absolutely should be an option for spreading that out for especially low-income or fixed-income people...do we add further time and energy restraints on people because they're already at a lower income, and they can't afford to pay it all upfront so now they have to spend more of their time to continually go to the BMV, or make sure they sign in online and make sure they juggle this one other ticking time bomb in their lives. So maybe is there, is it possible that we could...spread that income basis from a paycheck deduction, something to that effect that kind of minimizes the impact on them?"

In contrast to the idea of a fair charge being an equal amount for all drivers, participants from two groups (Central and Southeast) brought up the idea that the amount an individual contributes to road funding should depend on how much they use the road.

## 2/5

Number of groups who suggested (without prompting) that Ohio consider a mileage-based user fee (or similar).



*Suggested a mileage-based user fee*

*Did not suggest a mileage-based user fee*

"I feel like people should pay according to what they use no matter what it is. I think if you use the roads more than average or average you should be paying your fair share of whatever that is. I think no matter how you change it to accommodate electric cars in the future eventually everyone is still...going to have to pay...so I think everything should be based on how much you use it."

"I figure they would just probably charge those that drive the most, there would be a meter read. Like you're on the road X amount of time, you should pay more versus someone that is not driving as much maybe."



## REACTIONS TO THE IDEA OF A MILEAGE-BASED USER FEE

In the focus groups, attention was given to the least understood alternative revenue mechanism the mileage-based user fee.\* Participants were told:

*Here's an option that is a possible replacement to a gas tax. Some states, including Ohio, are exploring something called a "Road Usage Charge." With a Road Usage Charge, motorists would pay a tax based on the number of miles they drive instead of how many gallons they buy. Everyone would pay the same amount of money for each mile they drive, instead of different amounts of money based on the kind of car they drive. Additionally, if a Road Usage Charge was implemented, this would eliminate the need to charge different vehicle registration fees by fuel type.*

\*A road usage charge is also referred to as a mileage-based user fee.

Participants were then shown this graphic:

**Current (gas tax & registration fees):**  
Drivers pay for roads and bridges based on the type of car they drive (e.g., miles per gallon, electric vehicles)

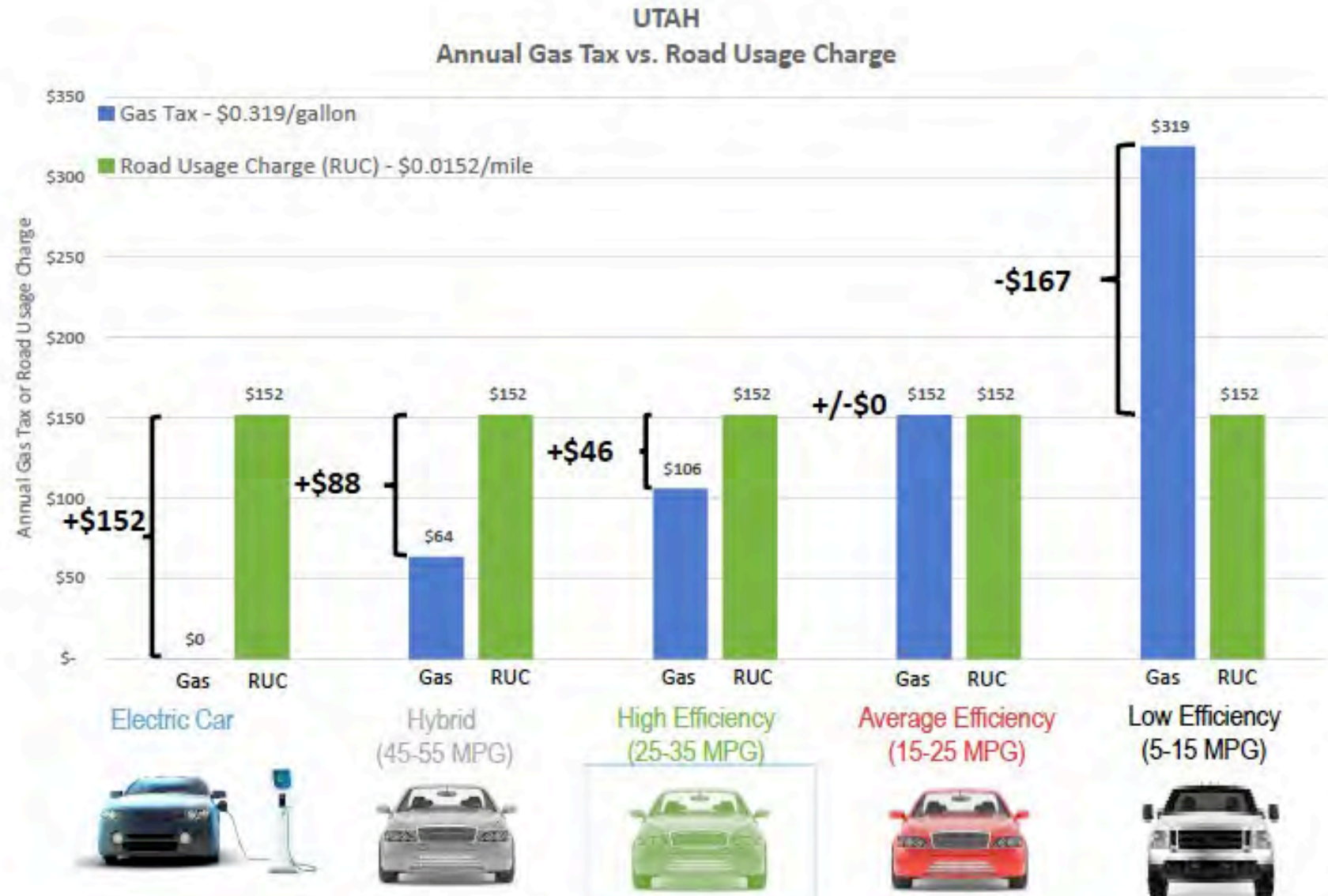


**REPLACED BY**

**Alternative (Road Usage Charge):**  
Drivers pay for roads and bridges based on the number of miles they drive

“Pay for what you use” model

Next, this graphic was shared and explained:





A majority of participants thought a mileage-based user fee would be at least somewhat fair to all drivers. However, some participants did not immediately perceive this a better alternative to the current funding structure.

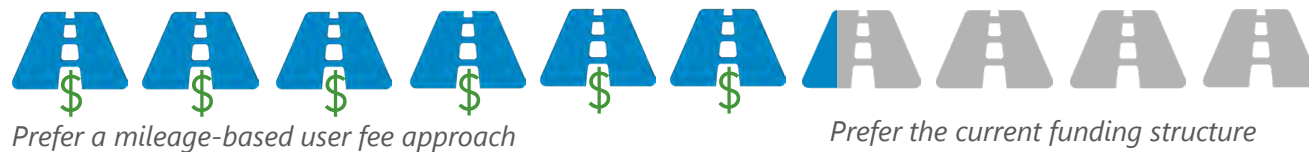
## 76%

Percent of participants who thought a mileage-based user fee would be very or somewhat fair.\*



## 63%

Percent of participants who prefer a mileage-based user fee instead of the current gas tax + vehicle registration approach. (Only the Central, SW, and SE groups were asked this question.)



Specific positive and negative reactions to the idea of a mileage-based user fee approach are shown on the following pages.

\*n = 29; the responses from the NE group were unclear.

Participants thought a mileage-based user fee would be fair, because...

**It wouldn't depend on the kind of car people can afford and would make EV users more equal contributors to road funding.**

"I like that a lot, because doesn't matter if you own a Bentley or a Ford, to me, it just sounds like everyone's equal in terms of how much money they're paying and putting towards tax...If you're spending four or five hours on the road, you're driving whatever car you have on the road, we're all going to pay that same tax. And I think that's great because it all puts everyone on the same page and we shouldn't have any problems to fight about who's paying more and who's paying less."

"I was thinking about the hybrid cars, like she was saying about they would have to pay too even though they aren't actually using gas. So, they would have to pay something somewhere somehow for using the roads."

**They agree that those using the road more should have to pay more for its upkeep than those using the road less.**

"That sounds more fair because if you're driving more, you're putting more wear and tear on the roads and bridges, versus the person that's just going to church or going to the grocery store or going to the doctor. They're not putting that much wear and tear."

"So at the end of the day, if I've got a car and I may be putting 5,000 miles in the car and that person driving on the road is putting 15,000 miles per year, it shouldn't be the same, it should be different."

"That goes back again to the 'you pay for what you use.' You pay based on how much you use it. For the average person and going to work it's about the same. Then I think who benefits are those of us who are using less. Which is what it should be. Who pays for them is who is using more."

Participants assumed that a mileage-based user fee could lead to paying substantially higher in taxes, influencing decisions like where to live, whether to take vacations, and whether it's worth it to buy a higher efficiency vehicle.

**Some participants worry that a mileage-based user fee would result in themselves or others paying more than they currently do for travel.**

"How much are we talking per mile on the – because that seems like a whole lot more money than it is for the gas tax."

"I drive a lot so I could imagine my gas is going to go up a lot more or my taxes. It just seems like it'd probably double or more...so I don't think I'd really like it."

**Participants also worry that a mileage-based user fee would impact their life decisions or lead to feeling disadvantaged because of their decisions.**

"With a high efficiency car though, even if gas tax goes up, I don't have to change my life. I can still drive where I want to because my car is efficient. And even if the gas tax is going up, I'm not paying that much more. If we went to a road usage fee, I would have to change my life, I'd have to drive less."

"Because if you choose to move somewhere further away from where you work, then you could be paying more every year for just living further away from work than you would be with just a gas tax. So I definitely – I can see pluses and minuses."

**They also think this could potentially disincentivize people from switching to higher efficiency vehicles that are better for the environment.**

"I want to be fair, I'm OK with paying my fair share, but I feel like the mileage system disincentivizes me...I have a Kia Soul too, and I bought it because it was efficient and the idea was I don't have to pay as much in tax and gases."

"People look forward to vacations now, maybe I can't take a vacation because I'm going to have to pay to drive there."

"Looking more holistically at everything, it's incentivizing having low, having poor emission vehicles which I don't think is necessarily what the state of Ohio wants to be moving towards currently."

Participants also pointed out that certain groups would still be unfairly disadvantaged compared to others based on where they live or how much they make. They also wonder if heavier vehicles would be unfairly advantaged, since they may do more damage to roads than lighter cars.

**It could be unfair to people who can't work from home, or who live in rural areas and travel longer distances based on where they live.**

"It sounds fair at first, but thinking about how the economy works currently, the upper middle class were able to work from home more, and then the people at the bottom have to travel to get there...So that you are not able to collect as much as you can, or you intended. That's why I said it might be not a good idea or fair."

"Especially if you're in rural areas and things aren't so close to you. You have to drive far. Maybe for a city person it would be even better. In a rural area you've got to travel far. They're the ones that are going to get taxed more."

"I think this works against us as people of Appalachia. We are driving more than the people in the cities. We are going to be paying the most tax for this Columbus roadwork...if we are all commuting 30 miles to work, 15 miles to Walmart, and the guy [in Columbus] is hopping on the bus for free..."

**Not all vehicles cause equal wear, so maybe the fee should not only depend on miles driven.**

"Well, maybe for private vehicles, if you own a big honkin' truck that weighs three times more than my Honda HRV, maybe you should pay more, that would take the place of the old, large gas guzzlers, because they're typically your trucks and your large SUVs, especially trucks."

"Are you going to charge semis more because they have more wheels that do – they have more weight? They're going to, in theory, do more damage. Or are you going to keep a level between compact cars, sedans, trucks, semis, and then whatever other random vehicle somebody could come up with? Are you going to charge a motorcycle less because they only have two wheels and weigh less, so in theory, they would do less damage? Or are you going to make it level across the board to where no matter what, everybody pays the same?"

"Trucks. Here we are trying to save the road by taking a little Prius off it and you have hundreds or trucks using the road. They don't live here and don't pay the state tax. But they mess up our roads."

Participants were hesitant to support a mileage-based user fee without a clear understanding of how much they would be paying.

**Participants spoke to a desire to “see the numbers” for themselves.**

“It’s hard to do that comparison without knowing what the numbers are and doing some side by side of, normal person who owns a Chevy Malibu that drives 10,000 miles a year. Under a gas tax you pay blah dollars. Under usage tax you pay whatever other else. So, I think trying to have it visualized that way I think would be helpful. It’s just a little incomplete for me.”

**Some participants feel there are still a lot of unknowns associated with the idea.**

“I think the biggest problem is going to be trying to sell it and trying to explain it to people because there are a million different ways probably how to do it. And if you try to roll it out and people don’t have a good understanding, it’s going to be hard.”

“It sounds like a good idea, but I feel like there’s a lot of hidden things that we just have no clue about, until someone actually sits down and really figures it out, but on the surface, it’s like, that sounds great. But yes, I think there’s a lot of problems with it.”

**Some participants would like to be given an option of how they support transportation funding.**

“I think the gas tax thing is going to work out in someone’s favor better, and the mileage thing is going to work for some people better...kind of like having a choice between the two, that would probably be most optimal instead of, it’s just this one.”

Participants were also concerned about how mileage would be monitored and how commercial costs would be passed through.

### **They worry that monitoring miles driven will be burdensome or compromise their privacy.**

"I have a problem with this. It's like how are going to monitor this? Are you just going to have people fill out I drove this many miles? Who's going to keep track of that? People are going to be pissed off. The people that work and drive insane amounts are going to be extra pissed off."

"The first thing that went through my mind honestly is fraud. Who's tracking this. How do you submit it? Am I getting audited? That's the first thing that went through my mind."

"I'm also concerned going back to how are they going to track, not just where your miles are and what state, but how are they going to track that period, is it - self-reporting is obviously not a great solution because those number could be wrong. But how are we going to give that information without giving the government too much information?"

### **They worry about downstream effects from changing how tax is collected from businesses with company vehicles.**

"What about the companies, people that have a company vehicle and they drive it for the company. So, they're going to be taxed even though the company's paying for it. But then the workers that work for them, are they going to get lower pay because now the company has got to pay this on top of their gasoline and their vehicles?"

"Or even FedEx and UPS. How's that work? Are our packages going to cost more to ship now if they charge the gas on those vehicles more? It all falls back."

Participants had mixed preferences towards various reporting options.

Three of the groups were asked which type of monitoring options they would prefer:

Location-based plug-in device: 27%

Non-location based plug-in device: 27%

In-vehicle telematics (e.g., OnStar): 9%

Odometer photo/reading: 36%

The main pros and cons they perceived were:

- Privacy concerns for location-based reporting
- Trust concerns with self-reporting
- Issues with how residents of other states driving through Ohio will be captured

Some participants had privacy concerns with technology monitoring their location, but others said it's no different from what's currently happening.

### **They don't like location based mileage monitoring.**

"I just don't like the location-based. Are they going to use it when I'm kidnapped? No. So don't use it."

"I don't want the state knowing where I'm driving."

"I trust the government because they're a reliable source, but someone who hacks in between - some cyber thieves can get that information and see where I'm at. That's what I'm concerned about."

"That's too much data that somebody has about me. I don't want somebody to know where I'm at, what routes I take, what cities I drive through, stuff like that."

### **They feel they're already monitored all the time.**

"They have information about everything anyway...You guys can look up my information on the computer. See how much I make, where I work, that kind of thing. So to me it doesn't matter."

"To some extent we're always being tracked."

"Just my thinking is that, and maybe everybody is not - doesn't have Google location on their phones or what have you, but with so much - with the satellites and stuff - in my mind, you're being tracked already."



Participants had implementation and accuracy concerns with self-report monitoring options such as odometer photo/reading.

**People could lie, the process could be complicated, and people could make errors.**

“But then, like, how honest would people be? I mean, what if you went to your grandma's house and took a picture of [her odometer]...I mean, really, you know, the way people are nowadays I can see somebody doing that.”

“I think it's a little convoluted. I guess what if you don't have a smart phone and you can't take a picture and upload it somewhere? I'm not sure that's the most efficient way...But it just seems it's a little cumbersome for the reporting piece.”

“Self-reporting is obviously not a great solution because those numbers could be wrong.”

“I like the odometer [option]...But not everybody's honest, so they may give you a much lower number.”

“If we did the self-report where we take a picture of it and upload it to some website, I could easily Photoshop that number. So instead of paying \$300 in tax, I'd pay \$50... You wouldn't really know what state you were driving and to make those numbers up. And it's not like your average person would keep track of that, 'Oh, well, today I drove 30 miles in Indiana.’”

“And what if you sell your car midyear? You're like, oh crap, what did I drive? And now I have to figure it out and then make it up and then start on my new vehicle and taking pictures and whatever.”

“I used to be a rep that used to drive, and you think that you remember to take that photo? You don't. You don't, you forget and then you try and make it up. So I'm very happy for someone to do that job for me.”

Participants were concerned about how miles crossing state lines would be monitored.

### **Non-residents driving in Ohio.**

“If you're in Indiana and you came in and now you're traveling to Kentucky, you have to pass through Ohio. So how is that person getting taxed or charged for that? There's no way to determine that.”

“And then also is the heart of it all, everyone drives through Ohio to get somewhere in the country, so what about all these people that are driving through Ohio not paying this usage tax?”

“What about Indiana drivers, Kentucky drivers, who are going to come over the border to get the cheaper gas? And not have to pay those [road usage] fees.”

### **Ohio residents driving out of state.**

“I'm concerned that they, actually I know that they won't know whether you're driving in Ohio or in Kentucky or any other state.”

“It makes more sense when you're in Ohio driving, then you should pay that, but if you're in Kentucky or Indiana, no, you should only pay it if you're driving in Ohio. It makes more sense to me that way.”



# INFORMATION AND MESSAGING PREFERENCES

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Regarding how Ohio's roads and bridges are funded, participants specifically want to know...

### **How much funding is contributed by sources other than the gas tax and vehicle registrations.**

"Do we have local taxes and things that go to that, too? Because I know I've voted for roads and things before in my small town."

"I live in [a] township. Part of my taxes pay for the roads. So does that mean I'm double-paying?"

"Didn't we have a big infrastructure bill just passed to help with infrastructure within our state? How is that being supplemented with our current taxes that we're paying? Also, is it going to lower that expectation?"

### **How much of road wear is impacted by commercial vehicles and semi trucks, and how much they pay into road funding.**

"Do commercial vehicles have to pay a heavier registration fee? It seems like we all love getting Amazon packages but those trucks are using the roads probably more than I am. Are they paying more to maintain the roads? I don't know."

"And how much of a difference damage on roads between our cars versus business trucks, semis, 18 wheelers? Because those do a heck of a lot more damage than my little four-door."

### **The finer details of how road funding is allocated, and evidence to support how these decisions are made.**

"Where the money's going, and how much is being allocated exactly where?"

"Like an accounting of the conditions of our roads and bridges. You know, that would make it real in terms of we need to invest. Or if the road conditions are good, then maybe not so much."

## HOW PARTICIPANTS WOULD LIKELY SEARCH FOR INFORMATION ON THIS TOPIC

Participants would use (or expect to be able to use) the following sources to find out more information about funding for Ohio's roads and bridges...

### **State government websites, like ODOT's, the BMV's, or Ohio.gov.**

"That information should be on the Department of Transportation's website, but I'm sure they make it very difficult to find."

"I was thinking ODOT might have some kind of annual report. I've never cared until now."

"I'd say the BMV website."

"I would say the state budget every year has that included."

### **Local government websites for their county.**

"I would go to...one of my favorite websites is called DelawareOhio.net. And then there's other ones on Delaware.OH, and then also there's Co.Delaware.OH.US. Different variations of that. And then there's - so there's a lot of government websites with that OH."

"Probably the county...I could probably go to the website and see exactly what's happening in the community. I feel like that could be a good starting point."

### **Other ways participants would search for this information include using search engines to find different sources or reading articles from independent news sources.**

"I'm going to go to Google. What should I be doing? Going to the Ohio website, right? But that's not what I'm going to be doing. So if you want an honest answer, Google."

"Independent news source, because, you know, people like NPR and ProPublica with their investigative journalism usually do pretty well. And they take the data and then put it in a nice chart for me to understand instead of having to go through 100 pages worth of spreadsheets with numbers to summarize it."

If there was going to be a change in where road funding comes from, participants think the best entities to talk about this would be...

**Elected officials hold a responsibility to inform their constituents; however, there could be issues with trusting their messages to be honest.**

"I would want to know about it from state leadership. But I think they should also be partnering with local leadership. So I want to know why we're doing this. And then, hey, how is this helping my local community?"

"But either way everybody's going to have an agenda I feel like, and it's just going to be hard whether they're trying to sell it to you or trying to get you to vote against it. Doesn't matter which way or the other."

"That's what I was going to say too [the governor's office]. I don't know how much I trust them. I think there'd be a lot of spin. It should come from them. It should be transparent and open and not spun."

**State transportation authorities are valuable sources.**

"I always just think that they're the ones that are responsible for the upkeep. So they would have the knowledge."

"So you should come out with stuff like this from the ODOT...I think they should regularly send out promotional material and literature...with educational information like this."

**Informing the public on a large scale could be done by using news media, social media, and/or unbiased 3<sup>rd</sup> party sources.**

"And I do think that the news media is the best way to do it. Because I think most of the people in the state have some type of news media in their lives. We've kind of gotten away from print media...and social media I tend not to trust as much, unfortunately."

"I think if you did some of both, putting it on TV ads and putting it on Facebook ads, I think you'd reach a large portion of the population, a lot of people would see it."

"I'd like a third party, like contractor to review everything and to propose ideas."

"Because I think we need an outside entity. Not someone who's directly touching that...Yeah, we need a whole nonbiased party."



# FOCUS GROUPS KEY TAKEAWAYS



## Focus group participants:

- are unaware of how road and bridge maintenance is funded.
- understand that funding for road and bridge maintenance is necessary, but they want to understand more about how the funds are used.
- do not want to punish low-income residents.
- do not want to disincentivize higher-efficiency vehicles.
- like the fairness of the mileage-based user fee.
- are concerned about how a mileage-based user fee would be implemented.



# Appendix C

## Public Opinion Research Report Interviews and Survey



OHIO DEPARTMENT OF  
TRANSPORTATION



**Ohio DOT Revenue Alternatives Study**

# **Public Opinion Research Report: Interviews and Survey**

May 2023

**ILLUMINOLOGY**

**CDM  
Smith**



# **Public Opinion Research**

**Survey, Residential  
Interviews, and  
Business Interviews  
Results**

**Key Takeaways from  
Research**

# Report outline

- Overview of research process (p. 4)
- General structure of interviews and survey (p. 7)
- For survey, residential interviews, and business interviews:
  - Research participants (p. 7)
  - Key findings (p. 19)
  - Focus on the current funding structure (p. 26)
  - Focus on each alternative revenue mechanism (p. 62)
- Public opinion research key takeaways (p. 184)

# Overview of research process

## Wave 2: In-depth Interviews (virtual)

 **40**

### *Interviews with Ohio Drivers (June 2022)*

- Deeper focus on individual opinions

 **48**

### *Interviews with Ohio Business Leaders (July-October 2022)*

- Insights on how different alternative revenue mechanisms might affect businesses

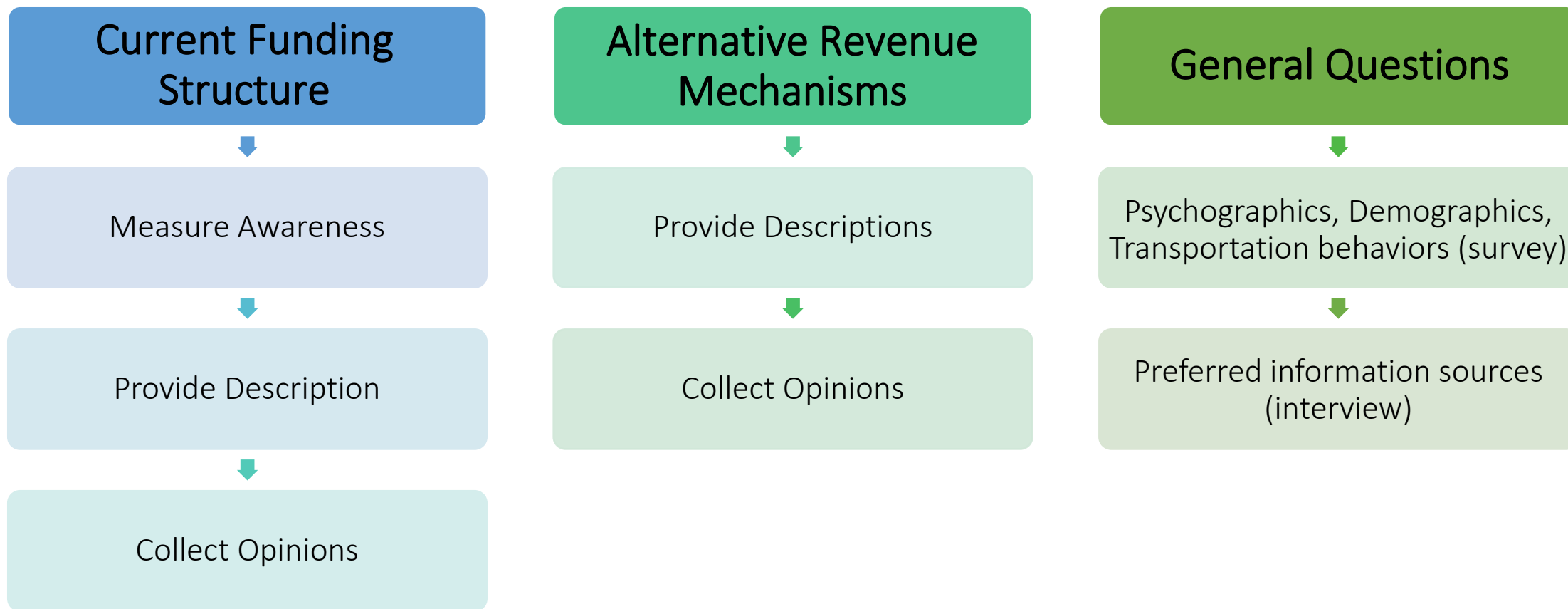
## Wave 3: Survey of Ohio residents

 **1,045**

### *Interviews with Ohio Drivers (August 2022)*

- Representative sample of Ohio drivers

# Outline of Interviews and Survey



# Alternative Revenue Mechanisms for Interviews/Survey

Discussing a large number of alternative revenue mechanisms in an interview or survey would not be feasible, so the project team focused on three broad categories that encompassed many of the alternative revenue mechanisms that were being considered:



Raise the state fuel tax on vehicles still consuming gas or diesel

A light blue circular icon containing a white license plate with the text "ABC-123" in blue.

Increase the flat annual registration fees on all vehicles



Implement fees based on miles driven



# Research Participants

Survey

Residential Interviews

Business Interviews



# Research Participants

Survey

# Participant Breakdown

## Representative Survey



### Age

18-34: 24%  
35-44: 17%  
45-54: 14%  
55-64: 22%  
65+: 23%



### Gender

Female: 52%  
Male: 48%



### Race/Ethnicity

White: 83%  
Black: 10%  
Hispanic: 3%  
2 or more races: 4%



### Household Income

Less than 25k: 9%  
25k-49k: 20%  
50k-99k: 36%  
100k-149k: 19%  
150k+: 16%



### Education

High school degree: 39%  
Some college or associates degree: 30%  
Bachelor's degree: 19%  
Graduate/professional degree: 12%



### Employment

Employed: 63%  
Unemployed: 37%



### Kids in Household

No kids: 77%  
Kids present: 23%



### Area Type

Rural: 28%  
Suburban: 54%  
Urban: 18%



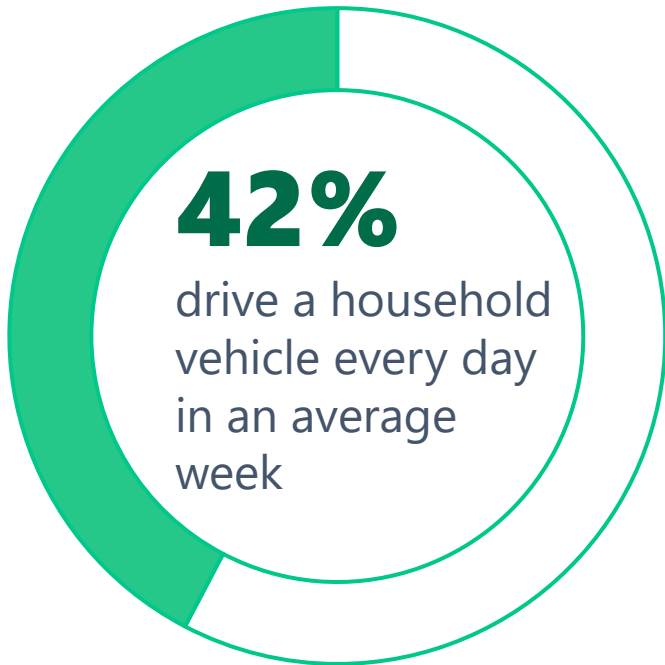
### Region

NE: 40%  
NW: 10%  
CE: 18%  
SE: 6%  
SW: 27%

Demographics are in line with Census Bureau estimates.

# Participants' Driving Habits

Representative Survey



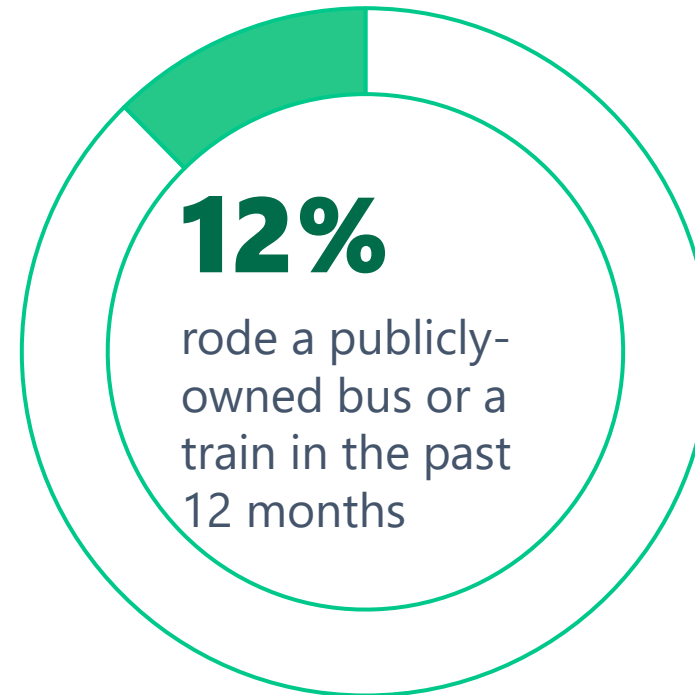
*Miles driven per week by all participants:*

**141 miles**  
(average)

**100 miles**  
(median)

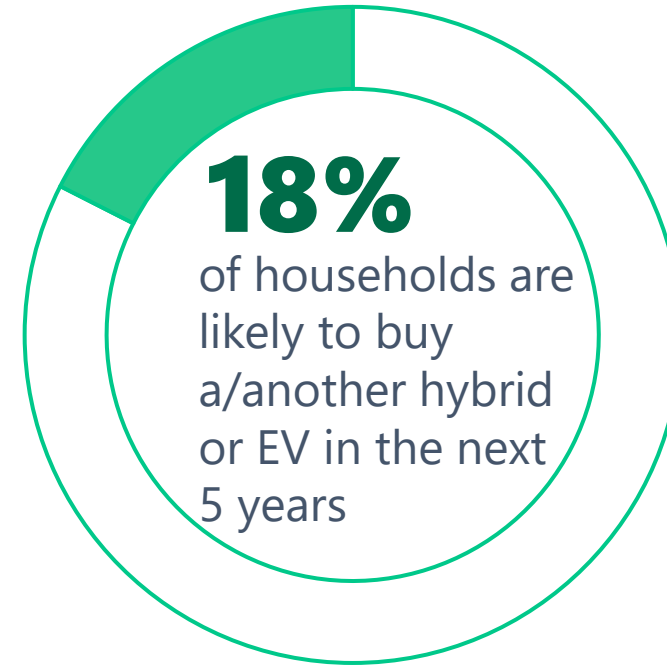
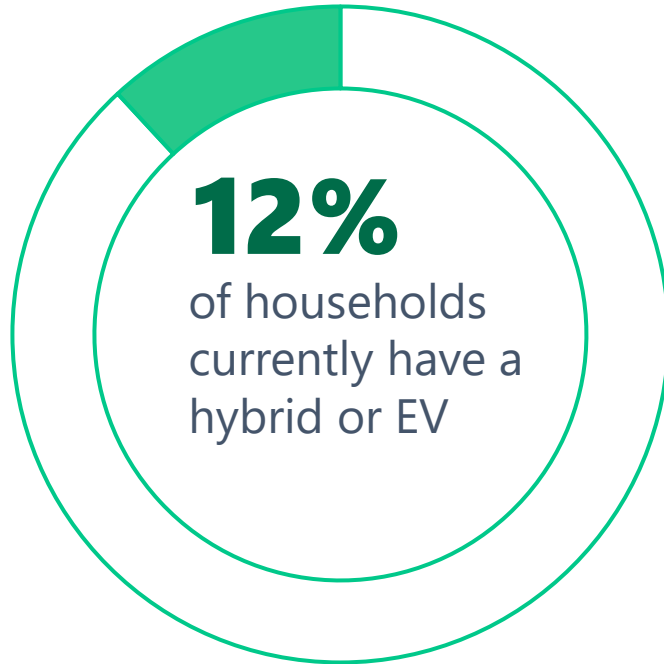
# Participants' Driving Habits

Representative Survey



# Participants' Hybrid/EV Ownership

Representative Survey



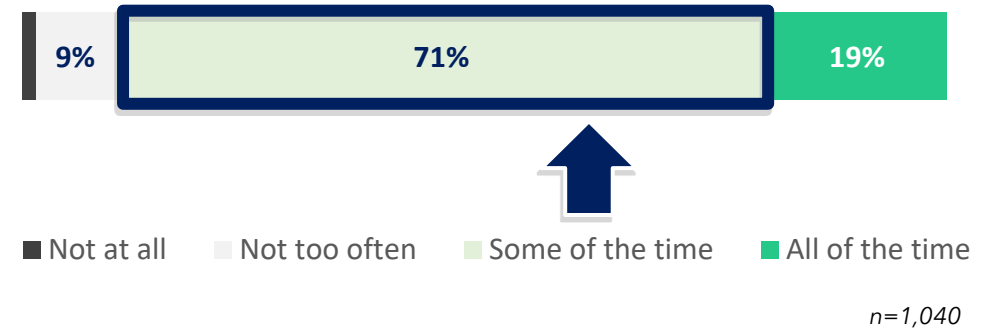
# Participants' Views on Climate Issues

Representative Survey

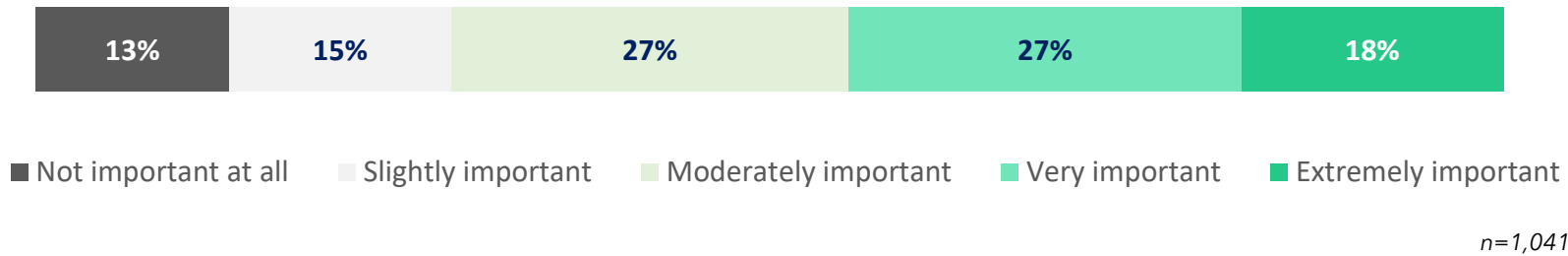
### How Much of a Threat Participants Perceive Climate Change to be for the Country



### How Often Participants Make an Effort to Live in Ways that Protect the Environment



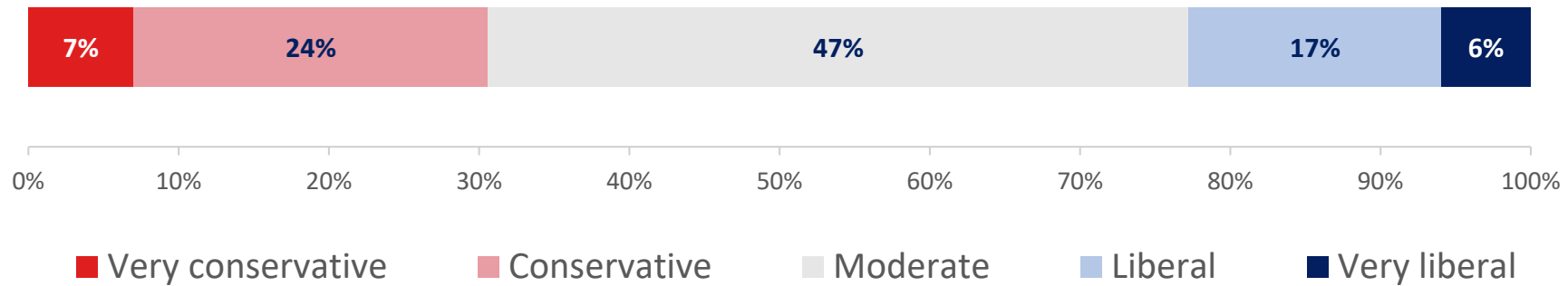
### How Important Climate Change or Global Warming is to Participants Personally



# Participants' Political Affiliation

Representative Survey

## Participants' Political Affiliation



n=1,037

# Research Participants

## Residential Driver Interviews



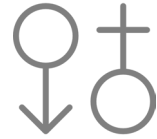
# Participant breakdown

## Residential driver interviews



### Age

18-34: 23%  
35-44: 28%  
45-54: 15%  
55-64: 23%  
65+: 13%



### Gender

Female: 53%  
Male: 48%



### Race

Black: 23%  
Asian: 3%  
White: 75%



### Household Income

Less than 25k: 13%  
25k-50k: 20%  
50k-75k: 23%  
75k-100k: 20%  
100k+: 25%



### Region

NE: 20%  
NW: 20%  
CE: 20%  
SE: 20%  
SW: 20%



### Area Type

Rural: 30%  
Suburban: 35%  
Urban: 35%



### Car Type

Gas-powered: 80%  
Hybrid: 13%  
EV: 8%



### Driving Frequency

Drive every day: 73%  
Most days: 18%  
A few times a week: 10%

# Research Participants

## Business Interviews

# Participant Breakdown

## Business Interviews



### Industry

- Trucking (22)
- Construction and energy services (6)
- Retail/manufacturing (4)
- Transportation services and childcare (4)
- Gig economy drivers (4)
- Fuel delivery (3)
- Package delivery (2)
- Agriculture (1)
- Towing and recovery (1)
- Inspection services (1)



### Vehicle Type: Mix of...

- Light-duty / passenger vehicle
- Medium-duty
- Heavy-duty



### Fleet: Mix of...

- Company owned and operated (majority)
- Contract with outside company



### Service area: Mix of...

- Local
- Regional
- National



# Key Findings

Survey

Residential Interviews

Business Interviews

## Current Funding Structure Awareness Key Findings

### Representative Survey

**55%**

**incorrectly** think that some of the money that Ohioans pay as **income taxes** helps to fund road/bridge maintenance

### Residential Driver Interviews

**40%**

**correctly** mentioned **gas taxes** as a source of funding for maintaining Ohio's roads and bridges

Only 15% gave an accurate estimate of the state gas tax amount

**There is a lack of awareness about how Ohio's road and bridge maintenance is funded.**

## Current Funding Structure Opinions Key Findings

### Representative Survey

**78%**

have a **positive** or **neutral** opinion towards the current funding structure.

### Residential Driver Interviews

**70%**

have a **positive** or **neutral** opinion towards the current funding structure.

### Business Interviews

**84%**

have a **positive** or **neutral** opinion towards the current funding structure.

**Many interviewees feel that the current funding structure is fair and makes sense, and it's important to adequately fund roads and bridges.**

## Increase State Gas Tax Key Findings

### Representative Survey

**18%**

have a **positive** opinion towards increasing the state gas tax.

### Residential Driver Interviews

**37%**

have a **positive** opinion towards increasing the state gas tax.

### Business Interviews

**10%**

have a **positive** opinion towards increasing the state gas tax.

**Many participants feel that this option is unfair, especially to drivers of lower-efficiency vehicles (including low-efficiency light-duty, medium-duty, and heavy-duty vehicles).**

## Increase Vehicle Registration Key Findings

### Representative Survey

**29%**

have a **positive** opinion towards increasing vehicle registration fees.

### Residential Driver Interviews

**40%**

have a **positive** opinion towards increasing vehicle registration fees.

### Business Interviews

**51%**

have a **positive** opinion towards increasing vehicle registration fees.

**Many participants feel that it is a simple solution and like that the amount is equal for all light-duty vehicles. Some feel that this option is unfair because it's not tied to road usage.**



## Mileage-Based User Fee Key Findings

### Representative Survey

**42%**

have a **positive** opinion towards a mileage-based user fee.

### Residential Driver Interviews

**63%**

have a **positive** opinion towards a mileage-based user fee.

### Business Interviews

**56%**

have a **positive** opinion towards a mileage-based user fee.

**Many participants like that all light-duty vehicles pay the same rate and they like the "pay for what you use" model.**

## Preferred Information Sources Key Findings

Residential driver interviewees and business interviewees would like to learn about changes to road funding from:

- **Transportation organizations** such as ODOT and the BMV.
- **Elected officials.** Although participants mentioned elected officials should provide information about road funding changes, they don't necessarily trust the officials to provide non-politicized, unbiased information.



# **In-depth Review** **Focus on the Current Funding Structure**

**Survey**

**Residential Interviews**

**Business Interviews**

# In-depth Review

## Focus on the Current Funding Structure

**Measure Awareness** of how Ohio currently collect funds for maintaining roads and bridges

**Provide Description** of the current funding structure using graphs, text, and audio

**Collect Opinions** of the current funding structure using scales and open ended responses

# Current Funding Structure - Awareness

## Survey

The survey began with measures of participants' awareness of how the maintenance of Ohio's roads and bridges is currently funded.

# Current Funding Structure – Awareness

## Representative Survey

About half of Ohioans think that some of their income tax payments go to fund road/bridge maintenance, which suggests a need for additional education/information.



**55%** think that some of the money that Ohioans pay as income taxes helps to fund road/bridge maintenance



**68%** think that some of the money that Ohioans pay as fuel taxes helps to fund road/bridge maintenance



**62%** think that some of the money that Ohioans pay as vehicle registration fees helps to fund road/bridge maintenance



CA2a. Do you think that any of the money that Ohioans pay as **income taxes** is collected as funding to maintain roads and bridges in Ohio, or do you not think that?

CA3a. Do you think that any of the money that Ohioans pay as **taxes on gasoline and diesel fuel** is collected as funding to maintain roads and bridges in Ohio, or do you not think that?

CA4a. Do you think that any of the money that Ohioans pay as **vehicle registration fees** is collected as funding to maintain roads and bridges in Ohio, or do you not think that?

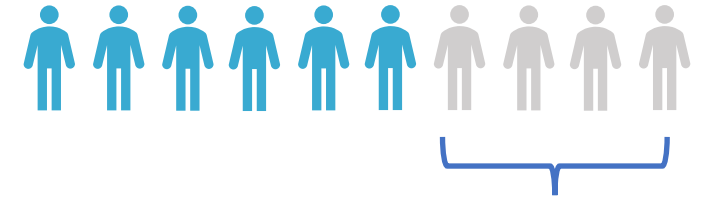
# Current Funding Structure – Awareness

## Representative Survey

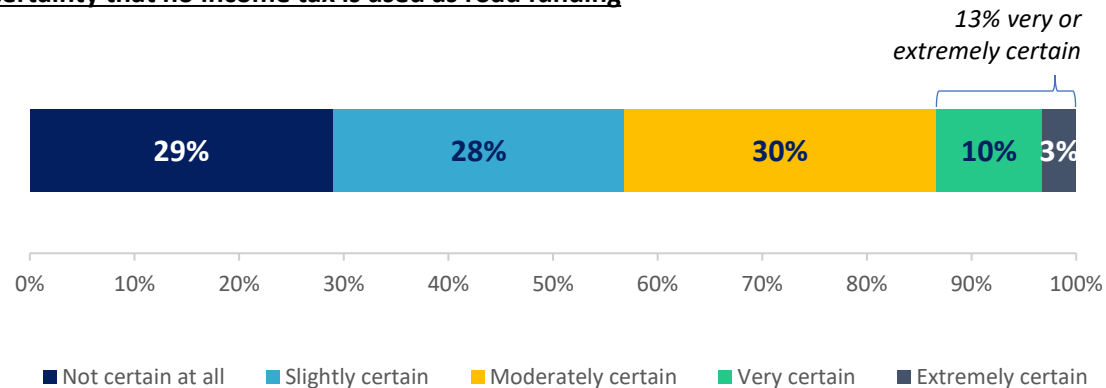
Among the 45% of Ohioans who were correct that none of the money that Ohioans pay as income taxes helps to fund road/bridge maintenance, only 13% were very or extremely certain about this.



**55%** incorrectly think that some of the money that Ohioans pay as income taxes helps to fund road/bridge maintenance



Certainty that no income tax is used as road funding



n=465

CA2c. How certain are you that none of the money that Ohioans pay as income taxes is collected as funding to maintain roads and bridges in Ohio?

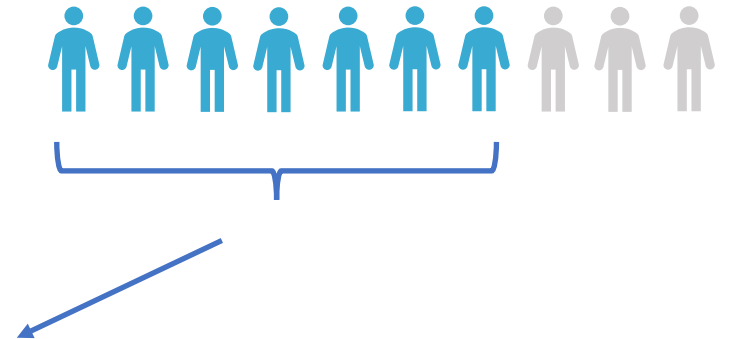
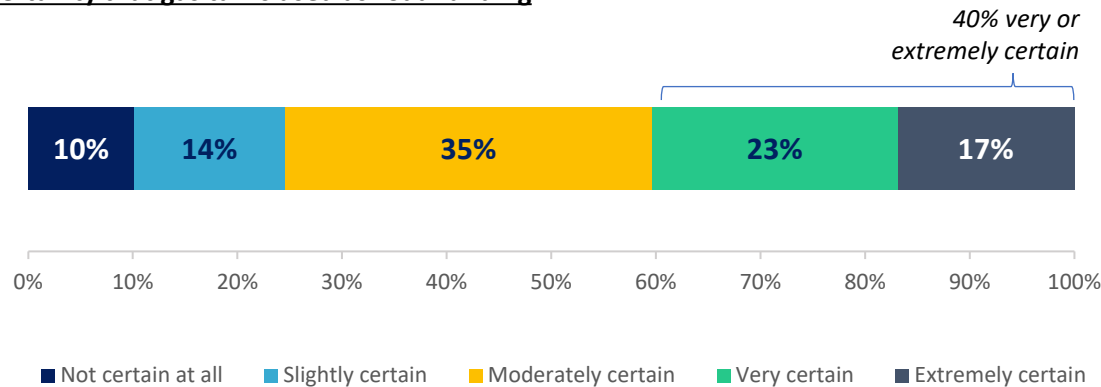
# Current Funding Structure – Awareness

## Representative Survey

Among the 68% of Ohioans who were correct that the money that Ohioans pay as fuel taxes helps to fund road/bridge maintenance, 40% were very or extremely certain about this.

 **68%** think that some of the money that Ohioans pay as fuel taxes helps to fund road/bridge maintenance

Certainty that gas tax is used as road funding



n=711

CA3b. How certain are you that some of the money that Ohioans pay as taxes on gasoline and diesel fuel is collected as funding to maintain roads and bridges in Ohio?



# Current Funding Structure – Awareness

## Representative Survey

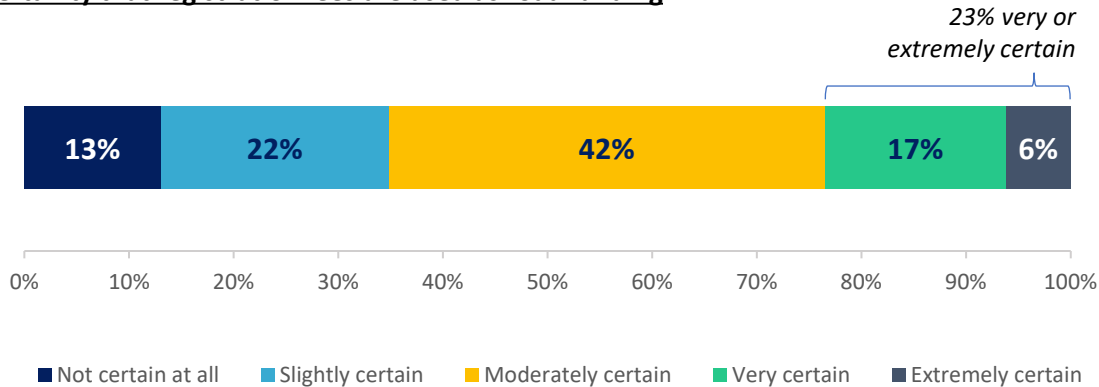
Among the 62% of Ohioans who were correct that the money that Ohioans pay as vehicle registration fees helps to fund road/bridge maintenance, 23% were very or extremely certain about this.



**62%** think that some of the money that Ohioans pay as vehicle registration fees helps to fund road/bridge maintenance



**Certainty that registration fees are used as road funding**



n=648

CA4a. How certain are you that some of the money that Ohioans pay as vehicle registration fees is collected as funding to maintain roads and bridges in Ohio?

# Current Funding Structure - Awareness

## Residential Driver Interviews

The residential driver interviews began with measures of participants' awareness of how the maintenance of Ohio's roads and bridges is currently funded.

# Current Funding Structure - Awareness

Residential driver interviews

A majority of interviewees don't know how Ohio's roads and bridges are funded.



Percent of interviewees mentioned gas taxes when asked where funding comes from



Percent of interviewees mentioned registration fees when asked where funding comes from



- **30% of the total interviewees mentioned income taxes.**
- 20% of interviewees mentioned property taxes and 18% mentioned sales tax
- Other taxes mentioned included city or local taxes, or other unspecified state or federal taxes.

# Current Funding Structure - Awareness

Residential driver interviews

Overall, just **15%** of interviewees reported an accurate gas tax amount or estimated close to the correct amount.

A **little less than half** of interviewees provided their estimates in dollars and cents. Of these:

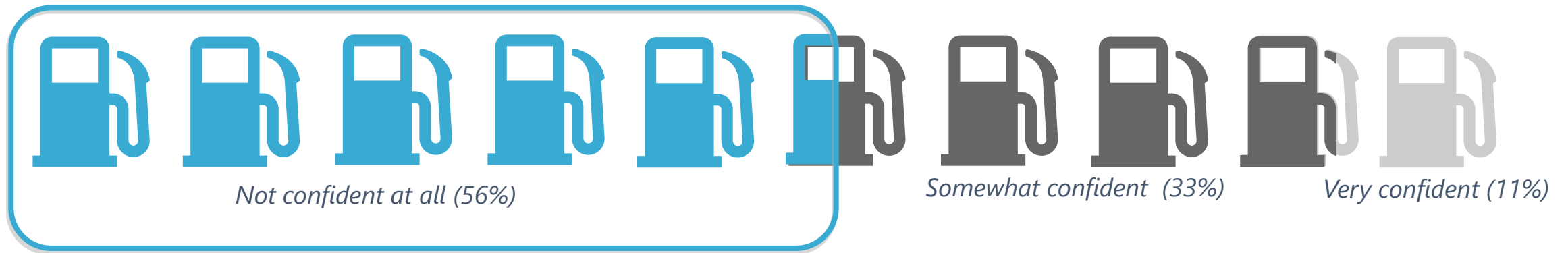


**More than half** of interviewees provided their estimates in terms of percentages of the total cost of gas. Those estimates ranged from 3% to 50%.

# Current Funding Structure - Awareness

Residential driver interviews

Overall, most interviewees were **not confident** in their gas tax estimate.



# Current Funding Structure - Awareness

Residential driver interviews

Most Ohio drivers know or assume that registration fees for different types of personal vehicles (gas or diesel powered, hybrid, and fully electric) are different.

## 80%

*Percent of interviewees report "registration fees are different"*



However, some interviewees mentioned thinking that they differ in ways other than hybrids and EVs paying higher registration fees.

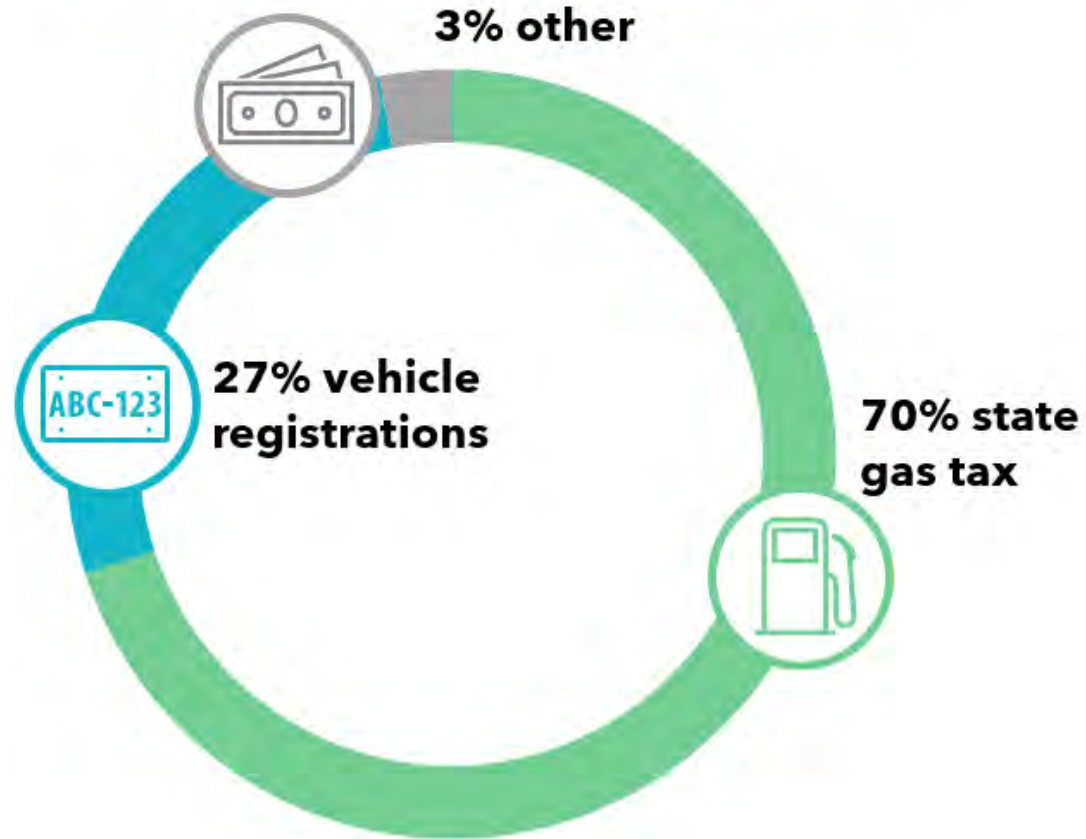
# Current Funding Structure

## Description

Next, the survey and residential interviews provided text, graphs, and/or audio to describe how Ohio's road and bridge maintenance is currently funded.

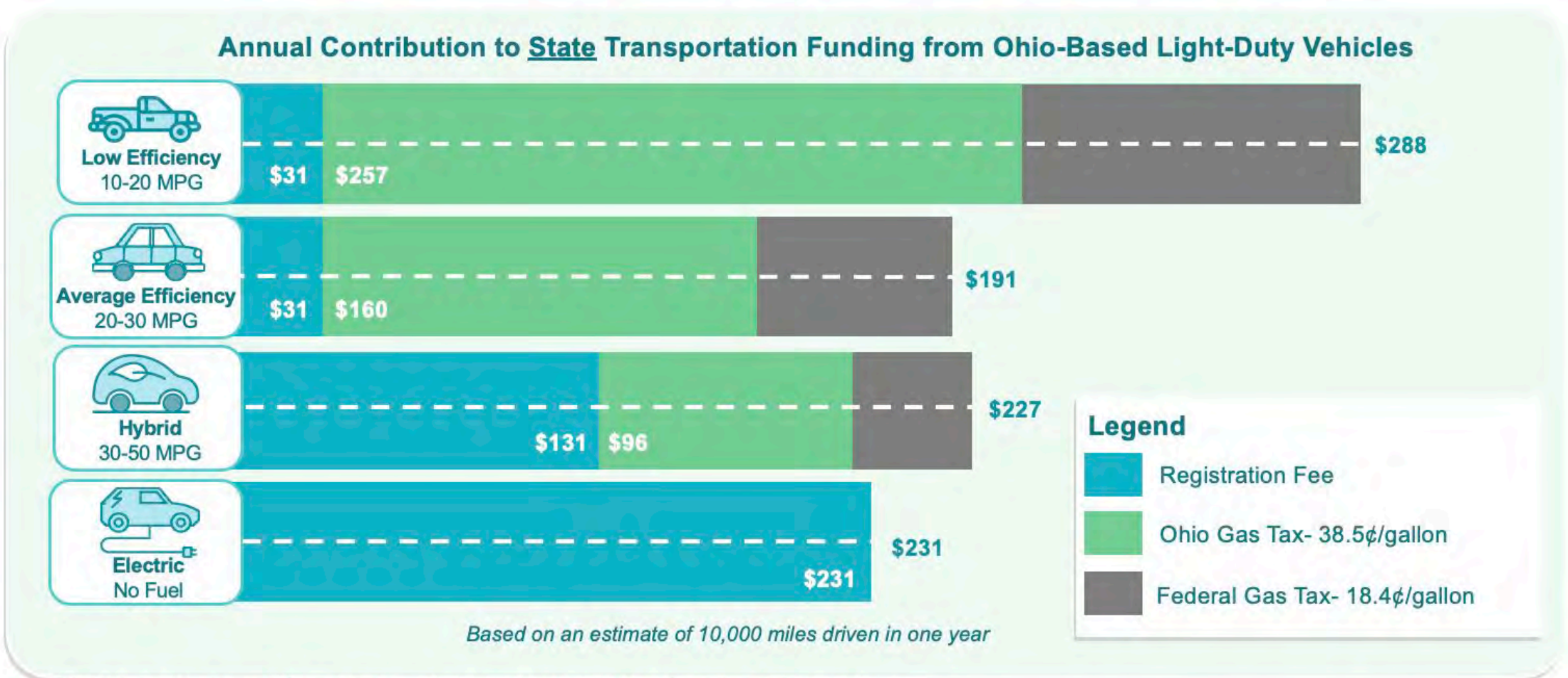
# Current Funding Structure – Description

Current Transportation Funding Sources





# Current Funding Structure Light-Duty – Description



Note: This example assumes the vehicles purchase gas and applied the federal and state gas taxes.

# Current Funding Structure - Opinions

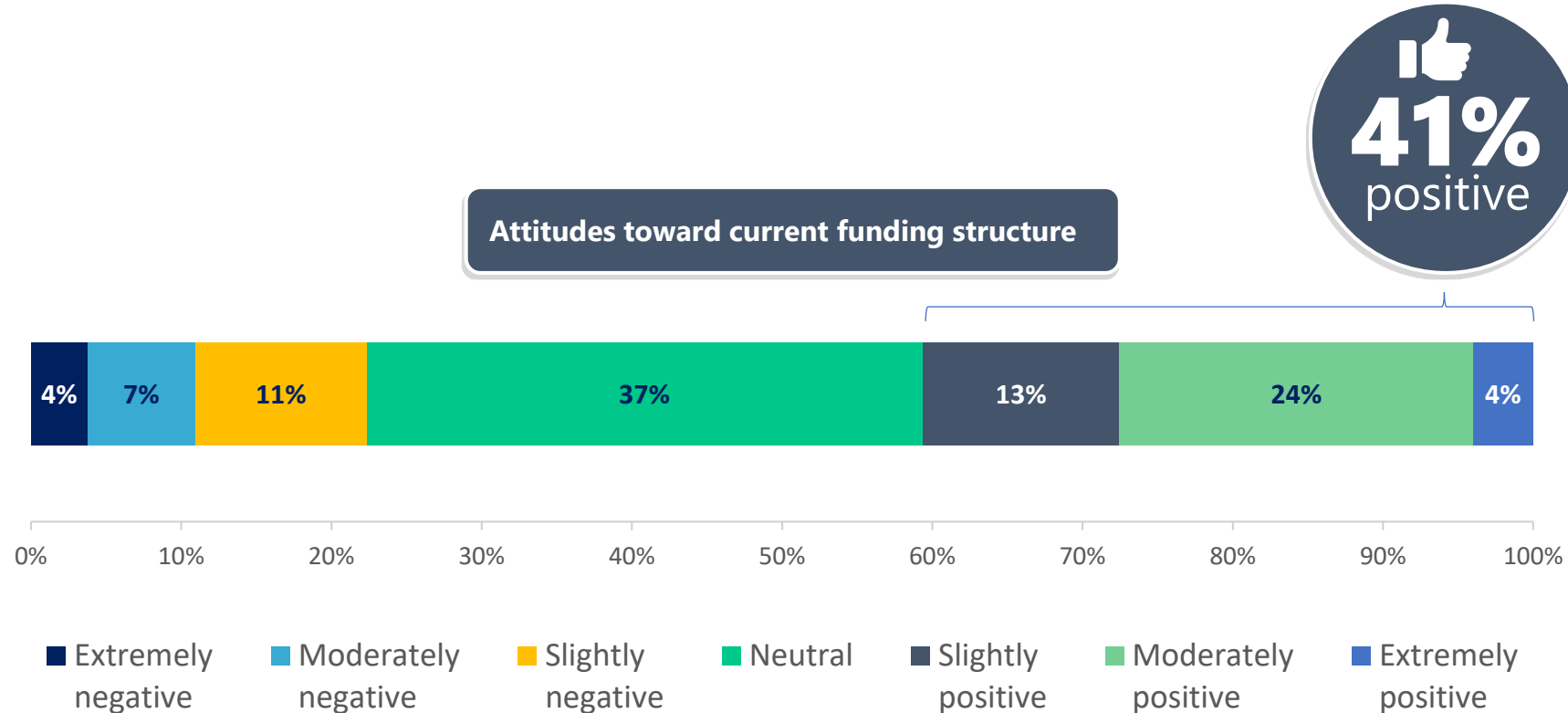
## Survey

The survey then measured participants' opinions towards the current funding structure.

# Current Funding Structure - Opinions

Representative Survey

About 4 in 10 Ohioans have a positive attitude towards the current funding structure.



n=1,042

C5. What is your opinion about the way Ohio currently collects money to maintain its roads and bridges?

# Current Funding Structure – Subgroup Differences

Representative Survey



Ages 45 and over

**45% positive**



Ages 44 and under

**35% positive**



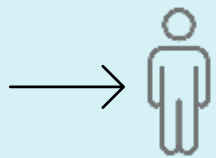
Household income  $\geq$  \$50k

**44% positive**



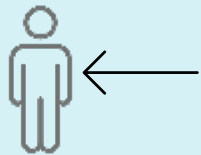
Household income  $<$  \$50k

**33% positive**



Conservative

**48% positive**



Moderate or liberal

**38% positive**



No hybrid/EV in household

**42% positive**



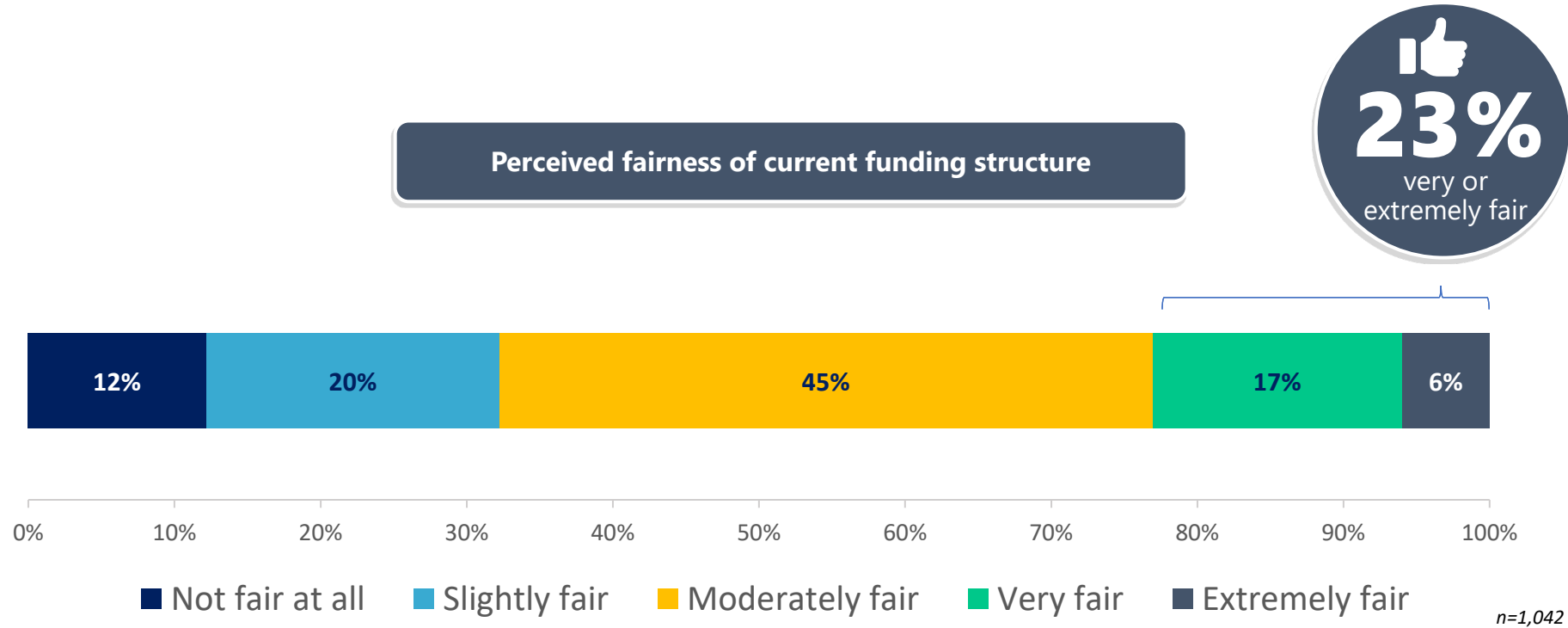
Hybrid/EV in household

**31% positive**

# Current Funding Structure - Opinions

Representative Survey

About a quarter of Ohioans think it is very or extremely fair to them.



C7. How fair to you is the way Ohio currently collects money to maintain its roads and bridges?

# Current Funding Structure – Subgroup Differences

Representative Survey



Ages 45 and over

**27%** very or extremely fair



Ages 44 and under

**18%** very or extremely fair



Household income  $\geq$  \$50k

**26%** very or extremely fair



Household income  $<$  \$50k

**17%** very or extremely fair



White only

**25%** very or extremely fair



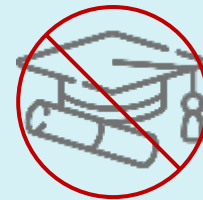
Not white only

**12%** very or extremely fair



Bachelor's degree or higher

**30%** very or extremely fair

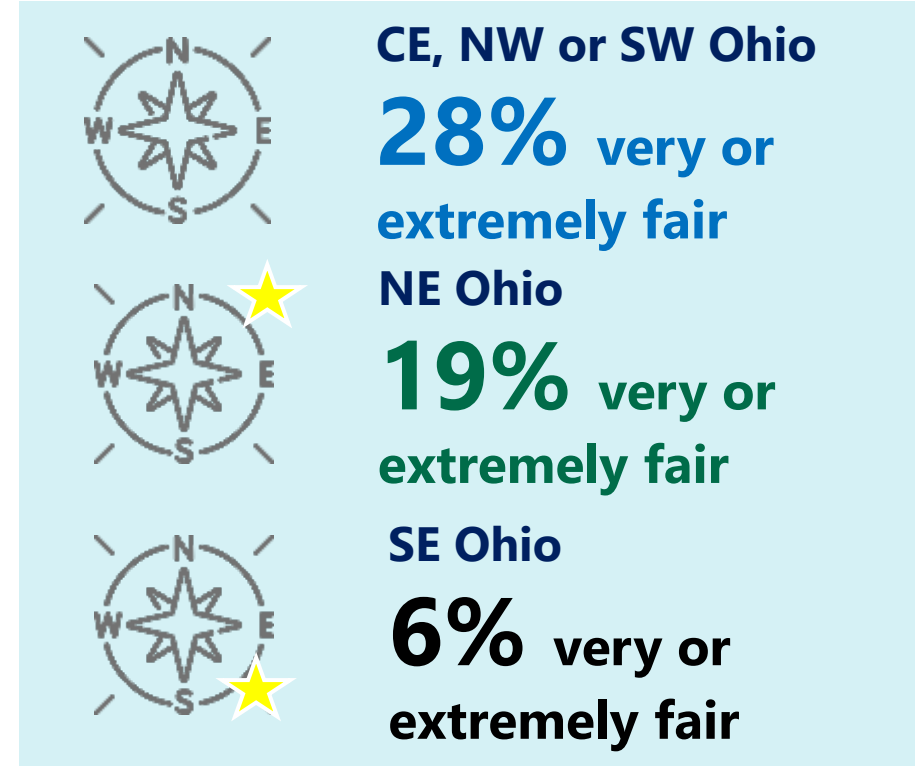
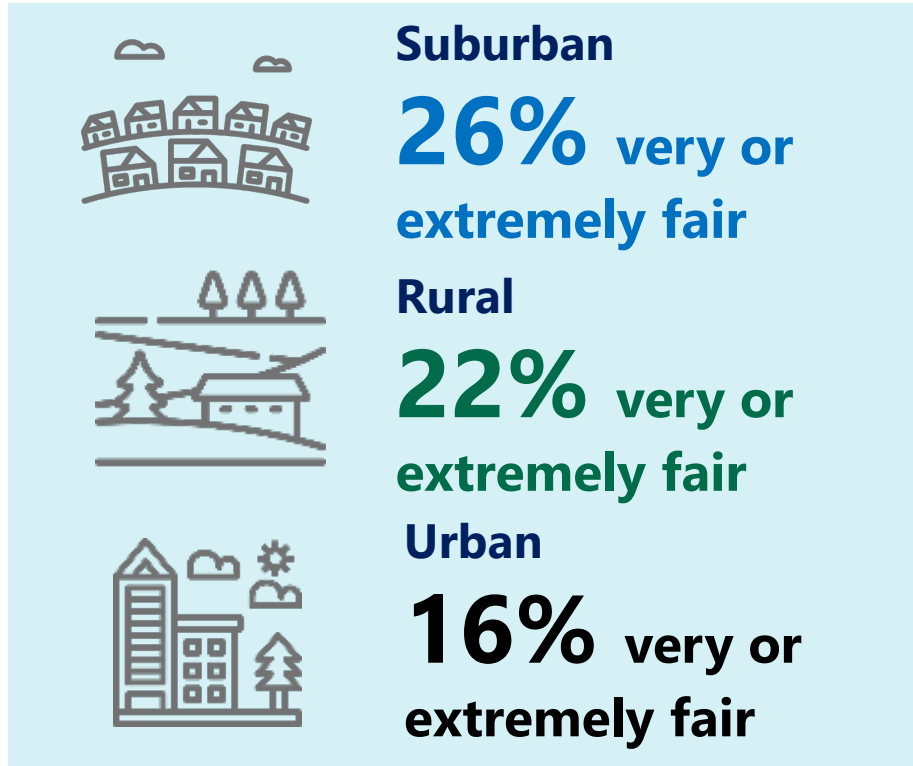


Less education

**20%** very or extremely fair

# Current Funding Structure – Subgroup Differences

Representative Survey



# Current Funding Structure - Opinions

## Residential Driver Interviews

The residential driver interviews then measured participants' opinions towards the current funding structure.

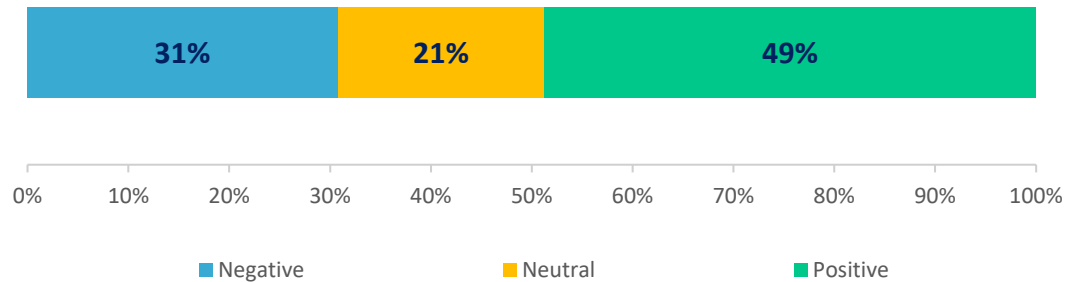


# Current Funding Structure - Opinions

## Residential driver interviews

Almost half of interviewees have a positive attitude towards the current funding structure. About a third think it is very or extremely fair to them, and a fourth think it is very or extremely fair to others.

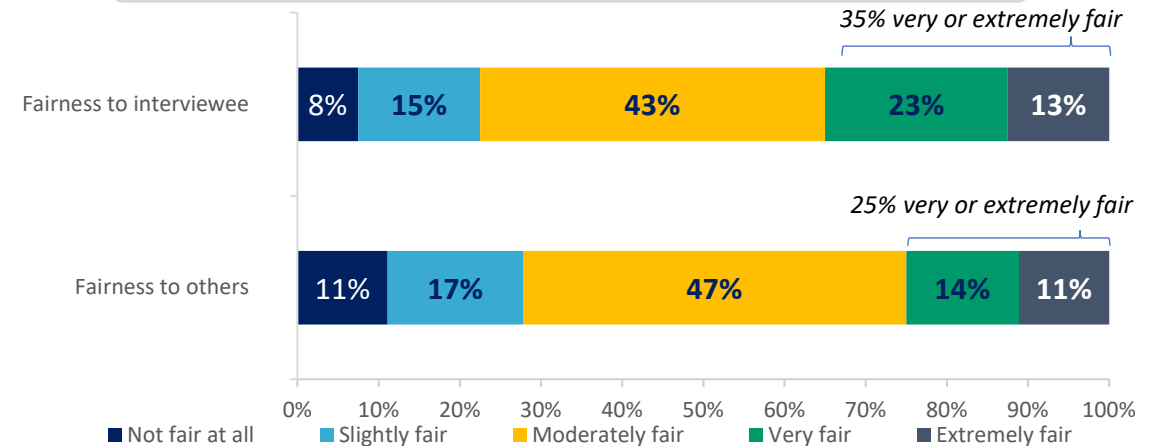
Attitudes toward current funding structure



n=39

What is your opinion about the way Ohio currently collects money to maintain its roads and bridges?

Perceived fairness of current funding structure



avg n=38

How fair to you / to other Ohio residents who drive is the way Ohio currently collects money to maintain its roads and bridges?

## Current funding structure

Residential driver interviews

### Key finding - Pro

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**Interviewees feel that the overall amount they pay is *not* a burden.**

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- Many interviewees mentioned that the amount they pay overall is *not* a lot.

## Current funding structure

### Residential driver interviews

#### Key finding - Pro

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**Interviewees feel that the overall amount they pay is *not* a burden.**

---

- “Well, because how much I'm contributing is not exorbitant, it's only a small amount, it's only in the hundreds, so it's not like it's thousands, so it's very manageable and reasonable.
- “Well, I'm in a sweet spot. So it's probably good for me. It's good for me because I have a pretty high-efficiency vehicle that usually gets between 29 and 31 on the expressway if you don't put it in the hyperspeed.
- “Because it's just the right amount, it's not too much of a burden, and it is not too low.
- “I don't drive a whole lot now. So I'm not paying as much I guess for gas and the taxes for the roads and stuff.

## Current funding structure

### Residential driver interviews

### Key finding - Pro

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**Interviewees feel that the current funding structure makes sense.**

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- Drivers of hybrids and EVs make up for paying less/no gas tax with the additional registration fee.
- The system is simple, and interviewees don't even know they're paying the gas tax.
- They understand the importance of funding the maintenance of Ohio's roads and bridges.

## Current funding structure Residential driver interviews Key finding - Pro

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**Interviewees feel that  
the current funding  
structure makes sense.**

---

- “ Obviously, it's very important to keep the roads and bridges in good shape. Otherwise, there's going to be accidents...It's a good manner in which to collect funds for the roads.
- “ Well, I think the registration fee makes a lot of sense, that it's more expensive for the hybrid and the electric vehicle, because those vehicles aren't going to have to pay as much in the gas tax.
- “ I'm not going to say nobody never knew, somebody knew, but most people don't know. So we're just paying to get gas anyway.
- “ I guess I was interested to see that the reason the registration fee is higher for hybrid and electrics is because they are using less gas obviously...It makes sense why it's being charged more.
- “ I mean, yes, the taxes are being collected. If you need gasoline, you're going to go buy gasoline...I think it's very efficient, yeah.

## Current funding structure

Residential driver interviews

### Key finding - Con

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**Drivers feel that the unequal contributions towards the current funding structure are *unfair*.**

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- Many interviewees dislike that drivers of hybrids and EVs are *disincentivized* because they pay higher registration fees.
- Some interviewees also feel that:
  - Low-efficiency vehicle drivers pay too much.
    - They worry that low-income drivers pay an unfair amount.
  - EV drivers don't pay enough, because the amount they pay is capped.
    - They assume that EV drivers can afford to pay more.

## Current funding structure Residential driver interviews **Key finding - Con**

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**Drivers feel that the unequal contributions towards the current funding structure are *unfair*.**

---

- “The people who are doing the right thing are disproportionately penalized in the registration. Looking at the electric vehicles, especially, they're doing the right thing for the environment, and they're penalized for that.”
- “So there are [those] who are stuck with that old car. And you're probably not making much money, because you're still driving that old low-efficiency vehicle. And I think that that's not fair to them.”
- “The only thing that kind of I'm a little on the iffy side with is that even though they have to pay a registration fee for all-electric, they still have that cutoff limit.”
- “I feel the burden on the lower cars is actually much more, I feel the electric cars should pay some tax, yes, so that they contribute to maintaining the roads because all cars are using the same roads...An electric car tax or something like that. Seeing as they don't use gas.”
- “Normally, the people that own your electric vehicles or your hybrid vehicles tend to have more money. And, so, they're paying less for taxes to go towards the roads than your people that own your average and your low efficiency vehicles.”

# Current Funding Structure – Other Findings

## Residential driver interviews



Some interviewees like that low-efficiency drivers pay more, because they think drivers should be incentivized to reduce fuel consumption.



Some interviewees are skeptical about the funds being used efficiently and would like to know more about where the funds are going.



# Current Funding Structure – Other Findings

Residential driver interviews



- “ I think if you have a low-efficiency vehicle, you should pay more because you're using up more gas. It's not good for the environment.
- “ I think it's extremely fair because, as you get something that's more environmentally friendly, sustainably sourced, you're getting a benefit. They're rewarding you for being eco-friendly and that's something that's wonderful.
- “ If you don't know how to drive these roads, they will destroy your car. So we're sitting back, going, 'I'm paying this percentage in gas tax. It's supposed to be to fix roads, whatever. And we're not seeing it.' But we're seeing the taxes come out of our pocket.

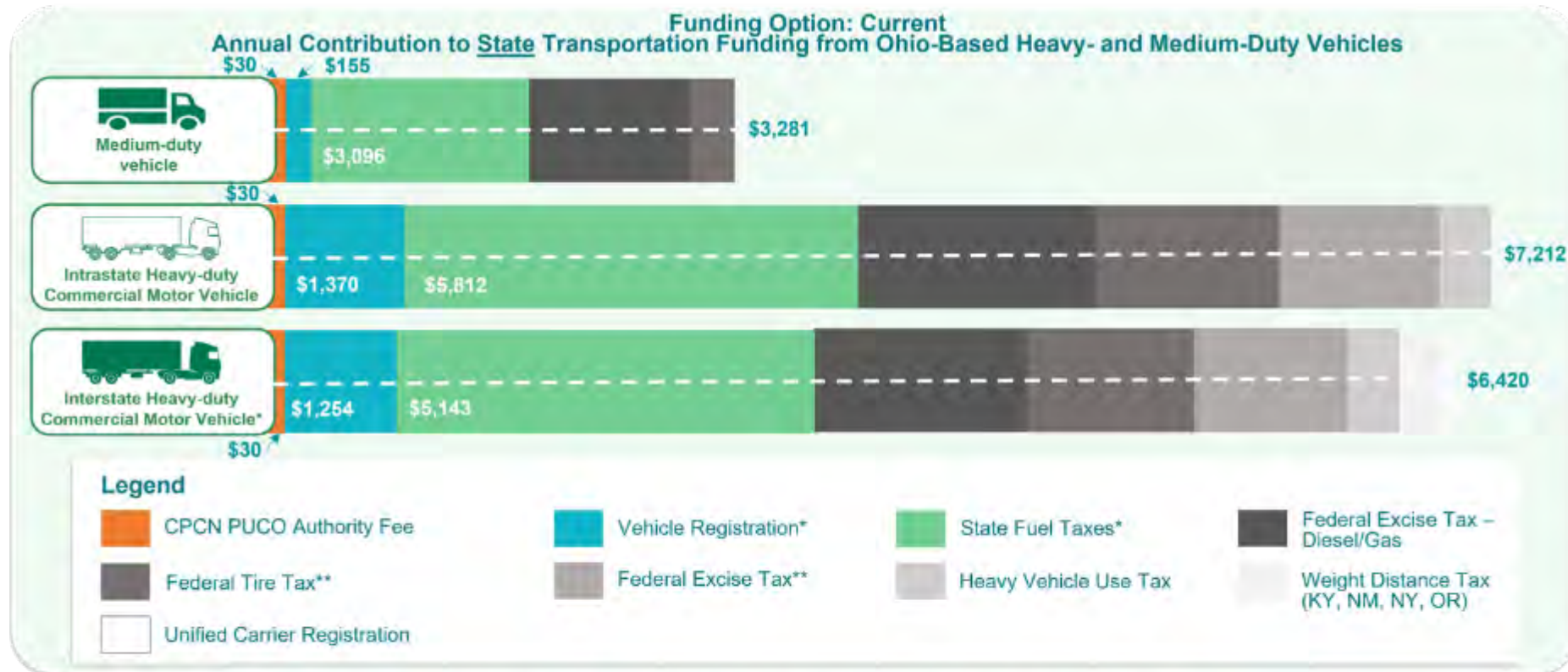
# Current Funding Structure – Description and Opinions

## Business Interviews

During the business interviews, the interviewees learned how medium and heavy-duty vehicles contribute to transportation funding, and then they provided their opinions about the current funding structure.

The analysis compared the trucking industry to other industries because the trucking industry is a large part of commercial transportation in Ohio, and trucking companies may have different needs from other types of industries.

# Current Funding Structure Medium/Heavy-Duty – Description



Note: Assumes about 80,000 miles driven in one year with an average fuel economy of 6.5 mpg for heavy-duty vehicles and 10 mpg for medium duty vehicles

\*The state fuel taxes and registration fees shown for interstate heavy-duty commercial motor vehicles include all jurisdictions, Ohio gets \$1,438 in state fuel taxes (IFTA) and \$332 in state registration fees. These numbers don't take into account what Ohio receives in state fuel taxes (IFTA) and registration fees (IRP) from non-Ohio-based interstate trucks.

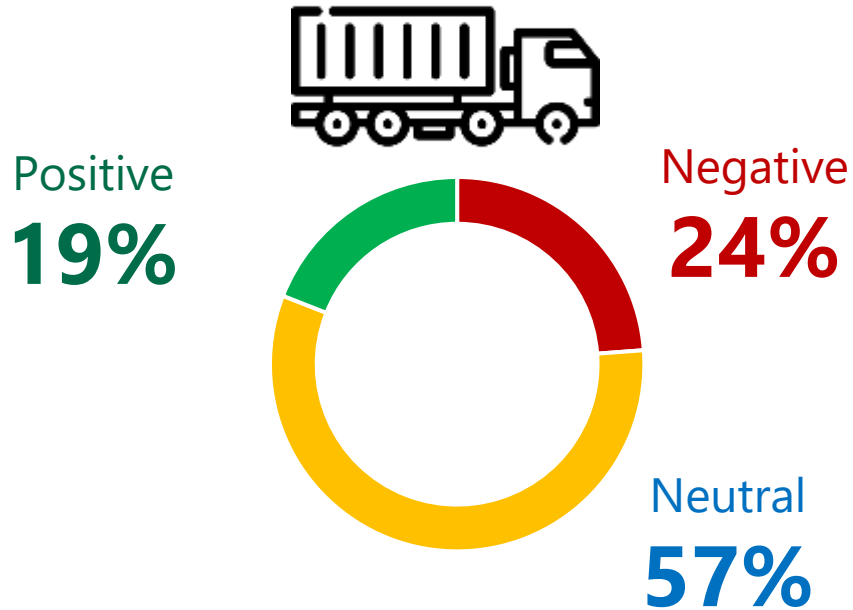
\*\* Annualized for the purposes of this analysis

# Current Funding Structure – Business Opinions

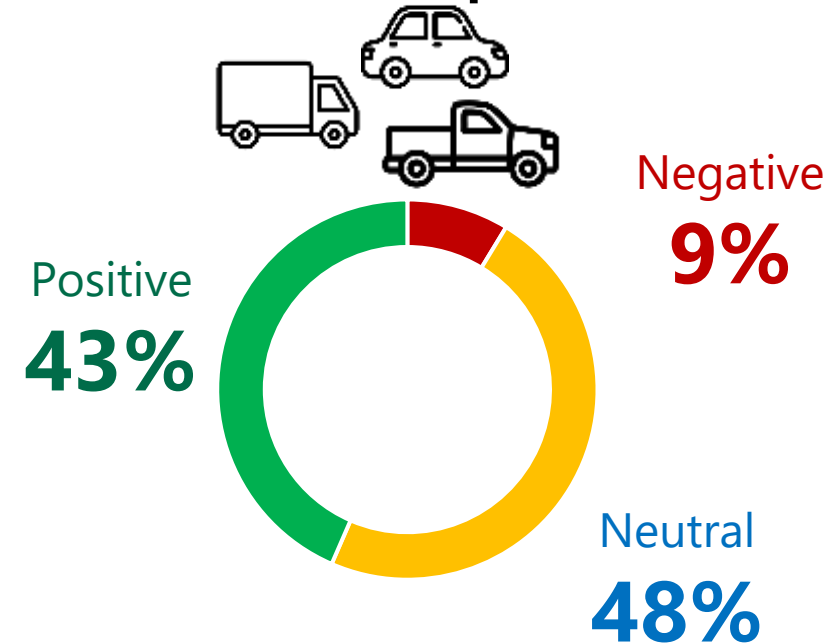
## Business Interviews

Around half of business interviewees have a neutral attitude towards the current funding structure. They don't like paying taxes and some trucking companies feel they pay more than their fair share; however, many interviewees recognize that it's necessary to pay for good roads and they like the simplicity of the current structure.

### Trucking Companies



### Other Companies



*Thinking about the types of vehicles your company uses, what is your opinion about the way Ohio currently collects money to maintain its roads and bridges?*

# Current Funding Structure – Trucking Business Opinions

## Business Interviews

- “I'm negative to the fact they've got to take the fees. I'm positive about what they do with it. But I guess it just makes me kind of neutral...The money's got to come from somewhere, but at the end of the day I just wish it was lower what they deducted.
- “Because everybody has to pay taxes so I'm not going to say that it's not fair, that I'm opposed to it. We all need to have good highways, roads and bridges.
- “State of Ohio, it is to maintain the road, we've got really good roads here, and I'm probably getting ahead of myself, but it's worth it if you know that what you're funding is going towards what it's supposed to be.
- “Everybody requires trucks to do their job for all of our country to function. For our state to function, it requires heavy duty vehicles to be able to function. It does not require all of the passenger cars to function. And the shared cost of that is extreme to the heavy-duty truck side.

# Current Funding Structure – Other Business Opinions

## Business Interviews

- “Do I love how much taxes we pay for it? I don't, but I also understand we have to do it and is there a better way? I haven't really thought about it.
- “I know nobody likes paying anything more than they have to, but yet if you don't, the roads are going to fall apart and bridges are going to deteriorate. You have to have a funding source. I don't mind the way it is.
- “Nobody likes to pay taxes...In my business, I deliver product that has to have roads, and I want them maintained. So I'm willing to pay, and I have no problem with the fairness of this structure at this moment.
- “It's pretty standard to charge all users of a thing to pay for the maintenance of that thing...I think it's pretty fair because the trucks that are going to deteriorate your roads and pollute the air the most are the ones that are getting charged the most in gas tax and registration, which is the heavy duty.

# **In-depth Review**

## **Focus on Alternative Revenue Mechanism 1: Increase State Fuel Tax**

**Survey**

**Residential Interviews**

**Business Interviews**



Raise the state fuel tax on vehicles still consuming gas or diesel

# In-depth Review

## Focus on Alternative Revenue Mechanism 1: Increase State Fuel Tax

**Provide Description** of the Increase State Fuel Tax alternative revenue mechanism using graphs, text, and audio

**Collect Opinions** of the Increase State Fuel Tax using scales and open-ended responses



Raise the state fuel tax on vehicles still consuming gas or diesel



# In-depth Review

## Focus on Alternative Revenue Mechanism 1:

### Description

Next, the survey and residential interviews provided text, graphs, and/or audio to describe the funding alternative of increasing the state fuel tax.

# Increase State Fuel Tax Light-Duty – Description



*Note: This example assumes the vehicles purchase gas and applied the federal and state gas taxes.*

# In-depth Review Focus on Alternative Revenue Mechanism 1:

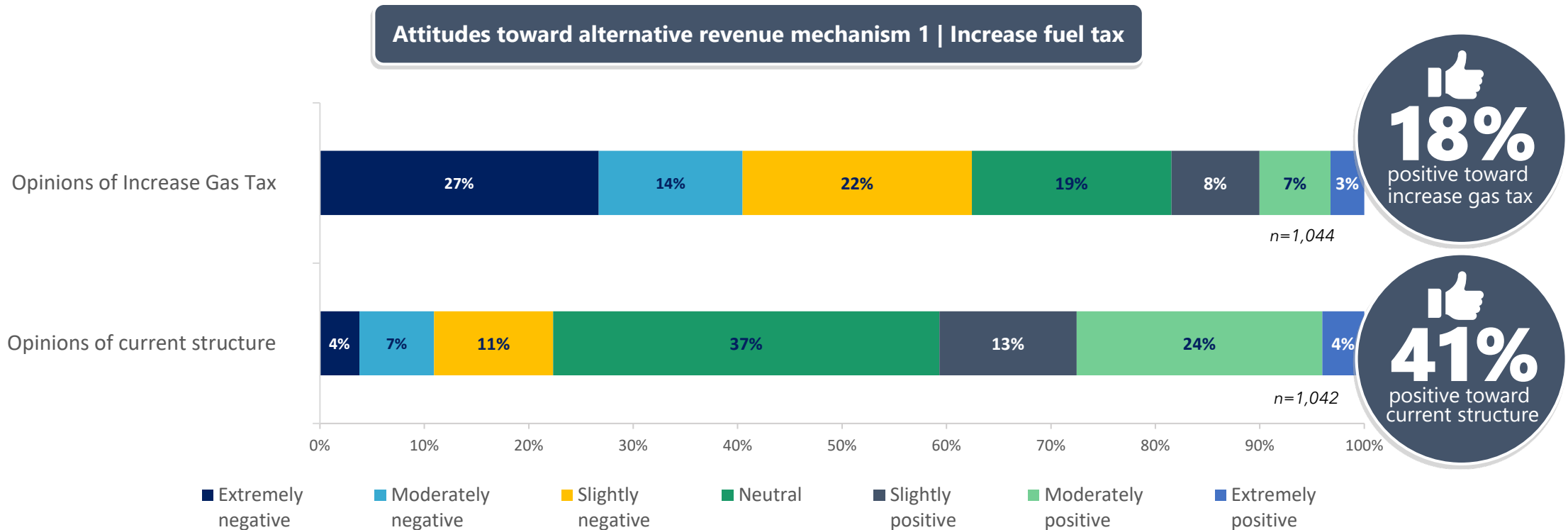
## Survey

Next, the survey measured opinions towards the funding alternative of increasing the state fuel tax.

# Increase State Gas Tax - Opinions

## Representative Survey

Only a fifth of Ohioans have a positive attitude towards this alternative revenue mechanism.



GT4. What is your opinion about the "Increase State Gas Tax" funding option?

# Increase State Gas Tax – Subgroup Differences

Representative Survey



**Male**

**23% positive**



**Female**

**14% positive**



**Hybrid/EV in household**

**30% positive**



**No hybrid/EV in household**

**17% positive**

Males were more likely to say that drivers of low-efficiency vehicles should pay more. They were less likely to say this option is unfair in general or they're skeptical about the funds being used efficiently and effectively.

Drivers of hybrids and EVs pay just a small additional amount or no additional amount with this alternative.

# Increase State Gas Tax – Subgroup Differences

Representative Survey



Not SE Ohio

**19% positive**



SE Ohio

**5% positive**

Those from southeast Ohio were more likely to say that this option is unfair in general or the cost is a burden.



Suburban

**22% positive**



Rural or urban

**15% positive**

Those from rural or urban areas were more likely to say that this option is unfair in general.

# Increase State Gas Tax – Subgroup Differences

Representative Survey



**Climate change more important**

**25% positive**



**Climate change less important**

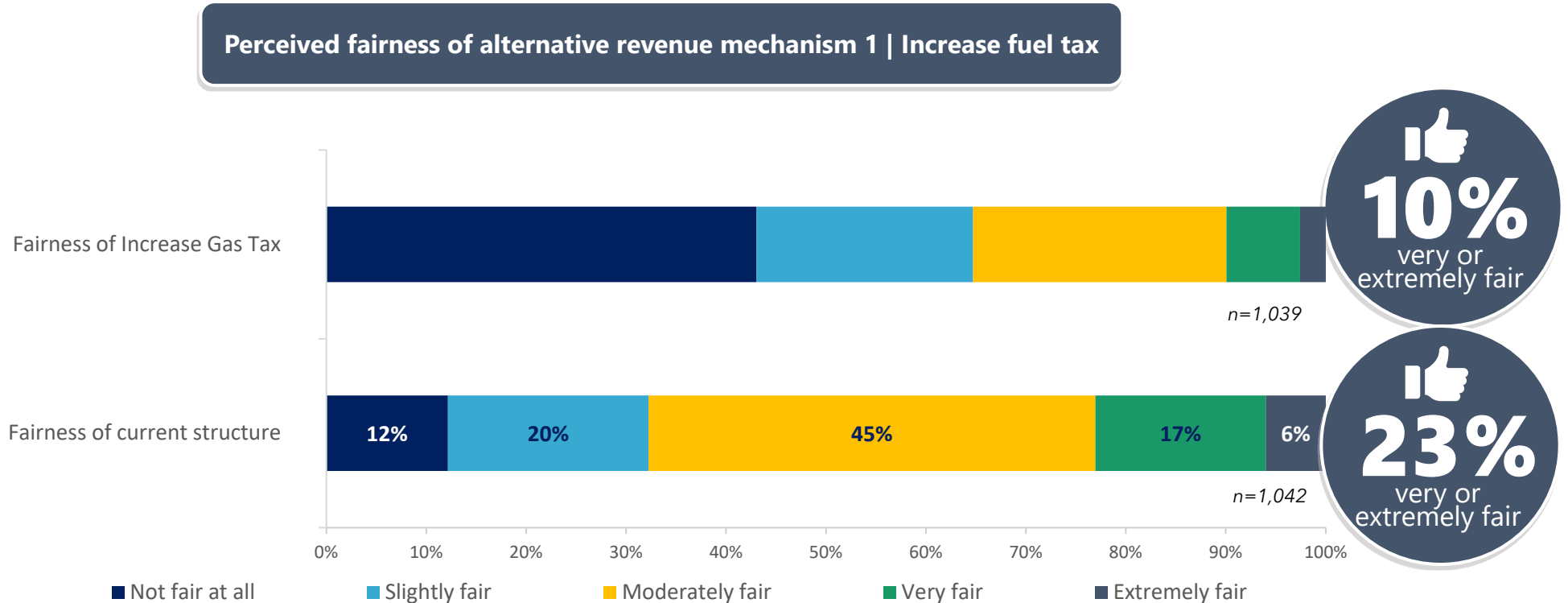
**14% positive**

This alternative incentivizes fuel efficiency, which is good for the environment and has a less negative impact on climate change.

# Increase State Gas Tax - Opinions

## Representative Survey

Only 10% of Ohioans think this alternative revenue mechanism is very or extremely fair to them.



GT6. How fair to you is the "Increase State Gas Tax" funding option?



# Increase State Gas Tax – Subgroup Differences

Representative Survey



**Male**

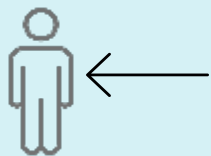
**14%** very or extremely fair



**Female**

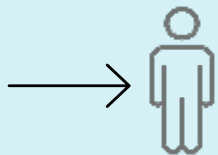
**6%** very or extremely fair

Males were more likely to say that drivers of low-efficiency vehicles should pay more. They were less likely to say this option is unfair in general or they're skeptical about the funds being used efficiently and effectively.



**Liberal**

**14%** very or extremely fair



**Moderate or conservative**

**9%** very or extremely fair

Liberals were more likely to say that drivers should be incentivized to reduce fuel consumption.

# Increase State Gas Tax – Subgroup Differences

## Representative Survey



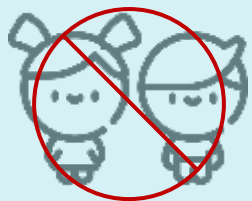
**Household income  $\geq$  \$50k**

**12%** very or extremely fair



**Household income  $<$  \$50k**

**4%** very or extremely fair



**No kids in household**

**11%** very or extremely fair



**Kids in household**

**7%** very or extremely fair

Those with higher household income were more likely to say this option seems fair and the increase in amount is not a burden.

Those who have kids in the household drive more miles each week, on average, which means they'll pay relatively more than those without kids in the household with this option (all else equal).

# Increase State Gas Tax – Subgroup Differences

Representative Survey



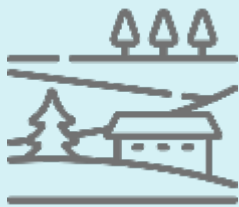
**Suburban**

**12%** very or extremely fair



**Urban**

**9%** very or extremely fair



**Rural**

**6%** very or extremely fair

Those from rural or urban areas were more likely to say that this option is unfair in general.

# Increase State Gas Tax – Subgroup Differences

Representative Survey



**CE, NE or SW Ohio**

**11%** very or extremely fair



**NW Ohio**

**4%** very or extremely fair



**SE Ohio**

**1%** very or extremely fair

Those from southeast Ohio were more likely to say that this option is unfair in general or the cost is a burden.

# Increase State Gas Tax – Subgroup Differences

Representative Survey



**Hybrid/EV**

**19%** very or extremely fair



**No hybrid/EV**

**9%** very or extremely fair

Drivers of hybrids and EVs pay just a small additional amount or no additional amount with this alternative.



**Climate change more important**

**15%** very or extremely fair



**Climate change less important**

**6%** very or extremely fair

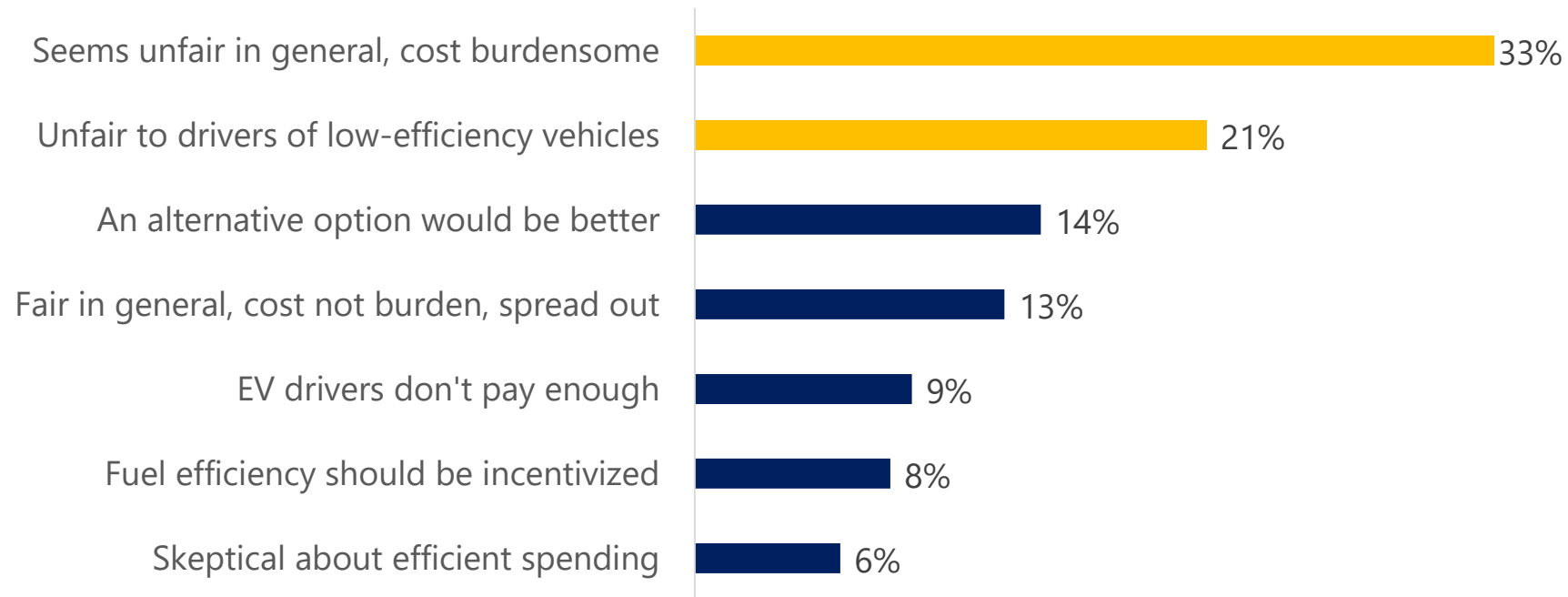
This alternative incentivizes fuel efficiency, which is good for the environment and has a less negative impact on climate change.

# Increase State Gas Tax – Open-ended Responses

## Representative Survey

Respondents most commonly said this alternative seems unfair in general or the cost is burdensome, or it's unfair to drivers of low-efficiency vehicles.

Reasons for opinions towards Increase State Gas Tax



# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**33%** of respondents said this alternative sounded unfair, they found the cost burdensome, or they had a general negative comment.

“All types use the highways and bridges equally, but are not are paying equally.”

“We need to maintain the roads and bridges, but those driving gas powered vehicles end up paying more of the cost than the others.”

“Everything is going up. Consumers are having a hard time putting food on the table and paying for everyday expenses. A rise in gas taxes is the last thing needed.”

# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**21%** of respondents said this alternative was specifically unfair to drivers of lower efficiency vehicles; some mention those drivers tend to be low income.

“Retired and on fixed income. Can't afford to buy high efficiency vehicle.”

“Lower income households, which cannot afford electric vehicles, will be shouldering the brunt of the increase. Yet all vehicles use the roads.”

“It targets vehicles with lower efficiency which tend to be trucks which business owners typically have and SUVs which families typically have. So it is shifting the tax burden to business owners and families.”



# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**14%** of respondents commented about other ways to collect road funding that they preferred over this idea or they said the funds wouldn't be sufficient.

"It's a short term solution as we continue to move towards more electric/hybrid vehicles."

"I think it's (more fair) to charge vehicle owners higher registration fees. Many people can't afford higher gas prices just to go to work."

"There should be a tax that is not just 'gas' and everyone should pay the same amount."

# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**13%** of respondents said this alternative sounded fair or had a general positive comment.

“It keeps the payments approximately equal across different types of vehicles.”

“It appears we all would be paying our share.”

“The more gas you use, the more you are wearing down the roads. You should pay more.”

# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**9%** of respondents said this alternative was unfair because hybrid and EV vehicle owners would not be expected to contribute equal amounts as gas-powered vehicle owners.

“All vehicles use the roads to travel, so it seems disproportionate to raise gas taxes without any impact to the hybrid or electric vehicles who use the same roadways.”

“The EV is not paying their share of the increase!”

“Subsidizes hybrid and electric vehicle owners.”

# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**9%** of respondents said this alternative would rightfully benefit hybrid/EV owners over gas-powered vehicle owners.

“Gas hogs are generally larger and heavier and cause more damage to roads and bridges...they need to pay more!”

“It would both increase revenue and serve as incentive to adopt more energy efficient vehicles.”

“It encourages people to switch to more fuel efficient or electric vehicles which I think is a good thing and doesn't financially punish people for buying electric.”

# Increase State Gas Tax – Open-ended Responses

## Representative Survey

**6%** of respondents wrote concerns that road funding is not spent appropriately.

“I'd need information about how the money is spent. I'm concerned about waste.”

“It doesn't seem like the roads are being fixed.”

“We in Ohio pay way too much and who is to say [the] money goes where it should?”

# **In-depth Review Focus on Alternative Revenue Mechanism 1:**

## **Residential Driver Interviews**

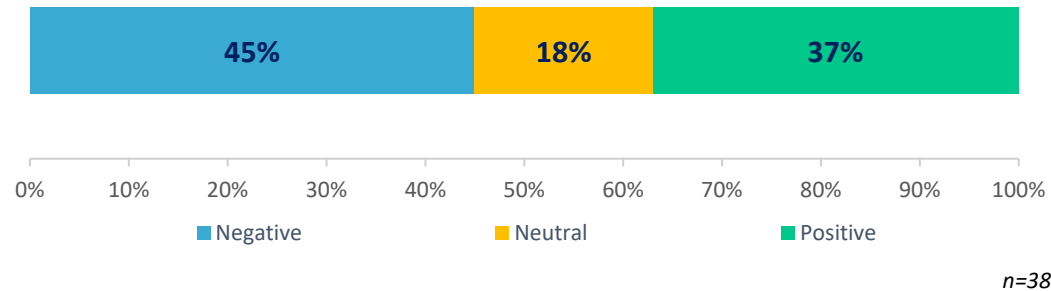
Next, the residential driver interviews measured opinions towards the funding alternative of increasing the state fuel tax.

# Increase State Gas Tax - Opinions

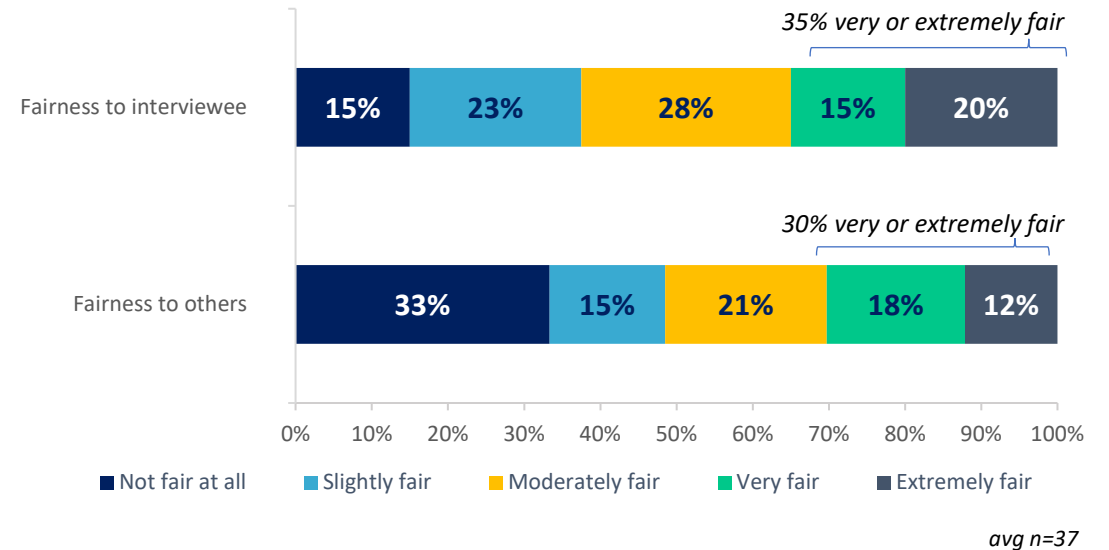
## Residential Driver Interviews

About a third of interviewees have a positive attitude towards this alternative revenue mechanism and about a third think it is very or extremely fair to them.

Attitudes toward alternative revenue mechanism 1 | Increased fuel tax



Perceived fairness of alternative revenue mechanism 1 | Increased fuel tax



What is your opinion about the "Increase State Gas Tax" funding option?

How fair to you / to other Ohio residents who drive is the "Increase State Gas Tax" funding option?

## Increase state gas tax

Residential driver interviews

### Key finding - Pro

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**Some interviewees feel that the increase in the amount they pay is *not* a burden.**

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- Some interviewees mentioned that the increase in the amount they pay overall is not a large increase.
  - Some feel that this alternative is fair because they would pay about the same amount overall as most other drivers.
  - Some appreciate that the payment is spread out throughout the year.



## Increase state gas tax

Residential driver interviews

### Key finding - Pro

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**Some interviewees feel that the increase in the amount they pay is *not* a burden.**

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- “With it being over the year, it doesn't seem like that much to me personally...I don't see it where it's a huge, significant increase that would deter someone from doing what they normally do.
- “I think it's moderately fair. It seems pretty equal across the board, except for the lower efficiency vehicles, but that's just because they use more gas.
- “It kind of levels the playing field, as far as what everyone's paying across the board, except obviously for low efficiency vehicles.
- “Because I have the second-lowest increase. And if you're talking \$22 a year, I personally can easily afford \$22 a year.

## Increase state gas tax

Residential driver interviews

### Key finding - Con

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**However, some interviewees feel the increase in the amount they pay *is* a burden.**

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- Conversely, some interviewees mentioned that the increase in the amount they pay overall is a large increase.
  - Some feel that this alternative is unfair because they would pay more than other drivers.
  - Some feel negative about the increase in general, especially with gas prices already being high.

## Increase state gas tax

Residential driver interviews

### Key finding - Con

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**However, some interviewees feel the increase in the amount they pay *is* a burden.**

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- “It actually makes it more unfair for us combustion engine drivers versus a hybrid or electric...Our increase is much more substantial than their increase.
- “Like it might not seem like a lot but that extra two cents per gallon when you're already paying now...almost \$6. That's a lot considering a few years ago it was \$2-something or even \$3.
- “But with my car, I'm bearing a big part of the brunt of this increase in gas tax. So \$42.00 across a year...isn't good news...It's not fair that I'm now paying more than the electric cars to use our roads.
- “It's negative especially with the way the economy is right now and the amount of money we are already paying for gas...A lot of people can't afford gas right now as it is.

## Increase state gas tax

Residential driver interviews

### Key finding - Con

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**Interviewees feel that the unequal contributions to state gas tax are unfair.**

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- Many interviewees perceive low-efficiency drivers' costs as unfairly high because they pay the most overall and have the largest increase in costs.
  - They worry that low-income drivers pay an unfair amount.
- Many interviewees perceive EV drivers' costs as unfairly low because they pay the least overall and have no increase in costs.

## Increase state gas tax Residential driver interviews **Key finding - Con**

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**Interviewees feel that the unequal contributions to state gas tax are unfair.**

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- “How come the electric and hybrids, they still get to drive on the same roads and their taxes are not increased?...I mean are they going to start flying? Do their cars have wings or something now?”
- “But it could potentially hurt the poorest people in our state who can't afford, who had been driving the same car for 30 years or 20 years and can't afford to get a more efficient vehicle.”
- “Well my other reaction is electric cars, they're not paying anything more, nothing. I have a problem with that. That's my biggest problem with that.”
- “Folks I know that own trucks or low efficiency vehicles, they're really paying the big increase in share. It's gonna hit them much harder than the people I know that drive electric cars, who saw no increase.”
- “I don't think very fair just depending on what kind of vehicle you drive. Because some people do have those low efficiency vehicles and they can't afford to get an electric vehicle or a hybrid vehicle.”

# Increase State Gas Tax – Other Findings

Residential driver interviews



Some drivers like that low-efficiency drivers pay more, because they think drivers should be incentivized to reduce fuel consumption.

# Increase State Gas Tax – Other Findings

Residential driver interviews



- “If they are choosing a lower efficiency one that is maybe not as great for the environment and using a lot more gas. It only makes sense that they end up paying more every year for that. It's not like they are being penalized for that.
- “But I think that that kind of goes along with what I was saying about penalizing the higher gas consumption anyway, both to increase funds but also prompt that change. So it's positive in that it starts us getting where we need to be.
- “So we're basically asking gasoline people who continue to burn gasoline, which is non-sustainable to pay more, pay their higher share...We encourage people to use less gasoline if they want to get their cheaper costs down, but for those who can't or won't, so they will pay for that right to use.

# In-depth Review

## Focus on Alternative Revenue Mechanism 1:

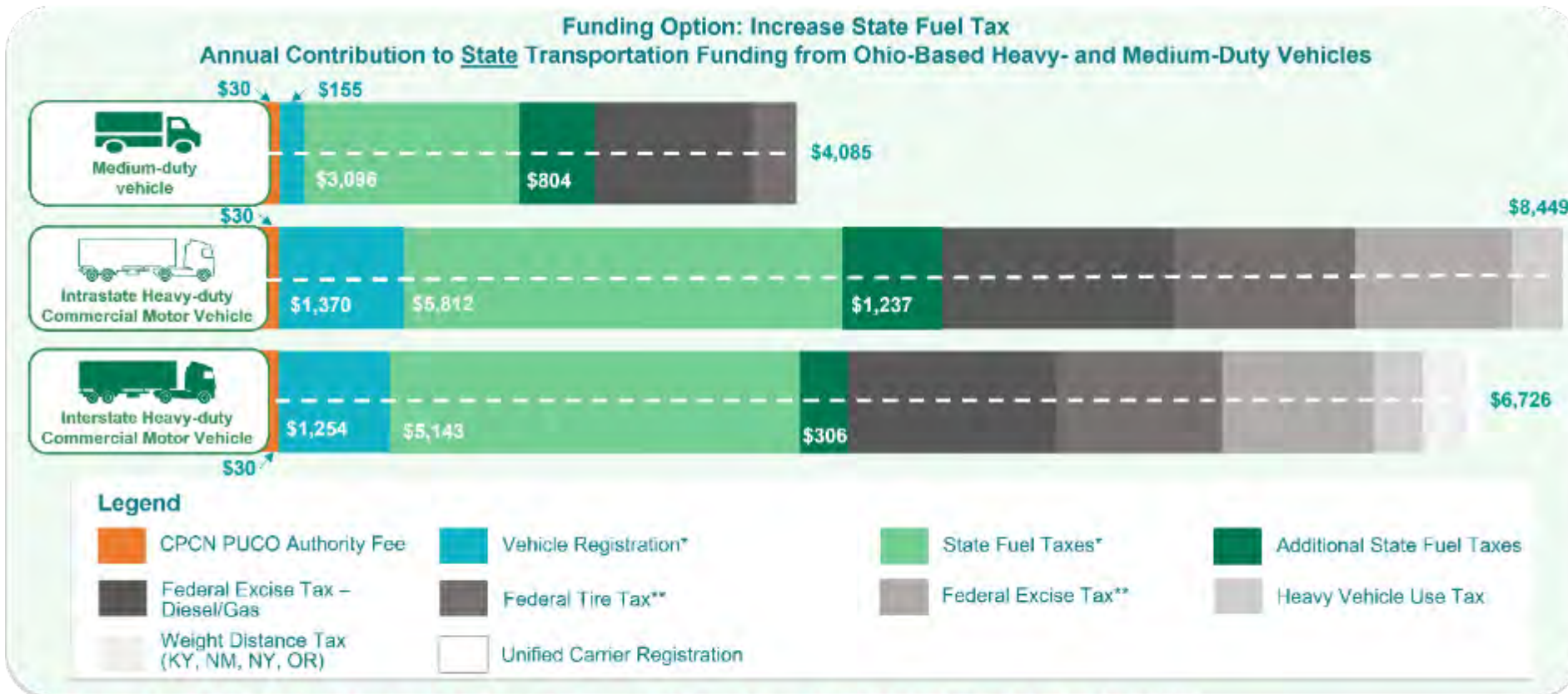
### Business Interviews

Next, during the business interviews, the interviewees learned how medium and heavy-duty vehicles would contribute to the funding for increasing the state fuel tax, and then they provided their opinions about that alternative.

The analysis compared the trucking industry to other industries because the trucking industry is a large part of commercial transportation in Ohio, and trucking companies may have different needs from other types of industries.



# Increase State Fuel Tax Medium/Heavy-Duty – Description



Note: Assumes about 80,000 miles driven in one year with an average fuel economy of 6.5 mpg for heavy-duty vehicles and 10 mpg for medium duty vehicles

\*The state fuel taxes and registration fees shown for interstate heavy-duty commercial motor vehicles include all jurisdictions. Under this scenario, Ohio gets \$1,744 in state fuel taxes (IFTA) and \$332 in state registration fees. These numbers don't take into account what Ohio receives in state fuel taxes (IFTA) and registration fees (IRP) from non-Ohio-based interstate trucks.

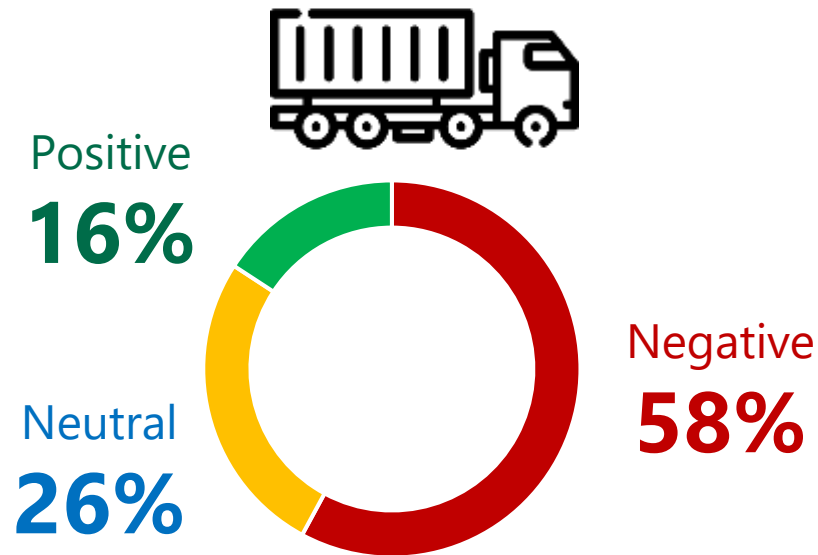
\*\* Annualized for the purposes of this analysis

# Increase State Fuel Tax – Opinions

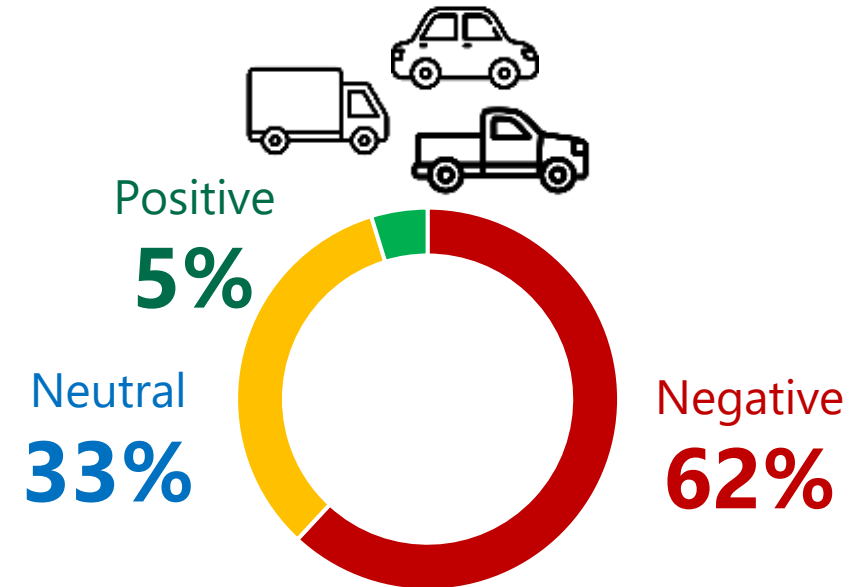
## Business Interviews

A majority of business interviewees have a negative attitude towards the increase state fuel tax funding option. Some trucking companies feel that heavy-duty trucks are disproportionately burdened by this option. Other industry interviewees don't like that this is a temporary solution at best.

### Trucking Companies



### Other Companies



*Thinking about the types of vehicles your company uses, what is your opinion about this option?*

# Increase State Fuel Tax – Opinions

## Business Interviews

- “You can keep raising the tax but eventually, they're going to get tired of paying taxes and they're going to go electric at some point. Once the majority of people are electric this solution is not going to bring you any more money.
- “That's gonna be a band-aid fix right there. You're gonna wind up pushing people more towards electric and hybrid technologies, And eventually, you're gonna have to find another solution.
- “My point is raising the gas and the diesel tax, oh, you're not going, as the time goes by, there's going to be a bigger percentage of trucks that don't burn that kind of fuel.
- “We already carry the bulk of the burden. So, and I don't know that it's really in proportion to the wear and tear...We have to look at function and not abuse the businesses just because we can, because it's an easy grab.
- “In their last adjustment, they raised the diesel more than the gasoline. And until they make those more consistent and eliminate that gap, I can pretty much tell you the industry's going to fight the increases...So more needs to be put on the automobile.

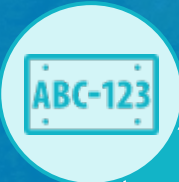
# **In-depth Review**

## **Focus on Alternative Revenue Mechanism 2: Increase Vehicle Registration Fee**

**Survey**

**Residential Interviews**

**Business Interviews**



ABC-123

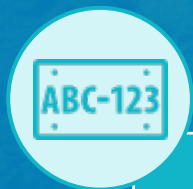
Increase the flat annual registration fees on all vehicles

# In-depth Review

## Focus on Alternative Revenue Mechanism 2: Increase Vehicle Registration Fee

**Provide Description** of the Increase Vehicle Registration Fee alternative revenue mechanism using graphs, text, and audio

**Collect Opinions** of the Increase Vehicle Registration Fee using scales and open-ended responses



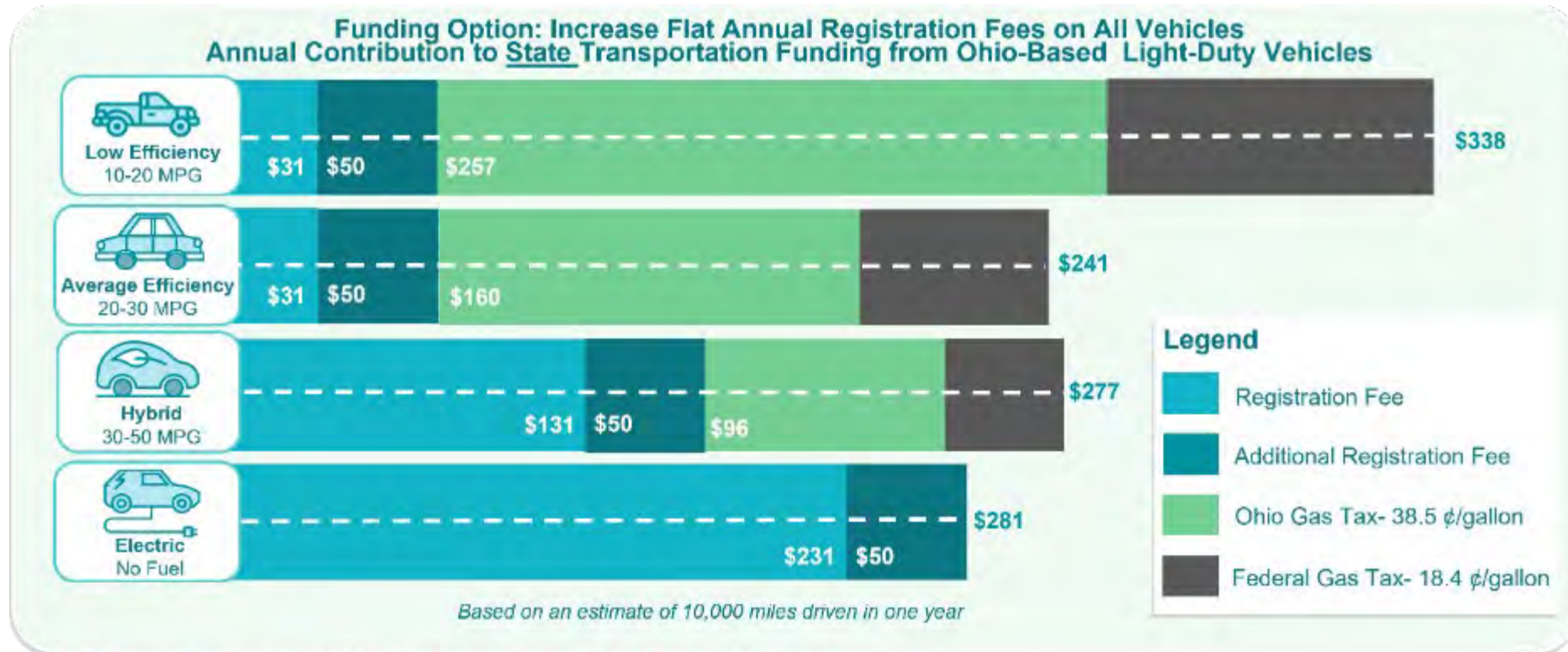
Increase the flat annual registration fees on all vehicles

# In-depth Review Focus on Alternative Revenue Mechanism 2:

## Description

Next, the survey and residential interviews provided text, graphs, and/or audio to describe the funding alternative of increasing vehicle registration fees.

# Increase Registration Fee Light-Duty – Description



*Note: This example assumes the vehicles purchase gas and applied the federal and state gas taxes.*

# In-depth Review Focus on Alternative Revenue Mechanism 2:

## Survey

Next, the survey measured opinions towards the funding alternative of increasing vehicle registration fees.

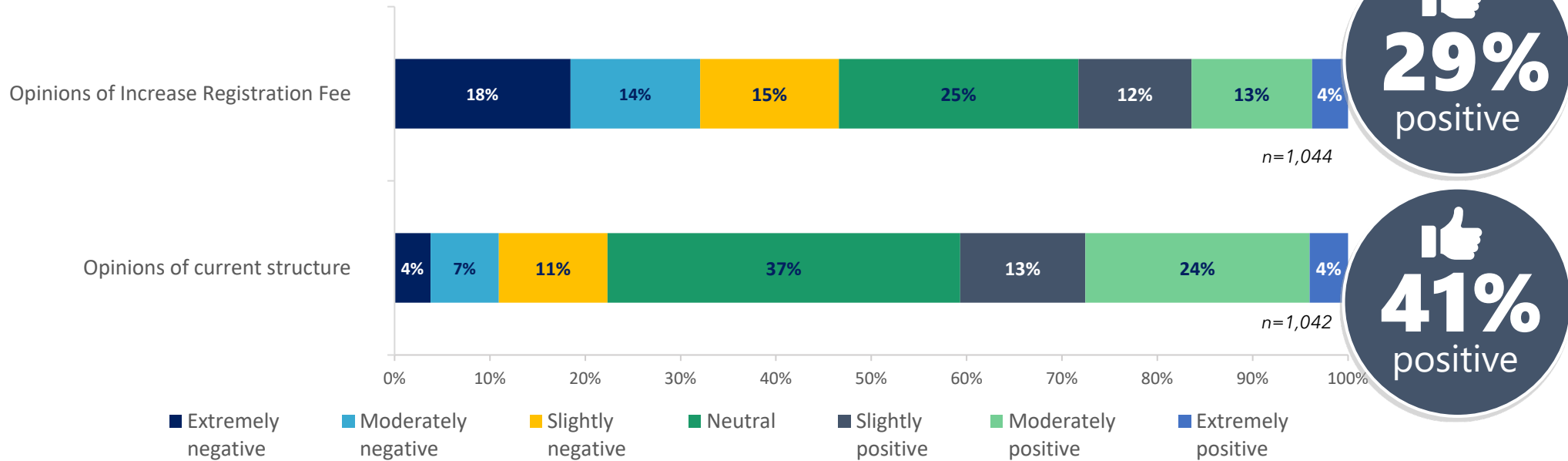


# Increase Registration Fee - Opinions

## Representative Survey

About a third of Ohioans have a positive attitude towards this alternative revenue mechanism.

Attitudes towards alternative revenue mechanism 2 | Increased vehicle registration fee



VR4. What is your opinion about the "Increase Vehicle Registration Fees" funding option?

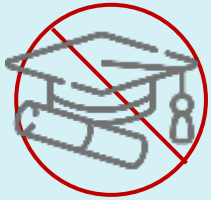
# Increase Registration Fee – Subgroup Differences

Representative Survey



**Bachelor's or higher**

**41% positive**



**Less education**

**23% positive**



**Not SE Ohio**

**29% positive**



**SE Ohio**

**16% positive**

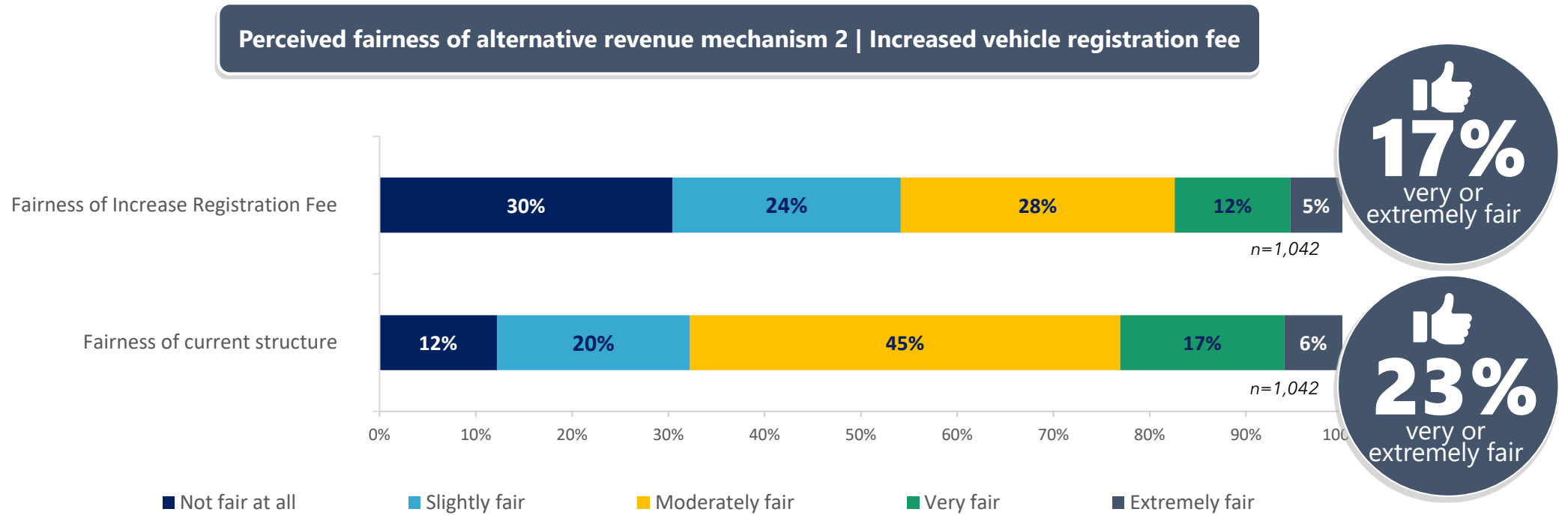
Those with higher education were more likely to say it is fair that the increase is distributed equally across vehicle types.

Those from southeast Ohio were more likely to say this option seems unfair in general and the increase would be a burden.

# Increase Registration Fee – Fairness

## Representative Survey

Less than 20% of Ohioans feel this alternative revenue mechanism is very or extremely fair.



VR6. How fair to you is the "Increase Vehicle Registration Fees" funding option?

# Increase Registration Fee – Subgroup Differences

Representative Survey



**CE, NW or SW Ohio**

**22%** very or extremely fair



**NE Ohio**

**13%** very or extremely fair SE



**Ohio**

**8%** very or extremely fair

Those from southeast Ohio were more likely to say this option seems unfair in general and the increase would be a burden.

# Increase Registration Fee – Subgroup Differences

Representative Survey



**Not daily drivers**

**20%** very or extremely fair



**Daily drivers**

**14%** very or extremely fair



**Likely to buy hybrid/EV**

**23%** very or extremely fair



**Not likely to buy hybrid/EV**

**16%** very or extremely fair

It is unclear why those who are not daily drivers were more likely to have the opinion that this option is very or extremely fair.

Those who are likely to buy a hybrid or EV were more likely to say it is fair that the increase is distributed across vehicle types.

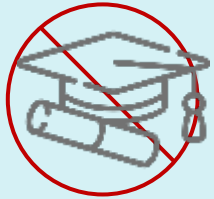
# Increase Registration Fee – Subgroup Differences

## Representative Survey



**Bachelor's or higher**

**26%** very or extremely fair



**Less education**

**14%** very or extremely fair

Those with higher education were more likely to say it is fair that the increase is distributed equally across vehicle types.



**Household income  $\geq$  \$50k**

**20%** very or extremely fair



**Household income  $<$  \$50k**

**11%** very or extremely fair

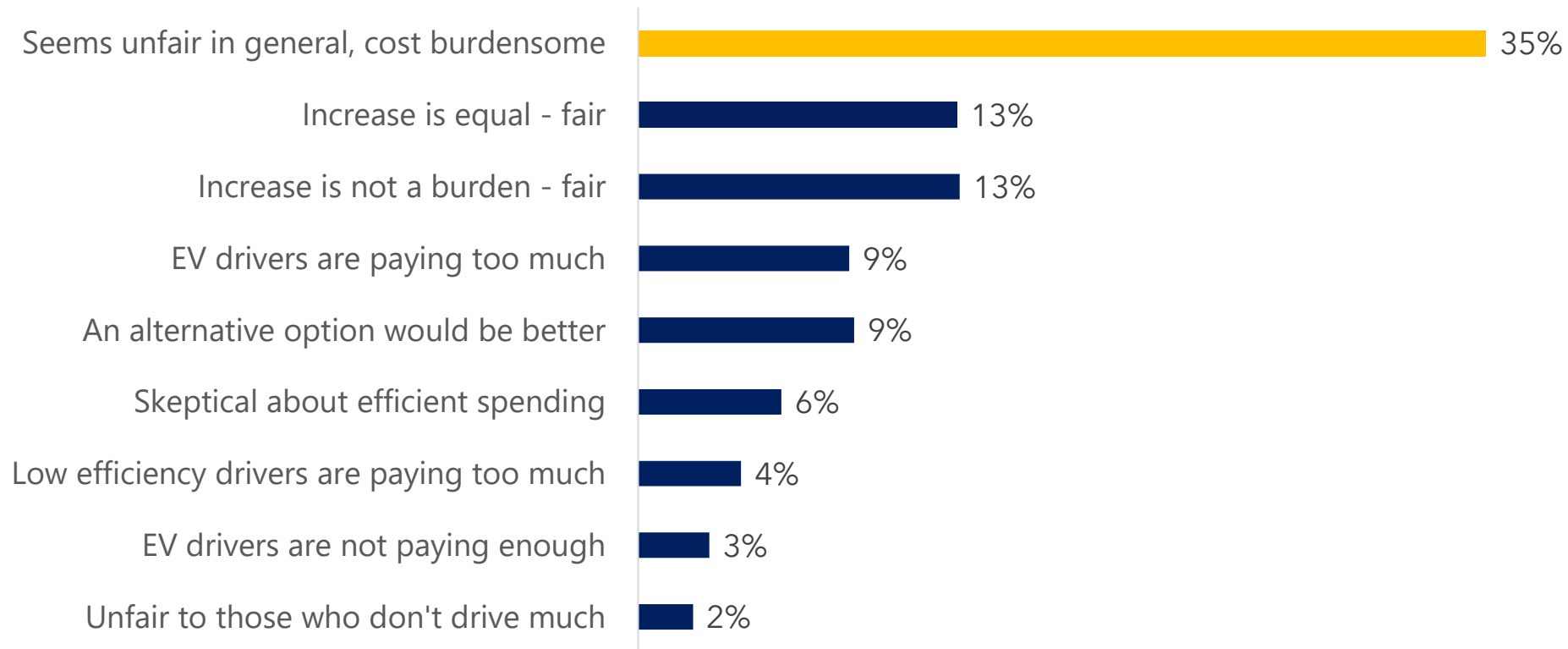
Those with higher household income were more likely to say it is fair that the increase is distributed equally across vehicle types and were less likely to say low-income drivers would be hit the hardest; not everyone can afford to drive a high-efficiency vehicle.

# Increase Registration Fee – Open-ended Responses

## Representative Survey

Respondents most commonly said this alternative is unfair in general or the cost is burdensome.

Reasons for opinions towards Increase Registration Fee



# Increase Registration Fee – Open-ended Responses

## Representative Survey

**35%** of respondents said this alternative was unfair or gave generally negative comments.

“You're asking this during a recession??? Hard enough to [pay a] grocery bill.”

“Average efficiency vehicles don't pay enough.”

“Everything else is so expensive, people with multiple vehicles will be hurting when they have several vehicles to register. Regardless of whether a vehicle is “efficient ” or not all vehicles use the same roads and bridges.”



# Increase Registration Fee – Open-ended Responses

## Representative Survey

**13%** of respondents gave positive comments about the fee increase being applied equally to all vehicle types.

“All people absorb the extra cost equally.”

“It would be standard for all.”

“It makes the increase the same for all vehicle owners.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**13%** of respondents said this alternative seems fair, is not a burden, is a convenient one-time fee, or seems positive in other ways.

“I'd rather pay a registration fee once than pay consistent extra gas taxes and be broke by the end of the month. \$50 is a lot less to pay in a year than how much gas costs to get me from home to work daily.”

“It's money I only have to pay once per year, not money I have to spend out of each and every paycheck when I get gas.”

“Everyone is doing their part in paying taxes. The average is closer together.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**9%** of respondents commented that this option treats hybrid/EV owners unfairly.

“Equal registration fee increase doesn’t promote hybrid and electric cars.”

“They want people to use cleaner cars, but then they’re going to punish them by making them pay more money.”

“Owners of hybrid and electric vehicles already pay enough for registration. It would be fair to increase registration fees for regular gas consuming vehicles, but we should be trying to give incentive for people to drive hybrid and electric vehicles, not penalize them.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**9%** of respondents commented that this option would not work or that they preferred other options.

“Given the effects of inflation the increased registration fees would be mitigated quickly.”

“I think a use tax would be more fair with everyone paying the same registration fee and so much per mile.”

“Registration fees are already high. I'd prefer to see tolls and income tax and sales tax fund our roads and bridges.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**6%** of respondents mentioned concerns about how road funding is used.

“We pay more and see less in highway construction and improvement.”

“So tired of increases and little results.”

“I don’t think the current monies allocated are being wisely spent. Perhaps more transparency to the public regarding new projects & current road maintenance plans would help alleviate the problem. It seems like everyone just wants more money without accountability.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**4%** of respondents gave negative comments that faulted this option for charging the same fee for everyone, particularly those with lower incomes.

“Registration fees tax the poor at a high[er] percentage of income than others.”

“The impact is disproportionate on low-income citizens.”

“Those on [a] fixed income that must use a car to shop, get medical service, etc. will be hit very hard.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**3%** of respondents commented negatively about how this option allows hybrid/EV owners to continue to pay less than drivers of other vehicle types.

“I think the increase should be different for each of the four types of vehicles shown above, with the largest increase to the electric vehicle so that the fees are more equal across the board.”

“I feel the folks who have electric only cars should be required to pay more. They use the roads as much as the rest of us do, but pay the least.

“You need to increase electric/hybrid equally each year. Not just gas drivers.”

# Increase Registration Fee – Open-ended Responses

## Representative Survey

**2%** of respondents faulted this option for making infrequent drivers pay a large additional fee even though they don't use the roads much.

“Some people don't drive much at all so they shouldn't have to pay as much.”

“If you don't drive much, [such as only] 3000 miles a year, you would be paying dearly.”

“Some vehicles are driven very little every year. People who drive 50k miles per year will pay the same for registration towards road repairs as the person who only drives 5k per year.”



# **In-depth Review Focus on Alternative Revenue Mechanism 2:**

## Residential Driver Interviews

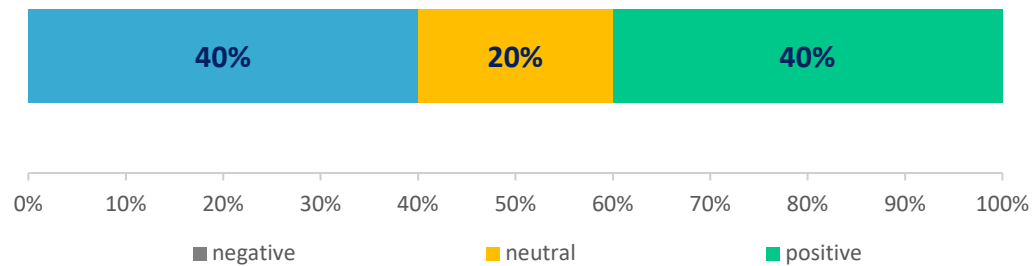
Next, the residential driver interviews measured opinions towards the funding alternative of increasing vehicle registration fees.

# Increase Registration Fee - Opinions

Residential driver interviews

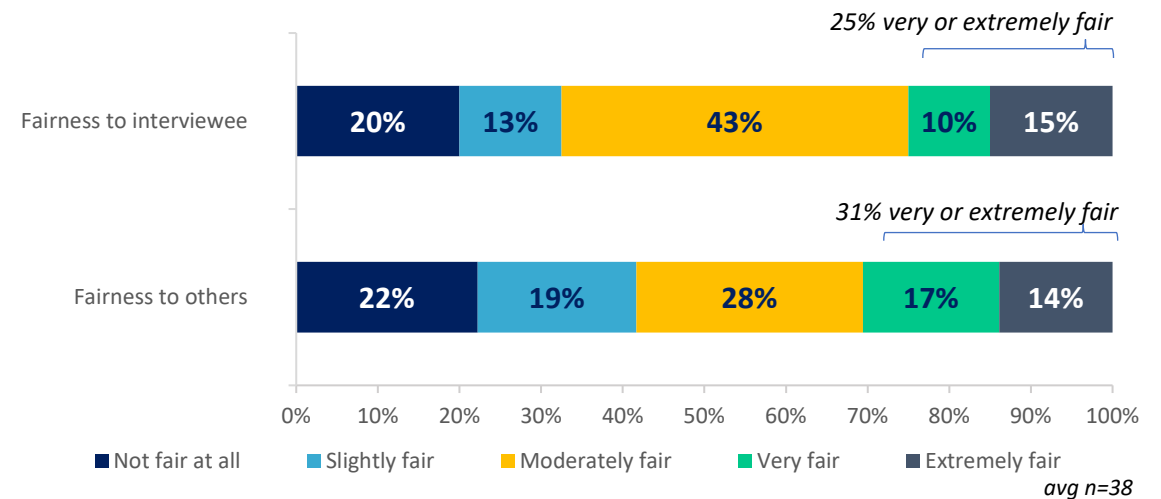
Under half of interviewees have a positive attitude towards this alternative revenue mechanism. About a quarter think it is very or extremely fair to them.

Attitudes toward alternative revenue mechanism 2 | Increased vehicle registration fee



n=40

Perceived fairness of alternative revenue mechanism 2 | Increased vehicle registration fee



How fair to you / to other Ohio residents who drive is the "Increase Vehicle Registration Fees" funding option?

What is your opinion about the "Increase Vehicle Registration Fees" funding option?

## Increase registration fees

Residential driver interviews

### Key finding - Pro

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**Some interviewees feel that the increase in the amount they pay is not a burden.**

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- Some interviewees mentioned that the increase in amount they pay overall is not a large increase, and it's worth it to take care of the roads.

## Increase registration fees

### Residential driver interviews

#### Key finding - Pro

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**Some interviewees feel that the increase in the amount they pay is not a burden.**

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- “Because I'm still working, I wouldn't have any problems paying...I don't mind paying my share to make it better for everybody.
- “It's still within an affordable range that I can handle. And as long as the money, the funding is being used appropriately, I don't mind paying it.
- “We're all going to have to pay additional if we want to keep our roads nice and if this is how the state decides that they're going to raise the registration fees then this is what we're going to have to do if we want to keep these nice roads.
- “For me right now, it's more than fair, because I'm an average efficiency vehicle. And I'm still paying the least.

## Increase registration fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees like that the increase is distributed equally across vehicle type.**

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- Many interviewees appreciate that the increased registration fee would be the same for all drivers, regardless of vehicle type.

## Increase registration fee

### Residential driver interviews

#### Key finding - Pro

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**Many interviewees like that the increase is distributed equally across vehicle type.**

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- “ We are all doing it together, paying the same amount, so it's a fair increase.
- “ It's not bad. Like I said, everybody got the same amounts, \$50 each extra, so it's not a big deal. It's not like one person got a hundred dollars, more, \$200 more. Everybody got the equal amount.
- “ It's an increase for everybody and it's the same increase for everybody...Electric cars weren't paying into the gas tax increase much or not at all actually and hybrid very little.
- “ It expands the responsibility amongst everyone. And I'm not necessarily opposed to having to pay more when that responsibility is being spread out.
- “ Because it's equal. It's not singling out someone based on their personal preference of vehicle.

## Increase registration fee

Residential driver interviews

### Key finding - Con

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**However, some interviewees feel the increase in the amount they pay *is* a burden.**

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- Some interviewees mentioned that the \$50 increase in amount they pay overall is a large increase.
  - Some pointed out that they would pay more overall than they would with the increased state gas tax alternative.
  - Some disliked that it's a single payment instead of multiple payments made throughout the year.
  - Some disliked that it's such a large increase compared to the previous registration fees for low and average efficiency vehicles.

## Increase registration fee

Residential driver interviews

### Key finding - Con

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**However, some interviewees feel the increase in the amount they pay *is* a burden.**

---

- “ Raising the registration fee by a flat \$50 is quite a hefty raise on a registration fee. It's not a small percentage, like the gas tax that we spoke about. It's more than double what's being paid right now.
- “ So the cars are all registered in my name. So we get the plates and stuff all at the same time. So this would cost me a lot more all at one time.
- “ Whatever minimal impact that I could have throughout the year is what I would want. And to me, I would just rather just spread that increase throughout the year, so that I don't even notice it really.
- “ Even though I just said in the previous topic that maybe increasing the registration fees would be helpful, but I didn't know \$50.00 to increase the registration fees. Maybe \$5, \$10, \$20 at that.
- “ I just think \$80 is a lot to pay for registration fee for a sticker that you are putting on your car every year.



# Increase Registration Fee – Other Findings

Residential driver interviews



Some interviewees feel that the increased registration fee disincentivizes driving electric vehicles since they pay the largest fee overall, which they dislike.



Some interviewees dislike that those who don't drive very much will end up paying more than their fair share.

# Increase registration fee – other findings

## Residential driver interviews



- “ I just go back to my mom again, who is still going to pay her portion even though she's 80 years old, not driving hardly at all...She's going to pay for the registration and they're going to get their money up front, whether she uses the car a lot or not.
- “ My first reaction was noticing the poor electric vehicles who are getting hit with yet another \$50...And then I noticed the hybrid one, also. It just seems crazy to me, to penalize people for trying to help the environment.
- “ It exacerbates the problem that already is in place where people who have electric vehicles basically are penalized for having them or are disincentivized from purchasing them in the future.

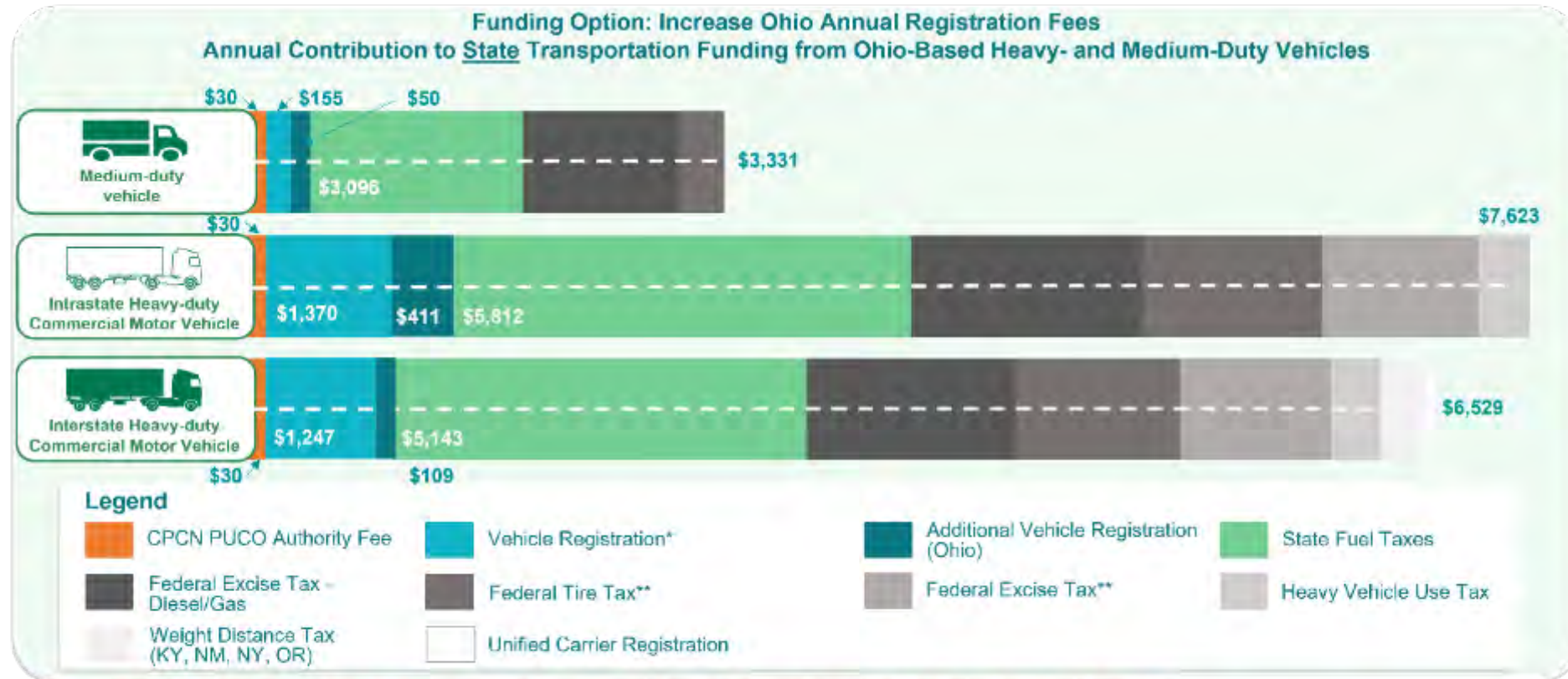
# In-depth Review Focus on Alternative Revenue Mechanism 2:

## Business Interviews

Next, during the business interviews, the interviewees learned how medium and heavy-duty vehicles would contribute to the funding for increasing vehicle registration fees, and then they provided their opinions about that alternative.

The analysis compared the trucking industry to other industries because the trucking industry is a large part of commercial transportation in Ohio, and trucking companies may have different needs from other types of industries.

# Increase Registration Fee Medium/Heavy-Duty – Description



Note: Assumes about 80,000 miles driven in one year with an average fuel economy of 6.5 mpg for heavy-duty vehicles and 10 mpg for medium duty vehicles

\*The state fuel taxes and registration fees shown for interstate heavy-duty commercial motor vehicles include all jurisdictions. Under this scenario, Ohio gets \$1,438 in state fuel taxes (IFTA) and \$440 in state registration fees. These numbers don't take into account what Ohio receives in state fuel taxes (IFTA) and registration fees (IRP) from non-Ohio-based interstate trucks.

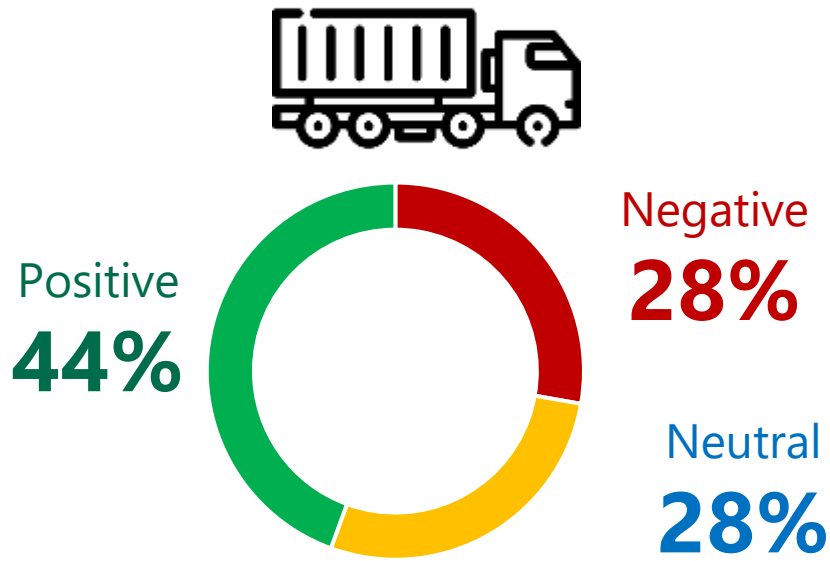
\*\* Annualized for the purposes of this analysis

# Increase Registration Fee – Business Opinions

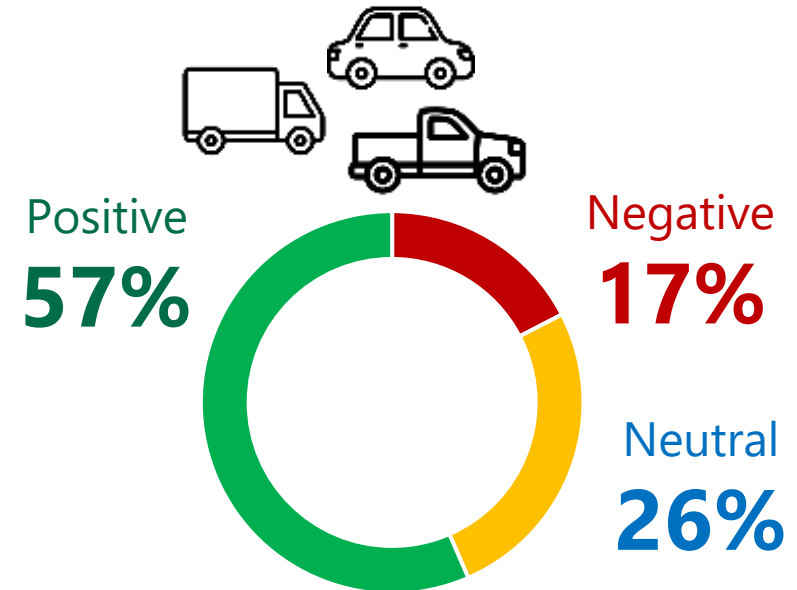
## Business Interviews

Around 70-80% of business interviewees have a positive or neutral attitude towards the increase registration fee option – although they don't want to pay more, some say the cost is modest and reasonable and they understand the need for the increase. Some trucking companies mentioned that this alternative would cause trucking companies to register in other states, such as Maine.

### Trucking Companies



### Other Companies



*Thinking about the types of vehicles your company uses, what is your opinion about this option?*

# Increase Registration Fee – All Business Opinions

## Business Interviews

- “Because it's a modest increase, but the roads need to be funded.
- “\$109 more on the license plate is not a big issue...So if the road is improved a little bit I would much rather pay a higher tax and not have my tires ruined.
- “It's quite a bit more than they're paying, obviously, for registration now. And depending on how much you use a vehicle, I feel like that would be a lot to put tax on, if you're only going to use the vehicle a couple of times.
- “Adding in that registration fee doesn't really do us much good because we have to pay more in registering the vehicle but we're only driving a mile at a time or two miles.
- “You're penalizing only the people that buy license plates in the state of Ohio...The ones that are truly wearing out your roads and bridges is the heavy trucks. You could drive up and down the highway and look at them, the grand majority of them are a place from out of state.

# **In-depth Review**

## **Focus on Alternative Revenue Mechanism 3: Mileage-Based User Fee**

**Survey**

**Residential Interviews**

**Business Interviews**



**Implement fees based on miles driven**

# In-depth Review

## Focus on Alternative Revenue Mechanism

### 3: Mileage-Based User Fee

**Provide Description** of the Mileage-Based User Fee alternative revenue mechanism using graphs, text, and audio

**Collect Opinions** of the Mileage-Based User Fee using scales and open-ended responses



Implement fees based on miles driven



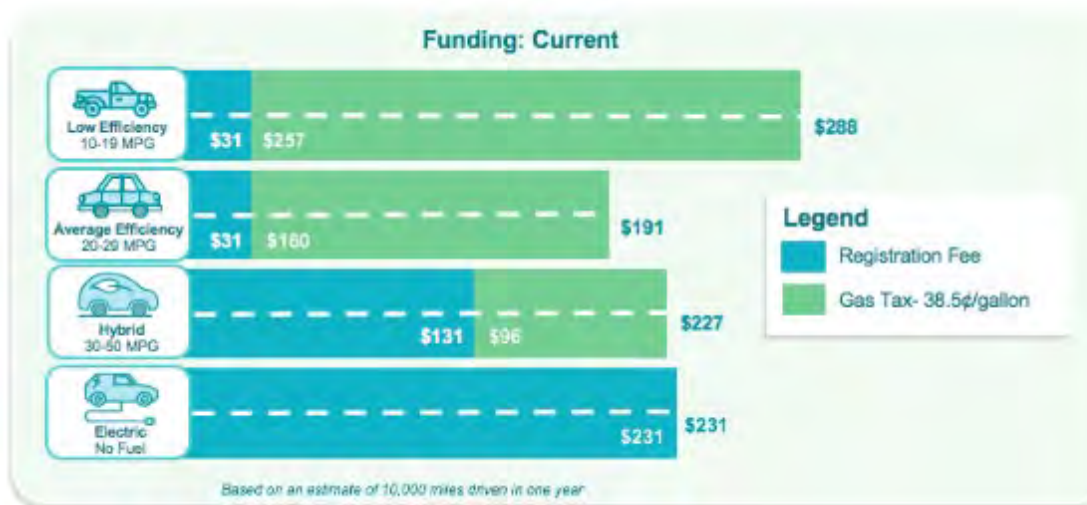
# In-depth Review Focus on Alternative Revenue Mechanism 3:

## Description

Next, the survey and residential interviews provided text, graphs, and/or audio to describe the funding alternative of a mileage-based user fee.

# Mileage-based User Fee - Description

## Representative Survey



# **In-depth Review Focus on Alternative Revenue Mechanism 3:**

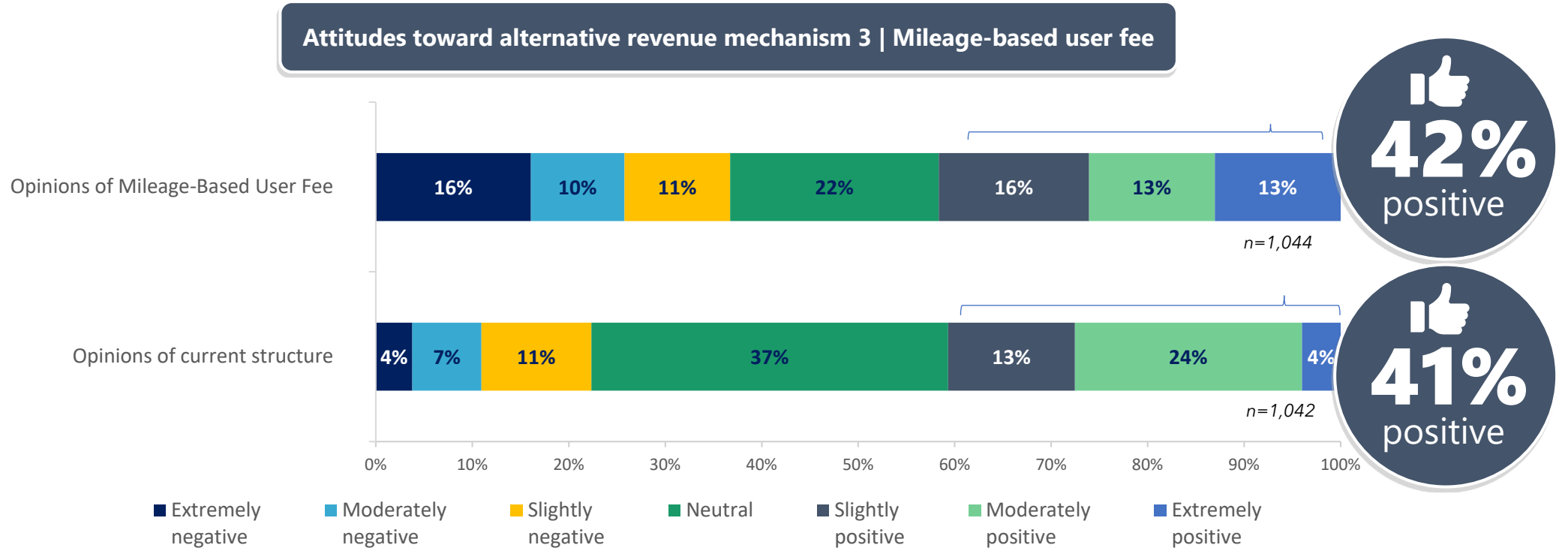
## Survey

Next, the survey measured opinions towards the funding alternative of a mileage-based user fee.

# Mileage-based User Fee - Opinions

## Representative Survey

A large percentage of Ohioans have a positive attitude towards this alternative revenue mechanism.



MF4. What is your opinion about the "Fee Based on Miles Driven" funding option?

# Mileage-based User Fee – Subgroup Differences

Representative Survey



**Not daily drivers**

**46% positive**



**Daily drivers**

**36% positive**

Those who are not daily drivers were more likely to have a positive opinion. According to their open-ended responses, they were more likely to like that drivers pay for what they use.



**Not SE Ohio**

**43% positive**



**SE Ohio**

**11% positive**

Those from southeast Ohio were less likely to have a positive opinion towards this option. In their open-ended responses, they were more likely to say they have concerns about the complexity of monitoring or they have concerns about monitoring state of Ohio driving, specifically. They were also more likely to say they have a negative opinion toward any increase of taxes or fees or a one-time fee.

# Mileage-based User Fee – Subgroup Differences

Representative Survey



**White only**

**44% positive**



**Not white only**

**30% positive**

Those who are white only were more likely to have a positive opinion. According to the open-ended responses, they were more likely to say this option is fair because drivers pay for what they use.



**Likely to buy hybrid/EV**

**52% positive**



**Not likely to buy hybrid/EV**

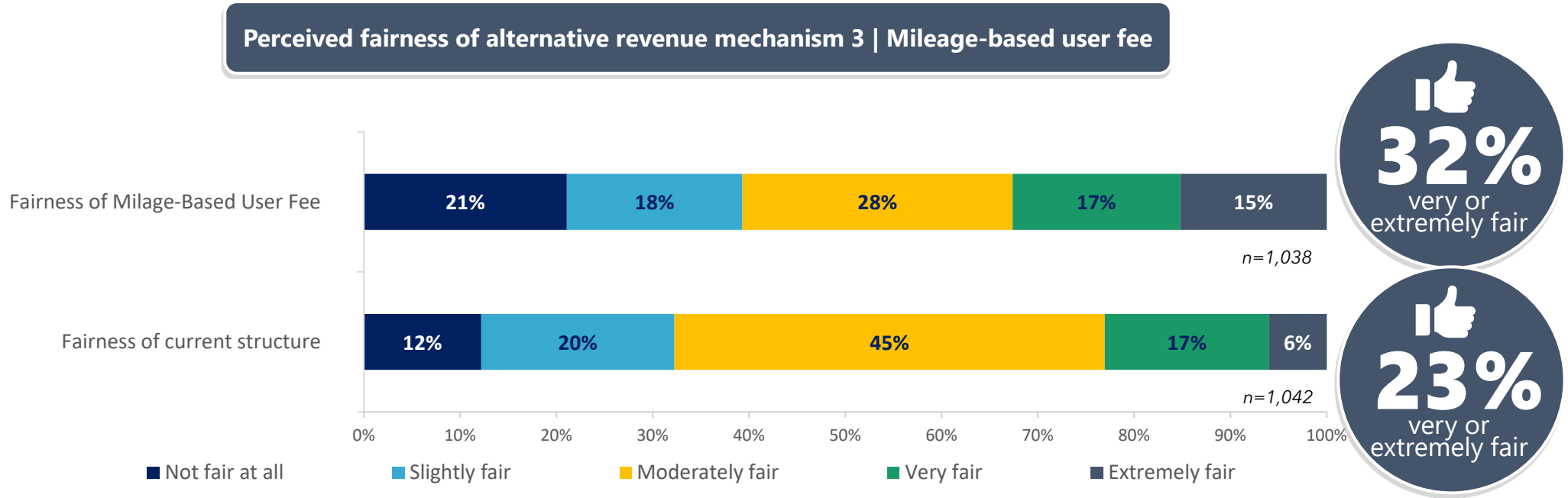
**39% positive**

Those who are likely to buy a hybrid or EV were more likely to have a positive opinion. According to the open-ended responses, they were more likely to say this option is fair because drivers pay for what they use.

# Mileage-based User Fee – Fairness

## Representative Survey

A third of Ohioans think this alternative revenue mechanism is very or extremely fair to them.



How fair to you is the “Fee Based on Miles Driven” funding option?

# Mileage-based User Fee – Subgroup Differences

Representative Survey



**Not SE Ohio**

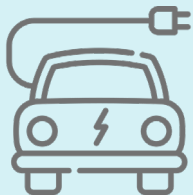
**34%** very or extremely fair



**SE Ohio**

**13%** very or extremely fair

Those from southeast Ohio were less likely to say that this option is fair. According to their open-ended responses, they were more likely to say they have concerns about the complexity of monitoring or they have concerns about monitoring state of Ohio driving, specifically. They were also more likely to say they have a negative opinion toward any increase of taxes or fees.



**Likely to buy hybrid/EV**

**43%** very or extremely fair



**Not likely to buy hybrid/EV**

**30%** very or extremely fair

Those who are likely to buy a hybrid or EV were more likely to say this option is fair. According to their open-ended responses, they were more likely to say this option is fair because drivers pay for what they use.



# Mileage-based User Fee – Subgroup Differences

Representative Survey



**White only**

**36%** very or extremely fair



**Not white only**

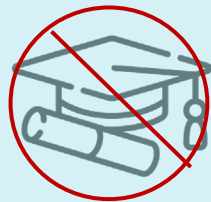
**16%** very or extremely fair

Those who are white only were more likely to say this option is fair. According to their open-ended responses, they were more likely to say this option is fair because drivers pay for what they use.



**Bachelor's or higher**

**43%** very or extremely fair



**Less education**

**28%** very or extremely fair

Those with higher education were more likely to say this option is fair. According to their open-ended responses, they were more likely to say this option is fair in general and were less likely to say they have a negative opinion about an increase in general or a one-time fee.

# Mileage-based User Fee – Subgroup Differences

Representative Survey



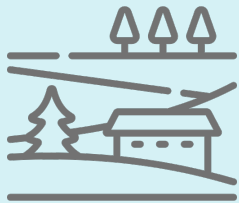
**Suburban**

**37%** very or extremely fair



**Urban**

**30%** very or extremely fair



**Rural**

**27%** very or extremely fair

Those living in suburban areas were more likely to say this option is fair. According to their open-ended responses, they were less likely to say they are skeptical about the funds being used effectively and efficiently or this option wouldn't raise sufficient amounts of funds.

# Mileage-based User Fee – Subgroup Differences

Representative Survey



**Not daily drivers**

**37%** very or extremely fair



**Daily drivers**

**27%** very or extremely fair

Those who are not daily drivers were more likely to say this option is fair. According to their open-ended responses, they were more likely to say this option is fair because drivers pay for what they use.

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

Respondents most commonly said this alternative is fair because it's equal across drivers and it's a pay for what you use model.

Reasons for opinions about mileage based user fee



# Mileage-based User Fee – Open-ended responses

## Representative Survey

**20%** of respondents made comments in support of the idea to pay based on road usage.

“It's more equitable, the more miles you drive, the more wear and tear you cause to the roads and bridges. Therefore, you should pay more to maintain the roads and bridges.”

“It is based on how much you use the roads that are being funded by the fee based on miles driven. It doesn't penalize one type of vehicle over another.”

“People who use the roads more would pay more. That's fair. If I don't really drive that often I should not have to pay as much as others who drive more often.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**18%** of respondents commented that this option is fair to all vehicle types.

“All vehicles are sharing equally in supporting Ohio roads and bridges.”

“Everyone pays the same, so no disparate treatment for any group of vehicles.”

“It's fair to all drivers. It's not increasing a certain cost based off the vehicle you have.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**13%** of respondents expressed doubt about how mileage would be monitored in general.

“How will the mileage driven be determined by the state? Will drivers have to provide proof of mileage when registering?”

“It’s a fair system, but enforcement and collection will be a challenge.”

“Keeping track of miles driven by each vehicle is going to require additional bookkeeping of some sort which will incur greater cost in administration.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**12%** of respondents commented that this option could unfairly burden low-income or rural residents or those who have to drive for work.

“It would punish poor people who have to drive to work. Higher income people are more likely to have white collar, work from home jobs and don't drive as much. It would also punish people who live in suburban and rural counties and don't have access to public transportation.”

“In rural areas people have no choice but to commute to work. We're already paying outrageous gas prices and registration fees. Most people in rural communities average an hour commute because there are no good paying jobs in small towns.”

“This would negatively affect those of us who have businesses based on driving to multiple clients' houses every day. There should be an option for small businesses to be exempt or this could cause those like me to suffer just because [of] our business.”



# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**7%** of respondents commented that they would prefer an alternative solution.

“I like the gas tax option. Uber drivers would get killed in this scenario..”

“If your car uses more gas you should pay more.”

“If you have a vehicle everyone should pay a set amount. Not base it on how much you drive.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**7%** of respondents made negative comments that this option might increase their total contribution to road funding.

“The economy is dropping and people can barely afford to live now. Doing anything would kill people.”

“Service fees from companies will [be] passed on to people, increasing costs for Uber, food delivery, and other deliveries.”

“I don't find anything that increases my taxes/fees positive.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**5%** of respondents disapproved of this option for not incentivizing higher efficiency vehicles.

“The tax should encourage a shift to electric vehicles. If all the fees are the same the incentive to change is lost.”

“Everyone pays the same no matter how efficient their vehicle is. Doesn't seem fair. It is rewarding people for driving inefficient gas hog vehicles. We need to be moving away from oil and fossil fuels and this only makes it more affordable for those who choose to remain mired in their old ways.”

“Electric or more fuel-efficient cars should have some advantage and not pay the same or more than less fuel-efficient cars. Bigger cars/trucks/SUVs do more damage to road so should pay more.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**5%** of respondents made comments about the general fairness of this option.

“Seems to be a very fair option.”

“Might be the fairest way to increase dollars to maintain Ohio's roads.”

“A good way to keep roads repaired.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**5%** of respondents expressed concern with how mileage would be monitored fairly for drivers crossing state lines.

“This option makes no sense because ‘miles driven’ may not all be in Ohio. Why would I be taxed on miles driven in other states? This creates strange incentives.”

“Unsure how ‘miles driven in Ohio’ could be tracked and also makes less sense for people who live near the border of other states (KY, IN, PA) and may frequently drive in those states, just due to location.”

“How would money be collected from out of state drivers? Ohio drivers pay for it all? Out of state travelers/trucking companies [are] currently paying towards Ohio road funding with the gas tax & the turnpike road usage.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**4%** of respondents commented concerns about privacy with mileage monitoring.

“A state database of vehicle mileage compromises the privacy of Ohioans and opens the door to future mileage-based restrictions and taxation.”

“I don't like that this would require tracking how many miles are driven. I would rather the state not track this information.”

“I don't want anyone following my mileage, could become a slippery slope to other monitoring.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**3%** of respondents commented about their distrust in how road funding is spent or doubt that this option would provide enough funding for adequate repairs.

“Don't feel that the money is truly being used for road and bridge repair.”

“I don't trust the funds will be used wisely.”

“I don't think this would provide adequate increase in funding for roads and bridges.”

# Mileage-based User Fee – Open-ended Responses

## Representative Survey

**3%** of respondents expressed concern about drivers cheating the system.

“Enforcement would be difficult. If self-reporting, people could lie.”

“This seems like a very complicated way to have people pay, and it feels like an easy way to cheat the system.”

“Gas tax is immutable. It seems to me there would be lots of loopholes in the mileage plan and too many people looking for ways to cheat.”



# **In-depth Review Focus on Alternative Revenue Mechanism 3:**

## **Residential Driver Interviews**

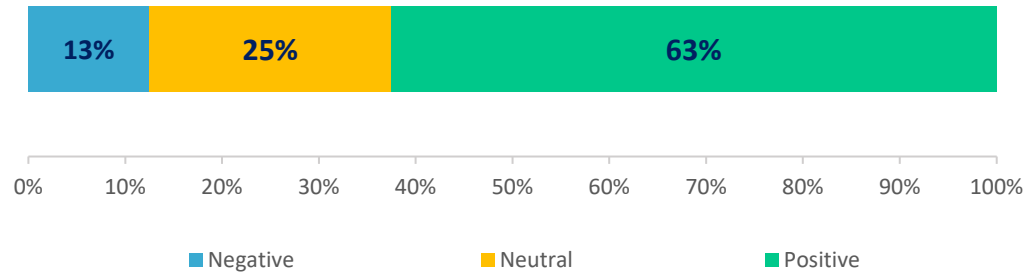
Next, the residential driver interviews measured opinions towards the funding alternative of a mileage-based user fee.

# Mileage-based User Fee - Opinions

Residential driver interviews

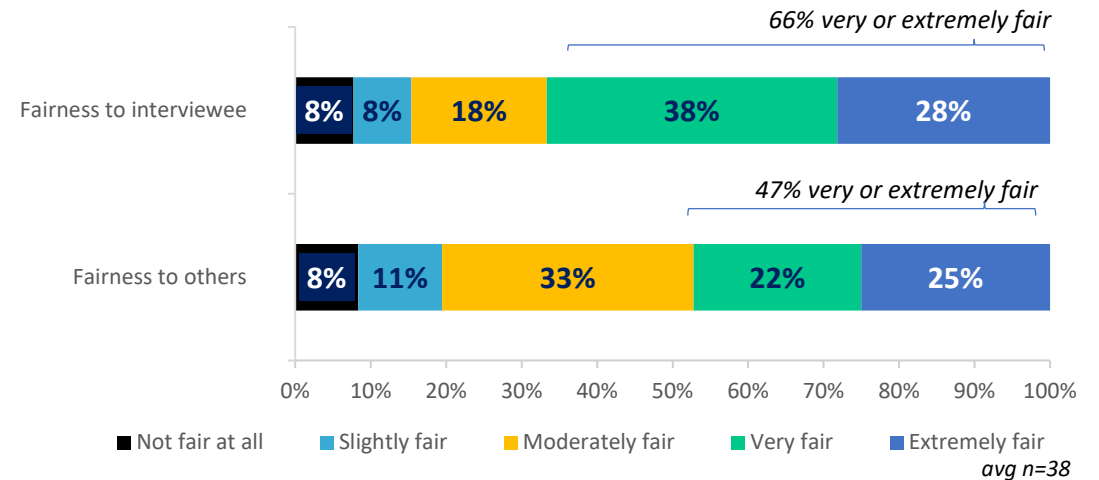
A majority of interviewees have a positive attitude towards this alternative revenue mechanism. Over two thirds think it is very or extremely fair to them.

Attitudes toward alternative revenue mechanism 3 | Mileage-based user fee



n=40

Perceived fairness of alternative revenue mechanism 3 | Mileage-based user fee



What is your opinion about the "Fee Based on Miles Driven" funding option?

How fair to you / to other Ohio residents who drive is the "Fee Based on Miles Driven" funding option?

## Mileage-based user fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees feel that the increase in the amount they pay is not a burden.**

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- Many interviewees mentioned that the amount they pay overall is not a lot.
  - Some pointed out that they would pay less or the same as the current structure.
  - Some noted that they don't drive a lot of miles, so they wouldn't pay much.

## Mileage-based user fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees feel that the increase in the amount they pay is not a burden.**

---

- “Being an average efficiency vehicle user, and I don't drive too much either, I can see how it would be beneficial for me...I could end up paying less each year, the same or less each year by this method.
- “Based on amount of miles I would be driving, I could see me saving maybe a little bit of money or being pretty close to the same.
- “I think it's the right amount it's not too pricey, it's just doable. It's what people can afford.
- “I would benefit greatly because I don't drive a lot of miles. So that would be just like financially directly it would be fair to me.

## Mileage-based user fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees feel that the mileage-based user fee is fair due to fee equality.**

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- Many interviewees appreciate that with a mileage-based user fee, all drivers pay the *same registration fee* and the *same rate per mile driven*.

## Mileage-based user fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees feel that the mileage-based user fee is fair due to fee equality.**

---

- “This is even fairer than the ones we looked at before. With the same registration fee and the same cost. Same fee for the mile.
- “Every mile that all my other Ohioans are driving, they're paying the same than I am, no matter what kind of car they drive. So everybody's paying their fair share for that mile.
- “Everybody's on the same page in terms of the registration fee...Everybody's paying the same for their use of the road per mile. And so that to me, this is the fairest, very fair of those presented.
- “Everyone's technically treated the same, no matter what car they drive, if you drive the same amount of miles and whatever car it is, you're going to pay the same amount, and that's fair, one could argue.

## Mileage-based user fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees feel that the mileage-based user fee is fair due to the “pay for what you use” model.**

---

- Many interviewees appreciate that with a mileage-based user fee, all drivers pay for their road usage directly.

## Mileage-based user fee

Residential driver interviews

### Key finding - Pro

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**Many interviewees feel that the mileage-based user fee is fair due to the “pay for what you use” model.**

---

- “ We put the onus for payment on those who use the service more. And I think that's something that anyone can get behind. The more you use it is the more you should pay.
- “ This one, you have to pay your share, but you're not paying more, and if you do pay more it's because you use the roads more.
- “ Nobody's being cheated here, regardless of your car. You pay as you use...The more you drive, the more distance you cover, the more taxes you pay...So it's quite fair to everyone. It's extremely fair to everyone.
- “ If you're driving more, you should pay more...If you are having all of this mileage on your vehicle, I feel like you're using the road more, you should have to pay more. So I like the idea of this. I like this option.



## Mileage-based user fee

Residential driver interviews

### Key finding - Con

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**Many interviewees have concerns about how mileage will be monitored.**

---

- Interviewees have worries about monitoring:
  - Privacy concerns for location-based reporting
  - Trust concerns with self-reporting
  - Issues with how residents of other states driving through Ohio will be captured
  - Issues with Ohio drivers paying for their miles outside of Ohio
  - Questions about whether the complexity will be worth the benefits

## Mileage-based user fee

Residential driver interviews

### Key finding - Con

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**Many interviewees have concerns about how mileage will be monitored.**

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- “How does the government know how many miles are on my car? I don't feel comfortable with some device being put in a car where they are tracking that.
- “But I believe there will be a lot of people that would try to change the miles on their car and essentially cheat their way out of paying.
- “I don't entirely know how this will be calculated, I also don't know if it would be in state or out of state miles or both, but on top of all of that...I still have questions about if this will actually wind up raising more revenue.
- “How do you validate? I can drive, in some months I can drive more miles out of state to and from getting Ohio than I can in state. So if you're going to ask me, how do you assign that figure to me?

# In-depth Review Focus on Alternative Revenue Mechanism 3:

## Business Interviews

Next, during the business interviews, the interviewees learned how medium and heavy-duty vehicles would contribute to the funding for a mileage-based user fee, and then they provided their opinions about that alternative.

The analysis compared the trucking industry to other industries because the trucking industry is a large part of commercial transportation in Ohio, and trucking companies may have different needs from other types of industries.

# Mileage-based User Fee Medium/Heavy-Duty – Description

## Business Interviews

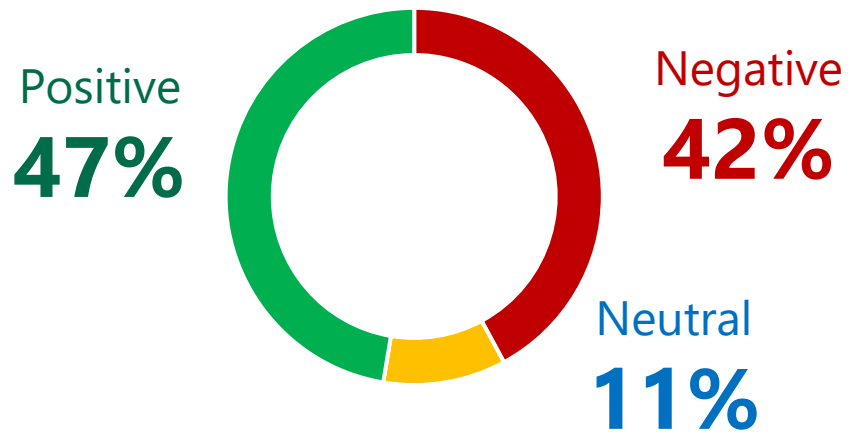
"Some states, including Ohio, are studying a mileage-based user fee as a funding option. This fee would charge motorists based on the number of miles they drive, instead of on how many gallons of gas they buy. Under a mileage-based user fee, all road users contribute to road funding and pay for what they use. If enacted, a mileage-based user fee would **replace** the state's gas tax and the hybrid and EV registration surcharges. The rate of the mileage-based user fee would be set by the Ohio Legislature."

# Mileage-based User Fee – Opinions

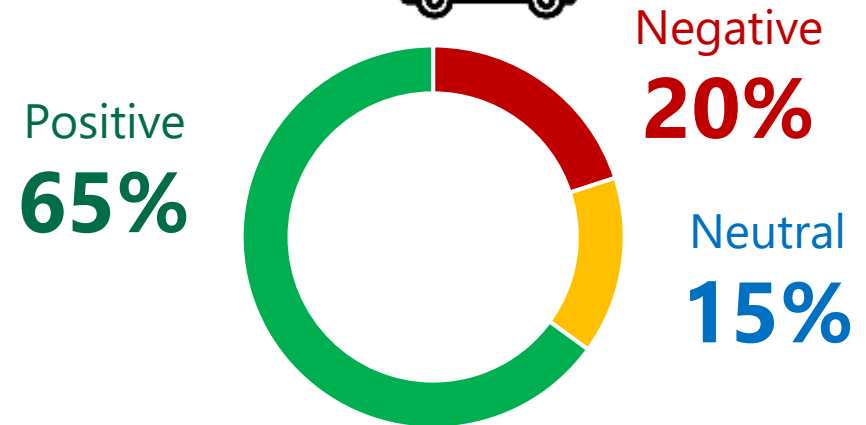
## Business Interviews

Almost half of trucking interviewees and a majority of other industry interviewees have a positive attitude toward the mileage-based user fee; many feel this option is fair. However, several interviewees had strong concerns about how this option would be implemented and managed (and the cost of doing so).

### Trucking Companies



### Other Companies



*Thinking about the types of vehicles your company uses, what is your opinion about this option?*

# Mileage-based User Fee – Opinions

## Business Interviews

- “That's the most fair way to make up for revenue...Mileage-based then doesn't matter if you have electric or if you have hybrid, gas, if you used this road more than anyone you're going to pay a little bit more than anyone to help fix those roads or maintain those roads.
- “I'm personally for that. Our vehicles that sit wouldn't pay much. Our vehicles that run the Ohio roads rightfully would pay. I like that.
- “It basically comes back to how much are we consuming of that resource, how much roads are we using? I think it would be fair we're using more, we pay more, we're using less, we pay less.
- “I'm the kind of person that I like to see people pay for what they use...I understand there has to be tax. I don't expect again, something for nothing. If I'm going to use the roads, they have to be funded. I just want it to be fair, that's all.

# Mileage-based User Fee – Opinions

## Business Interviews

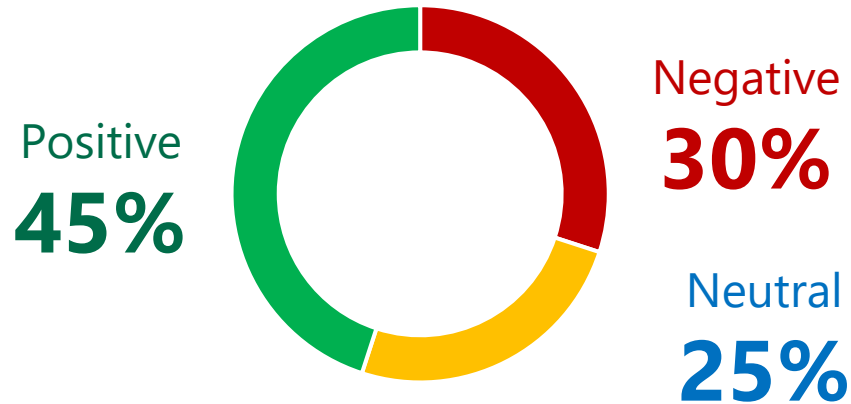
- “We have a lot of GPS enabled vehicles right now...and it seems like there's always some sort of debate around how accurate it is, the technology. So assuming we could work past that, I would see this as a viable approach.
- “Execution is going to be massively difficult...How are you going to keep track of everybody's miles?...There's going to be a tracker in the vehicle that is going to incentivize people with no scruples to find ways to not pay the tax.
- “Instead of spending money on roads and bridges, now we get an all other compliance issue. So I don't know how that balances because you have to pay those people and our time to do compliance work.
- “It's a fair way to do it, but any time you try and make it fair or you have to report or this or that, people are going to constantly try and cheat it. How many auditors are you going to have?...That takes people, that takes time, it takes money, and that's the biggest problem I see.

# Mileage-based User Fee – Single Rate Opinions

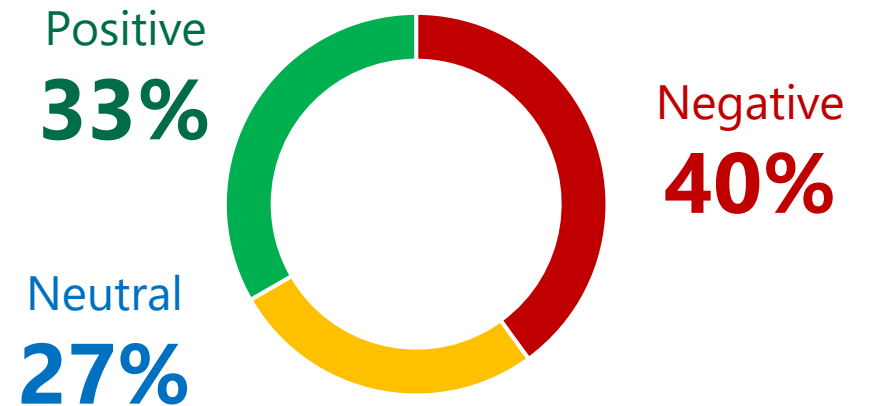
## Business Interviews

Almost half of trucking interviewees have a positive attitude towards charging a single rate for medium and heavy-duty vehicles and think it would be fair. Other industry interviewees' opinions were mixed.

### Trucking Companies



### Other Companies



*One option could be that there is a single rate charged per mile for all medium and heavy-duty vehicles. What is your opinion about this option?*



# Mileage-based User Fee – Single Rate Opinions

## Business Interviews

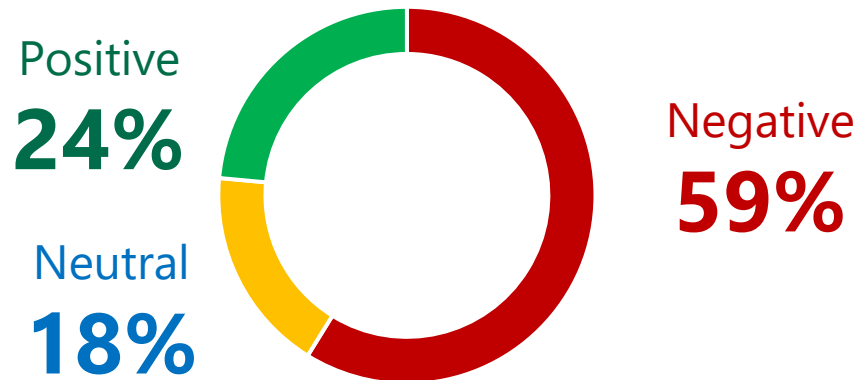
- “They [medium-duty] should be the same as us [heavy-duty]...Because they're doing the same as we are. They're generating their income off of our highways.
- “The same tax rate should be applied across the board. That's my opinion on whoever is using the road...because everybody on the road that was built by the state they should be taxed.
- “They're all diesel fuel. So. And then your bigger trucks are going to be driving more miles than a medium size, bigger vehicle. So obviously I think it'll all play the same as it is with the cars and stuff, so I'd lean towards positive on that.
- “My opinion, the bigger, heavier trucks put more wear and tear on the roads and bridges. They should pay a little more. Medium would be in the middle. Then light-duty vehicles probably less per vehicle because I don't think they could cause as much deterioration of the roadways.
- “One single rate would be too simplistic because again, I think it goes back to the wear and tear...Different vehicles of different weights and different loads are going to do more to the highway than others.

# Mileage-based User Fee – Fuel Economy Opinions

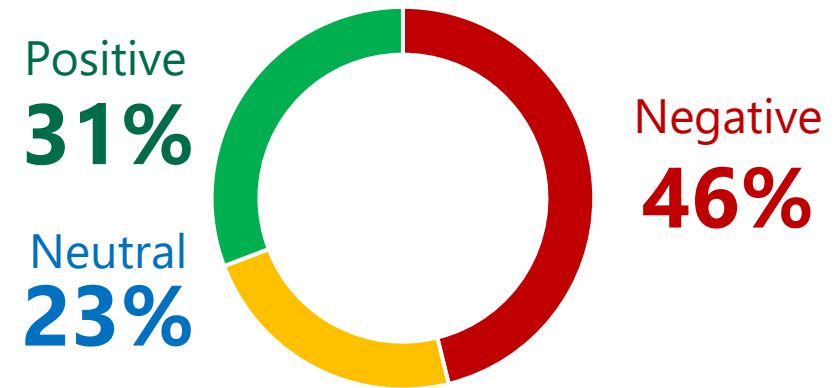
## Business Interviews

A majority of trucking interviewees have a negative attitude towards basing mileage-based user fees on fuel economy because they find it unfair. Nearly half of other industry interviewees also have a negative attitude towards basing the fee off of fuel economy.

### Trucking Companies



### Other Companies



*Another option for how the mileage-based user fee could be applied to medium and heavy-duty vehicles would be based on fuel economy, such that owners of lower fuel economy vehicles pay a higher rate per mile. What is your opinion about this option?*

# Mileage-based User Fee – Fuel Economy Opinions

## Business Interviews

- “Big companies would like it because they can afford the newer equipment. The smaller guys are going to hate it because they don't have the capital base to be able to do that...There's also certain applications of that, cement trucks, power, takeoff trucks like ours, that I'm not going to get the same mileage because I'm using some of that to load or unload the vehicle.
- “I think it'd be negative because you're almost penalizing them twice. They've got a lower fuel economy and then they're getting less for per gallon and we're going to charge them more because of that.
- “Fuel economy shouldn't be an issue at all though. Because it wouldn't make any difference if you're paying a use per mile.
- “It decreases competitiveness that we have right now, especially I'm not going to be able to get a hybrid or Tesla before, let's say, UPS or FedEx because they can buy a fleet at a time. So, it would hurt small businesses more.

# Mileage-based User Fee – Fuel Economy Opinions

## Business Interviews

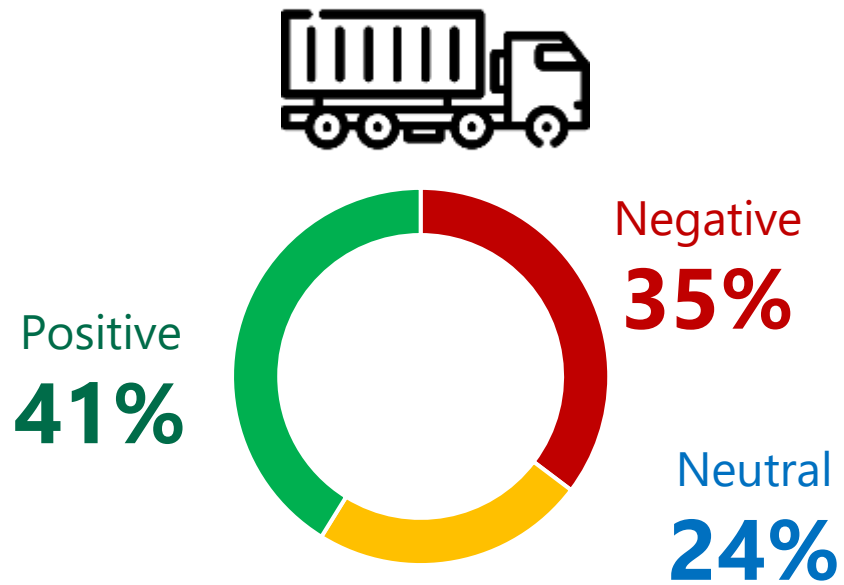
- “So there's a lot of variations with them that's why we were talking about the average fuel efficiency of the vehicle and looking at all the different vehicle manufacturers there are out there, it's going to be a huge database, and who's going to qualify that database to ensure compliance?”
- “There's no such thing as a vehicle that gets less or more miles per gallon...If you look across the whole industry nationwide, the trucking industry averages about 6.5 to 7.5 miles per gallon.”
- “So what we have in place now, like with us, we're leasing tractors. So if you would implement that, there's no way we can go in and modify those trucks to get better efficiency. So we're kind of just out. So I don't like that option.”
- “Fuel efficiency really has no impact on, I mean, it doesn't have any relationship to the condition of the roads. And the maintenance of the roads. Or the needs to add new roads or new lanes or new interchanges.”

# Mileage-based User Fee – Weight Opinions

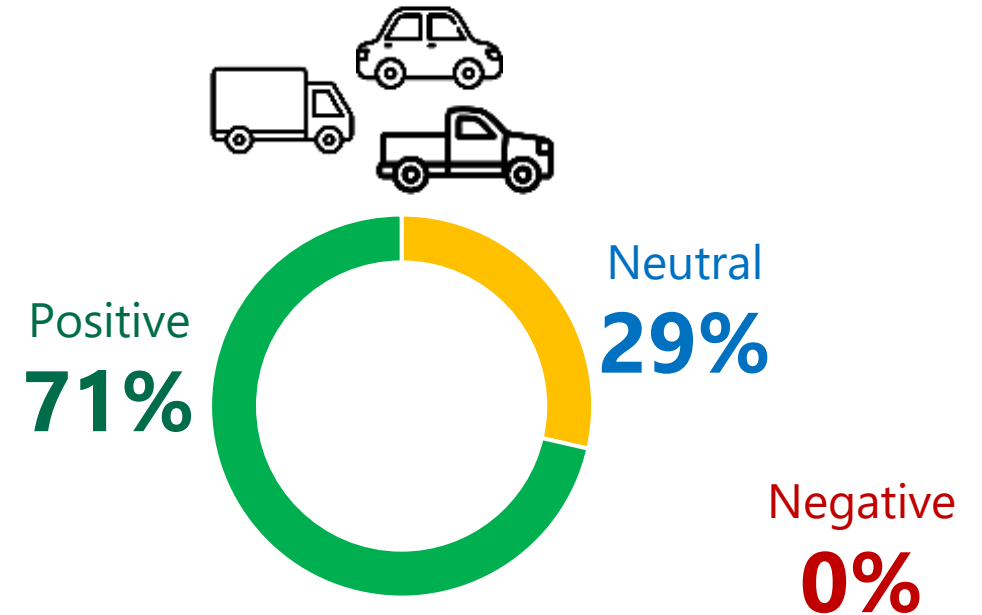
## Business Interviews

Trucking interviewees’ attitudes towards basing the mileage-based user fee on weight are mixed. A majority of other industry interviewees have a positive attitude towards it because heavier vehicles likely cause more wear and tear on roads.

### Trucking Companies



### Other Companies



*A third option for how the mileage-based user fee could be applied to medium and heavy-duty vehicles would be based on vehicle weight, such that owners of heavier vehicles pay a higher rate per mile. What is your opinion about this option?*

# Mileage-based User Fee – Weight Opinions

## Business Interviews

- “Heavier vehicles are going to produce more wear and tear, so they should be paying more towards the management of those roads.
- “That’s an easier way to measure...You have weigh stations, you have to know how much you weigh, and what you're carrying and stuff.
- “I damage the road more, if I weigh 80,000 pounds, than if I weighed 50,000 pounds...The logic that heavier trucks pay more than lighter trucks makes sense for damage.
- “The heavier vehicles are going to cause more wear and tear...And we as an industry, we charge for that. If you’re asking me to move something that's excessive in weight, I charge more for that than I charge for standard weight.

# Funding Structure: General Opinions

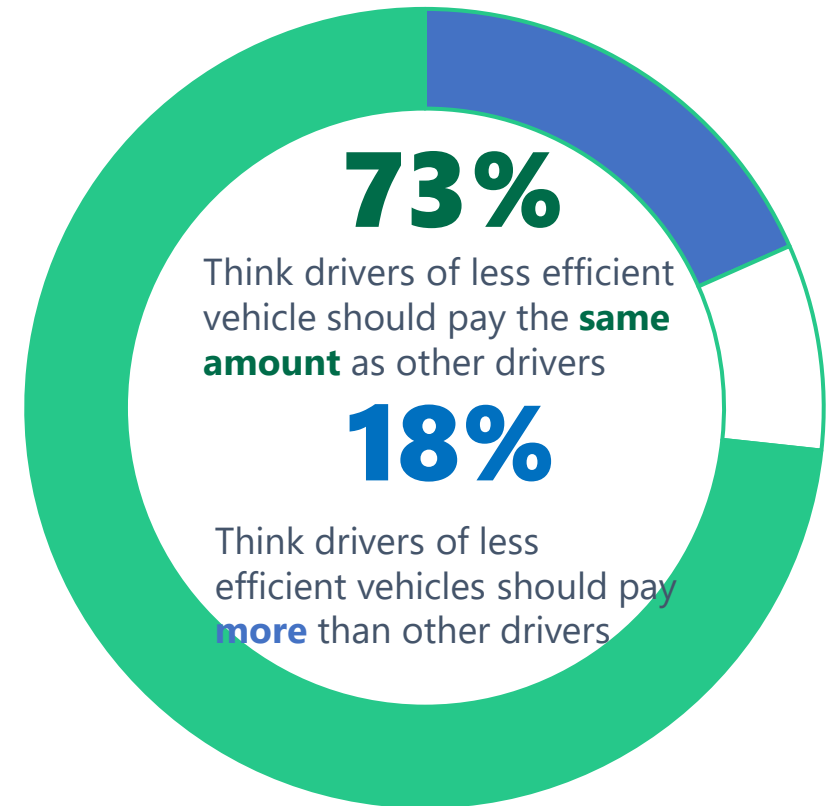
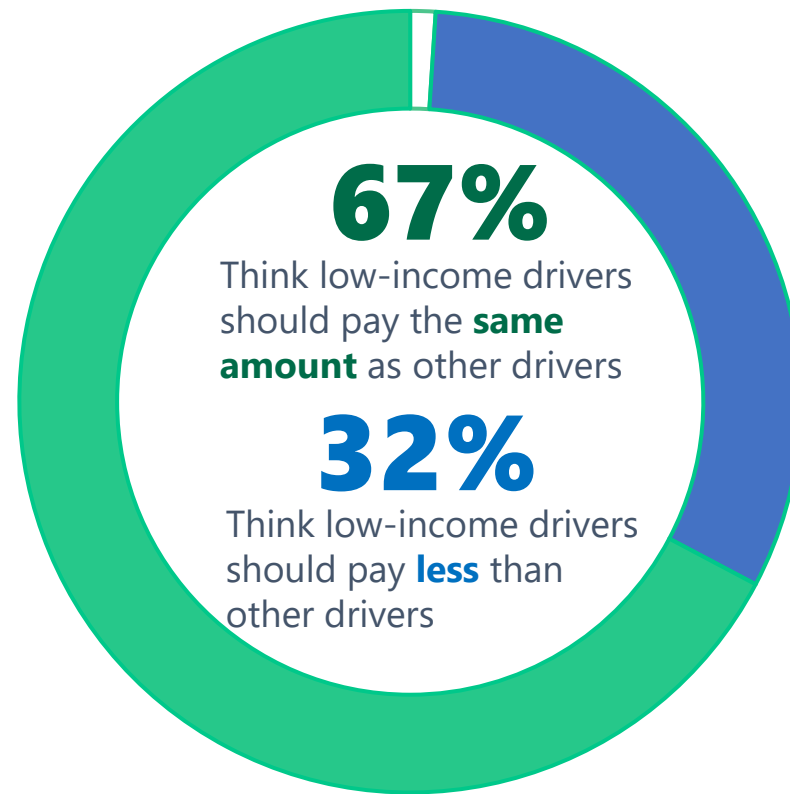
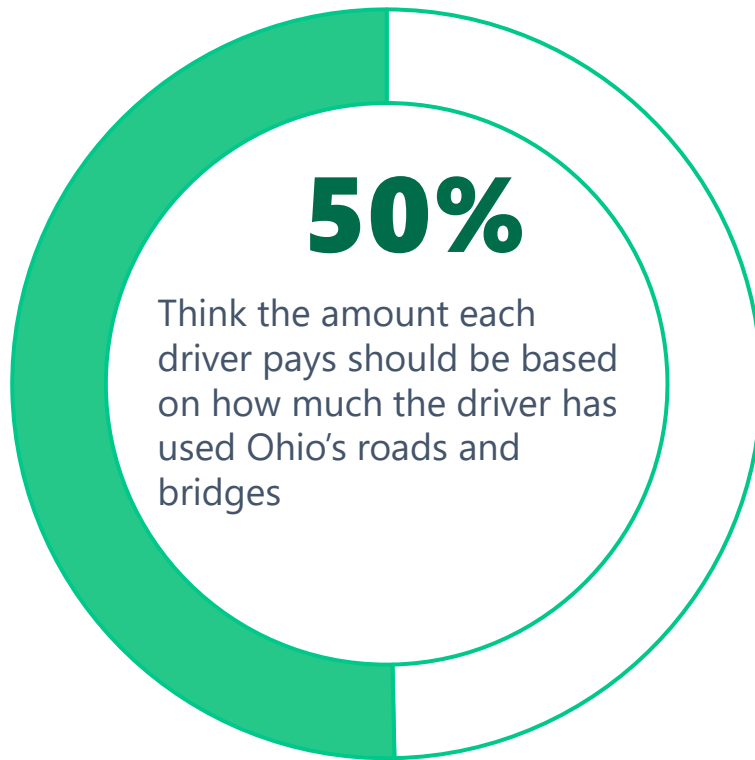
## Survey

The survey closed with a few questions measuring participants' general opinions about transportation funding.

# Participants' General Opinions about Funding

## Representative Survey

Regarding the funding of the maintenance of Ohio's roads and bridges...







# Public Opinion Research

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## Key Takeaways

# Key Takeaways from Public Opinion Research

## Most Ohioans...

- are unaware of how road and bridge maintenance is funded.
- understand that funding for road and bridge maintenance is necessary, but they want to understand more about how the funds are used.
- do not want to punish low-income residents.
- do not want to disincentivize higher-efficiency vehicles.
- like the fairness of the mileage-based user fee (in both equality of payments by vehicle type and “pay for what you use”).
- dislike the complexity of the mileage-based user fee in comparison to the other alternatives (increasing the state gas tax or registration fees).

# Key Takeaways from Public Opinion Research

## Ohio business leaders...

- understand that funding for road and bridge maintenance is necessary.
- may not bear the brunt of cost increases because costs could be passed down to consumers.
- worry that some funding alternatives may not provide a long-term solution.
- feel that the mileage-based user fee is fair.
- have strong concerns that the mileage-based user fee would be expensive and difficult to administer, either from a business perspective or for the state in general.

# Appendix D

## Public Education and Outreach Summary Report



OHIO DEPARTMENT OF  
TRANSPORTATION



Ohio DOT Revenue Alternatives Study

# Public Education & Outreach Summary Report

May 2023

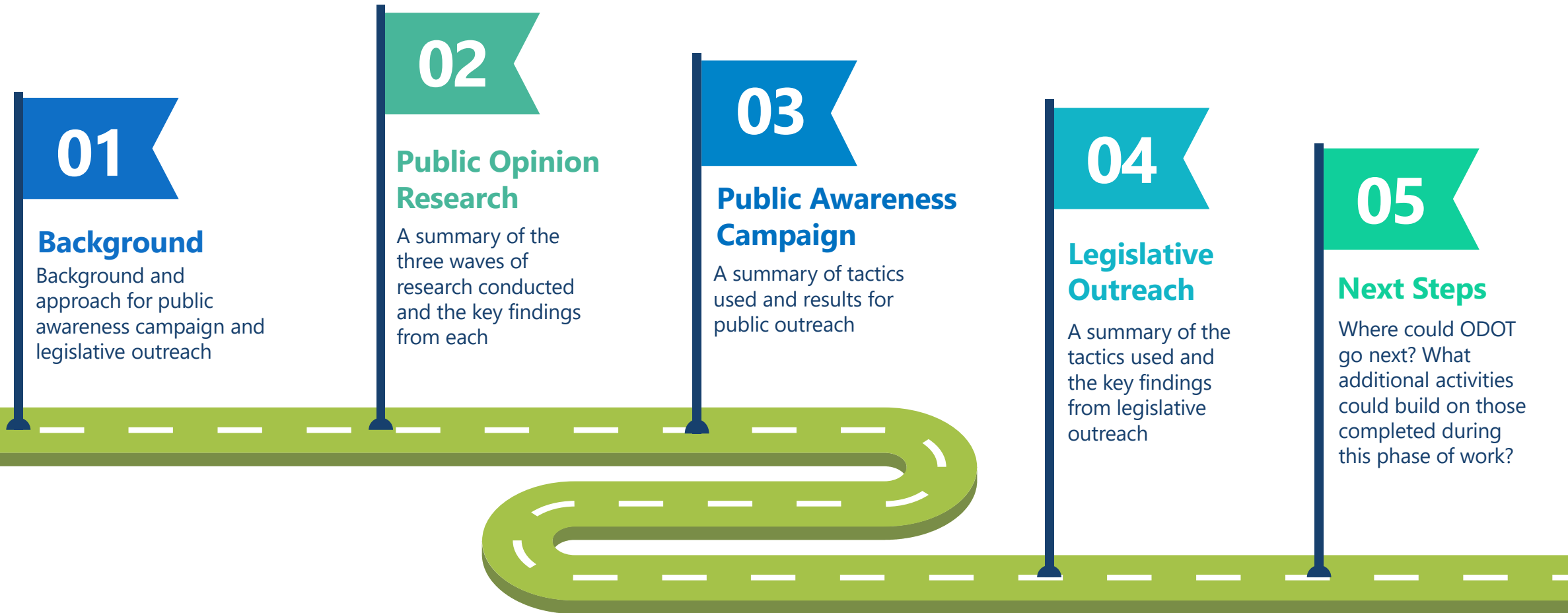


Ohio Department of Transportation

**CDM  
Smith**

# Report Purpose and Roadmap

This document provides a high-level overview of the public outreach and education conducted for the Ohio Department of Transportation's (ODOT) Revenue Alternatives Study, including the public opinion research that informed this outreach. This report highlights the breadth of the outreach, key findings, how the study incorporated and was continuously shaped by the feedback, as well as the lessons learned. This document is full of visuals and key takeaways that can be shared within ODOT as well as with peers who are embarking on the same discovery of sustainable transportation funding alternatives.

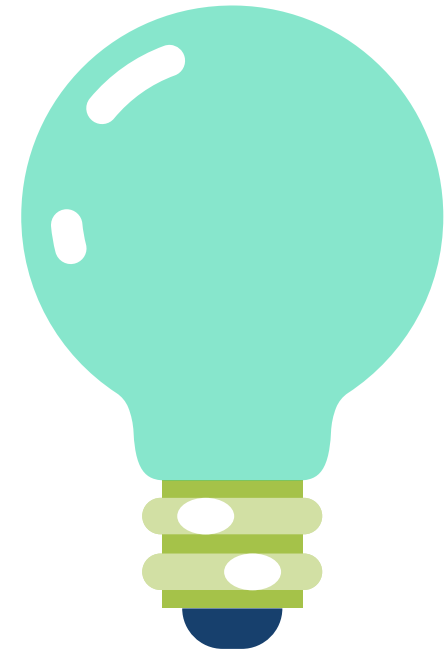




## Key Findings

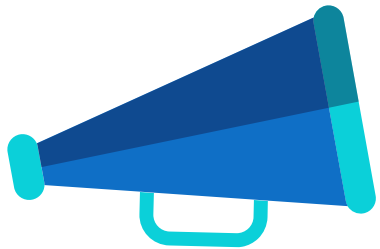
The following highlights represent the key findings from the 18-month revenue alternatives study and should inform any future phases as Ohio continues to seek a sustainable alternative revenue mechanism.

- ✓ Alternative revenue mechanisms should not only be **stable/sustainable** under different economic conditions, they should also be **simple and easy to administer**, including enforcement, and coordination amongst agencies involved with implementation; **efficient to collect** to maximize the revenue generated; **transparent** to aid in public understanding of transportation costs, and how and why revenue is collected; and **equitable** by recovering a proportionate share of the costs to build and maintain the network from those who use it and ensure an equitable distribution of costs for motorists in Ohio.
- ✓ Public education on this topic is important as many Ohioans are unaware of how transportation is funded. This is needed to help establish why a more sustainable funding approach is needed.
- ✓ Fairness is a primary concern of both residential drivers and business leaders in the transportation industry. The public voiced concerns that certain funding mechanisms could negatively impact low-income residents, electric and high-efficiency vehicles, or rural drivers. Business leaders want to ensure their businesses are not paying more than their fair share.
- ✓ Both the public and business leaders think a mileage-based user fee is fair – and both have concerns about it. Concerns lie in the perceived complexity compared to other alternatives like increasing the state gas tax or registration fees.



# Key Messages

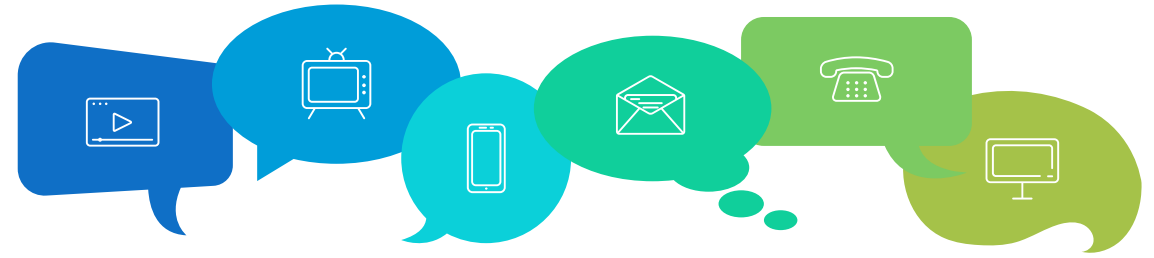
The following key messages were developed based on the public opinion research. These were the primary messages used as the basis for all public and legislative outreach efforts and should continue as the basis of future efforts.



The citizens of the state of Ohio own a tremendous asset – the state’s transportation system – which must be maintained for the safe movement of people, goods, and services.

The gas tax is the primary source of roadway funding in Ohio. However, vehicles have become more efficient and get better gas mileage. They need less gas, which is great for reducing harmful emissions, but it means fewer dollars available for roadway improvements.

The number of electric vehicles is increasing. These vehicles also contribute to road “wear and tear” but do not contribute to road improvements like gas powered vehicles do.



Cleaner, more fuel-efficient transportation is in our state’s (and nation’s) future, but these vehicles still need good roads to drive on. The way to pay for road and bridge maintenance must change so that it is not reliant on a gas tax.

With construction costs increasing and fuel consumption decreasing, a new way to fund road and bridge maintenance needs to be found. ODOT is studying a variety of alternative revenue mechanisms to replace the current gas tax and stabilize transportation revenues.




01

# Public Outreach and Educational Approach

Background and strategy

# Ohio Department of Transportation Road Funding Today...

ODOT's transportation system is large and complex, made up of over 43,000 lane miles, more than 14,000 bridges, and includes the nation's fifth largest interstate system. To maintain this vast transportation network, ODOT relies on funding from the gas tax and vehicle registration fees, which together represent the largest funding source for local, regional, and statewide transportation projects.



**43,000+**  
Lane Miles  
ODOT Roads

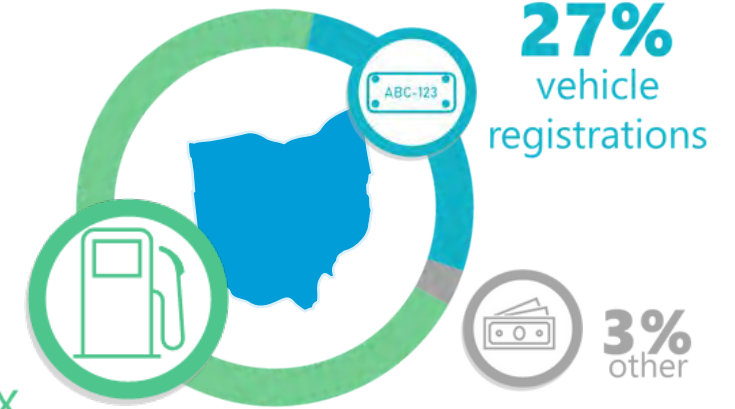


**5th Largest**  
Vehicle Miles Traveled  
each Year, Nationally



**14,000**  
Bridges

**70%**  
state gas tax



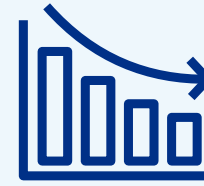
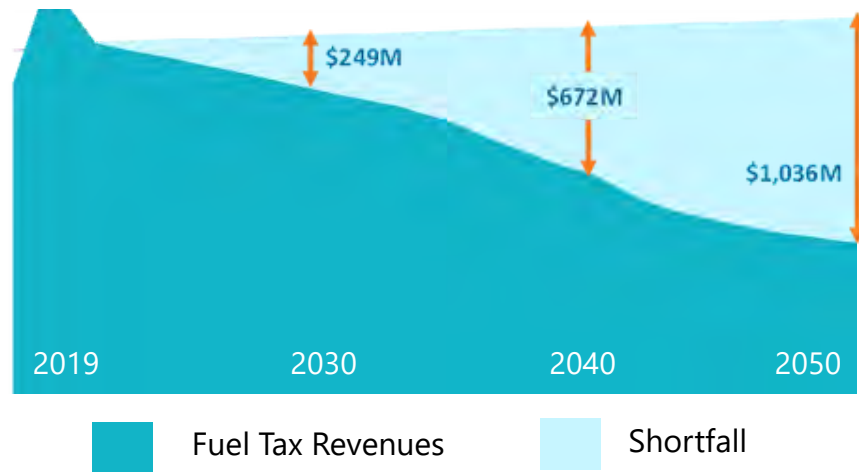
**State gasoline taxes (per gallon) have increased 13 times since 1980.**

1981	1982	1983	1987	1988	1989	1990	1991	1993	2003	2004	2005	2019
10.3¢	11.7¢	12¢	14.7¢	14.8¢	18¢	20¢	21¢	22¢	24¢	26¢	28¢	38.5¢

*(actual gas tax amount)*

## ...is a Growing Problem

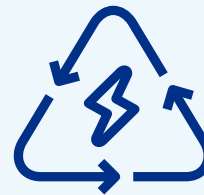
As vehicles become more fuel efficient and electric vehicles more prevalent, drivers are purchasing less fuel (or none at all). This is good for the environment, but it means **less money for maintaining local and state roadways**. With construction costs increasing and fuel consumption decreasing, a new way to fund road and bridge maintenance needs to be found.



**Flat/Declining  
Revenue**



**Alternatively  
Fueled Vehicles**



**Greater  
Fuel-efficient Vehicles**



**Inflation  
Of Construction Costs**

# Finding a Long-Term Solution

In 2021, ODOT received a federal Surface Transportation System Funding Alternatives (STSA) program grant to study revenue alternatives. As part of this grant, ODOT conducted a study to evaluate a variety of funding options to replace the fuel tax and stabilize transportation revenues in Ohio well into the future. **The study focused on gathering the opinions of Ohioans on transportation funding alternatives and conducting a public awareness campaign to communicate the problem with the current funding structure.**

ODOT evaluated over 30 transportation funding options that can be grouped into six categories. The alternatives were evaluated on their ability to accomplish critical policy goals called "Guiding Principles" including **long-term revenue stability and equity**. The analysis included a quantitative and qualitative assessment of each revenue option to help prioritize alternatives for deeper analysis.

## Guiding principles

Stability

Simplicity &  
Ease of Admin

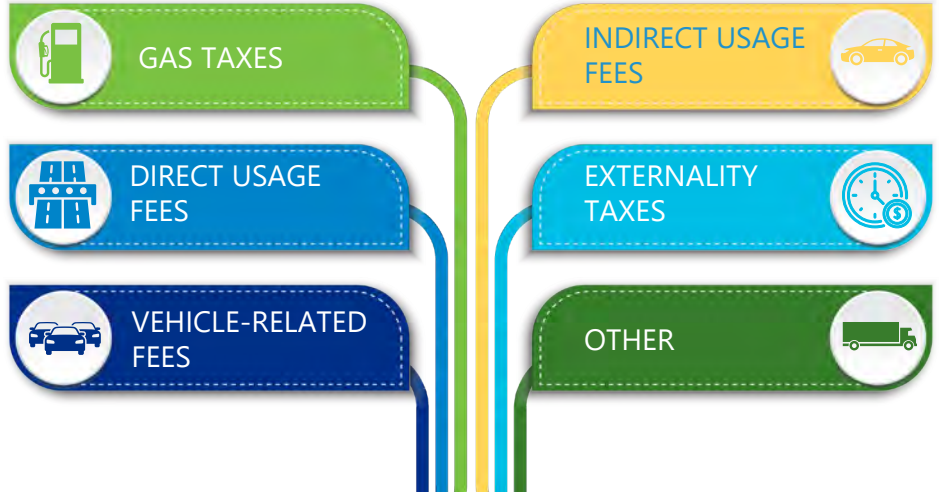
Efficiency

Transparency

User Equity

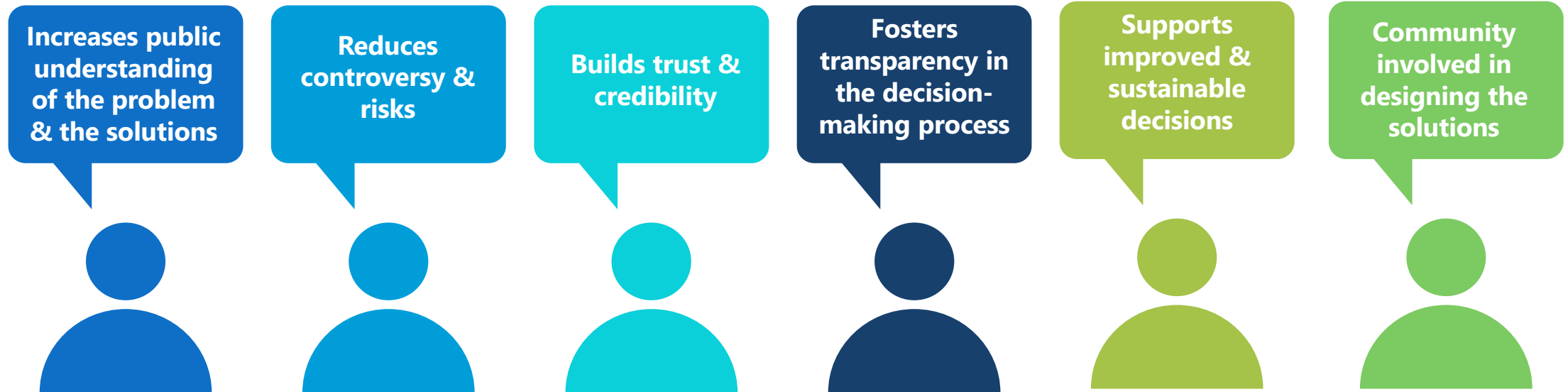
Social Equity

## Funding Option Categories



# Why include the public and stakeholders in the process?

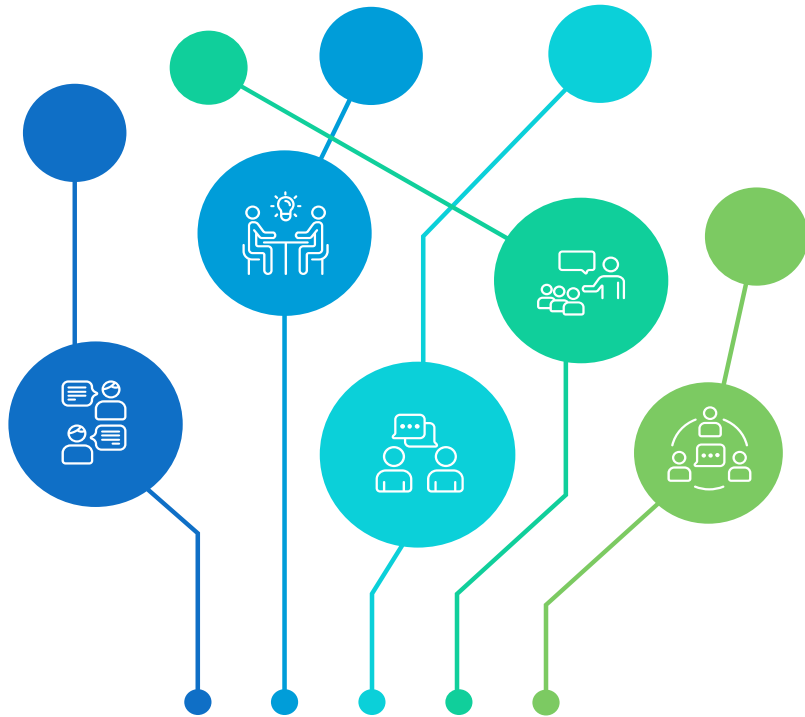
Public and stakeholder input is critical for ODOT to understand the social and political challenges to effecting change. By gaining public and stakeholder input early in the process, ODOT can leverage this knowledge to help design a sustainable transportation funding mechanism that best aligns with the concerns of Ohioans, increasing public trust in the organization. Further, early input may decrease the time needed to identify and implement the strategy, saving time and money (particularly revenue left on the table). This input and guidance will help shape the development of a solution that best fits Ohio.



*Effective collaboration and public participation provide for better outcomes, improved governance, and reduced time and money.*

# Outreach Principles

The below principles guided the development of the public and stakeholder engagement plan and are designed to increase the trust in ODOT and the process. These principles are echoed throughout each of the communications tactics and evaluation of the success of each of these tactics.



## INCLUSIVE

Is everyone at the table who should be?

## ACCESSIBLE

Are there ways to get information and feedback that suit our diverse audience?

## REPRESENTATIVE

Are the representatives of the groups engaged representatives of the population as a whole?

## CUSTOMIZED

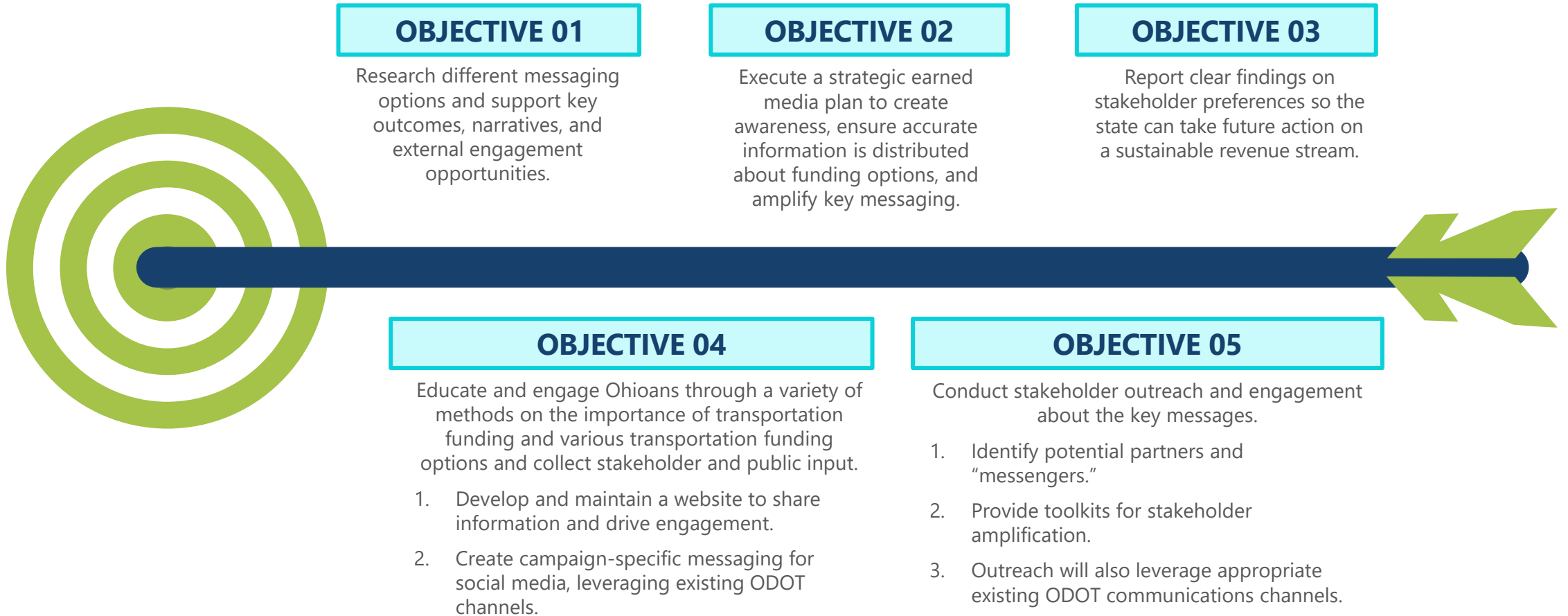
Understand the audience. What is important to them? Providing personalized information directly on how they will be impacted.

## INTERACTIVE

People want to know that their feedback is heard by a real person and that their feedback makes a difference.

# Project Communications Objectives

Understanding the need for public and stakeholder input, several communications objectives were established to guide the study process. These objectives were created to gather the opinions of Ohioans on transportation funding alternatives and conduct a public awareness campaign to communicate the problem with the current funding structure.



# Building Blocks To Success

To achieve the five objectives, ODOT used four interconnected pieces or strategies. In many ways, these core strategy areas are interrelated and provide education and insight for the other strategies. Read below to learn how each core area supported the development of the other strategy areas.

## External Advisory Committee

The External Advisory Committee provided input to ODOT on alternative revenue mechanisms, messaging, and tactics for public and legislative outreach.

## Public Opinion Research

Multiple research waves guided the strategy and message development for the public and legislative outreach efforts.

## Legislative Outreach

This outreach helped ODOT understand the current legislative climate and concerns related to transportation funding. It was also used to educate legislators on the study and need to find a new, sustainable transportation revenue funding source.

## Public Awareness Campaign

Increased public awareness about the importance of and mechanisms for transportation funding and educate Ohioans on the need to find a new, sustainable transportation revenue funding source.





# External Advisory Committee

ODOT asked representatives from various organizations, from nonprofits to government agencies, to serve on the External Advisory Committee (EAC) to help guide this study and ODOT's development of alternative revenue mechanisms. Having representatives from very distinct perspectives ensured that Ohioans of disparate backgrounds would be represented. This committee met for hybrid discussions (in-person and virtually) 8 times over 16 months.

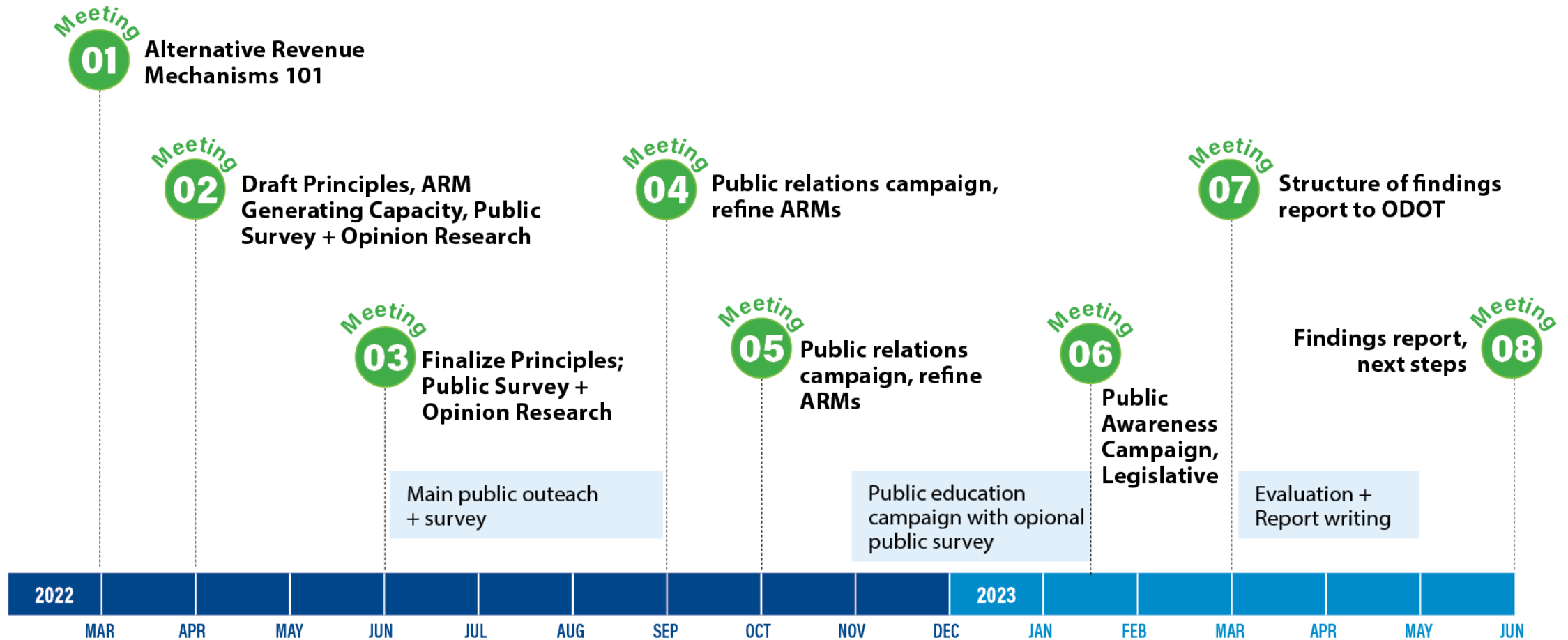


## Represented Organizations



# Schedule

Stakeholder input, representing the range of perspectives of state residents, organizations, and industries, is critical to understanding the social and political challenges to effecting change. To accomplish these ends, ODOT's established EAC served to guide and shape the work of the Revenue Alternatives Study. The 18 EAC members met with one another and ODOT officials for virtual and in-person discussions on specific topics over a 16-month period, providing sustained valuable feedback to the project team. Each meeting was designed with a clear purpose and brought the EAC through the full analysis process.



# External Advisory Committee

## Reaching EAC Member Organizations

Committee members were encouraged to provide relevant information and perspectives representing their organizations and to share accurate information about the EAC's activities as broadly as possible within their respective organizations. ODOT also provided members with articles and presentations to supplement their efforts to educate their members and/or employees on the study. This helped build baseline support for future efforts and provide transparency into the decision-making process. The following list includes some of the outreach and support provided by ODOT to EAC members and their organizations.

### 2022

- ✓ September 26: American Council of Engineering Companies Presentation
- ✓ October 4: Ohio Public Transit Association Conference
- ✓ October 5: Article for Ohio Municipal League Magazine
- ✓ October 25-26: Ohio Transportation Engineering Conference
- ✓ October 29: Article for AAA Magazine
- ✓ December 5: Ohio Contractor's Association (OCA) Winter Conference
- ✓ December 8: County Commissioners Association of Ohio and County Engineers Joint Winter Conference

### 2023

- ✓ January 26-27: Ohio Township Association Annual Conference
- ✓ February 6: Article for Ohio Township Association Magazine
- ✓ February 9: ACEC Board Meeting Presentation
- ✓ February 13: Article for Ohio Retail Merchants
- ✓ April 26: Full TRAC Presentation
- ✓ April 28: OARC Transportation Directors Meeting Presentation
- ✓ June 21: Ohio Municipal League/ Ohio Mayors Conference



**10**  
Conference  
Presentations

**4**  
Articles  
Written

# What was the External Advisory Committee's perspective?

One-on-one interviews were conducted with each member of the EAC at the beginning of the project and at the end of the project to better understand their goals for their work with ODOT. The following highlights include feedback from the one-on-one interviews at the end of the project.



While long, the meetings were well-run and provided substantial information to help the EAC analyze alternative revenue mechanisms.



Specifically, the information presented on what other states are doing was helpful in analyzing what revenue mechanisms may work in Ohio.



The public education and outreach campaign was helpful as it allowed the EAC to get a better sense of what Ohioans are thinking about transportation funding in the state.



There is a real interest in keeping the EAC together to help advise ODOT on the next steps and to help inform and move policymakers to find a solution.

02

# Public Opinion Research

## Performance & Key Takeaways

# Baselining Public Understanding and Opinions

Public opinion research was conducted to determine the baseline public opinions of Ohioans on transportation funding and the potential for alternative revenue mechanisms. This public opinion work included three research waves. **Multiple research waves allowed for the seamless gathering and distribution of information and insights.** Public opinion research allowed the study team to learn what Ohioans know, understand, and feel about the current transportation funding structure; gain insight into the public's attitude and natural emotions towards various alternative revenue mechanisms; test messaging for effectiveness in a public awareness campaign; and understand how the public would like to receive information about any changes to transportation funding.





## Public Opinion Research Wave 1: Focus Groups

- Awareness of how Ohio currently funds the maintenance of its roads and bridges
- General reactions to Ohio's current funding approach
- Attitudes towards alternative revenue mechanisms, with a focus on the least understood concept - a mileage-based user fee
- Potential message channels and concepts that might resonate
- Information to help with the development of the one-on-one interview guide and survey questionnaire



**April 2022**  
**36 Ohio Residents** (diversity across region, age, race, household income)  
**90-Minute Zoom Discussions**

The first wave of public opinion research included five focus groups with a diverse, representative sample of **Ohio residents**. These virtual focus groups were used to understand Ohioans' baseline knowledge about road funding and explore their reactions to mileage-based user fee messaging.



### Key Findings

- ✓ **Education about the sources of and how road funding is used is needed.**
- ✓ Without **compelling numbers and/or graphics**, the lack of sustainability of the state gas tax is not seen as enough of a problem to warrant a change.
- ✓ Many participants care at least somewhat about the inequity of the collection of the gas tax.
- ✓ **Folding road taxes into income or property taxes – is easier than tracking miles.** The most favorable ideas for alternative revenue mechanisms include combining road funding into other taxes already in effect, usage-based charges, and flat fees.
- ✓ Participants were concerned about the **complexity of a mileage-based user fee (MBUF)** as well as how it would be monitored. These include **privacy concerns, trust** concerns with self-reporting, and issues with how residents of other states who drive through Ohio will be captured.
- ✓ Messaging about an MBUF should emphasize the **replacement** of the state gas tax and should provide concrete numbers. Participants tended to perceive the MBUF as an additional tax and often assumed they would pay more than with a gas tax unless concrete numbers were provided.
- ✓ There were mixed reactions from those with EVs or high-efficiency gas-powered vehicles. Many did not want any future funding solution to disincentivize fuel efficiency.
- ✓ There were concerns about people in **rural areas** or who drive a lot will have to pay more. A dedicated urban/rural analysis may be beneficial to understand the impacts on these residents.
- ✓ Transportation organizations and elected officials are preferred as information sources about road funding changes.



# Public Opinion Research

## Wave 1: Focus Groups *Resultant Key Messages*

Based on the key takeaways of the focus groups, the following key messages were refined in the in-depth interviews and 1,000-person survey:



The citizens of the state of Ohio own a tremendous asset – the state’s transportation system – which must be maintained for the safe movement of people, goods, and services.



The gas tax is the primary source of roadway funding in Ohio. However, vehicles have become more efficient and get better gas mileage. They need less gas, which is great for reducing harmful emissions, but it means fewer dollars available for roadway improvements.



The number of electric vehicles is increasing. These vehicles also contribute to road “wear and tear” but do not contribute to road improvements like gas powered vehicles do.

Cleaner, more fuel-efficient transportation is in our state’s (and nation’s) future, but these vehicles still need good roads to drive on. The way to pay for road and bridge maintenance must change so that it is not reliant on a gas tax.



With construction costs increasing and fuel consumption decreasing, a new way to fund road and bridge maintenance needs to be found. ODOT is studying a variety of alternative revenue mechanisms to replace the current gas tax and stabilize transportation revenues.







## Public Opinion Research Wave 2: In-Depth Drivers Interviews

- Awareness of how Ohio currently funds the maintenance of its roads and bridges
- General reactions to Ohio's current funding approach
- Attitudes and opinions towards specific alternative revenue mechanisms
- Potential message channels and concepts that might resonate
- Information to help with the development of the survey questionnaire



June - September 2022  
40 Ohio Residents/Drivers  
Zoom

The second wave of public opinion research included in-depth interviews with 40 individual Ohio drivers. These virtual interviews allowed ODOT to have a deeper focus on individual opinions by thoroughly exploring the perceived challenges and opportunities regarding MBUF, potential funding alternatives, and potential message concepts.



### Key Findings

- ✓ There is a lack of awareness about how Ohio's road and bridge maintenance is funded. While **40% correctly mentioned gas taxes as a source of funding** Ohio's roads and bridges, only **15% accurately estimated the amount of the state gas tax**. 75% mentioned other taxes as sources to fund roads/bridges such as income taxes (30%), property taxes (20%) and sales taxes (18%) among others.
- ✓ Many interviewees feel the current funding structure is fair to them and makes sense, and it's important to adequately fund roads and bridges. **70% had a positive or neutral opinion of the current funding structure**. While many interviewees feel the overall amount they pay is not a burden, drivers feel that the unequal contributions towards the current funding structure are unfair.
- ✓ Participants feel that increasing the state gas tax would be unfair, especially to drivers of lower-efficiency vehicles. Only **37% had a positive opinion towards increasing the state gas tax**.
- ✓ Many participants feel an increase in vehicle registration fee is a simple solution and like that the amount is the same for all light-duty vehicles. However, some felt it was unfair because it was not tied to actual road usage. However, only **40% had a positive opinion towards increasing the vehicle registration fee**.
- ✓ Many liked that all light-duty vehicles pay the same rate, and they liked the "pay for what you use" model. **60% had a positive opinion towards MBUF**.
- ✓ They would like to learn about changes to road funding from transportation organizations such as ODOT and the BMV. Although participants mentioned elected officials should provide information about road funding changes, they don't necessarily trust the officials to provide non-politicized, unbiased information.



## Public Opinion Research Wave 2: In-Depth Business Interviews

- Awareness of how Ohio currently funds the maintenance of its roads and bridges
- General reactions to Ohio's current funding approach
- Attitudes and opinions towards specific alternative revenue mechanisms
- Potential message channels and concepts that might resonate
- Information to help with the development of the survey questionnaire



June - September 2022  
48 Ohio Business Leaders

The second wave of public opinion research also included in-depth interviews with 48 individual Ohio business leaders. These virtual interviews allowed ODOT to gain insights on how different alternative revenue mechanisms might affect businesses by thoroughly exploring the perceived challenges and opportunities regarding MBUF, potential funding alternatives, and potential message concepts.



### Key Findings

- ✓ **Around half of business interviewees had a neutral attitude towards the current funding structure.** They don't like paying taxes and some trucking companies feel they pay more than their fair share; however, many interviewees recognize that it's necessary to pay for good roads and they like the simplicity of the current structure.
- ✓ Participants feel that increasing the state gas tax would be unfair, especially to drivers of lower-efficiency vehicles. Only **10% had a positive opinion towards increasing the state gas tax.**
- ✓ Many participants feel an increase in vehicle registration fee is a simple solution and like that the amount is the same for all light-duty vehicles. However, some felt it was unfair because it was not tied to actual road usage. **51% had a positive opinion towards increasing the vehicle registration fee.**
- ✓ Many liked that all light-duty vehicles pay the same rate, and they liked the "pay for what you use" model. **56% had a positive opinion towards MBUF.**
- ✓ They would like to learn about changes to road funding from transportation organizations such as ODOT and the BMV. Although participants mentioned elected officials should provide information about road funding changes, they don't necessarily trust the officials to provide non-politicized, unbiased information.



## Public Opinion Research Wave 3: Representative Survey

- Awareness of how Ohio currently funds the maintenance of its roads and bridges
- General reactions to Ohio's current funding approach
- Attitudes and opinions towards specific alternative revenue mechanisms
- Potential message channels and concepts that might resonate
- Information to help with the development of the survey questionnaire



**June - September 2022**  
**1,045 Ohio Drivers** (representative sample)

The third wave of public opinion research included a representative survey of 1,045 Ohio drivers (goal – 1,000 participants). The survey was designed to obtain a reliable, valid assessment of Ohioans' attitudes towards potential funding alternatives and message concepts.



### Key Findings

- ✓ There is a lack of awareness about how Ohio's road and bridge maintenance is funded. **55% incorrectly think some of the money Ohioans pay as income taxes helps fund road/bridge maintenance.** Of the 45% who were correct that income taxes do not help fund road/bridge maintenance, only 13% were very or extremely certain about this.
- ✓ Many interviewees feel the current funding structure is fair and makes sense, and it's important to adequately fund roads and bridges. **70% had a positive or neutral opinion of the current funding structure.**
- ✓ Participants feel that increasing the state gas tax would be unfair, especially to drivers of lower-efficiency vehicles. Only **37% had a positive opinion towards increasing the state gas tax.**
- ✓ Many participants feel an increase in vehicle registration fee is a simple solution and like that the amount is the same for all light-duty vehicles. However, some felt it was unfair because it was not tied to actual road usage. However, only **40% had a positive opinion towards increasing the vehicle registration fee.**
- ✓ Many liked that all light-duty vehicles pay the same rate, and they liked the "pay for what you use" model. **60% had a positive opinion towards MBUF.**
- ✓ They would like to learn about changes to road funding from transportation organizations such as ODOT and the BMV. Although participants mentioned elected officials should provide information about road funding changes, they don't necessarily trust the officials to provide non-politicized, unbiased information.



# Key Findings from Public Opinion Research



## Ohioans

## Ohio Business Leaders

Most Ohioans...

- are unaware of how road and bridge maintenance is funded.
- understand that funding for road and bridge maintenance is necessary, but they want to understand more about how the funds are used.
- do not want to punish low-income residents.
- do not want to disincentivize higher-efficiency vehicles.
- like the fairness of the mileage-based user fee (in both equality of payments by vehicle type and “pay for what you use”).
- dislike the complexity of the mileage-based user fee in comparison to the other alternatives (increasing the state gas tax or registration fees).

Most Ohio business leaders...

- understand that funding for road and bridge maintenance is necessary.
- may not bear the brunt of cost increases because costs could be passed down to consumers.
- worry that some funding alternatives may not provide a long-term solution.
- feel that the mileage-based user fee is fair.
- have strong concerns that the mileage-based user fee would be expensive and difficult to administer, either from a business perspective or for the state in general.

03

# Public Awareness Campaign

Performance and key takeaways

# A cohesive strategy.



## Public Opinion Research

The results from the public opinion research were used to develop a collaborative statewide public outreach effort.

- ✓ The in-depth baseline understandings and message preferences gained during the one-on-one interviews informed the strategy and language used in the public awareness campaign.
- ✓ Research highlighted the need for greater public education about how roads are funded.
- ✓ Fairness was a notable concern by many participants. This was then echoed into the messaging used in the awareness campaign.



## Public Awareness Campaign

The public outreach effort educated and engaged Ohioans through a variety of methods on alternative transportation funding options and collect their input.

# Public Awareness Campaign

Building on the public opinion research, ODOT embarked on a statewide public awareness educational campaign. The campaign allowed ODOT to identify consumer opinions, test proposed messaging and finalize a credible critical message framework – all important details to understand prior to a larger planning or pilot phase. The target audience was all Ohioans, ages 18-70.

## Key Tactics/Tools

- ✓ Developed a master message framework based on research
- ✓ Developed a **website** (OhioRoadFunding.com)
- ✓ Produced a **video** to explain the current motor fuel tax situation and explain possible replacements
- ✓ Integrated the campaign's messaging in **social media** posts on ODOT's social media platforms
- ✓ Developed a branded toolkit of **public education materials**, talking points, messages, infographics and materials for stakeholders

## Launched

January 1

## Run Dates

January – March 31, 2023

## Goal

Educate Ohioans, ages 18-70, about the need to find a sustainable funding mechanism for roadway and bridge maintenance



# Public Awareness Campaign Calls to Action



## Visit Website

The website used concise messaging, compelling graphics, and informative explainers to engage visitors about road funding in Ohio.



## Watch Video

Introduced the funding problem, alternative revenue mechanisms study, and options being evaluated.



## Take Survey

Quick survey to provide additional education and solicit feedback.



# Website

The key asset of the campaign was the website which ODOT launched on January 1, 2023. As the center of the campaign, the other tactics were leveraged to increase viewership of the website. For instance, the website was optimized through targeted search engine optimization campaigns such as paid search. Pay-per-click advertising was also used to draw audiences to the site. **While the website may appear as a “push” mechanism to generate awareness, it also served to gather critical data about Ohioans—**

identifying which strategies were most effective at garnering site visitors, particularly those that stayed the longest (meaning they have the most interest) and as well as additional insight such as feelings towards the current transportation funding system and alternatives through the completion of a short online survey. These benefits are more obvious when looking at the most viewed pages which align with the messaging pushes that will be covered in greater detail on the following pages.



104,654 views



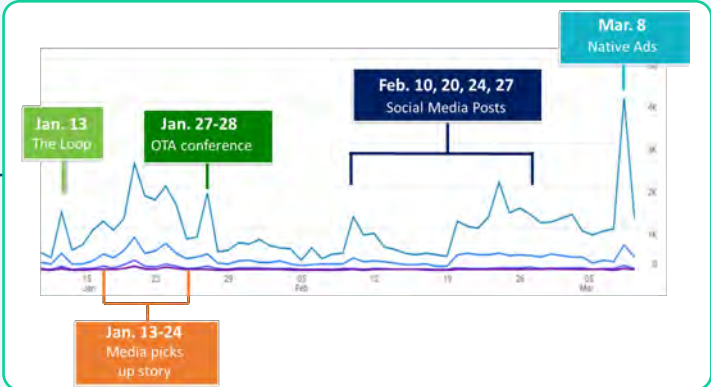
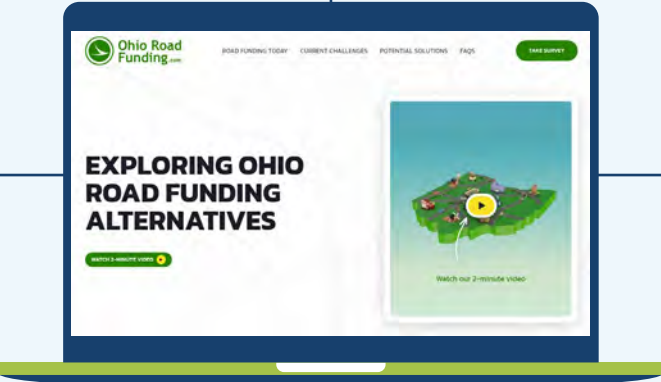
23,395 viewers



2 min, 4 secs average engagement time

This average is driven by the “Take the Survey” page (2:35 average). All other pages were less than 1:43. This validates the use of a survey as an educational tool and way to keep engagement on the site.

- Top Pages and Views
1. Take the Survey (77K)
  2. Home Page (20K)
  3. Potential Solutions (3.6K)
  4. Current Challenges (1.3K)
  5. Road Funding Today (1.3K)



Website analytics were derived using Google’s new GA4 system.

# Website

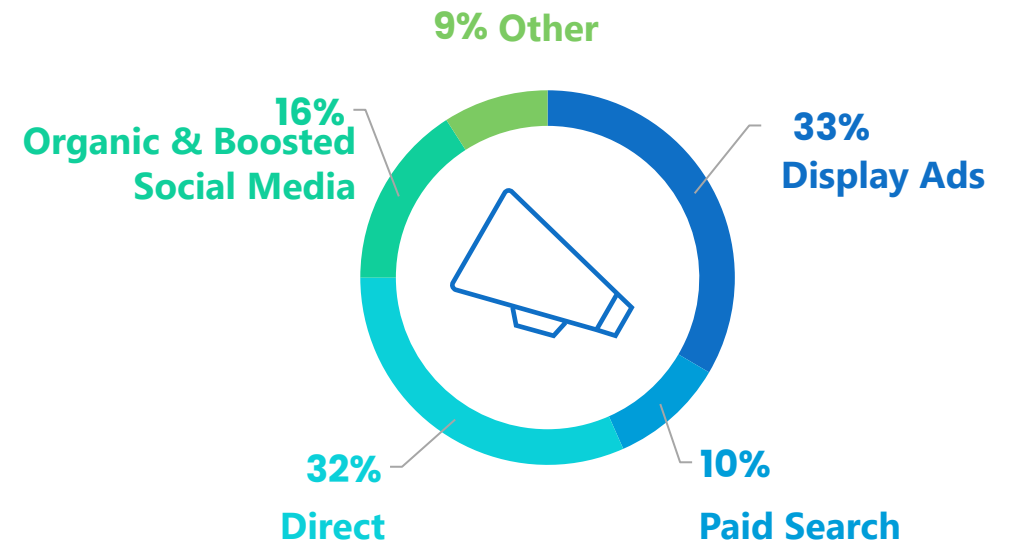
Understanding who visited the site and which mechanisms were most successful in luring those visitors will **help ODOT understand the unique nature of its citizens and how best to reach them in any future efforts.**

## Source Breakdown



### Key Findings – Traffic Sources

- ✓ **Direct sources**, meaning the user typed the URL directly into the browser, **seem to be that goldilocks method** – combining the highest number of viewers (32%) and an above average time engaged on the site represent approximately (over three minutes). However, this is the most difficult method to really evaluate what is driving this traffic. Given the other tactics, this is likely from the TV and Radio advertisements and is supported by the 34% of short survey respondents who said they learned about the website on television or radio ads.
- ✓ While display ads were the most successful in acquiring visitors (33%) for the site, **those who came from display ads were less likely to spend time engaging on the site** (average of 12 seconds only).
- ✓ On the opposite spectrum, those who **searched for the site** (organic search) **stayed on the site the longest** (4 minutes, 47 seconds). This is not surprising since those who take action to search out something are already interested in the content.
- ✓ Likewise, those who came from referral sources, while only representing up to 6% of viewers, stayed over four minutes as well. Referral sources, like press or partner websites, provide “warm leads” to the content and therefore, those who visit the website are already more engaged and thus more likely to stay on the site. For future efforts, **ODOT could lean into more strategic media engagement to increase successful awareness and engagement in the topic.** However, this tactic is also the most difficult to control (proliferation and messaging) and therefore presents certain risks.



# Website

Understanding who visited the site and which mechanisms were most successful in luring those visitors will **help ODOT understand the unique nature of its citizens and how best to reach them in any further planning and pilot steps.**

## Viewer Breakdown



### Key Findings – Who Engaged?

- ✓ Based on Google Analytics, there was not a lot of distinction in terms of how long someone stayed engaged on the site vs. where geographically they accessed the site from. The time engaged on the site ranged from an average of 2m 41s in Akron while users in Ashburn averaged 1m 34s.
- ✓ The viewership was distributed across the state. Only about 7% (3,189) of viewers did not have defined location.
- ✓ 45–54-year-olds were the largest age group who engaged with the site, closely followed by those who were between 35 and 44 years old.



Average time engaged:

**2m 4s**



Gender identification:

**60% Male**



City with the most views:

**Columbus**



Largest Age Group:

**45-54**



### Future Opportunities

- ✓ Lean into more **strategic media engagement and organic and social media** to increase successful awareness and engagement in the topic.

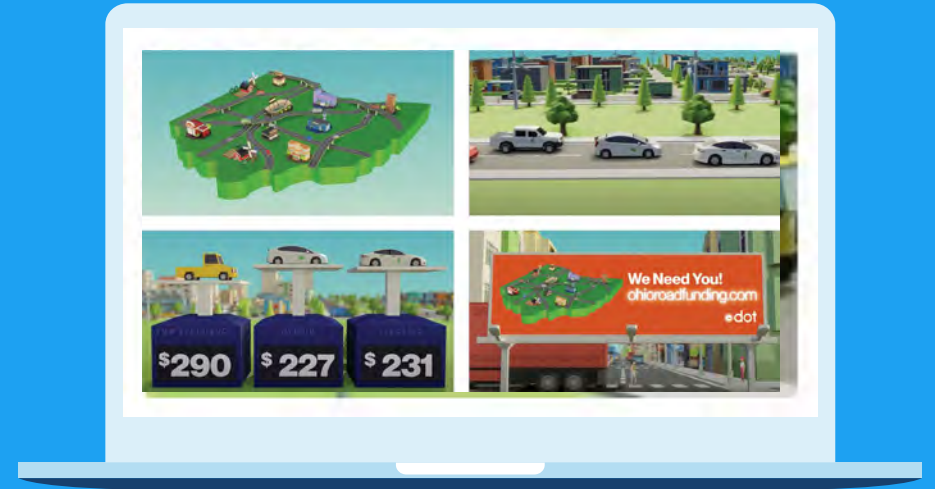
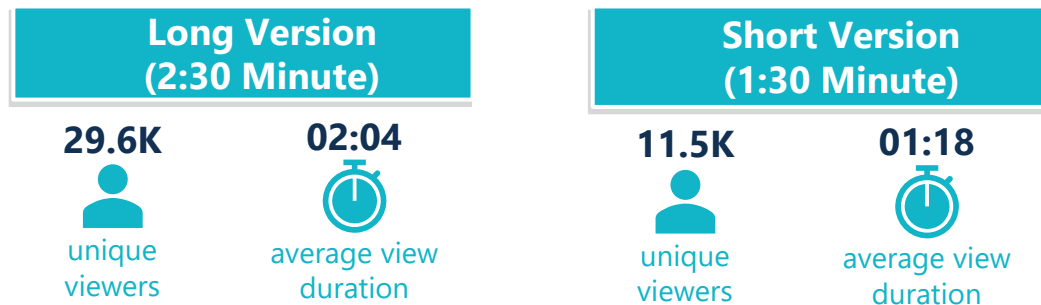
- ✓ These both can be **low to almost no-cost** options, outside of labor and have resulted in better than average returns in terms of quantity of Ohioans reached and the quality of their engagement. However, these tactics are also the **most difficult to control (proliferation and messaging) and therefore present certain risks.**

# Video

ODOT developed a **modular, animated educational video** to serve as a **key asset** for the public awareness campaign. The video, broken down into shorter lengths, supported the various campaign tactics such as website and online ads. The video walks the audience through the problem statement by weaving the key messages refined as a result of the public opinion research throughout, including a focus on user equity. It highlighted the value of the roads, how roads are paid for, and why there will be less funding in the future. The video also introduced the alternative revenue mechanisms study and explained three potential funding options to help solve the problem: raise the gas tax, raise registration fees, introduce a mileage-based user fee.

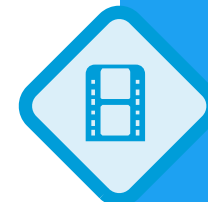
## YouTube and Google Partner Video Ads

YouTube and Google Video ads yielded 1,040,643 impressions and 457 clicks. Most people, regardless if they watched the longer or shorter version, watched most of the video. The total spend for this campaign was \$8,000 which resulted in about **\$0.01 per view**.



**2:30 Minute**

Embedded on website and used for YouTube and Google Partner ads



**1:30 Minute**

Used in YouTube and Google Partner ads



**0:30 +  
0:15 Minute**

Used for television and radio ads

# Google Search and Display Ads

Two Google search and display ad campaigns were executed to drive additional traffic to the website. These ad campaigns incorporated multiple ads. The Smart Search and Display campaign used Google's machine learning to automate and optimize targeting, bidding and ad format. They combine given headlines, images and messaging to optimize for best conversions. These can look like native ads on Google partner sites, such as news sites.

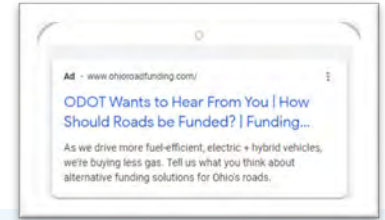
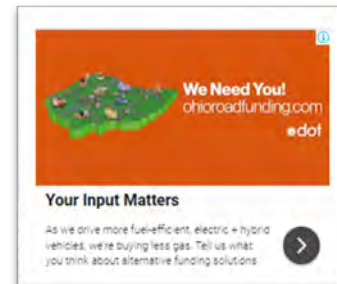
These two campaigns were “pay-per-click”, meaning that you pay for the ad based on how many times users click it. The combined campaigns resulted in 554,005 impressions and 7,775 clicks for a total spend of \$6,713.47

## Smart Ads

-  **January 11 – March 31, 2023**
-  **Spend: \$227.94**
-  **Impressions: 3,446**
-  **Interactions: 1,110 clicks**

## Responsive Ads

-  **January 31 – March 31, 2023**
-  **Spend: \$6,485.53**
-  **Impressions: 550,559**
-  **Interactions: 6,665 clicks**



## Key Takeaways

- ✓ While the conversion rate for Smart Ads was higher, overall, the Responsive Ads garnered greater impressions and were likely more effective:
- ✓ Google responsive search ads allow you to input multiple versions of your advertisements. Then, Google automatically shows different combinations to users and continues to boost the best performing ones, therefore optimizing the performance.
- ✓ The Smart Ads had a higher conversion rate but a lower spend because they were set to only charge when someone clicked on them – therefore only paying at the time of conversion. The daily budget for this campaign was set as “up to \$120 a day.” The campaign did not spend up to that budget because people were not clicking on the ads. The study team made adjustments to the campaign (images, text, etc.) throughout to try to obtain more clicks, but those efforts were unsuccessful.
- ✓ Most of the search terms that were successful seem to also point to the fact that users may have already heard about the study from other methods.

## Smart (Search) Ads

### Key Themes Used

- Potholes
- Electric cars
- Transportation
- Road construction
- Hybrid cars
- Road conditions
- Fuel Tax
- Ohio Department of Transportation
- Road Transport
- Gas Tax

### Actual Search Terms Used

- (Clicks, \$ Spent)
- ✓ Ohio road funding (386, \$23.32)
  - ✓ Ohio road funding com (153, \$31.96)
  - ✓ Road driving conditions (204, \$29.27)
  - ✓ Ohio department of transportation (6, \$19.64)
  - ✓ Current highway conditions (50, \$4.85)
  - ✓ Ohio road funding (45, \$4.78)



## Short Survey

- Gauge respondents' awareness of how Ohio currently funds the maintenance of its roads and bridges.
- Identify general reactions to Ohio's current funding approach.
- Explore respondents' attitudes toward the idea of various alternative revenue mechanisms.



January 13 – March 31, 2023  
5,717 Ohioans

During the public awareness campaign, a short survey was placed on the campaign website to serve as an additional **educational tool** as well as provide the public a chance to give meaningful feedback about key project objectives. While this survey was not intended to be statistically significant, almost 6,000 participants from across Ohio completed the survey, thus providing great insight that can be carried forward into future phases of this work. See Attachment A for greater details.







### Key Findings

- ✓ Many respondents favor a **mileage-based user fee** because they think it is the fairest funding mechanism.
- ✓ 4% of respondents have concerns that the mileage-based user fee will be **difficult to implement fairly without invading their privacy.**
- ✓ Regardless of the funding mechanism preferred, 10% of respondents believe it should **incorporate the weight of the vehicle as a cost factor**; heavier vehicles cause more damage to roads and they should contribute more.
- ✓ Owners of EVs and hybrids want to pay their fair share but think the **current registration surcharge is excessive** and punitive towards those that are trying to improve the environment.
- ✓ Many respondents **favor the use of various mechanisms at more reasonable rates** to allow for more people to contribute and distribute the contribution without excessively placing the burden in a group.

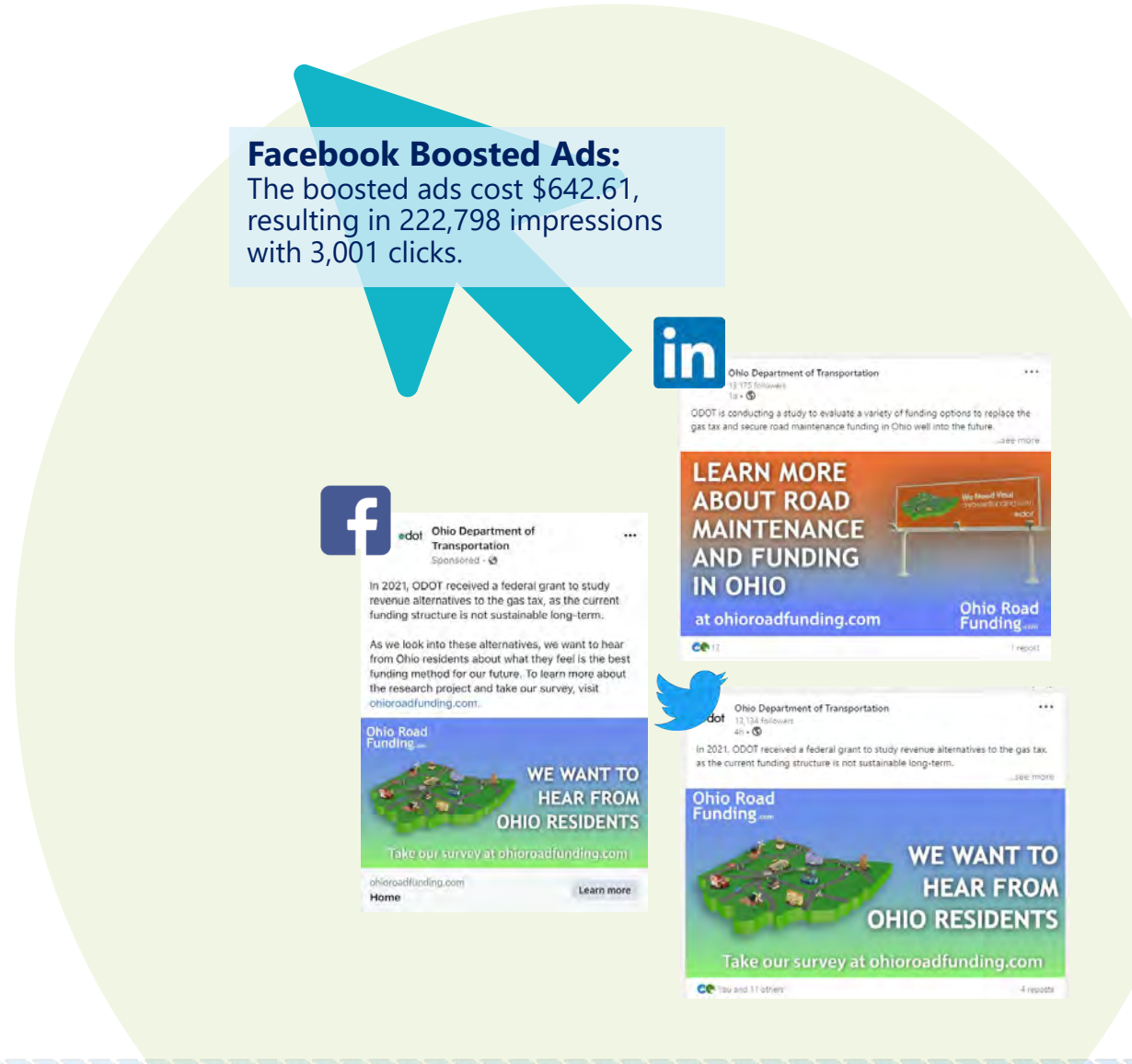
# Social Media

ODOT utilized its existing social media channels of Facebook, Twitter and LinkedIn to increase awareness about transportation funding and drive traffic to the campaign website, particularly the survey. Because ODOT already had a significant following – 89,000 on Facebook, 25,000 on Twitter, 13,000 on LinkedIn – their existing platforms were used. ODOT published four posts across each of these three platforms. For Facebook, ODOT then boosted the four posts, targeting Ohioans ages 18-65+. Additionally, ODOT encouraged members of the External Advisory Committee to post or repost the content to amplify the messaging, building off their trust within their target audiences.

**Facebook Boosted Ads:**  
The boosted ads cost \$642.61, resulting in 222,798 impressions with 3,001 clicks.

-  # times the post was seen  
views
-  # distinct people who saw the post  
reach
-  # times someone shared/reposted ODOT's post on their own feed  
shares
-  # times someone clicked the like or other engagement button  
reactions

LinkedIn		
9,478 views	21 shares	128 reactions
Twitter		
9,919 views	14 shares	18 reactions
Facebook		
222,798 views	116,747 reach	3,011 reactions

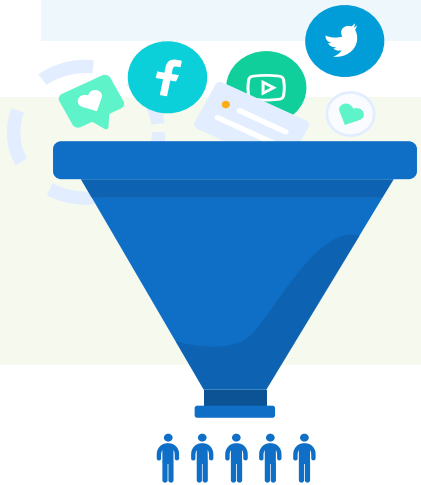


# Social Media



## Key Findings

- ✓ Facebook overwhelmingly had the greatest amount of interaction; however, these numbers reflect the fact that the posts were also boosted.
  - ✓ ODOT's Facebook already has an engaged audience. By boosting posts on the existing ODOT Facebook page, ODOT tapped into an audience that was already somewhat interested in the content. This is reflected in the midrange amount of time users engaged on the site when they came from social media.
  - ✓ Facebook comments really ranged in terms of understanding of the current transportation funding mechanisms. Many were focused on EVs alone and missed the nuance of increasing fuel efficiency. However, others were very knowledgeable. It was also clear that many people commented without having read the materials.
  - ✓ Because of the disparity of understanding and appearance that many did not click over to the website before commenting, one strategy that could be explored is the development of educational posts that live only on social media – meaning they don't require or ask of any additional clicks.
- ✓ Engagement on LinkedIn was very limited. It was predominantly shares but did not seem to spark conversation. Twitter was very similar in that it had a decent number of "retweets" or shares, but it was difficult to really see the conversations that may have been happening as most retweets were private.



## Future Opportunities

- ✓ **Prioritize Facebook** engagement and continue to use boosted posts to target an already engaged audience. Paying for boosting ensures the audience sees your content.
- ✓ Develop educational materials to share on ODOT social media accounts directly so they are able to learn even if they do not take the extra steps to click through.
- ✓ Make it a **"two-way" conversation**. Arm staff with tools such as content on the website and common answers so answers can be provided to questions, particularly on Facebook.
- ✓ Determine ways to **utilize partners' social media** presences to increase your interested audience reach affordably.



# Strategic Paid Media

To help drive traffic to the video, website, and social media posts, the public outreach plan included paid advertising strategically placed on a variety of platforms. Strategic paid media allows the opportunity to more fully saturate an audience with content and also presents the ability to reach audiences who do not typically engage with social media and web searches.

## Types of Paid Media



### Digital Ads

Digital ads include a variety of online newspapers, journals, and displays. All of these methods of advertising were interactive



### TV and Radio

Advertisements were placed on local TV and Radio stations using the Ohio Association of Broadcasters PEP program



## Key Findings

- ✓ The television and radio ads ran on a total of **271 stations, 46,772 times**. This ad campaign was valued at more than **\$1.15 million**. However, with PEP's reduced rates for state agencies, ODOT was able to purchase this **three-month** campaign for **\$75,000**, resulting in a return of approximately **\$15 for every \$1 spent** in the campaign.
- ✓ To supplement organic traffic, a public awareness effort in Ohio should focus on a variety of paid media approaches, especially **display ads, boosted social media content and ad campaigns, and television and radio spots**.
- ✓ Strategic paid media allowed ODOT to **reach audience members who may not normally engage with social media**.

# Strategic Paid Media – Digital Ads

The paid advertising component of the public outreach plan included a variety of platforms to reach a statewide audience of ages 18-70. **The goal was to reach as many Ohioans as possible**, therefore a variety of paid advertising platforms were used. All ads were digital so that users could easily click or scan to go directly to the website. These platforms included:

## Ad Platforms

**DriveTV** – Static ads (that did not include moving elements) with QR codes promoting [ohioroadfunding.com](http://ohioroadfunding.com) were shown in 65 Ohio Bureau of Motor Vehicle offices

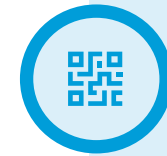
**Business Journals** – Native advertising and banner ads driving readers to the website appeared January through March on the Business Journals websites in Columbus, Cleveland, Dayton and Cincinnati

**Gannett News Websites** – Native advertising and banner ads appeared on the news websites that included the Columbus Dispatch, Akron Beacon Journal, Cincinnati Enquirer, Lancaster Eagle Gazette, Chillicothe Gazette, Zanesville Times Recorder, Mansfield News Journal and the Massillon Independent

**AdOhio** – Utilized their services to place targeted video and digital ads in the Cleveland, Youngstown and Toledo area and on Hispanic media outlets



## Digital Ad Statistics



QR codes on the **DriveTV ads were scanned 10 times**



Business Journal ads received **255,266 views and 122 clicks**



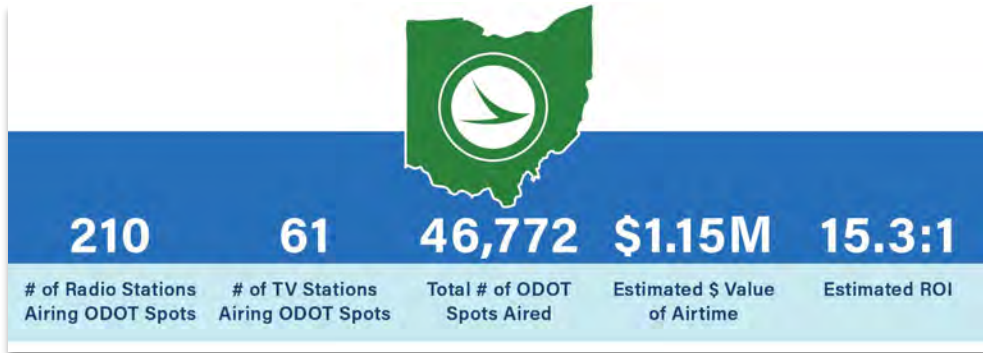
Gannett News sites received **11,419 reads with an average active time of 55 seconds**



Digital ads ran by AdOhio received **1,798,694 total impressions** and over **5,100 hours of exposure time**

# Strategic Paid Media - TV & Radio Content

ODOT utilized the Ohio Association of Broadcasters Public Education Partnership (PEP) Program for television and radio ads across Ohio. PEP provides reduced rates for ad campaigns to nonprofits and state agencies. For this campaign, the project team produced 30- and 15-second versions of the longer 2 ½-minute video. These shorter ads were used for television and radio ads that PEP distributed to stations throughout the state.



## Analytics

- TV ads were placed on **61 stations** and played **11,439 times**. These ads were valued at approximately \$350,000.
- Radio Ads were placed on **210 stations** and played **35,333 times**. These ads were valued at \$800,000.
- The television and radio ads ran on a total of **271 stations, 46,772 times**. This ad campaign was valued at more than \$1.15 million. However, with PEP’s reduced rates for state agencies, ODOT was able to purchase this three-month campaign for \$75,000.



## Future Opportunities

- ✓ Utilize PEP’s reduced rate to get a return of approximately **\$15 for every \$1 spent**
- ✓ **TV and Radio advertisements can help widen your reach** by finding people who may not normally interact with social media

04

# Legislative Outreach

Performance and key takeaways

# Legislative Outreach

To connect with key members of the Ohio General Assembly, the study team connected with 12 legislators to inform them of the study and its objectives and to get their feedback on the work being conducted. These conversations took place from December 2022 to February 2023.

Legislators were selected based on geographic, racial and political diversity. Additionally, legislators chosen had been through at least one transportation budget cycle to ensure a basic level of familiarity with how Ohio roads and bridges are funded so they could provide thoughtful feedback. **The study team spoke with members from the majority and minority leadership of the House and Senate, former and current Transportation Committee chairs, and leadership of the Ohio Legislative Black Caucus.**

## Legislators

- **Sen. Nickie Antonio (D-Cleveland)**  
Senate Minority Leader
- **Rep. Juanita Brent (D-Cleveland)**  
Member, House Transportation  
President, Ohio Legislative Black Caucus
- **Sen. Matt Dolan (R-Cleveland)**  
Chair, Senate Finance Chair
- **Rep. Dontavius Jarrells (D-Columbus)**  
Assistant Minority Leader
- **Sen. Stephanie Kunze (R-Columbus)**  
Chair, Senate Transportation
- **Rep. Kevin Miller (R-Newark)**  
Member, House Transportation  
Former Highway Patrol Officer
- **Rep. Jessica Miranda (D-Cincinnati)**  
Minority Whip  
Member, House Transportation
- **Rep. Scott Oelslager (R-Canton)**  
Speaker Pro Tempore  
Former Chair, House Finance
- **Rep. Phil Plummer (R-Dayton)**  
Member, State & Local Government
- **Sen. Bill Reineke (R-Tiffin)**  
Member, Senate Finance  
Member, Senate Transportation
- **Rep. Allison Russo (D-Columbus)**  
House Minority Leader
- **Rep. Mike Skindell (D-Cleveland)**  
Ranking Minority Member, House  
Finance/Transportation Subcommittee



## Key Findings

Legislators...

- ✓ **Recognized the need for change** in the transportation funding structure.
- ✓ Were glad ODOT is undertaking this study.
- ✓ Want the alternative funding solution to be **fair and equitable**.
- ✓ Do not want to discourage EVs or greater efficiency.
- ✓ Believe **public education will be key** regardless of the path forward.
- ✓ Would like a good way to demonstrate local progress to taxpayers/users.
- ✓ Think a mileage-based user fee makes sense, however there were concerns about how it would work, particularly regarding privacy concerns and unintended costs/consequences.
- ✓ Also thought varying registration fees makes sense.
- ✓ Need to look at transportation expenditures as well, not just revenue sources.
- ✓ Understand that the transportation and financial needs across the state vary greatly, so it is important to ensure all voices are heard.



05

# Lessons Learned

Where do we go from here?

# Lessons Learned

Based on this comprehensive public opinion and awareness work in Ohio, several key themes and lessons learned emerged. The items below constitute the key messages ODOT could document for internal use to help formulate next steps and also to help peers along this same journey.



✓ Public education is necessary for many reasons, least of which is the lack of understanding and transparency of the current road and bridge maintenance funding. This need was supported in each phase – public opinion research and public and legislative outreach. **Public education provides an opportunity to connect with people** – citizens, businesses, community leaders, and elected officials—to allow them the opportunity to be heard, to set the stage for the greater conversation of a potential funding change, and to **better control the dialogue** (as opposed to being reactive.) An External Advisory Committee can be very engaged and brings important perspectives to the table. They are truly the foundation of the education and outreach.

✓ **Building a comprehensive repository of information, data, and materials is critical.** When building a website, think in advance about how you might structure it so that discrete parts may be shared to help answer questions received via social media or email.

✓ Supplement that repository by putting more educational materials directly within social media. The audience on social media, while engaged, may not always click through to additional materials. Therefore, having the educational component embedded within the social media platform is a great way to increase the educational opportunity.



## Target areas

✓ **Business and residential interviews can be considered as much about public education as fact finding.** This allows participants to understand we care about their opinions and is another way to clear up misconceptions.

✓ Your social media and website should work together. **Provide engaging and innovative educational tools on both your social media and website.** This will help ensure you are giving the public a multitude of opportunities to increase their knowledge on the subject.

# Lessons Learned



## Key Lessons

- ✓ If you build it, they won't necessarily come. **It takes a concerted effort, and funding, to bring your audience to the table.** Having a mix of marketing methods is important to be able to target different audiences.
- ✓ **Flexibility is critical.** These studies and campaigns do not happen in a vacuum. Therefore, the team must understand the larger political landscape and that all the engagement tactics originally desired may not be possible. This happens in just about every project or study, state or county, because these studies occur in complex environments. Learn to **make the most of the opportunity**; do not have an all-or-nothing attitude. Instead, think creatively and remain flexible.
- ✓ "It takes a Village." **This type of awareness campaign requires significant collaboration:** within the study team between the communications team and technical team; across departments between various subject matter experts such as finance and communications; between agencies.



## Target areas

- ✓ Start by **identifying the resources you already have.** Do you have a strong Facebook presence already? Use it. That audience is already engaged and warmed to the topic at hand. This can be some of your most efficient spends to start the conversation. While Ohio chose to have a separate website to drive traffic, if your existing site has great traffic you may want to utilize that.
- ✓ There is a lot of noise online. **It will take boosting to become visible to audiences.** Facebook boosted posts provided the 'sweet spot' between cost effectiveness and engagement for Ohio. These posts leveraged the existing ODOT Facebook audiences
- ✓ When you bring people to the table, **how can you make it a two-way conversation?** Being able to capture the audience's engagement by answering questions and providing additional educational material will help take this awareness campaign to the next level. Provide resources to those frontline social media workers to arm them with the messaging and tools needed to amplify this effort. This can start with building your website with this end goal in mind.



# Attachment A

## Short Survey Results Report



Ohio Department of Transportation



# Ohio DOT Revenue Alternatives Study

# Short Survey Results

May 2023



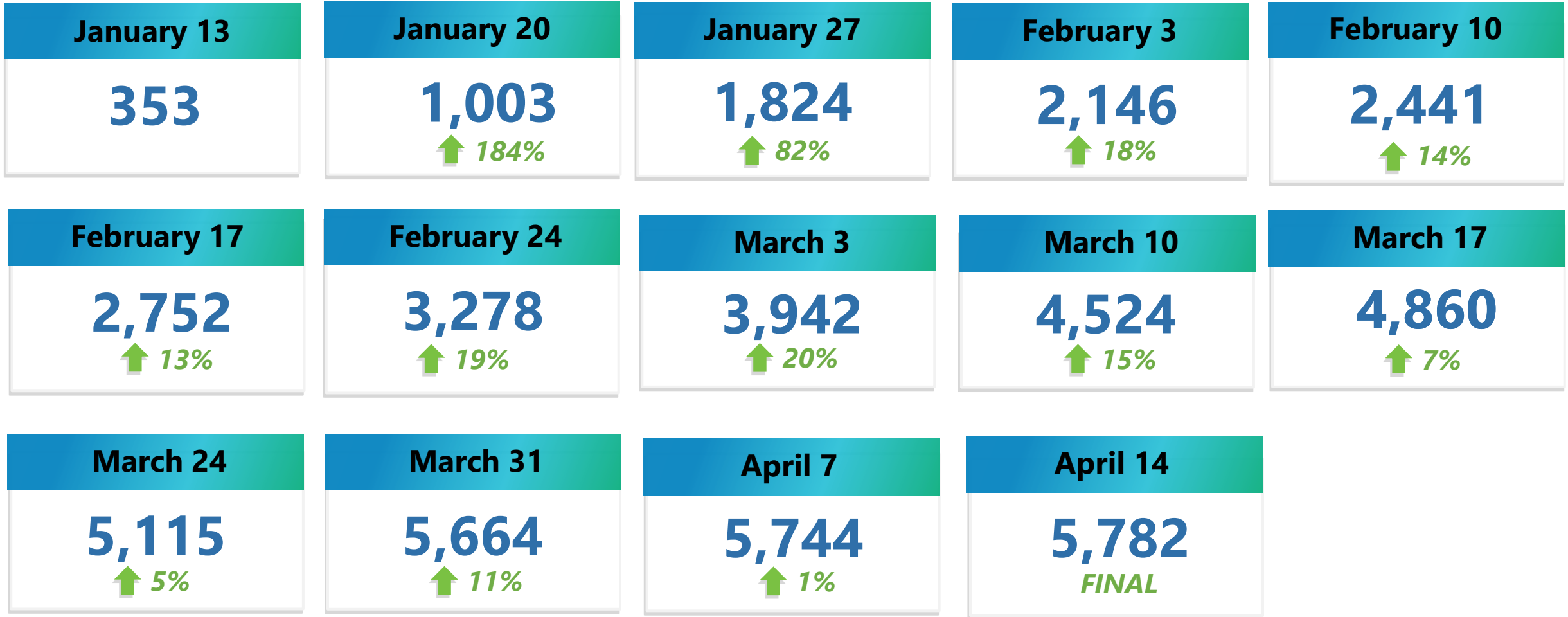
Ohio Department of Transportation

**CDM**  
**Smith**

# Overview

- A public awareness campaign was conducted for the Ohio DOT Revenue Alternatives Study. The campaign was informed by the results of the public opinion research and guided by ODOT and the External Advisory Committee.
- One of the key purposes of this campaign was to drive Ohioans to the website, [ohioroadfunding.com](https://ohioroadfunding.com), to learn more and complete a brief survey to provide feedback.
- The following presentation provide the results of this short survey which was available on the website from January 1 to April 14, 2023.

# Short Survey Responses (survey closed April 14)

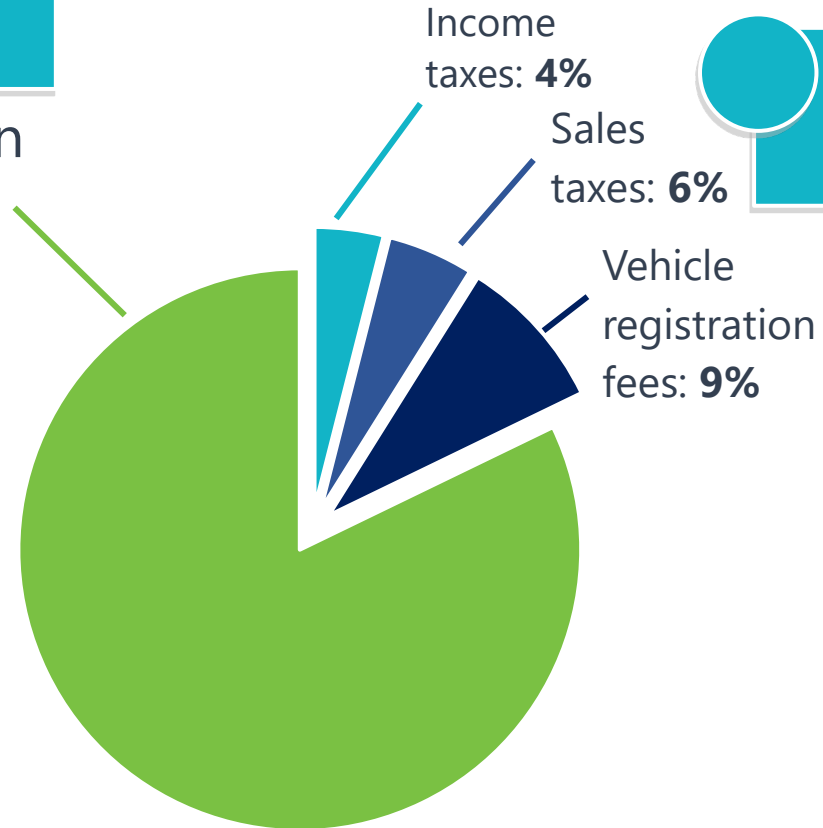


# Short Survey Question – Road Funding Source Comprehension

**Most respondents understand** that the state gas tax provides the greatest amount of money for maintaining Ohio's roads and bridges.

 **Correct Response**

State taxes on gasoline:  
**81%**



 **Incorrect Responses**

Which of the following sources do you think provides the **greatest amount** of money for maintaining Ohio's roads and bridges?

# Short Survey Question – Annual Gas Tax Amount

About half of respondents believe they pay between \$100 and \$300 towards the state gas tax each year.

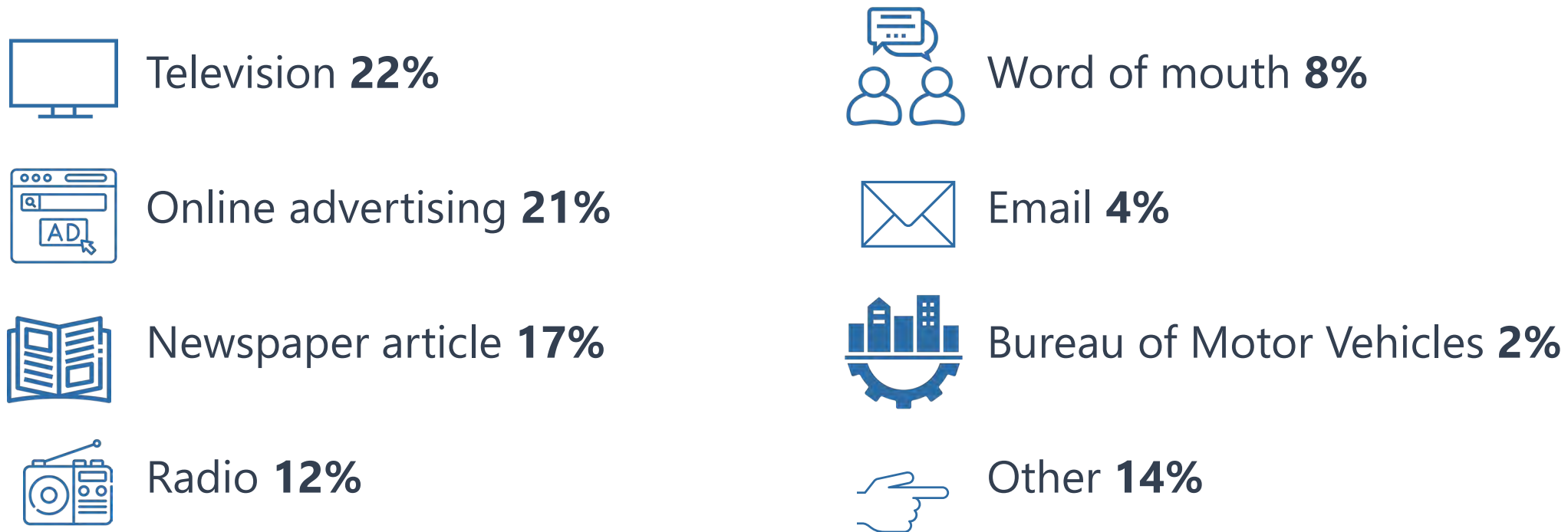


3% chose “Not applicable, I drive an electric vehicle” ; they are not represented in the percentages above.

Ohio’s primary funding source for the maintenance of roads and bridges is the gas tax paid when drivers fill up at the pump. The average Ohio driver pays between \$100 to \$300 in state gas taxes each year. Each year, do you think you pay more than that amount in state gas taxes, less than that amount in state gas taxes, or about the same amount in state gas taxes?

# Short Survey Question – How People Learned About the Website

Respondents most commonly first learned about the website from television, online advertising, or a newspaper article.



As best as you can remember, where did you **first** learn about OhioRoadFunding.com?

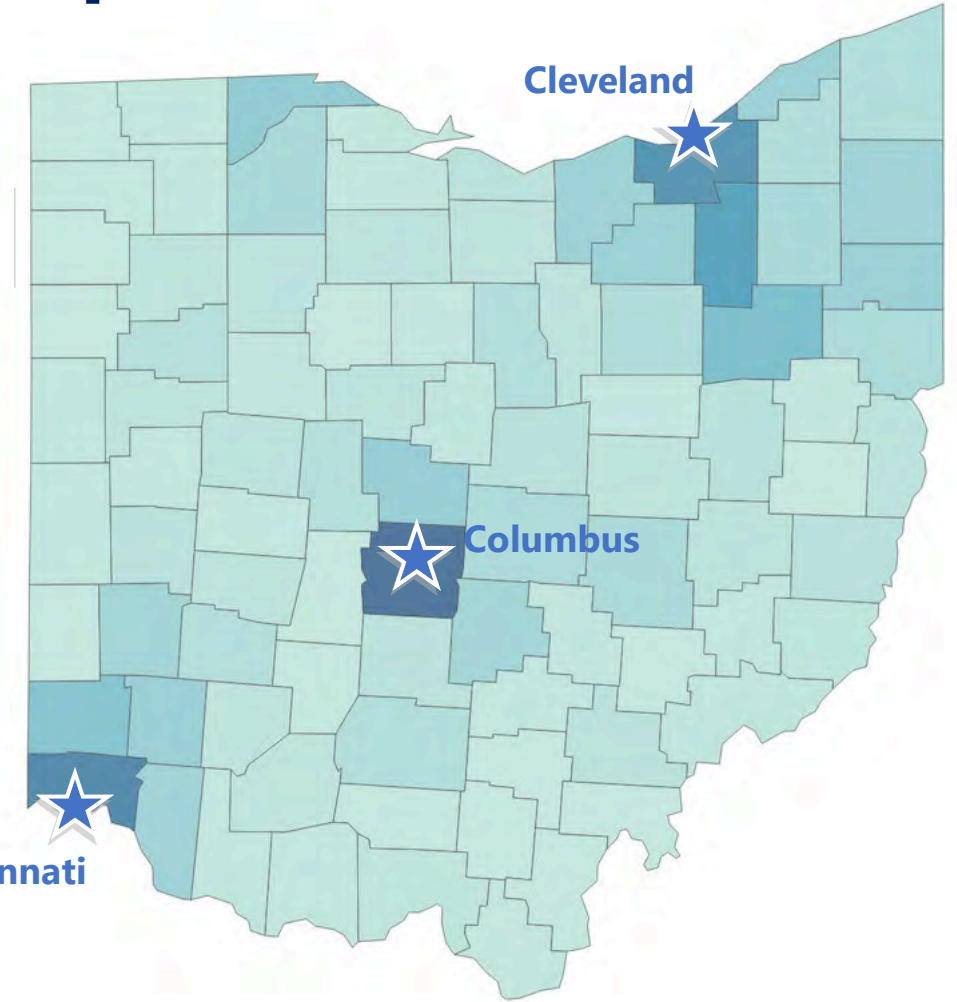
# Short Survey Questions – Demographics and Interest

Number of responses by county

3,575



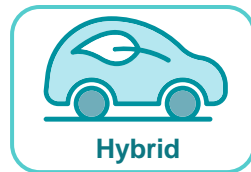
Franklin County had the most respondents, followed by Hamilton, Cuyahoga, and Summit Counties.



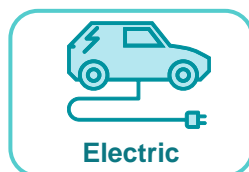
2,791 respondents provided email addresses to learn more later.



84%



9%



4%

\*3% of respondents report driving vehicles powered by diesel fuel



# Short Survey – Open-Ended Question

Public comments and questions were gathered through the following open-ended survey question:

*“With more fuel-efficient and alternative fuel vehicles, drivers are purchasing less fuel, resulting in the current way Ohio funds the maintenance of its roads and bridges to be unsustainable. As the Ohio Department of Transportation explores a new way to fund Ohio’s roads and bridges, what thoughts or questions do you have about that topic?”*

The purpose of the question was to:

- Learn the reasons citizens prefer or reject various funding approaches for maintaining Ohio’s roads and bridges;
- Identify concerns and beliefs that ODOT needs to consider and might need to provide clarifying information; and
- Gather new ideas on funding approaches.

# Open Ended Question – Coding Methodology

In order to analyze responses to the open-ended question, a coding methodology was developed. The methodology was designed to capture as many of the preferences, concerns, suggestions, ideas, general comments and questions given by the public as possible.

For greater representation of the respondents, the response data was divided into the three groupings below and analyzed separately:

1. **Codable responses:** this refers to responses that addressed any of the themes identified for coding.
2. **Non-codable comments:** responses that were not questions and did not mention any of the coded themes.
3. **Questions:** responses that consisted of questions for ODOT. For example: “When would the changes go into effect?”

# Open Ended Question – Coding Methodology

## Step 1: Code Selection

- The first step in the process included a review of all the response data available to identify the most frequent themes related to the funding options presented by ODOT, additional funding ideas, and concerns and beliefs related to their funding preferences.
- After reviewing available data, 30 themes (variables) were identified (see pages 11-13) as the most frequent themes related to the funding options presented by ODOT.
- For each survey response reviewed, a count was added for each theme mentioned in the response.

# Open Ended Question – Coding Methodology

Code themes (1-13) identified at the beginning of the process:

## Mileage-based User Fee Related Variables

- 1 In favor of mileage-based user fee
- 2 Against mileage-based user fee
- 3 In Favor milage-based only for EVs & hybrids

## Gasoline Tax Related Variables

- 4 In favor of raising the gasoline tax
- 5 Against raising the gasoline tax

## Registration Fee Related Variables

- 6 In favor of increasing registration fees (higher fees than current)
- 7 Against increasing registration fees (higher fees than current)
- 8 In favor of higher registration fees for EVs than other vehicle types
- 9 Against higher registration fee for EVs than other vehicle types
- 10 In favor of higher registration fee for hybrids than other vehicle types
- 11 Against higher registration for hybrids than other vehicle types
- 12 In favor of registration fees based on USEPA's MPG rating (higher MPG = higher fee)
- 13 In favor of higher registration fee based on vehicle weight (higher weight = higher fee)

# Open Ended Question – Coding Methodology

Code themes (14-23) identified at the beginning of the process:

## Alternative Funding Mechanisms

- 14 In favor of equivalent gasoline tax at electric charging stations
- 15 In favor of adding a sales tax for new EV and hybrid vehicles
- 16 In favor of higher taxes and fees for luxury cars
- 17 In favor of adding an income tax for roads
- 18 In favor of adding a general sales tax for roads
- 19 In favor of adding toll stations at highways and bridges
- 20 In favor of increasing public transportation to reduce road use and maintenance costs
- 21 In favor of exempted vehicles and farming equipment contributing to road maintenance
- 22 In favor of redirecting state revenue from lottery, gambling, and medical and recreational marijuana

## Other Funding

- 23 Other Funding.

# Open Ended Question – Coding Methodology

Code themes (24-30) identified at the beginning of the process:

## Concern Related Variables

- 24 Concern for privacy during implementation of mileage-based tax.
- 25 Concern for the logistics of implementing the mileage-based tax (technological ability to track miles driven, tracking out-of-state drivers passing through Ohio, tracking miles driven out-of-state by Ohio residents, and potential for cheating the system.
- 26 Fair and equitable funding concern. Any new funding mechanism must allow for fair share contributions and not place a heavier burden in any group.

## Beliefs Related Variables

- 27 Improved management of funding and maintenance of existing infrastructure
- 28 Electric vehicles and hybrids are significantly heavier belief
- 29 Heavier vehicles should pay more regardless of funding scheme belief
- 30 Having a higher registration fee on hybrids and EV is a disincentive towards efforts to mitigate global warming

# Open Ended Question – Coding Methodology

## Step 2: Preparing Responses for Coding

- About 5,400 complete responses (received by April 10, 2023) were pre-screened to identify those that were questions and non-codable comments. About 400 questions and non-codable comments were extracted for separate analysis.
- The first 2100 complete responses received were selected for coding.
- Additionally, a batch of over 500 responses was selected by randomization from the rest of the responses for coding.

### Survey Comments

**Coded survey comments >2240**

**Non-coded survey comments >500**

### Survey Questions

**>200**

# Open Ended Question – Coding Methodology

## Step 3: Coding

- Three persons (coders) individually reviewed each survey response and added a count for each theme mentioned in each survey response.
- For each survey response, the results of each individual coder (3 codes) were compared.
- For each survey response, themes that were identified in the response (coded) by at least two coders were indicated as verified coded themes and kept for additional analysis.
- Additional responses constituting questions and non-codable comments missed during the pre-screening were identified during the coding step and set aside.



# Open Ended Question – Coding Methodology

Step 4: Sub-coding the code “Other Funding Ideas”

- For survey responses coded to the theme “other funding ideas,” the project team further identified funding idea themes mentioned by at least five respondents in this set of responses.
- A total of 11 additional coding categories were identified for survey responses coded to the theme “other funding ideas.”

"Other Funding Ideas" Sub-coding Analysis											
About 150 responses	Various sources	Bonds	Yearly Inspections	Tax Wealthy & Corporations	Tire Tax	Traffic Violations	Saving Ideas	Environment Tax	Road Sponsorship	Federal Funding	Miscellaneous

# Open-Ended Question – Codable Responses Results

Nearly a quarter of responses mentioned being in favor of a mileage-based user fee.



Increase gas tax

**In favor 6%**

**Against 5%**



Increase registration fees

**In favor 8%**

**Against 1%**



Mileage-based user fee

**In favor 22%**

**Against 6%**

Mileage-based user fee for EVs / hybrids

**In favor 3%**

**Against 0%**

With more fuel-efficient and alternative fuel vehicles, drivers are purchasing less fuel, resulting in the current way Ohio funds the maintenance of its roads and bridges to be unsustainable. As the Ohio Department of Transportation explores a new way to fund Ohio's roads and bridges, what thoughts or questions do you have about that topic?

# Open-Ended Question – Codable Responses Results

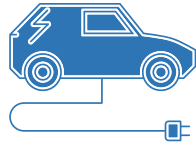
**8%** of responses mentioned being in favor of **all users** paying higher registration fees.

## Registration Fees



Drivers of hybrids should pay more 4%

**Drivers of hybrids shouldn't pay more 4%**



Drivers of EVs should pay more 11%

**Drivers of EVs shouldn't pay more 4%**



Vehicles with better fuel economy should pay more <1%



Drivers of heavier vehicles should pay more 3%

# Open-Ended Question – Codable Responses Results

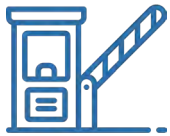
The other most commonly mentioned alternative was taxes/fees at charging stations.



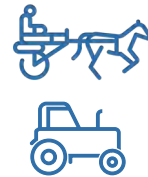
Taxes/fees at charging stations **8%**



Income taxes **3%**



Tolls **5%**



Taxes/fees on horse and buggies and/or farm equipment **3%**



Taxes on gambling, lottery, or marijuana **4%**



Sales taxes on new EVs and hybrids **1%**



General sales taxes **3%**



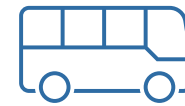
Taxes/fees on luxury cars **<1%**

# Open-Ended Question – Codable Responses Results

Many respondents feel the solution should be fair/equitable.



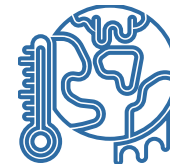
Solution should be fair/equitable **13%**



Public transportation should increase **5%**



Mileage-based user fee – accuracy concerns **8%**



Higher costs for hybrids/EVs disincentivizes positive environmental impacts **4%**



Heavier vehicles should pay more **11%**



Mileage-based user fee – privacy concerns **4%**



Improve management of existing system **9%**



Hybrids/EVs are heavier **2%**

# Open Ended Question – Non-Codable Comments

## Step 1: Identify Non-Codable Comments

- Survey responses were reviewed and any responses that did not mention at least one of the coded themes (see slides 11-13) were collected for further analysis.

## Step 2: Identify Themes

- Review all non-codable comments and identify the five most common themes:
  1. Gas tax revenue is lower because people are driving less due to the higher cost of gas, many are working from home since the pandemic and internal combustion engines vehicles being more efficient.
  2. Opposed to any increases in gas tax or fees as people already pay too much in taxes and these increases will affect lower income earners the most.
  3. Electric vehicles are worse for the environment due to what is required to manufacture and dispose of batteries. Also, the US doesn't have the electric grid necessary to support EVs.
  4. The informational video suggests that EV and hybrids are not contributing but they are already paying increased registration fees. The registration cost for PHEV vehicles should be the same as hybrids and not as full EVs.
  5. Road conditions will continue to be a problem due to lack of innovation in materials used in road construction. ODOT should use materials that last longer and need less repair or there will never be enough funds to maintain roads as the gas tax is not going to be a sustainable long-term funding source.

# Open-Ended Question – Questions Methodology

## Step 1: Collect Questions from the Open-Ended Question

- Project team reviewed all survey responses received through April 10, 2023, and collected the responses that were a question (>200).

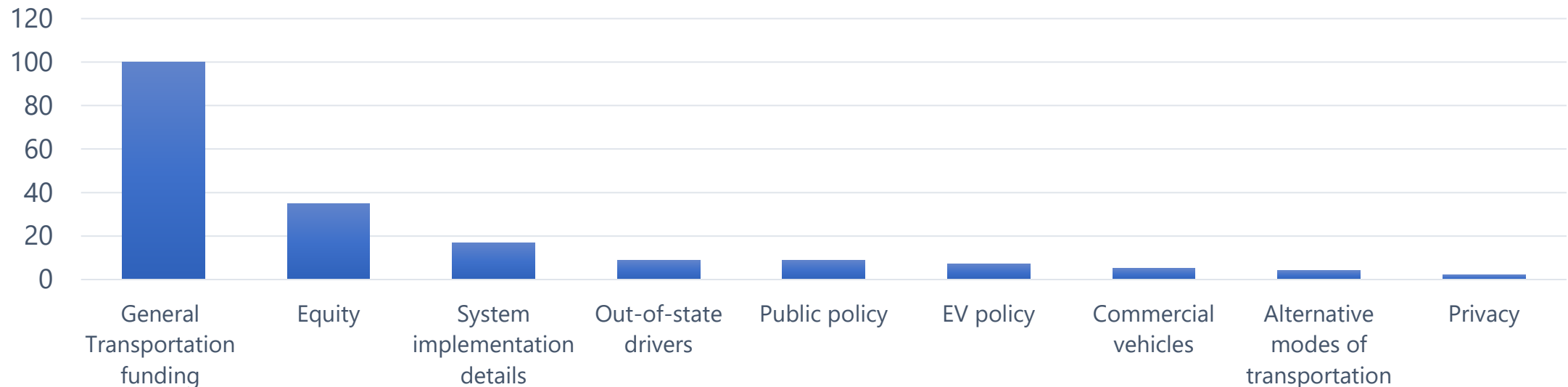
## Step 2: Identify Categories of Questions

- Project team reviewed all questions and identified nine categories:
  1. **General Transportation Funding:** includes how taxes work, sources of funding, expenditure of the funds, etc.
  2. **Equity:** includes user equity such as impacts on different users, and social equity such as concerns for low-income individuals.
  3. **System Implementation details:** how alternative transportation funding options would be implemented
  4. **Out-of-state Drivers:** how will non-residents/out-of-state drivers contribute to road maintenance under different options
  5. **Public Policy:** general, high-level policy questions about an alternative transportation funding option.
  6. **Electric Vehicle (EV) Policy:** how to charge drivers of EVs fairly and equitably for their road usage so they pay their fair share.
  7. **Commercial Vehicles:** concern that heavier vehicles (e.g., 18-wheelers) cause more damage and should pay more.
  8. **Alternative Modes of Transportation:** what ODOT is doing to promote other modes of transportation such as transit and rail.
  9. **Privacy:** how would mileage be reported under options like a mileage-based user fee, while protecting user privacy.

# Open-Ended Question – Questions Results

Open-ended questions were **predominantly about how transportation funding works in general**. This was followed by concerns surrounding social and user equity.

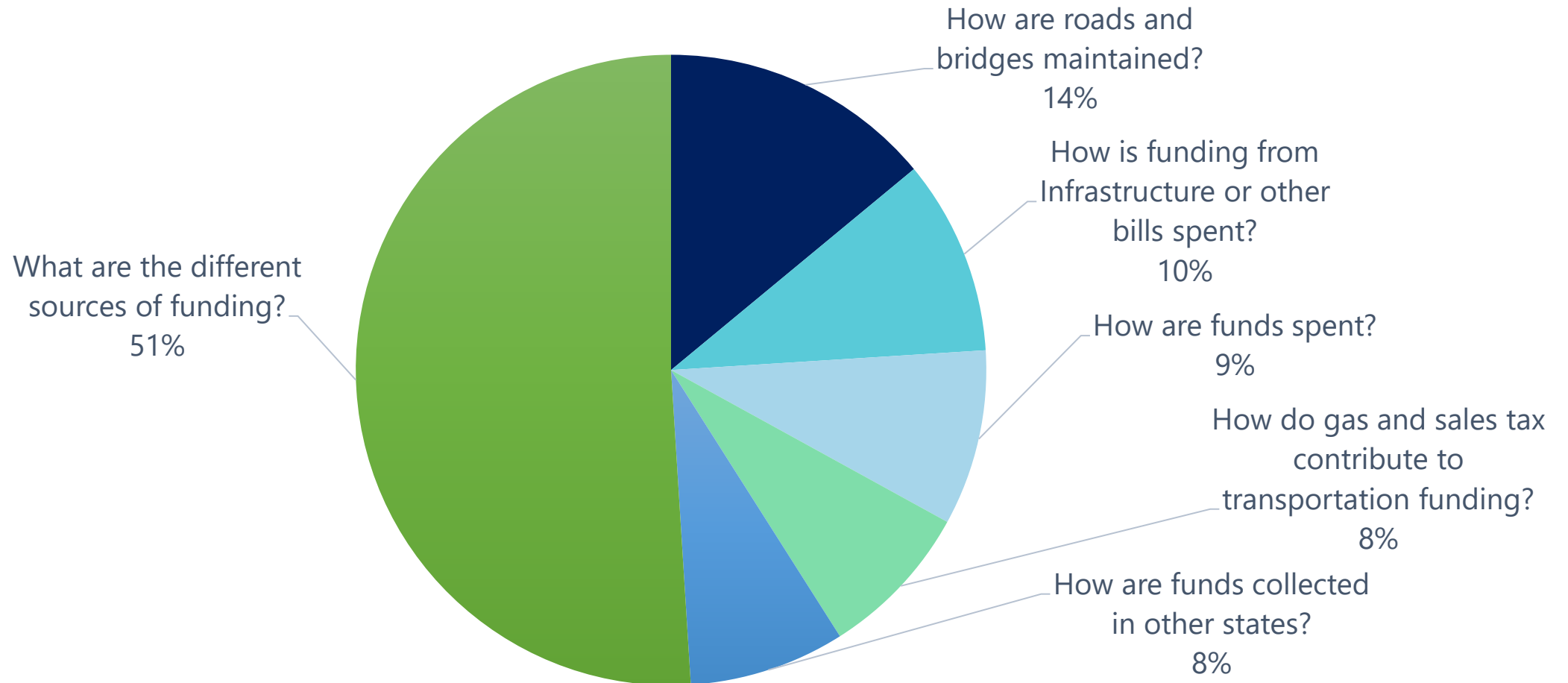
## Open Ended Question Categories





# Breakdown of General Transportation Funding Questions

Open-ended questions indicated that **users were interested in learning more** about the different sources of transportation funding.



# Sample Questions Specific to Transportation Funding

- "Why is a 'new way' necessary? Is the current system not working? It seems that the current system is the fairest, that those using the roads, for the most part, pay for them."
- "Why not increase taxes on gas vehicles instead of fees for electric vehicle use? Directly impacts the use of environmentally friendly vehicles."
- "Why not do away with the gas tax and raise the state sales tax?"
- "How were roads funded before the gas tax?"
- "How to make up the difference in revenue?"
- "Where does the rest of the funding come from?"
- "What's the alternative to gas tax funding?"
- "How much revenue does the flat registration additional gasless tax on electric and hybrid vehicles replace?"

# Open Ended Question – Key Takeaways

- Many respondents favor mileage-based tax because they think it is the fairest funding mechanism.
- Many respondents do not like the mileage-based tax because they are concerned it will be difficult to implement fairly without invading their privacy.
- Regardless of the funding mechanism preferred, many respondents believe it should incorporate the weight of the vehicle as a cost factor; heavier vehicles cause more damage to roads and they should contribute more.
- Owners of EVs and hybrids want to pay their fair share but think the current registration surcharge is excessive and punitive towards those that are trying to improve the environment.
- Many respondents favor the use of various mechanisms at more reasonable rates to allow for more people to contribute and distribute the contribution without excessively placing the bur in a group.
- Ohioans have a lot of questions about transportation funding in general users and were interested in learning more about the different sources of transportation funding.

# Appendix E

## Alternative Revenue Mechanisms: Preliminary Revenue Forecasting



OHIO DEPARTMENT OF  
TRANSPORTATION

# Alternative Revenue Mechanisms: Preliminary Revenue Forecasting

May 19, 2022

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1. Introduction
2. Primary Data Sources
3. Ohio's Vehicle Fleet Composition
4. Ohio Statewide VMT Projections
5. ODOT Cost of Construction
6. Fuel Prices
7. Vehicle Fleet Electrification
8. Revenue Generating Capacity of Transportation Funding Mechanisms

## 1. Introduction

At the first External Advisory Committee (EAC) meeting in March 2022, the CDM Smith team presented a range of traditional and alternative revenue mechanisms for consideration in Ohio. This document provides a preliminary assessment of the revenue generating capacity of each of these mechanisms.

This memo supports material presented at the second EAC meeting in April 2022 by providing additional details on revenue generating capacity of various alternative revenue mechanisms. Material provided at the third EAC meeting will analyze these Alternative Revenue Mechanisms in light of policy goals beyond revenue, and that material can be used in conjunction with this memo to give an accurate overall picture of the impacts of the various mechanisms.

The memo starts by summarizing the primary data sources used to conduct the analysis, before focusing on two important elements: vehicle fleet composition and vehicle miles traveled (VMT). Cost of highway construction, historical fuel prices and vehicle fleet electrification are also discussed to support the revenue analysis.

Next, the revenue analysis is discussed with an overview of the approach, assumptions, methodology, and findings. Each revenue mechanism is presented using a consistent framework that covers the following items: name of revenue mechanism; brief description; revenue calculation formula; key assumptions used in the revenue forecasting process; estimated revenue potential in 2025 and 2040; net present value 2022-2040; and financial sustainability trend.

The quantitative assessment presented in this memo should be regarded as a preliminary evaluation to support the ongoing discussions and deliberations of the Ohio Department of Transportation (ODOT) and its EAC. The inherent uncertainty in projecting growth rates of tax bases such as vehicles, fuel consumption, and miles traveled leads to uncertainty in revenue projections. As such, this preliminary revenue forecast serves as a starting point based on methodologies and assumptions that will require further validation against baseline data and continual refinement over the next year as the project proceeds. Continued observation of vehicle fleet and travel trends will inform the level of uncertainty of forecasts.

The mechanisms being evaluated as part of this process include:

- **Fuel Tax**
  - Flat per-gallon excise gas tax
  - Flat per-gallon excise diesel tax
  - Gasoline tax with inflation
  - Diesel tax with inflation
  - Gasoline tax with MPG index
  - Diesel tax with MPG index
  - Sales tax on gasoline
  - Sales tax on diesel
  - Variable-rate tax based on gas price
  - Variable-rate tax based on diesel price
  
- **Vehicle Fees**
  - Basic vehicle registration fee
  - Vehicle value tax
  - Weight-based fee
  - Vehicle fuel efficiency fee
  - Electric vehicle fee
  - Vehicle age fee
  
- **Direct Usage Fees**
  - Mileage-based user fee (light vehicles)
  - Heavy vehicle usage charge
  
- **Indirect Usage Fees**
  - Battery fee
  - Tire fee
  - Electricity tax

- **Externality Taxes**
  - Congestion charge
  - Carbon tax
  
- **Other Fees**
  - Fee on value of trucking costs
  - Delivery fee on tangible goods
  - For-hire transportation fee
  - Street utility fee
  - Payroll tax
  - Land use impact fee

## 2. Primary Data Sources

**Table 1** summarizes the primary data sources used in this preliminary assessment. Most of the data were obtained following a formal data request to ODOT submitted by CDM Smith on March 1, 2022. Other information was available online such as the data reported by the Federal Highway Administration (FHWA), U.S. Energy Information Administration (EIA), or Bloomberg New Energy Finance (BNEF).

**Table 1: Primary Data Sources**

Primary Data Type	Sources
Vehicle Miles Traveled (VMT)	FHWA Highway Performance Monitoring System (HPMS) ODOT Planning Division
Vehicle Registrations	FHWA HPMS Ohio Bureau of Motor Vehicles (BMV) ODOT Citizen's Guide to Transportation Funding
Gas Tax	Ohio Department of Taxation
Fuel Efficiency	Ohio BMV U.S. Energy Information Administration (EIA)
Vehicle Fleet Electrification	ODOT's Alternative Fuel Vehicle dashboard Bloomberg New Energy Finance (BNEF)
Fuel Prices	EIA
Existing Revenues	ODOT

## 3. Ohio's Vehicle Fleet Composition

An important source of information used in this analysis is the vehicle registry dataset provided by the Ohio BMV. Many of the revenue mechanisms studied are related to the characteristics of the vehicle fleet in Ohio, such as vehicle age, value, fuel efficiency, engine

type or weight. The BMV dataset provided a snapshot of the entire fleet of vehicles registered in Ohio as of March 2022.

The dataset was made available to the CDM Smith team on March 30, 2022. The Vehicle Identification Number (VIN) encodes information on the vehicle’s manufacturer, brand, engine size and type, model year, and other characteristics.

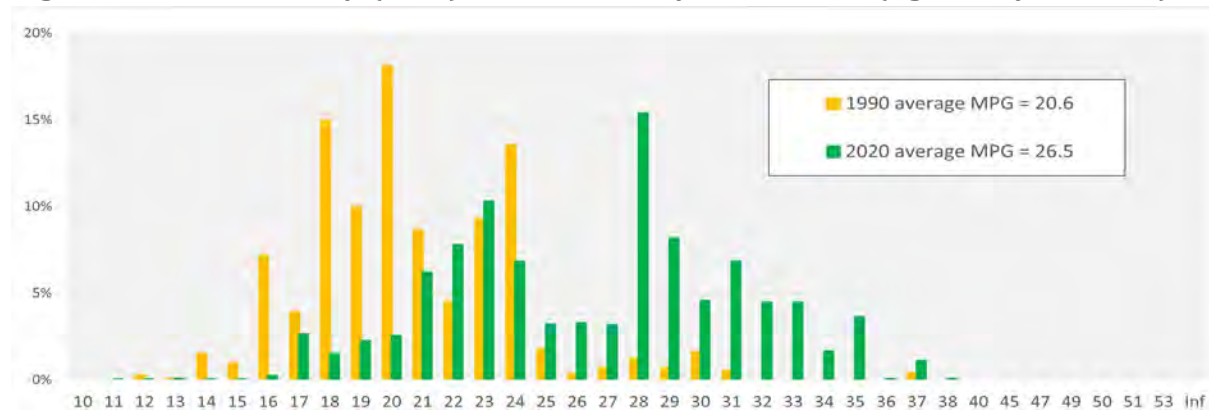
CDM Smith performed VIN decoding on this dataset to extract the specific data relevant for revenue analysis. U.S. Environmental Protection Agency (EPA) fuel economy ratings are not directly available through the VIN; in this case, CDM Smith applied an in-house process to determine fuel economy based on decoded VIN data. The decoding process was applied to a total of 11.4 million passenger light-duty vehicles (10,000 pounds or less). It is assumed that light-duty vehicles use gasoline while heavy-duty vehicles use diesel.

The BMV data were used to develop a snapshot of Ohio’s light-duty vehicle fleet composition by:

- model year
- vehicle value (manufacturer's suggested retail price, or MSRP)
- vehicle curb weight
- miles per gallon (MPG) ratings

**Figure 1** illustrates the fuel economy distribution of Ohio’s light-duty vehicle fleet by model year (only model years 1990 and 2020 are shown here). On average, light-duty vehicles have a fuel economy of 23.7 miles per gallon, which is comparable to the national average of 24.2 MPG.<sup>1</sup> The figure illustrates how the distribution of fuel economy across the fleet has improved over the last three decades, with the curve shifting toward the right and the average moving from 20.6 MPG to 26.5 MPG.

**Figure 1: Fuel Efficiency (MPG) Distribution by Model Year (light-duty vehicles)**



Source: BMV, CDM Smith analysis

<sup>1</sup> Average US car fuel efficiency according to US Department of Energy (<https://afdc.energy.gov/data/10310>)



## 4. Ohio Statewide VMT Projections

Distance traveled by vehicles in Ohio, measured in VMT (vehicle miles traveled), is another important element of the analysis. Costs of maintaining and improving Ohio's state roadway system are a function of, in part, VMT. In addition, the revenue mechanisms that fall in the direct usage fee category are proportional to roadway usage.

Some historical data on statewide VMT is available through FHWA publications. For 2020, the source used is the FHWA *Highway Statistics 2020 Series* available at:

<https://www.fhwa.dot.gov/policyinformation/statistics/2020/>

More specifically, the VMT data reported for the state of Ohio came from the following tables:

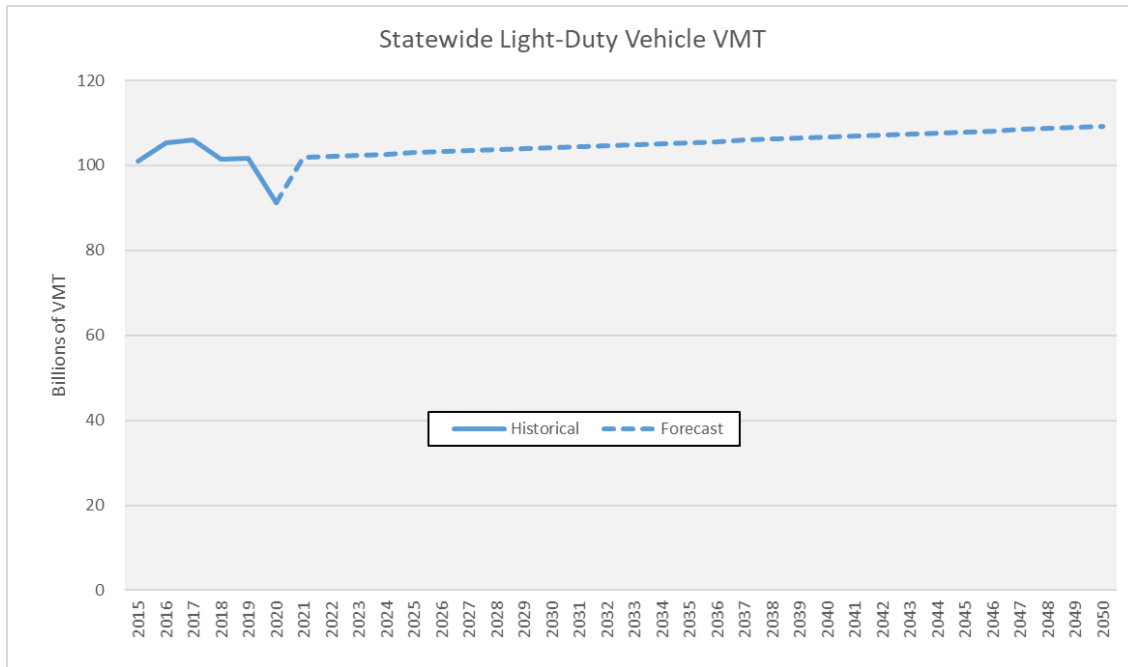
- **Table VM-2** Annual Vehicle Miles by State - 2020  
<https://www.fhwa.dot.gov/policyinformation/statistics/2020/vm2.cfm>
- **Table VM-4** Distribution of VMT by Vehicle Type (by State) - 2020  
<https://www.fhwa.dot.gov/policyinformation/statistics/2020/vm4.cfm>

Similar data were gathered for the years 2015-2019 through the relevant annual statistics series, providing a historical VMT trend for the period preceding the COVID-19 pandemic. Note that at the time this analysis was prepared, no VMT data was available for 2021 in Ohio.

Overall VMT is broken down between light-duty vehicles (10,000 pounds or less) and heavy-duty vehicles (greater than 10,000 pounds) for the purposes of this analysis.

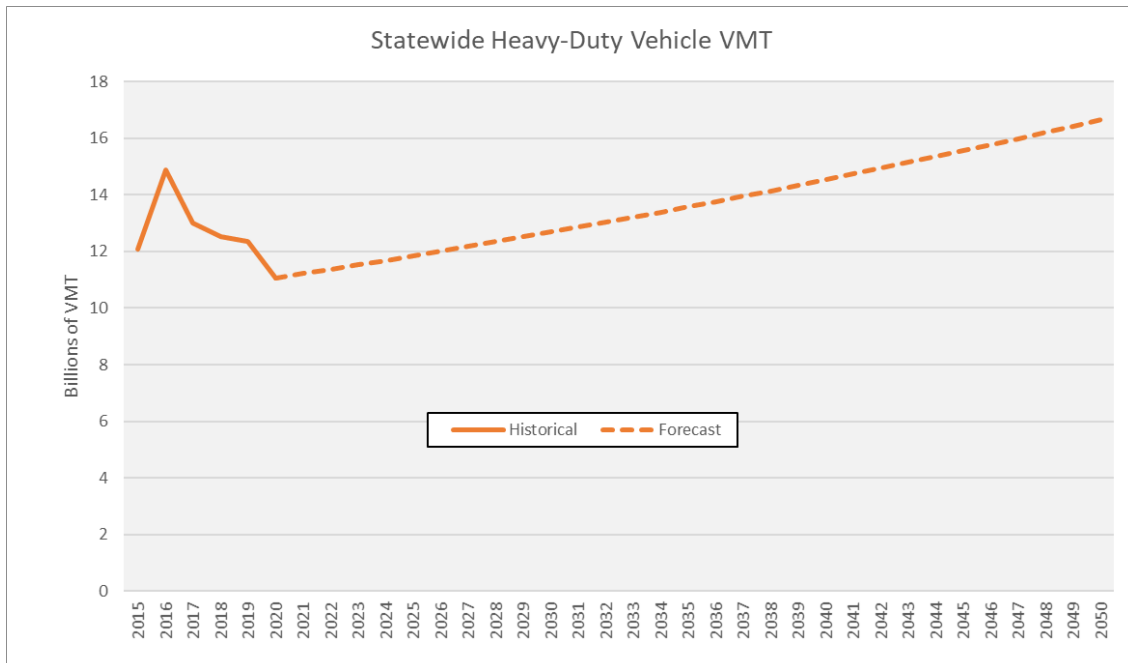
Starting in 2021, the forecasted values for light-duty VMT are based on pre-pandemic trends (2015-2019) since 2020 was highly affected by the travel restrictions due to the pandemic. In absence of reported 2021 VMT data specific to Ohio, it was assumed that 2021 light-duty VMT would be 0.24% higher than 2019's level. The statewide light-duty VMT is expected to continue to grow by 0.24% annually starting in 2022. **Figure 2** illustrates the historical and projected statewide light-duty VMT trend.

**Figure 2: Statewide Light-Duty Vehicle VMT**



Similarly, forecasted heavy-duty VMT is based on the historical trend over the period 2015-2019. When considering the period from 2015 to 2019, the trend is a 1.37% annual growth. The growth occurred from 2015 to 2016. The statewide heavy-duty VMT is expected to continue to grow by 1.37% annually starting in 2022. **Figure 3** illustrates the historical and projected statewide heavy-duty VMT trends.

**Figure 3: Statewide Heavy-Duty Vehicle VMT**



Heavy-duty vehicle VMT are expected to outpace light-duty VMT for several reasons. Ohio's population has been and is expected to continue to grow at a relatively modest pace. By contrast, Ohio is a major corridor for interstate freight traffic, including pass-through traffic and traffic originating in Ohio to carry manufacturing and agricultural products to other states. With high expected growth in goods traffic nationally, Ohio's heavy-duty VMT will outpace passenger car VMT. When combining the light-duty and heavy-duty vehicle VMT, the overall annual growth rate is 0.35 to 0.38%. This produces a forecasted statewide VMT of 125.8 billion in 2050.

This value was compared to a forecasted statewide VMT communicated by ODOT's Office of Statewide Planning and Research. ODOT's estimated value is 332,253 daily VMT in 2050, or 121.3 billion annually. The difference between the two methods is only 4 percent, which is considered acceptable given the level of uncertainty associated with VMT forecasting.

## 5. ODOT Cost of Construction

ODOT's Construction Division measures a construction cost index that includes prices of the following: labor; trucking costs; contractor and supplier margins; oil, diesel and natural gas; liquid asphalt; steel; ready mix concrete; aggregate.

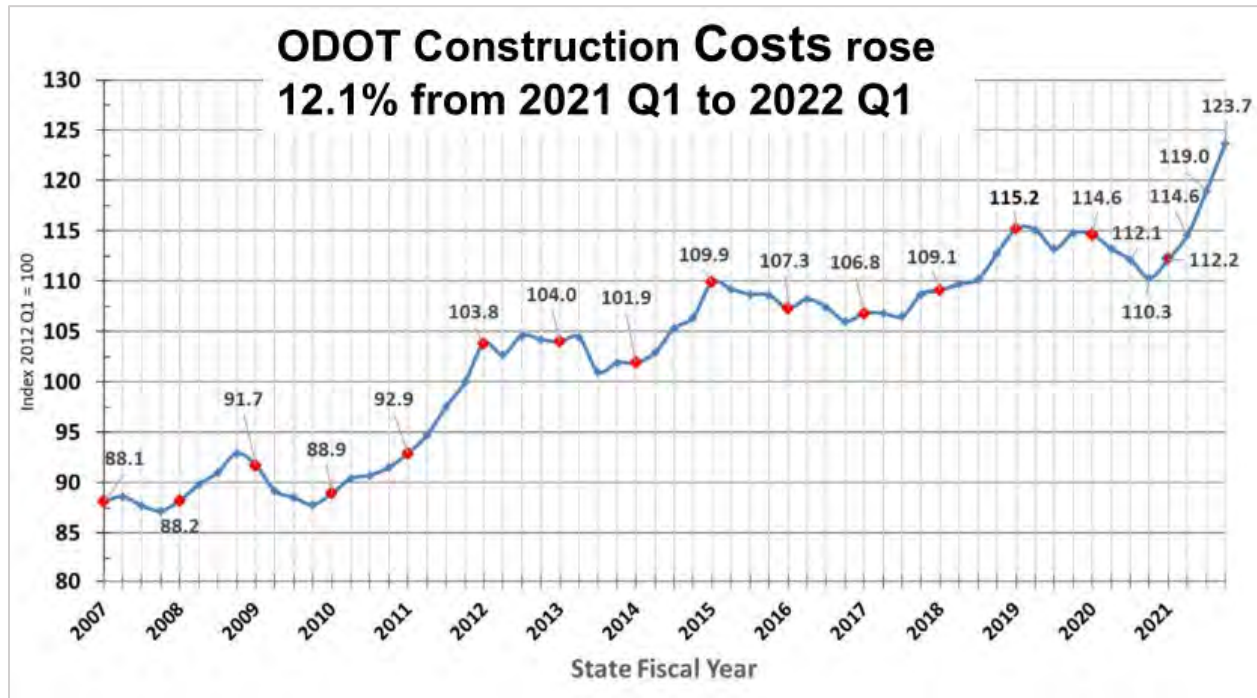
**Figure 4** shows how this construction cost index has evolved since 2007, using an index of 100 in 2012 Q1. Over the period 2007 Q1 through 2022 Q1, the index increased by 40 percent from 88.1 to 123.7.

Over the last year (comparing 2022 Q1 to 2021 Q1), the construction cost index increased by 12.1 percent. Year-over-year increases in asphalt, steel, and structures are the most significant factors that raised overall inflation in CY2021. The COVID-19 pandemic affected all aspects of construction in 2021 and is expected to continue affecting construction costs through 2022.

As of January 2022, ODOT predicted construction cost inflation to be 8% in CY2022. Inflation is expected to be 3.7% in CY2023; 2.5% in CY2024; 3.2% in CY2025; and 3.5% in CY2026. From CY2027 through CY2031 inflation is forecast to be 3.0%, based upon average rates over 30 to 60 years as measured by the GDP deflator and the Consumer Price Index (CPI). The long-term forecast beyond CY2031 is 2.0%, based on the Federal Reserve's long run inflation target rate.

The following is a narrative of major factors that will have an influence on construction costs through the forecast period: (1) economic activities globally, nationally, and throughout the state and (2) regional construction costs for labor, oil and diesel, liquid asphalt, and steel, among others (Source: ODOT, January 2022 Construction Cost Outlook and Forecast).

Figure 4: ODOT Construction Cost Index (2007-2022)



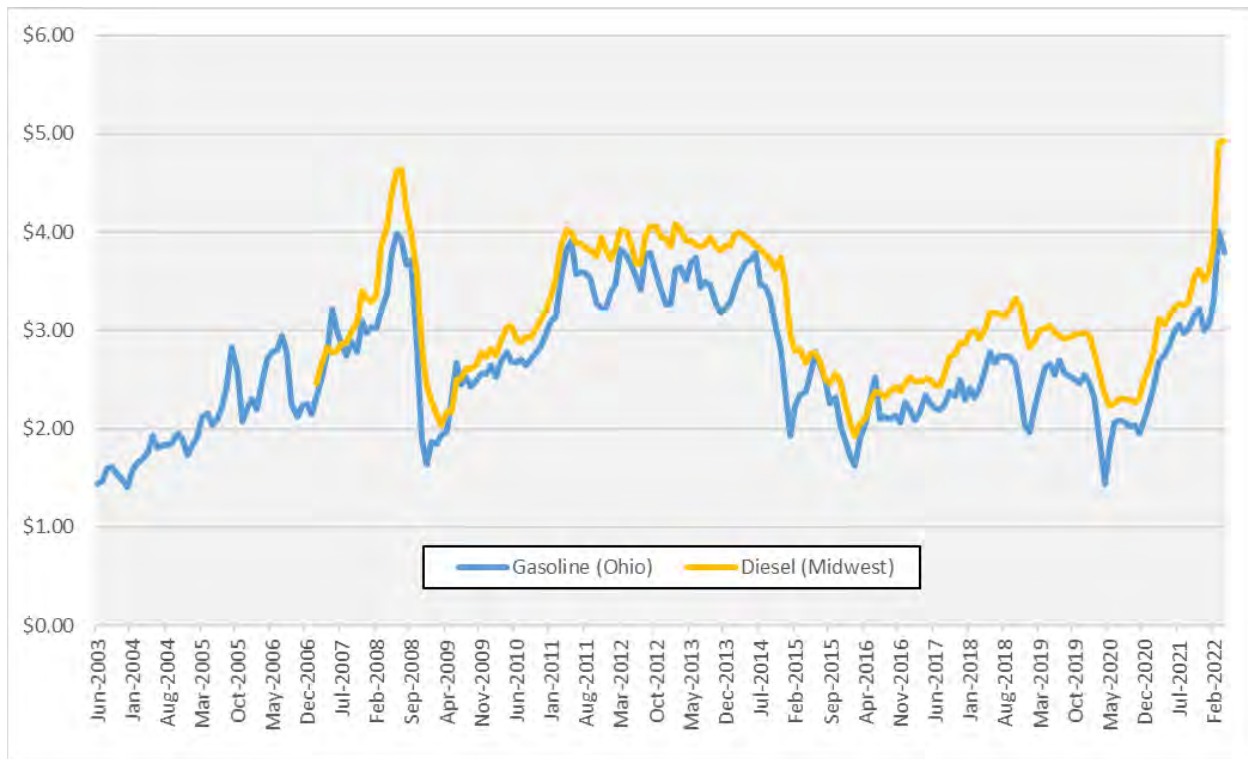
Source: ODOT Construction Division

## 6. Fuel Prices

Historical fuel prices as reported by EIA are shown on **Figure 5**. For gasoline, the price is the average monthly retail price of regular gasoline in Ohio between June 2003 and April 2022. For diesel, the price is the average monthly retail price of ultra-low sulfur diesel in the Midwest between February 2007 and April 2022.

Over the period, 2019 through 2021, the average gasoline price was \$2.46 and the average diesel price was \$2.87.

**Figure 5: Average Monthly Retail Price of Gasoline and Diesel**



Source: EIA

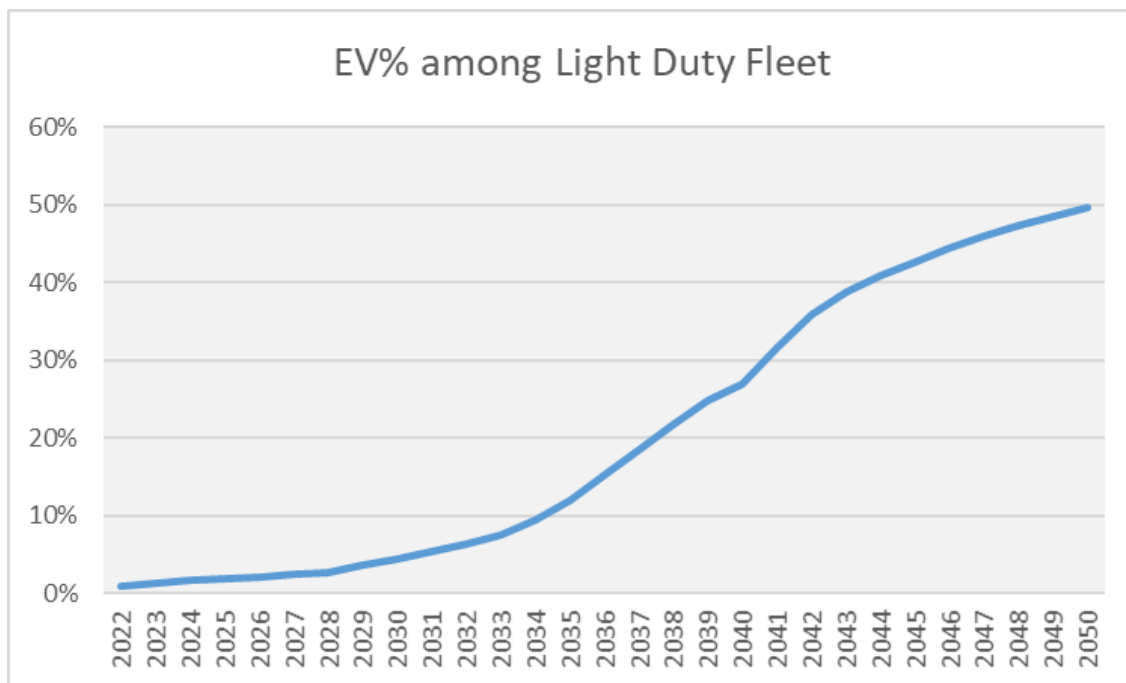
## 7. Vehicle Fleet Electrification

The number of electric vehicles in operation in Ohio is another important component of future revenue analysis.

DriveOhio is an initiative of ODOT, who worked with the Ohio BMV to develop an alternative fuel vehicle (AFV) registration dashboard to track the latest trends in alternative fuel vehicles across Ohio. The current number of electric vehicles was obtained through the AFV dashboard.

The Electric Vehicle Outlook is BNEF's annual long-term publication looking at how electrification, shared mobility and autonomous driving will impact road transport from now out to 2050. CDM Smith used the BNEF projections to forecast the share of light-duty vehicles that will be electric each year, with the short-term years adjusted to fit the current number of reported electric vehicles in the fleet. **Figure 6** depicts the BNEF projections, showing that half of the light-duty vehicle fleet in operation will be electric by 2050.

**Figure 6: Share of Electric Vehicles among Light-Duty Fleet**



Source: Bloomberg New Energy Finance (BNEF)

## 8. Revenue Generating Capacity of Transportation Funding Mechanisms

The revenue generating capacity of existing and alternative transportation funding mechanism was evaluated using two criteria: revenue potential and financial sustainability. Revenue potential measures the relative ability of a mechanism to generate sufficient revenue to fund Ohio’s transportation needs at any given time. By contrast, financial sustainability measures the relative ability of a mechanism to keep pace with needs over long periods of time.

### Revenue Potential

To measure the revenue potential of each mechanism, a methodology was developed to estimate the revenue in years 2022 through 2040. For revenue sources already in place in Ohio (for instance the gas tax, vehicle registration fees, EV registration surcharge), current tax rates/fees were assumed to remain in place. For new mechanisms, a tax rate or fee level deemed reasonable was applied, whenever possible based on experience from other states. Revenue calculation formulas, as well as assumptions used, are documented in the rest of this memo (one page for each revenue mechanism). The reported revenue potential in 2025 and 2040 is summarized in **Table 2**.

Table 2 also presents the revenue generation potential over the period 2022-2040, measured by the net present value at a 4% discount rate.

## Financial Sustainability

To measure the financial sustainability of each revenue mechanism, the expected revenue stream over time was compared against projected statewide VMT, which represents the roadway usage and serves as a proxy for long-term investment needs. The values of both VMT and expected revenue were indexed to 100 in year 2022, then the trends through 2040 were compared.

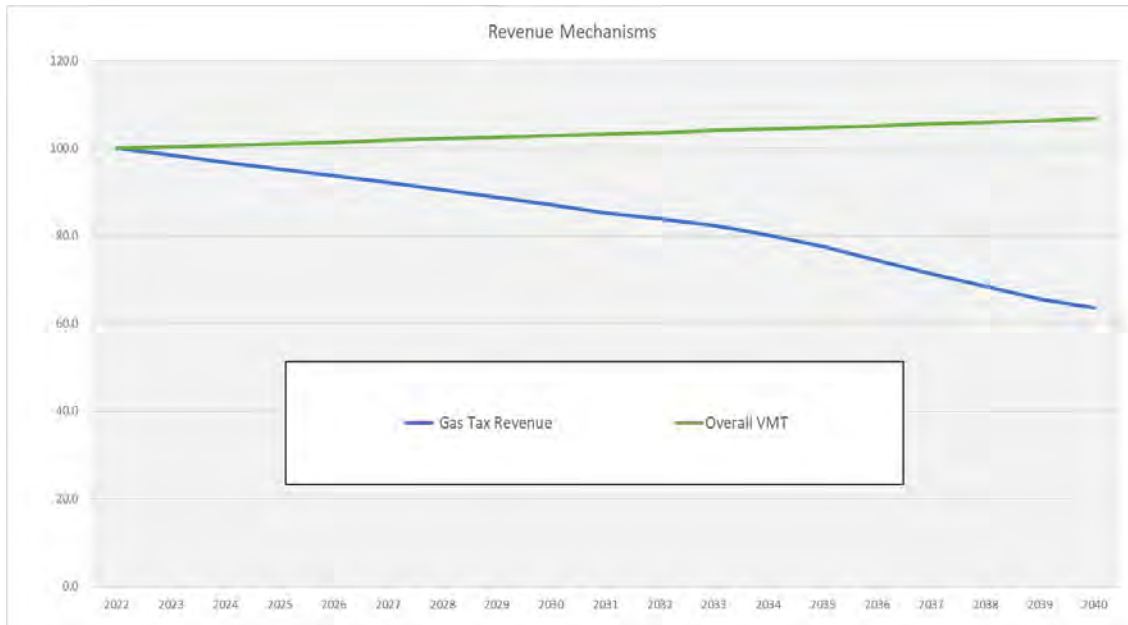
Total statewide VMT (combining light-duty and heavy-duty vehicles) is expected to grow by 6.7% over the time frame 2022-2040. Revenue mechanisms that keep pace with or exceed VMT growth are regarded as “sustainable.” Mechanisms that diverge from VMT are regarded as unsustainable.

**Table 2: Revenue Potential Summary (in millions of dollars)**

Group	Mechanism	2025 Revenue Potential	2040 Revenue Potential	NPV (2022-2040)
Fuel Tax	Flat per-gallon excise gas tax	\$ 1,556	\$ 1,039	\$ 18,507
	Flat per-gallon excise diesel tax	\$ 722	\$ 717	\$ 9,370
	Gasoline tax with inflation	\$ 1,685	\$ 1,513	\$ 21,879
	Diesel tax with inflation	\$ 782	\$ 1,045	\$ 11,216
	Gasoline tax with MPG index	\$ 1,665	\$ 1,273	\$ 20,761
	Diesel tax with MPG index	\$ 759	\$ 931	\$ 10,679
	Sales tax on gasoline	\$ 427	\$ 407	\$ 5,651
	Sales tax on diesel	\$ 190	\$ 278	\$ 2,818
	Variable-rate tax based on gasoline price	\$ 427	\$ 407	\$ 5,651
	Variable-rate tax based diesel price	\$ 190	\$ 278	\$ 2,818
Vehicle Fees	Basic vehicle registration fee	\$ 786	\$ 867	\$ 10,662
	Vehicle value tax	\$ 350	\$ 520	\$ 5,278
	Weight-based fee	\$ 135	\$ 161	\$ 1,881
	Vehicle fuel efficiency fee	\$ 246	\$ 252	\$ 3,403
	Electric vehicle and Hybrid fee	\$ 40	\$ 1,033	\$ 3,565
	Vehicle age fee	\$ 413	\$ 454	\$ 5,661
Direct Usage Fees	MBUF (light vehicles)	\$ 1,674	\$ 1,735	\$ 22,244
	Heavy vehicle usage charge	\$ 759	\$ 931	\$ 10,679
Indirect Usage Fees	Battery fee	\$ 23	\$ 19	\$ 294
	Tire fee	\$ 47	\$ 52	\$ 634
	Electricity tax	\$ 6	\$ 172	\$ 577
Externality Taxes	Congestion charge	\$ 545	\$ 865	\$ 8,421
	Carbon tax	\$ 810	\$ 614	\$ 9,880
Other Fees	Fee on value of trucking costs	\$ 364	\$ 446	\$ 5,114
	Delivery fee on tangible goods	\$ 306	\$ 512	\$ 4,822
	For-hire transportation fee	\$ 23	\$ 38	\$ 358
	Street utility fee	\$ 142	\$ 146	\$ 1,883
	Payroll tax	\$ 339	\$ 523	\$ 5,183
	Land use impact fee	\$ 224	\$ 260	\$ 3,090

## Flat per-gallon excise gas tax

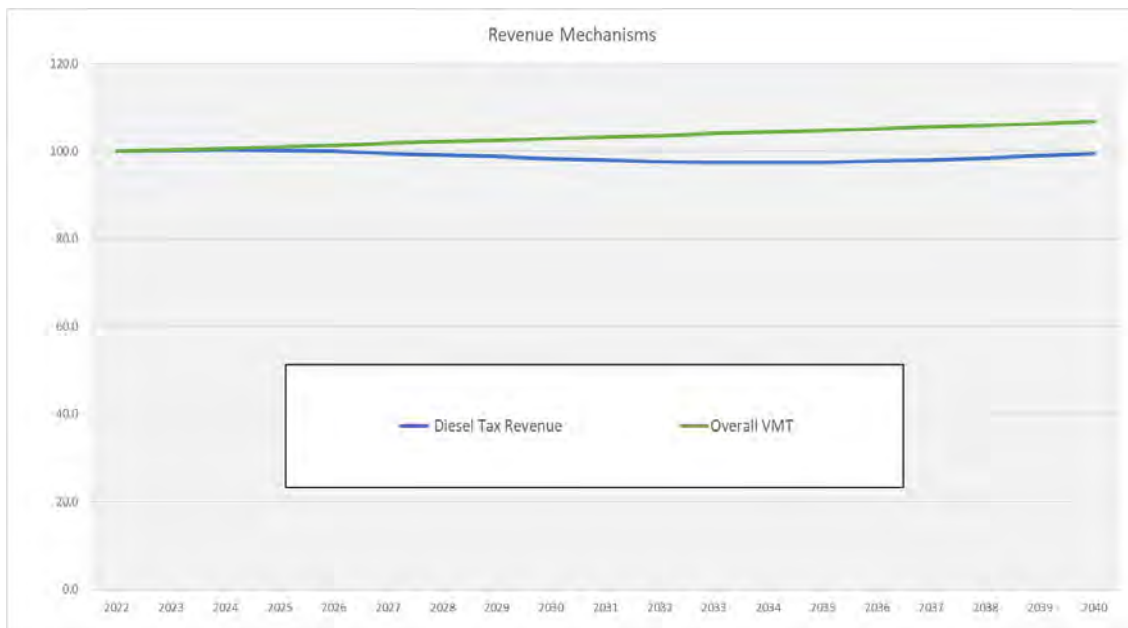
<b>Description</b>	State gas tax at current rate
<b>Revenue formula</b>	Tax rate x Gross taxable gasoline gallons
<b>Key assumptions</b>	Stays at \$0.385 per gallon
<b>Revenue potential</b>	
	<b>2025</b> \$1,556,000,000
	<b>2040</b> \$1,039,000,000
	<b>2022-2040 NPV</b> \$18,507,000,000
<b>Sustainability</b>	Revenue declines relative to roadway usage reaching 43% less in 2040 due to fuel efficiency improvements and increase in electrification





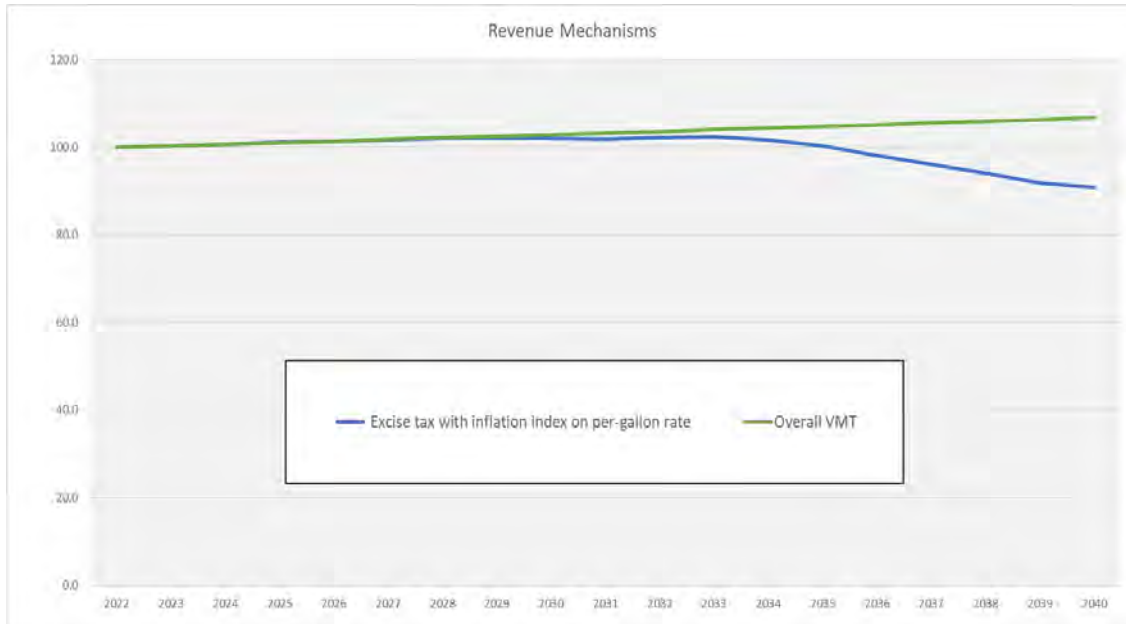
## Flat per-gallon excise diesel tax

<b>Description</b>	State diesel tax at current rate
<b>Revenue formula</b>	Tax rate x Gross taxable diesel gallons
<b>Key assumptions</b>	Stays at \$0.47 per gallon
<b>Revenue potential</b>	
	<b>2025</b> \$722,000,000
	<b>2040</b> \$717,000,000
	<b>2022-2040 NPV</b> \$9,370,000,000
<b>Sustainability</b>	Revenue declines relative to roadway usage until 2034 then increases due to heavy-duty VMT increasing faster than heavy-duty fuel economy



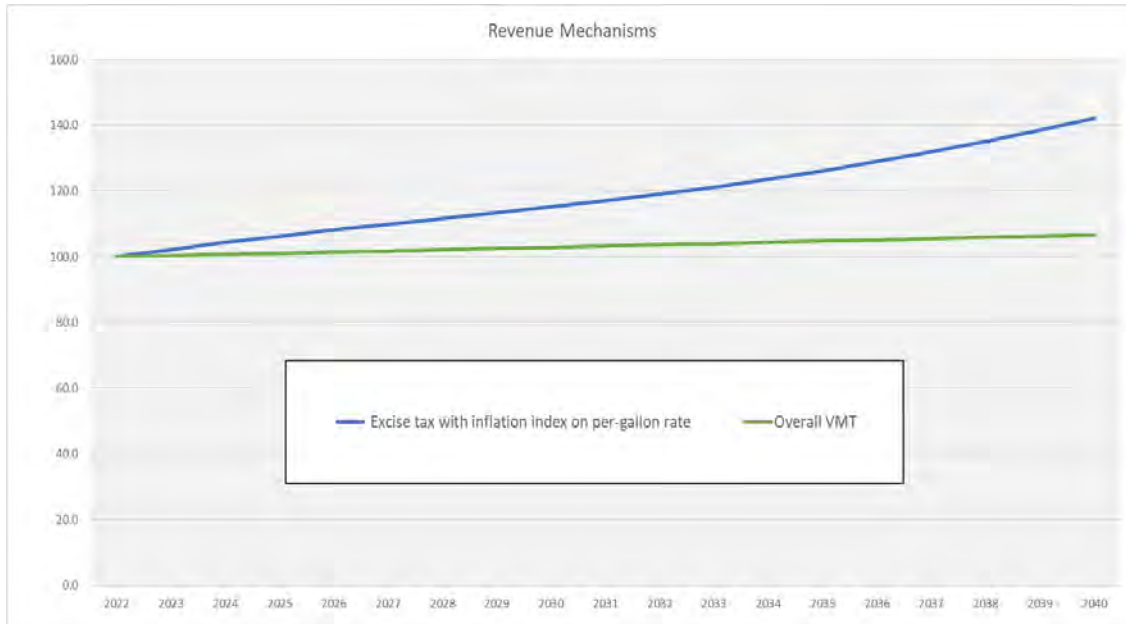
## Excise tax with inflation index on per-gallon gas tax rate

<b>Description</b>	Add inflation index to flat per-gallon gas excise tax rate
<b>Revenue formula</b>	Tax rate x CPI x Gross taxable gasoline gallons
<b>Key assumptions</b>	CPI 2% per year, starting at \$0.385 in 2021
<b>Revenue potential</b>	
<b>2025</b>	\$1,685,000,000
<b>2040</b>	\$1,513,000,000
<b>2022-2040 NPV</b>	\$21,879,000,000
<b>Sustainability</b>	Revenue on pace with roadway usage until 2033, then declines due to fuel economy improvements and increase in electrification



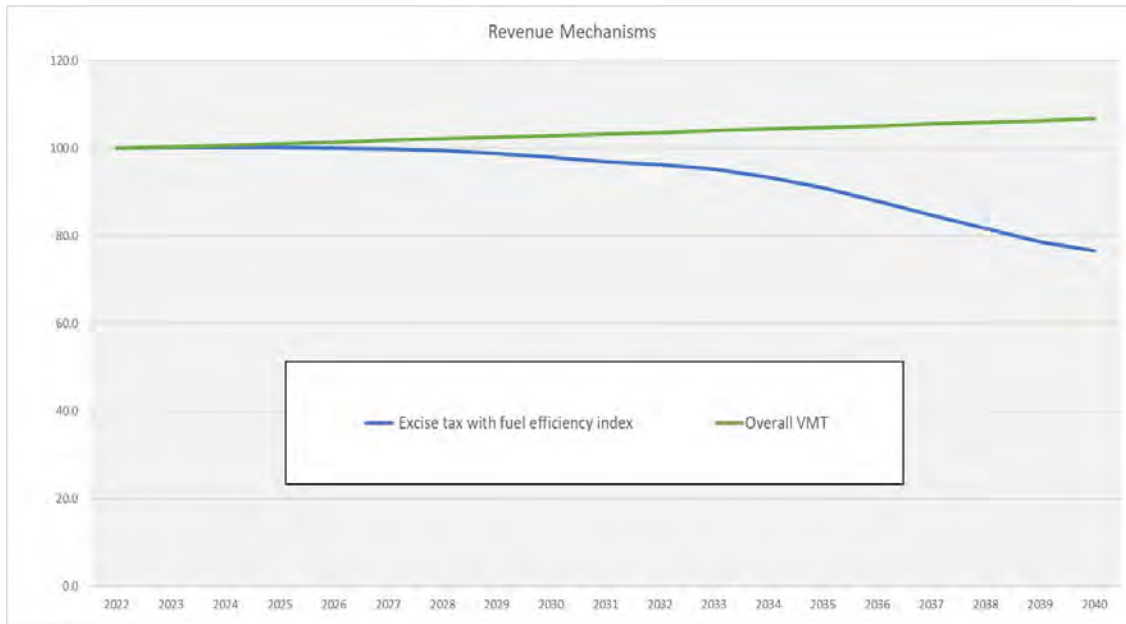
## Excise tax with inflation index on per-gallon diesel tax rate

<b>Description</b>	Add inflation index to flat per-gallon diesel excise tax rate
<b>Revenue formula</b>	Tax rate x CPI x Gross taxable diesel gallons
<b>Key assumptions</b>	CPI 2% per year, starting at \$0.47 in 2021
<b>Revenue potential</b>	
<b>2025</b>	\$782,000,000
<b>2040</b>	\$1,045,000,000
<b>2022-2040 NPV</b>	\$11,216,000,000
<b>Sustainability</b>	Revenue increases faster than roadway usage due to inflation index and truck VMT increase outpacing heavy-duty fuel economy



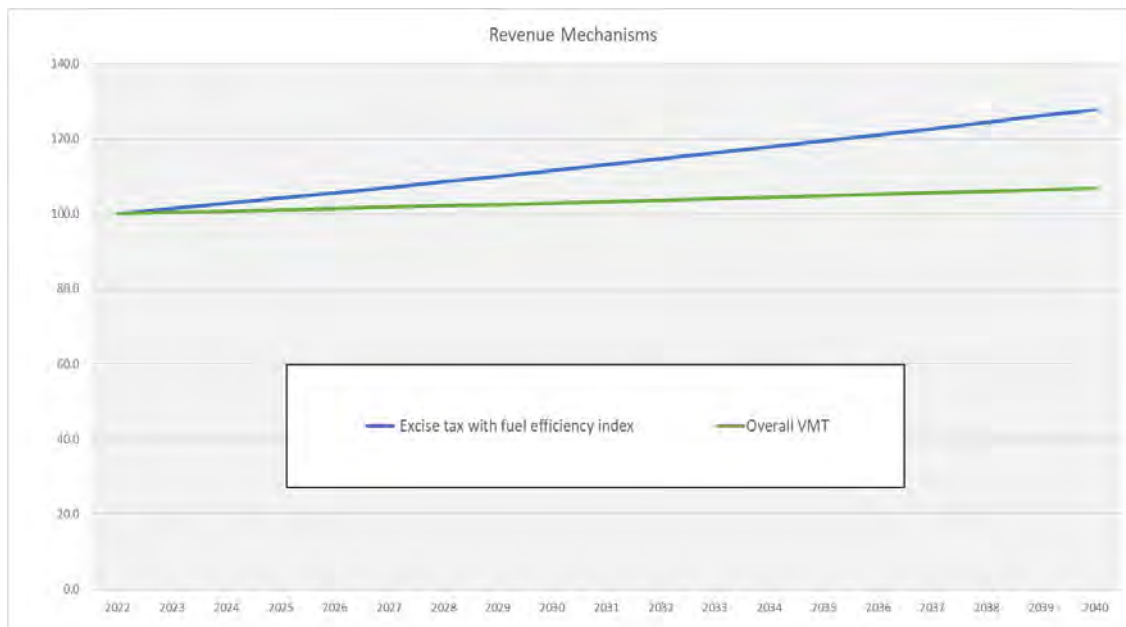
## Excise tax with fuel efficiency index - Gasoline

<b>Description</b>	Add vehicle fuel economy index to flat per-gallon fuel excise tax rate. Gas tax rate would increase at the rate of the light duty fleet MPG increase.
<b>Revenue formula</b>	Excise tax rate x Fleet fuel economy increase from 2021
<b>Key assumptions</b>	Starting 2021, light-duty fuel economy increase index
<b>Revenue potential</b>	<p style="text-align: right;"><b>2025</b> \$1,665,000,000</p> <p style="text-align: right;"><b>2040</b> \$1,273,000,000</p> <p style="text-align: right;"><b>2022-2040 NPV</b> \$20,761,000,000</p>
<b>Sustainability</b>	Revenue declines relative to roadway usage reaching 30% less in 2040 due to increase in electrification



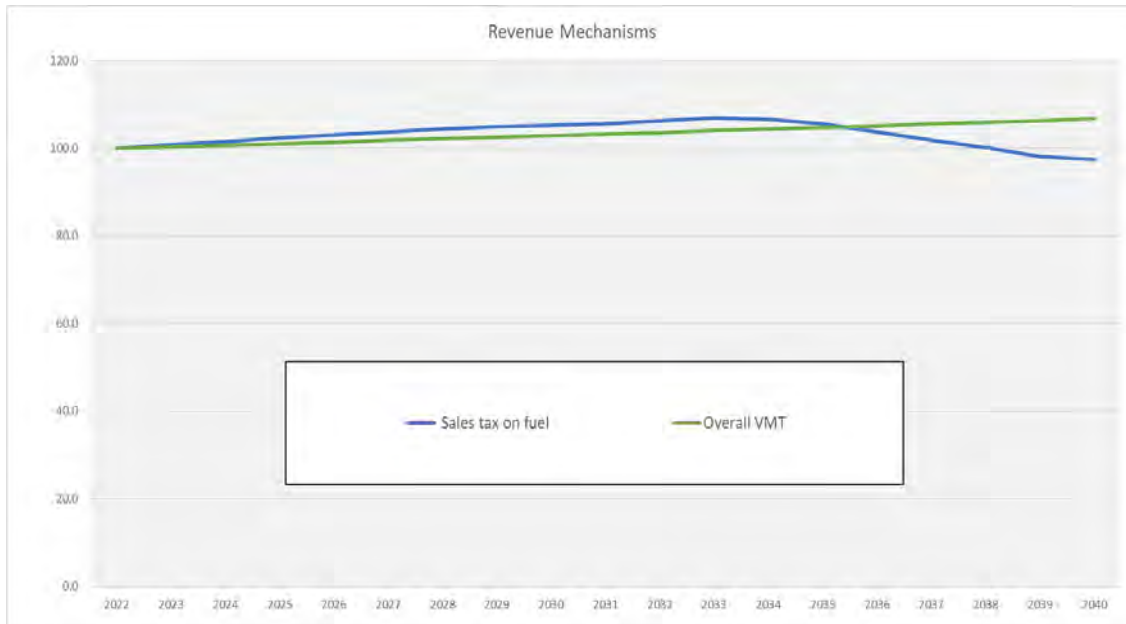
## Excise tax with fuel efficiency index – Diesel

<b>Description</b>	Add vehicle fuel economy index to flat per-gallon diesel excise tax rate
<b>Revenue formula</b>	Excise tax rate x Fleet fuel economy increase from 2021
<b>Key assumptions</b>	Starting 2021, heavy-duty fuel economy increase index
<b>Revenue potential</b>	<p style="text-align: center;"><b>2025</b> \$759,000,000</p> <p style="text-align: center;"><b>2040</b> \$931,000,000</p> <p style="text-align: center;"><b>2022-2040 NPV</b> \$10,679,000,000</p>
<b>Sustainability</b>	Revenue increases relative to roadway usage



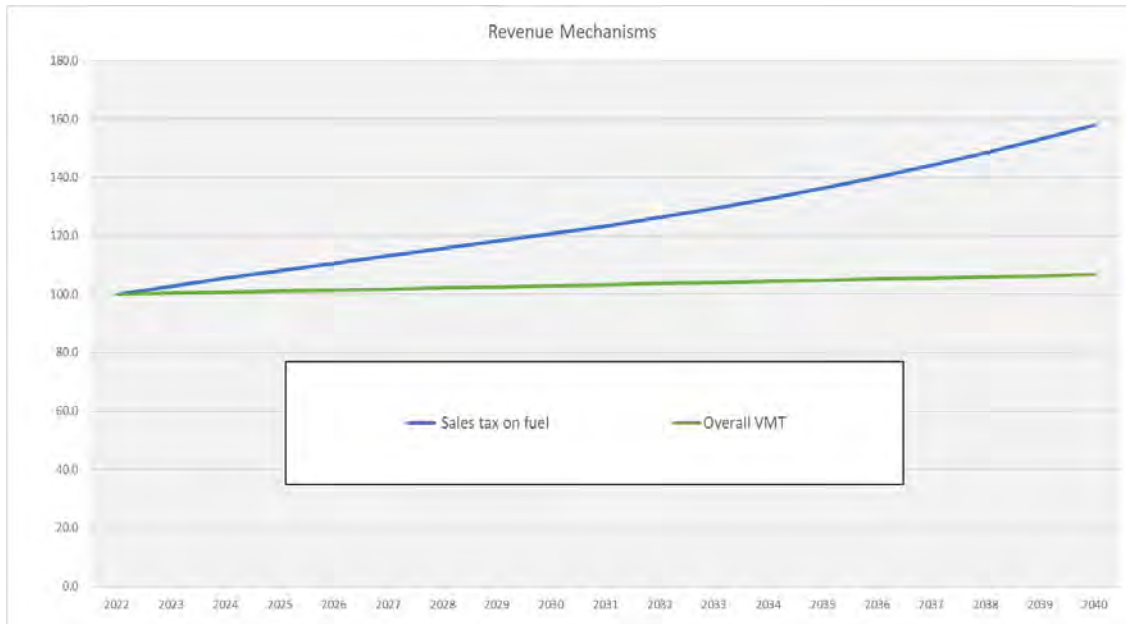
## Sales tax on gasoline price

<b>Description</b>	Add a sales tax at the point of purchase, applied to the spot price of gasoline
<b>Revenue formula</b>	$\% \text{ sales tax} \times \text{Gross taxable gasoline gallons} \times \text{Price of gasoline} \times \text{CPI}$
<b>Key assumptions</b>	<p>4.0 % sales tax</p> <p>\$2.46 average Ohio gasoline price 2019-2021 (source: EIA)</p> <p>2.4% annual growth (source: EIA)</p>
<b>Revenue potential</b>	<p><b>2025</b> \$427,000,000</p> <p><b>2040</b> \$407,000,000</p> <p><b>2022-2040 NPV</b> \$5,651,000,000</p>
<b>Sustainability</b>	Revenue on pace with roadway usage until 2035, then declines reaching 9% less in 2040



## Sales tax on diesel price

<b>Description</b>	Add a sales tax at the point of purchase, applied to the spot price of diesel
<b>Revenue formula</b>	$\% \text{ sales tax} \times \text{Gross taxable diesel gallons} \times \text{Price of diesel} \times \text{CPI}$
<b>Key assumptions</b>	<p>4.0% sales tax</p> <p>\$2.87 average Midwest diesel price 2019-2021 (source: EIA)</p> <p>2.6% annual growth (source: EIA)</p>
<b>Revenue potential</b>	<p><b>2025</b> \$190,000,000</p> <p><b>2040</b> \$278,000,000</p> <p><b>2022-2040 NPV</b> \$2,818,000,000</p>
<b>Sustainability</b>	Revenue increases relative to roadway usage



## Variable-rate tax based on the price of gasoline

**Description** Add variable-rate excise tax based on the price of gasoline. The tax rate is set periodically, for example yearly, based on the average price of gas over the preceding year or the expected average price over the coming year (note: this mechanism differs from a sales tax by “smoothing” short-term changes in fuel prices, but over the long term for forecasting purposes generates identical revenue)

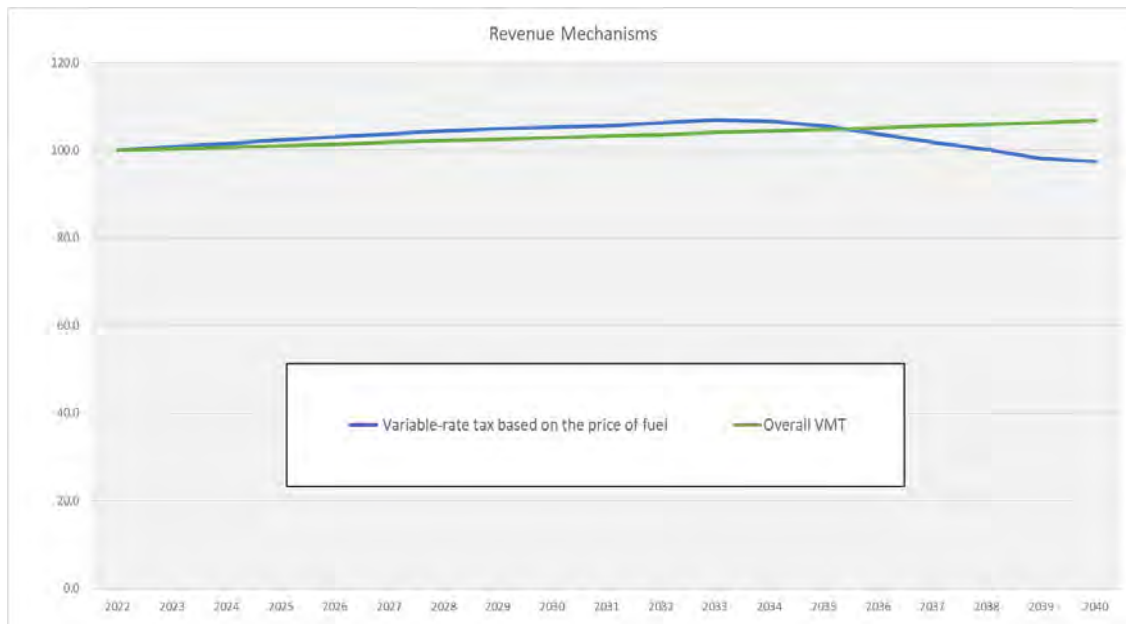
**Revenue formula**  $\% \text{ tax rate} \times \text{Gross taxable gasoline gallons} \times \text{Price of gasoline} \times \text{CPI}$

**Key assumptions** 4.0 % tax rate  
 \$2.46 average Ohio gasoline price 2019-2021 (source: EIA)  
 2.4% annual growth (source: EIA)

**Revenue potential**

<b>2025</b>	\$427,000,000
<b>2040</b>	\$407,000,000
<b>2022-2040 NPV</b>	\$5,651,000,000

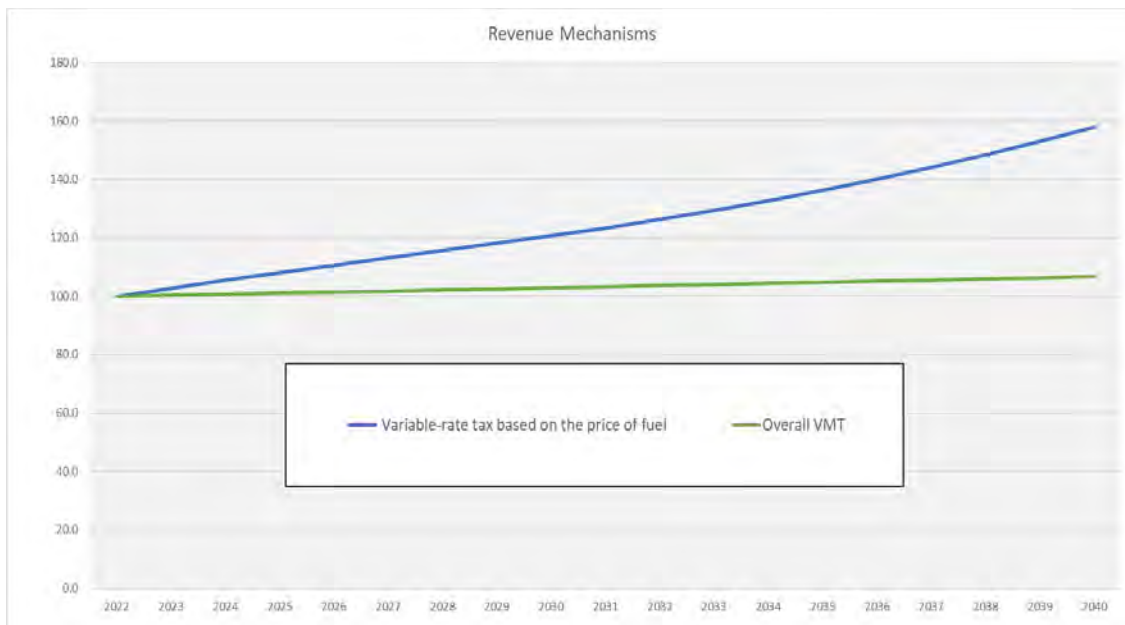
**Sustainability** Revenue on pace with roadway usage until 2035, then declines reaching 9% less in 2040





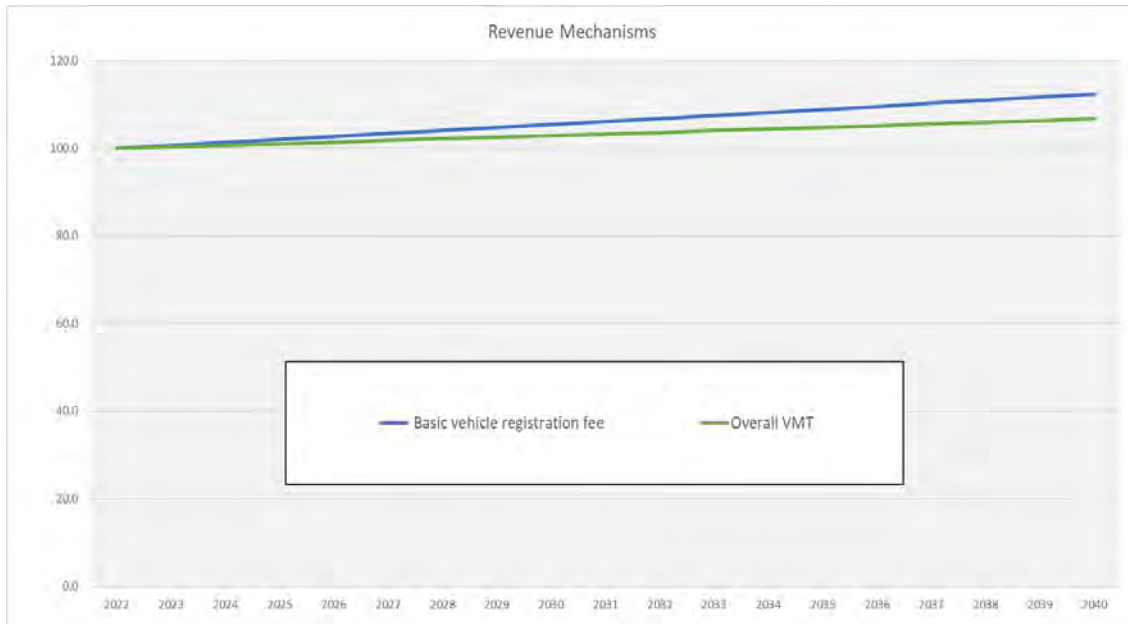
## Variable-rate tax based on the price of diesel

<b>Description</b>	Add variable-rate excise tax based on the price of diesel. The tax rate is set periodically, for example yearly, based on the average price of diesel over the preceding year or the expected average price over the coming year
<b>Revenue formula</b>	$\% \text{ tax rate} \times \text{Gross taxable diesel gallons} \times \text{Price of diesel} \times \text{CPI}$
<b>Key assumptions</b>	<p>4.0% sales tax</p> <p>\$2.87 average Midwest diesel price 2019-2021 (source: EIA)</p> <p>2.6% annual growth (source: EIA)</p>
<b>Revenue potential</b>	<p style="text-align: right;"><b>2025</b> \$190,000,000</p> <p style="text-align: right;"><b>2040</b> \$278,000,000</p> <p style="text-align: right;"><b>2022-2040 NPV</b> \$2,818,000,000</p>
<b>Sustainability</b>	Revenue increases relative to roadway usage



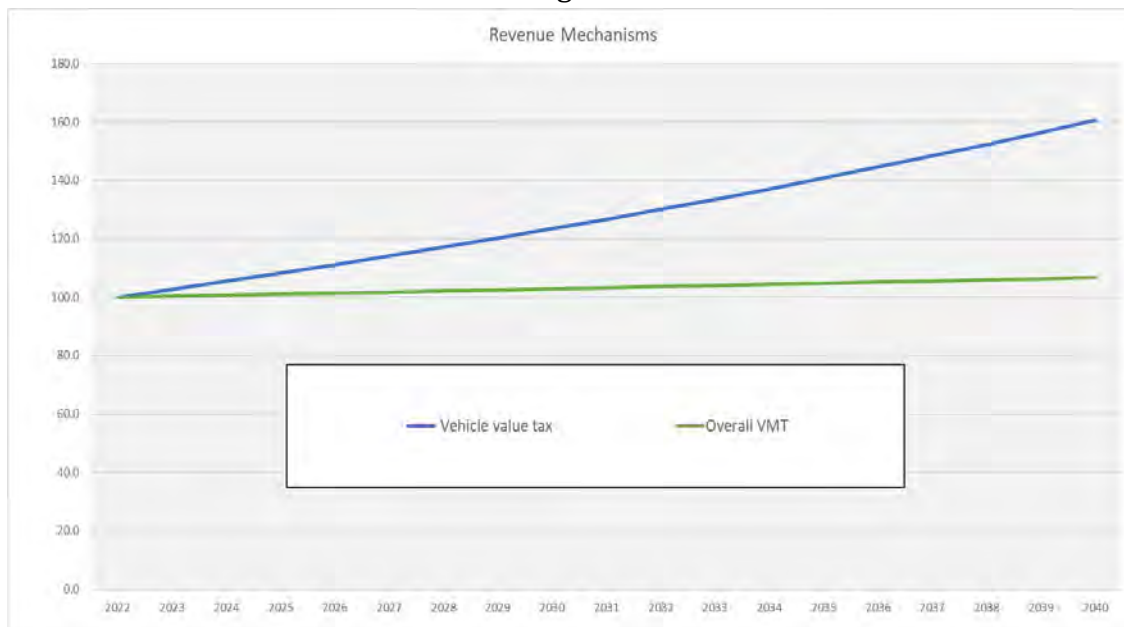
## Basic vehicle registration fees

<b>Description</b>	Basic vehicle registration fees for passenger vehicles and light duty trucks
<b>Revenue formula</b>	FY2020 revenue x vehicle fleet expected growth
<b>Key assumptions</b>	<p>\$766 M in 2021 (ODOT's Transportation Funding Guide)</p> <p>11.4M vehicles in 2021 (BMV dataset)</p> <p>0.7% annual growth based on 2016-2019 trend (HPMS)</p>
<b>Revenue potential</b>	
<b>2025</b>	\$786,000,000
<b>2040</b>	\$867,000,000
<b>2022-2040 NPV</b>	\$10,662,000,000
<b>Sustainability</b>	Revenue increases relative to roadway usage, reaching 6% higher in 2040



## Vehicle value tax

<b>Description</b>	Tax based on the depreciated value of the vehicles, applied to passenger cars and light duty trucks
<b>Revenue formula</b>	Tax rate x Light duty vehicles x Average light duty vehicle value
<b>Key assumptions</b>	0.20% tax rate \$13,800 average depreciated vehicle value in 2021 (BMV dataset) 2% CPI
<b>Revenue potential</b>	
<b>2025</b>	\$350,000,000
<b>2040</b>	\$520,000,000
<b>2022-2040 NPV</b>	\$5,278,000,000
<b>Sustainability</b>	Revenue increases relative to roadway usage due to average vehicle value increasing

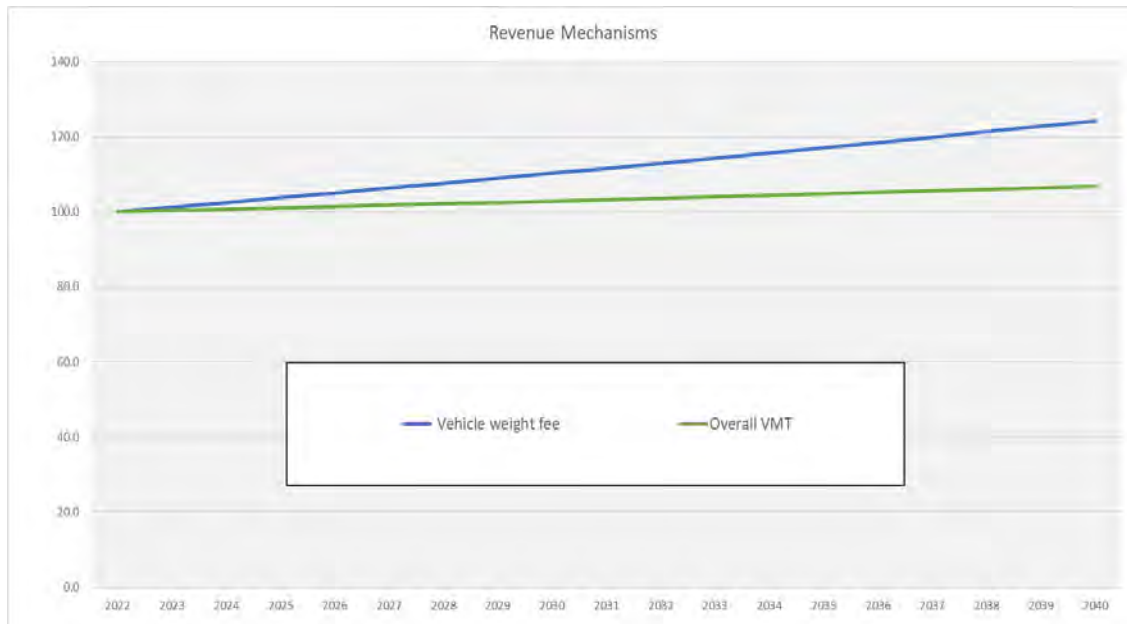


### Note about relationship between vehicle value tax and Ohio's real property tax

A vehicle value tax is a form of personal property tax. Some local transportation funding often comes from other property taxes, typically taxes on real property at the local level. In Ohio, real property taxes are the oldest tax, assessed and collected by counties, with rates set by counties, municipalities, school districts, and other local jurisdictions. The state plays a role in ensuring uniformity across jurisdictions for rate setting and administration, but all revenue collected remain in local jurisdictions. Assessing a statewide real property tax would be a departure from long-standing practice; however, local governments can dedicate revenue from property taxes to transportation-related expenditures at the local level.

## Weight-based fee

<b>Description</b>	Add fee based on vehicle weight, applied to passenger cars and light duty trucks. Heavier vehicles pay higher registration fees.
<b>Revenue formula</b>	Fee x Number of vehicles (in each bracket)
<b>Key assumptions</b>	<p>Fee by weight class (2 brackets)</p> <p>\$10 for less than 6k lbs</p> <p>\$20 for 6-10k lbs</p> <p>2021 vehicles in each bracket based on BMV dataset</p> <p>Future projections based on historical trends (BMV). Shift towards heavier vehicles is expected since EVs are significantly heavier than internal combustion engine vehicles</p>
<b>Revenue potential</b>	<p><b>2025</b> \$135,000,000</p> <p><b>2040</b> \$161,000,000</p> <p><b>2022-2040 NPV</b> \$1,881,000,000</p>
<b>Sustainability</b>	Revenue increases relative to roadway usage due to vehicle weight increasing



## Vehicle fuel efficiency fee

**Description** Add fee based on vehicle fuel economy rating, applied only to internal combustion engine passenger cars and light duty trucks. Higher tax rate on vehicles with a higher EPA-rated MPG

**Revenue formula** Fee x Number of vehicles (in each bracket)

**Key assumptions** Fee by MPG class - 5 brackets

Less than 20 MPG: \$10

20-30 MPG: \$20

30-40 MPG: \$30

40-50 MPG: \$40

50+ MPG: \$50

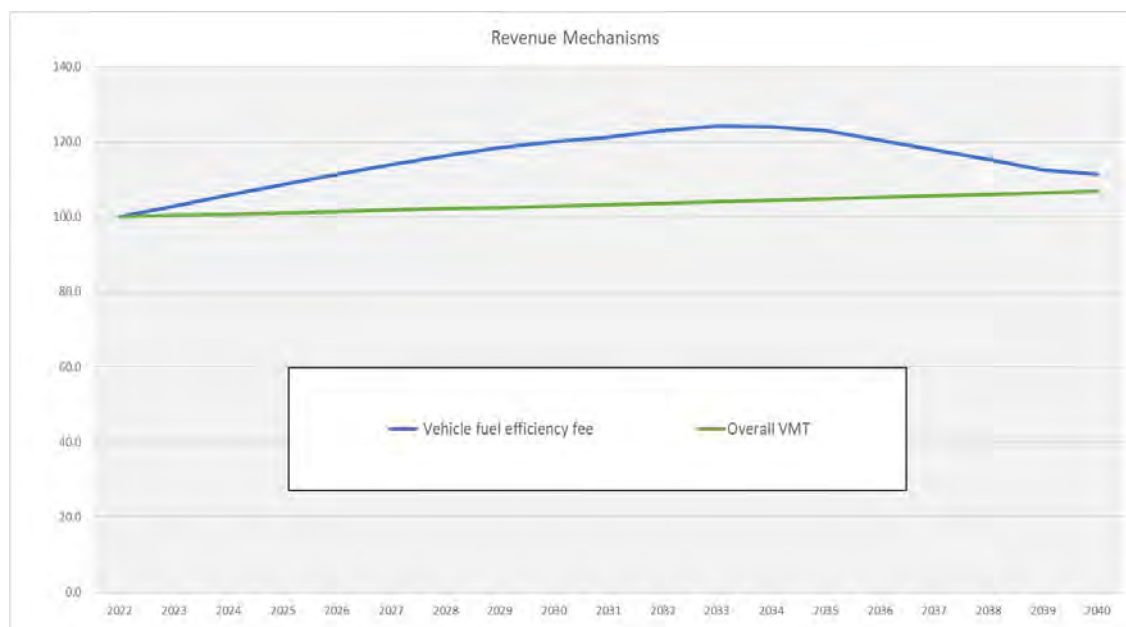
### Revenue potential

**2025** \$246,000,000

**2040** \$252,000,000

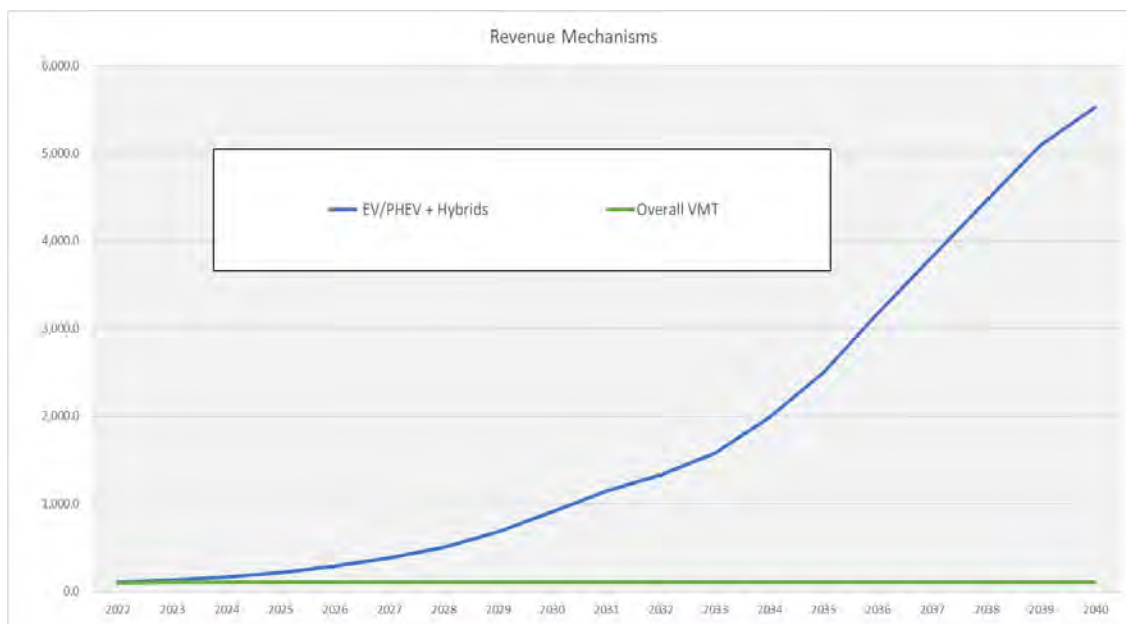
**2022-2040 NPV** \$3,403,000,000

**Sustainability** Revenue declines after 2033 due to declining numbers of internal combustion engine vehicles. Continues to be higher than VMT increase by 2050.



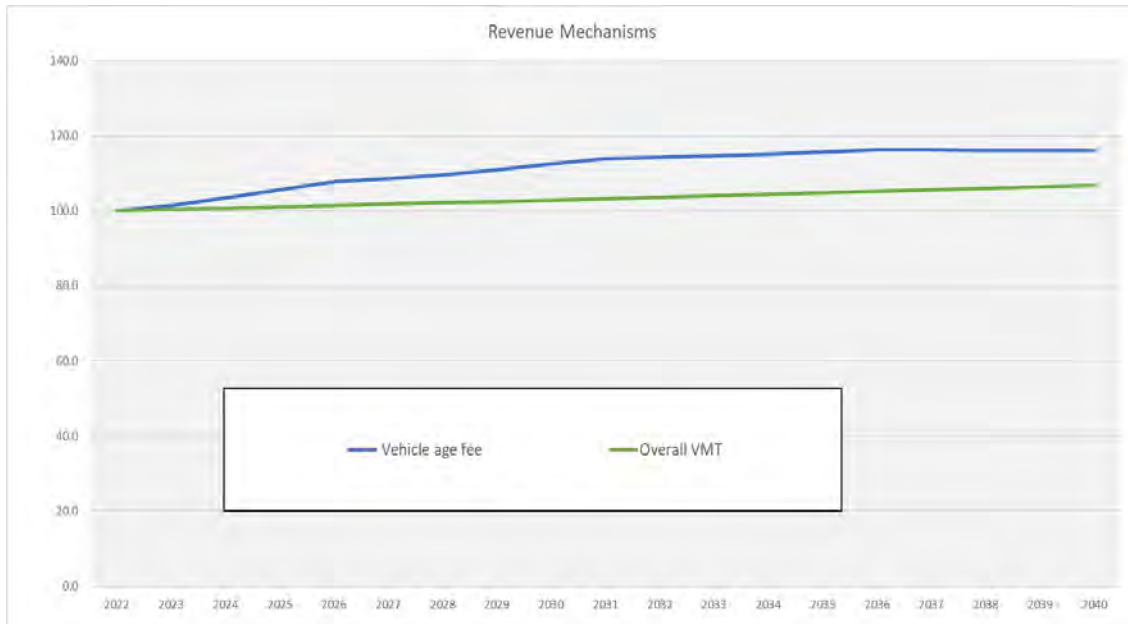
## EV/PHEV and Hybrid fee

<b>Description</b>	Annual registration surcharge on electric and hybrid vehicles
<b>Revenue formula</b>	Surcharge x Number of EV/PHEVs + Surcharge x Number of Hybrids
<b>Key assumptions</b>	<p>\$200 surcharge for EV/PHEV</p> <p>\$100 surcharge for hybrids</p> <p>32,300 EV/PHEV in Ohio in 2021</p> <p>96,700 hybrids in 2021</p> <p>Future trends based off BNEF projections for EVs (50% of light duty electric in 2050) and EIA projections of hybrids vs EVs</p>
<b>Revenue potential</b>	<p style="text-align: right;"><b>2025</b> \$40,000,000</p> <p style="text-align: right;"><b>2040</b> \$1,033,000,000</p> <p style="text-align: right;"><b>2022-2040 NPV</b> \$3,565,000,000</p>
<b>Sustainability</b>	Revenue increases much faster than roadway usage due to fleet electrification



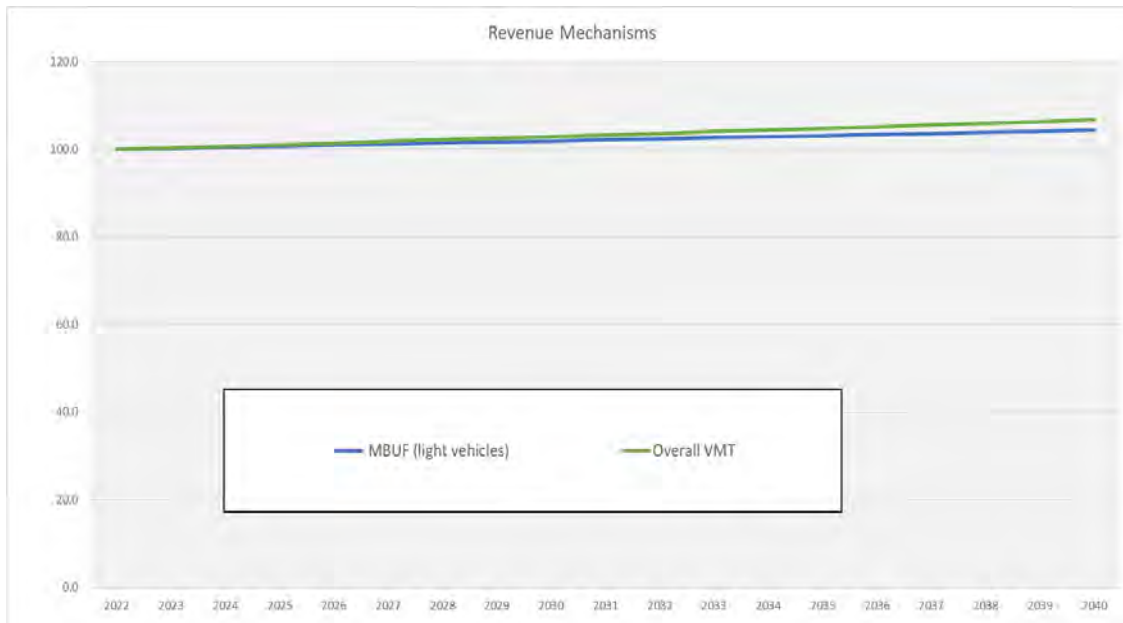
## Vehicle age fee

<b>Description</b>	Age-based registration fee involves creating a schedule of fees that varies by vehicle age, with older vehicles paying less than newer vehicles						
<b>Revenue formula</b>	Fee x Number of vehicles (in each bracket)						
<b>Key assumptions</b>	Fee by age class - 5 brackets \$10 for 20+ years old \$20 for 15-20 years old \$30 for 10-15 years old \$40 for 5-10 years old \$50 for less than 5 years old						
<b>Revenue potential</b>	<table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;"><b>2025</b></td> <td>\$413,000,000</td> </tr> <tr> <td style="text-align: right;"><b>2040</b></td> <td>\$454,000,000</td> </tr> <tr> <td style="text-align: right;"><b>2022-2040 NPV</b></td> <td>\$5,661,000,000</td> </tr> </table>	<b>2025</b>	\$413,000,000	<b>2040</b>	\$454,000,000	<b>2022-2040 NPV</b>	\$5,661,000,000
<b>2025</b>	\$413,000,000						
<b>2040</b>	\$454,000,000						
<b>2022-2040 NPV</b>	\$5,661,000,000						
<b>Sustainability</b>	Revenue increases relative to roadway usage reaching 9% more in 2040						



## Mileage based user fee (light-duty vehicles)

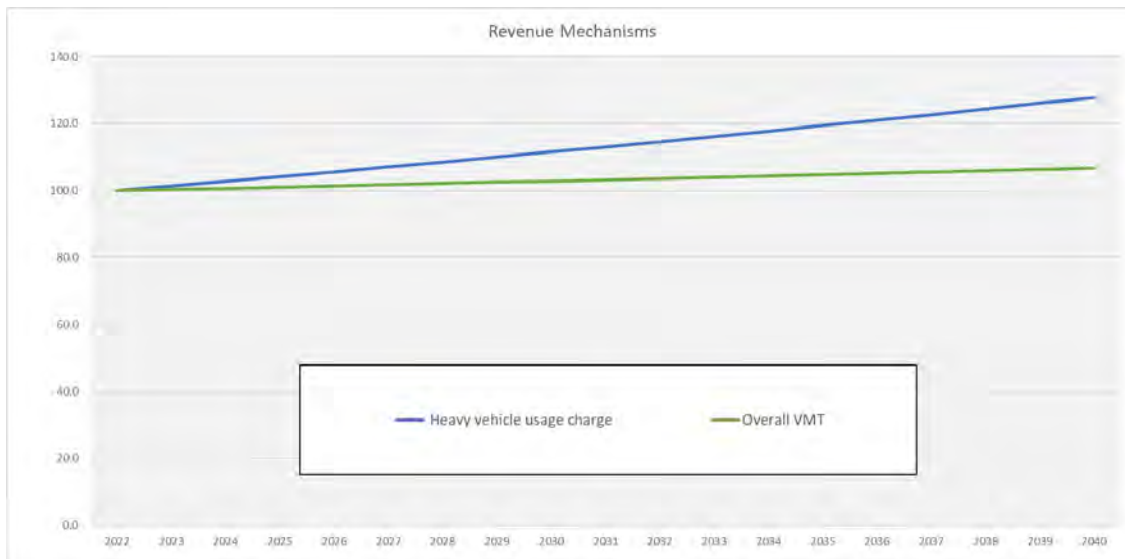
<b>Description</b>	Fee based on distance traveled on the road network by light-duty vehicles.
<b>Revenue formula</b>	Rate x Light-duty VMT
<b>Key assumptions</b>	1.6 cents per mile. Equivalent to what the average Ohio light-vehicle driver currently pays in gas tax. This rate per mile is just an assumption for purposes of this analysis. On average, passenger cars in Ohio are rated at 23.7 MPG
<b>Revenue potential</b>	
	<b>2025</b> \$1,674,000,000
	<b>2040</b> \$1,735,000,000
	<b>2022-2040 NPV</b> \$22,244,000,000
<b>Sustainability</b>	Revenue on pace with roadway usage, a bit lower since heavy-duty vehicle VMT is expected to outpace light-duty vehicle VMT





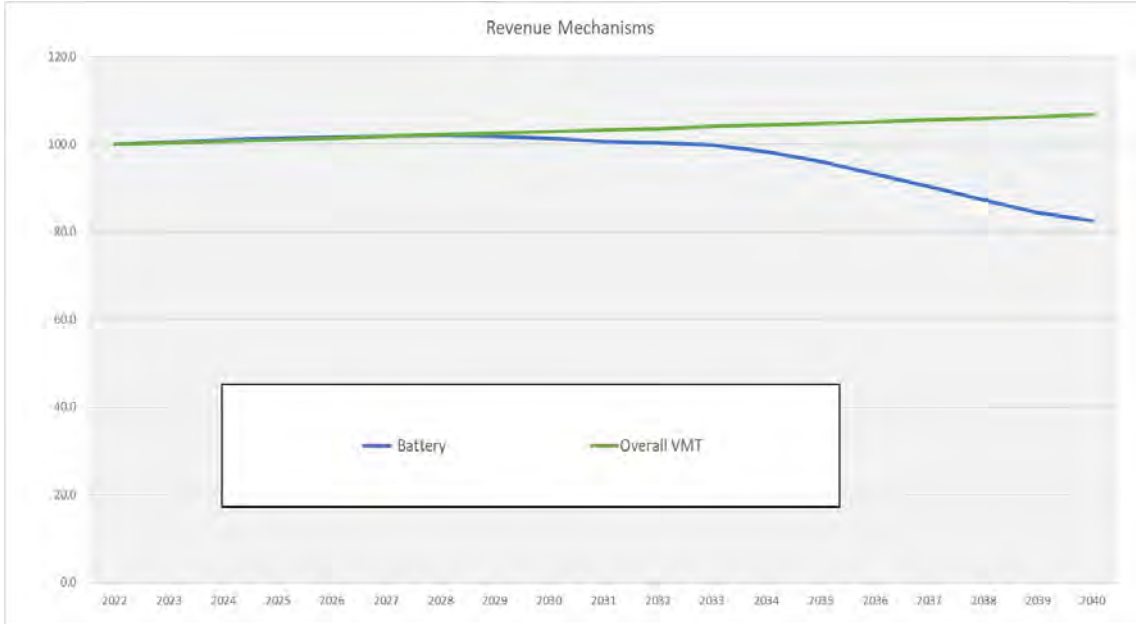
## Heavy vehicle usage charge

<b>Description</b>	Fee based on distance traveled on the road network by heavy-duty vehicles.
<b>Revenue formula</b>	Rate x Heavy-duty VMT
<b>Key assumptions</b>	6.4 cents per mile tax is equivalent to what the average heavy vehicle pays in diesel tax (7.3 MPG). This rate per mile is just an assumption for purposes of this analysis.
<b>Revenue potential</b>	
<b>2025</b>	\$759,000,000
<b>2040</b>	\$931,000,000
<b>2022-2040 NPV</b>	\$10,679,000,000
<b>Sustainability</b>	Revenue increases faster than roadway usage since heavy-duty vehicle VMT is expected to outpace light-duty vehicle VMT



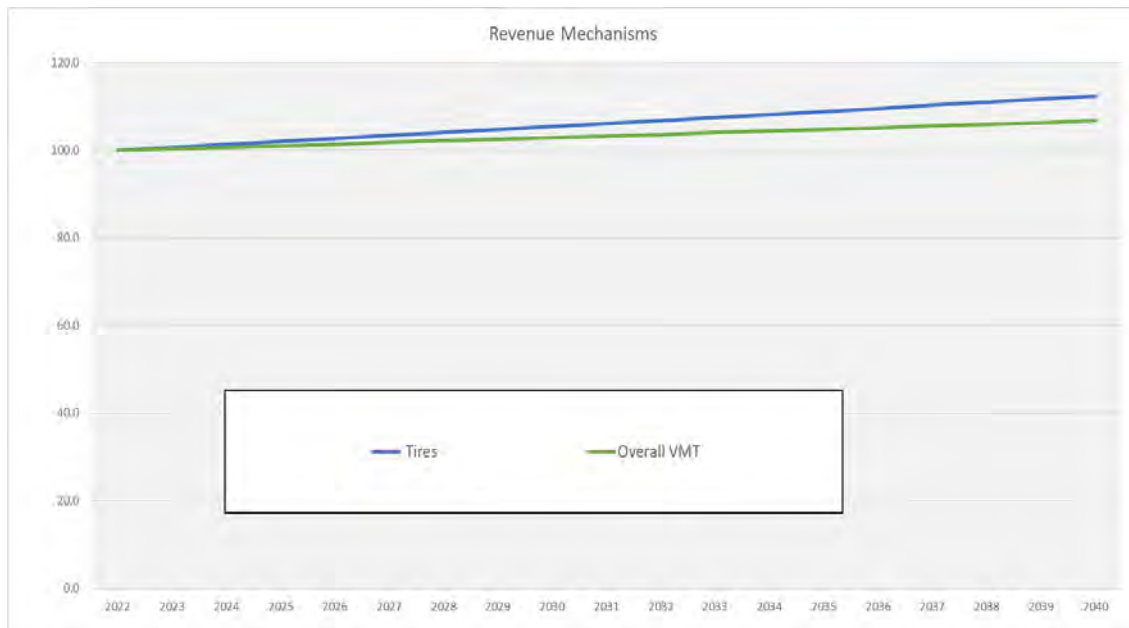
### Battery fee

<b>Description</b>	Fee on batteries for light-duty internal combustion engine vehicles
<b>Revenue formula</b>	Fee x Light-duty internal combustion engine vehicles
<b>Key assumptions</b>	\$2 per battery
<b>Revenue potential</b>	
	<b>2025</b> \$23,000,000
	<b>2040</b> \$19,000,000
	<b>2022-2040 NPV</b> \$294,000,000
<b>Sustainability</b>	Revenue on pace with roadway usage until 2029, then declines reaching 24% less in 2040 due to fleet electrification



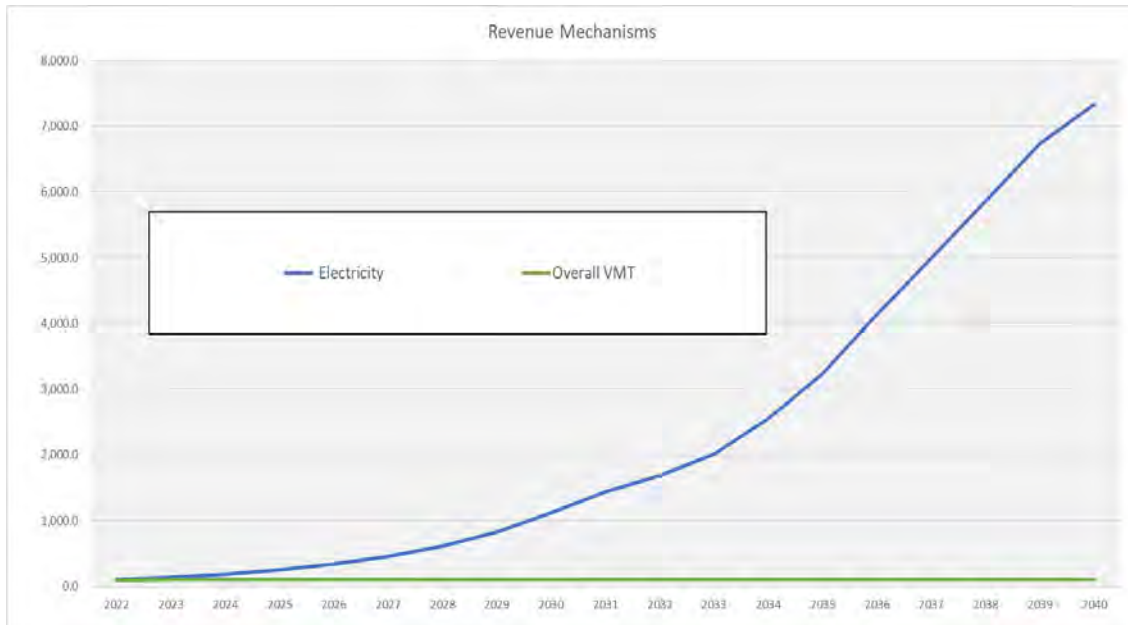
## Tire fee

<b>Description</b>	Fee on new tires for light-duty vehicles
<b>Revenue formula</b>	Fee x 4 x Light-duty vehicles ÷ 5
<b>Key assumptions</b>	\$5 per tire Tires replaced every 5 years
<b>Revenue potential</b>	
	<b>2025</b> \$47,000,000
	<b>2040</b> \$52,000,000
	<b>2022-2040 NPV</b> \$634,000,000
<b>Sustainability</b>	Revenue on pace with roadway usage



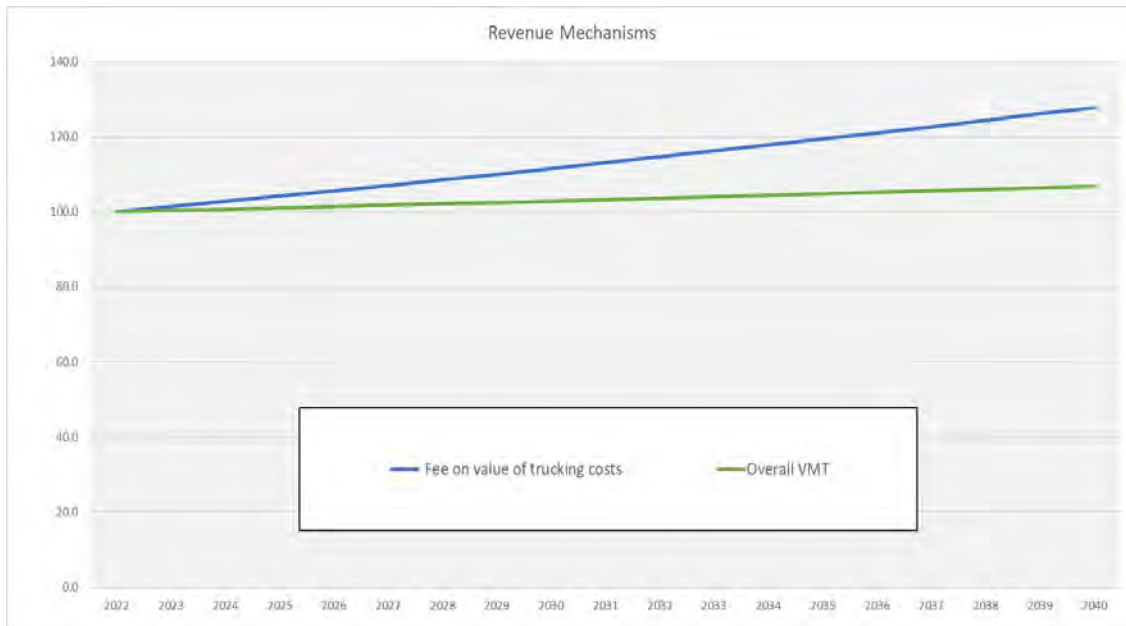
## Electricity tax

<b>Description</b>	Tax on electricity consumed by electric vehicles
<b>Revenue formula</b>	Tax rate x EV VMT x electricity consumed per mile
<b>Key assumptions</b>	<p>\$0.02 per kWh tax rate</p> <p>30 kWh for 100 miles.</p> <p>EV miles driven based on BNEF projections</p> <p>Tax applied to EVs only</p>
<b>Revenue potential</b>	<p><b>2025</b> \$6,000,000</p> <p><b>2040</b> \$172,000,000</p> <p><b>2022-2040 NPV</b> \$577,000,000</p>
<b>Sustainability</b>	Revenue increases much faster than roadway usage due to fleet electrification



## Fee on value of trucking costs

<b>Description</b>	Add a surcharge on goods movements as a function of the cost of moving those goods. Effectively this mechanism represents a Value Added Tax on transportation.
<b>Revenue formula</b>	Tax rate x Annual heavy duty VMT x Per mile fee for flatbed trucking
<b>Key assumptions</b>	1% tax rate \$3.07 per mile fee for flatbed trucking
<b>Revenue potential</b>	<p style="text-align: right;"><b>2025</b> \$364,000,000</p> <p style="text-align: right;"><b>2040</b> \$446,000,000</p> <p style="text-align: right;"><b>2022-2040 NPV</b> \$5,114,000,000</p>
<b>Sustainability</b>	Revenue increases faster than roadway usage due to faster pace of heavy-duty VMT



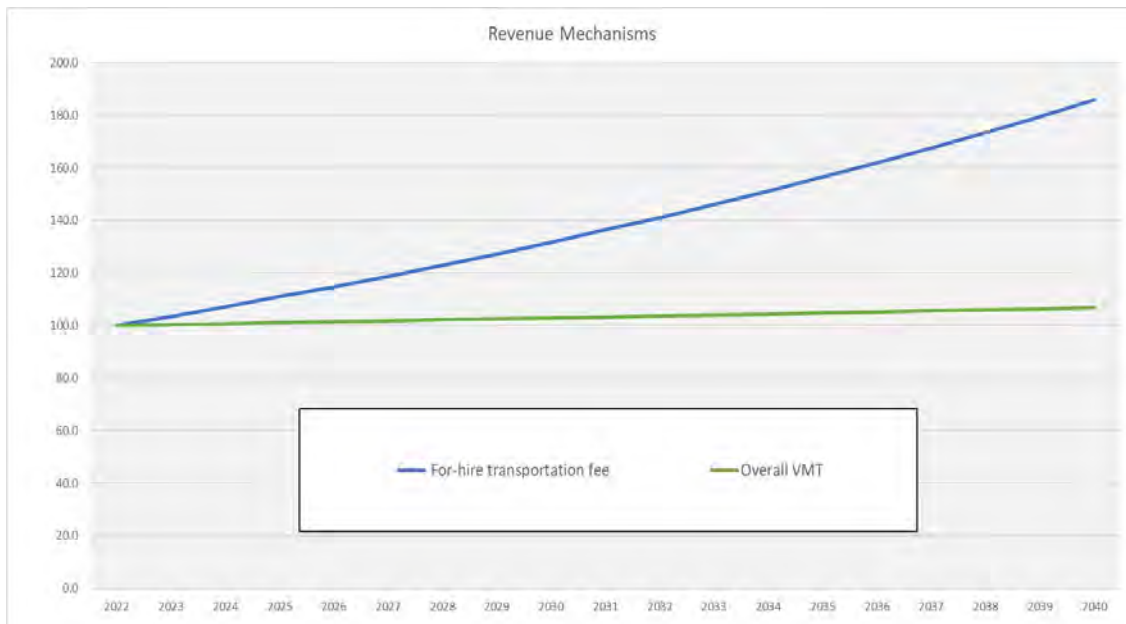
## Delivery fee on tangible goods

<b>Description</b>	Add a fee on delivered tangible goods
<b>Revenue formula</b>	Rate per delivered item x Number of deliveries
<b>Key assumptions</b>	<p>\$0.50 per delivered tangible good package</p> <p>Number of packages delivered estimated based on Colorado data, and scaled to Ohio population</p> <p>3.5% annual growth</p>
<b>Revenue potential</b>	
<b>2025</b>	\$306,000,000
<b>2040</b>	\$512,000,000
<b>2022-2040 NPV</b>	\$4,822,000,000
<b>Sustainability</b>	Revenue increases relative to roadway usage



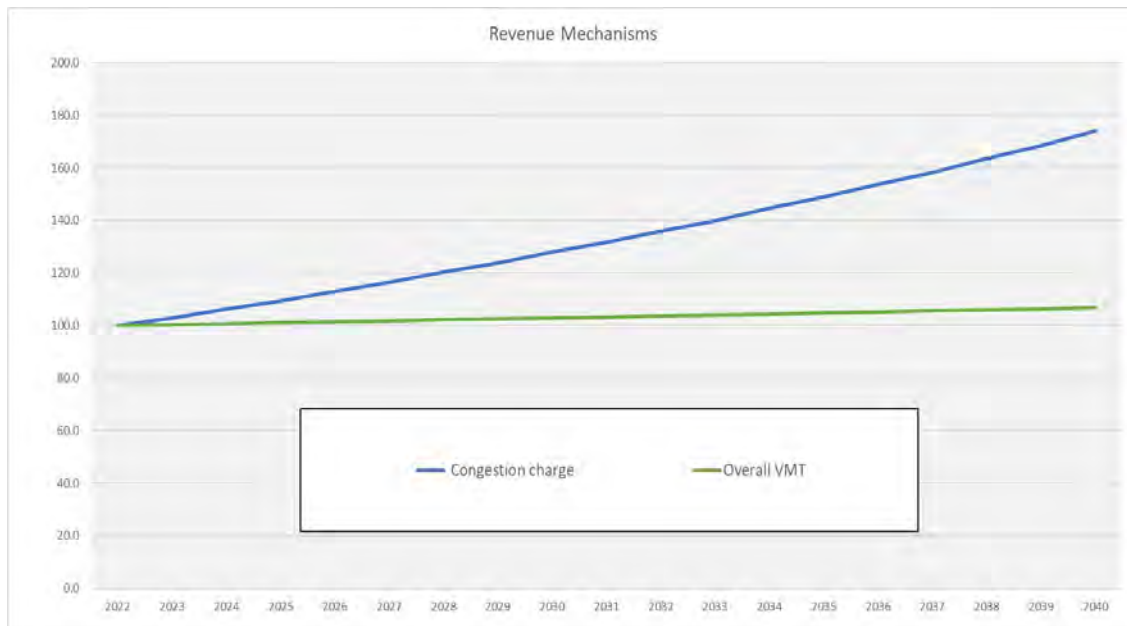
## For-hire transportation fee

<b>Description</b>	Excise tax on the value of all for-hire ride services including traditional taxis as well as transportation network companies such as Uber and Lyft.
<b>Revenue formula</b>	Per-ride excise tax x Number of rides
<b>Key assumptions</b>	<p>\$0.30 per ride</p> <p>Number of rides estimated based on Colorado data and scaled to Ohio population</p> <p>3.5% annual growth</p>
<b>Revenue potential</b>	<p style="text-align: center;"><b>2025</b>    \$23,000,000</p> <p style="text-align: center;"><b>2040</b>    \$38,000,000</p> <p style="text-align: center;"><b>2022-2040 NPV</b>    \$358,000,000</p>
<b>Sustainability</b>	Revenue increases relative to roadway usage



## Congestion charge

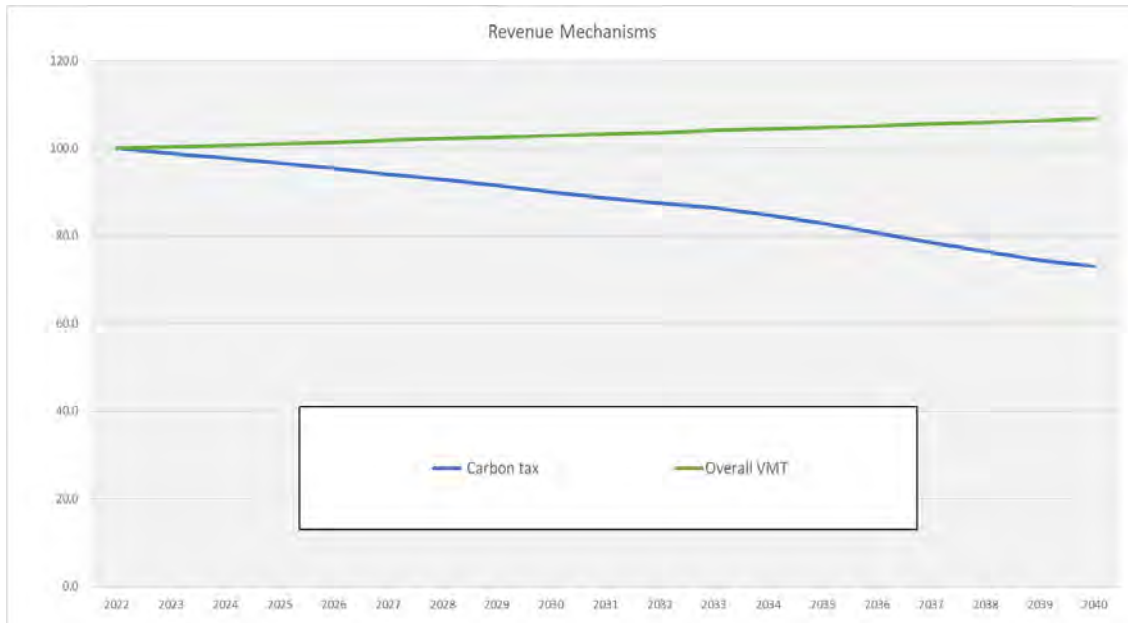
<b>Description</b>	Fee for traveling during congested periods
<b>Revenue formula</b>	Annual delay x Mean Ohio wage x Value of travel time savings ÷ 5
<b>Key assumptions</b>	<p>\$25.56 mean hourly Ohio wage (BLS, May 2021)</p> <p>2.93% avg annual wage increase (SSA)</p> <p>50% Value of Travel Time savings (US DOT)</p> <p>20% of drivers assumed to divert</p>
<b>Revenue potential</b>	
	<b>2025</b> \$545,000,000
	<b>2040</b> \$865,000,000
	<b>2022-2040 NPV</b> \$8,421,000,000
<b>Sustainability</b>	Revenue increases relative to roadway usage





## Carbon tax

<b>Description</b>	Assessing a fee on each ton of carbon dioxide emitted
<b>Revenue formula</b>	Tax rate per gallon x Gross taxable gasoline gallons
<b>Key assumptions</b>	\$0.15 per gallon
<b>Revenue potential</b>	
	<b>2025</b> \$810,000,000
	<b>2040</b> \$614,000,000
	<b>2022-2040 NPV</b> \$9,880,000,000
<b>Sustainability</b>	Revenue declines relative to roadway usage reaching 34% less in 2040 due to improvements in fuel economy and increasing electrification



## Street utility fee

**Description** Statewide surcharge on residents and businesses based on the estimated road usage impacts of the property type.

**Revenue formula** Fee per household x Number of households in Ohio

**Key assumptions** \$30 fee per household  
4.68 M households in Ohio (2015-2019)  
0.2% annual growth

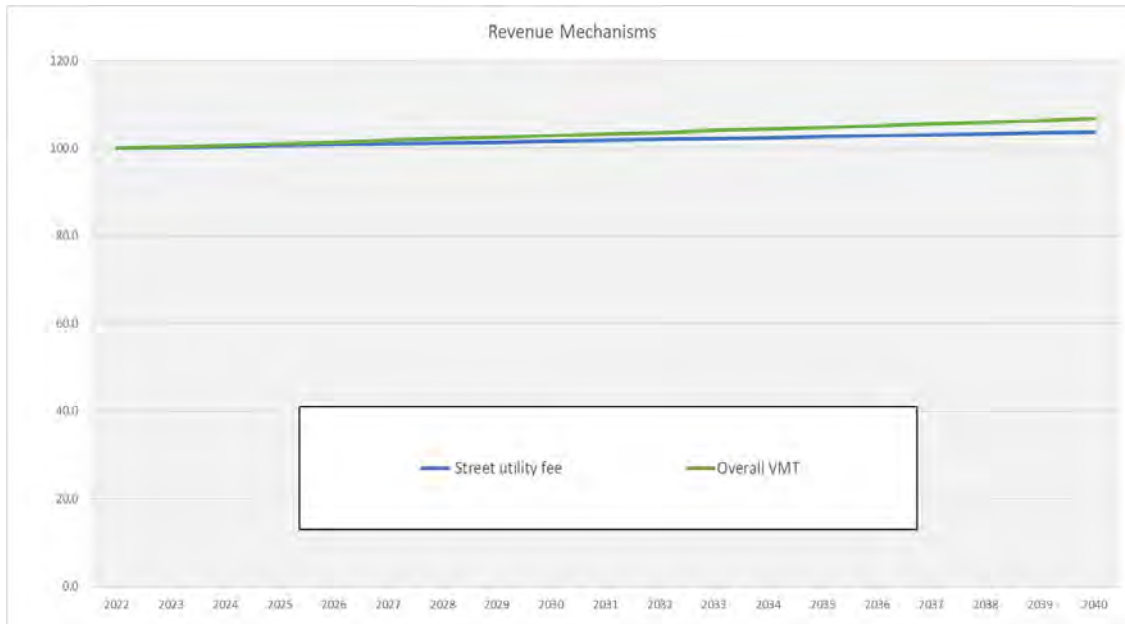
**Revenue potential**

**2025** \$142,000,000

**2040** \$146,000,000

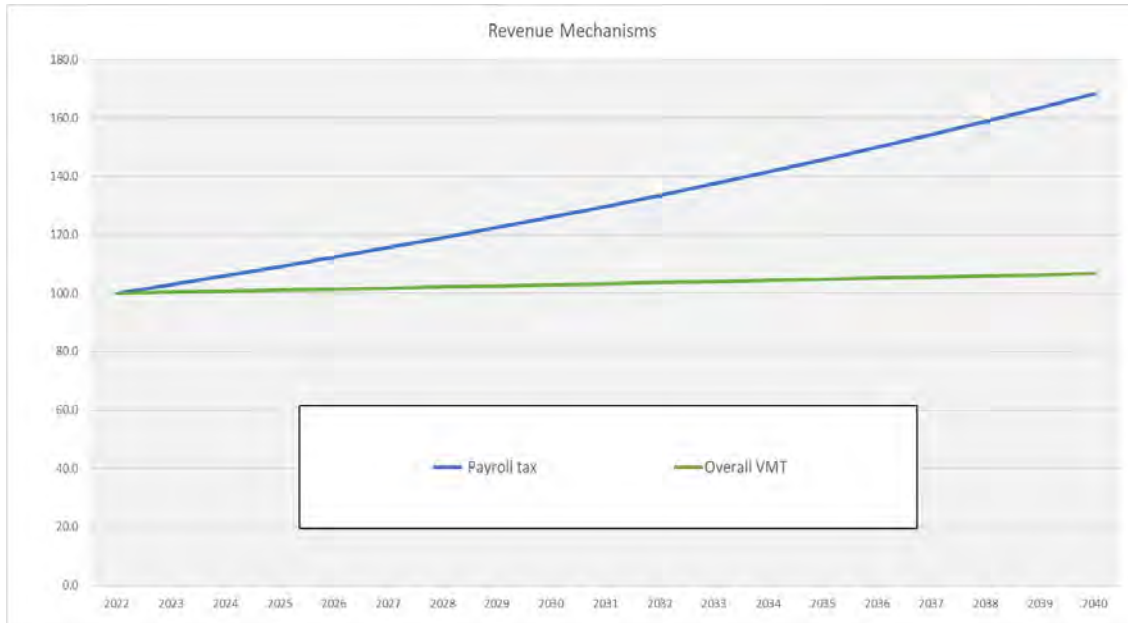
**2022-2040 NPV** \$1,883,000,000

**Sustainability** Revenue declines slightly relative to roadway usage



## Payroll tax

<b>Description</b>	A statewide payroll tax would collect payments from employers as a function of wages paid
<b>Revenue formula</b>	Payroll tax rate x March 2021 Employment x Average weekly wage x 52
<b>Key assumptions</b>	Employment, average wage from BLS 0.1% payroll tax rate 2.93% avg annual wage increase (SSA)
<b>Revenue potential</b>	<p style="text-align: right;"><b>2025</b> \$339,000,000</p> <p style="text-align: right;"><b>2040</b> \$523,000,000</p> <p style="text-align: right;"><b>2022-2040 NPV</b> \$5,183,000,000</p>
<b>Sustainability</b>	Revenue increases faster than roadway usage



## Land use impact fee

**Description** A land use impact fee is imposed on developers based on the expected impacts of development on the transportation system. To approximate the performance of such a revenue mechanism, a statewide tax was assumed as a percentage of the value of total new home sales and new commercial construction

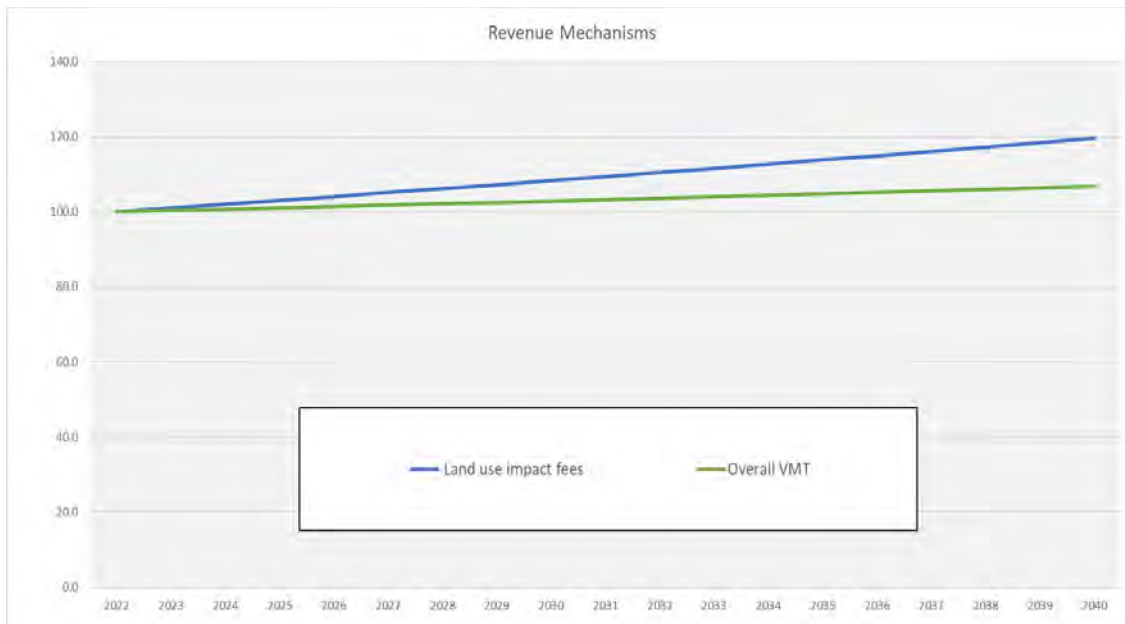
**Revenue formula**  $\text{Tax rate} \times \text{Average home sale values} \times \text{New home sales} + \text{Ratio of construction spending of residential to commercial} \times \text{Tax rate}$

**Key assumptions**  
 2022 home sales and new home sales from Ohio Realtors  
 Ratio of construction to residential spending from Census data  
 5% residential tax rate  
 10% commercial tax rate  
 1% annual growth rate

**Revenue potential**

**2025** \$224,000,000  
**2040** \$260,000,000  
**2022-2040 NPV** \$3,090,000,000

**Sustainability** Revenue increases faster than roadway usage



# Appendix F

## Alternative Revenue Mechanisms: Qualitative Analysis Results



OHIO DEPARTMENT OF  
TRANSPORTATION



**Ohio DOT Revenue Alternatives Study**

# **Alternative Revenue Mechanisms: Qualitative Analysis Results**

May 2023



**Ohio Department of Transportation**

**CDM  
Smith**



# 1. Flat per-gallon excise gasoline tax

State gas tax at current rate



## Revenue Stability

Revenue declines relative to roadway usage due to fuel efficiency improvements and increase in electrification.

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

In general, users have a simple and positive experience with the fuel tax, and compliance is easy as drivers effectively pay at the pump.

### User Equity

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

### Social Equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence on average, per mile driven.

### Transparency

Fuel taxes are largely invisible to end consumers.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



## 2. Flat per-gallon excise diesel tax

State diesel tax at current rate



### Revenue Stability

Revenue declines relative to roadway usage until 2034 then increases due to heavy-duty VMT increasing faster than heavy-duty fuel economy

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

Interstate commercial motor carriers must report and file quarterly returns documenting gallons purchased and miles driven by jurisdiction, and maintain trip records in case of audit.

### User Equity

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

### Social Equity

Diesel taxes are largely passed through to consumers. Those with more disposable incomes tend to consumer more and therefore bear more of the cost, but proportional incidence might fall greater on lower income households

### Transparency

Interstate commercial motor carriers are well aware of diesel taxes due to the need for IFTA filings quarterly.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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





### 3. Excise gasoline tax with inflation index

Add inflation index to flat per-gallon gas excise tax rate



#### Revenue Stability

Revenue on pace with roadway usage until 2033, then declines due to fuel economy improvements and increase in electrification

#### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

#### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

In general, users have a simple and positive experience with the fuel tax, and compliance is easy as drivers effectively pay at the pump.

#### User Equity

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

#### Social Equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence on average, per mile driven.

#### Transparency

Fuel taxes are largely invisible to end consumers.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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# 4. Excise diesel tax with inflation index

Add inflation index to flat per-gallon diesel excise tax rate



## Revenue Stability

Revenue increases faster than roadway usage due to inflation index and truck VMT increase outpacing heavy-duty fuel economy

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

Interstate commercial motor carriers must report and file quarterly returns documenting gallons purchased and miles driven by jurisdiction, and maintain trip records in case of audit.

### User Equity

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

### Social Equity

Diesel taxes are largely passed through to consumers. Those with more disposable incomes tend to consume more and therefore bear more of the cost, but proportional incidence might fall greater on lower income households

### Transparency

Interstate commercial motor carriers are well aware of diesel taxes due to the need for IFTA filings quarterly.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 5. Excise gasoline tax with fuel efficiency index



Add vehicle fuel economy index to flat per-gallon fuel excise tax rate. Gas tax rate would increase at the rate of the light duty fleet MPG increase.



## Revenue Stability

Revenue declines relative to roadway usage due to increase in electrification.

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

In general, users have a simple and positive experience with the fuel tax, and compliance is easy as drivers effectively pay at the pump.

### User Equity

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

### Social Equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence on average, per mile driven.

### Transparency

Fuel taxes are largely invisible to end consumers.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



## 6. Excise diesel tax with fuel efficiency index

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



### Revenue Stability

Revenue increases relative to roadway usage due to heavy-duty fuel economy outpacing overall VMT increase.

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

Interstate commercial motor carriers must report and file quarterly returns documenting gallons purchased and miles driven by jurisdiction and maintain trip records in case of audit.

### User Equity

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

### Social Equity

Diesel taxes are largely passed through to consumers. Those with more disposable incomes tend to consume more and therefore bear more of the cost, but proportional incidence might fall greater on lower income households

### Transparency

Interstate commercial motor carriers are well aware of diesel taxes due to the need for IFTA filings quarterly.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 7. Sales tax on gasoline price



Add a sales tax at the point of purchase, applied to the spot price of gasoline



## Revenue Stability

Revenue on pace with roadway usage until 2035, then declines

### Efficiency

Fuel taxes in the form of a sales tax would be more costly to collect than an excise fuel tax due to the larger number of retailers, who would be entitled to a reduced 0.75% discount on taxes due.

### Simplicity

Fuel sales taxes would be relatively easy to administer and enforce since they are assessed at the retail level and therefore involve a relatively small number of taxpayers.

In general, users have a simple and positive experience with the sales tax, and compliance is easy as drivers pay at the pump.

### User Equity

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

### Social Equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence on average, per mile driven.

### Transparency

Fuel taxes are largely invisible to end consumers, but a sales tax applied at the pump would increase the visibility.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 8. Sales tax on diesel price



Add a sales tax at the point of purchase, applied to the spot price of diesel



## Revenue Stability

Revenue increases relative to roadway usage due to heavy vehicle fuel consumption and inflation outpacing overall VMT increase

### Efficiency

Fuel taxes in the form of a sales tax would be more costly to collect than an excise fuel tax due to the larger number of retailers, who would be entitled to a reduced 0.75% discount on taxes due.

### Simplicity

Fuel sales taxes would be relatively easy to administer and enforce since they are assessed at the retail level and therefore involve a relatively small number of taxpayers.

Interstate commercial motor carriers must report and file quarterly returns documenting gallons purchased and miles driven by jurisdiction, and maintain trip records in case of audit.

### User Equity

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

### Social Equity

Diesel taxes are largely passed through to consumers. Those with more disposable incomes tend to consumer more and therefore bear more of the cost, but proportional incidence might fall greater on lower income households.

### Transparency

Interstate commercial motor carriers are well aware of diesel taxes due to the need for IFTA filings quarterly.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 9. Variable-rate tax based on gasoline price



Add variable-rate excise tax based on the price of gasoline. The tax rate is set periodically, for example yearly, based on the average price of gas over the preceding year or the expected average price over the coming year.



## Revenue Stability

Revenue on pace with roadway usage until 2035, then declines.

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

In general, users have a simple and positive experience with the fuel tax, and compliance is easy as drivers effectively pay at the pump.

### User Equity

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

### Social Equity

Vehicle fuel economy increases with income. Lower-income households bear a heavier tax incidence on average, per mile driven.

### Transparency

Fuel taxes are largely invisible to end consumers.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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# 10. Variable-rate tax based on diesel price



Add variable-rate excise tax based on the price of diesel. The tax rate is set periodically, for example yearly, based on the average price of diesel over the preceding year or the expected average price over the coming year.



## Revenue Stability

Revenue increases relative to roadway usage due to heavy vehicle fuel consumption and inflation outpacing overall VMT increase.

### Efficiency

Fuel taxes are among the least costly to collect, with 1% of revenue going to fuel distributors and overall costs of administration less than 3%.

### Simplicity

Fuel taxes are very easy to administer and enforce since they are assessed at the gross distribution level and therefore only involve a small number of fuel wholesalers.

Interstate commercial motor carriers must report and file quarterly returns documenting gallons purchased and miles driven by jurisdiction and maintain trip records in case of audit.

### User Equity

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

### Social Equity

Diesel taxes are largely passed through to consumers. Those with more disposable incomes tend to consumer more and therefore bear more of the cost, but proportional incidence might fall greater on lower income households.

### Transparency

Interstate commercial motor carriers are well aware of diesel taxes due to the need for IFTA filings quarterly.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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# 11. Basic vehicle registration fees

Basic vehicle registration fees for passenger vehicles and light duty trucks



## Revenue Stability

Revenue increases relative to roadway usage due to flat increase outpacing overall VMT increase.

### Efficiency

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

### Simplicity

Registration fees are an integral part of owning a vehicle. All U.S. states require drivers to register their cars or trucks, for a fee. In Ohio, registration fees are collected by BMV.

Although Ohio vehicle registration can be renewed online, by phone, or through the mail, renewing in person may be the only option if all the requirements are not met. Each county has different tax rates for registration renewal.

### User Equity

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

### Social Equity

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

### Transparency

Basic vehicle registration fees are transparent and easy to understand since the fee is paid directly by customers.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 12. Vehicle value tax

Tax based on the depreciated value of the vehicles, applied to passenger cars and light duty trucks



## Revenue Stability

Revenue increases relative to roadway usage due to average vehicle value increasing.

### Efficiency

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

### Simplicity

Although not currently done in Ohio, other states charge a registration fee that varies based on vehicle's value; this would require system changes for BMV to implement.

Compared to other forms of vehicle registration and licensing fees, value taxes tend to generate the most complaints and challenges from customers due to the subjective nature of vehicle valuation.

### User Equity

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

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 13. Vehicle weight fee

Add fee based on vehicle weight, applied to passenger cars and light duty trucks. Heavier vehicles pay higher registration fees..



## Revenue Stability

Revenue increases relative to roadway usage due to vehicle weight increasing.

### Efficiency

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

### Simplicity

Although not currently done in Ohio, other states charge a registration fee that varies based on vehicle's weight; this would require system modifications for BMV to implement.

Although Ohio vehicle registration can be renewed online, by phone, or through the mail, renewing in person may be the only option if all the requirements are not met. Fees varying based on vehicle value add a layer of complexity for the user.

### User Equity

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

### Social Equity

NA

### Transparency

Transparent to the end customer, weight and weight categories are objective factors to determine and explain to customers.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 14. Vehicle fuel efficiency fee

Add fee based on vehicle fuel economy rating, applied only to internal combustion engine passenger cars and light duty trucks. Higher tax rate on vehicles with a higher EPA-rated MPG.



## Revenue Stability

Revenue declines in outer years due to declining number of internal combustion engine vehicles. However, continues to exceed VMT increase by 2050.

### Efficiency

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

### Simplicity

Only the state of Georgia currently charges a registration fee that varies based on vehicle's fuel efficiency; this would require system modifications or BMV to implement.

Fees varying based on fuel efficiency can cause customer complaints and challenges due to the variability between EPA ratings and individual experiences.

### User Equity

By itself, an MPG-based fee results in disparate contributions that have nothing to do with roadway usage or impacts. However, in conjunction with a fuel tax, this type of fee can equalize contributions and counteract losses.

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 15. Engine type (EV/PHEV/hybrid) fee

Annual registration surcharge on electric and hybrid vehicles.



## Revenue Stability

Revenue increases much faster than roadway usage due to fleet electrification.

### Efficiency

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

### Simplicity

Ohio BMV already collects such a fee.

Users could be surprised when first noticing the surcharge.

### User Equity

The tax is somewhat equitable since it increases contributions from vehicles not contributing or contributing little through fuel taxation.

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 16. Vehicle age fee

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



## Revenue Stability

Revenue increases relative to roadway usage.

### Efficiency

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

### Simplicity

Although not currently done in Ohio, other states charge a registration fee that varies based on vehicle's age; this could be relatively easy to implement for BMV.

Although Ohio vehicle registration can be renewed online, by phone, or through the mail, renewing in person may be the only option if all the requirements are not met. Fees varying based on vehicle age add a small layer of complexity for the user.

### User Equity

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

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



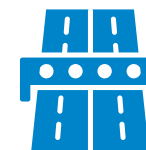
Social Equity



Transparency



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# 17. Light vehicle mileage-based user fee

Fee based on distance traveled on the road network by light-duty vehicles.



## Revenue Stability

Revenue on pace with light-vehicle roadway usage.

### Efficiency

BMV does not collect annual miles driven data. A relatively low-cost method of assessment would be to request drivers to manually report miles driven and collect payment at the time of registration, which would incur additional transaction costs. Other methods of collecting mileage data are more costly.

### Simplicity

Although not currently done in Ohio, other state MBUF systems require more administration than the gas tax. Drivers often cite the act of mileage reporting as a concern, including sometimes privacy concerns related to that. A range of mileage reporting options exist with a range of user experiences, from odometer reporting to automatic mileage reporting by the vehicle.

### User Equity

MBUF assesses all road users directly and in proportion to their consumption

### Social Equity

Total miles driven increase with income, so the total burden falls more on higher-income households. As a gas tax replacement, research from other states shows that lower-income and rural households would pay less under an MBUF than a comparable gas tax.

### Transparency

MBUF is visible and simple to understand since customers may actively report miles driven and must pay directly.

Efficiency



Simplicity



User Equity



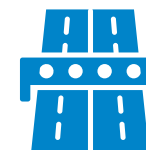
Social Equity



Transparency



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



# 18. Heavy vehicle mileage-based user fee

Fee based on distance traveled on the road network by heavy-duty vehicles.



## Revenue Stability

Revenue increases faster than roadway usage since heavy-duty vehicle VMT is expected to outpace light-duty vehicle VMT.

### Efficiency

Although trucks already report miles traveled through the International Registration Plan (IRP) and International Fuel Tax Agreement (IFTA), this tax would add complexity and cost for reporting and enforcement.

### Simplicity

Heavy vehicle usage charge would require more administration than the diesel tax. It can raise some concerns about privacy depending on how mileage would be collected and is more difficult to implement as a new form of taxation.

Trucks already report miles traveled through IRP and IFTA, which would facilitate compliance.

### User Equity

This tax correlates with miles driven so it is somewhat equitable. However, all trucks would pay the same tax rate per mile. A tax based on axle-weight would better reflect actual costs imposed on the road system.

### Social Equity

A heavy vehicle usage charge is largely passed through to consumers. Those with more disposable incomes tend to consume more and therefore bear more of the cost, but the proportional incidence might fall greater on lower income households.

### Transparency

This fee is visible and simple to understand since the bill shows the amount charged and total miles driven, and the fee is paid directly by fleet owners.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 19. Battery fee



Fee on batteries for light-duty internal combustion engine vehicles.



## Revenue Stability

Revenue on pace with roadway usage, then declines in outer years due to fleet electrification.

### Efficiency

A battery fee could be imposed at the merchant level similar to a sales tax, and therefore could have a relatively low cost of collection.

### Simplicity

A battery fee could be imposed at the merchant level similar to a sales tax, and therefore could be relatively simple to collect, administer, and enforce.

Compliance could be facilitated and experience improved if assessed at the merchant level. End customers would pay but not necessarily be involved in the reporting and collection of the taxes.

### User Equity

Given heavy road users replace batteries more often than light users, the fee would fall more heavily on those who drive more.

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 20. Tire fee



Fee on new tires for light-duty vehicles.



## Revenue Stability

Revenue on pace with roadway usage due to number of light-duty vehicles slightly outpacing VMT increase.

### Efficiency

A tire fee could be imposed at the merchant level similar to a sales tax, and therefore could have a relatively low cost of collection.

### Simplicity

A tire fee could be imposed at the merchant level similar to a sales tax, and therefore could be simple to collect, administer, and enforce.

Compliance could be facilitated and experience improved if assessed at the merchant level. End customers would pay but not necessarily be involved in the reporting and collection of the taxes.

### User Equity

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

### Social Equity

Since the rate is fixed across all vehicles the incidence falls heaviest on those with the lowest incomes. A high tax rate could disincentivize tire replacement, raising safety concerns.

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 21. EV/PHEV/hybrid battery capacity fee



Fee on battery capacity (per kWh) for new light-duty EVs/PHEVs/hybrids.



## Revenue Stability

Revenue on pace with roadway usage due to growth of EV/PHEV/hybrid fleet outpacing VMT increase.

### Efficiency

An EV/PHEV/hybrid battery capacity fee could be imposed at the time of vehicle sale or registration, and therefore could have a comparable cost of collection to some existing revenue mechanisms.

### Simplicity

An EV/PHEV/hybrid battery capacity fee could be imposed at the time of vehicle sale or during annual registration, making it relatively simple to collect, administer, and enforce.

### User Equity

Because larger battery packs weigh more, in turn causing more road wear, this type of fee would impose a higher tax on those vehicles.

### Social Equity

At present, a fee on EV or PHEV batteries will likely fall on higher-income households, though that may not necessarily be the case with hybrid vehicles.

### Transparency

A fee for EV/PHEV/hybrid battery capacity may be linked to forgone motor fuel tax revenue, making it a transparent revenue mechanism.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

## 22. Electricity charging fee



Tax on electricity consumed by electric vehicles.



### Revenue Stability

Revenue increases much faster than roadway usage due to fleet electrification.

### Efficiency

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

### Simplicity

This mechanism would be complex to implement as it would require metering all EV charging points including private residences.

Consumers may be required to pay for installation of costly metering equipment at home; public charging providers would have to update point of sale systems and change business models to account for taxes, depending on the method of tax.

### User Equity

Charging based on electricity consumption would approximate usage, but as with gasoline consumption, individual contributions would vary widely. An alternative approach to tax only at public charging stations would only capture 10-20% of electricity.

### Social Equity

At present electricity taxes on EVs would fall predominantly on higher income households who predominantly own EVs; a version applied only at public charging would distribute more to owners without home charging access.

### Transparency

If collected by utilities, drivers may not notice the tax. If collected directly from end users, it would be transparent but could be obscured by other utility bill elements.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 23. Congestion fee



Fee for traveling during congested periods.



## Revenue Stability

Revenue increases relative to roadway usage as value of time increases faster than VMT.

### Efficiency

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

### Simplicity

This mechanism would be very complex to implement due to policy questions, equity concerns, and technology challenges.

Electronic toll collection could make compliance easier through automatic vehicle recognition and payment.

### User Equity

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

### Social Equity

Depending on how congestion pricing is designed, it could improve social equity by improving travel times for workers, through discounts for low-income drivers, or other mechanisms.

### Transparency

To be effective, a congestion charge must be highly transparent and easy to understand. Otherwise, it will not have the desired effect of discouraging driving at certain places and times.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 24. Carbon tax



Assessing a fee on each ton of carbon dioxide emitted



## Revenue Stability

Revenue declines relative to roadway usage due to improvements in fuel economy and increasing electrification.

### Efficiency

Where the carbon tax is levied would dictate the tax's efficiency. Upstream, it would likely have the same cost to collect as the current fuel tax. If levied at the consumer level, it would have higher costs akin to vehicle registration fees or mileage-based fees.

### Simplicity

It could be similar to fuel taxes if assessed by fuel distributors, which would make it easy to administer.

If assessed by fuel distributors, it would also be easy to comply with for users. If assessed at the user level, the tax design would require more consideration to create a positive user experience.

### User Equity

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

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 25. Dedication of auto sales tax

Instead of new revenue being collected, a portion of sales tax collected on vehicle purchases would be dedicated to transportation funding.



## Revenue Stability

Revenue increases faster than roadway usage due to higher total value of vehicle sales over time.

### Efficiency

The fee would be straightforward to assess, as sales tax is already collected on all vehicle sales.

### Simplicity

The fee could be relatively simple to implement, as long as no major changes are made to the existing sales tax collection process.

### User Equity

The fee would fall more heavily on road users who buy and sell cars with greater values, which does not necessarily correspond with amount of road usage.

### Social Equity

Those with higher incomes tend to buy and sell cars of greater value, and would therefore pay a greater amount of this tax (though it is already being collected).

### Transparency

Given that the fee would be assessed at the point of vehicle sale, it would be moderately visible.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

## 26. Fee on value of trucking costs

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



### Revenue Stability

Revenue increases faster than roadway usage due to faster pace of heavy-duty VMT.

### Efficiency

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

### Simplicity

The fee would be very complex, maybe even impossible to implement. It would require significant new reporting processes likely infeasible for many operators.

### User Equity

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

### Social Equity

Those with more disposable incomes tend to consume more and therefore bear more of the cost, but the proportional incidence might fall greater on lower income households

### Transparency

Given that the fee would be assessed within the supply chain and incorporated in the final cost of goods, the fee would not be visible.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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



# 27. Delivery fee

Add a fee on delivered tangible goods.



## Revenue Stability

Revenue increases relative to roadway usage due to deliveries increasing faster than overall VMT.

### Efficiency

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

### Simplicity

The fee would be collected and remitted by retailers, and could be relatively easy to implement although it adds a layer of compliance complexity for both in-state and out-of-state retailers.

Serious online shoppers may feel it the most; though imposed upon, and collected and remitted by retailers, the fee is likely passed on to purchasers.

### User Equity

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

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 28. For-hire transportation (TNC) fee

Excise tax on the value of all for-hire ride services including traditional taxis as well as transportation network companies such as Uber and Lyft.



## Revenue Stability

Revenue increases relative to roadway usage due to TNC usage increasing faster than overall VMT.

### Efficiency

The cost of imposing this fee would be marginal given that all the infrastructure required is already in place via the Ohio state sales tax that currently applies.

### Simplicity

Several states have per-trip fees or a tax on TNC revenues. It would be relatively easy to administer and enforce as an add-on to the existing retail sales tax.

The surcharge would be included in the ride fee, making it easy to comply with.

### User Equity

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

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 29. Street utility fee

Statewide surcharge on residents and businesses based on the estimated road usage impacts of the property type.



## Revenue Stability

Revenue declines slightly relative to roadway usage.

### Efficiency

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

### Simplicity

This fee would be complex to implement, as street utility fees are typically collected by local jurisdictions with fees for other public services, but not used statewide.

It would be easier to comply with if a street utility fee were assessed with other taxes, fees, or utility charges.

### User Equity

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

### Social Equity

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

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 30. Payroll tax

A statewide payroll tax would collect payments from employers as a function of wages paid.



## Revenue Stability

Revenue increases relative to roadway usage as wages are expected to increase faster than VMT.

### Efficiency

A state payroll tax could utilize the same mechanism as unemployment insurance; however it is unclear whether the Ohio Department of Job and Family Services would be capable of implementing such changes.

### Simplicity

Employers would be responsible for withholding, reporting, and remitting the statewide transportation tax. Employers are familiar with this, but the additional reporting requirements may be cumbersome.

For employees, compliance would be simple if the tax is imposed upon employers.

### User Equity

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

### Social Equity

The tax would fall equally as a portion of all wages earned, making it a regressive source of taxation.

### Transparency

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

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 31. Land-use impact fee

A land use impact fee is imposed on developers based on the expected impacts of development on the transportation system.



## Revenue Stability

Revenue increases faster than roadway usage due to construction rate exceeding VMT.

### Efficiency

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

### Simplicity

These type of fees are typically imposed by local jurisdictions. It would be difficult to implement statewide. It could also be difficult to understand and comply with for end users.

### User Equity

Land-use impact fees bear little relationship to road usage across the entire network.

### Social Equity

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

### Transparency

End users would not discern or understand this fee.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# 32. General Fund Transfer

A general fund transfer involves non-transportation revenue being allocated to transportation purposes.



## Revenue Stability

Revenue varies considerably from year to year, and with no relationship to VMT.

### Efficiency

A general fund transfer is straightforward and has low administrative costs, as the mechanism is one that is currently used.

### Simplicity

These type of transfers would require legislative action to initiate, introducing political complexity.

### User Equity

General fund transfers bear little relationship to road usage across the entire network.

### Social Equity

The tax would be collected with the same distributional impacts as the state's existing revenue sources, including transportation and non-transportation sources.

### Transparency

End users would not discern or understand this fee.

Efficiency



Simplicity



User Equity



Social Equity



Transparency



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

# Appendix G

## Operations Analysis of Refined Alternative Revenue Mechanisms



OHIO DEPARTMENT OF  
TRANSPORTATION



**Ohio DOT Revenue Alternatives Study**

# **Operations Analysis of Refined Alternative Revenue Mechanisms**

March 2023



Ohio Department of Transportation

**CDM  
Smith**

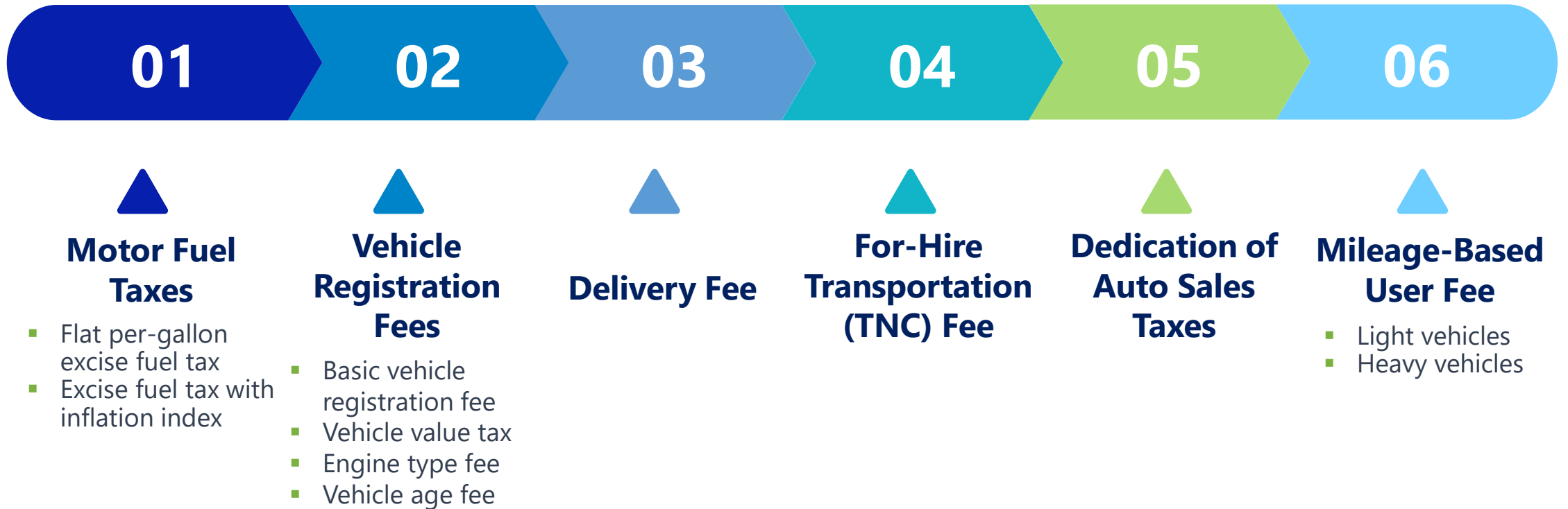


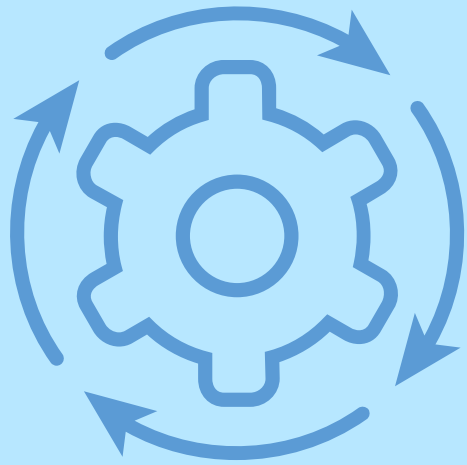
**Note:** At the External Advisory Committee (EAC) meeting on March 9, 2023, the CDM Smith team presented the slides included in this appendix describing the ten alternative revenue mechanisms identified for further analysis. These slides provide an operational analysis of the prioritized revenue mechanisms, including details of the policy design, implementation steps, responsible agency, and implementation or operational considerations.

This operational analysis was completed after discussions with Rich Winning, Johnathon Heckert and Sara Downs from ODOT and Cynthia Jones from Drive Ohio on January 25, 2023. Those discussions helped the CDM Smith team to identify the agencies that would likely be involved in the implementation of the revenue mechanisms under review.

A significant portion of the following presentation was dedicated to mileage-based user fees. This focus resulted from the novelty of the program and the relative complexity of implementation. Part of this complexity is the different treatment of light- and heavy-duty vehicles. For this mechanism, a brief overview of vehicle road usage charge programs in four jurisdictions, including special considerations by vehicle types, is presented.

# Alternative Revenue Mechanisms Identified for Further Analysis





# Operations Analysis

## Expected Outcomes

- Design of the revenue policy
- Implementation steps
- Responsible organization
- Concepts for implementation/operation
- Costs of collection

**Analysis:**

# Motor Fuel Taxes

01

02

03

04

05

06

**Motor Fuel Taxes**

- Flat per-gallon excise fuel tax
- Excise fuel tax with inflation index

**Vehicle Registration Fees**

**Delivery Fee**

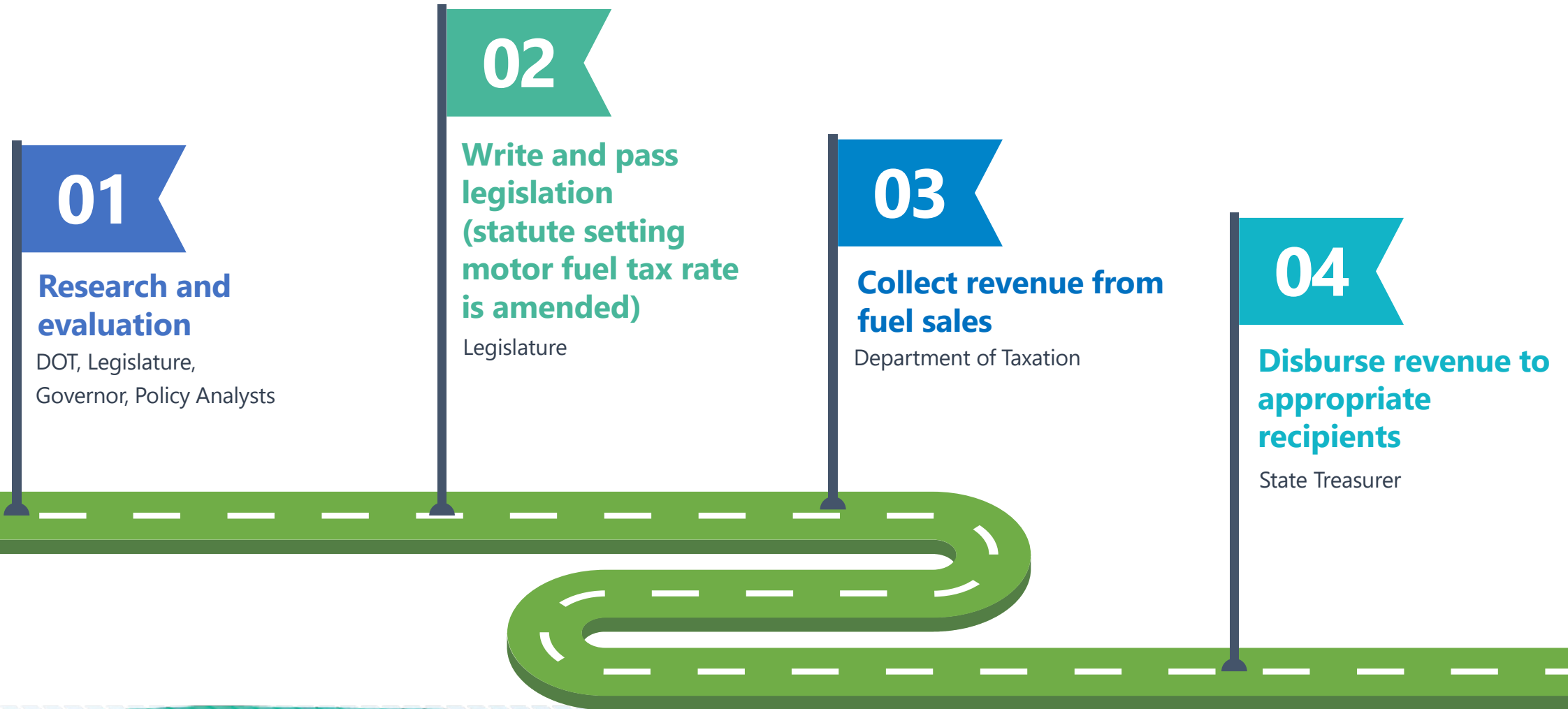
**For-Hire Transportation (TNC) Fee**

**Dedication of Auto Sales Taxes**

**Mileage-Based User Fee**

# Implementation Steps: Flat per-gallon excise fuel tax

Implementation Complexity:

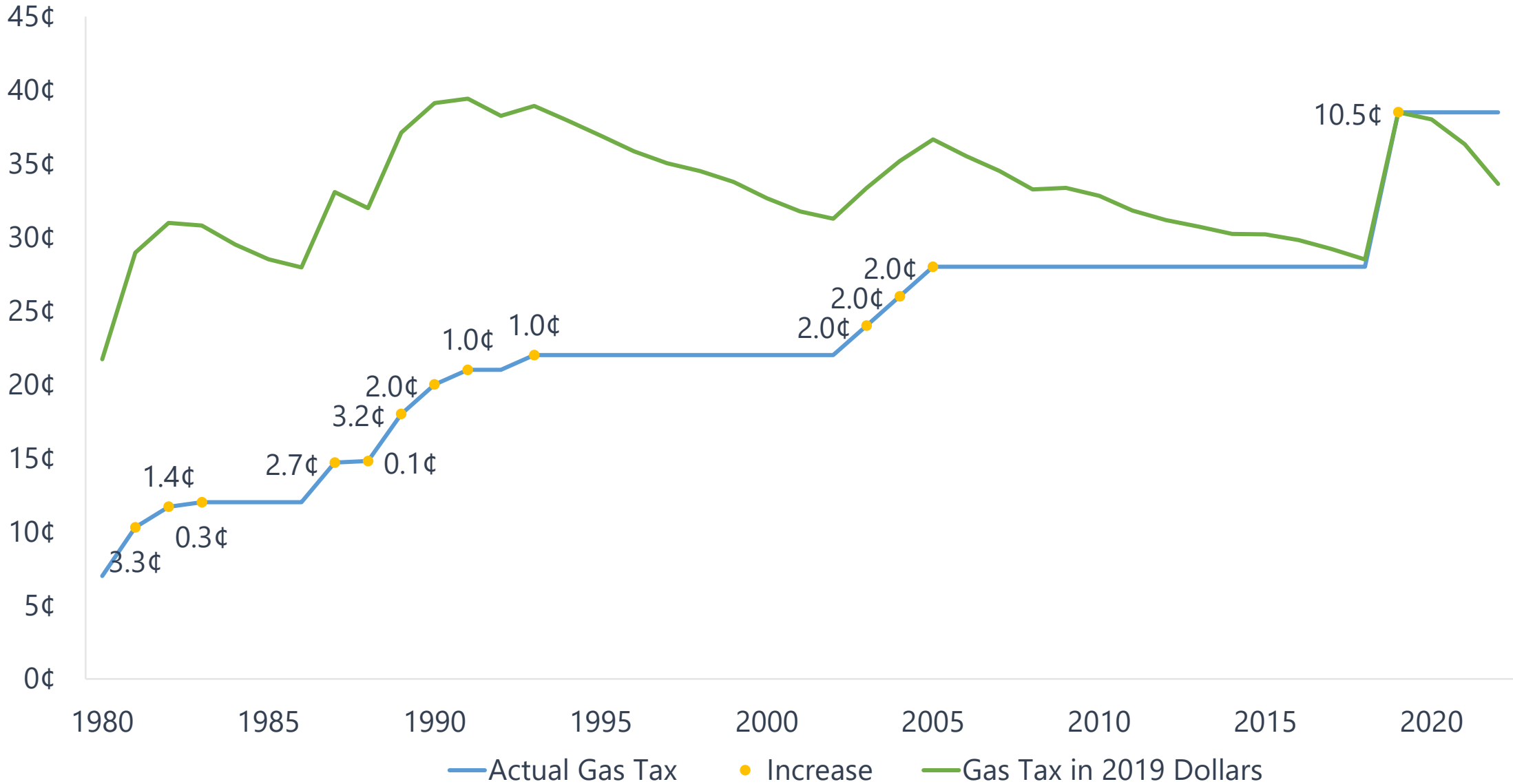


## State gasoline taxes (per gallon) have increased *13 times* since 1980.

1981	1982	1983	1987	1988	1989	1990	1991	1993	2003	2004	2005	2019
10.3¢	11.7¢	12¢	14.7¢	14.8¢	18¢	20¢	21¢	22¢	24¢	26¢	28¢	38.5¢

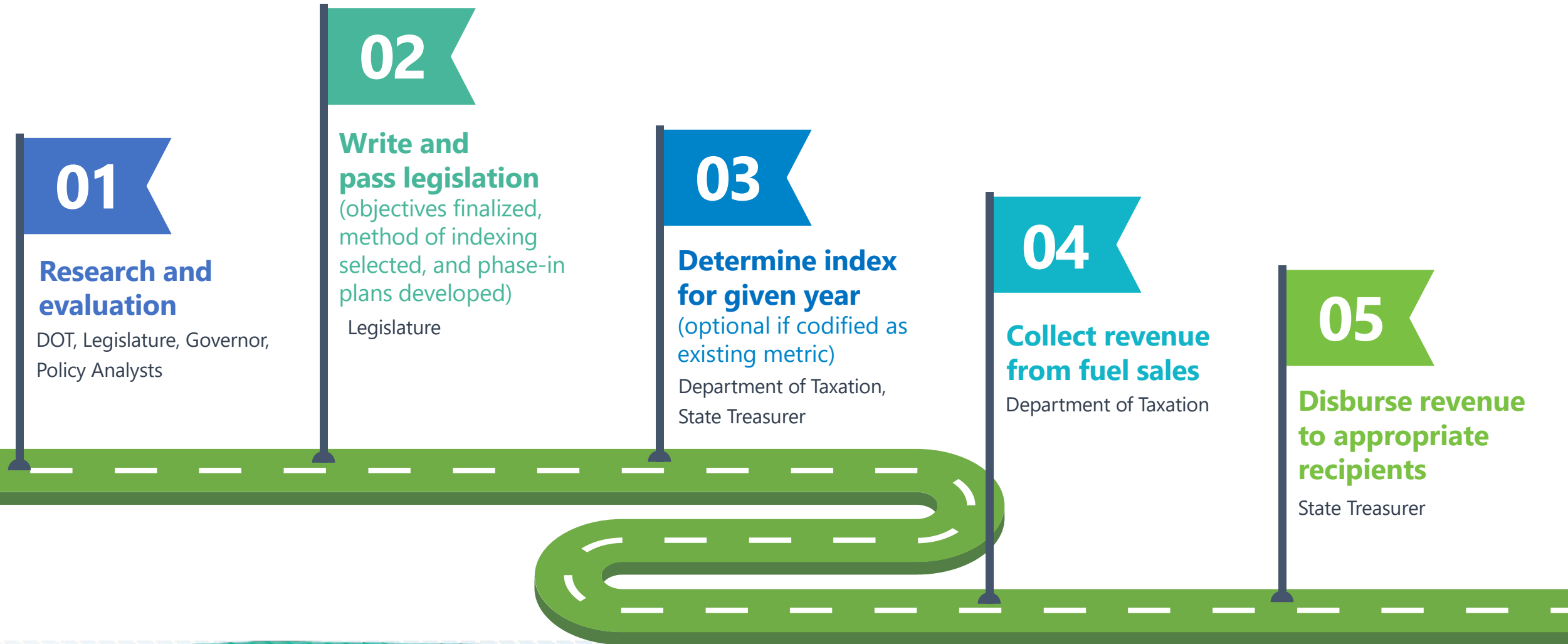
*(actual gas tax amount)*

# State Gasoline Taxes (per gallon)



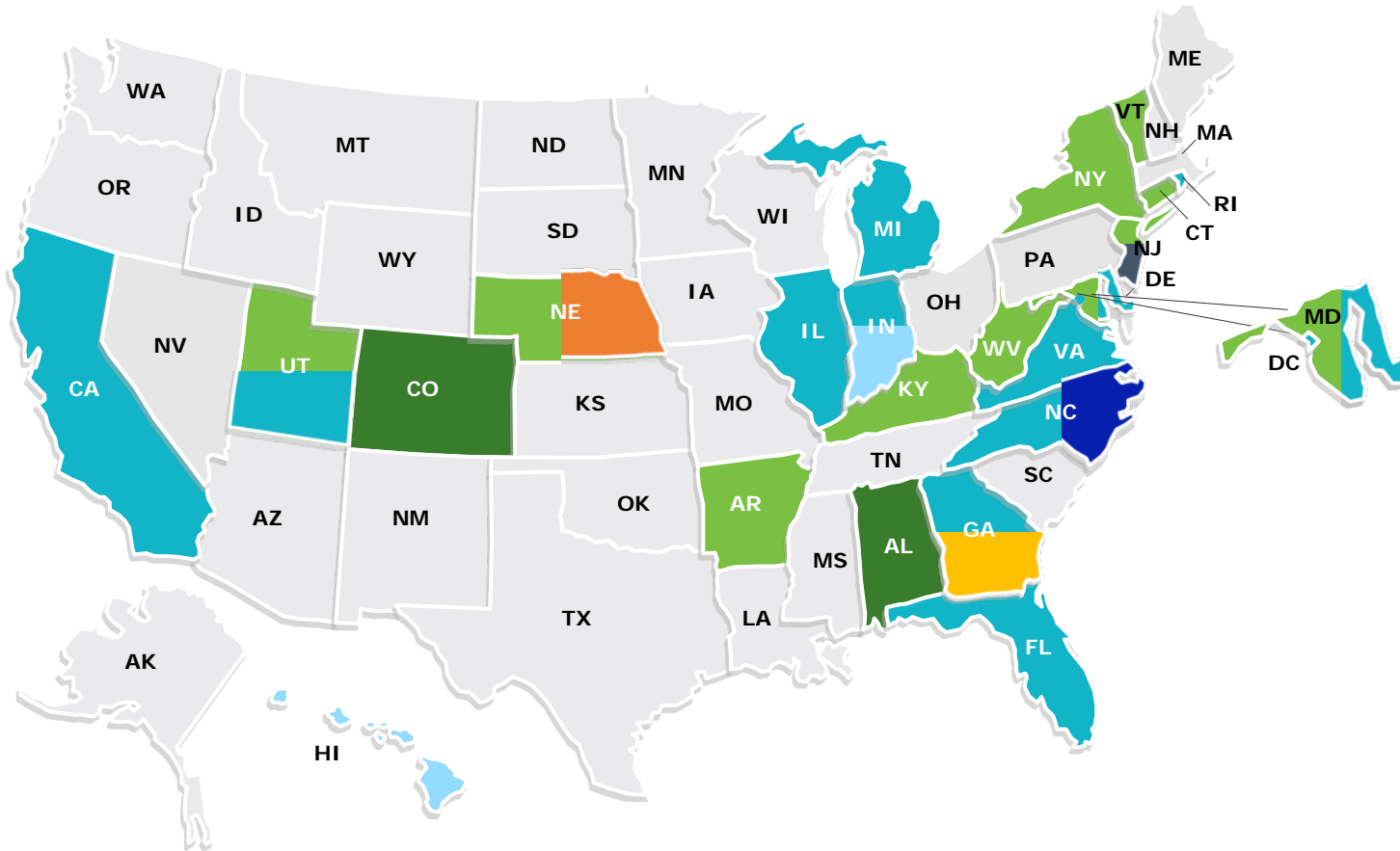
# Implementation Steps: Excise fuel tax with inflation index

Implementation Complexity:





# Inflation Indexing



## Type of Indexing

- Inflation (12)
- Fuel Prices (10)
- Highway Construction Costs (2)
- Variable Sales Tax Applies (2)
- Fuel Efficiency (1)
- Appropriations Decision (1)
- Revenue Collections (1)
- Population (1)

**References:**

[Variable Rate Gas Taxes \(ncsl.org\)](http://ncsl.org)  
[Motor Fuel Taxes \(urban.org\)](http://urban.org)

**Analysis:**

# Vehicle Registration Fees

01

02

03

04

05

06

**Motor Fuel  
Taxes**

**Vehicle  
Registration  
Fees**

**Delivery Fee**

**For-Hire  
Transportation  
(TNC) Fee**

**Dedication of  
Auto Sales  
Taxes**

**Mileage-Based  
User Fee**

- Basic vehicle registration fee
- Vehicle value tax
- Engine type fee
- Vehicle age fee

*Implementation Steps:*

# Existing Programs: Basic vehicle registration fees and Engine type (EV/PHEV/Hybrid) fee

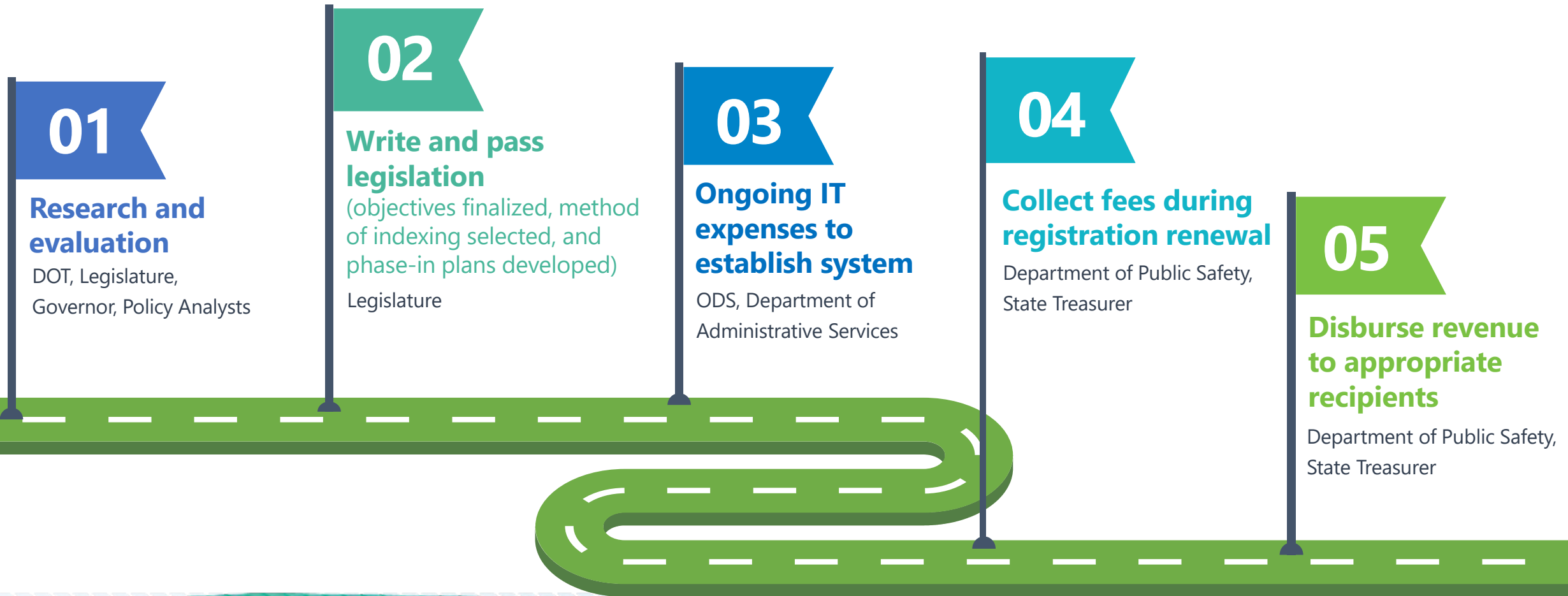
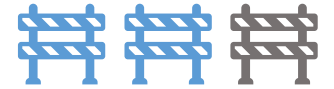
*Implementation Complexity:*



### Implementation Steps:

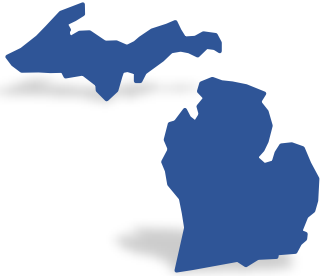
# Potential New Programs: Vehicle Value Tax and Vehicle Age Fee

### Implementation Complexity:



# How do other states set registration rates?

## Michigan



Varies by vehicle MSRP categories

## Colorado



Based on % of vehicle MSRP and age

## Iowa



% of list price based on year, then flat fee

## California



Calculated from % of purchase price

## Oklahoma



Determined by vehicle age categories

**Analysis:**

# Delivery Fee



**Motor Fuel  
Taxes**

**Vehicle  
Registration  
Fees**

**Delivery Fee**

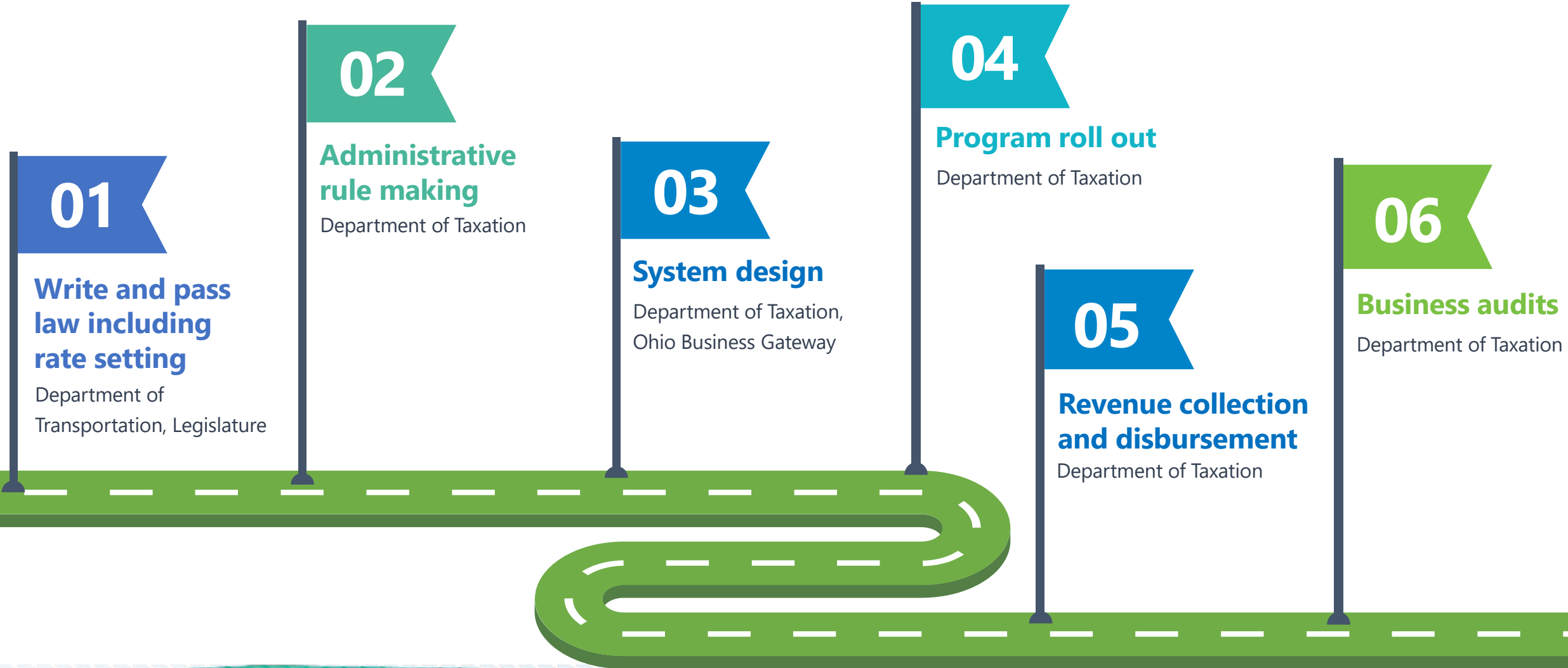
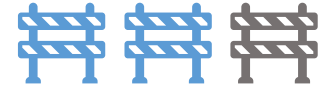
**For-Hire  
Transportation  
(TNC) Fee**

**Dedication of  
Auto Sales  
Taxes**

**Mileage-Based  
User Fee**

# Implementation Steps: Delivery Fee

## Implementation Complexity:





## Colorado: *Lessons Learned*

***Overall, Colorado has been pleased with the new program.***

### **Experience:**

- Started July 1, 2022; initially it received pushback from concerned businesses
- Modeled after sales tax
- Businesses must track during online orders and list separately on bills

### **Suggestions:**

- Allow companies to absorb the fee
- Provide small business exemptions based on total sales (<\$500k)
- Factor in time for business to get up to speed



**Analysis:**

# For-Hire Transportation (TNC) Fee



**Motor Fuel  
Taxes**

**Vehicle  
Registration  
Fees**

**Delivery Fee**

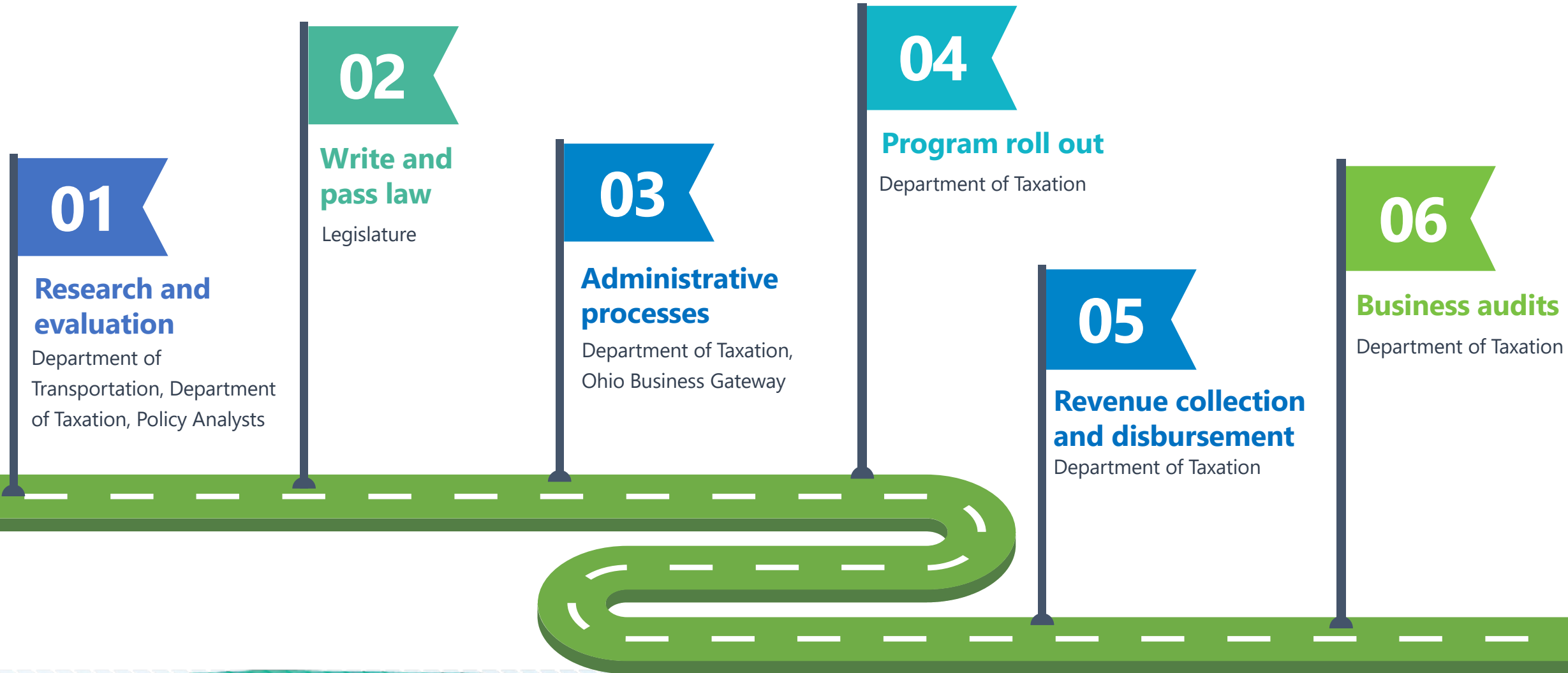
**For-Hire  
Transportation  
(TNC) Fee**

**Dedication of  
Auto Sales  
Taxes**

**Mileage-Based  
User Fee**

# Implementation Steps: For-hire transportation (TNC) fee

Implementation Complexity:



**Analysis:**

# Dedication of Auto Sales Taxes

**01**

**02**

**03**

**04**

**05**

**06**

**Motor Fuel  
Taxes**

**Vehicle  
Registration  
Fees**

**Delivery Fee**

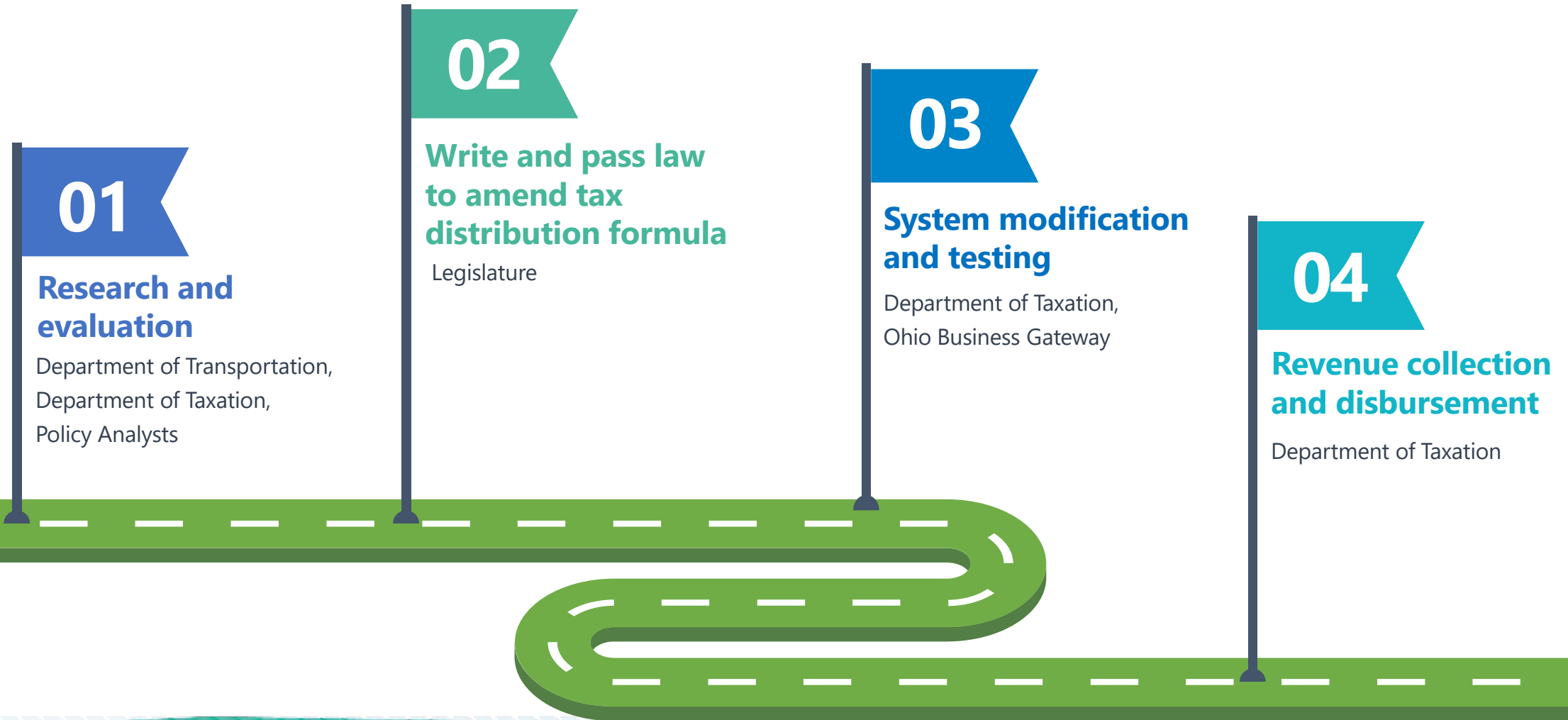
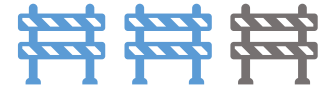
**For-Hire  
Transportation  
(TNC) Fee**

**Dedication of  
Auto Sales  
Taxes**

**Mileage-Based  
User Fee**

# Implementation Steps: Dedication of auto sales tax

Implementation Complexity:



**Analysis:**

# Mileage-Based User Fee

**01**

**Excise Fuel  
Taxes**

**02**

**Vehicle  
Registration  
Fees**

**03**

**Delivery Fee  
on Tangible  
Goods**

**04**

**For-Hire  
Transportation  
Fee**

**05**

**Dedication of  
Auto Sales  
Taxes**

**06**

**Mileage-Based  
User Fee**

- Light vehicles
- Heavy vehicles

# Implementation Steps: Mileage-Based User Fee

## Implementation Complexity:



01

**Research, study and/or pilot – to develop program parameters**

DOT, Department of Public Safety, Department of Taxation, Department of Administrative Services

02

**Write and pass law – including rate setting**

Legislature

03

**Administrative rulemaking**

Department of Taxation or Department of Public Safety

04

**System design**

Ohio Business Gateway, Department of Taxation, Department of Public Safety, Department of Administrative Services

05

**Program rollout and public information campaign**

DOT, Department of Public Safety, Department of Taxation

06

**Revenue collection**

Department of Taxation, State Treasurer, Department of Public Safety, Ohio Turnpike

07

**Enforcement**

Department of Public Safety, Ohio State Highway Patrol, Department of Taxation

# Program Design Policy Considerations | Passenger Vehicles



# Light Vehicle Case Studies



## New Zealand

- Established 1978
- Mandatory for diesel vehicles, plus EVs soon
- 700K-750K enrolled



## Oregon OreGO

- Established 2015
- Opt-In for EVs, hybrid vehicles, and fuel-efficient vehicles (>20 MPG)
- Partial registration replacement
- 810 enrolled (as of Jan. 2023)



## Utah

- Established 2020
- Opt-In for EVs
- EV registration surcharge replacement
- 4,100 enrolled (as of Feb 2023)



## Virginia Mileage Choice Program

- Established 2022
- Opt-In for EVs and fuel-efficient vehicles (>25 MPG)
- Partial registration replacement
- 12K enrolled (as of Feb 2023)





# New Zealand Case Study – *Light Vehicles*

## History

- Introduced in 1978 to:
  - Avoid placing the administrative burden of seeking diesel tax refunds on the agricultural sector and
  - Avoid the enforcement cost and complexity of a dyed diesel regime
- 35 – 40% of diesel in New Zealand is used off-road

## Implementation

- Road user charges act most recently amended in 2020
- New research into pricing other externalities beyond road wear, as well as increased electronic reporting and increased EV uptake
- Planned inclusion of EVs starting in 2024

### 1 Pre-Purchase

paper or electronic RUC  
licenses in 1000km  
increments

### 2 Display

valid paper license  
in vehicle

### 3 Renew

licenses as needed

### 4 Checks

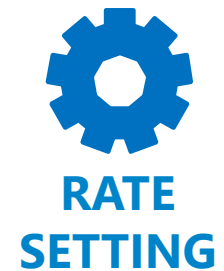
are performed of  
licenses during annual  
inspections



# New Zealand Case Study – *Light Vehicles*



Mandatory for all vehicles using non-taxed fuel (mostly diesel) or over 3.5T gross vehicle weight; EVs starting in 2024



In lieu of diesel fuel tax



State Account Manager



Visual inspection at annual safety audit, hubodometer at periodic safety inspections or eRUC (minimal electronic recording among LDV)



Prepay for paper license (online or in-person, post office)



# Utah Case Study – *Light Vehicles*

## History

SB 136 (2018) and SB 72 (2019) directed UDOT to implement a RUC program for alternative fuel vehicles by January 1, 2020

## Implementation

- Implemented on a voluntary basis
- Serves as a replacement for the alternative fuel vehicle (AFV) registration fee
- Total annual RUC bill is capped at the equivalent value to the AFV registration fee
- Looking to increase voluntary participation, including a decrease of the RUC rate and an increase to the AFV registration fee, starting January 2023

## User Experience





# Utah Case Study – *Light Vehicles*



Previously voluntary for electric (EV/PHEV) and hybrid vehicle owners; as of 1/1/23 only full EVs may enroll (previously enrolled can remain in)



As a replacement for the AFV registration surcharge; capped at flat fee amount



Commercial Account Manager



OBD-II, verified with regular annual odometer photo; also telematics



Online/app

# Program Design Summary

  
**ELIGIBLE VEHICLES**

  
**RATE SETTING**

  
**ACCOUNT MANAGER**

  
**MILEAGE REPORTING METHOD**

  
**PAYMENT**

**New Zealand Road User Charge**



Mandatory for all vehicles using non-taxed fuel (mostly diesel) or over 3.5T gross vehicle weight; EVs starting in 2024

In lieu of diesel fuel tax

State Account Manager

Hubodometer at periodic safety inspections or GPS device

Prepay for paper license (online or in-person)

**Oregon OReGO**



Voluntary, 20 miles-per-gallon rating or better

As a replacement for registration fees; No RUC cap

State and Commercial Account Managers

OBD-II (w/ or w/o location) and manual

Online/app; pay as you go/quarterly post-pay

**Utah Road Usage Charge**



Voluntary for electric (EV/PHEV) vehicle owners

As a replacement for the EV registration surcharge; capped at flat fee amount

Commercial Account Manager

OBD-II, verified with regular annual odometer photo; telematics

Online/app

**Virginia Mileage Choice Program**



Voluntary, 25 miles-per-gallon rating or better

As a replacement for registration surcharge fees; capped at flat fee amount

Commercial Account Manager

OBD-II and telematics

Online/app; pay as you go

# Program Design Policy Considerations | Light Vehicles



**ELIGIBLE  
VEHICLES**



**RATE  
SETTING**



**ACCOUNT  
MANAGER**



**MILEAGE  
REPORTING  
METHOD**



**PAYMENT**



## Eligible Vehicles Policy Considerations | *Light Vehicles*

### Vehicle Classifications

#### Key Question:

Which vehicle classifications will contribute the most to shrinking fuel tax revenues?

#### Consider:

*increased road usage,  
increased fuel efficiency and  
electrification*

### Implementation

#### Key Question:

To which vehicles should MBUF be applied first?

#### Consider:

*vehicles with similar  
implementation processes  
and users*

### Road Use and Equitability

#### Key Question:

How does MBUF produce a more equitable tax structure by focusing on factors that do and do not cause road wear?

#### Consider:

*vehicle configurations  
and weights*



## Rate-Setting Policy Considerations | *Light Vehicles*

### MBUF Purpose

#### Key Question:

Would a future MBUF serve as a replacement for an existing revenue mechanism, like a registration fee?

### Internal Combustion Engine Vehicles

#### Key Question:

How could internal combustion engines be incorporated into the program? (by average MPG)

#### Consider:

*by average MPG,  
starting with a certain model year*





# Account Manager Policy Considerations | *Light Vehicles*

## Organizational and Resource Needs

### Key Questions:

- How will operational feasibility be examined to determine which agency should implement a MBUF program?
- What additional resources would be needed?

## Outsourcing Needs

### Key Questions:

- Would the state prefer to outsource all or parts of an MBUF program?
- Does the selection of technology reporting options influence that decision?
- Who would be responsible for the customer relationship?



# Mileage Reporting Method Policy Considerations | *Light Vehicles*

Manual Odometer Reading



Non-Location-Based Device (i.e., OBD-II)



Location-based GPS Device (i.e., OBD-II)



Assisted Odometer Reading (Safety or Emissions Check)

Smartphone App

Telematics

- Increasing Privacy Concerns
- Decreasing Enforcement Costs



# Payment Policy Considerations | *Light Vehicles*

## Leveraging Existing Structures

### Key Questions:

- Which existing tax/fee programs could be expanded to include an MBUF system?
- Fold MBUF into an existing program (e.g., vehicle registration process)?

## Impact of Gas Tax

### Key Question:

How will fuel taxes be handled in an MBUF program?

## Payment Structure

### Key Question:

- Will users pre-pay or post-pay MBUF and what effect will those decisions have on revenue stream?
- What payment cadence is desired? Monthly? Quarterly? Once a year?

# Program Design Policy Considerations | Heavy Vehicles



**ELIGIBLE  
VEHICLES**



**RATE  
SETTING**



**ACCOUNT  
MANAGER**




**MILEAGE  
REPORTING  
METHOD**



**PAYMENT**

# Heavy Vehicle Case Studies



## New Zealand Road User Charge

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Established:  
**1978**

Enrollment:  
**150,000**

Eligibility:

- **Diesel Vehicles**
- **Heavy (>3.5T) vehicles**



## Oregon Weight-Mile Tax

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Established:  
**1933**

Enrollment:  
**300,000**

Eligibility:

- **Mandatory - all heavy vehicles**



## Kentucky Highway Use Tax (KYU Tax)

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Established:  
**2018**

Enrollment:  
**112,000**

Eligibility:

- **Heavy-duty vehicles above 59,999 lbs. for account**
- **Offer a one-time permit**

# Program Design Summary

  
**ELIGIBLE VEHICLES**

  
**RATE SETTING**

  
**ACCOUNT MANAGER**

  
**MILEAGE REPORTING METHOD**

  
**PAYMENT**

**New Zealand Road User Charge**



Mandatory for all vehicles over 3.5T gross weight

In lieu of diesel fuel tax

In-house for manual reporters, various commercial account managers for eRUC

Manual and GPS device

Manual reports pay in-store/online, eRUC through manager

**Oregon OreGO**



All heavy-duty (>26,000 lbs.) vehicles operating in OR

Drivers pay for road wear

State and commercial account managers

Manual and electronic device

Monthly reporting

**Kentucky Highway Use Weight Distance Tax (KYUT)**



All heavy duty (>59,999 lbs. combined weight) vehicles operating in KY

Drivers pay for road wear

State and commercial account managers

Manual and electronic device

Quarterly tax-filing; available one-time temporary permit



# Program Design Policy Considerations | *Heavy Vehicles*

## Leveraging Existing Structures

### Key Question:

How can program design leverage existing reporting requirements?

### Consider:

*pursuing MBUF program design that simplifies reporting responsibilities*

## Enforcement

### Key Question:

How should enforcement activities be designed to avoid program evasion?

## Interstate Agreements

### Key Question:

How could agreements with other states simplify the process for trucking organizations?

### Consider:

*moving towards state cooperation to combine reporting requirements and centralize reporting*

## Fee Structure Consolidation

### Key Question:

How could MBUF simplify the fee structure for heavy-duty vehicles?

### Consider:

*replacing existing fees with MBUF per-mile rate*