DRAFT

If it can't be perfect, then let's make it simple:

The Concept of a Possible Highway Network Access and User Fee-based Approach for Transportation Funding in North Carolina

Draft policy summary report by the

Regional Transportation Alliance
Business leadership for regional mobility

www.letsgetmoving.org

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Note:
This draft policy summary report is for discussion purposes and does not reflect an official position of the Regional Transportation Alliance.

Executive summary

Funding challenges. Fuel taxes are failing as a funding source. The primary reason is *not* that vehicles are becoming more fuel efficient. It is the increasing **disparity** in fuel efficiency across the fleet of registered motor vehicles that renders the option of significantly increasing fuel taxes both unfair and politically impossible. To put it another way, increasing fuel efficiency will not help individuals with existing low gas mileage vehicles who cannot afford to buy a more efficient vehicle – to the contrary, they will become even worse off whenever fuel taxes increase. In addition, our high reliance on fuel tax has made our state increasingly uncompetitive for fuel purchases for through travelers besides truckers.

A related problem is the overall disconnect between what we pay and what we receive due to the indirect user-fee nature of transportation funding, which create a lack of appreciation for the investments required to maintain and expand the network. As well, there is not a widespread public desire to pay more than it already does – either because it is basically happy with what it gets for what it pays, and/or it does not perceive the benefits to be worth the additional cost in terms of taxes and fees under the current structure.

Improved prioritization. While funding itself remains a challenge, allocations of the funding we do have has been greatly improved. Under the leadership of Governor McCrory and with strong bipartisan support in the NC Legislature, the "Strategic Transportation Investments" (STI) process provides for data-driven metrics at various geographic levels and priority tiers. However, while STI provides for greatly improved allocation of existing revenues, it does not create new funding for our growing state.

The ticking time bomb of potholes, and an immediate action step to defuse it. Recent falling fuel prices have created a ticking time bomb of potholes for North Carolina. The impending decrease in the fuel tax starting this summer will reduce available maintenance funding by $700m in a five year period. Fortunately, both the House and Senate have passed versions of legislation (Senate Bill 20) that would mitigate this challenge. In addition, by allowing the motor fuel tax to fall slightly this year SB 20 will make our fuel prices more competitive with our neighbors which may improve public support.

Funding options and limitations. The "ideal" funding method is one that is sustainable and fair. By "sustainable" we mean that it provides the resources needed to maintain and appropriately expand the system as our region and state grows. By "fair" we mean that the pricing reflects the costs of providing the system and the benefits of having ready access to the system as well as actual usage. Of course, by "fair" we also mean that it is broadly accepted as being fair – which means that it is politically acceptable.

Toll roads are the closest thing to a direct user fee basis we have. The keys for success include scalable implementation to keep costs low and minimize start-up times, the use of variable rates including a zero-toll possibility when not being used to pay back construction costs, and the preservation of revenue on the facility/contiguous toll system for both efficiency and public support reasons.

One limitation with tolling is that it has generally only been workable for freeways, bridges, and other facilities with limited points of entry and exit. Indeed, the primary reason we have a transportation funding challenge is because we cannot directly charge for usage on all roads in a manner that is technically reliable, fair, and politically acceptable. As a result, we have to find the most sustainable, fair, and acceptable solution that we can – or perhaps more accurately, the least unacceptable one.

Oregon is implementing a Road User Charging (RUC) system this summer that charges by mile traveled, but does not differentiate by time-and-place, or by weight for light vehicles and trucks. The Oregon site notes that a truck loaded to the maximum legal weight creates 8,000 times the damage of a passenger car.

Implementing a road user charge program would itself carry significant limitations. In the absence of a federal road user charge system, there would be no way for North Carolina to charge out-of-state drivers (other than commercial truckers) vehicle-miles traveled taxes; indeed the only transportation fees that out of state travelers pay are tolls and taxes on fuel that they buy in our state. In addition, road user charge programs do not differentiate between mileage driven at different times and places, even though it is the travel in congested conditions that results in the most impacts on other drivers and creates the majority of costs (i.e., additional lanes), particularly in areas with more commerce and more traffic congestion.

A possible highway network access and user fee-based approach. An automobile or light-duty truck traveling in very light traffic contributes virtually no per-mile incremental costs associated with its usage. However, drivers of all vehicles enjoy immediate access to an entire functioning transportation network – and there is a significant cost in providing a network both ubiquitous and available.

This document discusses the concept of moving our highway funding system to an approach along the lines of the combined "access and usage" funding paradigm used for mobile phones. This would move us from an indirect highway user-fee paradigm to a more balanced "highway network access and usage fee" approach that recognizes that having access to the system is a benefit, and that some usage imposes very little costs. Fortunately, we already have several elements of that system in place currently.

A few examples to consider of a shorter-term implementation of this concept could be as follows:

Base service / highway network access fees

- **Rename driver's license fees as "annual highway network driver access fees";** modify the fee level; index it to population growth or another appropriate measure
- **Rename the one-time tax from the purchase of a vehicle as "highway network access fee"** (since the tax varies by the value of the vehicle, not by use or impact); modify the fee level

Usage fees

- **Retain the existing highway and diesel fuel tax system, but reduce fuel tax rates** to a substantially lower fixed rate, ideally somewhere between 15c and 25c/gallon to make North Carolina more competitive, since this is the one fee that out-of-state travelers will still pay
- **Implement a diesel fuel tax surcharge** – paid by commercial trucks at the conclusion of each quarterly reporting period – similar to or at a higher rate than Virginia's surcharge
- **Continue to expand the NC Turnpike system**, including the repeal or modification of limitations into the number of projects eligible for study (e.g., SB 188), consistent with a scalable approach that preserves revenue on the toll network to ensure public support
- **In conjunction with substantially lowered fuel tax rates, replace the annual vehicle registration fee with a new monthly or quarterly fee,** (e.g., along the lines of HB 203 or similar); **rename it a "highway network vehicle access and usage fee**", perhaps with a lower monthly or quarterly rate for vehicles registered in economically distressed tier 1 counties, modify the fee level and index it to population growth or another appropriate measure

The variation of usage fees by Commerce tier 1 county designations that explicitly incorporate economic status would help align with the goals of the STI initiative and the Governor's 25 year vision, as well as the geographic location of the majority of projects under STI. Areas with more commerce and congestion need more highway infrastructure, and under STI they receive more.

Another advantage with charging monthly or quarterly highway usage and access fees is that doing so would also help remind people that transportation is a service – we haven't just paid for it once, our network has to be maintained, preserved, modernized, and appropriately expanded and improved.

Several pieces of legislation address these and related issues. Passage of SB 20 – or any similar bill that will stabilize the current transportation funding situation and defuse our ticking time bomb of potholes – is job one. As well, if a bill such as HB 203, or a modification of same, were to provide sufficient revenue and political acceptability, that may provide a longer-term solution.

Looking ahead, if it were to become practical to implement overhead gantries at all state border crossings, we could charge a highway network access and usage fee to out-of-state visitors at the same monthly or quarterly rate that North Carolinians would pay and potentially eliminate the entire state fuel tax system.

Next steps. RTA applauds the legislators from both parties that are exploring innovative solutions to the challenge of finding adequate transportation funding for our growing state. We welcome member and partner feedback on this draft concept, and we will continue to focus on this key issue in cooperation with the North Carolina Chamber and the partners in the statewide Coalition for a Prosperous Future.

Contents

I. The two challenges of transportation funding – in North Carolina, make it three

You may have heard of the inherent challenges associated with transportation funding in the U.S. – such as "no form of transportation ever pays for itself" (not true); "increasing fuel economy reduces gas tax revenue" (not precisely true); "electric vehicles pay no fuel taxes" (this is true; however, they do pay a fair share fee in North Carolina). Let's explore these funding issues and more in the paragraphs that follow.

Fuel taxes as a funding source The motor fuels tax has been a robust source of transportation funding revenue for decades. While it is an indirect pre-payment system (i.e., you pay your fuel taxes in advance at the fuel pump), the reason it has worked so well in the past is that everyone had to get fuel to use the transportation system, and the fuel consumed was related to usage. Increasing fuel efficiency is often cited as the reason for declining fuel tax revenue for transportation, but upon reflection this is not quite true: *it is the increasing **disparity** in fuel efficiency across the fleet of registered motor vehicles that causes the revenue challenge.*

There are at least two reasons that having some vehicles on the road with much lower or higher than average fuel efficiency has created a revenue problem. First, the disparity means that the relationship between a specific amount of motor fuel consumed and a specific amount of transportation used has been frayed (or eliminated in the case of electric vehicles). Second, if the fuel tax rate were raised to a level required to maintain and appropriately expand the system, some drivers would be paying far less, and others far more, resulting in a disproportionate burden on the owners of lower fuel-efficiency vehicles.

To put it another way, increasing fuel efficiency in and of itself is not exactly the problem*: if the entire fleet of registered motor vehicles were experiencing similarly increasing fuel economy levels, then the fuel tax rate could be raised to compensate with no net revenue impact on either an individual or overall basis. It is the increasing **disparity** in fuel efficiency across the fleet as average fuel economy rises that renders the option of significantly increasing fuel taxes both unfair and politically impossible.* Added fuel efficiency will not help individuals with existing low gas mileage vehicles who cannot afford to buy a more efficient vehicle – to the contrary, they become even worse off whenever fuel taxes increase.

Fuel taxes in North Carolina State fee structures used to fund transportation vary greatly from state to state. As it happens, the structures are not equal among North Carolina's neighbors – which brings us to a second challenge associated with the fuel tax that is somewhat unique to our state.

North Carolina has a higher base rate for our state motor fuels tax than most other states – largely because we have a centrally-funded and maintained transportation network with no separate system of county roads. In addition, we currently index the fuels tax to ensure continued purchasing power under inflation, which has resulted in relatively higher rates and, until recently, a more stable funding source.

A centralized system without duplicative county road departments has been very efficient for our state – North Carolina spends less per lane mile than the vast majority of states. In fact, we are typically among the lowest three states in the U.S. in per-mile spending, which is a great savings for Tar Heel taxpayers.

However, one impact of the resulting heavy reliance on state fuel tax is that this fee is still indirect and thus avoidable by interstate travelers to a degree[1]. Our fuel tax rate is much higher than our neighboring states, which is often reflected in the higher cost in the price at the pump in North Carolina – which causes some through travelers to avoid buying fuel here. *The combination of higher fuel taxes and relatively higher fuel prices also tends to create some discontent among the public and in the legislature.*

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[1] Except for interstate commercial truckers (qualified motor vehicles) which pay fuel taxes based on actual miles traveled in each state via the International Fuel Tax Agreement (IFTA). Truckers generally pay diesel taxes at the pump like other travelers, but then file mandatory quarterly reports of actual mileage driven and fuel consumed in each state. These reports are used to determine any required fuel tax rebates or additional payments due based on imbalances between travel in higher or lower cost fuel tax states and the fuel consumed while traveling in each state during the prior quarter. In addition, any required diesel fuel surcharges (e.g., Virginia, Kentucky, Indiana) are paid quarterly based on travel in those states having surcharges.

As noted above, some fees such as a motor fuels tax have an indirect relationship to usage, although this varies by the type of vehicle. Other fees such as a vehicle registration fee or an electric vehicle fair share fee are related to transportation (still helpful) but not usage. Still others, like a property tax, are only tangentially related to transportation (at best) and not related to usage at all.

Boiling it down, **there are two core dilemmas facing transportation funding in our state:**

- Unlike water, sewer, electric and other utilities that use publicly-owned or publicly-available infrastructure, governments typically charge indirect, not direct, use fees for transportation. While some fees are reasonably related to usage, other fees are related to transportation but not usage, and some fees can have little relationship to transportation at all.
  This lack of a direct connection between what we pay in taxes and what we receive in transportation service creates a problem of awareness and appreciation for the investments required to maintain and expand the network.
- North Carolina has a higher base rate for our state motor fuels tax than most other states, plus we currently index the fuels tax, which has resulted in relatively higher rates at the pump compared to our neighboring states.
  This is a problem is because the tax is avoidable by through travelers other than truckers.

It turns out that there is actually a third problem**. Let's call it the "no good deed goes unpunished" challenge:**

- There is not a widespread public desire to pay more for transportation than it already does – either because it is basically happy with what it gets for what it pays, and/or it does not perceive the benefits of increased spending to be worth the additional cost in terms of taxes and fees under the current structure.
  The indirect nature of funding noted in the previous bullets – and the fact that the consequences of insufficient investment typically do not manifest themselves right away – exacerbates this situation.

Given the above funding disconnect, and the lack of public enthusiasm to invest more in transportation funding, it is perhaps not surprising that one of the transportation funding solutions with the most momentum at the federal level involves no use fee at all –the concept is based on either incenting or requiring the repatriation of offshore earnings and dedicating a portion to new transportation investment.

North Carolina cannot use repatriation of offshore earnings as a transportation funding source, and so much of the rest of this summary report explores alternative options. However, we will begin with funding allocations, which is an area which North Carolina now excels in.

II. Improved prioritization – a necessary step in the journey

For 20 years North Carolina used an allocation formula that sought to provide a combination of geographic balance and population focus to distribute transportation funding. One challenge with the prior formula was that it did not strategically incorporate data into the allocation of scare funding resources, and actually had some counterintuitive elements to it. In fact, *the prior formula unintentionally created a financial incentive to **not** complete a region's primary intrastate roadways.*

Under the leadership of Governor McCrory and with strong bipartisan support in the NC Legislature, a new funding formula was developed and approved in 2013, with detailed implementation in 2014. The new "Strategic Transportation Investments" (STI) process provides for a combination of data-driven metrics at various geographic levels and priority tiers, complemented by an opportunity for input by regional transportation agencies and NCDOT division engineers for regional and division/local projects.

The new STI formula might be the most rational state transportation allocation formula in the United States. It provides a combination of three priority tiers – statewide, regional, and divisional (local) – applies logical data to all tiers, and affords increasing opportunities for input at all but the statewide level which is exclusively data-driven.

RTA lobbied for the passage of STI, we applauded the vision of the Governor and legislative leadership at our 2013 RTA Annual Meeting, and we fully support its implementation.

However, while a great tool for prioritization, the STI funding formula does not create additional funds.
As was the case with the prior funding formula, the new STI funding formula forms the basis for allocating state and federal funding. The first draft statewide Transportation Improvement Program (TIP) under STI was released in December; final approval is slated to occur later this year.

Clearly, the passage, implementation, and ongoing support of a rational and strategic STI formula was and remains a vital, essential step for our transportation system. *However, while STI does a terrific job allocating scarce funding resources, it does not impact the overall amounts available, which are not sufficient to the meet the needs of a growing region and state.*

III. The ticking time bomb of potholes – and an immediate action step to defuse it

Recent fuel prices of around $2 will result in a mandatory significant decrease in the fuel tax starting this summer unless pending legislation (Senate Bill 20) changes that requirement – in fact, NCDOT reports that highway maintenance funding would be impacted to the tune of a $700m decrease in a five year period.

This maintenance funding cliff is a ticking time bomb of potholes for North Carolina. It is avoidable, but we need to defuse it before it detonates. Fortunately, both the House and Senate have passed versions of legislation that would accomplish this; as of late March 2015 the legislation is in conference committee.

While the Regional Transportation Alliance continues to support the STI allocation formula and a user fee basis as the fairest and most transparent way of paying for mobility, in light of the lower costs of fuel and lower tax rates, we approved an updated policy this winter on state funding in relation to motor fuel taxes:

Shore up the state motor fuels tax element of North Carolina's user fee-based funding system by:

- Creating a minimum level or floor that preserves the integrity of the transportation system;
- Optimizing the indexing mechanism, including attenuating annual changes in the variable rate;
- Eliminating the upper revenue cap; and
- Maintaining or strengthening the fair share contribution opportunity for electric and other alternatively-fueled vehicles

Both the Senate and House versions of *N.C. Senate Bill 20* *address to varying degrees the first three of RTA's policy objectives above, and either version – or a modified form as may occur during the legislative conference process—is worthy of support*.

In addition, by allowing the motor fuel tax to fall slightly this year it will make North Carolina fuel prices comparatively more competitive compared to our neighbors, and improve public support.

RTA also applauds the statewide leadership of the North Carolina Chamber on this issue. **For more information** on the bill and the overall topic, please click on the following links:

- NC Chamber bill overview and action alert on Senate Bill 20
- NC Chamber statewide Coalition for a Prosperous Future
- "NC Can't Afford to Wait" website
- Recent Raleigh *News&Observer* story on Senate Bill 20

Passing Senate Bill 20 or other comparable legislation is item one. It's the true "next step" that needs to happen now.

However, Senate Bill 20 will not address the underlying challenges to transportation funding in North Carolina outlined in Section 1. **In the next section** we focus on longer-term implications.

IV. Toll roads, vehicle-miles traveled fees, and their limitations

The "ideal" transportation funding mechanism is one that is sustainable and fair. By "sustainable" we mean that it provides the resources needed to maintain and appropriately expand the system as our region and state grows. By "fair" we mean that the pricing reflects the costs of providing the system and the benefits of having ready access to the system as well as actual usage. Of course, by "fair" we also mean that it is broadly accepted as being fair – which means that it is politically acceptable.

Toll roads as a funding source In North Carolina's Research Triangle region, we fortunately have an example of pricing that reflects both costs and the benefits of use: the Triangle Expressway turnpike (Toll 540 and Toll 147). While the road will receive an annual gap funding payment from the State until its bonds are retired, the turnpike is still the closest thing to a direct user-fee model that we have.

RTA spearheaded the regional lobbying effort to make the Triangle Expressway turnpike network in southern Durham and western Wake counties a reality – and we helped save the current study that will more than double the regional turnpike mileage into southeastern Wake County.

Regarding toll roads and lanes, RTA's related policy positions include:

- Advance studies of potential express lanes and scaled, express shoulder lanes for area freeways
- Support consideration of tolls for congestion relief or significant safety improvements for existing freeways; consider supplemental funding and variable tolls to improve support
- Ensure tolls remain on corridor or contiguous toll route to maintain a user fee relationship and preserve support for turnpikes as a funding option; explore turnpike structure options

Based on the policy statements above, **the keys for successful tolls are scalable implementation** to keep costs low and minimize start-up times, the use of **variable rates including a zero-toll possibility** when not being used to pay back construction costs**,** and the **preservation of revenue on the facility/contiguous toll system** for both efficiency and public support reasons**.**

One challenge associated with tolling is that it has generally only been workable for freeways, bridges, and other facilities with limited points of entry and exit, and as a result we have largely gone with a transportation system with indirect funding. If all roads were toll roads – that is, if we could directly charge for usage at the actual time and place of transportation service, regardless of road type, anywhere in the state – then we would have a built-in sustainable and fair system.

The primary reason we have a transportation funding challenge is because we cannot directly charge for usage on all roads in a manner that is technically reliable, fair, and politically acceptable. As a result, we have to find the most sustainable, fair, and acceptable solution that we can locate and administer– or perhaps more accurately, the least unacceptable one.

Enter vehicle-miles traveled taxes – maybe

While toll roads clearly have a place in terms of constructing new freeway lanes, even within that subset of highways, they are limited to places where construction costs and revenue numbers are workable and political acceptability is plausible – one reason the latter problem exists is because we already have a separate system of transportation taxation (fuel taxes, etc.).

One concept that has gained currency among the transportation community – although not among most of the public, at least as of yet – is a "vehicle-miles traveled" (VMT) fee. The reason for considering VMT as a funding source is straightforward: As some vehicles become increasingly efficient, and as our state grows, the challenge will be to supplement or replace our fuel tax revenue from another source. Paying for travel usage, irrespective of how fuel efficient your vehicle is – or whether it consumes fuel at all – is a rational, logical step to consider.

Oregon, which has been the leading state in terms of pioneering innovative approaches for statewide transportation funding for a century, is implementing a road user charging program. The initiative is so revolutionary, and its website so informative, that we devote the rest of this page to it.

The Oregon Road User Charge (RUC) Program, OReGO

Oregon implemented the nation's first fuel tax about 100 years ago. Oregon also has a unique program where commercial truckers using the state's highways pay a weight-mile tax based on the number of axles, vehicle weight and number of miles driven (truckers traveling through most other states just pay based on mileage driven; and a few others such as New York and New Mexico include weight but not axle weight).

This summer Oregon will implement the first voluntary rollout -- not a pilot – of its Road Usage Charge Program, called OReGO, for up to 5,000 volunteers. *The Oregon program is a promising because it is both technically plausible and voluntary*. The RUC program website notes that, compared to other possible methods for raising state transportation revenue, including tolling, "The (Road User Fee) task force found that road usage charging was more fair and more sustainable, and follows Oregon's long-standing "user pays principle" of charging vehicle owners solely for their own use of the state's roadways."

Regarding the alternative of raising the fuel tax, the RUC website noted that "While raising the fuel tax might be a good short-term option for increasing the State Highway Fund… New federal Corporate Average Fuel Economy (CAFÉ) standards require new vehicles to get 54.5 mpg or greater by 2025."

The overview from the program FAQs, which refers to its per-mile usage charge law throughout, notes:

- The road usage charge is set at 1.5 cents per mile
- The number of vehicles is limited to 5,000 cars and light-duty commercial vehicles
- Credits are applied for the state tax paid on fuel purchased
- Restrictions will be in place to safeguard all personally identifiable information

In terms of pricing, "The rate of 1.5 cents per mile was designed to be revenue-neutral for the state fuel tax and equates to the state's current vehicle fleet fuel economy, which is approximately 20 mpg."

OReGO participants will still pay fuel tax at the pump, and then receive either a credit or additional bill for the difference between those taxes and the RUC charge for their actual mileage driven. Moreover, participants who use the GPS-enabled option are not charged for out-of-state road usage, and even those who do not use GPS reporting can apply for a credit for out-of-state road mileage.

Regarding the impact of one charge for lighter vehicles which might otherwise pay a lower fuel tax rate, the OReGO RUC Program website notes that "all vehicle owners depend on good maintenance, preservation and improvement of state roads," and that bad roads "with rough, pot-holed or uneven pavement—do more damage to lighter vehicles because they have lighter suspension systems."

The RUC website notes that "*freight trucks loaded to the maximum legal weight do about 8,000 times more road damage than standard passenger cars*" (emphasis added). It also notes that "the impact on roads created by regular cars and light trucks—from small compacts to large pickups—is practically the same across the board. It would not be fair to charge drivers of large cars a higher fee than drivers of small cars because the difference of road impacts is very small—in fact, it is barely measurable."

Regarding rural drivers potentially paying more due to longer travel distances, the RUC website notes that "this would be no different than it is with the current fuel tax: the more miles you drive, the more fuel tax you end up paying. Further, because many rural drivers typically drive less-efficient vehicles, they might pay less in road usage charges than by paying the fuel tax."

Finally, regarding lower-income drivers, the site states that "if income level is a barrier to purchasing more fuel-efficient vehicles, OReGO volunteers driving older or less fuel-efficient vehicles will typically pay less in road user charges than in fuel tax."

One previously-considered option that did not become part of the RUC program was a flat per-year fee.

Revisiting vehicle-miles traveled – and its limitations

Next we explore some challenges with vehicle-miles traveled as a funding source.

The Regional Transportation Alliance has an existing policy statement for "VMT" and similar fees:

- Explore a time-place-distance-vehicle type (TPDV) or other funding alternatives that replace or supplement the motor fuel tax, if privacy and economic concerns are addressed

We include time and place to emphasize that the actual impact on congestion will depend on where and when we travel; vehicle type refers to the impact of axle weight on road wear.

As noted earlier, Oregon charges interstate commercial truckers by axle weight and distance traveled. In addition, the new Oregon RUC program – limited to vehicles weighing less than 10,000 pounds – does **not** have differential pricing for heaver relatively heavier versus lighter vehicles, since the difference in road impact is barely perceptible between those vehicle types. As the RUC program site noted earlier, a truck loaded to the maximum legal weight creates 8,000 times the damage of a passenger car.

Time and place (i.e., congestion) The Oregon RUC program does **not** address congested conditions, instead treating all miles driven on public roads exactly the same. Since motorists traveling in congestion may end up using more fuel than those in uncongested conditions, in some ways the fuel tax may actually be a better short-term proxy for time and place of usage than the new RUC for those vehicles whose fuel economy is near the average in the statewide fleet of registered vehicles.

While the lack of consideration of congestion does not invalidate the reason for the Oregon RUC Program, which is to provide a sustainable funding source as fuel economy increases for some vehicles in the fleet, it does point out a limitation of VMT-based approaches that do not differentiate between time and place.

Place, part two (e.g., out-of-state travel) Another note on distortions is important and of concern here. Not only will out-of-state motorists avoid paying most indirect fees like vehicle registration or vehicle sales ("highway use") taxes, it may be difficult or impossible to collect a "direct" fee like a vehicle-miles traveled or similar fee from out-of-state travelers[2], unless the fee were administered federally. Indeed, the Oregon RUC website notes that "Visitors to Oregon will continue to pay fuel tax if they fuel in the state and drive on Oregonian roads."

Unless other states also implement road user charge programs, there would be no way for North Carolina to charge out-of-state drivers (other than commercial truckers[3]) vehicle-miles traveled taxes – and even if they did, it may be challenging to differentiate between mileage driven in each state. In fact, the only transportation fees that out of state travelers will pay would be tolls and taxes on fuel that they buy in our state.

This limitation has implications from both a distortion and political acceptability standpoint.

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[2] From a March 2014 Texas A&M Transportation Institute report (p. 48): "In evaluating the various operational (Road User Charge) concepts the (Washington State) steering committee found that most were indeed feasible but that all had particular advantages and disadvantages. All of the systems would solve the issue of fuel tax revenue erosion, but each would likely have a higher administrative cost relative to the fuel tax and be less convenient for drivers. Furthermore, *none of the systems effectively capture revenue from out-of-state users" (emphasis added).*

[3] Interstate commercial truckers already file mandatory quarterly mileage reports by state as noted earlier.

V. Suggestions for balancing user fee and highway network access approaches

In the prior sections, we noted the following:

- As a practical matter, a typical automobile or light-duty truck creates no material impact on road wear – larger, heavier trucks are the reason for the additional depth required for the "vertical" (pavement thickness) costs of construction. However,

- The horizontal costs (i.e., number of lanes required to deal with congestion during moderate to heavy commuting and travel periods, particularly in metropolitan areas and other locations with significant commercial activity) far exceed the vertical costs. The primary cost driver for horizontal costs are automobiles and light-duty trucks.

The presence of an automobile or light truck traveling in light traffic creates very little impact on either other drivers or the pavement, and as a result it does not contribute to either the horizontal (i.e., number of lanes) or vertical (i.e., pavement thickness) costs of construction. In fact, **an automobile or light-duty truck traveling in very light traffic contributes virtually no per-mile incremental costs associated with its usage.**

However, while such vehicles do not contribute any material incremental costs, ***drivers of all vehicles enjoy immediate access to an entire functioning transportation network – and there is a significant cost in making that network both ubiquitous and available.*** In addition, one can assume that having access to the network is a benefit, and actually using it creates more benefit, in some proportion or relationship to use.

Effectiveness of publicly available utilities and mobile phone networks as an analogy

As we began developing this draft policy summary, it occurred to us that perhaps the public utility model would have some promise as an analogy – paying for use of water , sewer, gas, electric, etc. – through a combination of a hook-up fee, monthly access fee, and then usage of the utility network.

Of course, the utilities differ from transportation in at least two fundamental and related ways. As a user of electric service (e.g.), we don't really care about accessing the network, transmission grid, etc., in a broad sense, since we only want to consume the product at a fixed number of terminal points (i.e., our homes and businesses), and as such it is comparatively easy to meter and charge us for that service at single points of use/entry locations. In addition, users generally don't care about the functioning of the overall grid, as long as they have available and reliable service at their access point.

This situation is fundamentally different than highway travel, in that we **do** care about access and usage across the network, and thus a per-use fee would require charging across the network.

A better analogy might be mobile telephones– like highways, we and our mobile phone could be anywhere – but even in this case, the electronic nature of the privately-administered mobile phone spectrum makes it far easier to control and charge for access.

Another point about mobile phones: many people now receive unlimited use of the voice network over a period of time for a monthly access fee – and only pay on a per-use basis based on data. We assume the reason is that the capacity of the mobile network has increased such that it is effectively unlimited for voice calls and/or the marginal costs are low enough that there is no point in charging more for it.

Given the above analogy of mobile phones, it may be preferable to consider moving from a highway user-fee paradigm to a more balanced "highway network access and usage fee" basis that recognizes that having access to the system is itself both a requirement and a benefit, and that some usage imposes very little costs. Fortunately, we already have several elements of that system in place currently.

The next two pages outline a possible approach.

A. Example near-term implementation of user fee and network access approach

In the near-term, a reasonable goal would be to maintain as much of a user fee basis as possible while emphasizing and gaining the benefits of a balanced approach – all while minimizing both administrative costs and distortions. *Given the inability for a vehicle-miles traveled-based system to collect revenue from out of state users, the suggestions below do **not** incorporate the pursuit of a new system to collect vehicle-miles traveled fees from North Carolinians – particularly as VMT fees are insensitive to time and place of travel.*

A few possible examples of a shorter-term implementation of this concept could be as follows.

Base service / highway network access fees

- **Rename driver's license fees as "annual highway network driver access fees";** modify the fee level; index it to population growth or another appropriate measure
- **Rename the one-time tax from the purchase of a vehicle as "highway network access fee"** (since the tax varies by the value of the vehicle, not by use or impact); modify the fee level

Usage fees

- **Retain the existing highway and diesel fuel tax system, but reduce fuel tax rates** to a substantially lower fixed rate, ideally somewhere between 15c and 25c/gallon in order to eliminate or substantially minimize fuel purchase distortions for through travelers related to variations in gasoline and diesel fuel charges in neighboring states
- **Implement a diesel fuel tax surcharge** – paid by commercial trucks at the conclusion of each quarterly reporting period – similar to or at a higher rate than the rate of surcharge currently imposed by our neighbors in Virginia (e.g., at least 4c/gallon) but probably no higher than Kentucky or Indiana (11c/gallon)
- **Continue to expand the NC Turnpike system**, including the repeal or modification of limitations into the number of projects eligible for either study or construction (e.g., SB 188), the scalable implementation of express lane and express shoulder lane projects, the use of variable rates with the potential for zero tolls, and preservation of revenue along contiguous toll networks
- **In conjunction with substantially lowered fuel tax rates, replace the annual vehicle registration fee with a new monthly or quarterly fee,** (e.g., along the lines of HB 203 or similar); **rename it a "highway network vehicle access and usage fee**", perhaps with a lower monthly or quarterly rate for vehicles registered in economically distressed tier 1 counties, modify the fee level and index it to population growth or another appropriate measure

Regarding a diesel fuel tax surcharge
Three adjoining states in the eastern U.S. (Virginia, Kentucky, and Indiana) have a surcharge that is paid by interstate commercial truckers as part of their mandatory quarterly mileage reports. This charge does not appear on the price of fuel paid at the pump and as such would not introduce distortions for through passenger and light-truck travelers.

Regarding a converting a vehicle registration fee to a "highway network usage fee"
As noted previously, we cannot easily (and politically acceptably) charge by time and place of use for all roads, and the indirect method of fuel tax is failing as a proxy from both a fairness and viability standpoint. We could implement a crude use fee based on odometer readings, but there are challenges here including out of state travel by North Carolinians and the lack of consideration of time-and-place.

The approach outlined in this draft involves a simpler approach that recognizes that all travelers gain benefits from accessing and using the system, with residents of more regions with more commerce typically create more costs for other users compared to those in other areas. So we could charge a monthly or quarterly fee that approximately accounts for both, and then consider selectively reducing the vehicle registration fee in certain areas to account for decreased costs on other users. This approach would also reduce revenue volatility by reducing reliance on fuel taxes. See below for that concept.

Two example options for converting a vehicle registration fee to a highway network usage fee follow.

- **A) One price for all vehicles statewide –** One option would be to charge one price for all vehicles, regardless of county of registration. HB 203 takes this simple approach.
- **B) Lower fees for vehicles outside of congested areas** – A second option would be to charge a smaller fee for vehicles registered in counties outside of metro or other areas with significant commercial activity. The premise of this approach would be to use location as a simple proxy for higher likelihood of usage in moderate to higher levels of traffic (and higher impacts on other drivers and the resulting higher level of costs to provide an effective network under those conditions). This draft summary suggests a lower registration fee for those counties designated as Tier 1 (economically distressed) by the NC Department of Commerce

Discussion of Option B. There are very few populous counties with the distressed tier 1 designation – none of the twenty most populous counties are – and every county in the piedmont crescent from Charlotte to Raleigh is in tier 2 or tier 3 (most prosperous). Moreover, there are no tier 1 counties along either I-40 or I-26 anywhere in North Carolina, with the only tier 1 counties on either I-77 or I-85 at the Virginia border. However, more than half the counties along I-95 are tier 1 counties, as is every county on the Raleigh-Hampton Roads future Interstate corridor in northeastern North Carolina east of I-95.

The use of Commerce county tier 1 designations that explicitly incorporate economic status would help align with the goals of the STI initiative and the Governor's 25 year vision. In addition, the higher increment in more economically prosperous counties will better align with the geographic location of the majority of projects under STI. Areas with more commerce and congestion need more highway infrastructure, and under STI they receive more. To that point, *note that an effective highway network vehicle access and usage fee approach would not have been possible prior to the implementation of STI, which correctly aligns needs and investment in a data-driven fashion.*

Another advantage with charging monthly or quarterly highway usage and access fees is that it would help remind the public that transportation is a service – we haven't just paid for it once, our network has to be maintained, preserved, modernized, and appropriately expanded and improved.

Regarding turnpikes and express lanes. The RTA supports the scalable implementation of express lanes, including express shoulder lanes – on existing, reconstructed, and new freeways – to address congested conditions. Express lanes are currently under study for several freeways in the Research Triangle region, including portions of I-40, I-440, I-495 (US 64/264), I-540, and NC 147 (potential future I-885). Portions of these and other freeways may also be suitable for express shoulder lanes.

In addition, it may be that a revised version of pricing for I-95 could incorporate an optional toll (i.e., as an express lane or express shoulder lane) as an introductory measure to jump-start some needed improvements.

The ideal mix of funding sources is not obvious; indeed the "perfect" mix probably does not exist. NCDOT revenue models can help us select a funding mix that will minimize distortions for both North Carolina and out-of-state drivers while providing enough revenue to maintain and appropriately expand our system.

B. Example longer-term implementation of user fee and network access approach

Out-of-state travelers and the highway network access and usage fee If it became practical to implement gantries at state border crossings along all primary routes, in theory out-of-state visitors could electronically charge a highway network access and usage fee at the same monthly or quarterly rate that North Carolinians would pay under the concept described in section A. Under this circumstance, we may be able to eliminate the entire state fuel tax system, other than the diesel surcharge proposed above, by modifying the rate of the highway network access and usage fee and other fees.

Note: We are not aware of any technical limitation to implementation of this system today; only financial and potentially political limitations. While we are not sure if this concept would be permissible under federal law, it should be plausible since it would not be the imposition of a toll, but rather the implementation of a highway access and use fee to travelers to provide access to the entire North Carolina highway system, at the same monthly or quarterly rate that North Carolina residents pay.

Positive impact on the viability of true user-fees (i.e. turnpikes) Elimination of the motor fuel tax system -- particularly if coupled with lower rates for economically distressed counties – might also improve the political viability of turnpikes and of charging a premium for higher value service (i.e., uncongested freeway lanes in metropolitan and other congested areas), since the concern of double taxation will have been addressed or at least alleviated: one will have paid access and use charges for the highway system, with a higher fee schedule for travel in areas with more commerce, leaving only premium travel as a true per-use charge.

As described earlier, any tolls charged could remain on that freeway or an adjacent one – similar to the provision that already applies for routes that had been originally planned for non-toll operation (e.g., § 136-89.188(d)). In addition, a zero or very low toll amount would be acceptable under low traffic conditions for tolls where the objective is to manage and harmonize demand rather than pay off construction bonds.

Consideration of axle-weight charges via tolling A related concept would be examine the potential introduction of either axle weight-mile taxes – used in Oregon – and/or an electronic axle-weight user charge system for primary routes, as used in Germany and Austria via "Toll Collect". *If one of these methods were pursued it would need to be focused on actual impacts on pavement construction and maintenance, and in conjunction with a lower or eliminated rate of diesel fuel taxation, and not as an overall revenue enhancement program.*

C. The future universal user-fee system

If a financially and politically viable method for charging for use and impact that differentiates between type of road and time of day in order to account for varying degrees of congestion, while addressing privacy concerns as well as use from visitors, then we can move to that method and eliminate one or more charges that were serving as crude proxies of use. Such a longer-term solution will depend on the evolution of technology and the impact of its application of political viability.

VI. Conclusion

The recent drop in fuel prices will reduce available maintenance funding by $700m in a five year period if not addressed. As a result, the passage of North Carolina State Senate Bill 20 – or any similar bill that will stabilize the current transportation funding situation and defuse our ticking time bomb of potholes – is job one.

However, the reality is that fuel taxes are failing as a funding source, with the increasing disparity in fuel efficiency across the fleet of registered motor vehicles rendering the option of significantly increasing fuel taxes both unfair and politically impossible.

As noted in this draft summary, there is no easy solution to the challenge of transportation funding, and of finding a system that is both sustainable and fair. Going forward, it may be useful to move our highway funding system to an approach along the lines of a combined "access and usage" funding paradigm, based on the rationale that drivers of all vehicles enjoy immediate access to an entire functioning transportation network – and that there is a significant cost in providing a network both ubiquitous and available. If a bill such as HB 203, or a modification of same, were to provide sufficient revenue and political acceptability, that may provide a longer-term solution.

The overall key will be to preserve the integrity of the transportation system for our growing region and state by maintaining and strengthening our access and user fee-based system to the greatest extent possible, in a way that minimizes distortions and funding volatility to maximize efficiency and ensure public support.

RTA applauds the legislators from both parties that are exploring innovative solutions to transportation funding. RTA will continue to focus on this key priority in cooperation with the North Carolina Chamber's leadership and the various partners in the statewide Coalition for a Prosperous Future.

We welcome feedback and suggestions on this draft summary report from RTA members and partners.

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About the Regional Transportation Alliance business leadership group
The Regional Transportation Alliance is the business leadership group that provides a strategic, action-oriented focus and a powerful, collaborative voice to advance regional transportation solutions that will attract top talent, grow prosperity, and sustain the quality of life for the Triangle region.

The RTA represents the regional business community and provides the sustained, long-term focus and business perspective needed to advance essential regional transportation priorities. More than 100 members and 23 member chambers work in concert through the RTA.

The RTA is a regional program of the Greater Raleigh Chamber of Commerce.

For more information, visit letsgetmoving.org