Institutional Issues Panel

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Lee Munnich
I think I have one of the most challenging panels, which is going to focus on institutional issues. I have three speakers that each could spend the whole hour themselves and have a great presentation and discussion.

Jim Whitty
This presentation is a very brief presentation of a 132-page report I did for the Transportation Research Board (TRB) Executive Committee. People are proposing odd things about mileage charges, including self-reporting of data and things like that or paying vehicle miles traveled (VMT) annually. There a just some really odd things being proposed.

But you have got to do these six things, no matter what. Every system has to do these things. Before you say you have got a solution, you have to go through each one of these. All six of them have to be done in creating a system. Keep that in mind.

What I've proposed to the TRB Executive Committee is what I call an evolutionary system. The elements that are necessary—You have to have the ability to create geographic and temporal zones. You have to have a central server or computer. You have to have connection to other databases that include vehicle information such as Departments of Motor Vehicles. You have to have an open system, an open platform for evolving mechanisms. You have to have data generation and data transfer, including an after-market device. We don't know exactly what the new system will be, but we know over time what it should become. So the system should evolve.

There are three basic models. Central billing, which covers all vehicles, has a high operation and enforcement cost. Pay at the pump is inexpensive in terms of operations costs, which is why we chose it in Oregon, but it does not cover electric vehicles. But there may be an integrated approach of both models which evolves over time.

Here is the model. Basically, it is an overlay of the pay-at-the-pump model with an upload of data any which way. (Short range radio, cellular or texting are possibilities for data transmission.) So you don't limit how the mileage data is transmitted; you only limit what is transmitted. The data goes straight to the central computer, which is more direct than what we did in Oregon. I don't think payment should be limited to collection at the pump. People are familiar with this process and it can be done efficiently, but there should be alternatives to pay-at-the-pump. This is how you can bring in electric vehicles for payment and also other charges. Other charges are difficult with collection at the pump because they no longer match up with the fuel purchase as there are congestion charges or other types of potential fees. It is best to allow an option for other payment methods in addition to collection at the pump. Over time, we want to be able to allow other payment options to evolve. Collection at the pump may be the default option. An after-market device will allow people to choose the level of service they want and also have other services associated with pay-at-the-pump: parking, insurance billing, time of day charging. Thus we should allow for after-market devices, either simple or complex with a lot of possibilities, and then allow those to evolve also.

Global positioning system (GPS) allows for the use of the area pricing system we used in Oregon, which doesn't have the problem of traffic diversion because a whole area is covered. If combined with pricing of specific roadways, you could have downtown core areas covered by area pricing and specific roadways into the downtown area covered as a specific roadway pricing. What I am suggesting here is a designer congestion pricing system to fit particular urban areas. Not all urban areas operate the same way. Design the system to fit particular urban areas. With the right GPS devices you can identify these designer systems.

The possibilities here are endless with regards to rate structure. You have access to vehicle databases and you know the characteristics of vehicles. You have computers and mathematical formulas. You can have congestion pricing and also environmental pricing. Let me go through some possibilities. Here is the basic problem that people have with mileage charging. Some people say, "You are removing the incentive to move to fuel-efficient vehicles." That is ridiculous, but still they believe it. Why do they believe there is a removal of incentive?

One of the consequences of a flat rate is that the arc of the gas tax ends up with losers being the fuel-efficient vehicles and the winners being fuel-inefficient vehicles. A lot of people hate that. But there are ways around it. For example, you can have a base rate and then have a multiplier based on miles per gallon. That creates the arc of the gas tax but maintains the flat rate on the upper end for higher miles per gallon vehicles. That could be a way to introduce environmental charges, which could be any such multiplier. The

point is that you can create various rate structures and do just about anything you want. There is even the possibility of using actual emission rates. This is a little bit more complicated, but it could be done. There is no way this potential system is anti-environmental. I think it, in fact, is pro-environmental.

Ed Regan
I'd like to make a proposal, and some of you have seen this proposal before. It is one possible solution that kind of covers or potentially addresses all the big-picture concerns associated with moving to VMT-based funding. I believe it does need to be a national system because I believe that we need to establish, if we're smart, a national pricing system. It should be one that becomes a national policy decision and the states can choose to tap into that. States and (this is the important part of my message today) any service provider or any mobility fee collection entity will find it to their advantage and cost effectiveness to then also tap into the system.

Everybody now knows that the gas tax system is at risk. This third bullet is an interesting point, and it was raised by a couple of different people in these commissions over the last year, and that is the inconsistency in national policy. The backbone of all transportation finance is dependant on the taxation of a commodity that we seek to discourage the use of, whether that is for purposes of reducing global warming or for energy independence from foreign oil suppliers. And there are other factors, from mobility to other reasons, which discourage the consumption of motor fuel. Every strategy, or many of the strategies that the federal and local levels have, is going to discourage the use of motor fuel, and right now our transportation finance is based on maximizing the consumption of fuel.

The policy commission reported in January of 2008 and indicated that the gas tax will be sufficient till about 2025. As you heard over lunch from Adrian, the commission is pushing hard to move to VMT. It is increasingly clear to me that America will likely transition off the gas tax by sometime between 2015 and 2025. I started thinking about this last July or so, and I have been making different versions of this presentation to different audiences to say, "What might that transition look like? How might we do it?" The key point here is that the problem with the gas tax is that it is an efficient way to collect revenue but it is not sustainable. All of the realities that we face for our future transportation work against the gas tax. If there is a compelling need to do it, even if it costs more, then how should we do it and what are the potential opportunities to pay for it? Nothing will be as efficient as the gas tax. Recognize this.

I would like to suggest a vision to establish a national transportation pricing system, one in which every vehicle, car and truck, in America is equipped with a fully automated electronic fee system that includes the capability price VMT as a replacement, not a supplement, but a replacement to the fuel tax. It can also be used for tolling and pricing and even transit fare payment and parking charges. And, ideally, it provides an opportunity for integration of Intelligent Transportation System (ITS) services for various

third-party users of the system. As I said, part of the system is to replace fuel tax, but part is to replace other charges as well.

There are many challenges, many of which we've already discussed today. The system is perceived as an overwhelming, technical complexity, but I don't actually think that this is as technically complex as people say. Privacy is a big issue. Enforcement and security are as well. And there are perceived high costs of deployment and operations when compared to the gas tax. There are also payment and collections issue. If we have multiple jurisdictions and multiple applications, one of the big things will be to ensure that we will all get paid. How do we redistribute that in an efficient way back to jurisdictions? How do we deal with people who don't have credit cards, bank accounts or charge accounts?

I started with the idea that says "let's establish a national travel card." This would be a smart card, and everybody in the country will get one (based on driving age or transportation age—the details could be worked out later). It would be an individual smart card and travelers would have their choice. They could establish a national travel account which would be linked to a credit card or bank account, and so forth. This could be somebody who is not really concerned as much about privacy. It would require no action by the user once opened. It could store balance or other electronic-type information on the card where cash is actually paid or is transferred at the time of vehicle usage, for whatever purposes. Basically, it is fully anonymous.

There are two things which are a little different here. One is the card reader that would read the smart card. The other is a proposal that probably is the most controversial part of this: an interlock so that if there is not a card in there, then you won't be able to start your car. We already have that technology available. It sounds very plutonian, but to be honest with you, if you look at the gas tax, if you fail to gas up your car, sooner or later you won't be able to start your car. In essence, it's in some ways the same. That information would be communicated by global system for mobile communication (GSM), cellular-type communication, and the VMT information would be collected by jurisdictions. Data would basically be downloaded, if I have a national account, to the account number with the amount of miles driven. If I have a smart card, I'm actually downloading revenue.

Envision a state-level VMT fee distribution network. Let's assume that all states buy into this. There would be a series of state networks integrated into a national clearinghouse to collect VMT information from motorists within their jurisdiction. This would function at the state level and potentially at a regional, local or even for special pricing zones.

All the state networks will be integrated to a national clearinghouse, and the federal government would also be integrated into it. Let's look at these jurisdictional issues. Illinois is an interesting example because, as somebody mentioned today, Chicago has a different tax than northeastern (NE) Illinois and so forth. And each county has an additional tax layout. That is a good example of how to do it.

For a typical jurisdiction—say NE Illinois region—everybody driving in the country over this concept would pay a federal fee, and then you'd have a statewide fee, northeast

region fee, city of Chicago fee, and congestion fee so that all motorists in the city would pay almost $5 for a 50-mile trip. This system would actually be better from an equity standpoint because if there is going to be a charge, let's say added to a gas tax statewide in Illinois that subsidized transit in the Chicago area, then people in downstate Illinois are clearly not getting the benefit that they are paying for. But under this type of system the additional charge would be applied only in the Chicago region and not in southern Illinois.

The fees would need to be collected and re-distributed back to these jurisdictions. The other pricing functions that we have would be toll facilities, high-occupancy toll (HOT) lanes and managed lanes, parking systems, and transit. (If we use a card, we can use the card directly with the transit system.) You can also use your card for direct payment of taxis.

The key point is this: toll operators and any other third-party operators would pay for all of the roadside equipment that was involved in their particular application. Only the backbone system for VMT and the national clearinghouse would be established by the federal and state governments. Any third-party users may tap into this system, and this is where I believe we can pay for the system, as these costs would be borne by the individual users.

I am proposing as part of this that we add a dedicated short-range communications (DSRC) link, in addition to the GSM and the GPS-type system, for communication with the roadside reader. That may or may not be necessary, but my reason for doing so is that all these third-party providers will tap into this system. Once we have a world in which every vehicle is equipped with a national pricing and clearinghouse structure, that basically has a guaranteed payment mechanism, then virtually every parking garage, every toll road, every managed-lane system, and so forth will find it cost effective, by a wide margin, to tap into this. They would provide the roadside collection equipment. They would also provide a fee for that service. It would be cost effective for them but would also generate the kind of revenue that would offset the huge incremental cost of moving from the efficient gas tax to a more complicated and more expensive system.

Claims will be made by all different users of the system. All these people that tap into the system—operators, state networks, congestion pricing zones—will tap into the national clearinghouse, which will clear the process and redistribute the revenues to all the various jurisdictions. The accounts will be maintained at a national level and will be linked either to a credit card or bank account for transfers. To eliminate the collection issue I would say that we offer direct billing to commercial accounts but not to all the drivers.

People would have a smart card with a balance stored on it. We will have dozens of kiosks in different service areas, whether bank ATMs or parking facilities. This system would accept cash, credit card, or debit, but will have no information about your travel or anything else. What would the cost be? It would be around $150 to $250 per vehicle. That is about 1 percent or less of the cost of the vehicle itself, about 2 percent of the

revenue that will be collected from that device over its life. Initial set-up costs would be $50 to $70 billion, which is huge.

The system would replace virtually every other source of revenue. Only the onboard units and the clearinghouse structure will be financed through the national system. All other costs, such as local roadside applications, will be financed through the users of that system. And the operating costs will be probably $15 to $25 billion a year. That might be low, but that is after you reflect that probably half of that cost, if not more, would be borne through payments by third-party providers that will find it cost effective to tap into this system.

In summary, a pricing system is needed to provide a sustainable foundation for transportation finance in the future, per mile instead of per gallon. I would like to see a design that provides a single device paying for all forms of transportation fees and charges. The card will allow you to do that. It is a system that will link road users to payment and a system that would preserve privacy. It is a system that would allow third party providers to use the system to pay the bulk of the cost, at least the incremental cost, of moving from the gas tax to a complicated pricing system.

It will be a big investment, certainly more complex than the gas tax, but it will provide a sustainable future. The technology, as many people have said, is here today. All it takes is the political vision and courage to do it, especially at the national level. Thank you.

Jerry Dike

I want to talk to you a few minutes about how VMT-based fees might relate to departments of motor vehicles (DMVs). DMVs typically are standalone agencies and they are also on (or in) departments of transportation (DOTs), including here in Texas. About 15 states have them within DOTs.

Five things I would like to brief you on today.

1. talk a little bit about vehicle fleets;
2. DMV roles and issues;
3. opportunities in the VMT fee arena;
4. potential DMV national models; and
5. possible strategy towards VMT fee implementation.

Motor vehicle fleets comprise about 250 million vehicles in the United States with about 250 million drivers. Twelve million vehicles get junked every year, as it is an evolving fleet. In the past few years there have been 16 to 17 million new vehicle sales. Unfortunately, this year is 9 million, and it will probably get up to 11 million next year and approach 13 to 15 million in two or three years. The point is that it is a continuously evolving fleet. There are also 2 million plus new drivers each year. Here in Texas we have about 20 million vehicles: 9 million autos, 9 million trucks and pickups, and we also get a number of vehicles from out of state. It is a transient fleet, with a transient traveling public.

DMVs have many assets, such as a strong association with the American Association of Motor Vehicle Administrators (AAMVA), which is a sibling organization to the American Association of State Highway and Transportation Officials (AASHTO). Neil Schuster is here with AAMVA as its president/CEO. One of the other big assets that DMVs have is that they have a unique identification for every vehicle and driver in the United States. Almost all vehicles have a unique vehicle identification number and a unique license plate. Most of them also have a registration sticker, and many of them have a safety inspection sticker. Many have toll tags.

But all state databases have access to make, model, weight, fuel type, and (most importantly) address information (including e-mail in some cases) for vehicle owners and registrants. Many databases also have information available on average miles per gallon available, and many of them also have annual odometer readings that can be used.

Another asset that DMVs have is that they bill and communicate regularly to all 250 million drivers and all registrants each year and they collect billions of dollars. Here in Texas they average $5 billion a year though the DMV. They also assist other agencies with vehicle data.

There are many issues facing DMVs today. There are 50 large, active DMV systems that encompass all vehicles. As such there are numerous billing, software, technical and operational standards for these large systems. The traveling transient public that we talked about earlier, both interstate and intrastate, compounds this.

Both public relations and public information are issues that have been discussed a number of times. There are data privacy issues throughout both the state and federal level.

A DMV can collect revenue from outside of a specific DMV area. They can also assist toll road agencies and tax commissions at the state level. Here is an example: for Austin, Texas-area toll operations, about 4.1 million toll transactions were tracked. Of these, 1.1 million were paid by plate/toll tag and half a million paid by cash. The DMV matched up these toll records to their own DMV information files and had a high percentage of success in finding addresses to bill transactions to. (There are also other ways to access this information.) Toll records showed 11.5 percent of transactions were from out of state or out of country.

There are several potential national models that might be of interest for the VMT fee community. On the driver side, one of the largest and most comprehensive is the REAL ID Act, which would have required everyone in the US to prove or re-prove their identity when they first get a driver's license or when they renew it. When introduced, it was very intrusive and controversial. The 50 states estimated a cost of about $11 billion to implement, and it became a very famous unfunded mandate. Twenty-one states have actively opposed either all or parts of the REAL ID program and, at the present time,

Homeland Security is reconsidering if and how to implement it. It is a tremendous issue nationwide. Driver's license, identification, and security work for this program all became established over the two years following 9-11. AAMVA has developed 27 detailed references and reports on driver's licenses and identification standards, such as a best practices document on social security number verification.

There are also several compacts, such as the Driver's License Compact (DLC) and others, but some states don't participate in this program. (All of these are acronyms, but they are huge DMV systems.)

On the vehicle side, there is a standardized license plate, and this could be of potential interest to the issues of VMT fees. In 1925 the Society of Automotive Engineers went to AAMVA and promulgated the physical standard of six by twelve inches. AAMVA has a further standard that identifies the contents of plates. There are a lot of different license plates, but there are also a lot of standardizations. Yet, 16 jurisdictions still have plates that stay with vehicles versus 50 that have plates with owners. (The reason for more than 50 is that AAMVA also has the District of Columbia and all of the Canadian territories and provinces.)

The National Motor Vehicle Title Information System (NMVTIS) is another good example of a potential model. It was mandated in 1992, but after 17 years only 13 states have fully implemented it. Twelve have implemented partially and 10 have plans to do so in the future with 16 states having no plans to do so.

There are also potential national DMV models in the commercial vehicle arena. One of the best ones is the commercial driver's license information system (CDLIS), which requires all truckers, and particularly the hazardous material drivers, to have a commercial driver's license (CDL). All states comply with the requirements of this system.

There are a number of other DMV-based systems and frameworks. A good example is the international registration plan (IRP). A large trucker can pay his base state registration to his own state, and that home state prorates the fee that he paid, on a percentage basis, to the states where that trucker has driven for that year.

DMVs derive their authority from virtually all state agencies and local entities, Congress, United States Department of Transportation (USDOT), and other federal agencies. Authority is also derived from various state governors and the different state legislatures as well as assorted agency policies and rules.

Reciprocity agreements are also an important source of DMV authority because a lot of these activities are not covered by federal statute and are not covered by state law. Reciprocity, including reciprocity with Canada and Mexico, is needed because of the transient public that travels throughout these states and countries.

There are also well-established policies for standards, guidelines, best practices and other things.

Strategies for change moving forward include:
1. Make things clear to the public. Either we are going to have a revenue neutral system, a system that collects more, or a system that makes people pay their fair share.
2. Make it easy. Right now it is easy to pay at the pump, but we don't even recognize that we are paying that right now. If you bill people monthly, it makes it harder.
3. Make it popular. That is almost impossible to do with a new tax.
4. Make it mandatory at the federal level. National DMV systems take many years to develop and implement. It is difficult to get 50 state legislatures to agree, as they all want different things.

Thank you.

Questions & Discussion

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1. Did Oregon consider collection of the mileage fees at the DMV?

Jim Whitty answers:
Yes. The problem there was the operational costs. We decided to move to collect at the pump for that particular reason.

2. Renewal of registration is an opportunity to collect. Why not just submit the mileage of the past year?

Jim Whitty answers:
Self-reporting is problematic because of fraud and errors. Reporting mileage data creates large bureaucracy, fraud, and requires enforcement of those who cannot pay. I don't think it works at all.

3. The use of the open vs. closed terms and centralized vs. decentralized—how did the Oregon proposal connect the terms?

Jim Whitty answers:
A closed system is technology that works with itself, perhaps quite well. An open system is like the Internet, where new applications can come and new ways of using the system are developed. My suggestion is that the closed system may not be evolutionary, as it may be limited to the time it is implemented. Five to ten years down the road you may want a different system and you may not be able to move there very quickly because of the transition. While we did a closed system in Oregon, I think it is best to try to reach further for an open system and achieve public acceptance through voluntary means, not mandates.

4. What is the probability that the state will implement a VMT charging system?

Ed Regan answers:
I believe it has to be a national decision where everyone has the same system. It would be efficient and cost effective to tap into that system. For an individual state to develop a system, it would be more costly. What I proposed was a vision where every vehicle in the country is equipped, which I understand is expensive to do. A national framework is needed to establish common payment for all these different fees so that the users of the system, whether in Texas or Connecticut, basically have the same exact system. Under that model, it would be very logical to assume that each of the states will find it very cost effective and very efficient to tap into that system. But it still takes a national decision. It is possible for an individual state to decide to go ahead without a national system, and Oregon might be the state to do it because it actually developed a transition strategy and framework for a dual system. This is where the dilemma comes, because in my experience in talking with at least the past administration, people at DOT and policy maker folks, these folks kind of laugh at this idea that the Congress at the federal level would decide to do this. It is going to take the states to build it up from the ground up as a pilot program, and I think that is unfortunate. But you have this dilemma that the states can't do it on their own without a national decision, and the national government seems to want the states to build it from ground up. States need to push federal government to establish a national pricing system or some kind of framework to which individual states can then tap into.

Jim Whitty answers:
It depends on what the federal action is. If it is a strong reaction and everybody understands the pathway forward, then I think the states may sit back a little bit. I don't think those states that are working on it already will stop. But I think the political decision to implement would probably be dependent on the feds. The immediacy wouldn't exist if the feds weren't acting. A platform could be developed on the national level. That is what we want to see from the federal level: prepare a platform. A national move forward is critical. But if the federal response is weak, the states will act as if nothing happened at all. They may have to band together to push the national to act.

Jerry Dike answers:
I agree with my colleagues. It would be very difficult for states to implement. One thing that I want to mention—the license plate, stickers, or an electronic device could be issued to every vehicle in the United Sates in a reasonable period of time. GPS could be put aside if we want to use the DMV system. It would be very hard for a state to implement, like in Texas, in any given time. We have three-quarters of a million vehicles registered out of state or out of country.

5. One of the things that hasn't been discussed in this panel is the strategies that may be brought voluntarily to the marketplace. Pay-by-the-mile, pay-by-use, GPS-supported or odometer-supported, parking garage pay structure or pay-as-you-go insurance… the voluntary strategies by which you can start to scale these things up without a federal

mandate. How does the panel see these kinds of voluntary approaches potentially interfacing with pilot programs in the next transportation bill, which could also then lay a pathway or a roadmap for the national road user charging?

Ed Regan answers:
These may be helpful, and they can be done, but won't get us there. Use the word mandatory. The reality is the gas tax is mandatory, and if we are talking about a system that would replace the motor fuel tax as a sustainable source of revenue, then the fact that it is mandatory doesn't seem to be that controversial. There are many elements of it, such as privacy. Privacy has to be dealt with, and other issues. What is missing is a decision at the national level to begin the process of redefining how we do this. I agree with you that all those other things are good things, but I don't necessarily agree that we can afford to get to the ultimate new framework by baby steps. The ideas you are suggesting are good ideas, but I don't think those things are going to take us to the kind of framework decisions that need to be made very soon so that by 2020 or 2025 we are able to do this, because it is going to take a lot of time to get there.

Jim Whitty answers:
We can use voluntary means to get public acceptance. Pilot project are also helpful in this area. It may be that a pilot project gets permanent and doesn't go away. There are many more applications to a GPS-related device that you could have as you suggested. You attract some providers for the services, but you get them for free for the pilot project. And then the cost of participating with all this new stuff that tells you where you can find a parking place, etc., adjusts the fee structure. You could coax several thousand people to do this pilot program, and they will probably buy in.

6. Is it mandatory that we replace the gas tax, or is it mandatory that we have VMT? Everyone shouldn't have a meter. If we are going to change the taxing structure, we shouldn't force everyone to have a meter.

Ed Regan answers:
I respectively disagree. I think this is more. It is a new world. It is a world in which if we move off the gas tax and are smart about the way we establish a framework, and assume every vehicle is equipped, then this is a whole new way to do transportation. Local entities can start doing congestion charging, pricing strategies, financing or building new roads. It's a completely different world. That ability to fully manage demand and deal with this next frontier of how you do transportation, not just transportation finance, is going to be made a whole lot easier if everyone is part of the solution. People can't choose to participate or not. That doesn't sit very well in a lot of people, but I really think it is part of the system. My point that I don't get through to people is that if we are going to do it, let's do it smart and develop a way to do more than just replace the gas tax, so that same system can be used for many other applications like parking, etc. Third-party operators can tap into the system, and pay 10 cents per transaction to do it. It will offset the cost of the major change needed to replace the gas tax. Third parties can jump into the system for a small percentage of the fee.

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