A Challenge to ASCE: The Need for a New Solution to the Federal Gas Tax
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When I became President of the ASCE Pittsburgh Section, a previous president told me that every President was entitled to one crazy idea. I did not have one back then…but now I do. I am putting this out there for others to support or reject, but I am hoping it gets the dialogue started. I hope that it causes others, who are smarter than I am, to visualize a new direction; and ASCE leaders step forward and champion a new direction.

When The **Intermodal Surface Transportation Efficiency Act of 1991** (Public Law 102-240; **ISTEA**, pronounced *Ice-Tea*) came into existence it posed a major change to transportation planning and policy, as the first U.S. federal legislation on the subject in the post-Interstate Highway System era. ISTEA signaled a *New Era* in transportation planning. Now it is time for the next chapter; we need a change.

Every organization, including ASCE and the Transportation Construction Coalition (TCC), representing 31 national associations and labor unions, have been pushing Congress to fund transportation. Alternately, about 30% of Senators favor removing the federal government from the highway business, based on recent votes on devolution. This article is about a hybrid approach to devolution. Where there is a restructuring of transportation from the perspective of both funding and ownership, we can learn from examples and think differently. Here is why.

Excerpted from ASCE's **10 Myths About the Highway Trust Fund** discussion on public-private partnerships (P3s), "The key is finding a long-term, sustainable funding source." I agree. We can no longer continue to fund highways with a gas tax and when congress feels like it. We need to develop a plan with sustainable funding sources. **Why** do we need to change our funding and delivery approach to highways and **what** would we change to? The **why** is clear…

1. **Congress does not want to raise taxes.** Politicians and the public do not like taxes. The gas tax has not increased since **1993.** That is 23 years. Taxes are a bad word!
2. **Local politicians also do not want to raise taxes.** Individual state gas taxes rarely increase as well. Raising taxes is just not what politicians, at any level, want to do. Although, currently many states are being forced to do so and some have stepped up.
3. **Federally mandated fuel efficiency.** The same federal government that is not increasing the gas tax has mandated more fuel efficient vehicles. Corporate Average Fuel Economy Standards (CAFÉ Standards) have set limits that increase the shortage of funds by requiring more fuel-efficient vehicles (**54.5 miles per gallon [mpg] by model year 2025**). This directive contradicts our funding need. The result of the CAFÉ standards is that nationally fuel consumption has decreased; and will continue to decrease, thus providing fewer funds. By 2025, it will be one-half of what we currently generate from the gas tax.
    a. The program introduced by the government includes targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including:
        i. Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cells vehicles;
        ii. Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups;

iii. Incentives for natural gas vehicles;
iv. Credits for technologies with potential to achieve real-world greenhouse gas reductions and fuel economy improvements that are not captured by the standard test procedures.

4. **Natural Gas.** With the abundance of natural gas (shale gas)…fleets…particularly public transit, the trucking industry, and the construction industry, have moved to natural gas vehicles. The popularity will likely continue to expand to school bus fleets, refuse fleets and others as fueling stations become more available. The savings for an owner/ operator are clear. These vehicles, buses, pick-up trucks, fleets are traditionally larger consumers of fuel, so the overall effective gasoline decline and gas tax paid will continue to decline.
5. **Can you say Tesla?** Tesla sold 325,000 Model 3 vehicles in the first week of sales! Electric cars and hybrids are making headway. Charging stations are popping up at Whole Foods Markets, town centers, malls, parking lots and everywhere across the country. Electric vehicles pay no gas tax!
6. **Every auto manufacturer offers an electric or hybrid option!**

MPG	HYBRIDS	+ View All
53/46	Toyota Prius c	
42/37	Ford C-Max Hybrid	
44/44	Honda Civic Hybrid	
43/40	Lexus CT200h	
42/48	Volkswagen Jetta Hybrid	
44/41	Ford Fusion Hybrid	
35/40	Hyundai Sonata Hybrid	

"**The World's Biggest Car Company Wants to Get Rid of Gasoline"**

By Brian Bremner, Craig Trudell, and Yuki Hagiwara
December 17, 2014, Bloomberg Business Week.
Toyota is introducing the Mirai, Toyota's new $62,000, four-door family sedan. It runs on **hydrogen fuel cells**. Will it change the market...I do not know...but this week Toyota announced... "It will make about 5,680 patents related to fuel cell technology available royalty-free through 2020. In a speech at the 2015 **Consumer Electronics Show**, Senior Vice President Bob Carter of Toyota Motor Sales said the company is making the patents available to "speed the development of new technologies and move into the future of mobility more quickly, effectively and economically."
http://www.bloomberg.com/news/2015-01-06/toyota-fuel-cells-pabst-google-dotcom-intellectual-property.html

The future of a liquid fuels tax or gas tax for funding our highway system is bleak. To paraphrase ASCE…It is not a "long-term, sustainable solution." So what should we do? Examples of varied approaches are popping up.

Virginia recognized the issue and, in 2013, eliminated the state gas tax opting for a combination of sources to fund transportation including a wholesale tax on gas, an increased sales tax, and an allowed increase in county sales taxes in the more urban areas of Northern VA and Hampton Roads, while relying on the federal contribution. Is this "combo" tax method correct? Should we be paying for highways with sales taxes? Probably not, but it recognizes that the gas tax is no longer the correct solution.

After 12 years of talking about replacing the gas tax, experimenting with new technologies and running pilot projects, the **Oregon Department of Transportation** says it is ready to launch a new pay-as-you-drive road tax. Check that, they are ready to launch a public trial of the program with 5,000 volunteers.

Expecting Congress to come up with the Funding

ASCE Past President, Andy Hermann, told Steve Kroft, on 60 Minutes:
"You're sitting there at these [House or Senate] committee meetings; they seem to agree with you. Yes, we have to make investments in infrastructure. Yes, we have to do these things. But then they come around and say,
'Well, where are we going to get the money?'
"And you sort of sit to yourself and say to yourself,
Well…, we elected you to figure that out."

I think the answer is clear…Congress will not figure it out! We have been asking for funding for 23 years and we keep getting the same answer. Einstein has been credited with the maxim:
"Insanity is doing the same thing over and over and expecting different results."

We need to do something different. We are smart enough to find a better solution.
This is the Challenge to ASCE:

1. Think of a Long Term Sustainable Solution
2. Think of New Ownership Models (This is happening with P3s)
3. Think of Authorities or Public Utilities
4. Think about a Paradigm Shift

Highways Compared to Utilities

Aren't highways just one more utility? Just like water, electricity, and natural gas. The public expects to head out of their garage and use the roadway. They want it to be as dependable as the other utilities they used that morning to get ready for work. Let us look at the cost to the public (i.e., the fees paid):

Highways are "The Deal of the Day" !!!

Driving 15,000 miles per year
at 20 mpg.
You will use 750 gallons of gas.
The federal gas tax is: 18.4cents/gal.
The annual cost is: $138
or…
$11.50/month ($9.09 using 25MPG)
State taxes, which vary, might double the amount +/-. (Say $25/month)

$2.50 x 20 week days
= $50 / month

For all of 2015, the average fuel-economy rating for new vehicles sold was 25.3 mpg. Source: Wall Street Journal

Utilities and Communications	Monthly Cost (approximate values)
Natural Gas	$100 +/-
Electricity	$100 +/-
Internet / Cable TV	$150 +/-
Cell Phone	$ 50 +/-
Water and Sewer	$ 45 +/-
HOA Fees (Solid Waste, Landscaping)	$150 +/-
Fuel Taxes (Federal + State)	$ 25 +/-

Is it any wonder that we are not able to maintain our infrastructure? We simply are not paying enough. We are paying more for a cup of coffee than our roads and bridges.

While we struggle in the transportation industry, CEOs at utilities like Pepco and Dominion Resources take home salaries of more than $11million. Pepco, as part of the merger with Excelon, agreed to give a rebate to customers of $54.59 in May. They have so much money they can give it back! At the same time, we have to allow utilities into our right of way for free. If we have to move them, we might have to pay them (dependent upon agreements). We have to allow for their schedule for relocation, which often causes delays in our projects. And…we have to pay to use them to light our tunnels and roadways. What is wrong with this picture?

Utilities… A Level Playing Field???

Utility	Pepco Holdings	Dominion Resources	Washington Gas and Electric	VDOT
Revenue/Budget	$4.878B	$13.12B (2013)	$2.466B (2013)	$5.29B (2016)
Employees	5,592	15,500	1,444 (2014)	7,500
CEO/ Commissioner Salaries	**$11,006,781.00**	**$12,200,000.00** (2011)	**$3,769,834.00**	**$202,419.00**

We generate money by taxing the public. Utilities generate money by charging customers fees (a utility bill). Is there a difference? Only in what it is called…a tax versus a user fee.

I recognize that as civil engineers we think of ourselves as a "People Serving Profession." Is this imbalance between utilities and transportation fair and equitable? We should either be holding utilities accountable to the standard that we set or striving to attain similar status as a utility. I suggest the latter since we need funding! After natural disasters, utilities are not scrambling for funding and begging the government to declare a natural disaster. They have the funding and go about their business of repairing damage. We are slighting the public (doing a disservice) by managing a system that is always short on funds. Where should we place the blame for insufficient funds? We are the ones managing the program.

Starting points for a new solution

1. With the FAST Act (Fixing America's Surface Transportation Act) in place, we now have **4.5 years** to develop a plan.
2. For years congress has debated **Devolution** (Devolution is returning nearly all transportation revenue raising and responsibilities to the states.)
3. Beginning with The Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991
   - The Act presented an overall intermodal approach to highway and transit funding with collaborative planning requirements, giving significant additional powers to **Metropolitan Planning Organizations** (which are **Regional**).

One approach is A Hybrid Approach to Devolution.

1. The Federal Government should **own the Interstate System and maybe the National Highway System**. They should possess and operate it for reasons of:
    - National Defense
    - To insure Interstate Commerce
    - To facilitate Emergency Evacuations.

The Federal Government might, for efficiency, consider merging The Interstate System into one system with other roads and bridges that they manage and maintain in agencies like:

- The National Park Service
- Eastern Federal Lands
- U.S. Forest Service
- The Military Branches
- Etc.

It would simply be efficient if the Federal Government managed it all in one organization.

2. Everything else should go back (Devolve) to the states… and from there…
    They should become part of **Regional Transportation Utilities.**
    These could be: (1.) Publicly managed Utilities or Authorities, (2.) P3s or (3.) private.

While we struggle with how to do this, P3s are gaining ground. A P3 consortium in Pennsylvania is now in the process of building and maintaining 558 bridges for 25 years. P3s in Virginia are operating Express Lanes and collecting Tolls. And, there are many more. We are headed to where I am suggesting…but without an organized well thought out plan. Does this make sense?

So how might the funding work?

1. The **Federally owned and maintained Interstate System** will eventually be tolls or GPS Transponders. Pay as you go…by the mile…based on vehicle type. Just like Toll Highways now. (Turnpike Authorities) As discussed earlier the gas tax will go away and a new method of funding must occur. The choice of how it works would belong to the Federal government. But they need only look at models created by Turnpike Authorities or P3s.
2. The **Regional Transportation Authorities or Utilities** might charge a monthly fee per vehicle. Rates and level of service to be determined by region! We would learn to pay a monthly bill for use of the local highway system. How simple to pay $XX / month for local road use.

This is just one idea… from one ASCE member…
I simplified it.

- I left out transit,
- I left out rail,
- I left out all the agreements, grants, and loans that are in-place.

These can all be worked out. The Highway Trust Fund was once used only for highways. Aviation is a form of transportation and it is not bundled. Highways should be separate from transit and rail. The

public is clamoring for a new way of business in Washington. We need to simplify the way we do business by creating programs, policies and funding streams that make sense.

What will happen?

- With new funds…jobs will be created
- We will fix America's transportation infrastructure
- New industries will evolve
    - The private sector will more readily embrace and advance new products faster than government can.
- Our economy will grow!

We are on the verge of a ***New Era***.

- The automated highway will change everything. Image the possibilities: Narrower (9') lanes, no need for guardrail, increased speeds, and sensors will line the highways.
- Concrete that self-heats to melt snow and ice
- Solar highways
- Drones for inspection and monitoring
- Wirelessly charging electric vehicles giving them unlimited range
- And many more advances

WAVE

SOLAR ROADWAYS
A REAL SOLUTION

My Challenge to ASCE:

Develop this solution or *a better one* over the next 4.5 years. Do not just beg the federal government to fund highways. As ASCE, we need to lead in identifying a long-term sustainable solution to transportation funding. We can lead or we can follow…WE NEED TO LEAD and we need to think! We need to think of a better way. We need a paradigm shift to ***user fees*** and away from taxes. Funds come from the same pool, the citizens of the United States. It is a simply a function of how it is collected and distributed and what is logical and more palatable. I see ASCE as the leaders in this effort. I know ASCE can lead the charge. We publish the Report Card on America's Infrastructure and that has become the standard by which infrastructure is judged. We need to lead Congress and the consortium of 31 organizations to a ***New Era in Transportation!***