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## Surface Transportation Innovations

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January 2018

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### RAND's Sensible Guidelines for Infrastructure Policy

A recent article on the forthcoming White House infrastructure plan quoted an Administration spokeswoman as saying it would address "rebuilding our nation's crumbling infrastructure." That frequent characterization is misleading, as pointed out in an excellent new report from the RAND Corporation, "Not Everything Is Broken: The Future of U.S. Transportation and Water Infrastructure Funding and Finance." ([https://www.rand.org/pubs/research\\_reports/RR1739.html](https://www.rand.org/pubs/research_reports/RR1739.html))

To begin with, the report reminds us that the large majority of transportation and water infrastructure is owned and largely funded by state and local governments, not the feds. It also includes graphs showing that total infrastructure spending as a fraction of GDP since around 1980 has been largely flat. And it notes that "needs assessments"—such as those produced by the American Society of Civil Engineers—"offer an unreliable guide for policy and priority setting." This is in part because some proposed infrastructure projects would cost far more than their benefits, which would make our economy poorer.

After setting the stage, the report goes on to offer guidelines for sound investment in transportation and water infrastructure. Since much of what is wrong with our infrastructure is the result of bad policy, rather than lack of money, "an across-the-board ramp-up of federal spending is unlikely to solve the infrastructure problems

that need fixing." In addition, focusing on "shovel-ready" projects is ill-advised; instead, Congress should focus on longer-term projects likely to produce significant national benefits. And where federal funding is involved, it should be made conditional on "regional sponsors securing matching funds from any combination of public and private sources, including user fees and [user] taxes when appropriate." Congress should insist on life-cycle cost analysis, and require that state and local governments provide for ongoing operating and maintenance of the new or rebuilt infrastructure.

Hence, public-private partnerships (P3s) are seen as important, and the RAND report recommends that Congress provide assistance to state and local governments to develop common standards for structuring P3s, to make it easier for infrastructure investors. And while the report stresses the importance of retaining tax-exemption for traditional municipal bonds, it neglects to mention the need to expand current federal tax exemption for Private Activity Bonds (PABs), which have been critically important in financing P3 transportation projects. It mentions pension fund investments in infrastructure, but only taxable Build America Bonds in this connection. Missed entirely is the recent U.S. trend of pension funds investing equity in P3 infrastructure projects.

The report also stresses that the federal government needs to do a much better job of investing in infrastructure that it actually owns, such as large dams, inland waterways, and the air traffic control system. It proposes merging the Army Corps of Engineers (waterways) and the Bureau of Reclamation (dams) into a single federal water resources agency. But it is silent on recent efforts to convert the ATC system into a self-funded nonprofit corporation, like those that exist in 60-odd other countries.

Whatever the White House proposes will be modified by Congress. The RAND report offers important guidelines for that endeavor.

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### **Trucking Report Bashes Tolling and Mileage-Based User Fees**

The in-house policy shop of trucking group ATA—the American Transportation Research Institute (ATRI)—released a report in November aimed at shoring up per-gallon fuel taxes and dissing both tolling and mileage-based user fees (MBUFs). The report, "A Framework for Infrastructure Funding," is available at [atri-online.org/2017/11/08/a-framework-for-infrastructure-funding](http://atri-online.org/2017/11/08/a-framework-for-infrastructure-funding).

The report sets the stage in the usual fashion, showing that vehicle miles of travel (VMT) have far outpaced the growth in highway lane-miles, that congestion imposes large costs on personal and commercial travel, and that much highway and bridge infrastructure is in less than good condition. It then proceeds to analyze six possible

ways to increase highway funding—but actually there are only five, since "financing" depends on a revenue stream from one or more of the other five.

Federal motor fuels taxes (on gasoline and diesel) are defended in traditional ATA fashion—by claiming very low cost of collection as the primary virtue. But while the industry has historically pegged this cost at 1% of the revenue collected, this report introduces (without explanation) a claimed 0.2% figure, citing a single academic study. By contrast, a 2011 report from the National Cooperative Highway Research Program (NCHRP Report 689) found that between 2003 and 2007 the collection cost ranged from 0.9% to 1.4% of revenue, averaging 1.1% over that period.

As pointed out in a peer-reviewed 2012 research paper by Daryl S. Fleming et al., data in NCHRP 689 and a companion report on evasion of state motor fuel taxes (NCHRP 623) suggest a significantly higher real cost of collection. Fleming and his co-authors take into account an estimated fuel tax collection violation rate of 1%, bringing the cost to 2.1%. Adding in the impact of legislated exemptions and less-aggressive enforcement measures since 2000, they end up with an estimated 4.5% as the total real cost of the motor fuel tax system.

ATRI's report next takes on tolling, whose cost ATA has usually estimated as in the 20-30% range. In this report, ATRI steps back from such extremes (which date from 20th-century largely-cash toll collection). But its examples of specific tolling practices are still limited to legacy toll agencies, such as the Ohio Turnpike (19.2% of revenue) and New Jersey Turnpike (21%). These agencies are a long way from full conversion to non-cash, all-electronic toll collection, and also have complex and costly business rules for billing and collections. A 2016 report from the Congressional Research Service reported an average cost of toll collection of 8-11%, which reflects increasing use of AET and streamlined business rules (<https://fas.org/sqp/crs/misc/R43575.pdf>). Yet despite its examples and its citation of the CRS report, ATRI sums up this section by still claiming that toll collection costs range from 21.9% to 30% of revenue collected.

By contrast, Fleming and co-authors examined three newer toll agencies that operate using only all-electronic tolling (AET) and streamlined business rules. They found transponder tolling collection costs ranging from 3.9% to 9.1% of revenue. Extrapolating to larger toll operations with economies of scale, they estimated that 5% of revenue was a realistic near-term target. (<http://reason.org/news/show/myths-toll-and-gas-tax-collection>)

ATRI's next alternative is on the mileage-based user fee (MBUF) concept, which ATRI refers to as a vehicle miles traveled tax. In this section it sets forth a number of claims about what would be required to collect a VMT tax from all vehicle operators, none of which are necessarily required:

- The federal government would have to track every vehicle;
- The tax would be variable (presumably by time of day);

- GPS monitoring is crucial.

*None* of the growing number of state MBUF pilot projects *requires* such things, and there is no federal proposal or plan for MBUFs. In addition, since ATRI estimates the annual cost per vehicle for the technology and processing required at \$50, that means a total collection cost of \$12.5 billion per year. The report suggests the government would have to double the size of the Internal Revenue Service to handle this collection task.

To put this in perspective, let's think about how huge volumes of payments are made every single day in the United States: via credit cards. Visa alone handles 150 million transactions per day, and Amex and MasterCard handle similar orders of magnitude. And yet the cost of processing these transactions and sending monthly bills is a few percent of the value of each transaction. As the United States moves to nationwide electronic tolling interoperability, collection and processing costs can be expected to fall to similar levels. The last thing we need is a huge federal bureaucracy like the IRS attempting to collect electronic tolls or mileage-based user fees.

ATRI's focus is on the federal government as the change agent in either much-expanded tolling or transitioning to MBUFs. As a political reality, the states—which own the highway infrastructure—are taking the lead in both AET and MBUF implementation. If there is ever enough political support in Congress to replace federal fuel taxes with direct highway user fees, the most straightforward way to do this would be for the feds to piggyback on state systems rather than creating a stand-alone federal system.

In short, ATRI has created and knocked down a straw man.

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## **Florida's Brightline Trains Off to a Good Start**

Last week I was an invited guest on a special inaugural VIP run of the privately financed Brightline (formerly All Aboard Florida) passenger rail service. Nonstop express service between Fort Lauderdale and West Palm Beach began the next day, January 13<sup>th</sup>. The link to Miami will open about two months from now, once the huge station complex there is finished.

The trainset we rode on, one of five initial sets produced by Siemens, is spacious, quiet, and smooth-running. Food and drink will be available for purchase on-board, and drinks, snacks, reading matter, etc. are on sale at the stations. In the urban portion of the right of way traversed by phase 1, top speed is limited to 79 mph. Phase 2 between West Palm Beach and Orlando will have a top speed of 110 mph on the east coast north of West Palm and 125 mph on the final east-west segment to Orlando. Brightline recently got its federal Record of Decision for phase 2, and will

soon do the financing to build this addition. Construction is expected to take two years, with a projected launch of service late in 2020.

The ceremonies at the new Fort Lauderdale station included brief comments by Brightline and Florida East Coast Industries (FECI) executives, several local elected officials, and Congressmen Bill Shuster (R, PA) and Peter DeFazio (D, OR), in bipartisan agreement that this project is a worthwhile step forward for transportation.

FECI seven years ago figured out that it could share its north-south freight railroad line with higher-speed passenger service, basically to link Orlando with the three major metro areas of south Florida. The 235-mile distance from Miami to Orlando is a more than four-hour drive or a hassle-filled plane trip, compared with a three-hour express train trip, they reasoned. Since FECI already owned more than 80% of the right of way, they only needed to lease 35 miles of east-west right of way between Cocoa Beach and Orlando. They already owned a 9-acre parcel of land in Miami to use for the anchor passenger rail station, which they are developing as a major mixed-use high-rise development totaling 4 million sq. ft. They have built stand-alone new stations in Fort Lauderdale and West Palm Beach, which will include transit-oriented development. And Brightline will be a tenant in the intermodal transportation center at Orlando International Airport's new south terminal.

I have written previously about the many difference between this project and government-funded high-speed rail projects such as the one in California. As a commercial venture, Brightline was not required to serve low-population intermediate points, making possible quick express train rides for its paying customers. Rather than aiming for 200 mph "high-speed" service, they figured out that 110-125 mph was sufficient to give them a strong competitive edge over driving or flying—and that speed limit reduced the cost of track and also operating costs (since air drag goes up at velocity squared, significantly increasing fuel burn as speeds rise). Adding associated real estate development takes a leaf from successful passenger rail service in Hong Kong and Japan.

Brightline's detailed traffic and revenue studies persuaded investors to buy the phase 1 private activity bonds (PABs) they sold in 2017. Along with the parent company's more than \$1 billion equity investment to date, the private investors—not taxpayers—are at risk in the event that traffic and revenue fall short of providing the expected returns.

In short, it looks to me that Brightline has identified a sweet spot where passenger rail can be competitive with driving and flying. Whether the demand will be high enough to cover debt service and a return on equity remains to be seen, but this is a model well worth continued attention.

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## Express Lane Pricing and Politicians

Controversies over the performance of relatively new express toll lane (ETL) projects are still simmering on both coasts, with Seattle and northern Virginia as cases in point. In the first, the year-old ETLs on congested I-405 face possible legislative termination for not quite meeting promised performance improvements. And just about every reader of this newsletter has heard about last month's outrage over \$40 tolls on I-66 inside the Beltway in northern Virginia. In both cases, the outrage was far from justified.

The I-405 case involves the conversion of an existing HOV lane each way to an ETL, with an additional priced lane added for the majority of the corridor. In approving the project, legislators gave the project conditional approval: unless it met two key performance metrics in its first year, the tolls would be removed. Those were:

1. Generating enough revenue to pay all the ETL operating costs; and,
2. Maintaining the federal minimum of 45 mph at least 90% of the time during peak periods.

Demand for congestion relief has been so high that condition #1 has been easily met. But condition #2 has not quite been achieved. Though the lanes are doing much better than when they were HOV, the 45 mph target was met only 85% of the peak time northbound and 78% southbound. So opponents are calling for termination.

A report for the Washington Joint Transportation Committee, by University of Minnesota researchers (January 8, 2017), identifies the culprit. The legislature also put a \$10 ceiling on the peak toll rate. As the report notes, "the toll algorithm and pricing is not controlling input traffic along the ETL effectively, which in turn can result in too many vehicles in the ETL, unmanageable congestion, and ETL breakdown." The near-term fixes include a more-responsive dynamic toll algorithm, extending the AM peak to 10 AM (from the current 9 AM), and yes, *increasing the maximum toll rate!* It remains to be seen if these sensible recommendations will be accepted, saving the project from termination. [Disclosure: I was a member of the Washington State DOT Expert Review Panel that recommended implementation of this project back in 2010.]

In northern Virginia, by contrast, there was no ceiling on dynamic toll rates, and when motorists who had been forbidden to use I-66 during peak periods (only HOV-2s were allowed until now) finally had the option of paying to use it, so many tried to do so that the peak toll for a short period on the first day did reach \$40. Politicians immediately cried foul, citing predictions by Virginia DOT that *round-trip* tolls would be about \$17. Legislators and local officials of both parties denounced VDOT and the governor, and called for cutting back or eliminating the tolls.

Fortunately, cooler heads at VDOT and the governor's office prevailed, and were supported by a strong editorial in the *Washington Post* (December 10<sup>th</sup>): "Virginia Should Stick with its I-66 Express Lanes—Tolls and All." And once the first day's frenzy passed, and drivers figured out how the system worked, VDOT put out actual data on first-day tolls. The *average* AM peak-period toll was \$10.70, and the *average* PM peak period toll was only \$3.80. Thus, the average round-trip toll was \$14.50—which is lower than VDOT's projected round-trip average of \$17.00.

With the situation calmed down by early January, the Northern Virginia Transportation Commission rejected a motion by one of its members that would have mandated lower rates, and simply called for VDOT to evaluate the system's performance and report to the board by late spring.

As the *Washington Post's* editorial board wrote, the tolling system "is doing exactly what it set out to do"—limiting the number of vehicles using I-66 during peak periods to an amount consistent with relatively uncongested travel. And in very high-demand corridors, an arbitrary cap on toll rates would undercut that powerful mechanism for congestion relief. Let's hope Washington State legislators get this message on I-405.

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## **Toll Projects Under New Attacks in Texas**

As I wrote in my December column in *Public Works Financing*, highway finance in Texas is going from bad to worse. The 2017 legislative session was bad enough, declining to approve any of the 18 P3 projects proposed by TxDOT over the next two years and prohibiting any state equity investment in tolled P3 projects. But in December, pressure from the Governor and Lt. Governor, at the instigation of populist conservative anti-toll groups, led to further bans on tolling, whether by government or P3 companies.

Before that happened, TxDOT and the Texas Transportation Commission had figured out that the recently expanded state transportation budget was far from enough to support much-needed megaprojects in Austin, Dallas/Ft. Worth, and Houston. Since local officials strongly supported toll financing for such projects, the Commission had decided to use only public funding for the new and rebuilt general-purpose lanes on those projects and allow toll financing solely to pay for the express toll lanes that were integral parts of those projects. The projects include the up-to-\$8 billion I-35 rebuild in Austin, and other massive projects such as LBJ East in Dallas, I-45 in Houston, and Loop 1604 in San Antonio.

But that was dubbed an "accounting trick" by grass-roots populist groups such as TURF and Texans for Toll-Free Highways. On November 8<sup>th</sup>, they sent a blistering anti-tolls letter to state officials, appealing to Gov. Abbott to overrule the Transportation Commission, consistent with his generally anti-tolls stance. Both

Abbott and Lt. Gov. Dan Patrick took up the call, and on November 16<sup>th</sup>, the Commission caved, removing all toll projects from TxDOT's 10-year plan.

The populist arguments don't match the reality of tolled projects in Texas. The large majority of them are either new toll roads (as net additions to the highway system) or new express toll lanes (also as net additions). Hence, the claim that tolls are taxes that people are forced to pay is nonsense. So are claims that the prices to use ETLs are "abusive uses of excessive tolling" that ordinary people can't possibly afford. First, nobody has to use these net additions to the highway system. Second, the vast majority of ETL users in Texas (as in other states) use them only for specific high-value trips, not for daily commuting. For example, on the P3 ETL projects LBJ in Dallas and NTE in Fort Worth, figures show that most users' toll bills average between \$5 and \$15 per month. Even commuters who use these ETLs for some trips each month average \$35 per month. And only 15% of the cars in these lanes are luxury models; Toyota, Ford, and Honda are the most common makes.

A backlash against these bans on toll finance and P3s in Texas has emerged. Regional transportation leaders in the DFW metro area plan to appeal for local control to the Transportation Commission at its January 25<sup>th</sup> meeting, based on strong local support for and use of ETLs and their integral role in planned region-wide ETL networks. Second, a group called Texans for Traffic Relief has been launched, headed by conservative Republican lobbyist David White, to support ETL projects in the state's four major metro areas. In addition, the Texas Conservative Coalition Research Institute is fighting back against the tea-party populists who claim to speak for all conservative Republicans. So perhaps all is not lost for tolling and P3s in Texas.

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## **Assessing Congestion: VMT versus LOS**

By Baruch Feigenbaum

At a recent California transportation conference, Chris Ganson, of the Governor's Office of Planning and Research, discussed why California is switching from level of service (LOS) to vehicle-miles traveled (VMT) when evaluating roadway congestion. Anti-car interest groups have been taking pot shots at LOS congestion metrics for the past decade. Unlike others, Ganson has a transportation engineering background, so I was interested in understanding his argument. Ganson's presentation is available at [https://drive.google.com/file/d/0B8MSGhA-1y\\_iT3FDT0IOSERGb0U/view](https://drive.google.com/file/d/0B8MSGhA-1y_iT3FDT0IOSERGb0U/view)

Residents of major metro areas don't need advanced mathematics to tell them the roadway system does not work. However, under federal law metropolitan regions with more than 200,000 residents are required to have a congestion mitigation plan. And those regions are required to show that they are actively working to reduce

congestion to receive certain types of federal funding such as the National Highway Performance Program, under the FAST Act.

Since the advent of federal transportation funding, the preferred method to assess congestion has been the level of congestion on the roadway. DOTs have graded their highways from A to F, with Level of Service (LOS) A being completely free-flowing traffic and LOS F being stop-and-go traffic or worse. By contrast, VMT metrics measure the amount of miles traveled that each new trip adds to the roadway network—and make reducing VMT the key to reducing congestion.

According to Ganson, California adopted a VMT-measurement-tool because traditional LOS metrics have numerous problems. Among them, he says LOS measurement:

- Does not create communities that people want to live in;
- Inhibits transit and "active" transportation; and,
- Causes municipalities to overbuild road infrastructure.

Further, he says switching focus to a VMT-measurement tool would:

- Increase transit oriented development;
- Simplify modeling;
- Increase locally serving retail; and
- Reduce pavement maintenance costs.

Ganson provides several examples to support his claims. Using LOS to measure arterial intersection delay, LOS A is a delay of less than 10 seconds and LOS F is a delay of more than 80 seconds. But, a LOS A road could be a four-lane road with no pedestrian or commercial activity, and a LOS F road could be a vibrant downtown street. As a result, LOS overestimates the amount of traffic that infill development adds to congestion and underestimates the amount of traffic that greenfield development adds to congestion. (Infill development tends to add vehicles to already busy roads while greenfield development tends to add vehicles to less traveled roads.)

Ganson asked the audience which option is better, a 45-minute commute with a 5-minute delay due to congestion or a 20-minute commute with a 10-minute delay due to congestion. (Most of the audience chose the 20-minute commute). He argued that traditional LOS metrics make Denver's commute appear worse today than in 2007 because the peak-period delay has tripled. Yet, more Denver residents live downtown than before, so while those residents' trips may have more delay, they are commuting fewer miles. Finally, he used several charts to argue that a focus on LOS disperses jobs throughout the metro area.

Before addressing Ganson's claims, I want to add some context. Nobody has claimed that LOS is a perfect tool. It has its flaws, but it is the best tool available.

Transportation agencies are free to supplement it with secondary tools. Most importantly, for every instance in which VMT might have an advantage over LOS, I can think of three other instances in which using LOS would be worse.

Ganson's presentation suggests that engineers are a type of outlaw sneaking out at night to widen every roadway to 8 lanes. But LOS is used as a tool, not as divine guidance. Most transportation agencies can barely afford to maintain their existing roadways, let alone build much new capacity. Over the last five years, America has built less new capacity than at any time in the past 65 years. There is no glut of capacity created by using LOS.

Different streets serve different purposes. Traffic engineers divide streets into arterials, collectors and local roads. Generally, arterials are designed to move traffic longer distances more quickly; local roads are designed to move vehicles more slowly for short distances. The state of California has control over state roads only. Disproportionately, these state roads are arterials with a few collectors thrown in.

Additionally, most people don't live far from their jobs *because of LOS*; they do so for a specific reason. In some cases, people change jobs frequently but do not have the resources to move for each change. Many households have two or more wage-earners with jobs in different parts of the metro area. Living near one job may mean a long commute to another. In other cases, families choose to live near high-quality schools, or near recreational facilities, or close to an aging relative. While the housing shortage is real in parts of California, adding infill housing is not going to noticeably shorten commutes.

Getting back to Ganson's claims, I agree that LOS measures that focus on speed can be counter-productive on certain downtown streets. However, this notion that we must choose between "livable places" and congestion is bogus. US 1, an arterial in Alexandria, Virginia, has 4-6 lanes. However, the traffic light synchronization allows vehicles moving at 25 mph to receive a green light through the corridor. Since vehicles that go faster than that are delayed at subsequent traffic lights, there is little incentive to speed. Pedestrians can cross the street at numerous cross streets. Bicyclists ride at the speed of traffic. And several blocks in downtown are filled with pedestrian activity. While this corridor may have a slower top speed, it does quite well using traditional LOS metrics because the traffic light synchronization leads to a moderate average travel speed. If increasing cycling, housing density, and street activity are the goals, this corridor is a model. And achieving it did not require changing the LOS metric.

Greenfield development can create more traffic than infill development, but it depends where the jobs are. The development of Atlantic Station in Atlanta, on an industrial brownfield site, actually increases congestion more than greenfield development in the suburb of Sandy Springs. Why? Atlanta's biggest job center is not in the city proper, but in Sandy Springs. The majority of America's metro areas, including Los Angeles, are polycentric. Jobs are dispersed throughout the region,

rather than concentrated in downtown. Concentrating new employment in certain areas has a limited effect on reducing miles traveled.

And while LOS may not be the best metric to analyze congestion in downtown Denver, it works well for the more populous region as a whole. Denver's suburban residents face some of the worst congestion in the country among medium-sized metro areas. Switching to VMT might more accurately measure downtown residents' commutes, but it would less accurately measure everybody else's.

Ganson's other arguments for using VMT as the primary metric are problematic. He argues that calculating LOS is expensive. Yet several firms specialize in the practice and charge reasonable rates. Reducing greenhouse gas emissions is expensive, but that has not stopped California from pursuing it as a goal. Ganson also takes issue with the cost of maintaining roadways. Yet, building and maintaining light rail is more expensive per capita. And Governor Brown doesn't seem to have any problems with expanding light rail.

Ganson argues that fixing congestion moves the problem elsewhere. This might be true in rapidly growing regions that don't use pricing as a tool, but it's not true in California. He has a slide suggesting that using LOS leads to induced demand. But using road pricing, not changing metrics, has been proven effective in limiting induced demand. Many states are using some form of congestion pricing or variable tolling to address these externalities, but none other than California, has seen the need to switch to using VMT to address congestion.

If California's true aim was to fix the way congestion is assessed, the state would continue to use LOS but supplement it with VMT where LOS is problematic, such as in downtown streets and for greenfield developments. In reality, California is throwing out a good if slightly flawed methodology for a methodology with far more flaws. I am concerned that the shortcomings of LOS are being politicized to justify the types of projects the Brown administration wants and not the transportation infrastructure that California needs.

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## **Upcoming Transportation Conferences**

*Note: We don't have the time or space to list all transportation events that might be of interest to readers of this newsletter. Listed here are events at which a Reason Foundation transportation researcher is speaking or moderating.*

Off Track: What's Wrong with Nashville's Transit Plan & What We Should Do Instead, Belmont University, Jan. 27, 2018, Nashville, TN (Baruch Feigenbaum speaking). Details at: <https://www.eventbrite.com/e/off-track-whats-wrong-with-nashvilles-transit-plan-what-we-should-do-tickets-41878708344>

TCCRI Transportation Summit, AT&T Conference Center, Feb. 6, 2018, Austin, TX (Robert Poole speaking). Details at: <https://eventbrite.com/e/2018-transportation-summit-tickets-39273557267>

Can Congestion Pricing Improve Mobility? California State University, March 20, 2018, San Bernardino, CA (Baruch Feigenbaum speaking). Details at: <https://csusb.edu/leonard-transportation-center/conversations/events>

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## News Notes

South Bay Expressway Repays TIFIA Loan. The December issue of *Public Works Financing* reports the good news that, thanks to refinancing its toll revenue bonds, SANDAG, owner/operator of the formerly bankrupt South Bay Expressway in San Diego County, has repaid its loan to the federal TIFIA program. This tollway was one of two pioneer P3 projects developed under California's 1989 AB 680 pilot program, but filed for bankruptcy in 2010 after traffic and revenue shortfalls due to the housing markets crash during the Great Recession. P3 critics who falsely claimed that federal taxpayers would be on the hook for the unpaid TIFIA loan have now been proven wrong.

Managed Lane Database Available Online. With the nationwide proliferation of priced managed lanes (also known as express toll lanes), journalists and even transportation wonks have a hard time keeping up with how many there are, and where. The Managed Lane Committee of the Transportation Research Board has created a comprehensive database of all such lanes, whether operational or under construction, including quantitative details. It's online at [www.managedlanes.org](http://www.managedlanes.org); you will find it under the heading "Projects."

Electric Car Subsidies Retained in Federal Tax Reform Law. Despite a provision in the House tax bill that would have eliminated federal tax credits for electric car buyers and producers of renewable energy systems (solar and wind), the final measure retained those subsidies. Purchasers of fully electric cars (such as Teslas) get a tax credit of \$7,500, while purchasers of plug-in hybrids get a smaller amount. A number of states add their own tax credits. A 2016 US Berkeley study found that 83% of electric car tax credits go to people with incomes over \$100,000.

I-95 Express Toll Lanes Being Extended. On January 10<sup>th</sup>, outgoing Virginia Gov. Terry McAuliffe announced an agreement between Virginia DOT and Transurban to extend the express toll lanes on I-95 another 10 miles southward. The project cost is \$475 million. Under a previous agreement, the company is under way on extending the express toll lanes northward eight miles along I-395 to the District of Columbia line. These extensions continue to expand the emerging express toll lanes network in the northern Virginia suburbs of Washington, DC.

InterCounty Connector Use Is Growing. When it first opened to traffic in 2011, the ICC was slow to catch on with motorists, unaccustomed to a toll road all of whose lanes have variable pricing. But congestion on the east-west portion of the Capital Beltway in Maryland is so bad that the roughly parallel ICC (Route 200) has become very popular. Maryland DOT reported in November that it handled 30 million trips in the most recent year, becoming the second-busiest toll facility in the state. Route 200 extends from I-270 on the west to I-95 on the east. It generated \$59.3 million in toll revenue in 2016.

Mazda Survey Finds Low Support for AVs in Europe. A survey conducted for Mazda by polling firm Ipsos Mori found that 71% of Europeans it surveyed prefer to drive their own vehicles, rather than availing themselves of an autonomous vehicle. The results were broadly similar among all age groups. Mazda concluded that AV technology should be used to provide vehicle owners with co-pilot functions, rather than taking over the whole driving task.

Truck Toll Lanes Being Considered in Illinois. I-80, a major truck route, extends through Will County, which includes the southern exurbs of the Chicago metro area. The county government recently completed what it calls a Community Friendly Freight Study, which included possible truck toll lanes on I-80. And in December, the county board voted to ask the Illinois State Toll Highway Authority to conduct a feasibility study of adding such truck lanes to I-80, from I-57 to I-55. The key question is whether I-80 congestion is so bad that enough trucks would pay tolls to bypass it. Trucks have long paid tolls on I-80 in neighboring Indiana and Ohio.

Jones Act Claims Another Victim—River Cruises. In 2015 Viking River Cruises announced that it would be adding the upper Mississippi River valley to its river cruise offerings. But parent company Norwegian Cruise Line had not reckoned with the Jones Act, an ancient federal law that requires all commercial vessels connecting one U.S. port with another to use ships built in the USA, owned by US companies, and crewed by U.S. crews. In December, the company announced that it had terminated discussions to build vessels in a U.S. shipyard for this purpose. It had first planned to use a European shipbuilder, but found out that building the same ship in the USA would cost nearly twice as much.

On-Demand Transit via Ride-Share Company. Arlington, Texas announced last month that it has signed a one-year contract with Via to offer the first dynamic on-demand public transit system. People can use the Via app to book a seat in a six-passenger Mercedes-Benz van, at a starting fare of \$3 per trip. The pilot program is being funded one-third by the city government and two-thirds by a federal transit grant. Since its launch in 2013, Via has offered on-demand commercial service in Chicago, New York, and Washington, DC. Arlington, a Fort Worth suburb, has a population of 393,000.

\$4.1 Billion West Gate Tunnel in Melbourne. Transurban has reached financial close on a design/build/finance/operate/maintain toll concession of 28 years. It has

financed the deal with 34% of the total as equity, 39% as debt, and another 27% coming from the State of Victoria, under the P3 agreement. The project will widen the West Gate Freeway from four to six lanes, produce twin tunnels under Yarraville, and add a new bridge over the Maribyrnong River, plus various other improvements including walking and bicycle paths. The aim of the project is to greatly improve access to the Port of Melbourne.

Trucks Might Be Banned from Aging BQE. The elevated Brooklyn Queens Expressway is on its last legs. Brooklyn residents and the Regional Plan Association fought for years to replace the noisy and dangerous freeway with a tolled tunnel, but the state government rejected that proposal as too costly (ignoring the potential of toll revenue to pay for a large share). The current plan is a \$1.9 billion reconstruction of the viaduct, and NY State DOT wants to use design-build to reduce its cost and speed its completion. But New York is one of the few remaining states where design-build is illegal. Three times in recent years D-B bills have failed in the state legislature, but with the BQE within a few years of imposing weight limits that would force trucks off it and onto surface streets, the community and local officials are desperate to prevail on D-B in 2018. I wish them luck.

Seattle Tunnel to Open this Fall. The bored tunnel that will replace the aging Alaskan Way (Highway 99) viaduct in downtown Seattle is now scheduled to open to traffic sometime this fall, according to the Washington State DOT. Tunnel construction and testing is to be finished by August 14<sup>th</sup>, leaving only final work on connecting ramps at either end. The \$2.2 billion tunnel is partly financed by projected toll revenues.

Financial Close for Denver's Central 70 Project. The \$1.2 billion P3 project to rebuild 10 miles of aging I-70 between downtown Denver and the airport reached financial close just before Christmas. The project will remove an aging viaduct in the central portion, replacing it with a depressed roadway with a park covering that portion of I-70. One express toll lane in each direction will be added as part of the project. But since the toll revenue is projected to cover only a fraction of the project's capital and operating/maintenance costs, the concession is based on availability payments. Financing includes a federal TIFIA loan, private activity bonds (PABs), equity from Meridian and Kiewit, and the balance as a state capital investment.

Truckers Say Rhode Island Truck Toll Assessment Is Flawed. The American Trucking Associations and its Rhode Island affiliate last month asked the Federal Highway Administration to reject Rhode Island DOT's Environmental Assessment of its truck-only toll system. The document called for a finding of no significant impact (FONSI), but ATA says it downplays serious issues, such as constitutional issues related to border tolls, the extent of traffic diversion, and overstated revenue projections. The state's plan is to impose tolls on trucks at 14 locations on Interstate highways in the state.

The Coming Transit Apocalypse. That's the title of a recent report by Randal O'Toole, released by the Cato Institute. Citing recent nationwide declines in transit ridership,

O'Toole argues that this is just the beginning, citing four trends that bode ill for the viability of conventional transit: low energy prices, growing deferred maintenance, unfunded transit pension plans, and the impact of ride-hailing services. Transit systems cannot avoid these four trends, so I consider this report "must reading." (<https://www.cato.org/publications/policy-analysis/coming-transit-apocalypse>)

Finally—All Electronic Tolling for New York Thruway. After several years of saying that the cost of converting from cash and transponder tolling to all-electronic tolling (AET) was too high, Gov. Andrew Cuomo promised (in his January 3<sup>rd</sup> state of the state address) that AET will be in place by 2020. Figures released last October showed that the Thruway Authority spent \$35 million on its 1,200 toll collectors in 2016.

TRB Guidelines for Implementing Managed Lanes. A new report from the National Cooperative Highway Research Program provides guidelines for the design, implementation, operation, and maintenance of managed lanes, also known as express toll lanes. The 164-page report is NCHRP Report 835, and can be found on the TRB website (or by googling NCHRP Report 835).

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### **Quotable Quotes**

"Our state Republican leaders won't raise taxes to raise money for highways, but now they're also against toll roads. How in the world do they propose to pay for new road projects? . . . And make no mistake, Texas needs more money for highways. The American Society of Civil Engineers considers at least 38 percent of Texas roads to be in fair or poor condition, and the Federal Highway Administration rates nearly one in five bridges in our state as either structurally deficient or functionally obsolete. . . . Texas can't make concrete and asphalt out of fairy dust. No matter how low our taxes go, no major corporation like Amazon will want to move into a state that doesn't have decent roads. Our state's elected leaders should follow Ike's example. They should face the unavoidable truth that Texas needs to raise a lot more money for transportation projects, and they need to devise a plan to get the job done."

—Editorial, "Freeways Aren't Free, and Texas Politicos Don't Want to Pay," *Houston Chronicle*, January 3, 2018

"Some Virginia politicians claim these [I-66] prices are 'outrageous' and 'unacceptable,' but they are doing what they are supposed to do. Prices allocate scarce resources to the people who value them most and encourage people to find substitutes. In the case of I-66, those substitutes in the short run are other roads, public transit, or carpooling. Long-run substitutes include choosing different places to live or work. Although variable pricing on I-66 is a step in the right direction, other freeways around the metro area remain unpriced and so will see increased congestion as people switch to avoid paying high tolls. Complete variable pricing

over the entire freeway system would lead to much less congestion, more-efficient commutes, and in the long-run, more efficient land use."

—Benjamin Powell, "What America's Highways Truly Need: More Highway Traffic Tolls," *The Hill*, Dec. 14, 2017

"Even as audits and independent assessments showed the streetcar's failures, the streetcar had one useful purpose: helping tourists get around. 'Great for tourists,' *City Lab* concluded in its own evaluation of the streetcar. 'Not always the best option if you need to get somewhere without a car.' . . . On Monday night, Atlanta will be flooded with tourists, hosting this year's College Football Playoff national championship game. . . . Finally, a chance for the Atlanta Streetcar to shine, right? Nope. The streetcar was closed [on Sunday and Monday], making it nonexistent for anyone trying to get into or out of downtown before, during, or after the big game. Monday's shutdown is more evidence that the Atlanta Streetcar is the worst such project in the country."

—Eric Boehm, "Built for Tourists, the \$98 Million Atlanta Streetcar Will Be Closed in Advance of Monday's College Football Championship," *Reason.com*, Jan. 8, 2018

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