



TRANSPORTATION AND COVID-19:

A STATE GUIDE TO POLICY AND PRIORITIES

BY ROBERT W. POOLE, JR., BARUCH FEIGENBAUM, RANDAL O'TOOLE,
MARIYA FROST, WENDELL COX, AND MARC SCRIBNER

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The COVID-19 pandemic has introduced unprecedented uncertainty into everyday transportation operations and long-term transportation planning. Travelers have drastically reduced commuting and their use of crowded, shared transportation modes, including mass transit. It is unclear when—or if—travel will return to past trends or whether this “new normal” will persist indefinitely. This publication will help guide state legislatures and state-focused policy organizations as they navigate transportation policy both during and after the COVID-19 recovery, with a focus on mitigating risks to public-sector transportation operations and infrastructure investments.

#1 Use Public-Private Partnerships (P3s) for Infrastructure: Long-term infrastructure P3s are especially valuable in the post-COVID-19 environment, as state and local governments are under severe fiscal stress.

Because these long-term P3s are financed based on future revenues over a long period (30 to 50 years), critical major projects can be financed now, and construction can begin much earlier than under normal cash-based project funding.

#2 Reinvent Transit: Today’s mass transit systems are expensive, provide poor service, and cater to wealthy choice customers who use the service infrequently. Transit agencies that receive taxpayer subsidies need to prioritize service for low-income, transit-dependent customers who have no other mobility options. To improve service quality, transit agencies need to coordinate mobility options, contract service, ensure choice customers pay their full costs, and redesign services to operate in a grid-based pattern.

#3 Reduce Amtrak Subsidies: Despite a 90 percent decline in ridership during the



pandemic—and plenty of evidence that intercity passenger trains were obsolete before it hit—many in Congress want to quadruple subsidies to intercity passenger trains. Government is counting on the states to contribute to those subsidies, as 18 states already do, yet this is an unnecessary burden on taxpayers.

#4 Strengthen the Users-Pay Principle: As policymakers face daunting budget holes given the impact of COVID-19, it may be tempting to weaken existing fuel tax protection or divert additional fuel tax revenue away from roads to fill operating budget deficits. This should be avoided. Current travel trends and projections all point to a need for additional investment in our highway system. Strengthening the users-pay principle will ensure that motor fuel tax revenue is directed to necessary repairs that will ensure roads are safe and dependable during and after the COVID-19 economic recovery.

#5 Consider the Role of Working from Home: The COVID-19 pandemic has created a flight from the nation's largest downtowns and urban cores to the dispersed periphery of these areas and telecommuting. Because the densest urban urbanization is insufficiently resilient to

operate during a pandemic, governments should repeal urban containment and densification policies.

#6 Prioritize the Resilience of Highways: To safeguard against unexpected events such as terrorist attacks, natural disasters, recessions, and pandemics, states must emphasize the need for a resilient transportation system. The most resilient transportation system is the use of motor vehicles and highways. Unfortunately, some seek to erode that resilience. We need to protect it.

#7 Encourage a Permissive Regulatory Environment for Future Mobility: Automated vehicle technologies hold great potential to improve safety, mobility, accessibility, and overall quality of life. At this early stage, policymakers should focus on identifying outdated motor vehicle policies that unduly limit automated vehicle development, testing, and deployment within their states. Policymakers should also prepare for an extended period of uncertainty by avoiding prescriptive policymaking built on assumptions that will likely prove inaccurate as these technologies develop.



USE PUBLIC-PRIVATE PARTNERSHIPS FOR HIGHWAY INFRASTRUCTURE

BY ROBERT W. POOLE, JR.
REASON FOUNDATION



The private sector can be involved in public-sector infrastructure in various ways, ranging from simple management contracts to full-fledged, long-term investment and management of large infrastructure facilities such as airports, toll roads, and municipal utilities.

The purest form involves a competitive process under which the winner will design, build, finance, operate, and maintain (DBFOM) a major facility for a long term (e.g., 50 years). The government negotiates a long-term contract (called a concession) spelling out performance requirements, a pricing structure, termination provisions, and more.

The concession may be to take over and upgrade an existing facility (airport, water system, toll road) or to build a new one, and to operate and maintain the whole facility. The winning company (usually a consortium of an operator and financial partners) can

use the long-term agreement to finance the acquisition and modernization costs.

The financing is generally based on either (1) the projected revenues generated by the facility over the life of the long-term concession, or (2) the government's agreement to make annual "availability payments" to the company—which may be slightly higher or lower than a baseline—based on the company achieving (or not) various performance measures. These two types of financing are called revenue-risk (RR) and availability payment (AP).

In the AP case, the company's customer is the government; that is who it must please, because the government is paying. In the RR case, the company's customers are the users of its facility—so it must strive to please them.

Furthermore, the availability payments generally come from the government's existing revenues. But the user revenues



come from fees paid by the facility's customers. Hence, if one of the problems facing the government is insufficient investment in infrastructure, RR P3s generally add a net new stream of user payments, rather than relying on existing tax revenue to pay the company. Since RRs are accountable to highway customers and provide a revenue source, they are preferred over APs and should be used if possible.

Traditional procurement is termed "design-bid-build." It originated in the Progressive Era when politicians often awarded construction contracts to companies owned by their friends and supporters.

The Progressive idea was that experts in government would produce the one best design, and then let construction companies compete solely on the lowest price. The problem is that the design may be impractical to build, and companies know how to use the system to get numerous change orders to increase their revenues.

A major advantage of DBFOM P3s, of either the AP or RR type, is that they build in long-term stewardship of the infrastructure asset. That is why DBFOM P3s should be used far more widely than they are today.

Long-term infrastructure P3s are especially valuable in the post-Covid-19 environment

in which state and local governments are under severe fiscal stress. Because these long-term P3s are financed based on future revenues over a long period (30 to 50 years), much-needed major projects can be financed now, and construction can begin much earlier than under normal cash-based project funding.

WHAT STATES CAN DO



1. **Research and Draft a P3 Law:** If your state does not have a workable P3 law, research good examples (e.g., Virginia's Public-Private Transportation Act) and have P3 experts draft an adaptation.
2. **Evaluate Current P3 Law for Improvements:** If your state has a P3 law but there have been few or no projects, have it evaluated by P3 experts to understand its shortcomings for a legislative fix.
3. **Consider Long-Term P3s for Unfunded Infrastructure Projects:** Review major planned but unfunded infrastructure projects to determine which ones would lend themselves to long-term P3 procurement.



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REINVENT TRANSIT

BY BARUCH
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Before World War II, most mass transit services were operated profitably by the private sector. After World War II, facing competition from low-cost personal vehicles, many private transit operators went out of business. To preserve service, governments assumed control of existing transit lines and added new services using taxpayer subsidies.

Despite the construction of new transit lines, ridership continues to fall. After peaking in 1920 at 287 trips per urban resident, ridership fell to 36 trips per urban resident in 2019. At its peak, transit's commuting mode share was 25 percent; today, its percentage has fallen to less than 5 percent, yet government subsidies continue to grow. In 2018, federal, state, and local subsidies totaled \$54.3 billion.

Officials justify subsidizing transit as a way of providing mobility to low-income commuters. However, instead of focusing subsidies on those who need them most, we subsidize all forms of transit – particularly rail, which is often for wealthy commuters.



The fifth quintile (wealthiest commuters) use rail more than the second quintile (working class) and third quintile (middle class).

U.S. transit service is failing both riders and taxpayers. Most transit service is oriented in a radial structure, designed to funnel riders to downtown job centers. Yet the location of employment is dispersed. Between 50 to 80 percent of all employment is located outside of central business districts.

We need to create a new kind of transit service that serves America's 21st century requirements instead of 1920's development patterns.



WHAT STATES CAN DO



1. **Transition to Mobility Managers:** Instead of spending more money, systematic changes are needed in the way we build, maintain, and operate transit service. Transit agencies should transition to mobility providers, which focus on coordinating service.
2. **Contract Service:** Mobility coordinators can contract with private, non-profit, and other public entities to operate service. Across the world, transit service that is contracted is of better quality and lower cost.
3. **Customize Service:** Different regions will have different types of service. In dense metro areas, this may be a rail vehicle or a 60-foot bus. In suburban areas, it may be a private shuttle or micro-transit service. In exurban and rural areas, it may be a ride-hailing service. The goal is not to operate a certain number of buses but rather to provide a certain level of mobility.
4. **Focus on Transit-Dependent Customers:** There are two types of transit customers: transit-dependent riders (who are typically low-income

without access to an automobile) and choice riders (who are typically high-income and own a vehicle). Transit-dependent customers ride transit regularly while transit choice customers ride transit occasionally. Transit agencies should prioritize transit-dependent riders. When necessary, transit coordinators can provide a small subsidy for low-income, transit-dependent commuters to use on fixed-route transit or ride-hailing services.

5. **Have Choice Riders Pay Their Full Costs:** Choice riders should pay the full cost of the transit trip. Heavy-rail service is a critical part of lower and midtown Manhattan. However, the average Wall Street banker does not need a subsidy. Transit agencies can use innovative finance tools such as value capture in which property owners pay a portion of the transit line costs to supplement farebox revenue.
6. **Design a Grid-Based Transit System:** Since most employment is not in the central city, transit systems should not funnel jobs to downtown areas. Instead, transit systems should be redesigned to operate in a grid-like pattern, and since many transit customers work evenings and weekends, minimum service should operate seven days a week.



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REDUCE AMTRAK SUBSIDIES

BY RANDAL O'TOOLE
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As a result of COVID-19, Amtrak ridership has fallen as much as 96 percent. Congress gave Amtrak a billion dollars to continue operations despite the lack of riders, and a larger infusion is likely. Ridership will continue to be low for the foreseeable future as people socially distance themselves.

Meanwhile, the U.S. House of Representatives has proposed to triple federal spending on intercity passenger trains and to give incentives to the states to also subsidize Amtrak.

Currently, 18 states subsidize Amtrak trains (CA, CT, IL, MA, ME, MI, MO, NH, NY, NC, OK, OR, PA, TX, WA, WI, VA, VT). At least 11 other states have studied proposals to subsidize trains (AL, CO, DE, GA, IA, ID, KS, MN, NM, NV, WV).

Amtrak has also asked Mississippi, Alabama, Louisiana, and Florida to subsidize the reintroduction of an overnight train from New Orleans to Jacksonville. Amtrak has further announced that it is cutting most other overnight trains in its system to just three days a week, but it



is likely to encourage states served by these trains to subsidize daily service (which, in addition to the states listed above, would include AR, AZ, IN, KY, LA, MT, ND, NE, OH, SC, TN, and UT).

In short, legislatures in every state except Alaska, Hawaii, South Dakota, and Wyoming are being pressured to subsidize Amtrak or increase existing subsidies.

Passenger trains are romantic but obsolete. They are expensive, inflexible, and slow—even high-speed trains are much slower than flying. Amtrak spends four times as much to move someone one passenger-mile as the airlines, and at least six times as much as intercity bus companies. About half of Amtrak's costs are subsidized, while subsidies to air and bus travelers are small.

Amtrak is an insignificant part of America's transportation network: airlines carry more than 100 times and motor coaches carry 10 times as many passenger-miles as intercity passenger trains. But as a burden on state taxpayers, passenger trains can become quite significant



WHAT STATES CAN DO



1. **Research Amtrak subsidies and potential savings:** If your state currently subsidizes Amtrak, find out how much money is being spent, how many people are riding the trains, and how much could be saved by simply encouraging intercity bus service.
2. **Review existing studies on Amtrak subsidies and service:** If your state has completed a study to subsidize Amtrak, increase current subsidies, or
3. **Review current daily ridership:** If your state is served by an Amtrak overnight train, find out how many people get on and off the train in your state and how much it costs to subsidize those riders so you can respond if Amtrak asks your state legislature to subsidize daily service.

start high-speed rail service (this would include nearly all of the states in paragraph three above), review the study so that when proposals are brought to your legislature you can respond accordingly.

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STRENGTHEN THE USERS-PAY PRINCIPLE

BY MARIYA FROST
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The users-pay/users-benefit principle recognizes that people should pay directly for their use of highways and receive a commensurate benefit in return. Those who do not use a public road or service should not be obligated to pay for it. The motor fuel tax first adopted by states in the early 1900s to fund the construction of highways and roads was born of this principle. Drivers who use and receive a direct benefit from highways pay the fuel tax when filling up at the pump. The revenue from the tax is intended to maintain and preserve the roads they depend on for mobility.

Some states protect fuel tax revenue through statute or state constitutional provisions to ensure the money cannot be used for non-highway expenses. Unfortunately, many states don't have such laws, which allows lawmakers to divert gas tax revenue to pay for public transit, law enforcement, education, and other non-highway programs. This politicizes and violates the users-pay principle, leaving less money for roads.



As policymakers face daunting budget holes given the impact of COVID-19, it may be tempting to weaken existing fuel tax protection and divert additional fuel tax revenue away from roads to fill operating budget deficits. This should be avoided.

Over the next two decades, aging Interstates and major highways must be reconstructed. In 2018, the National Academy of Sciences (NAS) assessed the future of Interstates and found that overall, “most of the [Interstates] have exceeded their design lives and in many places are worn and overused.”

A report from The Road Information Program (TRIP) found that 27 percent of Interstate bridges need repair or replacement, while 54 percent are at least 50 years old and 47 percent of Interstate miles are severely congested during peak travel periods.

As states work toward economic recovery, policymakers must recognize the



importance of continued spending on safe and reliable highways that promote mobility and access to employment. This is uniquely urgent following the COVID recovery, should fewer people choose to take mass transit and instead depend increasingly on personal automobiles for safe travel.

IBM's Institute for Business Value recently conducted a survey of more than 25,000 consumers in the United States. It found that more than 20 percent of survey respondents who normally take transit said they no longer will, while 28 percent said they will take transit less frequently. More than 17 percent of people said they will drive more because of the pandemic, and 25 percent said they will exclusively use their own vehicles moving forward. Furthermore, the advent of automated vehicle technology will likely make personal automobiles even more attractive in the coming years.

Current travel trends and projections all point to a need for additional spending on our highway system. Strengthening the users-pay principle will ensure that motor fuel tax revenue is directed to road safety and dependability improvements during and after the COVID-19 economic recovery.

WHAT STATES CAN DO



1. **Protect Fuel Tax Revenue for Highway Purposes Only:** In the short-term, states that divert motor fuel tax revenue to other purposes should completely transition away from this practice. States that have revenue protection in place through statute or state constitutional provisions should not weaken those laws during the COVID-19 recovery.
2. **Protect Per-Mile Charge Revenue for Highway Purposes Only:** In the long-term, as technology advances and vehicles use different methods of propulsion, officials may seek to replace the gas tax with a per-mile charge related to the cost of road maintenance and repair. Policymakers should ensure that any gas tax replacement is protected for road spending only and is not used to achieve social or political objectives. Though a per-mile charge is good policy when applied as a true user fee, unfortunately, government can distort and abuse good ideas in pursuit of unrelated goals. In such cases where a per-mile charge policy is developed as a general tax that can be used for public transit or other general fund expenses, it should be rejected.



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CONSIDER THE ROLE OF WORKING FROM HOME

BY WENDELL COX
DEMOGRAPHIA

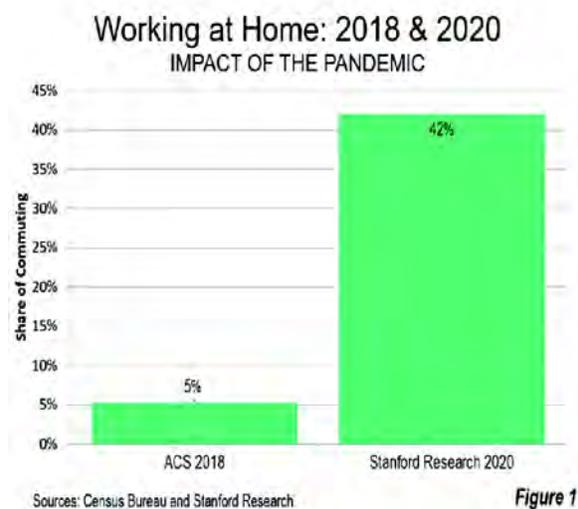
One of the most significant effects of the COVID-19 pandemic has been a large increase in remote work. The ability to work from home has rescued the U.S. and the world from a steeper economic decline. Fortunately, information technology made it possible for a much larger part of the economy to continue working than otherwise would have been possible.

Before the pandemic, remote work had been increasing strongly, capturing 13 percent of new US employment since 2010, and by 2017 there were more remote workers than transit commuters. Outside the unique city of New York, remote workers outnumbered those riding transit by two-thirds.

Several notable companies have embraced working from home until the pandemic ends—and beyond, including Google, Microsoft, Twitter, Nationwide Insurance, and others. There is evidence that remote workers can be more productive.



While lockdowns have been a key factor in the shift to remote work, personal health concerns may have played an even more critical role. For example, in Japan, which did not implement lockdowns, commuting to the two densest urban cores of Tokyo and Osaka “slowed to a trickle” as people avoided enclosed spaces like transit, elevators, and choices, which can be risky without sufficient ventilation.



According to a Stanford University study, 42 percent of workers are now working from



home—eight times the pre-pandemic 5.3 percent reported by the American Community Survey (ACS) in 2018 (see Figure 1). According to a large national IBM poll, 54 percent would like to continue working from home after the pandemic, while 75 percent would like the option of working from home occasionally.

For all commuters the gains can be substantial, with daily travel time savings averaging nearly one hour. For commuter rail riders, the savings can reach 2.5 hours. Meanwhile, a large permanent increase in remote work could reduce traffic congestion and speed commuting for those who still drive.

Of course, how much remote work will increase post-COVID remains to be seen. What should governments do? Fundamentally: seek to facilitate people's preferences. Governments and planning agencies will not convince people to sacrifice their health security any more than other proposals over the past half-century to shift drivers away from cars to transit and bicycles. As former World Bank principal planner Alain Bertaud said during a Melbourne (Australia) webinar, the job of planners is to “keep their ears to the ground,” and to understand and respond to what is happening rather than try to maneuver the public into a pre-COVID ideal.

The pandemic could lead permanently to far more telework and an exodus from urban cores, driven by factors inherent to areas of high density, such as the inability to maintain economic activity and fears for personal safety, especially in overcrowded, enclosed spaces. Moreover, sufficient resilience for future pandemics requires urbanization of lower densities.

WHAT STATES CAN DO



1. **Repeal Urban Containment Policies:** Governments and planning agencies should repeal urban containment and forced densification policies because they could be rendered irrelevant or counterproductive as households choose greater dispersion.
2. **Suspend Long-Range Transportation Planning:** Long-range transportation planning efforts should be suspended until such time as the longer term residential and commuting impacts of COVID are clear.



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PRIORITIZE THE RESILIENCE OF HIGHWAYS

BY RANDAL O'TOOLE
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The coronavirus pandemic is the latest in a series of unexpected events or “Black Swans” that have underscored the need to increase society’s resilience—including the resilience of transportation systems. Fortunately, the United States has the world’s most resilient transportation network. Unfortunately, some politicians want to reduce highway capacity, limiting resilience.

Recent Black Swans include the 9/11 terrorist attacks, natural disasters such as Hurricane Katrina and California wildfires, recessions such as the 2008 mortgage crisis, and of course COVID-19. The one transportation system that is resilient in the face of all these events is motor vehicles and highways.

In fact, the best way to protect oneself against an epidemic while traveling is by using a private automobile, which does not require interaction with others outside of your household at any point in the trip and allows you full control over the sanitation of your vehicle.



Furthermore, the highways on which drivers depend are there when people need them whether money is flowing into agency coffers or not. In contrast, transit systems are heavily labor-dependent, so owners or operators must reduce or eliminate service during recessions. During a pandemic, what service remains is subject to occupancy limitations to prevent crowding, making buses and rail less reliable and efficient.

The COVID-19 pandemic is likely to change transportation patterns, especially if it accelerates decentralization of people from city centers to suburbs and exurbs. Past policies aimed at emphasizing transit and discouraging driving will no longer make sense—if they ever did.

For example, proposals to restrict lane capacity through “road diets” that convert general-purpose lanes to bike routes or to slow down traffic are supposedly aimed at social distancing but in fact make transportation less resilient. These policies were inappropriate before COVID-19 and



are especially inappropriate today.

The anti-auto movement may have made sense 50 years ago when cars were gas guzzlers, city skies were visibly polluted, and highway accidents killed more than 50,000 people a year. Since then, average fuel economies have more than doubled, highway vehicles produce 90 percent less pollution despite being driven three times as many miles each year, and fatalities per billion passenger-miles have declined by 75 percent. Cars today use less energy and emit less pollution than most mass transit systems.

Rather than spending more money to sustain modes that do not meet 21st century, post-pandemic travel needs, public officials should prioritize making our highway systems more resilient and reliable for people who increasingly depend on private automobiles for safe travel.

WHAT STATES CAN DO



1. **Calculate Subsidies to All Modes of Transportation:** Complete a study comparing subsidies per passenger-mile and ton-mile to all forms of transportation in your state. In general,

infrastructure funded out of user fees is better maintained than infrastructure funded out of tax dollars, while taxpayer-funded infrastructure is more likely to be an urban monument than an essential part of a transportation system.

2. **Evaluate Existing Evacuation Routes and Road Diets:** Find out where evacuation routes are needed in your state and whether cities are doing anything, such as road diets, to impair those routes. Encourage your state to develop evacuation plans that include reversible lanes to allow more people to quickly leave the area of a natural disaster. In general, road diets and other programs that reduce the capacity of roads and streets to move traffic reduce resilience, and there are better ways of protecting cyclists and pedestrians.
3. **Revisit State and Metropolitan Area Capital Projects:** Review state and metropolitan area transportation capital projects to see how they may need to be revised considering the pandemic. Support increases in transportation capacity when it can be funded out of user fees.



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ENCOURAGE A PERMISSIVE REGULATORY ENVIRONMENT FOR FUTURE MOBILITY

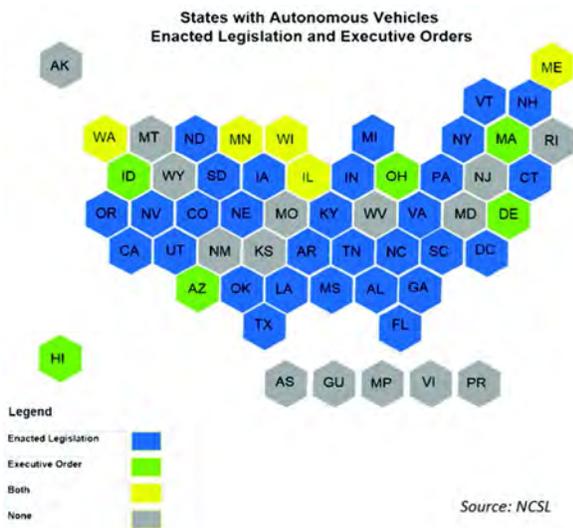
BY MARC SCRIBNER
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COVID-19 has increased interest in automated vehicle technology for both passenger and freight transportation because driverless vehicles can enable more contactless, on-demand mobility. The technology will likely not be available during the current pandemic but could prove extremely valuable to maintain and enhance quality of life during the next pandemic.

Improving safety has been a top, stated priority and is especially significant given the long-recognized fact that more than 90 percent of automobile crashes involve driver error or misbehavior.

The technology also offers great promise for traditionally mobility-disadvantaged groups who—either by disability or lack of income—are unable to drive their own vehicles and suffer the consequences of reduced access to jobs, medicine, and leisure that mass transit cannot come close to matching. Affordable, taxi-style automated vehicles could be especially valuable for these groups when crowded mass transit systems are widely believed to be unsafe for travel, such as during a pandemic.



We are still years away from wide-scale deployment of self-driving taxis and delivery vehicles that have captured the popular imagination. Core technical standards and test procedures remain under development.



Comprehensive federal policy has yet to be enacted. In this environment, several states have taken the lead in charting a policy path for automated vehicles.

Especially during the early stages of development, states should take care that any automated vehicle policies they do adopt will encourage ongoing innovation. Slowing automated vehicle innovation today will translate into deployment delays tomorrow, thereby also delaying the realization of widespread safety and mobility benefits. Given these risks, states should instead consider “no regrets” policies today to begin preparing for the automated future.

WHAT STATES CAN DO



1. **Adopt a Standard Vocabulary:** States should strive for clarity of terminology in any proposed automated vehicle policy. As it stands, SAE International’s Recommended Practice J3016 is the current consensus standard used for these purposes.
2. **Respect Competencies at Various Levels of Government:** State authorities have expertise in constructing and managing infrastructure, as well as driver licensing, vehicle registration, traffic operations,

insurance, and liability determination. Attempts by states to replicate federal expertise in vehicle safety and performance regulation are likely to fail and create unnecessary conflicts between governments. States should instead focus on modernizing their traditional authorities to accommodate automated vehicles.

3. **Audit Motor Vehicle Codes for Existing Barriers:** State policymakers should undertake careful audits of their existing motor vehicle codes to identify conflicts with automated vehicles and resolve them by explicitly exempting automated vehicles from these provisions or rewriting them to be neutral between human and machine driving.

4. **Remain Neutral on Future Business Models:** Policymakers must consider how decisions made today may distort the ongoing and future development and deployment of automated driving system technologies. In doing so, they should be cautious not to codify the limits of their imaginations by dictating business model structures. For instance, a requirement limiting automated vehicle operations to automated vehicle developers would unduly prohibit established rental car companies, which are the most experienced fleet management firms, from operating taxi-style fleets of these vehicles.



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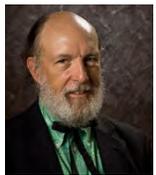
ABOUT THE AUTHORS



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