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USING COMPETITION TO BREAK THE U.S. ROAD MONOPOLY

INTRODUCTION

Most Americans, as they grumble about potholes during their morning drive to work, do not realize they are traveling on a government monopoly. In fact, whether they are on an interstate or a city street, the road was built and is maintained using funds generated by taxes at one or more levels of governments. And as with most such monopolies, U.S. roads are in dismal financial shape.

Under public ownership, expenses for the nation's road system have been outstripping revenues for many years. Taking inflation into account, the road system has run up a cumulative \$146 billion shortfall over the last 20 years, leading to poor maintenance and a system that is always playing catchup with the needs of a growing, changing economy. Moreover, while highway projects are eagerly supported in Congress, they tend to reflect more the desire of lawmakers to please particular constituencies with pork-barrel spending than to finance an efficient system.

Little Choice But to Pay. When consumers are displeased with most goods and services, they can turn to another supplier. Not so with roads. In this case, there is little choice but to pay higher taxes and hope for improvement.

Yet there is a solution: ending the monopoly by privatizing the U.S. road network. Under such a strategy, three steps would be required. First, overlapping government ownership of various classes of roads would have to be disentangled and assigned to particular levels of government. The federal government, for instance, might take full responsibility and ownership of the interstate highway system, while all streets would come under the ownership of the cities. Second, roads would be sold to private buyers, together with the taxes or user fees currently maintaining them. The new owners would have the right to explore other methods of raising revenue, such as tolls. And third, the federal government would review the

privatization approaches undertaken by state and local governments and amend the highway grant and regulatory programs to encourage further privatization.

One Thousand Private Streets. To many Americans, the idea of transferring roads to the private sector seems inconceivable. Yet the arguments against privatization are weak, while the conditions under public ownership are deplorable. In particular, arguments that private roads would be subject to monopoly and insufficient capital funding and that collecting fees would cause unacceptable bottlenecks are not valid. Moreover, toll systems, which could finance a private system, are in place throughout the United States and the rest of the world. Many cities have explored new methods of charging for roads, which could be applied to private systems. Hong Kong, for instance, has experimented with state-of-the-art metering devices. Motorists in Singapore pay for access to the downtown section. Many U.S. cities have private roads serving particular housing developments, and St. Louis has about one thousand private streets, owned and maintained by adjacent property owners.

Turning U.S. roads over to the private sector would lead to a system more attuned to the needs of the economy and private motorists. Competition between road owners would result in more creative ways of financing roads, better maintenance, less bureaucracy, and the more efficient use of resources. And wider application of user fees, in place of taxes, to pay for roads would channel money to precisely where it was needed. This would be a significant improvement over today's politicized pork-barrel process of highway financing, which pays little heed to the typical road user. It is thus time for Congress to recognize that the benefits of competition and private ownership apply just as well to roads as to any other service and to begin the debate on privatizing the U.S. road system.

THE DISMAL CONDITION OF U.S. ROADS

Under public sector ownership, U.S. roads are funded through a complicated mixture of user and nonuser taxes at federal, state, and local levels. While all of the federal taxes are nominally user taxes, there is not necessarily a strong link between the amount of road use and the tax liability incurred. For example, vehicles with poor gas mileage pay more in tax for the same road use as vehicles with better fuel efficiency. The imbalance between road use and taxes paid is particularly large in the case of heavy trucks.

States garner most of their revenues from gasoline and registration taxes. Many states attach *ad valorem* taxes to the vehicle registration levy. Not only does such a tax bear little relationship to road use, but the revenues often are diverted to other state-funded programs having nothing to do with road use, construction, or maintenance. To these nominal user fees, many states add nonuser taxes as an additional source of funding. Sometimes the nonuser taxes are earmarked for road construction (for example, a half-cent sales tax dedicated to urban freeway construction). At other times, the state legislature will appropriate general fund monies for road purposes.

Bargaining Power. Counties and cities typically share in state-levied motor vehicle taxes (that is, fuel, registration, and license taxes) according to legislatively set formulas. These formulas reflect the political bargaining power of the various county and municipal jurisdictions more than they do their actual road usage. To these shares of state-levied taxes, local governments will often add property tax monies.

The funding for any particular road can be a mixture of monies appropriated by each governmental level. The Interstate System involves a 90/10 federal/state matching ratio of funding highway finance. Other state highways are eligible, if they are in the federal aid system (a list of roadways designated as qualified for federal funding), for varying rates of federal and state or local matching funds. State or local roads not included in any of the federal aid system categories will not normally receive federal funding. City and county roads (with the exception of the few that are in the federal aid urban or secondary systems) do not normally receive federal funding.

Benefits of Poor Roads. While there has been some effort to make roads a user-funded service, the results are haphazard. The link between use and payment is weak. Consequently, there is considerable incentive for all involved to pursue "free-ride" lobbying strategies, that is, to increase the demand for and consumption of road services, while shifting the costs onto others. States struggle with each other over shares of federal spending. Cities and counties struggle over shares of state taxes. User lobbies push for nonuser taxes. Truckers seek to shift more of the burden to auto drivers. Meanwhile, highway agencies get little credit for keeping roads in their jurisdiction in good shape. On the contrary, efficient maintenance makes an agency a more vulnerable target for cuts in the struggle over allocations. A deteriorated road system serves the politically potent purposes of demonstrating a need for more money.

The winners of this political game are those who contribute the least while consuming the most. This is hardly a formula conducive to wise asset management. Not surprisingly, the projected costs of maintaining the U.S. road system far exceed anticipated revenues from user taxes. Moreover, the prospects for spending available resources wisely are not encouraging because pork-barrel construction projects usually receive higher priority than necessary maintenance expenditures.

Spending Binge. In addition, the unbusinesslike accounting practices of government transportation agencies create a feast or famine approach to budgeting that invites financial disaster. In particular, transportation agencies do not prepare profit and loss evaluations of their road operations. Accounts are generally kept on a cash flow basis, and no allowance is made for the progressive depreciation of such capital assets as bridges and roads. This means that, whenever new funding becomes available, it tends to be spent immediately on a construction binge. Reserves are not established for the orderly maintenance of facilities. Consequently, as roadways near the end of their design life, there are rarely sufficient funds for replacement or restoration. Hence, the recurring crises in infrastructure finance.

Converting the government's statistics into a more businesslike format reveals the dismal financial picture of America's roads. The following table shows the

effect of taking the traditional assumption of a road's 20-year lifespan and simply prorating the cost of the nation's roads against each year's revenues, to take account of depreciation.

Long-Term Income Statement for U.S. Roads
(\$ in billions)

	1966	1985	1985 Outlay Figures with an Adjustment for Inflation
Revenue			
User Taxes	\$11.6	\$35.6	
Investment Income	.4	3.0	
TOTAL	\$12.0	\$38.6	
Outlays			
Maintenance	\$ 3.5	\$16.0	\$16.0
Administration	.8	4.0	4.0
Highway Patrol	.7	5.3	5.3
Depreciation	4.9	14.0	24.3
Interest	.5	2.1	2.1
TOTAL	\$10.4	\$41.4	\$51.7
NET	\$+1.6	\$-2.8	\$-13.1

Source: *Highway Statistics*, U.S. Department of Transportation, Federal Highway Administration, 1946 through 1985.

Note: Expenditures are for all levels of government. Investment income is interest earned on deposits in banks prior to their disbursement as payment for construction work performed.

As the table indicates, the past 20 years have been a transition from a net positive profit of \$1.6 billion for the U.S. road system to a loss of \$2.8 billion. Even these figures are based on optimistic assumptions. It no longer may be prudent to plan on roads lasting 20 years, given the increased size and weight limits for heavy trucks in recent years. The pavement damage potential rises exponentially with vehicle weight. Thus, a vehicle at the current legal maximum of 80,000 lbs. has a 40 percent greater pavement wear effect than the pre-1975 legal maximum of 73,000 lbs. While traffic volume is up by about 35 percent since 1970, the weight-distance combination is up by over 100 percent.

\$146 Billion Loss. Despite this, Congress has not enacted a road user tax structure that reflects this increased wear and tear. Indeed, according to the 1982 cost allocation study by the Federal Highway Administration (FHWA), trucks as a group underpay their share of road costs by about 20 percent. The heaviest trucks underpay by at least 40 percent.¹ But even aside from this unknown impact on future costs, a mere inflation adjustment to represent the current replacement costs

1. *Final Report on the Federal Highway Cost Allocation Study* (U.S. Department of Transportation, Federal Highway Administration, May 1982).

of a worn-out road would make the net loss of \$2.8 billion for 1985 balloon to \$13.1 billion. This adjustment makes the cumulative loss over the last 20 years \$146 billion--much worse than the nominal loss of \$22 billion on an historical cost basis. It would take a boost of the fuel tax from today's 9 cents per gallon to about 23 cents to cover fully the current costs of U.S. roads. It would require a further boost to over 35 cents per gallon to be able to cover the accumulated \$146 billion deficit. This is assuming that all of the existing taxes remain in place and that all of the additional money generated from fuel tax hikes is dedicated to roads. All of this would come on top of the 125 percent hike in 1982.

CONCERNS ABOUT PRIVATE ROADS

While most Americans would prefer the private sector to the government for the supply of most goods and services, roads are one of several services for which Americans tend to look to government. They do so because of the received wisdom in a number of myths about the private and public provision of roads. Among them:

Myth 1: Only the government can operate a dependable road network sensitive to the needs of travelers.

The idea of private companies operating roads may seem strange to many Americans. Admittedly, there is a plausible basis for the premise that government must own and operate the roads. Besides the enormous resources available to government to operate the system, transportation is so vital that any breakdown would threaten the nation's security and economy. Can the U.S., say critics of private ownership, entrust this function to private firms, which may go out of business, go bankrupt, or otherwise cease to exist?

Unlike government, of course, private sector firms must rely upon resources voluntarily supplied by customers and investors. Private firms cannot compel payment through taxation. But far from being a disadvantage, this encourages private firms to be more prudent in managing resources, more responsive to complaints, and more sensitive to market demand. Private firms have to make good decisions or they are out of business. The, purported advantages of the public sector, however, insulate government agencies from the necessity of making good decisions and much of the information from consumers crucial to making good decisions. This absence of a link between services rendered and payments allows public agencies to ignore consumer wishes--as every motorist knows who has complained about a pothole.

The dependence upon legislated sources of revenue, on the other hand, makes public agencies very sensitive to political pressures for special favors. The Surface Transportation and Uniform Relocation Assistance Act of 1987 is a classic example. The entire highway finance legislation was held hostage to the demand for \$8 billion of pork-barrel spending. Over 100 projects of dubious merit were added to the bill and passed over the veto of President Reagan. These projects included a \$2 billion "Tip O'Neill Memorial Highway" project, which even the federal bureaucrats had

rejected as too costly. Another "highway" project attached to the bill was \$3 million for the construction of parking facilities in Chicago.

Such political favors divert scarce resources from more urgent needs. Other more beneficial and more useful road repairs or construction will be delayed or abandoned because of the political manipulation of road finance.

Myth 2: Roads are a "public good" and thus can only be supplied by government.

It often is assumed that roads are an example of what economists call a public good--a good or service that of necessity must be made available to everyone. Common examples of public goods are defense and the criminal justice system. Because it is not possible to exclude nonpayers from receiving the service, an individual user can avoid paying for the amount of service individually consumed. The demand for such a public good or service always exceeds the amount that a private owner can supply, given the private owner's limited ability to raise revenue from users. This gap is generally taken as an argument for the desirability of government supplying the service and compelling payment through taxes.

Yet roads are not necessarily a public good. Nonpayers of tolls, vehicle registrations, or other charges for roads, for instance, can be, and are, excluded from using the service.

Myth 3: Roads are a "natural monopoly."

A natural monopoly is said to exist if the cost of producing an extra unit of a good consistently declines as the scale of production increases, since the most efficient production then takes place when the producer is as large as possible--that is, a monopoly. If there were competing firms in such a situation, the cost of supplying the service would be raised.

Even if, for the sake of argument, it were conceded that roads were a natural monopoly, it would not follow that public ownership would be better than a regulated private monopoly. Regulated private sector monopolies and public sector agencies have key similarities: prices are set by the political process rather than the marketplace, and management is not generally noted for dynamic or innovative behavior. Nevertheless, there are important distinctions. The relationship between the regulated private firm and the political system is frequently adversarial in nature, leading to close scrutiny of the firm by the political system and an incentive for managers to pursue cost-cutting measures. In contrast, the relationship between the public sector agency and the political system tends to be extremely cooperative, with bureaucrats and politicians serving each other more than they serve the consumers. Because of this cozy relationship, budgets for public agencies tend to expand regardless of external circumstances.

A strong case can be made, however, that roads are not a natural monopoly. There are no significant economies of scale in road construction. In fact, the wide span of responsibility and the intermingling of jurisdictional authority for road systems tend to raise administrative costs per unit of roads as systems are enlarged, leading to substantial diseconomies of scale. Construction costs have gone up by

over 400 percent in the last 30 years, but administrative costs have risen by over 1,200 percent in the same period. Roads thus fail to exhibit the ever increasing economies of scale that are requisite of a natural monopoly.

Myth 4: Highways cannot compete with each other.

It is an obvious fact that only one road can exist in a given place. Nevertheless, most roads, particularly those in urban areas, in a very real sense compete with each other for carrying traffic and attracting businesses or residences along their routes. Convenient and well-maintained routes entice motorists to "spend" their user taxes on the facility (or at least they would do so if taxes were assigned to the road actually used). High volumes of traffic attract businesses dependent upon direct consumer access, while low volumes of traffic may be more appealing to other types of businesses or to residential land uses. This suggests the use of roads has many market-like aspects that bear out the possibility of a competitive market, managed by private sector roadway operators.

Even though the number of directly competitive routes in a rural area is small compared with the multiplicity of alternatives in a city, there are still factors that could promote competition. Rural roads, in effect, compete with intercity air and rail transportation.

HOW ROAD PRIVATIZATION WORKS

The most obvious example of a private road is the toll road, on which vehicles pay directly for travel over a specific segment of roadway. Almost all toll roads are owned by some level of government, but they could be owned and operated by private firms. Early 19th century America, in fact, had over 8,000 miles of privately built toll roads.² In New York, while the state's public authorities were spending \$600,000 on roads between 1790 and 1821, private sources funded \$12 million worth of roads.³

The toll road approach is feasible for routes on which the access can be controlled easily. Routes meeting this requirement, however, amount to only 2 percent of the total U.S. road mileage.⁴ The remaining 98 percent of the nation's highways are not amenable to the traditional toll road approach--stopping traffic to collect tolls may make sense on rural interstate routes, or even urban bridges and tunnels, but erecting toll booths on major urban streets would be ridiculous. Yet there are several ways in which modern technology and ingenuity can be used to develop feasible methods of privatizing untollable roads.

2. Transportation Infrastructure Advisory Group, *Toll Road Financing in the Past and the Prospects for the Future*, International Conference on the Roles of Private Enterprise and Market Processes in the Financing and Provision of Roads, Transportation Research Board, July 7-10, 1986.

3. Daniel Klien, *Private Turnpike Companies of Early America*, International Conference on the Roles of Private Enterprise and Market Processes in the Financing and Provision of Roads, Transportation Research Board, July 7-10, 1986.

4. *Highway Statistics*, U.S. Department of Transportation, Federal Highway Administration, 1985.

The Hong Kong Example

Known for its dense traffic, Hong Kong has been exploring better ways of utilizing its existing road capacity. The most interesting of these approaches took the form of a two-year experiment in electronic road pricing. Completed in 1985, the experiment employed time-of-day pricing. Motorists who traveled at the most congested periods were charged the highest rates. Monthly bills, similar to itemized phone bills, were mailed to each road user participating in the test.

The experiment was a technical and economic success. The equipment was accurate and reliable and the installation, monitoring, and collection procedures were effective.⁵ Only political problems have delayed full-scale initiation of the program. There has been, for instance, the "Big Brother" concern that vehicle-monitored transponders would give the government a record of individuals' movements. There also were complaints that the new charges for using the roads simply would be added to--instead of substituting for--existing user taxes.

Privatization of the roads addresses both of these problems. Competition would mean that firms charging high rates would lose business to rivals with more attractive prices. Thus, the marketplace would work against attempts to use electronic pricing as a disguise for price increases. Moreover, if vehicle and fuel taxes were abolished after the roads had been privatized, there would be no double charging.

The potential for invasion of privacy also would be diminished under a privatized electronic road pricing system. Private firms could use legal means to resist government access to records. Competition would give the roadway entrepreneurs an incentive to protect proprietary information from competitors, which would help guard privacy. Americans enter into all kinds of transactions with private firms in which detailed, personal information is accumulated. Invasion of privacy is a significant threat only when government becomes involved.

The Television Model

The television industry provides another model for a privatized road system. Television generally comes in two varieties: "free" and "pay." In the case of "free" television, viewers make no direct payments to the broadcasters. Yet, it is a profitable business because organizations and individuals with messages to convey to the viewers make payments to the broadcasters. In "pay" television, such as subscriber cable networks, viewers make direct (usually monthly) payments to the firm providing the programs. Singapore has developed a system for roads similar to the subscriber television system. Singapore's motorists pay a monthly access fee to be able to drive into the central business district road system during the business day. This is enforced by permit decals monitored visually by city employees.⁶

5. Ian Catling and Gabriel Roth, *Electronic Road Pricing in Hong Kong*, International Conference on the Roles of Private Enterprise and Market Processes in the Financing and Provision of Roads, Transportation Research Board, July 7-10, 1986.

6. Gabriel Roth and Eamonn Butler, *Private Road Ahead* (London: The Adam Smith Institute, 1982).

Private sector road owners could use a similar system. Or private sector road owners could adapt the free TV approach. In this case, revenues generated from roadside advertising or access charges for businesses could be based on traffic volume, just as leases for space in shopping malls are based in large part on the traffic volume. The roads would be free to users.

The St. Louis Model

Roads generally are part of broader real estate development projects. Firms that develop industrial parks, shopping centers, and residential neighborhoods, for instance, often construct major portions of the arterial roads connecting their project to the road system. The newly constructed road is usually transferred to the local government. Such a road, however, could as easily be transferred to privately owned and operated road firms. Some local streets through shopping centers and residential areas are owned by the property holders and homeowners. In St. Louis, for example, there are over 1,000 privately owned residential streets--the householders are responsible for upkeep and management of the roads without any subsidy from the government.

THE CRITICISMS OF PRIVATIZATION

Private highway companies would need to address a number of issues. Among them:

Standardization. Some firms no doubt would cooperate to standardize such features as axle weight or speed limits; others would not. Yet this is not a serious problem. Travelers ultimately would determine which business practices evolved through their choice of routes. As it is, public sector road jurisdictions vary widely regarding policies for roadway design, operating conditions, speed and weight limits, and other features. The most appealing aspect of relying on the market for coordination, however, is that it is dynamic and innovative. The pace of improvement in roadway design and operation would be far more rapid than is the case today under government management.

Monopoly and Other Abuses. Some road firms might attempt to exploit a local monopoly position or engage in questionable business practices. These concerns, however, are hardly unique to the private sector. Public road agencies are notorious for bid-rigging scandals and political patronage. A privatized road system would not mean the abolition of existing federal and state laws against fraud. Potential monopoly abuses that could not be restrained by competition would still be subject to antitrust laws or state regulation.

Bankruptcy. The bankruptcy of a private road firm would not mean that the roadway itself would vanish. The assets would remain; only the ownership would change. Bankruptcy and takeovers lead generally to improvements, not to a collapse of service. In the public sector, by contrast, there is no reliable mechanism for removing control of resources from bad management. There are no stocks to sell and no competitors to patronize.

GETTING FROM HERE TO THERE

The process of road privatization would not be simple. If governments were immediately to dump all road assets on the market for sale, taxpayers would receive only firesale prices. Since the ownership of roads is in the hands of state and local governments, moreover, the federal government can only urge rather than effect privatization. Also complicating matters is the mixture of responsibility and authority for roads shared in the partnerships between levels of government. Consequently, privatization would have to be introduced in three steps.

Step 1: Assign ownership of each road to one level of government.

In the first stage, the shared responsibility of multiple federal aid programs for various types of roads with varying levels of state and local matching funds would be disentangled. Ideally, the federal government would take full responsibility and ownership of interstate routes--bearing all costs for that system but not for any other routes. Other levels of government would sort out responsibilities for other roads. Once each road were owned by only one level of government, there would be greater freedom to experiment with privatization approaches.

Step 2: Sell roads to private firms and transfer tax revenues to the new owners.

This would involve experimentation with alternative privatization approaches. Some agencies might choose to sell costly routes first. In some cases, the public agency might simply give the road away and be thankful to unload a financial burden.

If public agencies attempted to attach a multitude of burdensome restrictions and requirements to the property, of course, there might be no purchaser prepared to take ownership. If the assets were left free of unreasonable restrictions, many potential owners could be expected to be interested, even if the roads were currently expensive and seemingly money losers. Physical assets of unprofitable businesses almost always find buyers who feel optimistic that, at the right price, the asset can be managed to yield an attractive return-on-investment. In the private sector, there is no shortage of failing businesses that are taken over and made profitable. It is not unreasonable to expect that roads burdensome to the public sector could be turned around under new management.

Antagonistic Bureaucrats. Another approach might be to sell the most attractive properties in order to raise money. The revenues from these sales could then be used to shore up remaining parts of the public road system.

Governments also would have to transfer the road user taxes generated by traffic on these roadways to the new owners. Failure to include this feature would drastically reduce the selling price of the assets and also would raise serious equity problems, since users of privatized roads otherwise would be taxed to travel on roads for which they were paying fees. Bureaucrats antagonistic to privatization could then work to undermine the experiment by directing user taxes toward those public roads most directly in competition with privatized routes. Requiring private

road firms to compete with subsidized public roads would not be a good test of the privatization concept.

Regardless of whether the worst or the most lucrative routes were put up for sale, the bidding process could be handled through the contracts and specifications sections that exist in most road agencies. These sections currently prepare detailed requests for bids on road construction projects. It would not be difficult for them to prepare requests for bids for the purchase of an existing route. A specific formula for attaching road user taxes to the property based on traffic volume and mix would be an integral part of the request for bids. Sealed bids would be submitted by interested parties. The road agency would accept the best bid, reserving the right to reject all bids if none were satisfactory. Purchasers would be given the right to augment attached user taxes with electronic road pricing, advertising revenues, or access charges.

The Federal Highway Administration could provide incentives for local governments to turn to the private sector as a matter of policy, as the federal Urban Mass Transit Administration has been doing in the case of public transit. A portion of highway planning and research funds could be earmarked for the study and evaluation of privatization options. Demonstration programs could be launched. The results of these tests of privatization should be widely disseminated so that successful innovations could be imitated. Similarly technology that might aid privatization could also be supported, such as the Heavy-Vehicle Electronic License Plate (HELP), which is currently being tested as a means of recording and assessing trucks using the monitored routes. This test would help to determine how to apply more widely the technology that worked in the Hong Kong experiment.

Step 3: Evaluate state and local actions and refine the federal strategy.

The progress from pilot approaches then would be evaluated, followed by decisions to push ahead in those areas showing success. With 50 state road agencies and thousands of local road authorities, there would be a diversity of approaches. The Federal Highway Administration could make regular reports to the press and local officials. Federal grant programs and the regulatory system would be amended to reflect the diverse state experiences.

CONCLUSION

Public ownership of the roads is fraught with serious problems. The incentive for efficient employment of scarce resources is weak, and deferred maintenance is permitting an insidious, progressive erosion of the nation's road assets. Revenues from users are inadequate to preserve the existing system, much less build new capacity to cope with growth.

Privatization, however, is not a quick fix for the nation's highway infrastructure. Rescuing the roadways from the progressive deterioration that appears inevitable under public sector ownership is a long-term project. Even though significant results may be years away, the journey should get underway.

Despite the seeming obstacles to private roads, which are more apparent than real, privatization offers the chance of fundamental reform of America's road system finances. Rather than distributing funds in a political pork-barrel process that caters to powerful constituencies instead of the typical motorist, private owners would have to be listening to their customers. As in any private market, the total amount of money spent on the nation's roads, and the distribution of those funds to particular uses, would reflect the cumulative choices of individual Americans.

The competition of the marketplace drives private firms to improve efficiency in delivering products or risk losing customers to rivals who do. Americans recognize this in general, yet road transportation depends on a system that is managed in a socialistic manner. Cut off from the powerful incentive of profit seeking as a spur to efficiency and innovation, the system undermines the public agency's ability to make the right decisions on resource deployment. It is time that Congress employs for U.S. roads the same formula that works so well in most other sectors of the economy--private ownership and operation..

Prepared for The Heritage Foundation by
John Semmens
Senior Policy Analyst
Arizona Department of Transportation*

*The views expressed in this study are those of the author and should not be considered to represent the views of the Arizona Department of Transportation.