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A View of the Future

I'd like to share with you some viewpoints that grew out of an experience I had recently of serving on the National Council on Public Works Improvements. That Council was established by Congress in 1984 to give advice to Congress and the President on the status of the nation's infrastructure. That grew out of the environment in which the publication, America In Ruins, first got popular thinking headed in that direction.

The Council covered eight areas of infrastructure. (We didn't cover everything; we didn't look at railroads because that's not primarily a public works infrastructure. Nor did we look at housing for the same reason.) But of the eight areas that were investigated, four were in the transportation area -- highways, streets, roads, and bridges; public transit; airports and airways; and water resources. Some that were not the traditional municipal kinds of public works were water supply, waste water treatments, solid waste disposal, and an emerging one, hazardous waste. In looking at those, we discovered very early that if that is the major public works infrastructure in the United States, transportation occupies, in terms of asset value, about 70 percent of that list. Anytime you're talking about infrastructure, you had better be thinking very predominantly about our transportation infrastructure. Highways, streets, roads, and bridges constitute, of all of these eight categories in terms of its asset value, about 45 percent. The theory of large proportions says that in any system the biggest pieces matter most, so the attention that
is being given or will be given to the future of highway infrastructure should continue to dominate the thinking of those people in decision making positions as we look toward the future.

One of the things the Council avoided was totaling up yet one more financial needs list. Those of you here who are engineers and learned how to do things right, I'm sure, are frustrated many times in not being able to do everything you'd like to do in a project to make it get done right. The Council realized what everyone looking at the future has to realize -- engineering standards, whatever they might be in a particular area, are not really justified any longer from a financial investment standpoint. So, because it was difficult, if not impossible, for this Council to discern financial decisions on down-sizing, down-scoping to what would be lower than engineering standards, we took a little bit different approach to looking at the infrastructure.

We looked closely at the use of our infrastructure, the demand for it, the financing and supply of the infrastructure and, more importantly (one that we believe will be the hallmark of future evaluation of our infrastructure and transportation) performance evaluation. In terms of the performance evaluation, we're concerned with such things as physical assets, the way the product is delivered, the quality of the service and the cost effectiveness and efficiency of that service.

The Council made its report to Congress in February of this year. Its report is entitled Fragile Foundations: A Report on America's Infrastructure. Among other things, it issued (using the academic vernacular) a report card to the various infrastructures it studied. The overall average of this report card was a "C". Is a "C" an adequate grade in this day and age? Well, it will get a student out of college, but it may not be the grade that more visionary people in our country are associating with infrastructure. One can say on the basis of that grade that our infrastructure today, in these categories at least, is adequate -- at least barely adequate. In looking at the future and the demands on the future and the growth demography of the future, it is clearly inadequate to supply the kind of productive base this country will need as we approach the turn of the century.

You might be interested in some of the relative grades that were given. Highways, streets, roads, and bridges got a "C+". It might have been a little worse had it not been for the Surface Transportation Act of 1982, which, as you know, infused with the five-cent-a-gallon federal gas tax increase (four cents to highway and one cent to the mass transit capital account), brought a lot of money and initiative and encouragement into our states, which after all are the ones that built the roads, own the roads, manage the roads, enforce the rules of the roads (at least those that have a federal interest in them). Without that increase and encouragement, the kind of surface condition improvements we've been able to measure well with our HPMS system would not have occurred and the adequacy of our system in terms of its serviceability would have been substantially lower.

We gave airports and airways a "B-". If your mission in transportation is to move a lot of people long distances in a short period of time for very little money, airports and airways in this country have
done an admirable job. Although, as we all know, we're beginning to feel some of the pains right now in certain selected areas that have had reduced service. But the mass of the travelers and the economy of the country associated with that travel have been very much advantaged by that. In the airways and airport areas there are some serious concerns having to do with congestion, but there are also initiatives that have been taken. The Department of Transportation recently undertook a $12-billion initiative to upgrade the airways and the air traffic control system in the country. But there are other areas, such as access to airports primarily by highways, that are beginning to break down and are showing the need for a great deal of attention in the future.

Our water resources -- that's dams and waterways and barges using those waterways -- came up with a relatively good grade of a "B".

We gave a "C-" to public transit. A lot of the folks at public transit were a little irate at that, but it wasn't because we didn't like transit. It's because we were measuring performance and cost effectiveness. We have growing assets in the airport and airway business because of public investment in infrastructure, and it's matched by growing demand. We have declining assets right now in the highway area in the face of a very dramatic increase in demand, and we have continuing growth in the assets in the mass transit area with either a stable or a declining demand. We thought there had been, at least collectively across the country, indications of a maldistribution of public investment -- much capital investment in transit may have been misdirected toward some of the smaller communities and away from some of the larger ones where mass transit makes more sense.

Well, the Council not only made the observations on their view of the status of infrastructure, but also some recommendations on what might be done about it in a policy sense. Most or all of these recommendations bear very, very heavily on the transportation sector.

The first one, and the one that caught everybody's attention, was to double the current investment in the infrastructure. In Washington these days, one would hold a press conference and suggest to the attending reporters doubling the cost or investment of anything. After they finish laughing, they would inquire as to how in the world you can talk about the Federal Government doubling the investment in anything in the face of the deficit they're enjoying today. Of course, the answer is we didn't anticipate the Federal Government doing all of the doubling or even most of it. Of all the levels of government, states probably have a more predominant part in matching up the jurisdiction of benefit with the jurisdiction of funding. The doubling of a current investment would do no more than return our investment in infrastructure back to its traditional levels of maybe 15 years ago. At that time, as a fraction of our gross national product, we invested about 1.3 percent in our highways -- streets, roads, and bridges. By 1985 that was down to only 2.6 percent or about a halving of that traditional investment. During that 15-year period, we used up the cushion of excess capacity that earlier higher investment provided. It is now intuitively clear, we need to reassess the question of capacity.
Even though the extra money that came into the fund in 1982 took us a long way towards service conditions, it didn’t take us very far toward the increase in highway capacity, which is becoming a real economic drag, primarily in some of our urban and suburban areas.

Another one of the recommendations of the Council was to clarify the federal, state, and local roles. That has to do with matching up the benefits with the beneficiaries, and with taking a look at our evolution to a new future in transportation after the current authorization in highways, for instance, is over. The expectations that may have been established in the past about how things are going to be done, may change, and it’s important that all the players understand what those changes mean rather than backing into those changes without doing it in an overt and knowledgeable way.

Coupled with that recommendation, the Council made another one that I think will be very, very welcome in circles here, and that is to engage and set up more flexible mandates. There will always be mandates from the Federal Government, something that they call in Washington the "Golden Rule", but it’s not like the one you heard in Sunday School. The Golden Rule in Washington is the guy who’s got the gold makes the rules. It is fruitless to talk about being relieved of all of the federal mandates and the red tape and so forth that goes with it because, quite frankly, many of us in the Federal Highway Administration would very much like to do away with some of the mandates such as sanctions for clean air, clean water, speed limit enforcement, and others, which we are required by law to inflict on states.

The Congress is clearly interested in using the federal agencies as instruments of their management (sometimes wise sometimes not wise) of the country’s affairs. But there are a lot of things we believe can be done to make some of those mandates more palatable, and the Council came down squarely on the side of doing that. For instance, refining the permit process we’re going through right now. It is the age-old implementers primarily in our transportation departments who would like to get projects done. Environmental protection folks would like to have them done in a different way or not done and we still have a lot of delay and extra costs in projects as a result of conflicting mandates.

A recommendation and one that I’m almost embarrassed to share with you because it is not the policy of this Administration to do so -- for very good financial reasons I might add -- and that is to spend the money that is in the trust funds.

There are essentially four trust funds associated with this infrastructure. The biggest one is the Highway Trust Fund. If you add together the dollars that are in the highway part of the Highway Trust Fund and the mass transit capital account, you’ll find there’s about $12 billion in that fund that isn’t at work on behalf of the users who pay their money in there.

The Airport Improvement Trust Fund imbalance is even worse; there’s about $9 billion in that trust fund. I should add the balance in the Highway Trust Fund is about the same today as it was in 1981. So that the current Administration, along with Congress, is using trust funds as part of the unified budget to mask the real size of the deficit by not
laying the money out. This Administration has spent, as a matter of its policy, all the money that it's collected during its tenure. But that still leaves the dollars that are out there, and have been there for some time, unspent. The Council (being independent of having to worry about consequences of saying so) said, "Let's spend the money for the purpose for which it was intended." We didn't quite recommend that it go off budget, but that's one way to do it -- take the trust funds off the unified budget.

The problem, of course, under the concepts we have today in determining the deficit is that either Congress would have to say the deficit is higher than it's reported to be or else cuts would have to be made in many other programs, and there are many folks who think those cuts have been made deeply enough. In the likelihood of us in the Congress of the United States being able to compete successfully against expenditures in entitlement programs, Social Security, and some of the others -- to compete with social welfare costs that are much more immediate than the long-range investments on which we're talking about spending the trust fund money -- the likelihood of the Congress in the near future seeing highway and other transportation investments as superior to solving more immediate problems they find back in their local districts, I would have to tell you is not very high, unless their level of appreciation for future investments is substantially raised over where it is today.

The Council also recommended that the user fee, the user share, the beneficiary-pays concept, should not only be retained but expanded. Again, because of the difficulty we have in competing for general funds at state, local, and federal levels, we should try to rely even more heavily than we do on user fees. Easier said than done. It's fairly clear most of the states have grabbed that bull by the horns and have taken that one tax they rely most heavily upon -- the fuel tax, which accounts for about 70 percent on an average basis of state transportation expenditures. They have taken the bull by the horns and increased collectively each year since the Surface Transportation Act. The state tax burden brought in about $1.5 billion a year. Local governments proportionally have even done more than that. The tendency is to worry about going to that well (the fuel tax) too often, you all know the political battles you go through in each and every year when this is discussed. The fuel tax is a wonderful surrogate for a toll, you pay it wherever you drive and you pay it on the basis of how much of the commodity that is supposed to be conserved -- gasoline. Its fault, however, is that it doesn't behave dynamically in the same way as general taxes, such as the sales taxes and income taxes, do. So you will have to go back and revisit that issue year after year and in many jurisdictions that's becoming "old hat".

Coupled with some concerns about the ability to go back to more user fees is another recommendation that the Council dealt with and that is to monitor very closely tax reforms such as the Tax Reform Act of 1986 and subsequent tax changes that are in the mill and rattling around because of the clear need for the Federal Government to address the deficit.
The Tax Reform Act of 1986, among other things, made it more difficult for some jurisdictions to issue municipal, tax-free bonds. It took away something called "arbitrage", which allows you to borrow the money at a lower percent and you invest it (if you are a public body) and use the difference to finance various up-front costs of projects. That has been removed and with it an awful lot of the attractiveness of what we thought was a very appropriate emergence of the private/public funding of public works and highways.

There have been some changes that also were made to limit the amount of municipal bonding that can be done at local levels. We don't know the entire extent of the negative impact of that on infrastructure, but there has been some.

I don't want to spend a lot of time on this today, but an emerging course that has one element of reducing the deficit is the potential of increasing the federal gas tax by a very substantial amount. A possible decrease in gas prices to under $10 a barrel in the winter could result in lower prices at the gas pump and that is very attractive to a number of congressmen in high places in the Government. Chairmen of the House Ways and Means Committee, among others, will take a look at soaking up some of that premium, rather than have that substantial reduction in fuel cost go into generating more demand and more inflation. Why not soak up some of that premium by increasing the fuel tax on gasoline. The talk is anywhere from 30, 40, 50 cents to a $1.00 a gallon in order to reduce the deficit. I am sure those of you who have been engaged in trying to get your state legislatures to increase the user fees would find difficulty in the face of that kind of an increase in the traditional tax base that has gone for highway users to be a very, very, formidable barrier indeed. There's going to be a lot more discussion about that because it seems like such a politically easy thing to do if they're going to have to raise some tax, and obviously the incoming Administration has pledged specifically not to do that. This outgoing Administration clearly also opposes soaking up that traditional highway revenue source. But having said it's a bad idea, econometrically and politically and psychologically, is not to say that it won't be done, and we need to watch that very carefully. If you have any interest in it, make sure Kentucky's voice is heard in those arguments in Congress.

Another one of our recommendations was for better maintenance and for low-capital techniques. We understand that we're not going to build our way out of capacity problems, particularly in some of our urban areas. It is going to be necessary for us to find low-capital techniques to regulate demand in order to use more of the capacity that's already there that we're not getting out. It's going to be necessary for us to give attention, much more attention, to maintenance activities, even in highways, although traditionally it has done a pretty good job of maintaining the facilities. But, even there we're seeing that movements toward more so-called efficiency and effectiveness and cost-cutting in our state agencies and our local agencies is frequently coming out of the maintenance end of things and that is borrowing real trouble. Those of us who were considering investment in additional capital investment aren't really accommodating. We assume that maintenance will continue and
that may be a rash assumption. The impact of that on what we do in the construction of things, maybe we're going to have to change the way we design and finance and cost-out projects to put more into it up front to make maintenance less costly down the road. That gets away from the lowest first-cost kind of activity that governments frankly are not very comfortable with, as a rule. It may be something we're going to have to factor in, in the future, if we're not going to find ourselves in a real maintenance mess.

I think one of the most important recommendations that the Council made, and the one that perhaps is more intangible than many others, is that we need to find out how to use our facilities more efficiently. In the face of adapting new technologies that have not yet emerged into transportation, we are going to have to spend a good deal more of our resources on research, development, and technology transfer.

The 44, actually 43 states and Puerto Rico, that have technology transfer centers as part of our RTAP program, in which the states fund half and the feds fund half, are a good example of the kind of thing we are doing that makes sense and the kind of thing we're going to have to do a lot more of. United States industries spend, on the high-tech side, something like six percent of their gross revenues on research and development. Even McDonald's Restaurants spend about the manufacturing average of 1 to 2 percent of its gross product on research and development. In infrastructure as a whole we are spending (in those other categories that I mentioned outside of transportation) about .33 percent of our gross product on research, development, and technology transfer.

Even after the institution of the very important Strategic Highway Research Program, even after that extra $30 million a year, we're spending .17 percent on research, development, and technology in the highway area.

We are doing some exciting things, but we are not doing enough of them or doing them fast enough. We need to make a real effort in making our automobile-highway connection and our truck-highway connection a good deal smarter.

In a seven-year period, the Europeans are investing $2 billion for their new Prometheus Program. This expense is shared by the auto companies and the European economic community countries plus Sweden. It's what we might legally call, in this country, a cartel, but it is a fairly common practice in Europe in an attempt to capture a large part of the world's consumer electronics market associated with the emergence of technology in the "smart car smart highway connection." They have a mission they're following with a lot more focus than we are.

We do have some exciting things here. For instance, the Pathfinder Program in California, in which we're using an in-vehicle navigation test right now in one freeway corridor. We've got a long way to go and we probably don't have as much time as we'd like in which to do it in a leisurely way -- before the congestion of some of our highly crowded highways are going to be costing us real money economically.

The final recommendation that the Council made was to establish a rational capital budgeting process to match up the capability of these
long-range trust funds to finance programs of infrastructure, to match
them up with prioritized programs in which the resources are distributed
among various perceived needs in a way that makes sense over a long
period of time. Lots of states, in fact, engage in capital budgeting
programs; many local governments do as well. I’m pleased to tell you that
the General Accounting Office has suggested that Federal Government
might do well to at least look at that process. The fact is, a highway
takes a minimum of six years to plan and to implement that plan. The
minimum with which most of us are more familiar is 15 and 20 years. To
think about funding changes along the way and the encouragement that
not having a long-range view makes to congressmen who, in frustration,
frequently have to force demonstration or pork barrel projects in their
districts into the system without being this long-range capital budgeting
process. Really, it calls for that very, very heavily. This particular time in
transition at the federal level in governments, is a time when Highway
Users Federation and AASHTO and the National Association of Counties
and other are looking at our future in a way that perhaps isn’t as
optimistic as it has been in the past because of the fact that we in the
United States have consumed an awful lot more than we’ve invested --
not just financially but in our infrastructure as well.

There are, as the candidates were wanting to say in the
campaigns, some hard choices to be made. The choices will be made; in
fact, doing nothing is a choice, of sorts. Those of us who are engaged in
policy development at the national level are working our darndest to
make sure that we chart a path that will get us to a future we all hope
to enjoy. I think most of us would like to see our children and
grandchildren not have to pay for what we’ve got, while they’re not
enjoying some of the same fruits.

It’s been a great challenge and I’m proud to be with you today,
and I commend you, and certainly Cal and the University for conducting
programs like this. It needs to be done as often as possible so that the
very, very informed people in here can help our opinion leaders and our
decision makers make even more informed choices. Thank you very much.