MORNING SESSION
Thursday, November 17, 1988

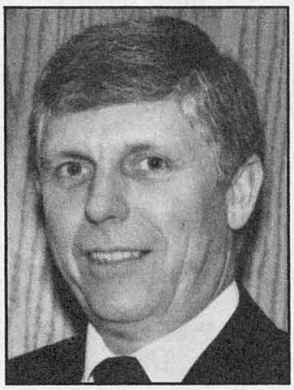
Kentucky's Highway System After 1990 -- A Panel Discussion

Moderator:	O. Gilbert Newman, State Highway Engineer Kentucky Transportation Cabinet
Discussion Leaders:	Jack Fish, President Kentuckians for Better Transportation
	Kamyar Maboub, Assistant Professor Civil Engineering Department, UK
Panelists	
State Government:	David Smith, Asst. State Highway Engineer Planning
	Glen Kelly, Asst. State Highway Engineer Preconstruction
	Tom Layman, Asst. State Highway Engineer Construction
Highway Industry:	James C. Codell, Executive Vice President Codell Construction Company
	Dean Blake, Executive Director The Plantmix Asphalt Industry of Kentucky
	Alan Sparkman, President Kentucky Ready Mixed Concrete Association

OPENING REMARKS and INTRODUCTIONS

Gilbert Newman

There's been quite a bit of interest in where our highway system's going to be after 1990, especially after the current Transportation Act expires. We've had many meetings across the nation to develop what's been noted as Transportation 2020, which was initiated by AASHTO to try to come to a consensus involving all parties interested in transportation, to find out just where we think we need to go and how we're going to get there. This panel discussion is going to address those issues concerning Kentucky's Highway System after 1990.



Before we begin, I would like to introduce our distinguished panel members:

Jack Fish is currently President of Kentuckians for Better Transportation. Prior to working with this organization, Mr. Fish was associate director of the Kentucky Petroleum Council and was chairman of National Better Roads and Transportation Council. A native Kentuckian, Mr. Fish graduated from Centre College with a BA in English and History.

Kamyar Maboub is a new professor at the University of Kentucky. He came to UK from Texas A & M University where he worked for Texas Transportation Institute for five years. He earned his BS in Civil Engineering from the University of Texas at Austin, his MS and Ph.D from Texas A & M. In addition to his academic responsibilities, Dr. Maboub currently heads the Bituminous Materials Section at the Transportation Center.

Representatives from the Transportation Cabinet include David Smith, Assistant State Highway Engineer for Planning; Glen Kelly, Assistant State Highway Engineer for Preconstruction; and Tom Layman, Assistant State Highway Engineer for Construction.

James C. Codell III is Executive Vice President of Codell Construction Company in Winchester and is currently directing the operations of that company. Jim graduated from Morehead State University with a BS in Business Administration.

Dean Blake has served as Executive Director of the Plantmix Asphalt Industry of Kentucky since 1983. A native of West Virginia, he graduated from Virginia Polytechnic Institute. Mr. Blake spent 14 years with the West Virginia Department of Highways, the last five of those years as Deputy State Highway Commissioner.

Alan Sparkman, President of Kentucky Ready Mixed Concrete Association, is a graduate of Mt. Vernon Nazarene College with a BA in Business Management. He is currently employed by the London-Clay Ready Mix, Inc. in London.

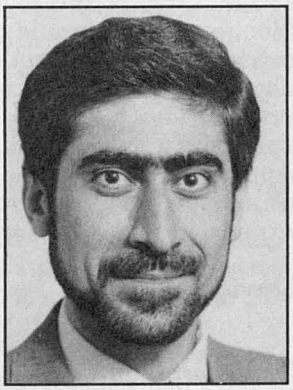
EXCERPTS FROM...

Kamyar Mahboub

As a discussion leader, I would like to provide some topics for the panel to consider:

1. Nationwide, all indications are that we are headed toward higher traffic volumes, heavier and larger vehicles, higher tire pressures, higher speeds, and our current design practices do not seem to be adequate. These pressing issues must be addressed in our civil engineering curriculum at UK.

2. We have a number of good students who are interested in transportation oriented careers. The industry and the state agencies should offer scholarship programs along with competitive salaries in order to attract these young engineers.



3. Our new construction engineering program at UK is recruiting students and it needs to be supported by the industry.

4. Economic prosperity is not achieved by the construction of new highways alone. Kentucky needs an integrated multimodal transportation planning system.

Jack Fish

One of the speakers on the last panel alluded to our poverty problem in Kentucky and, certainly, we do have a poverty problem. As we all know, the best thing you can do about poverty is to give a person a job. The key factor in determining whether or not we have jobs in Kentucky, whether a business comes here and locates here, the number one thing they look at in most cases is the transportation system. Toyota didn't locate where there wasn't a good transportation system, they have rail there, they have highway there. True, education is important -- obviously we saw that as Toyota started employing people -- but the first thing in getting them here was the transportation system.

There are lots of areas of Kentucky that are not connected to the interstate system. We have a good backbone system in Kentucky with our parkways and our interstates, but even the backbone system is not complete and that's part of the question I guess I'm asking -- what do we do to complete our backbone system?

Then, there are other areas where we need good strong corridor roads to help our cities and areas compete in the national market and the international market, and we have tourist areas that don't have good corridor highways either, and sometimes you're talking about a four-lane or two-lane highway. Logan County, for instance, our fourth or fifth largest manufacturing employer in the State, doesn't have a four-lane highway connecting it to an interstate. We don't have it. What are we going to do to get it?

Kentucky has been a leader in it's highway system for many, many years and has been willing to pay whatever it takes to have a good system. In comparison to other states we've done a good job, done a darn good job. Beginning with the Brown Administration, we started diverting highway revenues (and we talked about that at length this morning) but, so far, through the severance tax, we've diverted $326 million as of this biennium. That would go a long way toward paying for some of these corridor highways and some of the backbone we need. There's no question about that. We've got another $70 million coming out of road fund revenues for the State Police. Kentuckians have been willing to pay as users for a system but now we've seen it diverted to other things. Apparently we've done a pretty lousy job of explaining to the people who count how important roads are and how they relate to industry and new expansion and that sort of thing.

David Smith

There's no doubt in my mind we have the capability in the Transportation Cabinet to do the planning that's necessary. I'd say the biggest problem in the past is there hasn't been the interest in doing that long-term planning. Many people say that the biggest difference between the American industries and the Japanese industries is that we, in America, take a short-term perspective. In our industrial society we're looking for a quick profit, whereas the Japanese are tending to look way down the road, to look toward the future so they can build up gradually to improve their economy. I think, in the past, that's the position we've taken in our highway planning -- the six-year plan. We need to look further down the road. Six years to some may seem a long way off, but to a good planner that's not a long way off. We need to be in a position to look at our needs on a 10-to-20 year basis.

Concerning multimodal planning for the 1990's for Kentucky -- the Cabinet does have limited involvement in non-highway modes. These other modes, to be honest, do not appear to be very high priority with the people who decide how much money we get in order to involve ourselves in those areas. We struggle along with the limited amount of money we have to look at what's happening out there from a railroad perspective -- when a railroad talks about abandoning a line, we do take a look at what impact that may have for the communities, and also what the potential impact might be on the highway system. We have, in the past, been fortunate enough to get some federal money where we've helped to improve a rail line, hopefully to help it to continue in operation, and

relieve whatever extra burden might be placed on the highway system if that railroad line were to be abandoned.

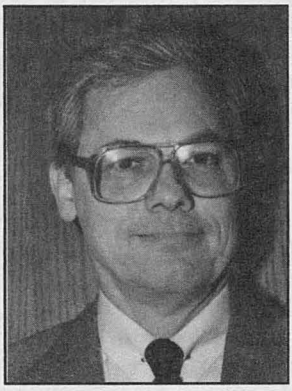
We have worked with some of the riverports in the State to improve rail access so that they are in a position to market that waterway-to-rail link there.

Most of the airport facilities (the major ones) deal directly with the Federal Government, so we have a monitoring aspect and work with them where we can. We do try to take a multimodal approach, but when 99-1/2 percent of our money goes to highways, we're limited in what we're able to do.

Glen Kelly

I think with our overall needs right now, and with the federal requirements, there is no such thing as a maintenance road program. Whenever we address a project with 4R monies, we're required to look at reconstructing the road. That includes looking at interchanges, and we're talking about in the neighborhood of a minimum of three-quarters of a million dollars a mile, up to $3 or $4 million a mile if we're adding lanes. With our 700-mile interstate system or 500-mile parkway system, we're talking several billion dollars' worth of maintenance. The dollars just aren't there to meet our overall interstate needs with our current funding allocations. It's enough to maintain the pavement, it's not enough to meet the capacity demands that we have on our systems, it's not enough to meet the additional interchanges, and it's not enough for existing operational improvements that need to be made for interchanges constructed 20 or 25 years ago. They aren't being addressed. I don't have the number for that.

Tom Layman



I believe some of the contractors out there are more aware of what's occurring in the marketplace and can provide us with some good products and thoughts about what should be done. So, I've been a fairly strong proponent of trying to get involved in a process where you can match up engineering firms with contracting firms in order to maximize both of their abilities. I truly believe that there's some real pluses that can come out of that type of process. Now, I'm not talking about small, say bridge replacement, projects. I think we pretty much know what can go in there, but on some larger projects where you have miles and miles of pavement or you've got large structures over the Ohio River, I'm a very strong proponent of the team approach to solving that problem. I believe that team is the engineering team with the contractor getting together. How you do that exactly, I haven't been able to think through completely. It's been tried in some other states. As a matter of fact, the

European process has some very, very positive elements to it; the engineer and the contractor team up early in the game and they get the best thoughts out of both of them.

James C. Codell

I'd like to make this group aware of a program our industry is supporting, it's just really getting off the ground. It's a construction management option in civil engineering at the University of Kentucky.

Jerry Rose and Jim Stevens, civil engineers at the University, have been hired to set it up. The program itself was made available by a grant from Bob McDowell, who's deceased now, who graduated from the University of Kentucky in the mid-30's. He left $800,000 to establish a chair in the Department of Civil Engineering for a construction management option. As of this time, industry has committed another $225,000 toward this and we're going to try to raise somewhere in the neighborhood of a million and a quarter to insure this ongoing program.

I think it's well to point out training programs that our contractors' groups have set up. We, as an industry, are going to have an extreme problem competing with other industries for key people as our key operators and our key supervisory personnel get older. The fact that we've got the fringe burden -- the insurances and things -- totaling about 35 to 40 percent today, who knows what that's going to be in the future. When you bring Toyota and these types in, it makes you wonder about the "mom-and-pop" businesses -- like the company that my brothers and I run -- and how they will continue to exist. You've also got the influence of these larger groups coming in, buying smaller companies, and that in itself is sure to drive the construction cost up. We are very aware of the need for continuing educating and furthering education.

Alan Sparkman

The future of transportation is of interest to all of us, as a means of our livelihood, and as consumers of the products of the transportation industry; streets, roads, and bridges.

We can see from the present condition of our transportation infrastructure, with its high degree of deterioration that, in the future, we must design structures with a primary emphasis on life-cycle cost, rather than initial construction cost. Today's technology and materials easily allow us to design and construct pavements and bridges that will safely carry the loads of the

future and last for at least 50 years, with minimal maintenance. This may require, in some cases, a rethinking of designs and standards, but such structures are possible.

Within the concrete industry, some of the recent innovations that can make these types of structures possible include high-strength concrete, fast-track concrete paving, and fibers.

Currently, the State of Kentucky utilizes a 3,000 psi design but developments within the industry in the last 10 years make it feasible to obtain 5,000 psi concrete in most any area of the State with ease and with no significant cost increase. By using a combination of high-range water reducers and specialty admixtures, such as silica fume, concrete can be consistently produced, in the field, using local Kentucky materials, with strengths in excess of 10,000 psi. Specifying these higher-strength concretes should be part of constructing higher-quality structures for transportation's future.

An offshoot of this technology has been the development of fast-track concrete pavements, which can be placed one day and driven on the next, or even on the same day, if conditions require. Full-scale demonstrations of this technology have been done in Iowa and Michigan. The results prove that it is possible to have the advantage of concrete pavement with the speed of asphalt pavement. This type of pavement has been characterized as Iowa Fast Track, and it is done primarily by using Type III cement, superplasticizers, and conventional materials. An even more recent development in this field utilizes a new type of cement called Pyrament, to achieve flexural strengths of 600 psi in only six hours, compressive strengths of 2,500 psi. The availability of these new concrete materials give pavement designers previously unavailable alternatives for repair in high-traffic situations and for designing new pavements where speed of construction is vital.

Another recent development in concrete technology is the increased utilization of fibers, ranging from steel fibers to polypropylene fibers. The addition of such fibers to concrete mixes enhances and adds to properties of concrete such as increased flexural strengths, increased crack resistance, and increased impact resistance. Fibers also can aid in slipforming of concrete by providing greater cohesiveness for applications such as parapet walls and lane dividers. Fibers are particularly useful for eliminating temperature reinforcement and speeding the construction process while enhancing the concrete's long-term performance.

I have discussed the technology that has improved the quality and capability of ready-mixed concrete, but much of the contribution that concrete can make to a better transportation system lies in a more effective use of concrete in today's problem areas. These areas include intersections, particularly in high-traffic areas, bridge approaches, and concrete inlays or overlays, again in high-traffic areas.

Concrete's traditional properties of rigidity, load-bearing capacity, and spanning ability make it the natural choice for high-traffic areas and areas where vehicles are slowing, stopping, or turning. Cities, such as Bowling Green, have recognized concrete's superiority for these types of application and have a continuing concrete intersection program that replaces about two intersections per year with concrete.

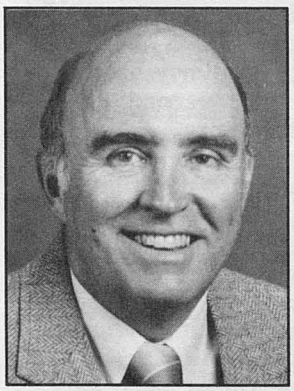
Structural concrete bridge approaches are being recognized as the solution to settlement at the ends of bridge abutments, which causes the always annoying, and sometimes destructive, bump at each end of the bridge. Using concrete's structural capacity to span the filled area and eliminate the possibility of pavement settlement will solve this problem.

Another natural application for concrete is as an inlay or overlay material in high traffic or heavy load as we have in the mountains of eastern Kentucky. We are all too familiar with trying to negotiate the ruts left in asphalt pavement by slow-moving trucks grinding their way up a hill. Milling out the rutted asphalt and replacing it with a concrete inlay would provide a pavement surface that could resist the rutting caused by such traffic. In new construction, certainly, we should heed this lesson by designing such pavements and intersections in concrete rather than installing a guaranteed maintenance problem and safety hazard.

This brings us full circle to our original contention that pavements of the future must be designed utilizing the lessons of past failures and taking advantage of today's technology. Intelligent assessment of expected loads, use of life-cycle costing, and utilization of available materials and technology should enable us to build transportation structures that will serve economically and dependably for many years, rather than serving for only a few. While this may require designing more expensive structures in terms of first cost, the savings generated over the life of the pavement and the added safety and reduced maintenance cost of such pavements will more than offset that cost and serve to make the future of transportation secure, dependable, and affordable.

Dean Blake

Highway transportation is very simply the major driver of economic development. Current spending rates for highways on the national and state levels are not sufficient, by a long shot. Nationally, we are spending about half the amount that is needed to keep present systems in decent shape and provide for the increased demand for highways in the next 30 years.



Do you realize that a low four-percent inflation rate will require at least a 120-percent increase in present highway funding by the year 2020 just to stay even with today's spending? Even such a huge increase will not be meeting needs, since we are not meeting needs today.

We are in for some big problems in Kentucky. The society of today and in the foreseeable future will be one of high mobility. Will we allow the citizens of Kentucky to participate in this high mobility society? That

question, it seems to me, is all important if we are to realize our dreams and hopes for a better Kentucky.

In the development of a typical highway plan, you should define the plan (think beyond personal gain), gain support of the plan, communicate the plan to those affected, and hold folks accountable to implement the plan. The plan, or lack of a plan, is the major concern that I have for transportation in Kentucky.

We know that it takes time to plan, design, buy right-of-way, and construct highways. In fact, we should be planning right now for our highway system in the year 2000, just 11-plus years away.

Does anyone attending this Transportation Forum know what is being planned for us in the year 2000? I suspect the answer is "No"!

In Kentucky, our organization for transportation is not conducive for good planning. Why isn't it? I've been told that the position of heading the State Highway Program has been held by 25 different people over the past 40 years. What does this say for continuity of planning? Another reason is the so-called 6-year-plan process just does not work. Also, our system of financing highways does not deal well with inflation and, in Kentucky, we lack a trust fund for highways.

Currently, major funding that was intended for highways is being transferred to meet staggering general revenue needs. Seventy-two percent of the people polled in a recent Gallup poll said that user fees should be dedicated to specific, related public works programs.

To digress for a minute to some other areas of concern:

Highway research: we are way behind. As University of Kentucky President, Dr. David Roselle, told me last year, far too little is being done on highway research. I worry that the results of the $150 million being spent on SHRP will be forever getting into the real world.

Energy: the question of the future availability of oil or a substitute energy fuel looms large and could be the key to our nation's future well-being.

Engineering talent: retirement and the decline in engineering student enrollments is scary. Engineers have long been the cornerstone of progress for virtually every society. Contractors do not want inexperienced inspection personnel messing up their projects.

Roles of federal, state, and local government: I see a narrower role for the Federal Government in the highway field -- perhaps restricted to the interstate, major primary routes, and major bridges. We must band together to protect the rural highway dollar from those who believe that the world ends at the city limit signs of urban areas.

Mergers: a definite trend toward acquisition of smaller construction companies by larger firms is underway throughout the country. The pros and cons of this situation have yet to be determined.

There is some truth to the statement that government is the cause, rather than the solution, to many of our problems. I do believe that in the future efficient and wise use of taxpayer dollars will be mandated by the voters. I may be wrong but, if I am, we will be in even bigger trouble!

Let me mention a few things that I think can help us to meet the highway needs (traffic has tripled since 1960 and will double again in the next 30 years) of the future.

SHRP and the National Center of Asphalt Technology (NCA) will produce many positive ideas and techniques to make the highway dollar go farther. NCAT is a great example of private enterprise innovation. Hot-mix asphalt contractors are funding this center at Auburn University to develop improvements in their product, which will in the long run save taxpayer dollars.

The Kentucky highway industry is wired up and ready to go to battle to find ways to protect motorists' road and bridge investments, as well as providing the basis of economic growth through highway improvements.

All that is needed is an easy-to-understand highway plan for Kentucky's future. The people in our State will support good roads, if given the chance.

In Kentucky, big stone asphalt mixes hold out tremendous potential. Asphalt recycling offers great dollar savings. Crack, seat, and overlay of old PCC pavements is a technique that saves millions of dollars, and Kentucky is a national leader in this vital role of pavement rehabilitation.

The relocation of the Asphalt Institute to the University of Kentucky will prove to be a major plus for those of us interested in quality and economical ways to use the highway dollar.

We need to share our expertise quicker and more frequently with state and local governments. I see a way to save a large amount of taxpayer dollars and to increase quality by going to more contract work for highway and bridge maintenance. The highway industry needs to be more aggressive in pointing out wasteful programs such as government-owned construction spreads and "magic potions" that are sold to unknowing governments.

Industry and government leaders need to sit down together in a cooperative atmosphere and discuss ways to help the highway dollar do more in terms of quality and performance. Designs and specifications can be improved upon to benefit the taxpayer.

There is no quick fix, but a better system of planning (after all, the "immediate future" for highways is the year 2000). Rational highway budgets, development of incentive packages to attract and retain engineers for the important transportation work, a better understanding by our governmental leaders about the direct impact that highways have upon the manufacturing industry, the tourism industry, and all phases of economic development will greatly help us to get the job done.

CLOSING COMMENTS FROM ...

David Smith-

I think we are at a crossroads. Thirty-two years ago when we started the interstate system, it was a big challenge, and we took hold of that opportunity and look what we've got out there today. Without that interstate system, we wouldn't be the country we are today and right now

we are at another crossroads where the federal-aid program as we've known it for the past 30-some years is about ready to fold up. Unless we take hold of the opportunity, get our heads together, and do something about it, this industry we're all here talking about is going to be in a crisis. We are a target. We're a target at the national level to raid that trust fund for other purposes. We can see, even in Kentucky, what's been done to remove some of those revenues we've depended upon. Unless we want to continue to be a target, we need to find out where we want to go. If we don't know where we want to go, it really doesn't matter. I think we need to reach some consensus here and push on and get what we need.

Glen Kelly-

I want to make just a few brief comments about the pre-construction area. Five years from now or ten years from now, no question about it, we're going to be totally automated. To get to that point, it's going to require more technically-oriented people than we've ever had in the past. It's going to require retraining each of us and the people we have on our staff. I know that education has been emphasized in every discussion but I don't think enough emphasis can be put on that area -- the needs we have with the University and the needs for the technical training. The day of the high school graduate who starts out chopping bush or starts out in the office plotting cross sections and ends up running the transit is a thing of the past.

Tom Layman-

I'd like to comment on two areas. Everybody talks about the interstate system and arterial system that feeds it, and I think that's great, but we have a dilemma going on in this State of ours concerning small bridges and deficient bridges. Just in the county systems, we have over 1,770 bridges that won't accommodate a loaded school bus, so I'm just throwing that out as a tidbit not to let the day get away from us. I think it's one of those things that people who are responsible for managing money need to look at.

The second thing is this whole thing of engineering staff. We do have some serious problems here, especially now. We can turn our heads to them, and we can turn out a set of plans like we turned out 10 or 15 years ago -- where we just don't have any alternates -- we just make up our mind this is what we want to do and we do it. I can assure you, we're going to be losing money if we do it that way.

Hopefully, we can get into the real world and into the marketplace and reflect some of this cost savings out there in the new products. I know we don't have all the answers, if we did we wouldn't have value engineering statements built into contracts. The reason is because the contracting industry has a lot of capability and thoughts that we can use. So, I think there's going to be a stronger marriage between the engineering and the contracting industry in the future, and we need to encourage that.

Alan Sparkman-

I think our industry has available new products that are needed. We have one possibility statewide that says we can make 5,000 psi concrete with minimal changes in specifications and with no problems in the field. That's do-able and that was unthinkable 10, 15 years ago, that was scary. Those are the kind of things that are happening within industry that the State needs to take advantage of and we need to decide some mechanism for us and for the State and everybody involved to take advantage of what's out there. That requires cooperation on the part of all of us. I think everything we've talked about today highlights the need for cooperation between the engineering community, the State Department, and industry if we want to have a dependable, affordable transportation system. I think that's where the future of transportation lies for all of us.

Dean Blake-

I just echo that; I think that's entirely correct. We need industry, the universities, the highway department, other public agencies to sit down more frequently and exchange ideas and information on how to save dollars and do a better job.

We need to keep transportation on the front burner, if the earlier panel today gave you some indication that we could easily be overshadowed by education, prisons, what have you, we've got a job to do to make sure the public understands the importance of transportation; we need to continue to do that. I think the big concern I have about the future is that today's society, and even more so tomorrow's, is going to be one of high mobility -- the question is, will Kentucky's citizens be part of that new society?

Jim Codell-

It's going to be the responsibility of us all to keep this funding thing in front of the public. It appears to me that the only thing we're doing so far is making every effort (as Tom and Glenn and Dave alluded to a minute ago) to maintain what we've got. We're really at a virtual standstill. This year the Department's going to let some $350 or $360 million worth of work. From what I can find out now, that's about what they're going to do in 1989. I can recall in 1979, when we had a $512-million program under a fellow by the name of Grayson, who was Secretary of Transportation at that time. The point is, our industry can gear up to do this type of thing. What we don't need are peaks and valleys, but we really need a level funding and we've got to make education and transportation hand-in-glove. I don't really think we need to be foes. We're going to have to do some educating on our own to make not only the public but our political leaders aware of where we are. If we don't, we're going to be scrambling to maintain what we have, which is what we're doing today.

Kamyar Maboub-

To conclude our remarks, I'll echo what's been said today, and I'd like to mention that in the year 2000, we're not going to be riding on flying saucers, we'll be pretty much dependant upon the existing type of transportation system we have today and we'd better plan for it.

Jack Fish-

Our whole association, more than anyone else, is charged with educating the public about needs, and obviously, we haven't been doing a very good job. We would hope that all of you would join with us and help show us the way to do a good job of educating the public. We certainly need the continued help of the Transportation Cabinet and the many of you who are our members.

Gilbert Newman-

The Governor recently announced he was committed to returning $50 million back to transportation. One big concern that all of us should have is the possible move in Washington to add a substantial tax on our fuels in an effort to reduce the deficit. The pros and cons (and it's mostly cons) of this have been debated many hours by AASHTO representatives. You can help us a lot by letting your representatives in Washington know that we as a whole are very much opposed to tax on fuels in an effort to reduce the national deficit.