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491

ECONOMIC ANALYSIS AND THE EFFICIENCY OF GOVERNMENT

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ECONOMY IN GOVERNMENT

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FIRST CONGRESS

SECOND SESSION

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ECONOMIC ANALYSIS AND THE EFFICIENCY OF GOVERNMENT

MONDAY, MAY 4, 1970

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON ECONOMY IN GOVERNMENT
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D. C.

The Subcommittee on Economy in Government met, pursuant to notice, at 10 a.m., in room G-308, New Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire and Percy; and Representative Brown.

Also present: John R. Stark, executive director; Loughlin F. McHugh, senior economist; Courtenay M. Slater, economist; and Douglas C. Frechtling, economist for the minority.

Chairman PROXMIRE. The hearing will come to order.

The hearings we begin today on Federal transportation policy are a continuation of the Subcommittee on Economy in Government's earlier investigations of economic analysis and the efficiency of Government. Transportation expenditures are a large item in the Federal budget. Almost \$12 billion of budget authority has been requested for transportation programs in fiscal 1971. Most of this money would be used to finance investment in physical assets—highways, airways, and urban mass transit systems.

It is interesting that this kind of physical investment, perhaps more than any other kind of expenditures by the Federal Government, should be based on very careful benefit-cost analysis, where we know precisely the costs and where we can determine whether the benefit justifies the investments that are required.

It is also interesting that this is an area where benefit-cost analysis is almost totally and completely lacking.

We know also, of course, as Mr. Bingham brings out in his fine statement, which is the first statement we have this morning, that there are value judgments involved here, and value judgments that are extremely important, and that they cannot be reduced entirely to economic measurements.

Those value judgments have been very generally ignored.

It seems to me that a rational Federal policy would require that the public value of investment in different modes of transportation be estimated and that funds be allocated accordingly. In the past we have largely failed to make these needed comparisons among modes and to allocate funds to those uses promising the highest social return. We have not done that. Rather our approach has been one under

which expenditures on each mode of transportation would be separately administered and separately justified, and where they are based very largely on the arithmetic of user charges; where we can apply user charges conveniently, and raise a substantial amount of money. We allocate regardless of the benefits and regardless of the costs those funds in the particular area where the user charges apply.

All of us have become increasingly conscious in recent years of such social costs of mobility as noise, air pollution, housing dislocation, and neighborhood disruption. We know that these costs can be very great. They cannot and must not be left out of the analysis just because they may defy precise quantification. But this serious social cost has been given little or no weight in determining our transportation policy.

Even such success as has been achieved in measuring the value of different kinds of transportation investment has not been matched by appropriate shifts of Federal expenditure. Inflexible financing arrangements, legal constraints on the Department of Transportation's authority to establish investment criteria, complicated intergovernmental relationships—all of these factors have caused us to over-invest in some forms of transportation and to under-invest in others. Restraint on investment criteria is one kind of restraint we certainly want to clarify as much as we can.

I might point out that section 4(b) of the law which established the Department of Transportation reads:

Nothing in this act shall be construed to authorize without appropriate action by Congress the adoption, revision, or implementation of (a), any transport policy or (b) any investment standard criteria.

This has been interpreted by some as prohibiting the Department of Transportation from using benefit-cost analysis. It seems to me this is an absurd action by the Congress, saying that we don't want anything that can give us the information on which we can make a firm judgment. But this has certainly been one interpretation, and we would like to have that clarified in the course of these hearings, and also see whether or not, if this is the case, if it does inhibit this kind of analysis in the Department of Transportation, and if the administration will support vigorously in the Congress an amendment of this law to modify it so that we can have the kind of knowledge we need.

Previous hearings of this subcommittee, both those we held last fall on economic analysis and the efficiency of Government, and those we held in 1968 on interest-rate policy and discounting have made us very aware of the difficulties which have impeded a unified Federal transportation policy. This year Congress is taking a new look at all the major modes of transportation. An airport-airways bill is already in conference; mass transit legislation has passed the Senate; a new maritime program is under study; proposals for new forms of assistance for railroad passenger service are pending business in the Senate; the financing arrangements for Federally aided highways are scheduled for review; and a decision must be made on a large appropriation request for supersonic aircraft development.

It is thus a most appropriate time for a progress report on Federal transportation policy. Are the new laws Congress is now considering based on adequate analysis of the relative need for investment in each transport mode? Will we be wise enough this time to avoid locking

ourselves into inflexible long-term financing arrangements which as time passes become increasingly unsuited to current needs—but increasingly difficult to get rid of? Will we seize the present opportunity to improve our financing arrangements for Federally aided highways? Will we fully scrutinize the future implications of current appropriation requests? Or will we again stumble into programs which grow and feed upon themselves and destroy our future ability to shift resources into the highest priority uses?

I doubt if there is any area where our reordering the priorities should be more feasible or susceptible to analysis and careful thought and consideration. And yet this is an area where we have done the feeblest job of taking a rational, thoughtful, objective look at our resources and considering where they can be most wisely and usefully allocated.

This morning we want to explore with our witnesses the steps that should be taken now if we are to avoid repeating past mistakes.

We are honored to have as our first witness Representative Jonathan Bingham of New York.

Following Mr. Bingham's testimony, we will hear from Charles D. Baker, Assistant Secretary of Transportation for Policy and International Affairs. Mr. Baker will be accompanied by Mr. Edward H. Holmes, director, Office of Policy Planning, Federal Highway Administration.

Congressman Bingham, we are delighted to have you.

I have known Congressman Bingham for many, many years. He was a big man on the campus when I was just another student in college.

So we are happy to have you for many reasons, Congressman.

**STATEMENT OF HON. JONATHAN B. BINGHAM, A REPRESENTATIVE
IN CONGRESS FROM THE 23D CONGRESSIONAL DISTRICT OF THE
STATE OF NEW YORK**

Representative BINGHAM. Mr. Chairman, thank you very much for this opportunity.

First of all, I would like to compliment you for holding these hearings. And I would like to say that everything you have just said I heartily endorse. I think that because of a series of events, of developments that really have nothing to do with the merits of the case, we have developed a kind of transportation nonpolicy that is going to be very hard to untangle.

The hearings that this subcommittee is conducting on Federal transportation spending constitute a most important and commendable service. As a people, Americans are highly mobile. Yet shockingly little attention has been paid in this country to our total transportation needs and how best to meet them.

As I just said, I want to congratulate you, Mr. Chairman, and the members of your distinguished committee, for your continuing interest in this problem, and to thank you for providing this opportunity for me to express my views on what must be done to develop in this country an efficient, convenient, and unobtrusive transportation system.

Such a system, I am convinced, cannot be confined to a single mode of transportation, but must instead consist of an optimal mix of a variety of modes of transportation, taking full advantage of the most desirable features of each.

Particularly in our major cities, Mr. Chairman, we are a long way from such a balanced transportation system. In New York and other major cities, our transportation system works worst at the very time when it is supposed to work best—during the daily rush hour. Existing mass transit facilities are so inadequate that they are instruments of torture for those who use them. They have become “human sewers” rather than conveyors in which passengers can travel with dignity, comfort, and speed.

In cities unlucky enough to have no rail mass-transit system at all, superhighways are clogged with cars, breeding noxious fumes and frustration. These superhighways, which were built to facilitate interstate and intercity travel, thus solve the problems neither of commuters nor long-distance travelers.

The precise mix of highway, urban mass transit, intercity rail, and air transportation facilities that would provide the best possible transportation opportunities for all Americans—and how much money should be devoted to each mode to achieve that goal—are of course highly complex questions. What is clear, however, is that we do not have such a system now, and the relative expenditures of the Federal Government on various types of transportation facilities over the past several decades are not bringing us any closer to the kind of transportation system we need. Since 1947 the Federal Government has spent more than \$90 billion on domestic transportation, excluding rail transportation. Of that amount some \$58 billion was spent on highways alone, over \$49 billion of it since 1956.

The Federal Government did not begin to provide significant support for rail transit until 1961, and since that time has provided only about \$638 million for rail mass transit. On an average, Federal investment in highways has outpaced investment in urban mass transit by over 30 to 1. Almost no Federal funds have been provided for the improvement of intercity rail transportation.

A major argument during debate in 1966 on legislation to establish a Department of Transportation was that such a department would contribute to a balanced transportation system by coordinating and centralizing the transportation planning process. In his budget message of that year, President Johnson noted the structure of the Federal Government in the transportation field:

Thirty-five Government agencies, spending \$5 billion yearly, makes it almost impossible to serve either the growing demands of this great Nation, the needs of industry, or the right of the taxpayer to full efficiency and frugality.

The President noted further that:

Programs for research, promotion, and investment in transportation are scattered among a host of Federal agencies. Where we need consolidation, we find fragmentation.

Despite the creation of a unified Department of Transportation in 1966, we have continued to favor highway investment out of all proportion to the role of highways and private automobiles in an

optimal transportation mix. The reasons for this continuing highway bias are many. The Highway Trust Fund generates the bulk of Federal transportation investments. It funnels an ever-increasing volume of funds into highway projects—funds which cannot be diverted to other uses. In addition, of course, years of overinvestment have created a large and influential highway industry which maintains a powerful and well-organized lobby on behalf of continued highway investment.

I might interpolate a comment in relation to your statement, Mr. Chairman, that we used these particular sources of funds because they are available for a particular purpose. Indeed it is presented as if there was some sanctity to the notion of limiting the usage of taxes that are generated by the use of motor vehicles for highway purposes.

I have never been impressed with that argument. One could just as well say that liquor taxes should be used for the improvement of bars. There is nothing sacred about this. Personally I would like to see all of these revenues used for general purposes and spent as the Congress may direct in terms of where the areas of need are. But if we are to agree that these funds, which are generated by transportation users, should be used for transportation purposes, then at least they should not be restricted to the construction of the Federal-State highway system, which is largely the case today. I am sure you are familiar with the arguments that have been presented by many experts on this subject that, as a matter of practical fact, many of those who pay the so-called highway taxes, fuel taxes and others, do not get much opportunity to use the interstate system. They travel on streets and other roads that do not benefit.

There is also the point, that seems to me worth making, that the automobile driver and the person who uses the motor vehicle on a highway stands to benefit by improved mass transit. In the situation we have typically in the great city today, where the poor subway facilities contribute to excessive use of the highways, the task of the driver, who attempts to commute to work on one of these extended parking lots which are supposed to be access roads, is intolerable. There is no solution to the transportation problem simply by continuing to build the superhighways.

It is high time that we get away from the notion that these particular taxes should be used for one specialized type of transportation without regard, as you say, to the cost-benefit ratio involved.

I have come to the conclusion, however, that the most serious obstacles to a reorientation of our national transportation investments are the procedures of the Congress itself in the transportation field, and I am speaking particularly of the House, because this is what I am familiar with. Committee jurisdiction in the House of Representatives is divided three ways—rail mass transit under Banking and Currency; highways under Public Works; and other transportation under Interstate and Foreign Commerce. None of these committees can give serious consideration to legislation that would directly affect any mode of transportation other than the one over which it has jurisdiction.

As a result, each mode of transportation is examined and funded in a vacuum—without any consideration of its relation to other transportation modes, or its priority in the total transportation system. Furthermore, legislation that would provide comprehensive consideration and funding of all transportation facilities cannot be fairly evaluated.

Since 1965, I have sponsored and urged passage of legislation that would permit State and local officials to elect to use a portion of the highway trust moneys they receive for new and improved rail mass-transit facilities. I have urged passage of this measure as a first step towards a general Transportation Trust Fund which would provide balanced Federal assistance for all modes of ground transportation.

Critics argue, of course, that it is somehow immoral to even suggest using taxes collected on the sale of fuels and automobiles for purposes other than more and better highways. That argument, along with others used against extending the Highway Trust Fund into a broad Transportation Trust Fund, is fallacious. Following that kind of reasoning, use of tax revenues from amusements would have to be confined to building more places of amusement; alcoholic beverage taxes to build distilleries; and so forth *ad absurdum*.

Because my legislation affects the Highway Trust Fund, it has been referred in the House to the Public Works Committee, which has jurisdiction over roads and highways. In previous years, I have presented my views in testimony before the Subcommittee on Roads of the Public Works Committee in spite of the committee's lack of interest in rail mass transit.

In the announcement of its current hearings, which began April 21, the Public Works Committee indicated it would consider "a possible program of assistance to highway-oriented mass transit," as well as other measures related to highways, but that the major "vehicle" for the hearings is a bill that would extend and expand the Federal Aid Highway Program through 1978.

This announcement, and my past experience, makes it clear to me that it is impossible for my legislation, or any legislation that would provide for comprehensive consideration of transportation priorities, to be seriously considered by this committee of the House.

I have been gratified to note that the Secretary of Transportation, Mr. Volpe, has on several recent occasions expressed general support for the idea of a broad transportation trust fund. Such a trust fund, in my view, by centralizing the source of funds for all transportation facilities, would force the Congress and other Federal officials to fund each mode of transportation in relation to its priority as part of a total transportation system. I am disturbed, however, by the fact that the current divided committee jurisdictions in the House would preclude any proposal for the establishment of a broad transportation trust fund from receiving consideration.

With that in mind, I decided some weeks ago to decline further invitations to testify on behalf of my legislation before the Public Works Committee. Instead, I have introduced legislation to create a select committee in the House on transportation.

This legislation, H. Res. 942, introduced April 21, 1970, a copy of which I have annexed to my testimony, would authorize the select committee to conduct a full and complete investigation and study of transportation problems in the United States, including:

- (1) Their causes, extent, and effects;
- (2) The adequacy of current machinery and procedures of the Congress and the executive branch pertaining to the solution of such problems; and
- (3) Comprehensive measures to assure Federal support and assistance for each mode of transportation based on the relative need for such transportation in order to achieve a balanced transportation system. Hopefully, such a committee would see the need for a permanent Committee on Transportation with unified jurisdiction over Federal action in the entire transportation field—a committee that could give full and fair consideration to broad transportation legislation.

The Congress, Mr. Chairman, can no longer ignore its own role in the transportation crisis. To point to the Highway Trust Fund, and the strength of the highway lobby is, after all, to blame ourselves. By dividing responsibility for the various modes of transportation among several committees, we have simply institutionalized and assured continued imbalance in our Federal transportation investment. We will not remedy that imbalance until we have provided congressional procedures that are based not on vested interests in particular modes of transportation, but on comprehensive transportation planning and funding.

I respectfully but vigorously urge this committee, in its recommendations, not to overlook the very real need for congressional reform in the transportation area as a requisite to rational transportation funding and a more balanced transportation system.

(A copy of H. Res. 942 referred to for inclusion in the record follows:)

HOUSE RESOLUTION 942

Resolved, That there is hereby created a select committee to be composed of seven Members of the House of Representatives to be appointed by the Speaker, one of whom he shall designate as chairman. Any vacancy occurring in the membership of the committee shall be filled in the same manner in which the original appointment was made.

The Committee is authorized and directed to conduct a full and complete investigation and study of transportation problems in the United States, including (1) their causes, extent, and effects; (2) the adequacy of current machinery and procedures of the Congress and the Executive branch pertaining to the solution of such problems; and (3) comprehensive measures to assure Federal support and assistance for each mode of transportation based on the relative need for such support in order to achieve a balanced transportation system, including proposals to extend the use of the Highway Trust Fund to rail mass transit and to establish a general Transportation Trust Fund to replace the Highway Trust Fund.

For the purpose of carrying out this resolution the committee, or any subcommittee thereof authorized by the committee to hold hearings, is authorized to sit and act during the present Congress at such times and places within the United States, including any Commonwealth or possession thereof, whether the House is in session, has recessed, or has adjourned, to hold such hearings, and to request the attendance and testimony of such witnesses and the production of such books, records, correspondence, memorandums, papers, and documents, as it deems necessary.

The committee shall report to the House as soon as practicable during the present Congress the results of its investigation and study, together with such recommendations as it deems advisable. Any such report which is made when the House is not in session shall be filed with the Clerk of the House.

Representative BINGHAM. I might add only this, that if this committee had the authority to report legislation as the Joint Committee on Atomic Energy does, that might go a long way toward the solution of the problem, because, as you have indicated in your opening statement, Mr. Chairman, and by calling these hearings, you do recognize the acute problem that we face in terms of achieving a balanced evaluation of all our transportation needs.

Unfortunately, as I understand it, this committee does not have that authority. And so I think we have to look for some means of correcting our congressional procedures.

Again may I say that I have been speaking about the procedures in the House of Representatives, but I suspect that somewhat the same situation exists in the Senate.

Chairman PROXMIRE. We have this advantage in the Senate, as you know, Congressman Bingham, we do have on the Appropriations Committee a Subcommittee on Transportation. This is new. This came about 2 or 3 years ago. Senator Stennis is chairman of that subcommittee. And as a result we do coordinate all of our appropriations on transportation in the Senate under one subcommittee.

You would think this would be just about as difficult as taking the jurisdiction away from a full committee because the Appropriations Subcommittees have power which is at least commensurate with and in many cases superior to the power of the standing committees. And yet so clear was the logic of our position, and so obvious to the Members of the Appropriations Committee, that they were willing to surrender their jurisdiction. And in many cases the independent offices subcommittee, for instance, had substantial jurisdiction that they had to give up to the new Stennis subcommittee. It follows that if you can appropriate funds more efficiently on this basis, you certainly should authorize funds on this basis too.

So I think we are at least moving in that direction. I do not know whether the House has done the same kind of thing or not in their appropriation organization.

Representative BINGHAM. No, it has not, Mr. Chairman. And certainly that is an advancement but am I not correct in supposing that that committee, as an appropriations subcommittee, does not have jurisdiction over the actual highway trust fund expenditures?

Chairman PROXMIRE. Well, to the extent, of course that there is any appropriations jurisdiction I believe that it has some. But I see your point. It is very limited. The authorizing committee has the real clout as far as the trust fund is concerned, because the appropriations are fairly automatic and according to formula.

Mr. Bingham, you have given us a very fine statement. I am delighted that you have been the first witness for our hearings, because I think we have gotten them off to a fine start.

Mr. Bingham, your statement contains an incisive indictment of the way in which we have misallocated transportation funds, putting 30 times as much money into highways as into urban mass transit.

You indicate that you feel the situation could be corrected through the establishment of a general transportation trust fund. I heartily agree that if we are going to have a trust fund, we ought to be able to use it to buy something besides highways. But I wonder if the best ultimate solution would not be to do away with the trust fund approach entirely. There was a time, back before 1956, when Federal transportation expenditures were financed out of general revenues, and there was a time when the Federal Government did not pay 90 percent of the cost of highways. The present federally aided highway program can hardly be described as universally popular, especially in our larger cities. Perhaps we would get better transportation decisions if more of the taxing and spending were done at the local level. Isn't there a considerable potential for New York and other large cities to raise money through greatly increased use of tolls, licenses, parking fees, and other road user charges? These funds would then be available for the city to decide how to spend. These funds could be spent on street improvement or on mass transit or on cleaning up the environmental damage done by automobiles.

Representative BINGHAM. If I may, I would like to comment on the first part of that statement, Mr. Chairman.

I would agree with you entirely that the ideal solution would be to eliminate the transportation fund approach altogether. However, I have proposed a comprehensive transportation trust fund as a step in that direction. I think that as a practical matter it might be easier to achieve this in the Congress than it would be to eliminate the earmarking of these revenues altogether.

Chairman PROXMIRE. I am not so sure. Let me just interrupt to say that the subcommittee of this committee, the Economy in Government Subcommittee, recommended with only one dissent that we abolish the trust fund. And we specially recommend it because this is the Joint Economic Committee, and we recognize that we cannot have effective fiscal policy if you isolate from your fiscal policy this enormous area of spending with regard to transportation.

After all, there are times when we have great inflationary pressures, and it is wise to reduce spending. We do not reduce spending on highways, they are insulated. They are protected, regardless of the wisdom of doing so. There are times when we should have more expenditures because of the economic situation, because of unemployment, and so forth. And this whole sector is taken out of any coordinated economic policy because you have this trust fund approach.

Representative BINGHAM. Well, I would be more than delighted to work in that direction, Mr. Chairman. I think that is ultimately the correct solution.

I might mention one other factor that entered into my judgment as to how best to proceed. And that is that I found the idea of a mass transit trust fund catching on very rapidly in the House of Representatives. My colleague from New York, Mr. Koch, introduced such a bill. And I think ultimately he found over a hundred cosponsors of his suggestions for a mass transit trust fund. This seemed to me to be a mistake, although superficially it was an attractive idea. I think it

was a mistake because it seemed to me it was falling into a trap laid by the highway lobby. They would be delighted to have a little separate mass transit trust fund, which would mean that nobody would bother with the highway trust fund, and that would mean that that would be left alone, although revenues would continue to flow into highway construction. I feel that there is a need, in addition to providing a means for us to funnel more funds into mass transit, to cut back to such extent as you have just suggested on excessive highway expenditures. Today those moneys are available for highways. And when moneys are available, with all the pressures that there are, you can be darned sure that they are going to be spent. And this I think is a very serious problem.

So that in part my proposal for a balanced transportation trust fund was in reaction to the suggestion that there should be a separate mass transit trust fund. And if there is some indication—and I am delighted to know that there is sentiment in this committee for elimination of the trust fund altogether—I would be happy to work toward that objective.

Now, to pass to your other point about city revenues, certainly we have not in my judgment made use of tolls as a means of providing additional revenues, and also as a means of controlling excessive automobile traffic coming into New York City. How much the city can do, however, in total terms in relation to solving its mass transit problems by itself—speaking of New York City now—is to me highly problematical. The financial squeeze on city revenues is enormous. The city does not have, in terms of its financial capabilities, the same kind of automatic growth rate that applies to Federal revenues. As the economy grows the Federal revenues grow more or less proportionately.

That does not happen in the great cities. And so I have been a strong believer that much more needs to be done in terms of Federal aid for city transportation. And I think it is just as much a Federal responsibility, just as properly a part of the Federal burden, as the enormous highway program has been, perhaps even more so.

Chairman PROXMIRE. The automobile is such a terrible problem. In driving across Manhattan, or almost anywhere in Manhattan during the rush hours, as you say, is really very difficult. I would think that there would be at least a good argument for prohibiting the private automobile entirely in the city, or a very substantial increase in the licenses and tolls, and so forth, for private automobiles to use the streets of New York.

But I do understand your responsibility.

There is also a feeling, of course, on the part of many of us that New York is very slow in increasing their subway fares, for understandable reasons. But here is a wealthy city that had a subway fare, and I guess still does have a subway fare, which although it has been increased recently, is still lower than the mass transit fare in other cities which have more modest incomes, yet the city is asking the Federal Government to step in and take up the difference.

Representative BINGHAM. May I comment on that?

Chairman PROXMIRE. Yes, indeed.

Representative BINGHAM. I think, first of all, most New Yorkers would not agree with your comments. And I think that what is often overlooked in this statement of comparative fares is that a very large number of people who live in New York City have to pay two fares, for a bus and the subway, to get to work, and sometimes more than that. In other words, they do not pay 30 cents, they pay 60 cents to get to work, and 60 cents to get home. So that when you have an increase as we recently did from 20 to 30 cents in terms of the daily budget, that is actually an increase of 40 cents a day. And I can assure you that this is a burden that is very, very keenly felt.

I think, as I have indicated, that we are not here talking about actual Federal operating subsidies, although I believe that we are going to have to come to that. We are talking about the Federal contribution to the capital facilities involved. And very little has been done to modernize and update our mass transit facilities for a number of decades.

For example, in my district most of the stations are not equipped with escalators. In this day and age that seems like a pretty absurd situation. People have to climb these long flights of stairs. This is particularly difficult for our senior citizens. That is just one example of how our physical plant has not kept up with the demands of the modern age.

And overall I think it is a problem for which the Federal government must accept a certain responsibility, just as it has come to in other fields of transportation, notably highways.

Chairman PROXMIRE. Mr. Bingham, the cost of the interstate highway system has just been reestimated. We are now told that it will cost the Federal Government an additional \$12 billion to finish up this system. Do you feel Congress should authorize and appropriate the additional amount for highways, or should we get busy and see if there are not \$12 billion worth of miles which could be removed from the interstate system?

I should not say authorized and appropriated, because this is authorized in the trust fund. Do you think we should let these funds be made available for interstate highways, or should we see if we cannot find areas that could be removed from the system?

Representative BINGHAM. I would not presume to say exactly how the funding of the Federal highway system should be accomplished. I would suppose that what you say is correct. But I confess that I have not made a study of this. I am thinking more in terms of relative needs and priorities than I am in terms of absolute needs. And I think that if we had a system of making proper cost benefit analysis such as you earlier suggested, it would then follow that the reductions in the highway funding would occur in those areas where the needs are less acute.

Chairman PROXMIRE. Mr. Bingham, if we are going to have federally aided transportation investment programs, we obviously have to have Federal procedures for evaluating the needs and preferences of local communities. Do you have any comment on the techniques the Federal Government uses or ought to use for discovering the true preferences of local communities? Are the requirements for

public hearings under the present highway act adequate? Do you think the public hearings technique can be made fully adequate? What other techniques do we have available for finding out what people really want in the way of transportation systems?

Representative BINGHAM. I do not believe the hearings requirements are adequate. And as a matter of fact, while hearings are helpful, I think that more sophisticated techniques are probably needed. I think with the techniques that we are familiar with today in terms of analysis of public opinion through the use of selected samples, polling, and the like, that we could and should determine much more accurately than we have done what the relative preferences of our citizenry are. I have each year sent out a questionnaire in my district. It is not a scientific polling process, because it depends on those who return the questionnaire. But I get many thousands returned each year. And as far as my constituents are concerned, there is no question at all that they feel that the mass transit has been slighted. And a large majority of them are in favor of my proposal of using some of the highway trust fund monies for mass transit purposes.

Chairman PROXMIRE. Thank you so much Congressman Bingham. It has been most helpful testimony.

Representative BINGHAM. Thank you, Mr. Chairman.

Chairman PROXMIRE. Our next witness is Charles D. Baker, Assistant Secretary of Transportation for Policy and International Affairs.

Mr. Baker is accompanied by Edward H. Holmes, director of the Office of Policy Planning, and by Dr. Sidney Goldstein, assistant director of the Office of Policy Planning.

Dr. Goldstein testified last fall before this subcommittee.

And there is one other distinguished gentleman.

Mr. BAKER. Yes. This is Mr. Garland Marple. And Mr. Marple is director of the Office of Planning of the Bureau of Public Roads. And I ask your permission to have him join with us.

Chairman PROXMIRE. We are glad to have him.

You may proceed.

STATEMENT OF CHARLES D. BAKER, ASSISTANT SECRETARY OF TRANSPORTATION FOR POLICY AND INTERNATIONAL AFFAIRS; ACCOMPANIED BY EDWARD H. HOLMES, DIRECTOR OF THE OFFICE OF POLICY PLANNING, FEDERAL HIGHWAY ADMINISTRATION; SIDNEY GOLDSTEIN, ASSISTANT DIRECTOR, AND GARLAND MARPLE, DIRECTOR OF THE OFFICE OF PLANNING, BUREAU OF PUBLIC ROADS

Mr. BAKER. Mr. Chairman, certainly from the many statements that have been made by Secretary Volpe and others in the administration I think we share very much your interest and concern about the need for balanced transportation planning and balanced transportation.

Accordingly we are very pleased to have this opportunity to appear before you to discuss the transportation planning and investment

process. The more thought that can be devoted to this subject, the better. Transportation planning is complicated and certainly far from perfect. We are trying to improve it. I am hopeful that we will succeed.

At the outset let me state the obvious fact that there is no national transportation plan. There are at least three major reasons for this state of affairs, leaving aside questions of political philosophy. First, much of our transportation system is privately owned and therefore privately planned. Investment decisions here are the province of the private sector and result from the play of market forces.

Second, much of the privately owned system is regulated by the three independent Federal regulatory agencies and a host of other such agencies at the State and local level. This regulatory activity is not subjected to centralized control by a master planner in our Department or anywhere else in the executive branch. The regulatory authorities seek to identify and protect the public interest as they see it, and transportation planning and operations—private and public—are to adjust accordingly.

Third, much of the governmental participation in transportation planning places a premium on having State and local governments make and take responsibility for the decisions that affect them most. States, for example, are heavily involved in highway planning and actually select most of the locations for their roads and highways. Most highway planning in metropolitan areas is done as part of the comprehensive areawide or community planning. Federal grant-in-aid programs of the type we administer usually require that capital projects be developed, at least nominally, in the context of a transportation plan for the area and be consistent with comprehensive areawide development plans.

I would like to digress here briefly for a few moments and address the urban planning situation because it is often the most controversial.

Urban transportation planning is underway in all 233 Standard Metropolitan Statistical Areas, where two-thirds of our population resides. We are under no illusion that it works well everywhere. Criticisms abound: some say that highway planners dominate and always get their way; others point to lack of interest or capability in local governments; cases can be documented of Councils of Government that are locked in bitter jurisdictional arguments blocking all planning.

But, remember, urban transportation planning as we know it today was under way in fewer than 30 areas as recently as 1960. The machinery is there; our problem now is to devise a Federal-State-local partnership to make it work. The alternative, which is to transfer the planning and decisionmaking to Washington, is simply unthinkable.

Returning to the Federal-Private-Regulatory-State/local pattern, the governmental involvement in most cases is concerned with major facilities and equipment. Usually our programs provide grants for planning facilities and grants for actual construction or equipment procurement. A major reason for creating the Department of Transportation was the desire to have the several Federal transportation

grant-in-aid programs coordinated. But the operative word is coordinated, not substituted, eliminated or consolidated.

As you know, Congress specifically continued our program activities, and the necessary planning, on a modal basis. In short, we are given the task of obtaining coordination of planning within a modal framework.

That task is further to be done within the context of laws and legally sanctioned apportionment criteria which often specify what amounts of money are to be spent for which public purposes. There is no doubt that development and implementation of coordinated and intermodal plans can never be completely successful as long as there are constraints on one's authority to allocate funds among alternative uses.

This opinion will not be a surprise to you: administrators always want more freedom and flexibility; legislators want to be very sure that public funds are indeed used for the purposes they deem most urgent and proper.

I would like to share with you now some of the conclusions which Secretary Volpe and I and others in the Department have begun to draw since we took over management of DOT just over a year ago. As I said earlier, the planning process is not perfect, but is in better shape—at least in its essentials—than we had expected. It is a process that is susceptible of improvement. We are trying to build into it a real concern for the quality of life which goes beyond mere recitation of stock phrases. The highway through the historic old quarter of New Orleans was stopped; the jetport in the Everglades will not be built; the highway through Franconia North has been disapproved; the most enlightened housing relocation program in Federal history has been written into law.

The new legislative mandate provided by the National Environmental Policy Act of 1969, passed in December, is adding strength to the movement toward full consideration of environmental factors in transportation as well as all other Federal activities. We are presently working out the implications of that Act for our programs in full collaboration with Russell Train's staff.

I know that you have been intensely interested in the PPB System throughout the Government. I note that several examples of products from the DOT System were published in volume 2 of the comprehensive Joint Economic Committee Report on the status of PPB last year. As Deputy Under Secretary of Transportation I was responsible for PPB in the Department. I believe we have begun to develop a reasonably adequate program structure to help us assess whether we are meeting our primary objective, which is, stated in short-hand, to see that this country's transportation systems move people and freight as efficiently and safely as possible, with minimal disturbance of the environment.

This program structure arrays urban, interurban, national, general transportation safety, and other national interest programs so that we can see what Federal resources we are devoting to these broad categories. And, to some extent, we can array the outputs and benefits of these programs. Eventually I hope we can array the relevant non-Federal costs as well.

I would also like to mention that the Secretary has authorized preparation of a national assessment of transportation investment requirements on a completely intermodal basis. This is a first-of-a-kind experiment. We will seek the assistance of the States in attempting it. Our target date is 1972. We are hopeful that it will lead to serious improvement in transportation planning.

I stated earlier that a great deal of transportation planning and investment decisionmaking is done at the local level, especially in the area of urban transportation, and that the quality of planning depends on the effectiveness of the processes that are established at the local level.

The Department is heavily involved in an evaluation of urban transportation planning at the present time. This study is focused on section 9(a) of the 1962 Highway Act (sec. 134 of title 23, United States Code), but our objective is to develop a concept of urban transportation planning that will provide a framework for highway planning, public transportation planning and relevant airport-airway planning.

This study, directed by the Assistant Secretary for Environment and Urban Affairs, involves BOB, HUD, approximately 40 mayors, 25 councils of government, all the State highway departments, over 200 urban transportation study groups, the National League of Cities, and the National Service to Regional Councils.

Some preliminary findings have begun to emerge. We see both strengths and weaknesses. It is evident that the urban transportation process, as represented principally by section 9(a) of the 1962 act, was the first major stimulant of functional planning for highway transport and land use purposes in most urban areas. It has also provided a formal structure for relationships between the State highway departments and local governments.

On the deficiency side, we can see that the process has focused too narrowly on highway planning highway user benefits, slighting or ignoring transit and airport needs. It seems to have overwhelmed the developing state-of-the-art in general land-use planning and articulation of community goals. As in practically every other sphere of public and private planning, environmental factors have seldom been incorporated, largely due to lack of data. It seems ill-equipped to deal with urban growth and it has not encouraged new systems. When this study is completed, I think we may have the foundation for a vastly improved approach to urban planning. When we are ready, the Department will strive to put findings into practice. If existing authority to do that is inadequate, we will not hesitate to ask the Congress for necessary legislative changes.

Mr. Chairman, that concludes my statement. Now I will be happy to answer any questions you may have.

CHAIRMAN PROXMIRE. Thank you, Mr. Baker. This is another intelligent statement. You have done a very fine job in a brief period, in a brief space, summarizing the policies and position of the Transportation Department and of the very conspicuous progress that you have made.

You indicate in your statement something very, very interesting to me. You say:

"The Secretary has authorized preparation of a national assessment of transportation investment requirements on a completely intermodal basis. This is a first of a kind experiment. We will seek the assistance of the States in attempting it. Our target date is 1972."

Does this mean that what you are doing is attempting to be able to assess the highway investment, the mass transit investment, the aviation investment, the waterways investment, and so forth, and determine where the best and more productive investment can be made on some kind of an objective, measurable basis?

MR. BAKER. I guess the answer to your question, Mr. Chairman, is partly, historically we have been required by law to provide to the Congress a highway needs report on a biennial basis indicating the investment requirements for the highway program. One of the things we plan to do is to expand this to a report on general transportation needs. And this does, in fact, mean several of the things you mentioned here.

It would indicate what we foresee as the urban transportation, and particularly the public transportation aspects of urban transportation requirements. It also would indicate intercity transportation requirements, those in rail and related systems; of course, highway needs as we see them, aviation requirements, and the sort of results that would be required respecting inland waterway systems.

The objective here is to attempt for the first time to collect on an across-the-board modal basis the various future requirements for transportation.

Now, the second part of your question, as I understand it, is, would we then attempt to assess which is the optimum mix, and which are the ways in which this could best be funded.

I think at this stage it would be our intention to request, through the 50 State governments, views on what variations in allocations would be appropriate, given the right to make such changes.

It is not our expectation at this time that we would be in a position to explicitly say that one mode or another should be funded to a greater degree, but it certainly should be a very conscious effort to solicit the views of the local organizations and ultimately the State offices as to their preferences for investment to meet these various transportation needs.

CHAIRMAN PROXMIRE. What is the ratio overall in these areas—I know it varies a great deal—between Federal money and State and local money?

MR. BAKER. Well, it depends, of course, on the system involved. In the highways program, the interstate system is funded on a 90 to 10 basis. That means 90 percent of the money, of course, is provided by the Federal Government and 10 percent consists of local and State funds.

In the so-called ABC program, which is the smaller, but nonetheless a large part of the highway program, primary, secondary, and connector roads, the ratio is 50 to 50. We provide 50 percent of the money and State and local governments 50 percent.

In the case of urban assistance grants the ratio is two-thirds to one-third, the two-thirds by the Federal Government and one-third by the local.

In other forms of transportation, for example, rail systems, there is only a limited amount of program support—although we presently have a demonstration program underway.

In the case of the inland waterway system this becomes more difficult to assess, because the investment and the maintenance expenditures, for example, of the Corps of Engineers necessarily apply to a wide variety of activities of which inland water transportation is only one.

In the aviation field the air traffic control system is a responsibility of the Federal Government. And, of course, we fund and operate it ourselves through the FAA.

In the Federal-aid airport program it is on a 50 to 50 basis, although at least at this time, grants in aid may be applied only to the airfield portion of an airport. Projects for terminal facilities are funded by local agencies.

Chairman PROXMIRE. The reason I asked this question, of course, is that in many of these areas there is more Federal money than there is local and State money. And it seems to me that we have a responsibility to the Federal taxpayer to determine that the investment is made as productive as possible. The manager of a private concern has that responsibility to his stockholders to see that his firm makes productive investment and not unproductive investment. For this reason it seems to me that it would be more than getting the views of local investors as to whether investments ought to be made. I think there would be a more decisive determination, especially where most of the money comes from the Federal Government that unproductive investments could not be made and productive investments could be made.

Mr. BAKER. I think, Mr. Chairman, we would agree with that. The particular area where the Federal participation is the heaviest is in the interstate program, the 42,500 miles which have been authorized by Congress. Essentially the Congress mandated the construction of this system. This is where the 90 to 10 money goes.

Within that context, however—and certainly I would be glad to have Mr. Holmes and some of these other gentlemen expand on it—the explicit projects which take place to implement this are necessarily and properly reviewed in quite some detail to insure its effectiveness and economic efficiency.

Ted, would you care to expand on that?

Chairman PROXMIRE. The kind of things I am interested in—you see, there is a feeling on the part of some members of the Congress, and many people in the public, that because of the nature of the interstate highway system, for example, that roads are built, if not from nowhere to nowhere, from one small populated area to another very small populated area simply because there is an allocation to the whole State, and it is not looked at in national terms, although the Federal Government provides 90 percent of the money, at least it is not rationalized and justified in terms of the benefits you get out of building roads in thinly populated parts of the country.

Mr. HOLMES. I think we might say that the interstate system is as close as we have in this country to a national highway system. The

United States, I believe, is the only country that does not have a national highway system financed entirely by the national government. The decision to construct the interstate system was made by the Congress back in 1944.

It was based on very detailed studies that were made at that time. It was then the opinion of the Congress that the importance of this system to the national defense and to the national economy and the social structure of the Nation was such that the Federal Government should participate to the extent of 90 percent of the cost if the system were to be completed within a reasonable length of time to the high standards that were then desired, as a result of the studies, and as determined by the Congress.

So under that program the cost has increased, as you mentioned, very greatly over the years, for a variety of reasons. Partly, the system has been extended to some extent. It started at 40,000 miles. It was extended to 41,000, and now it is 42,500. The standards have been raised, particularly to provide better safety, and to provide a great deal more in the way of avoidance of damage to the environment and to account for other social factors. It is a national system which is laid out not on the basis of apportionment of funds to the different States, but on a national basis. And as such the States have now finished under this 90 to 10 arrangement about 30,000 of the 42,500 miles.

Chairman PROXMIRE. I want to come back a little later to whether some of these roads ought to be built at all, to show that there is a dollar's worth of benefit for a dollar's worth of cost.

But before I do that I would like, Mr. Baker, to ask you—both Senator Percy and I are members of the Conference of the Great Lake Senators and are both deeply interested in the St. Lawrence Seaway and the Great Lakes operation—if you could explain to us two things. Number one, why is it that we have to continue the tolls, which seem to be counterproductive and seem to be reducing traffic on the Great Lakes; and number two, whether in view of the most encouraging report by the Corps of Engineers showing that for a relatively modest investment and for a very modest annual operating cost, the St. Lawrence Seaway could be held open for 12 months of the year, and we would acquire a real fourth seacoast on that basis, and it would be an enormous benefit to the Nation and, of course, to our States—whether the Department of Transportation is seriously investigating this and considering recommending this kind of investment to the Congress.

In my view, and I think the view of many people much more objective than I am, this would be an excellent investment for the country.

MR. BAKER. Well, Mr. Chairman, there are two points, of course. One relates to the toll issue. Certainly the legislation under which the seaway was built contemplated that the debt would be repaid and essentially be self-financing over a period of time. The target year was something like 2008. I think subsequent developments have indicated that retirement of the debt will probably not take place, given the existing situation.

I think, however, that the Department in reviewing this has concluded that alternatives to this should be very actively pursued. The rather summary and arbitrary answer that the tolls should be raised to some very high level, with the idea of their providing for the retirement of the debt on schedule, is, in my personal opinion, not a viable or desirable alternative. Also, toll increases of the magnitude that have been bandied about in the press, and various reports, official and otherwise, do not seem to me to make sense. And by and large I think these are not the courses of action that the Department would seek to pursue.

I think as alternatives various combinations of approaches could be looked at, including very modest adjustments in toll increases to take into account the debt structure. And I think this is a more rational and logical approach. I certainly think it is imperative that no action be taken in terms of adjustments to tolls or otherwise which would seriously diminish the traffic potential of the seaway.

We have a national resource in which considerable national investment has been made, and which provides substantial transportation capability and opportunity to, as you described it, a fourth seacoast. I think it would be the height of folly to undertake financial measures which would significantly reduce the amount of traffic that it would be possible to have over this system.

As far as the investment approaches are concerned, the Department is actively considering various ways in which the length of the Seaway season might be extended. David Oberlin's Seaway Administration has been very actively exploring these, and we have in the Department various staff studies going on to determine what sort of benefits might be developed. Ice conditions are also a matter which the Coast Guard is concerned with. But viewing the whole financial structure and toll situation on a rational basis, our approach to further investment in the administration of the seaway system should be designed to optimize the returns that will be available to us.

Chairman PROXMIRE. My time is up. I will be back.

Senator PERCY?

Senator PERCY. I have just a few questions, Mr. Baker.

In your statement you indicate that "regulatory activity is not subjected to centralized control by a master planner in our Department or anywhere else in the executive branch."

Is the implication that there should be some more centralized control in order to consolidate regulatory activity?

Mr. BAKER. No, I do not think I would say that, Senator. I think that the separation of the regulatory process, as in the case at present, can make a good deal of sense. I was simply trying to point out here that the ICC, the FMC and the Civil Aeronautics Board do have explicit and separate responsibilities. Nonetheless, I would like to enter this caveat, that I think the Department of Transportation as an agency in the executive branch does have the responsibility to intervene in cases coming before these three regulatory bodies involving major policy matters. And I am pleased to say that it has in the past and will continue to do so in the future.

Senator PERCY. In your statement you talk about "Federal grant-in-aid programs of the type we administer." How high is the quality

of planning of the programs that come in to you that you actually do administer on a regional and local level? Is it of fairly high quality? Or is it the kind of planning that you have to tear apart and start all over again a number of times. Are local groups developing a capability for regional and area planning that meets the standards that you have established?

Mr. BAKER. I think not surprisingly, Senator, that the quality of planning depends at least in part on how long it has been going on. I will be glad to have Mr. Holmes or Mr. Marple to comment further on highway planning, but first I would like to make several general comments.

First, in the area of urban transit planning, I think it is correct to say there has not been a great deal of success. And I think this is not surprising. The Federal Government has provided a very limited amount of money, as Congressman Bingham so properly noted. And as a result, real strong planning designed to provide urban transportation alternatives simply has not taken place, or has not taken place very effectively. And certainly there have been a number of major cities in the country quite interested in developing programs. And I think it is to their great credit. Pittsburgh is a case in point, Seattle is another, and Atlanta is a third, which have developed urban transportation planning which I rate as of fairly high quality. But by and large I think the majority of the cities in the country recognize that there is not much Federal support.

Secondly, as I noted earlier, it has only been since enactment of the 1962 Highway Act that urban transportation planning, as opposed to parochial planning, has been a requirement. So I think it is safe to say that the highway planning which has been a long-established process is probably much more effective and much more sophisticated than what we have in rapid transit.

Federal aid to aviation planning has a longer history, although it too has been a sporadic and sometimes interrupted program. We hope it will improve in the future.

The other question I would like to comment on is what might be described as more newly recognized issues. I mean the environmental considerations, some of the factors which, over the years, unfortunately have not been incorporated into planning at any level of government, as I would perceive it. Fortunately public recognition, the Administration's position, the President's pronouncements and the general concern throughout the country are such that we are starting to get significant inputs of these kinds of what I would describe as newly understood issues, despite lack of information in this area.

Senator PERCY. In your statement you say "But the operative word is coordinated." I have never considered coordinating a real operation. In fact, I am always suspicious whenever I see this term "coordination." It means you cannot decide who is the operator. So someone gets in the middle and tries to pull everyone together. He has the responsibility of pulling them together, but no authority to carry out. And everybody just goes his own way. We do have the highway trust fund legislation. And we have the airport bill calling for a 10-year national airport system plan, and the passenger train corporation bill before Congress.

How much coordination is there really among these plans? Is each going its own way? Are we setting them up on a long-range basis? Are we really going to pull these programs together and make an integrated transportation system for the country and for each of our major regions?

Mr. BAKER. Certainly, I will suggest that coordination is bad—

Senator PERCY. Maybe that is what we had before, and we progressed. But I think what we are trying to look at is, where should we really be, not taking into account all the sacred cows and political considerations and the presumption that Congress would not do this, that or the other thing. Where should we be? If we have a goal that is what our work should be.

Mr. BAKER. I think there are two aspects of this. First, I think the Department certainly does have a responsibility—and we are pursuing this—to develop programs among the several modes which will provide the State and local governments options.

As I mentioned earlier, to all intents and purposes we do not have an effective transportation grant program. So regardless of what we talk about, intermodalism and expanded transportation coordination, to all intents and purposes there really has been only one choice, building entirely on a local basis. And with the exception of San Francisco, no one has seemed to think that they could do this.

So I think one facet of our responsibility, and a clear one, is to insure that we supply the type of program support in the various modes which will allow alternatives to be realistically developed.

I think there is another aspect, and that is to provide the kind of analysis and assessment which will allow us, where appropriate, to make the trade-off decisions.

You mentioned the railpax proposal. Clearly we have an issue before the Nation as to what to do about intercity rail passenger transportation. I think there are various levels at which one could address it. One is do nothing. Another is to adopt something like the railpax proposition, or perhaps some other Federal support program. In this connection, a large number of technical staff studies were undertaken in the Northeast Corridor project, which the Congress has funded in one of the major inputs to date, to determine, given various alternative transportation investments, what kind of reactions could you expect.

We supplemented this within the Department with a number of staff studies to determine the kind of benefits that one could expect in terms of potential ridership, and to determine that the use of such facilities would, in fact, increase. But I think we do have this kind of responsibility, and we are undertaking to increase this kind of analysis to provide this sort of trade-off study.

Senator PERCY. My last question is the \$64 one. Starting with the transportation needs of, say, communities like Greater St. Louis, East St. Louis, and the city of Chicago, we are developing an intermodal network in St. Louis in which the State of Missouri and the city of Louis are cooperating effectively with the government. We need just about everything there, but the airport has to come first, linking in with trucking and railroads. We hope to make East St. Louis a freight city. That is the only hope for it that I can see.

In Chicago we have a failing mass transit system with a \$30 million operating deficit this year. We need another airport. We have all sorts of continuing highway problems.

But as I look at it, the area that really has the money is highways. We have a highway trust fund. Everything else is subject to appropriations, albeit now on a 5-year basis. When events as Cambodia occur or the revenue expected by the Federal Government drops billions of dollars based on lower net earnings, and we suddenly come down here with three-fourths of the budget frozen, and we are playing with this 25 percent, what happens to the mass transit funds, the railways, airports, and everything else that are not in these trust funds?

Could you give us a clear position, Mr. Baker, as to your feelings about whether we can really move ahead without a transportation trust fund, which we can use to decide what mode of transportation best suits the needs of the particular community, and not just keep building more highways?

Mr. BAKER. A point that I think is sometimes lost in the rush is that the people at the State and local level need assurance that the Federal Government will participate and provide support to their programs.

The average transportation system takes on the order of 15 years to put in place. Of course, it varies somewhat. But it is a long-term proposition. Therefore I think that some long-term assurance that systems will be put in place, and that the Federal Government will come forward, is precisely the kind of answer that we have to come up with in public transportation.

I think this is one of the reasons for some of the success that the highway program has enjoyed. And it underlies much of our thinking behind the airport-airway legislation. So I think that I would strongly urge that we continue to indicate in one form or another a long-term commitment to provide support in the development of transportation systems.

However, the other question that you raise is whether it would be desirable to provide some flexibility in how these funds are allocated. And I think the answer is clearly yes. I think Secretary Volpe has made a number of public statements about his interest in exploring the possibilities of a general transportation trust fund. I am frank to say that our studies are not sufficiently far down the track so that I would want to get overly specific on this, I think, to be frank, we do not know enough about how this would work. Among the issues involved are flexibility in the allocation of resources, and whether this flexibility should be exercised largely on the local and State level, as a matter of local choice among several options, or whether choices should be shaped largely in Washington.

Another issue is the source of the money that goes into this. Certain kinds of charges for various programs may provide a lot of money, but nonetheless can prove to be very oppressive. I think we should be very careful that we do not wind up putting the expense of transportation on the people who are least able to afford it.

I simply want to say that the kind of objective we are discussing here is a matter that the Secretary is very much interested in and is working hard on. And I hope we will have more to say on this before the year is out.

Senator PERCY. I just assumed that the Department thought that this was a good idea. I think that you would have a lot of funds for the concept as we move along and as we begin to understand the nature of the problem.

My time is up. Thank you, Mr. Chairman.

Chairman PROXMIRE. I was asking, Mr. Baker, about the St. Lawrence Seaway when I yielded to Senator Percy. I would like to proceed just a couple of minutes more on that. And I respect very much the answers that you gave to the questions. You seem to indicate, however, that the Department of Transportation would go along with some modest increase on the tolls, although you did not want to see such sharp increases that had to flow to pay off the debt by 2008 that it would be counterproductive. Frankly, I would hope that the Department of Transportation would recognize that this is the only waterway in the country built with Federal funds on which there is a toll charge, every other one is free. It is hard for me to understand why the people who live in our area should have to continue to suffer these tolls when people who live in other areas do not. And I would think that the decision should be made certainly on the basis of whether or not the elimination of these tolls would be in the national interest in terms of providing a more productive waterway and a lower cost operation than we have at the present time.

And then the other element—as I recall, the cost of providing that the Great Lakes St. Lawrence Seaway would be open throughout the year on a 12-month basis would be less than \$300 million. And the operating cost would be something like \$27 million a year.

Now, those are enormous sums, of course. But in terms of the great benefit to the country, and the great benefit to this area, they are extremely modest, they really are very, very modest. And we recognize that when a waterway is closed 4 months of the year or 5 months of the year it is a terrific handicap, it is a terrific handicap to all the ports and all the industries in back of them. Then they have to change and move a different way, and your shipbuilding facilities are very seriously handicapped, and so forth.

So once again I would hope that these two opportunities for wise and productive investment would be looked at with very careful scrutiny by the Department of Transportation.

MR. BAKER. I assure you, Senator, that we will look at these things most seriously.

Chairman PROXMIRE. Now, I would like to ask you about that section of the law to which I referred in my opening remarks, in which section 4(b) of the law that we passed provides:

Nothing of this Act shall be construed to authorize, without appropriate action by Congress, the adoption, revision, or implementation of (a) any transport policy, or (b) any investment standards or criteria.

On the other hand, section 7(a) of the same law directs the Department to:

Develop and revise standards and criteria consistent with national transportation policies, for the formulation and economic evaluation of all proposals for the investment of Federal funds in transportation facilities or equipment.

However, a number of exceptions to this general authority are specified, including "Grant-in-aid programs authorized by law."

In 1968, during our hearings on the Economic Analysis of Public Investment Decisions, Mr. Cecil Mackey, who was then Assistant Secretary of Transportation, discussed the way in which these provisions of the law restrict the ability of the Department of Transportation to do investment analysis. Mr. Mackey indicated that he felt some amendment of the law would be desirable. Would you agree that some amendment of these provisions would be desirable? And if so, would you consider giving us the wording of an amendment which might make it possible for your Department to proceed uninhibited with such analysis?

Mr. BAKER. By and large, Mr. Chairman, I do not think we have felt this to be unduly restrictive, at least in the 1 year that we have been on the property. As I understand the language, and its impact on the Department, it is designed to insure that rigid cost-benefit criteria are not unilaterally developed and therefore made a benchmark against which projects wind up on a go-no-go basis.

And I am frank to say that I can understand this kind of thinking. And I generally support it, because I think that the development of rather rigid and arbitrary criteria is not, generally speaking, as productive as one would like.

Chairman PROXMIRE. Wait a minute. Are you saying that you should not develop criteria of measuring benefit-cost analysis? I do not see that you have to be bound by it. If you could find that the benefit cost in one case was 10 to 1 benefits over cost, and in another case that is a bare unity, then you might decide to go ahead with one that is bare unity, or you might even decide to go ahead with one that shows a negative benefit-cost ratio. But what I am asking is whether or not you are inhibited in any way from making those analyses and using them as a guide and disclosing them to Congress and the public when you are making your decisions.

Mr. BAKER. I think we can and do make these kinds of assessments. For example, in airport grants, as one gets applications for the development of new airports, unless it is determined that the potential activity at a proposed airport can result in utilization, which, in fact, provides the type of benefits that we believe we should get from making this kind of investment, the project is not given a very high priority.

Chairman PROXMIRE. This, then, is developed on the basis of actually getting a quantitative numerical figure showing the benefits, and then a quantitative numerical figure showing costs, and this is clearly before the administration when the decision is made, and it is made available to the Congress to the extent that there is an interest, is that correct?

Mr. BAKER. These are the bases, for example, on which the locality gets into the national airport plan. I am not suggesting, Mr. Chairman, that this is a perfect process by any means, but this is the kind of thing undertaken. I think in the urban mass transit area we

presently have a study going on right now which is to determine the kind of criteria that should be developed for processing applications received for grants-in-aid.

Chairman PROXMIRE. Nothing like that in the highway area?

Mr. BAKER. Well, in the highway area the interstate program is, of course, prescribed by the Congress. And it is perfectly clear what the approved mileage is. Now, in just a minute I will ask Mr. Holmes or Mr. Marple to comment further on the specific project analyses they conduct.

Chairman PROXMIRE. So what you are telling us is that because of the action by Congress in setting forth the Highway Act that you are not in the position of making a benefit-cost analysis, and you proceed whether the benefits exceed the cost, even if the cost enormously exceeds the benefits, you proceed because the Congress has taken that kind of discretion away from you in the way the law was written describing that there should be this number of miles, and so forth?

Mr. BAKER. Well, there is also an apportionment criterion. The so-called ABC funds are apportioned to the States on a formula basis, and in turn the States make the decisions on the particular applications of the funds.

Ted, I think it would be appropriate for you to go into some further detail on this. I am sure you can expand on it.

Chairman PROXMIRE. Mr. Holmes?

Mr. HOLMES. To get back to the interstate system for a moment, this system was approved in 1944. It was then approved, as I mentioned earlier, for a total mileage of 40,000 miles. That decision was made by the Congress on the recommendations of a committee that was set up within the executive establishment, and under specific instructions from the Congress to make a study of the need for an interregional highway system. We had examined in the Bureau of Public Roads a variety of systems, ranging from 12,000 miles at the lower limit to as high as 78,000 miles at the upper limit. And to the best of our ability, and pretty crudely at that time perhaps, we did take into consideration the economic and social factors that are concerned in the development of such a system to serve a truly national interest.

We looked into the service that it would give to agriculture, to industry, to mines, to forests, using all the material at that time in the early forties that was available to us. As a result, this system of 40,000 miles was selected by the Congress as the system that seemed to offer the most return for the money that would be involved in it.

And we were then instructed to go ahead with this 40,000-mile system.

Certainly within that system certain projects are real revenue producers, and other projects have to be subsidized by those that produce more than their cost.

I am not getting to the point you want to comment to later.

Chairman PROXMIRE. I think you are doing very well. I think what you are telling me is that you have within the 42,500 miles a number of roads that are being built that are subsidized in which the

benefits are less than the cost, and in some cases I presume a great deal less than the cost, and they should not be built from the standpoint of the national interest?

Mr. HOLMES. I would not say, sir, that they should not be built from the point of view of the national interest, because those sections of the total system that would have to be subsidized by other sections of the system are those connecting links in the sparsely settled areas to which there is a need for connection by the high standard system between major cities and to serve the areas they traverse. The intermountain area, in particular, is a lightly populated area in which the travel may not—I do not know the answer section by section—but in which I would suspect that the travel does not return in road user payments as much as the cost to build and operate the system.

Chairman PROXMIRE. But you do not know that, no analysis has been made to show how many of the miles—you cannot tell me, for example, that 2,000 or 5,000 or 10,000 miles—of the highway are subsidized, can you, while the rest is able to be justified on the basis of the benefit exceeding the cost?

Mr. HOLMES. I think that one real problem comes in the measurement of the benefit. Now, we have customarily been looking at the matter of subsidization as the return from the road users. Some parts of the system, if we might leave the interstate for a moment, and take the secondary system, as an example, are not built to serve traffic but rather to serve the land. And some routes on the secondary system will undoubtedly cost as much as 20 cents or sometimes more per vehicle mile to build and maintain.

All of our roads generate on the average about a cent and a quarter to a cent and a half per vehicle mile in the way of road user taxes. The least expensive system in relation to vehicle miles of travel would be the Federal aid primary system. And that does subsidize a good deal of the secondary system, which is important to the operation of the primary system by its feeder characteristics, but primarily it is intended to be a service to the land.

Chairman PROXMIRE. Let me ask this in a more practical way. Your answers are helpful, but I think we recognize what Congress can do now—we are just about to be in a position to act. As I understand it, the Federal share of the interstate system will cost about \$63 billion, a \$12 billion increase. So Congress has now the option of authorizing some or all or none of the \$12 billion which we are now told will be the additional cost of the interstate system, or of removing enough mileage from the interstate system to permit the system's completion with presently authorized funds. So that we have here an opportunity for the Congress to exercise its judgment. And I would think one consideration would be whether or not the removal of some of the mileage could be justified on the basis that the costs would exceed the benefits.

As I understand it, there are about 1,800 miles of the system on which work has not been started. Of this 1,800 miles how many are in urban areas?

Mr. HOLMES. I am afraid I cannot give you that answer now. I will be glad to supply it.

Chairman PROXMIRE. All right, sir.

(The following information was subsequently supplied for the record by the Department of Transportation:)

The category referred to presently totals 1,747 miles based on the most recent quarterly report or the period ending March 31, 1970. The 1,747 miles are divided, 1,395 rural and 325 urban. The total mileage in each status category is divided rural and urban as follows:

	Preliminary status	Work in progress		Open to traffic			Total
		Engineering and right-of-way	Under construction	Toll	Standards for present traffic	Full interstate standards	
Rural.....	1,395	4,980	4,203	1,798	2,570	20,199	35,145
Urban.....	352	1,017	647	513	519	4,307	7,355
Total.....	1,747	5,997	4,850	2,311	3,089	24,506	42,500

Mr. HOLMES. But I would assume that it would be about a fifth.

Chairman PROXMIRE. Of this urban mileage how much do you regard as really essential to the efficient movement of interstate traffic?

Mr. HOLMES. I think there might be quite a good deal of that mileage that may not be essential to the movement of interstate traffic.

Chairman PROXMIRE. Of this urban mileage how much has been delayed because of local opposition?

Mr. HOLMES. As of now the figure is around 105 miles of that system that are stopped because of local controversy of one sort or another. Some sections have already been deleted from the system. The first one some years back was in San Francisco. Mr. Baker's testimony recognized the Vieux Carre in New Orleans. Franconia Notch is another section which now at least is not expected to be completed. Undoubtedly there will be others. There might be some, for example, in the District of Columbia, where there is controversy. The Lower Manhattan Expressway might be a candidate for deletion, because of the fact of local opposition, for presumably good reason, in that locality.

Chairman PROXMIRE. Has 105 miles been delayed or 105 been canceled?

Mr. HOLMES. No, 105 miles are in controversy.

Chairman PROXMIRE. Has any been canceled?

Mr. HOLMES. I had better give you that figure for the record, but I suppose we have not canceled more than about 15 miles.

(The following information was subsequently supplied for the record by the Department of Transportation:)

To date 20.3 miles have been deleted from the Interstate System: 10.2 in California, 3.1 in Louisiana, and 7.0 in New Jersey.

Chairman PROXMIRE. Do you think that additional segments will or should be canceled for this reason?

Mr. HOLMES. All the sections that have been included in the system have been chosen from a great deal of mileage that was

supplied to us by the State highway departments when we were given authority to add 1,500 miles to the system by the Congress. Some 10,000 miles were proposed for addition to the system at that time, and from that, 1,500 miles were selected. And we believe that all of those links are important links. It does not mean that they necessarily are essential links. It would be possible to delete some of them from the system.

Chairman PROXMIRE. What is the anticipated average cost per mile of the remaining urban sections of the interstate system?

Mr. HOLMES. I will have to supply that figure for you. I can get it from the 1970 estimate, but I do not have it at hand, sir.

(The following information was subsequently supplied for the record by the Department of Transportation:)

The average cost for the remaining urban sections of the Interstate System is \$5,028,000 per mile.

Chairman PROXMIRE. Can you give us a rough estimate? This is for the many urban sections of the interstate system. Isn't it at least \$10 million a mile?

Mr. HOLMES. I would have said a rough figure, 10.

Chairman PROXMIRE. Ten million dollars a mile?

Mr. HOLMES. It could be. As in any system, whether it is a transit system or a sewer system or water supply system or whatever, some links do cost more than others, and all links are needed if the system is going to function. We are certainly examining this point that you mentioned, because we are well aware of the problem of the added cost. That examination is in progress under the direction of the Department right now.

Chairman PROXMIRE. My time is up.

You see, we have this very difficult problem. If we are going to have effective fiscal policy then we are going to be able to solve fiscal problems and be able to move our priorities wisely so that our resources are invested in housing, for example, where we are desperately short now, and many other areas where we need investment. But we can't do any of that when so much of our spending is locked up in a highway trust fund.

So I think the information you have given us this morning is most useful. And we would like to have it explained more fully for the record.

Thank you very much.

Senator Percy?

Senator PERCY. The remaining single question I have leads directly into your concern for housing, Mr. Chairman. I was down in Charleston, W. Va., last Thursday night. It was the final windup session of a 2-day housing conference, where civic leaders, business leaders, community leaders of all kinds, and the mayor and public officials were meeting together to find out how to meet the crisis of housing. One of the great problems that they have is that not only is there not enough money to build houses, along with the high cost of interest, but as the problem of inadequate housing continues and new construction fails to come through at this very critical time they are also destroying housing. Interstate highways are coming right into Charleston and destroying housing. Urban renewal is coming in destroying housing. While I was there eviction notices were given to very low income people living in a hotel, some 40 people, to get out the

next day. There was literally no place for those people to go. And no provision had been made for them.

I am just wondering under such conditions whether or not we could not think in terms of the unthinkable, to make provision in the law to use highway trust funds to replace what has been destroyed when highways destroy certain social benefits and assets that we need. Can we use part of those highway funds to replace what has been destroyed?

Mr. BAKER. Senator, as I understand it—and I stand to be corrected by my highway colleagues here—legislation in 1968 did authorize payments of up to \$5,000 in addition to the fair market value of housing destroyed, if you will, if that was required to enable a homeowner to obtain adequate and similar replacement housing.

I think there is also a provision that up to \$1,500 of supplemental moneys can be paid to persons displaced from rental property. So I think to that extent some of the money is being used correctly. As I say, I stand to be corrected by my colleagues, who are more familiar with this.

But in addition, I would like to comment that I think the Secretary shares very much your explicit concern about the whole problem of relocation. And I am delighted to point out—I think it is fairly widely known—that he made a fairly recent pronouncement respecting relocation. And explicitly he has stated that no project could be approved unless there was assurance that relocation housing was available, and perhaps most important, and putting the real muscle in the exercise, that the project cannot be started until the relocation housing is in place. And I think this sort of really hard-nosed approach, or recognition of this kind of problem, is indicative of his concern for this difficulty that you point out so well.

Senator PERCY. The provisions that you pointed out that are available now for, say, Charleston, W. Va., I am not sure Charleston is aware of them. I did not hear a discussion of it that particular night. But I think their main concern would be, are the provisions in the present law adequate to build new housing for the housing that is destroyed? It seems to me that there are some sort of temporary tide-over type measures, but it does not really create any new housing to replace the housing that has been destroyed.

Mr. BAKER. If I may, I think Mr. Holmes can comment on that.

Mr. HOLMES. What Mr. Baker said is, of course, entirely correct. The problem is—there are two or three problems. One is whether the \$5,000 so-called bonus will be enough to permit someone who is displaced to find another suitable house. That figure was written into the law based on an experience that we had as to the difference in cost between new housing and housing that people were forced to leave by some highway program.

We have found since then that the amount might be higher on the average, and certainly in some cases the \$5,000 is not enough. The more serious problem, however, is not the ability to pay the extra money, but rather to find the house at all. And the Secretary has said that no program will go forward until there is a place for each dislocated person to move to.

I might add that in the hearings that are now going on in the House before the Public Works Committee on the 1970 Federal Highway Act, the American Association of State Highway Officials has

recommended that the Congress authorize the use of highway funds to construct housing where necessary in order to assure that there is a satisfactory, decent, safe and sanitary house comparable to the one from which the person is being displaced before the program can go ahead.

We do not have such authority now, nor does any State have that authority now, although California comes closer to it than anyone else. They can acquire land on which houses can be built.

So that State has lately made a strong move in this direction. And it is one that the association would like to push through Federal legislation on, with the hope that other States would then follow California's lead and make sure that no Federal highway project moves ahead until anyone who is to be dislocated has a place to move to. And we would see no reason why that policy should not apply to every Federal program, not simply, the highway program.

I think we are very fortunate in the highway program in that we have the most liberal and we think the fairest legislation of all at this time. And, of course, there is a proposal to make that applicable to all Federal programs. We strongly support it.

Senator PERCY. Based on the information I now have, I certainly would intend to introduce such legislation, and I hope the Chairman would join me.

Chairman PROXMIRE. Yes, indeed.

Senator PERCY. I wonder if you could provide for the record—I presume you do not now have it, although you might make an estimate—how many housing units were destroyed by federally aided highway construction last year and how many were destroyed in the last 10 years?

Mr. BAKER. I do not have it now.

Senator PERCY. Could you give us some sort of an estimate?

Mr. BAKER. I cannot.

Ted, do you have it?

Mr. HOLMES. I am sure that I have it here. I think I might locate it in a moment. But we do have good records not only on what has happened, but on estimates of what will be required for the remainder of the program. That has been carefully estimated, and we are glad to supply it for the record.

(The following information was subsequently supplied for the record by the Department of Transportation:)

Between October 1, 1968, and December 31, 1969, 27,516 dwelling units were taken; 79,957 occupants were displaced. Approximately 80 percent were in urban areas.

Figures are not available as to the number of displacements over the last 10 years inasmuch as authority to participate in relocation assistance does not date back that far. Figures show, however, from October 1, 1966, to December 31, 1969, a total of 89,065 units were taken.

Senator PERCY. Thank you.

Thank you, Mr. Chairman.

Chairman PROXMIRE. Let me proceed further along the lines of my previous questioning.

How many miles do we have to remove from the system to cut the cost back to the existing authorization, \$12 billion, how many miles would have to be cut back? As I understand it, the cost of 42,500 miles has been increased, so to stay within the existing authorization, how many miles would be lost?

Mr. HOLMES. That would take a little calculation that I do not believe I can make right at the moment, I would be glad to supply it for the record. But on the basis of about a million and a half dollars a mile—that is what it is running now on the split between rural and urban as we now are building it—it would be \$12 billion divided by \$1½ million.

(The following information was subsequently supplied for the record by the Department of Transportation:)

This question can only be answered in general terms using average cost values. Realistically though, there is no such thing as an average mile and a studied cutback in system segments would be required in all States.

Based on the 1970 Estimate of the Cost to Complete the System, plus previously obligated funding—the “average mile” of the 42,000-mile system is \$1,674,000 per mile. For urban areas this average is \$5,028,000 per mile. In rural areas the average is \$985,000 per mile.

Using these values, and assuming a \$12 billion deficiency, the following would be the answer to your question:

General average—\$12 billion ÷ \$1,674,000/mile = about 7,200 miles.

Urban average—\$12 billion ÷ \$5,028,000/mile = 2,400 miles.

Rural average—\$12 billion ÷ \$985,000/mile = 12,000 miles.

As noted in response to an earlier question there remain only 1,747 miles on which no work is in progress. Thus, in order to save \$12 billion, work of some sort would have to be abandoned on projects that are already underway.

Chairman PROXMIRE. You think that would be around 8,000 miles, something like that?

Mr. HOLMES. It is about where it would work out, if that average figure is applicable.

Chairman PROXMIRE. If the funds provided by Congress are not sufficient for completion of the system as planned, how would the Department of Transportation go about identifying the segments which could best be deleted? Does the Department have legal authority to drop planned segments from the system, or would Congress have to designate the mileage which would be removed?

Mr. HOLMES. I guess we would have to go back, Senator, to the way in which the system is designated in the first place. Initially routes are designated by the States for approval by the Bureau of Public Roads, of the Federal Highway Administration, by delegation from the Secretary. If we were required to cut the system back by some certain mileage—for example, not to add the 1,500 miles, which was added recently—I think we have to make our best estimate ourselves on the mileage that we think to be the least important.

But I believe, in good faith, we have to obtain the concurrence of the States in any routes that might be dropped.

Chairman PROXMIRE. How in the world can you get the concurrence of the State when the State sees 90 percent Federal money coming up for almost anything? They would go ahead for even unfeasible systems, it seems to me, even if they were of little value to them, because with that kind of economic activity in the State, employment would increase and the opportunity for profit too.

Mr. HOLMES. If Congress directed that the system be cut back by certain mileage, working through the State highway officials, I believe we could work out a way in which it could be done. I think we would recommend that it not be done, but I think we could find a way to do it, and get the concurrence of the States in an action.

Chairman PROXMIRE. I would like to ask about the effect of the 90-10 interstate financing formula or resource allocation.

The 1970 Highway Needs Report states:

Pressures to complete the interstate have determined priorities for the States, thereby diminishing their improvement program flexibilities.

A total of 90 percent of the cost of the interstate highway system is paid for by the Federal Government—50 percent of the cost of certain other urban highways is paid for by the Federal Government. Two-thirds of the cost of certain mass transit investments is paid for by the Federal Government, but very little money has actually been available for mass transit investment.

To what extent has this financing disparity led to overinvestment in transportation as opposed to other needs, such as housing, schools, recreational facilities, and so forth? Has the Department considered that?

Mr. BAKER. I think certainly, Mr. Chairman, we have considered the effects of disparities in the allocation of transportation funds. As for the total investment of given localities, I think quite frankly this is something that we have done less work on. There is not any question in my mind that the 90-10 versus the two-thirds-one-third, and the lack of any real money for public transportation investment in urban areas, has tended to heavily orient the local decisions and planning processes in favor of the highway answer.

Quite frankly, to date, we have done less work in looking at the larger issue you suggest.

Chairman PROXMIRE. I think maybe it is unfair to ask the Transportation Department to determine that. I am going to ask the Staff to prepare letters for me to the Secretary of HUD, the Secretary of HEW, and the Secretary of Interior, to ask them if they have any kind of a study or judgment that they can give us on the impact of highway expenditures on these programs, which also, of course, have a claim on our resources.

(The following responses to the letters mentioned above by Chairman Proxmire were subsequently received for the record:)

MAY 20, 1970.

HON. GEORGE W. ROMNEY,
Secretary of Housing and Urban Development,
Washington, D.C.

DEAR MR. SECRETARY: On May 18, I wrote on behalf of the Subcommittee on Economy in Government inviting you to participate in our forthcoming hearings on National Priorities. I would like to take this opportunity to again urge you to accept that invitation. Meantime, the Subcommittee would like to obtain a written statement of the views of your Department on certain questions which emerged from our recent hearings on Federal transportation policy.

Our particular concern in these hearings was the role of the Federal Government in determining the allocation of resources among different modes of transportation and between transportation and other competing resource uses. Because the Federal-aid highway program represents such a large share of total transportation expenditure, we devoted particular attention to this program. On May 4, 1970, we heard testimony from Mr. Charles D. Baker, Assistant Secretary of Transportation, and Mr. Edward H. Holmes, Director of the Office of Policy Planning, Federal Highway Administration. In the course of our discussion that morning, it became clear that a number of questions with which the Subcommittee is concerned are sufficiently broad to require attention by all the Departments of Government concerned with urban affairs. On behalf of the Subcommittee, I would like to ask you to submit for the record the views of your Department on these broad aspects of Federal transportation policy.

The Federal Government allocates some \$4 to \$5 billion per year to highway construction. Obviously construction of a highway, particularly within an urban setting, has significant social costs, including noise; air pollution; the displace-

ment of houses, businesses, and recreation areas; and the disruption of neighborhoods. In your opinion, how should the Federal Government revise its decision-making process to insure that these social costs of highways (or of other forms of transportation investment) are fully taken into account and that highway expenditures are limited to the amount justified in terms of a benefit-cost ratio greater than that for alternative uses of Federal funds? Do you feel that present provisions for compensation of those adversely affected by highway construction, particularly families displaced from their homes, are adequate? If not, what changes should be made? Do you feel that better resource allocation decisions would be obtained if the highway trust fund could be phased out and future highway expenditures made subject to the usual procedures of budgetary review? Have you made any studies of the impact of highway expenditures on programs administered by your Department? If so, could they be submitted for the record of our hearings?

Ninety percent of the cost of the Interstate highway system is paid by the Federal Government. Fifty percent of the cost of certain other urban highways is paid by the Federal Government. To what extent has this financing formula encouraged over-investment in highways as opposed to other needs, such as housing, schools, recreational facilities? How does the ratio of Federal funds available for Interstate highways compare with the financing provisions of the grant-in-aid programs administered by your Department? What changes would you recommend in our system of Federal highway aid to allow States and localities greater freedom in establishing their own priorities?

The Subcommittee would like to include your response to these questions in the printed record of our recent hearings. We will also be happy to include any other comments you would care to make on the general problem of resource allocation between transportation and other competing uses of Federal resources. Please contact Mrs. Courtenay Slater of the Committee staff if you have any questions concerning our examination of transportation policy.

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government.

THE SECRETARY OF HOUSING AND URBAN DEVELOPMENT,
Washington, D.C., July 29, 1970.

HON. WILLIAM PROXMIRE,
*Chairman, Subcommittee on Economy in Government, Joint Economic Committee,
Congress of the United States, Washington, D.C.*

DEAR SENATOR PROXMIRE: This is in further response to your letter of May 20, 1970, which in part requested the written views of the Department of Housing and Urban Development on certain questions of transportation policy and investment.

This Department has a continuing concern with national transportation policy and priorities based on the Department of Housing and Urban Development Act of 1965, the President's Reorganization Plan No. 2 of 1968, and subsequent agreement with the Department of Transportation.

In general, we believe that a thoroughgoing reassessment of transportation policy is desirable within the next two years, and that HUD should participate in such a review. We believe also that renewed national attention should be given to the provision of integrated public transportation networks encompassing entire metropolitan areas.

It is our further view that Federal financial assistance to transportation planning and investments at the State and local levels should be provided in a manner that does not build in a bias in favor of one mode over another. If this is accomplished in part by converting the Highway Trust Fund to a general Transportation Trust Fund, safeguards should be introduced to assure that the total level of Federal expenditures for transportation each year is not out of line in relation to other national needs and priorities.

Sincerely,

GEORGE ROMNEY.

HUD VIEWS ON FEDERAL TRANSPORTATION PLANNING AND INVESTMENT DECISIONS

A. INTRODUCTION

The Department of Housing and Urban Development has a deep interest in Federal transportation policy and investment decisions. This interest stems gen-

erally from section 2 of the Departmental Act of 1965, and particularly from the mandate "to provide for full and appropriate consideration, at the national level, of the needs and interests of the Nation's communities and of the people who live and work in them."

The President's Reorganization Plan No. 2 of 1968 transferred most of the specific transportation programs under the Urban Mass Transportation Act of 1964 from HUD to the new Department of Transportation (DOT). That Reorganization Plan states:

"We expect the Department of Transportation to provide leadership in transportation policy and assistance. The Department of Housing and Urban Development will provide leadership in comprehensive planning at the local level that includes transportation planning and relates it to broader urban development objectives.

". . . adequate authority is reserved to that Department [HUD] to enable it to join with the Department of Transportation to assure that urban transportation develops as an integral component of the broader development of growing urban areas. (The Under Secretaries of HUD and DOT further agreed in November of 1969 that DOT should be the focal point for research and development efforts relating to transportation.)"

Transportation systems are intimately associated with urban development and with the economic and social viability of communities. Transportation is one of the most important determinants of the location and character of new communities and new suburbs which deal with population growth. Transportation is vitally important in the daily lives of persons in established communities in providing access to jobs, access to shopping centers, and access to a host of social and recreational activities, as well as in moving the industrial raw materials and economic goods of the nation and the mountains of solid wastes cast off by modern population centers.

There are many social costs associated with transportation that historically have not always been given appropriate weight in decision making. These include noise; air pollution; congestion; garages and parking lots; and displacement or depreciation of houses, businesses and recreational facilities by new freeway systems.

We do not believe it will be possible in the near future to compress all these factors into a simple benefit-cost ratio so that decisions could be made with the precision of a computer. Nevertheless, we believe it possible to inject a broader range of considerations into the decision process and to improve the character of that decision process.

B. SUGGESTED CHANGES IN APPROACH TO NATIONAL TRANSPORTATION PLANNING AND INVESTMENT DECISIONS IN RELATION TO URBAN GROWTH

1. *We believe that a thoroughgoing reassessment of transportation policy is desirable within the next two years.*—HUD should participate in such a review, which should include demonstration programs designed to test out new concepts of how transportation systems interact with community and metropolitan development needs, and consideration of flexible new legislation. The balance among transportation modes should be reviewed and corrected, and a choice of access by private and public transportation should be provided in order to meet the needs of all citizens.

a. *We believe that positive systematic actions should be undertaken to support integrated PUBLIC transportation networks in existing and new metropolitan areas and in new communities.*—Prior to World War II, many of our urban areas were reasonably well served by public transportation—buses, streetcars, or subways. The patterns of urban growth had been strongly influenced by public transportation, and access from homes to mills and factories, shopping districts and public facilities was available at relatively low cost. As the population grew, cities and towns expanded at the margins, and these new neighborhoods were then annexed. Public transportation was soon extended and easy access continued.

At the close of World War II, population burst the city limits, and the now familiar suburban municipalities came into being. Their distinguishing characteristics were the low density developments of single-family houses and an almost total dependence on the automobile and roadway for transportation.

Today adequate public transportation is seldom available for intrasuburban movement, for movement among suburbs, or for movement between center city and suburban or exurban industrial parks.

Any viable strategy to "Bring us together again" will require changes in approach to metropolitan transportation planning in the 1970's and much more foresight. Given the placement of houses in low density suburbs today and given

the existing investment in two cars by many suburban families, it will require great ingenuity to superimpose an efficient public transportation system on today's metropolitan areas which will get adequate numbers of passengers for economic viability in the short run. A solution is desirable not only to provide the suburbanites access to employment and cultural activities of the center city by public transportation, but also and at least as important, to provide access to job opportunities in the entire metropolitan area by those relatively immobile low- and moderate-income groups who cannot afford private automobiles.

As regards new communities and new suburbs, a more perceptive understanding at the State and local levels of the interrelationships between transportation modes and urban growth forms can serve to alter the placement of new houses and the form of new communities so as to facilitate access by public transportation. In addition, development of rapid transit corridors might be used as an environmental planning tool to focus higher density development and thus trade some suburban sprawl for useful open space.

b. *We believe a major research, testing and demonstration program for transportation sponsored by DOT should be launched as soon as possible to find ways to provide public transportation to existing metropolitan areas.*—In our view such a research and demonstration program has a higher priority than many aspects of the existing highway program.

c. *We believe that Federal transportation planning should be coordinated more closely with comprehensive planning for urban development and urban renewal.*—This should be done both at the policy level in Washington and at the project levels in field offices. The latter should include closer ties with the comprehensive planning efforts funded by HUD's 701 programs, which, in turn, should be more closely associated with decision making bodies.

2. *We believe that the Federal Government should provide financial assistance to transportation planning and investments at the State and local levels in a manner that does not build in a bias in favor of one mode over another.*—Here we refer particularly to the Highway Trust Fund which supplies about \$5 billion annually of DOT's \$7 billion budget, and which appears to foster the construction of new communities and new commercial centers that are largely devoid of public transportation.

a. *We believe that as soon as possible the monies of the existing Highway Trust Fund should be made available for use in all Federal transportation assistance activities.*—This change would aid in the balanced and efficient use of the various transportation modes on their respective merits. However, if this is accomplished by converting the Highway Trust Fund to a general Transportation Trust Fund, safeguards should be introduced to assure that the total level of Federal expenditures for transportation each year is not out of line in relation to our national needs and priorities.

b. *We believe that DOT should administer its grant-in-aid programs to State and local governments in a manner that encourages intermodal administrative arrangements at those levels.*—This restructuring of institutions is as important as the placement of monies on an intermodal basis.

c. *We believe that relocation payments should be uniform for all home owners and businessmen irrespective of the agent of displacement.*—Our analysis of the relocation payments authorized under the Highway Trust Fund arrangements indicates that such payments are in the main more generous than HUD's current relocation payments (see attached tables). However, HUD and the highway relocation payments—and apparently airport relocation payments—would be placed on a par under the Uniform Relocation Act now under consideration as S. 1 and its counterpart in the House.

3. *We believe that, as soon as possible, in addition to a changeover of DOT's programs to an intermodal basis, DOT's authorization and appropriations should be broadened wherever necessary to facilitate support of additional undertakings associated with transportation.*—These additional undertakings might include the following:

To defray a larger portion of social costs not paid for in direct transportation charges, but associated with transportation, including noise control, air pollution, congestion, urban garages and parking lots, displacements or depreciation in value of housing, businesses, and recreational and cultural facilities;

To underwrite some of the logistics of solid wastes disposal in metropolitan areas (metropolitan subways could be used to collect solid wastes in compacted form during night times); and

To engage in advance land acquisition for right-of-way corridors for public transportation beyond the limits of existing metropolitan systems.

COMPARISON OF RELOCATION PAYMENTS AVAILABLE UNDER HUD AND HIGHWAY PROGRAMS AND PROPOSED UNDER S. 1

	HUD ¹		S. 1 ²		Highway		H.R. 14898	
	Available	Amount	Available	Amount	Available	Amount	Available	Amount
I. FAMILIES AND INDIVIDUALS								
A. Moving expenses.....	Yes.....	Up to \$200 for reasonable and necessary expenses of A. and B. combined	Yes.....	All reasonable and necessary expenses of A. and C. combined	Yes.....	All actual reasonable expenses	Yes.....	All actual reasonable expenses
B. Direct property losses.....	Yes.....	or	No.....	or	No.....	or	No.....	or
C. Expenses of searching for replacement property.	No.....	Up to \$200 based on a schedule of fixed amounts irrespective of expenses actually incurred.	Yes.....	(i) Up to \$200 based on a schedule of fixed amounts irrespective of expenses actually incurred, and (ii) a dislocation allowance of \$100.	No.....	(i) Up to \$200 based on a schedule of fixed amounts irrespective of expenses actually incurred, and (ii) a dislocation allowance of \$100.	No.....	(i) Up to \$200 based on a schedule of fixed amounts irrespective of expenses actually incurred, and (ii) a dislocation allowance of \$100.
D. Payment to homeowners to assist in purchasing replacement housing.	Yes.....	Up to \$5,000. Equal to difference between acquisition payment and average price for replacement housing. (Conditions: (a) Property acquired improved by a single or 2-family dwelling. (b) Homeowner must have owned and occupied property for at least 3 years prior to initiation of negotiations. (c) Homeowner must purchase and occupy replacement housing within 1 year.)	Yes.....	Same as HUD. (Conditions: Same as HUD except property can be improved by a 3, as well as by a single or 2-family dwelling.)	Yes.....	Same as HUD. (Conditions: Same as HUD except property can be improved by a 3, as well as by a single or 2-family dwelling.)	Yes.....	Same as HUD. (Conditions: Same as HUD except property can be improved by a 3, as well as by a single or 2-family dwelling.)

- E. Payment to assist tenants and homeowners not eligible to receive the replacement housing payment in D. above to purchase or rent replacement housing.
- Yes..... Up to \$1,000 to be paid over a 2-year period. Amount per year cannot exceed \$500 and is equal to difference between 20 percent of displacee's annual income and average rental required for replacement housing. (Conditions: (a) Individual, in order to be eligible, must be handicapped or 62 years of age or older. (b) Displacee must be unable to secure a dwelling in a low-rent public housing or rent supplement project.)
- Yes..... Up to \$1,500. May be paid as lump sum. Amount equal to difference between 20 percent of displacee's income over 2-year period immediately preceding displacement and average rental required over a 2-year period for replacement housing. (Conditions: (a) Unlike HUD programs, eligible individuals need not be elderly or handicapped. (b) As in HUD programs, displacee must be unable to secure a dwelling in a low-rent public housing or rent supplement project. (c) Unlike HUD programs, but similar to highway program, property must be occupied for at least 90 days prior to initiation of negotiations for acquisition of property.)
- Yes..... Up to \$1,500. May be paid as a lump sum. Amount equal to difference between 24 times rent paid in month immediately before displacee required to move and amount required to rent adequate housing for next 2 years. (Conditions: (a) Unlike HUD programs, eligible individuals need not be elderly or handicapped. (b) Unlike HUD programs, displacee not required to seek dwelling in low-rent public housing or rent supplement project. (c) Property must be occupied for at least 90 days prior to the initiation of negotiations for acquisition of property.)
- Yes..... Up to \$1,500. Amount necessary to enable displacee to lease or rent for up to 2 years or make down payment on replacement housing. (Conditions: (a) Unlike HUD programs, eligible individuals need not be elderly or handicapped. (b) Unlike HUD programs, displacee not required to seek dwelling in low-rent public housing or rent supplement project. (c) Property must be occupied for at least 90 days prior to the initiation of negotiations for acquisition of property.)

II. BUSINESS AND NON PROFIT ORGANIZATIONS

- A. Moving expenses..... Yes..... All reasonable and necessary moving expenses, but by regulation not more than \$25,000, unless local agency agrees to share (in the same proportion as it shares project costs) that portion of the cost over \$25,000.
- Yes..... All reasonable and necessary expenses of A. and C. combined, plus all property losses.²
- Yes..... Actual reasonable expenses... or
- Yes..... Actual reasonable expenses. or
- B. Property losses..... Yes..... All property losses up to the difference between moving expenses and \$3,000. If moving expenses exceed \$3,000, no payment is available.
- Yes..... Difference between price received for property and cost of replacement not to exceed estimated moving expenses of moving property or its fair market value, whichever is less.
- No..... Dislocation payment described below.
- No..... Dislocation payment described below.
- C. Expenses of searching for replacement property. No.....
- Yes.....
- No.....
- No.....

COMPARISON OF RELOCATION PAYMENTS AVAILABLE UNDER HUD AND HIGHWAY PROGRAMS AND PROPOSED UNDER S. 1—Continued

	HUD 1		S. 1 2		Highway		H.R. 14898	
	Available	Amount	Available	Amount	Available	Amount	Available	Amount
D. Compensation for effect of dislocation (not available to nonprofit organizations)	Yes.....	\$2,500 (Conditions): (a) Average annual net earnings must be less than \$10,000 per year. (b) Business must not be part of an enterprise having 2 or more establishments outside the project area.	Yes.....	An amount equal to the average annual net earnings of the business but not less than \$2,500 nor more than \$5,000. If displacee is 60 years of age or over, payment increased by an amount equal to 3 times the average annual net earnings or \$6,000, whichever is the lesser. (Conditions): (a) Average annual net earnings during the 2 immediately preceding taxable years must be less than \$10,000 per year. (b) Business must not be part of an enterprise having at least 1 other establishment not being acquired, engaged in the same or similar business. (c) Business must be determined to be unable to relocate without a substantial loss of existing patronage.	Yes.....	An amount equal to average annual net earnings of the business or \$5,000, whichever is lesser. (Conditions): Same as S. 1 except (a) Payment is available only if elected in lieu of payments for moving expenses under A. above.	Yes.....	An amount equal to average annual net earnings or \$5,000, whichever is lesser. (Conditions): Same as S. 1 except (a) Payment is available only if elected in lieu of payments for moving expenses under A. above.

III. FARMS

A. Moving expenses.....	(Farms are treated as businesses in HUD programs.)	Yes.....	Same as for businesses for A., B., and D.	Yes.....	Same as for businesses.....	Yes.....
B. Property losses.....		Yes.....	do.....	No.....		No.....
C. Expenses of searching for replacement property.....		Yes.....	do.....	No.....		No.....
D. Compensation for effect of dislocation.....		Yes.....	Same as for businesses for A., B., and D. (Conditions: (a) As for businesses, average annual earnings during the 2 immediately preceding taxable years must be less than \$10,000 per year.)	Yes.....	Same as for businesses. (Conditions: As for businesses, (a) payment available only if elected in lieu of payment for moving expenses under A. above.)	Yes.....
						Same as for businesses. (Conditions: As for businesses (a) payment available only if elected in lieu of payment for moving expenses under A. above.)

IV. SETTLEMENT COSTS

A. Recording fees.....	Yes.....	Actual amounts for A., B., C., and D.	Yes.....	Actual amounts for A., B., C., and D.	Yes.....	Actual amounts for A., B., C., and D.	Yes.....	Actual amounts for A., B., C., and D.
B. Transfer taxes.....	Yes.....		Yes.....		Yes.....		Yes.....	
C. Penalty costs for prepayment of mortgages.....	Yes.....		Yes.....		Yes.....		Yes.....	
D. Pro rata portion of real property taxes allocable to period subsequent to vesting of title in local agency.....	Yes.....		Yes.....		Yes.....		Yes.....	

1 Relocation payments under HUD programs are generally funded on a 100-percent basis.
 2 Any payment to a displaced person up to \$25,000 will be funded on a 100-percent Federal basis

until 1972. Amounts paid above that will be on a sharing basis. After 1972, all payments will be on a sharing basis.

THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE,
Washington, D.C., August 24, 1970.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR PROXMIRE: This is in reply to your letter of May 21, 1970 to former Secretary Finch requesting views of the Department of Health, Education, and Welfare concerning certain questions which emerged from the recent hearings by the Subcommittee on Economy in Government on Federal transportation policy. A major concern in those hearings was the role of the Federal government in determining the allocation of resources among different modes of transportation and between transportation and other competing resource uses.

I do not believe that DHEW is in a position to comment in any but the most general way upon the allocation of resources among different modes of transportation or the operation and funding of transportation programs. This is the role of the Secretary of Transportation.

In the allocation of resources between transportation and other competing resource uses. I believe that we should not look at transportation systems by themselves any more than we should look at education, or health, or welfare systems or programs by themselves. Wherever possible, we should look at our total domestic requirements, looking systematically at the costs, accomplishments and interrelationships, of all programs. Importantly, this approach will permit the social cost associated with proposed systems to be explicitly defined and considered in determining benefits. Costs such as environmental pollution, noise, family dislocation, loss of recreational areas, neighborhood and school disruption which previously may not have been considered, can and should be displayed systematically for decision makers.

The recent reorganization which established the Domestic Council and the Office of Management and Budget will provide the President a much improved capability to examine domestic programs as a single system rather than as individual parts not fully related to the national whole.

We look forward to seeing the report of the Committee Hearings and appreciate this opportunity to furnish you our views.

Sincerely,

JOHN G. VENEMAN,
Acting Secretary.

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., July 22, 1970.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Thank you for your letters of May 15 and 21 inviting our views on certain questions concerning Federal expenditure priorities. I regret not having been able to appear personally before the Subcommittee, and appreciate this opportunity to submit a statement for the record. Your letters express particular interest in expenditures for highway construction and in the appropriate level of such expenditures in relation to other urgent needs.

I certainly agree that there are social costs involved in the construction of highways, and we urgently need to develop better ways of measuring these costs. The hundreds of letters we receive each year from citizens in all parts of the country opposing highway construction are one indication that people are increasingly concerned about these costs. The fact is, however, that techniques for measuring social costs are inadequate or nonexistent, as are the techniques for measuring and comparing costs and benefits of programs serving different public purposes—such as highways compared with education. There are, however, techniques for comparing the benefits and costs of various types of transportation which serve the same purpose, and certainly this should be done.

Obviously this Nation needs an adequate Interstate, primary, and secondary road system. Nevertheless, it has become increasingly apparent in recent years that expenditures for highways have far outdistanced those for other methods of transportation, and as a result we do not have a balanced transportation sys-

tem. The almost complete disappearance of railroad passenger service and the economic plight of railroads generally is evidence of this. I believe that adequate railway service is essential to our economy and society.

Even more pressing is the need for better mass transit as well as other innovative modes of transportation in our cities. In my judgment reliance solely on the construction of more highways will not solve our urban transportation problems. Substantial Federal assistance for mass transit is needed, as well as provision of opportunities for bicycling and walking, if we are to preserve the economic and social viability of our cities.

This leads to the subject of the Highway Trust Fund, also mentioned in your letter. A weakness of the Trust Fund is that it applies only to highway construction, whereas I believe that some way must be found to permit the financing of Federal assistance to the various types of transportation on a coordinated basis. Another problem inherent in the Highway Trust Fund is that of necessity it reflects the use of highways without consideration of alternatives. In other words, the Highway Trust Fund receives its current large revenues because in many instances people use the highways in the absence of any alternative, such as mass transit. Therefore, the self-perpetuating nature of the revenues to this fund makes it an unrealistic indicator of the need for additional highways.

The percentage of Federal assistance to highway construction is also an important factor. The provision of 90-percent Federal matching funds for the Interstate system will obviously encourage investment in highways, at the expense of other programs which are matched at a lower rate. It is significant to note, however, that even with 90-percent matching there are a few examples where this large incentive has not been accepted by the local community because the social costs were too great, such as in San Francisco. The two large grant programs administered by this Department comparable to the highway program are as follows: (1) The program for water pollution control, which amounts to \$800 million in 1970; it provides up to 60 percent Federal assistance for construction. (2) The Land and Water Conservation Fund which includes \$62 million for State grants in 1970; it provides 50-percent Federal assistance for acquisition and development of recreation areas and facilities. The highway program provides \$4.4 billion in 1970, including \$2.5 billion for the Interstate system. I think that most local officials who noticeably lack finances will choose programs which generate the most activity per dollar of local funds, even though these might not be the most important or pressing.

Because of the impact of highway development on many environmental resources, your question about adequate compensation for lands taken is appropriate. For example, when a highway is routed through a public park, compensation usually is paid for the lands required for highway use; however, amounts are not paid to mitigate damages to the scenic or public use values of the overall park. It is our opinion that adequate compensation should be paid for the loss of these other values. With very few exceptions, I believe that compensation should be provided in kind to serve the same persons who used the park land taken for highway purposes.

In conclusion, I strongly endorse Secretary Volpe's proposal to use 7 percent of the Highway Trust Fund for highway safety and beautification and I appreciate the opportunity to provide these additional comments.

Sincerely yours,

HARRISON LOESCH,
Assistant Secretary of the Interior.

Chairman PROXMIRE. Let me ask, to what extent has it led to overinvestment in highways as opposed to public transit system?

Mr. BAKER. I think to conclude that it is overinvestment is necessarily a matter of judgment. Until fairly recently the amount of study and analysis done by the local people, as well as other agencies, of what should be invested in public transportation has been pretty thin goods. It has been getting better, particularly with the prospect of some real Federal interest in providing support for this kind of program. And I mentioned several metropolitan areas that have done some very impressive work in this area. I think that some of the other studies that we have undertaken in the Department, specifically

with respect to public transportation, suggest that there are increasing opportunities for investment in this area, the urban transportation answer as opposed to the highway answer alone.

Nonetheless, I would point out that we are concurrently exploring ways to use the highway system other than for the private automobile. For example, on the Shirley Highway we are doing some experimentation with exclusive bus lanes. So here it is a highway answer, but it is a public transportation result. And I think we are increasingly getting into this kind of thing.

I would think it would be surprising, however, if there were not some skewing, if you will, of the investment in the highway answer as contrasted with the other forms of public transportation, simply by reason of the disparity that has historically existed in the existing programs.

Chairman PROXMIRE. You not only have the disparity between a 90-10 compared to a 2 to 1, but you have the disparity in the fact that there has been little money made available for mass transit. The administration is working hard on it now, and I know you have come up with a good bill, we have passed it in the Senate, and it is pending in the House. But this is something, of course, that it takes years to correct.

Mr. BAKER. Yes.

Chairman PROXMIRE. To what extent has this situation led local governments to prefer interstate highways to the improvement of the existing roads under the 50-50 financing formula even though the total cost of the latter would have been less? What I am saying is that because you have the 90-10 on interstate highways, that you have a preference on the part of the State and local government for the 90-10, because you only have to put up 10 percent of the money as compared to 50-50, which you have to put up on the ABC operation.

Mr. BAKER. Ted, why don't you comment on the ABC and interstate preference?

Mr. HOLMES. Actually, the States have little choice. The money is apportioned to the States by formula. The money that is apportioned to the State for the interstate system has to be matched on a 90-10 basis. The money that is authorized for the ABC system has to be matched on a 50-50 basis. And no State has let any Federal aid lapse. So they have—

Chairman PROXMIRE. Either the 50-50 or 90-10?

Mr. HOLMES. (continuing). Either one. There is, however, strongly expressed by the States a feeling that because of the concentration on the interstate system, not necessarily by the States, pressure has resulted in about 75 percent roughly of the total Federal authorization for the interstate system. The result of that has been a decline in the quality of service that they can supply on the other arterial routes and other secondary routes. The States are going to welcome the completion of the interstate system, and are hopeful that the same or similar authorization will let them get back to many of the primary routes that were built 20 or 30 or more years ago, on which safety features need to be corrected, and the capacity increased, and many other improvements made.

So I think the States really have no choice as far as Federal aid is concerned, because they use it all. The choice was made at the same time the decision was made to pursue the interstate at that ratio, and by the Congress in authorizing the specific amounts for each of the classes of roads.

Chairman PROXMIRE. I know you gentlemen are not interested in empire building or seeing that the Transportation Department gets more and more work. And I mean that. I am sure you are interested in doing this on the basis of the national interest. With that in mind, would we get a better resource allocation if the Federal Government stepped out of the picture entirely and highway funds were raised at the State and city levels, and the entire Federal gasoline tax made available to State and local governments to expend it any way they want to and let the Federal Government get out, now that we have this enormous interstate highway system along as far as we have?

Mr. BAKER. There is not much question, Mr. Chairman, that there is a good deal of attraction—and I think a good deal of validity—in getting as many of the decisions made locally as possible, certainly for the variety of the reasons that Senator Percy pointed out, and several that you have earlier indicated. Nonetheless, I don't think we can go further and say, not only do we endorse and support the concept of local decisionmaking, but turn the total fiscal responsibility over to them. I think perhaps going somewhat in the direction of, if not block grants, at least, as we discussed earlier, some more flexibility, is perhaps feasible. But removing the Federal Government largely or entirely from support of these things I think from our standpoint is probably a dangerous risk to run.

Chairman PROXMIRE. There are some real advantages here. The disadvantage, of course, is that when the Federal Government imposes the tax and makes it available on this basis, there is much greater likelihood that people will go ahead with the system whether they really want it and need it or not, if they have to impose the tax, the judgment is likely to be much better and much more related to need and to the pain of imposing a higher tax.

Mr. BAKER. I think this is correct, Mr. Chairman. But I think there is a paradox here that frequently emerges. You remarked earlier that there is some disparity in the effective rates charged in various rapid transit systems around the country. And I think that for better or for worse this is not advisable. I think in some cases these are political issues, and they are understood as such. But, certainly some of the difficulty can be traced to significant variances in the tolls charged. And I think this is just a manifestation of some of the difficulty of raising funds on the local level. And necessarily the long-term financial commitment sometimes is a very tough thing to come by. My concern, from an admittedly parochial transportation standpoint, is the long-term frame that is required to get these systems in place. The state of local financing, and that of most States as well, would suggest to me that we would be running a great risk to withdraw from the support of transportation development.

Chairman PROXMIRE. My time is up.

Congressman Brown?

Representative BROWN. Let me ask you, Mr. Baker, what about the recommendation of the Hoover Commission of some 20 years ago that the transportation regulatory agencies be combined into a single regulatory agency? Is there any prospect of that, so that we could balance in a single regulatory agency the various modes of transportation?

Mr. BAKER. I think there is a limitation to how far the Department of Transportation—which, of course, is not responsible for the regulatory agencies, they are responsible to Congress rather than the executive branch—should go in taking a position on this. I would, however, certainly make this kind of an answer to your question. The actions of the Civil Aeronautics Board with regard to air transportation regulation in some measure at least can translate into an impact on intercity bus transportation. I think this is one case where the actions of one body clearly impacts on another body, because intercity bus regulation is necessarily the responsibility of the Interstate Commerce Commission. I think the activities of the Federal Maritime Commission in large measure do not impact on either one of the other two bodies with but one exception, and that has to do with the recently emerging concept of intermodal through rates. And there has been some dispute as to who should be responsible for approving the rates for the various trip segments, the overland portion and the salt water part. But most of the actions of one regulatory agency do not really make an impact on the segment of transportation being regulated by the other.

I think most of the intermodal impacts or the impacts of the regulation of one mode or upon another mode are contained within the ICC right now. Certainly truck, inland waterway and rail transportation are the three most obvious cases, and they all are properly within the jurisdiction of the Interstate Commerce Commission. Whether simply because the activities are homogeneous, if you will, they can be effectively lodged within one agency—I think you could make a pretty good case there.

Representative BROWN. It seems to me that it goes beyond that.

But we have recently passed the Aviation Facilities Expansion Act which provides for increased taxes on rates set by the CAB. And that impact will affect rail passenger service and it seems to me such a relationship should be regulated by the same agency. Whose responsibility is it to recommend this kind of thing to the administration?

Mr. BAKER. In terms of the organizational considerations of the agencies there are a variety of people within the executive branch, and I believe on the Congressional staffs, who are examining the issue of what the relationships and structures of the regulatory bodies ought to be. As far as the explicit concerns about particular regulatory decisions or proposed regulatory decisions before the regulatory commissions are concerned, the Department of Transportation has an explicit responsibility in my judgment to intervene and present its case on behalf, in the final analysis, of the users, the consumers of the system, to wit, the shippers and the travelers. And we do this.

Representative BROWN. Let us break those two things apart, though. If you do it in specific decision areas of the regulatory

agencies, why shouldn't you do it in the overall sense and recommend to the White House a balancing of the various modal interests within one structure? Because it seems to me patent that a decision in any area does have an impact on all the other modes of transportation, for example, highway usage and air travel.

Mr. BAKER. Certainly, we have been involved in various discussions from time to time with study groups concerned about this and related problems. And if requested to take a formal position on this, we certainly would do so.

Representative BROWN. You mean if this hot potato winds up in your lap. I gather that you feel that it is not a practical suggestion in a political sense, that it would not sail effectively past the various groups that are involved?

Mr. BAKER. I think that there are certain difficulties here, Congressman Brown, that will arise in that context, although I am frank to say that I am not sure that it would not. I think that there is an increasing feeling on the part of many interested parties, shipper groups, traveler groups, the Congress, and so forth, that the regulatory process in general is due for some analysis. And I think the Department of Transportation has been involved in certain legislative recommendations in this regard.

But again I admit that these were not in terms of general organizational structure, but rather in terms of explicit proposals, such as the Executive Order on a permanent ICC Chairman and the legislation on the mixing rule.

We have not officially and formally been involved in making recommendations in this area.

Representative BROWN. What we are talking about here in the Joint Economic Committee, is taking a long view of these aspects as they affect the economic operation of the country, not alone of government. And it seems to me that one of the longest views that might be taken is the organization structure of the various regulatory agencies, particularly in view of the fact that 20 years ago the recommendation was given serious consideration by the Hoover Commission, and if we assumed that regulation and rate setting are being made in a vacuum, as it were, with reference to other modes of transportation, then this has a good deal to do with the transportation system in this country.

I also sit on the Government Operations Committee and when we initially worked on the transportation bill we discussed the relationship between transportation and the Interstate Commerce Commission. We now have put the pertinent administration of the various conflicting modal interests in the Department of Transportation so that one competing interest would have to argue against another. The National Transportation Safety Board was to be an extension of the safety consideration exercised then in the air area into highways and railroads. Why not do the same thing with regulatory agencies?

Mr. BAKER. I would certainly agree, Mr. Brown.

Representative BROWN. Whose responsibility is it in the Government to come up with this recommendation or at least to consider it?

Mr. BAKER. There are two things that are going on. There is the

so-called Ash Commission which has been working directly for the White House on a variety of organizational issues. And I suspect that this is the kind of thing that they are addressing. I am not in a position to speak for them. I will say, however, that within the Department—

Representative BROWN. In Government Operations, we have just received the recommendation of the Ash Committee. And I do not get the impression that they are going into the transportation area, or into a general overview of the regulatory agencies. And I am relieved because the job they did on the secondary reorganization plan was not very good.

Mr. BAKER. One of the things that we are doing in the Department ties into this issue. As you know, we are engaged in developing a statement of national transportation policy. To be sure, that has taken somewhat longer than we had hoped. But I trust that this year we will have this out for the consideration of a variety of interested parties. In the course of this, necessarily we have got to look at the regulatory aspects vis-a-vis transportation. And I think that two kinds of issues emerge under this kind of analysis.

One has to do with the explicit kind of regulations as they now exist. This is the sort of thing I mentioned earlier where characteristically we would intervene in a particular proceeding or advocate a particular piece of legislation.

However, I think it is incumbent upon us to develop this if it seems clear there is lack of coordination among the three regulatory bodies, and—

Representative BROWN. Doesn't that seem clear?

Mr. BAKER. (continuing). I think at this point I would not be prepared to take that position, Mr. Brown. I think there are cases one certainly can point to—a couple which you have just discussed here—where there clearly are interrelationships. On the other hand, whether there are enough of these to warrant some consolidation, or whether the need for general homogeneity and so forth warrants it, I think this is something that we will be prepared to discuss and take a position on at some length as part and parcel of our national transportation policy. I think we are obliged to do such.

Representative BROWN. My time is up. But I do not know how you can develop a national transportation policy in this country without consideration of what impact the regulatory agencies have on other modes of transportation.

Thank you.

Chairman PROXMIER. As I understand it, the administration is interested in a renewal of the trust fund this year. It expires in 1972, but because of the leadtime you need, you have to get it renewed this year. But explain to us why you feel that it is necessary that the legislation to extend the trust fund be enacted this year? What I have in mind is, how much of an extension of the trust fund do you regard as necessary?

Mr. BAKER. I think, Mr. Chairman, that this is something on which we have not reached a final position. You are quite right that this is something being examined in rather considerable detail. And, I think,

there are some clear reasons why some extension of the trust fund is required.

It expires, as I recall, in 1972, and sort of mechanically. Absent some extension beyond 1972, we are not in a position to pay the bills for the activity already authorized.

Chairman PROXMIRE. I am delighted that you say you are looking at it carefully with the notion that you want to see some extension. You are not just automatically going to ask for another extension through 1978—you may do that, but you are going to consider other options.

For instance, I have in mind the advisability of limiting any extension to the length of time to collect funds to cover existing interstate highway systems authorizations which run through fiscal 1974, and at the same time putting the States on notice that no further financing under the 1970 act can be anticipated after the current authorizations are exhausted. This would give the States the opportunity to finish up the highest priority sections of the system in orderly fashion and give the States a way to get out of the highway trust fund. I am not saying that this is what you are going to do, but I would hope that this is something you are going to give consideration to and recognize that there are legitimate arguments on the side of this kind of consideration.

Mr. BAKER. Mr. Chairman, I think we are obligated to consider an issue of this kind, and in fact are now. You are correct in saying that I am not in a position to indicate the conclusions that we will reach. I think there are some very strong arguments that can be made in favor of extending the trust fund and extending the authorizations, not the least of which is that we have presently a legislative mandate in Congress to complete the interstate program. It is not to be taken lightly. Nonetheless, I think there are a variety of issues such as those you have mentioned this morning that must be considered. I think the administration is obliged to review this very carefully.

Chairman PROXMIRE. There has been a growing sentiment, I think, in the public and the Congress for many years.

If we could start all over again, what would you regard as the ideal system for financing Federal transportation investment?

I do not mean that as an impertinent question, but I think it would be helpful. You are a very able man. You serve in a crucial position here. And you are strapped with the legacies of the past, which may or may not be the best way to proceed with investment. And it would be very helpful to us to get your view as to what would be the best approach.

Mr. BAKER. I think by and large as a matter of emerging transportation policy the Federal Government—and I happen to endorse this, generally speaking—supported the concept of user charges. Admittedly the user charges generally imply other conditions, generally the earmarking of funds, and some reduced flexibility on how these funds are applied.

Nonetheless, I think the transportation industry in this country, generally speaking, has reached a point where it should not depend upon largess from the general public, but rather should be supported

by the people who use it and benefit by it. And I think the clearest manifestation of this is in the air transportation community.

Chairman PROXMIRE. Is the gasoline tax a satisfactory user charge?

Mr. BAKER. I am sorry?

Chairman PROXMIRE. Is the gasoline tax a satisfactory user charge?

Mr. BAKER. Well, I think by and large it is a good user charge, yes. There are certainly discrepancies involved in it in terms of where the funds are concentrated in their expenditure, and where they are received. But by and large I think that one could make a pretty good case that gasoline charges are in fact in fairly good correlation with the application of the money in the development of the highway system.

Chairman PROXMIRE. Of course, there are some disabilities and diseconomies because of the automobile. We are told that 80 percent, maybe more, of our air pollution is caused by automobiles. And we know how they clutter up our cities. We know what an enormous amount of space they take. And of course, I pointed out, this really is not your responsibility entirely, it is the responsibility of HUD, and the responsibility of HEW and the responsibility of other departments, as well as the responsibility of mayors and others.

Let me ask you this: The 1970 Highway Needs Study speaks of the need for "a greatly expanded urban highway program." This report estimates that between 1970 and 1985 we will need to spend \$320 billion on highway investment. This is more than double the present level of expenditure on highway construction. I gather that a great deal of this projected expenditure would be in urban areas.

When we look at the friction and social tension that is being created by urban highway construction today, we feel somewhat alarmed about the effects of doubling this rate of expenditure. When we look at the percentage of urban land which is already given to highways and to parking space, we wonder where we are going to find room for any more highways.

I heard estimates that 60 percent of all the space in our big cities is one way or another because of the automobile.

Could you tell us briefly how you went about estimating these highway "needs"? Are you satisfied with your estimating methodology and with the quality of the data you had available for making these estimates?

Mr. BAKER. Mr. Chairman, if I may, I would like to ask Mr. Holmes to comment on that.

Mr. HOLMES. I think the important point is the one that you made. And that is that the bulk of our expenditures in the next couple of decades will have to be in what we generally call the urban areas.

I think that we should not confuse, however, as I think many of us do, the work that we will be doing in the future, most of which will be in the areas that are becoming urbanized around the presently built-up areas.

Chairman PROXMIRE. Building more beltways and so forth?

Mr. HOLMES. More beltways and more radials to serve the area that will be developing. We certainly will not be doing much more in building of radial highways toward the downtown area.

Chairman PROXMIRE. How could you do much more in a city like Los Angeles than you are doing now?

Mr. HOLMES. We cannot.

Chairman PROXMIRE. In terms of radials it seems to me just an incredible concentration of concrete, it is hard to me to see how you can bring much more utility to the area with more highways.

Mr. HOLMES. I expect we do not have much more mileage in terms of roads and streets than we did before we had the automobile, for that matter. We have not had a great increase in the total mileage of roads and streets in the country since that time.

Chairman PROXMIRE. And a new area for parking?

Mr. HOLMES. There is quite a large area used for parking, that is true. And that was not there before the automobile.

But I think that the frictions that we find in the present highway program are mostly those in the heavily built-up areas. We do not find so much in the outlying areas. And it has been our assumption based on all the estimates that have been made in the urbanized areas where these studies have taken place, that the great growth of our urban areas will be on the land that is now surrounding the present metropolitan areas.

Now, the way these needs were arrived at was through the transportation-planning processes that have been carried on in all the urban areas under the 1962 Federal-Aid Highway Act, and in fact were in process in a good many urban areas before that. They are based on the transportation-land use planning process which has been developed in all cities as a result of that 1962 act. And it calls first of all for a determination by the locality, by the metropolitan area of the shape that it foresees that its citizens will want, goals and objectives as commonly expressed—

Chairman PROXMIRE. You are satisfied that this data that you have is sufficiently accurate and reliable and responsible so that this \$320 billion estimate is sound?

Mr. HOLMES. I would like to qualify that in two ways. The first is that we are satisfied that the programs that have been proposed and on which these cost estimates have been made in all of the urbanized areas are based on a sound analysis of the future demands for transportation in those areas.

Now, if there is a shift in the mode, for example, with more emphasis on transit, then consistent with that the demand for highway travel could be reduced. I would like to say, however, that there is not a great deal of competition between transit and highway travel. The principal competition—the principal use of public transportation is to and from the downtown area in morning and evening rush hours. And that is not where we will find the bulk of our highway expenditures.

Chairman PROXMIRE. I think you are right, and that is why I am asking if you could look at another alternative. We are now engaged in the biggest public works project in the history of the country, with a \$2½ billion subsidy for the Washington, D.C., subway. And I am told that instead of having 25 percent of our people using mass transit as at present, when it is completed in 1981 there will be 27 percent using mass transit. So it would make no real difference.

Mr. HOLMES. It will be helpful in the area it serves, that is, the area of transportation into the downtown area. But on the total metropolitan demand for travel it is not going to have a very large impact. The Bart system, for example, is estimated to accommodate 9 percent of the total travel in that area. And if it does reach that expectation, that represents about 2 years' growth of normal highway travel. So it is a pretty expensive way to accommodate the travel into the downtown areas of these various cities.

There is another point that I would like to make, however, and that is that there is perhaps—I am afraid we do it ourselves—a tendency to ascribe as a need when we say \$320 billion, that really is an estimate of the costs of developing a highway system to provide an accepted level of service.

Now, we have worked out with the States what that level of service is. And it is based on the capacity of the road or the street to accommodate the volume that is anticipated it will have to accommodate 20 years hence.

Now, that level of service ranges—A through E, I think, is the way it is described in the highway capacity manuals—and if we are to provide the level of service to permit what is regarded as good mobility, that \$320 billion is what it would cost, based on present-day prices. And, of course, with continuing inflation it would cost even more. And yet it is most unlikely that the resources will be available to provide the level of service over all roads and streets, that is the basis for that estimate. So our job is going to be to tailor the program, once this cost is known, to tailor a program that will come as close as we can to reaching the desired level of service with the resources that will be available, both Federal, State, and local.

So it is somewhat of a misnomer to say that the figure represents a need. Actually it is not a program estimate, if I could make that point.

Chairman PROXMIRE. With the permission of Mr. Brown I would like to ask two more questions.

Representative BROWN. Surely.

Chairman PROXMIRE. I would like to ask whether alternatives to a major new urban highway construction plan have really been analyzed. You have told us about mass transit, that you do not think that is much of an alternative in terms of relieving highway travel. Is there any other alternative?

What I am getting at is this. Let me ask the final question, and then you can, I think, answer them better together.

The highway need assumes that at best you will have the present distribution between users of automobiles and users of public transit. I wonder if anyone is examining the possibility of a radical shift in the way we meet our urban transportation needs. Is anyone thinking in terms of making it easier, say, or more attractive to walk or bicycle or jog? How can our citizens continue to function unless we do have a major shift away from the private automobile? How can we finance the shift if we continue to put all our resources into building highways and building automobiles?

Mr. HOLMES. I think we always think about the possibilities of people walking or riding bicycles or finding other ways to get about.

Chairman PROXMIRE. I have been running to work every morning for the last 5 years. And I do it for several reasons. But two of the reasons are because it is cheaper, and because I get there faster. It takes me 35 minutes to go the 5 miles from my home to work, and it would take me 50 minutes, because of the transfer, if I took the bus.

Mr. HOLMES. A 7-minute mile is pretty good. You will find few that would accept that form of transportation, I suspect. But that is the problem. It seems to me that we find people using their automobiles—once they have them they use them. We would like to think that people could find other modes, particularly buses, as a sort of a simple-minded approach, if the person were to leave his house in the morning and get into some form of public transportation, that is what we would like most. But because of our dispersed residence, and recognizing that 85 percent of our trips in the urban area are what we called home-based—either the origin or destination is at home—then it is the place and the form of residence that pretty clearly determines the type of transportation the individual will need. And the way our cities are developing means that we must have a flexible form of personalized transportation.

If we are going to have any significant shift in the mode of travel, say, from private to public transportation, it seems to me that would require a substantial change in the character of our method of living. And we have, not only by observation, but by some very detailed, very competent studies, looked into the prospects of the future pattern of residences. And everything that comes out of those studies is that people prefer the single house with a little yard around it.

Chairman PROXMIRE. That is right. We could build bicycle paths and made them more convenient. And they use them in European countries. You go to a place like Copenhagen and you see 10 times as many bicycles parked as automobiles. The same thing in West Germany—it is not as true as a few years ago, but it is still generally true. These are affluent countries. And it is generally healthier in terms of your pollution. It does seem that the Department of Transportation ought to use a little more imagination in terms of making these facilities more available than we have made them.

Mr. Brown?

Representative BROWN. I do not want to knock the Senator's ideas of public transportation and the use of other means of mobility. I might run too if I lived in his neighborhood. I also think those 27 percent that ride the subways are probably going to be well armed, all of them, when you put that subway in.

Chairman PROXMIRE. I never yet have been mugged or attacked, maybe it is because I can run too fast.

Representative BROWN. Let me reverse the process of questioning, if I may, and ask about whether the Department of Transportation studies the impact of the location of interstate highways and highway systems vis-a-vis the development of new cities or suburban development. Is it a positive input in highway planning?

Mr. BAKER. I would like to make a general comment first, and then I will ask Mr. Holmes to go into more detail.

I think it is recognized that the relationship of transportation to this issue is substantial. And at the very least, if transportation is not

determinative of the shape of the new town if you will, it is clear that you need the support of transportation systems to make the exercise viable, or at least generally workable. And the Department has been very active for roughly the last 6 or 7 months working with HUD on exactly this kind of problem.

There have been varieties of other studies sponsored by the Department to attempt to determine the impact of the various kinds of transportation, and particularly highway transportation, on the development of regional areas and of cities.

Wilbur Smith's organization up in Connecticut, for example, has done a lot of work in this area.

As far as some of the specific analyses of how this would relate, Ted, perhaps you can go into further detail.

Representative BROWN. Let me rephrase the question. If you build an interstate highway in the countryside—and it has been done in several areas of my district—is there some predictable figure developed of the increase in land values, for instance, from attracting factories, subdivision development, retail development, and so forth? It seems to me that this is a tremendous power that you have within the State planning system to locate that for the good or ill of the future of land around cities.

Mr. BAKER. May I ask Dr. Goldstein of our Bureau to comment on that?

Mr. GOLDSTEIN. Actually there have been a couple of hundred studies in our research and development program on the economic impact on highways. And these have varied from studies of the effect on land values; studies of the effect on commercial and industrial location, and studies of the effect of development at interchanges. They have ranged from the very empirical type of study known as a before-and-after study to various models that have attempted to be built by university organizations on prediction of impact based upon some of the historical information. So there have been any number of these. And we have summarized them. We summarized over a hundred of them in a study we published in 1964 called "Highways and Economic and Social Changes." And in the Highway Research Board there have been literally hundreds of papers presented by university researchers on the results of these impact studies. So we have made these studies, we have made them available to the various planning groups. And planning groups in turn have used them wherever possible in trying to estimate the impact of programs under consideration.

So we have been doing these kinds of things.

Representative BROWN. Have you been making them available to other agencies and departments, HUD, for example, on new town locations?

Mr. GOLDSTEIN. The highway research publications are available to all. Individual studies are sent to the Library of Congress.

Representative BROWN. And when relocation of interstate highways planning is determined, is there any look at the economic impact?

Mr. GOLDSTEIN. Yes. There are some 34 what we call route location factors that are taken into account in highway route location.

And these 34 factors mention—list all of the kinds of things I have described, that is, other than the ordinary user benefit-to-cost ratios that are sometimes involved, they attempt to look at what they call the non-user aspects. And these include the effects on employment accessibility, the effect on land values, land utilization, environmental aspects, and so forth. And there are a list of 34 of these that we made available for the State Highway Department to use in these route location studies.

Representative BROWN. I would refer you to the Intergovernmental Cooperation Act of 1969, I think, which suggested some of these considerations be set by the President. Is that being done?

Mr. GOLDSTEIN. When we develop our instructions, we send them to the Advisory Commission on Intergovernmental Relations for review. And I assume they then consider what you are describing.

Representative BROWN. Let me ask you, Mr. Baker, about another problem in another field which relates to a parochial interest. My district is located between the cities of Columbus, Dayton, and Cincinnati. Each one of these communities has a major airport served by major airlines at present. Each of them has the airport away from the center of the individual metropolitan city. And the three communities are connected by interstate highway systems forming a triangle. The need for future traffic in those communities indicates the necessity to expand the airports. But the airlines, to an increasing degree, are deciding that they will not stop at two airports in that system; only at one. My question is, at what point does the Department of Transportation or the FAA decide that we stop developing with Federal funds and local bond money three separate airports in one location and go to the development of a single airport serving three metropolitan centers? The parochial interests of each of these communities are such that each will not give up its own airport. But the facts of the matter are that someplace along the line somebody needs to say, look, you can put one airport between the three cities and conveniently serve those three cities, and provide for much more regular transportation.

In other words, you would have more flights in and out of that one airport which persons from each of the communities would be able to make use of; you would have a better airline schedule.

Mr. BAKER. I regret that we do not have anybody from the FAA here who could go into greater detail in responding to you on this. Nonetheless, it is clear that in reviewing project applications for airport development the FAA does exercise a fair level of discretion in establishing priorities for the approval of projects. You have surfaced sort of a separate issue, which is not only which airport among the three or four, for example, gets the principal focus, but perhaps whether a regional airport should receive financial support in lieu of all three, or something of that sort.

Representative BROWN. There is no authority, it seems to me, for the FAA at present to say. "Look, eventually you will have to abandon all three airports and start the regional airport development." And yet you have said what I think the fact is, and that is, the FAA has to starve all three airports until the transportation in the

area gets so bad that they come together of necessity to develop a single airport for the area. And that has the effect of developing population, both industrial and residential.

Mr. BAKER. I would like to add, however, that it is not quite as dark as I am implying. In the case of the regional airport development down in Dallas-Fort Worth I think there was much of the same kind of difficulty, and needless to say, local feelings of the type you have identified. And I think as far as explicit local authority and the ability to take executive action by fiat is concerned, you are quite right, there are some constraints there. But as a practical matter the situation did become resolved to the point where we have seen the emergence of one airport designed to serve a large area.

So I guess what I am saying, Mr. Brown, is that, as a practical matter, FAA becomes involved in the planning process, and recognizing the impact of these various route structures and what have you. has some influence, and I think certainly will continue to do so. I think there is a question—and this is one the Department has got to very seriously consider—as to what further authority it really needs to see to the real development of a national air transportation system.

Representative BROWN. I am less concerned about the authority than I am about the responsibility. It seems to me that you can tie in the CAB and its authority over routes, you can tie in the individual airlines, you can tie in the FAA which has the authority for granting the money, and you have to tie in the Department of Transportation which is responsible for the interstate highway systems and the service to the new airport.

Should that planning responsibility be in the Department of Transportation, in the FAA, in the airport area, or where?

Mr. BAKER. I think, somewhat in line with your earlier comments, in the final analysis, we do have a responsibility for this kind of planning, if you will. And I think, as you imply, clearly in this sort a situation a very close working relationship with the Civil Aeronautics Board is necessary. And if that relationship is tenuous or fragmented, and does not work well, then I think the process is in trouble.

Representative BROWN. Does the Department of Transportation have anything similar to the facilities at Crowthorne, a single location for the study of the surfacing of highways and the impact of auto crashes and so forth and so on? Or is that done by commercial companies for you, or do you do that?

Mr. BAKER. Ted, why don't you explain how we get into that?

Mr. HOLMES. A simple answer, Mr. Brown, is no, we do not have that. At the time the National Highway Safety Bureau was in the Federal Highway Administration we looked extensively at the possibility of a proving ground which would let us consolidate the testing requirements of the Safety Bureau and the Bureau of Public Roads. But that never materialized. And so the answer is that we do not have such a facility at a single point. We do some testing work in our laboratory here in McLean, Va., but there is very little outside work. We have done a good deal of testing work on highways, highway design, and highway structures. But there is not a single site similar

to the one at Crowthorne. And there was some thought that we might be able to find a possibility in the new site that is proposed to the Federal Railroad Administration in its testing ground in Colorado. But that does not seem to be feasible for our purposes in the highway field. So the answer is—it is a long way around to saying no—"no."

Representative BROWN. If you are looking for a site we are developing such a site in Ohio. We have a 35,000-acre site, and I will be glad to discuss it with you, but not on the subcommittee's time.

Mr. HOLMES. We have felt that because of the tremendous cost that would be involved, as we looked into the recommendation of a single site, that rather than that we had better take advantage of the facilities that are either available or building. And there are several of them either in existence or in prospect that offer good opportunities for testing under contractual arrangement of some sort or another and the Ohio one was one that did enter strongly into that consideration.

Representative BROWN. You know the Ohio site is designed to be used by industrial concerns for highway equipment, automobiles, trucks, tires, and that sort of thing. But I am sure that we would be able to find some base for the Federal Government whatever facility you might like to put out there, particularly if those facilities are joined by a good deal of Federal money.

Chairman PROXMIRE. Thank you very much, gentlemen, you have done an excellent job, and your testimony will be very helpful to us.

The subcommittee will stand in recess until 10 o'clock tomorrow morning, to meet in room 1202, New Senate Office Building.

Tomorrow we will hear the following witnesses: G. H. Bakke, Secretary of Transportation, State of Wisconsin; Aaron J. Gellman, vice president of planning, the Budd Motor Co.; and M. Cecil Macke executive vice president, Florida State University, formerly Assistant Secretary of Transportation for Policy Development.

Thank you very much, gentlemen.

(Whereupon, at 12:47 p.m., the subcommittee adjourned, to reconvene the following day, at 10 a.m., Tuesday, May 5, 1970.)

ECONOMIC ANALYSIS AND THE EFFICIENCY OF GOVERNMENT

TUESDAY, MAY 5, 1970

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON ECONOMY IN GOVERNMENT
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The Subcommittee on Economy in Government met, pursuant to recess, at 10 a.m., in room 1202, New Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: John R. Stark, executive director; Loughlin F. McHugh, senior economist; Courtenay M. Slater, economist; and Douglas C. Frechtling, economist for the minority.

Chairman PROXMIRE. The subcommittee will come to order.

This morning we will continue our investigation of the way in which resources are allocated to different types of transportation. One thing which our hearing yesterday made very clear is the magnitude of the resources which go into transportation. Almost \$12 billion of budget authority has been requested for transportation programs in fiscal 1971. The cost of the Interstate Highway System has just been reestimated at \$70 billion, of which the Federal share will be \$62½ billion—and this is not allowing for future inflation, which will add several additional billions. The 1970 Highway Needs Report estimates that it would cost \$320 billion to fully meet our highway needs between now and 1985.

It will be tragic if the Nation embarks on expenditure programs anywhere approaching these magnitudes without having fully explored the alternatives. I pointed out in my opening remarks yesterday that transportation investment ought to lend itself about as ideally as anything ever can to the kind of thorough cost-benefit analysis which leads to good investment decisions.

Yet in the past we have failed to make this kind of analysis. Worse, we have created an inflexible financing system which prevents our allocating funds in accordance with rational economic principles, no matter how good our economic analysis.

Because Congress is considering several major pieces of transportation legislation during this session, we are presented with an excellent opportunity for improving on past arrangements. Unfortunately, we are also presented with the danger that we will repeat and reinforce the mistakes of the past. Our present transportation financing arrangements were imposed by Congress, and it is up to Congress to make any necessary improvements.

As we heard in our testimony yesterday, the procedures employed by Congress for considering transportation legislation make it difficult to look at transportation investment as a whole. We have invited our witnesses this morning to try to present us with this badly needed overview of transportation investment and with their suggestions for improvements in the allocation process—both improvements in the allocation among different modes of transportation and improvements in the way in which State and local governments are brought into the decisionmaking process and the way in which Federal decisions affect the allocation of private resources.

Our first witness this morning is Mr. Gus Bakke, secretary of transportation for the State of Wisconsin. And I might say that Mr. Bakke is an old friend. He and I served in the Wisconsin State Assembly for some time. And Mr. Bakke has an outstanding reputation for ability and integrity in Wisconsin. And we are very proud to have Mr. Bakke as our witness. And I say that not only as a friend, but also as the senior Senator from Wisconsin.

Wisconsin's department of transportation was established 3 years ago—it is just about the same age as the Federal Department of Transportation. After reading Mr. Bakke's excellent prepared statement, I am more convinced than ever that his department should serve as a model for every State in the Union, and perhaps for the Federal Government as well.

Our other witness is Dr. Aaron J. Gellman, a distinguished transportation economist and vice president for planning of the Budd Co. Dr. Gellman has also prepared an extremely interesting statement, and we are looking forward to his presentation.

Mr. Cecil Mackey, who was originally scheduled to appear this morning, is unable to be here today.

Mr. Bakke, go right ahead.

**STATEMENT OF G. H. BAKKE, SECRETARY OF TRANSPORTATION,
STATE OF WISCONSIN; ACCOMPANIED BY JOHN W. FULLER,
STAFF MEMBER, BUREAU OF POLICY PLANNING, WISCONSIN
DEPARTMENT OF TRANSPORTATION**

Mr. BAKKE. Mr. Chairman, accompanying me today is Dr. John Fuller, who is a member of the policy planning staff of our department. Dr. Fuller has a degree from Washington State University in transportation economics.

We are privileged to participate in these hearings. Even with 3 years of experience we feel we are still neophytes in the total transportation picture. Our department serves a State that faces nearly every transport need characteristically found elsewhere throughout the United States. Wisconsin is a reasonably average State in land area, population, and wealth. Wisconsin has and needs a varied network of highway, trail, air, transit, port (Great Lakes and Mississippi River), and pipeline facilities.

A little-appreciated characteristic of the State is that we are the ninth ranking State in industrial exports. Because of our industrialization and our extensive agriculture and tourism interests, we say we

can afford nothing less than the best that all modes of transportation can offer us.

It was for this reason, to better coordinate and manage the State's transportation activities that the Wisconsin Department of Transportation was formed in 1967. It brought together agencies formerly charged with highway, motor vehicle, and aeronautics concerns. They were combined with sections responsible for various other duties in law and regulatory enforcement.

Since the initiation of the department we have also added a division of business management and a division of all mode planning. However, just creating a State department of transportation does little to insure increased service from transportation modes or increased transportation returns from public investments.

We do sincerely believe it is possible for forward-looking federalism in transportation to use the organizational vehicle of a State department of transportation to accomplish those objectives.

If this favorable development occurs, side benefits of increased operating efficiencies can occur probably commensurate with the competency of State departmental management.

I do believe that it will be nearly impossible for the Federal Government alone to formulate, detail, and carry out a meaningful national transportation policy or a set of national transportation goals in the socially-conscious period in which we live. The proper State mechanism for this difficult task is a State department of transportation with all mode concerns and responsibilities. I do not believe that a single-mode minded agency can be effective.

We have in our written statement outlined some of the departmental goals which we have arrived at. We will not take the time to re-state them orally.

In the formulation of these goals we have tried to keep uppermost in mind the maxim that better or more efficient transportation is not simply an end in itself. We believe that transportation is neither separate from other economic activities nor unique among activities that broadly influence the life of Americans. Our hope is that progress towards the goals (we have developed) will also mean progress towards a better life for the citizen of Wisconsin and the Nation. But we are faced with trying to set practical goals that lie within the boundaries of transportation's present complex institutional framework.

Certain of the goals may seem commonplace; others are likely to have wide-ranging effects on location and growth. Importantly, however, attainment of most of these goals will be strongly influenced by fiscal actions of the Federal Government. In fact choice of these particular goals in itself was a result, in part, of the structure of present Federal institutions. In a major sense, except for such days as today when we make suggestions before committees, the States can only react to Federal decisions.

Our resource-allocation processes and options are contingent upon you. Our concepts of proper State functions under a Federalism role in transportation has led us to make some specific recommendations for Federal policy changes.

We have elaborated somewhat on those in our written statement, and I will not elaborate on them orally.

1. Enact a single transportation trust fund, incorporating separate funds for each mode, with allowance for interchanges under stated conditions and limits.

2. Allow for payments to the transportation trust fund from the general fund for special purposes, such as developmental subsidies or to attain specific welfare objectives.

3. To assure competent planning and project analysis, 2 percent of the trust fund apportionments should be earmarked for comprehensive, intermodal planning.

4. Closer coordination of Federal-State policy, financing, and regulation in transportation should be promoted by:

(a) Active liaison with the States by all-mode DOT contact stationed in each State capital.

(b) Establishing a State DOT advisory or liaison committee on national transportation policy.

(c) DOT entry into regulatory cases to provide information about investment plans.

(d) Controlled Federal testing of new programs in "laboratory" settings of the States.

5. Transport project analysis should include calculations or estimates of social costs, as well as the physical or capital costs. Transport projects must assume the social costs they engender.

From our statement filed here today, let there be no misunderstanding of the fact that we consider the extension of the Highway Trust Fund as of paramount interest to Wisconsin.

While we feel the need for and advocate flexibility of that trust fund, up to a set limit, and only when States show economic justification for alternative uses, we also recognize that other States find the need for that flexibility more imperative than do we in Wisconsin in our stage of urbanization.

We are also mindful that some governmental and economic groups advocate that flexibility of trust fund use for transit be limited to rubber-tired systems. We do not. I have used the fine subway system of Montreal particularly, which is rubber-tired. I do not believe this is a proper criterion for determining the eligibility for flexibility.

We are advocating economic and social justification by the States to the Federal DOT on a project basis, in order to indicate alternatives to the provisions of street or freeway capacity and set priorities within those alternatives. Also to avoid immediately a bureaucratic method of making this determination a standard form of economic and social justification in its least complex form should be worked out between the States and the Federal DOT in advance.

I can cite a case in our State that I know you are familiar with, and that is, the only rail passenger commuter line operating within the boundaries of Wisconsin and Watertown-Milwaukee.

Alternative highway passenger-car routes are all congested now during peak commuter hours (including I-94, the East-West Milwaukee Freeway). If we can show economic and social justification for a project to help this line by providing parking lots, road access to

those lots, grade crossing protection, and similar aids, while UMTA helps with terminal problems and possibly rolling stock, and we thereby relieve the overtaxed street capacity at key hours, I think we as auto users ought to be extremely happy.

Admittedly this is perhaps a simplified illustration.

I do believe that if major capital grants for rolling stock or terminal facilities are needed, these properly ought to be paid for over the long run by the users of that line. Capital for loans at reasonable charges, or grants from the proposed UMTA trust fund should, however, be made available on the basis of the same joint State-Federal economic and social justification as in the determination for the building of parking lots, et cetera.

We reiterate our support for a mass transit fund within a transportation trust fund. We believe it might be more economical and practical to establish this as a borrowing authority rather than as a pay-as-you-go trust fund.

We are also extremely interested as a department of transportation in having the Congress make a determination on the future of funding the needs of aviation.

I also want to emphasize the timeliness of Federal decision. We in the State should now be preparing our recommendations for the next session of the State Legislature, and I know you will appreciate that from your personal experience there.

Mr. Chairman, we cannot do so intelligently without knowledge of major transportation financing decisions of this session of Congress.

As a State administrator, I want to reemphasize in regard to the Highway Trust Fund, I believe it would mean better government in the States were existing Federal taxes to be repealed and new taxes foregone rather than the trust fund concept to be totally eliminated. As a realist, I also believe that a totally rigid modal trust fund will not survive the needs of the years immediately ahead. We must provide for mass transit promotion and extension now.

This is a concern to those of us in State government just as it is to you folks here in Washington. Together the Federal and State governments must accept the fact that our job is to move more people and more goods in the optimum way. We sincerely believe that the suggestions that were made here today will tend in that direction.

(The prepared statement of Mr. Bakke follows:)

PREPARED STATEMENT OF G. H. BAKKE

IMPROVING THE ALLOCATION OF FEDERAL TRANSPORTATION EXPENDITURES¹

Mr. Chairman and members of the Committee:

I am pleased to meet with you today to discuss some major issues in national transportation policy. The manner in which certain of these issues are resolved—in particular, whether the highway trust fund is retained in its present form, or whether the supersonic transport program receives continued federal support and promotion—unquestionably has great impact on the attainment of efficiency and equity in the allocation of all public and private resources to meet transport demand. What, then, are the particular insights that I, as a representative of a state Department of Transportation, might suggest to aid your Committee's deliberations?

¹Dr. John W. Fuller and Douglas F. Haist, staff members with the Bureau of Policy Planning, assisted in the preparation of this statement.

As background for the suggestions I have to make concerning the highway trust fund and desired federal actions to attain better allocations to and within the transportation sector, I would like to describe briefly the formulation and activities of the Wisconsin Department of Transportation.

THE WISCONSIN DEPARTMENT OF TRANSPORTATION

Our Department serves a state that faces almost every transport need characteristically found elsewhere throughout the United States. Wisconsin is a reasonably average state in terms of population, land area, and wealth. Wisconsin has and needs a variety network of highway, rail, air, transit, port (Great Lakes and Mississippi), and pipeline facilities.² In part, Wisconsin is an urban industrialized state—yet agriculture and tourism are among our important economic sectors. We have heavy travel demands in urban areas, to be met both by transit systems and by the automobile. Elsewhere, non-urban areas and economically depressed regions, such as portions of Northern Wisconsin, call for construction of rural developmental roads, recreation access facilities connecting with urban concentrations, and airports to serve relatively inaccessible places.

To better coordinate state transportation activities in support of general state goals, the Wisconsin DOT was formed in 1967. It brought together agencies formerly charged with highway, air, and motor vehicle concerns. Since that time, new tasks have been undertaken by the WisDOT in the areas of multi-modal transportation planning, program coordination, budgetary control, and related management functions. The Department consists of five divisions, three charged with duties in the highway-air-motor vehicle spheres and the other two dealing with planning and business management. The DOT has a policy council consisting of the five division administrators, supported by a professional staff and extensive computer facilities.

PROBLEMS, ISSUES, AND NEW CONCERNS OF THE WISCONSIN DOT

In the three years since our Department's formation, change in American society has noticeably accelerated. Parallel with our long-time national desire for increased economic well-being, there has developed intense social concern for those who have not participated fully in the enjoyment of higher standards of living and for the environmental consequences of economic growth. Public attitudes towards government's present role in transportation have become less positive. Parallel with the continued demand for mobility on the part of the Americans, and the reliance placed on highway transportation in particular, has come greater interest in developing new means of transport, increased hope for the revitalization of transit in urban areas, and some attempt to use transport to help solve social ills. At the same time that our Wisconsin DOT is trying, for example, to determine the significance of declining rail passenger service to Wisconsin's future, we are faced with the need to estimate the potential demand for air facilities that might result from operation of the SST, and more immediately the emergent "jumbo jets," and find ways to provide these facilities in Wisconsin at the least social cost, using measures of air and noise pollution in the project analyses.

Issues and problems that are new concerns of our DOT, never faced or in some cases even recognized by our former constituent agencies, include the decline of our cities' transit systems,³ the dramatic need for revitalization of our rail systems (and the effect on Wisconsin of rail mergers designed, at least in part, to effect economies in the provision of rail service), and the growing reaction to highway building and highway builders' neglect of social costs. Additionally, we face problems of port modernization and inequities of user-charge pricing of the St. Lawrence Seaway while the inland waterways are toll-free; we have growing demand for air facilities of all types; and it is generally agreed that numerous highway and road facility improvements are past due in many urban as well as nonurban parts of our state, but an insufficiency of funds exists.

² These varying transport demands result in part from a surprisingly large export trade. Wisconsin ranks ninth among the states in the value of exports and first in export trade growth.

³ Receipts of Federal Urban Mass Transit grants by Wisconsin communities have, for one reason or another, been minimal, but even if the maximum available amounts had been received, they would be insufficient, and it is doubtful that newly enacted legislation will go very far towards totally meeting urban transit needs.

Lack of funds for highways has been a special problem in Wisconsin because, with the advent of the Interstate Highway System, a flow of user-charge payments began, from Wisconsin sources to the federal government, that has been far in excess of Wisconsin's receipts in terms of Federal-Aid Highway construction. The excess of outgo over receipts has been estimated at \$400 million since 1956.

A more general difficulty in meeting transportation demands in Wisconsin, and indeed in all the states, has been the inflexibility of public investment funding. Because of institutional restraints, states are generally unable to support a transit project, for example, if it would indeed aid motorists in terms of reduced congestion and lowered accident exposure more effectively than would an expansion of highway capacity.

In consequence of changed attitudes, new issues and problems, state government's role in transportation should change. In the future, government should invest in transportation not simply to accommodate demand, or to promote business growth. Government should seek investments to maximize net social benefits and should make payment for any unavoidable social costs.

State department can take the broad view of transportation as a multi-modal process and can attempt sophisticated analysis to determine the more economical alternatives in particular situations to provide *transportation* service—not just highway, transit, air, or any other particular modal service. However, without further institutional change permitting flexibility in financing to put funds into projects where they will do the most good, investments will not be more capably made. Action must follow analysis to produce maximum social benefit.

WISCONSIN DOT GOALS

The issues and concerns of our particular DOT, as mentioned above, with the broader implications they raise, have led us to begin formulating goals for our Department, leading to plans of action that will bring about better solutions to transportation problems. As a DOT, we have gained a wider knowledge of transport problems, issues, and needs than would a state highway department or a single-mode transportation company in the private sector. Our wish is to promote the most efficient movement of persons and goods using all available current transport facilities. We then seek to help provide the optimal increase in transport capacity to handle and support economic growth. Note, we do not seek simply to supply all the demands of transportation users. Rather, we prefer to provide the proper mix of transport services in relation to other consumers' and producers' goods in the economy.

In the statement of these goals we have therefore tried to keep uppermost in mind the maxim that better or more efficient transportation is not simply an end in itself. Transportation is neither separate from other economic activities nor unique among activities that broadly influence the life of Americans. Our hope is that progress towards the goals listed below will also mean progress towards a better life for the citizen of Wisconsin and the nation. But we are faced with trying to set practical goals that lie within the boundaries of transportation's present complex institutional framework.

Expand highway capacity to produce social benefits.—Clearly not all of Wisconsin's pressing highway needs have been met. It is our goal to complete the freeway-expressway system portion of our 1990 State Highway Plan by 1980. This goal has the support of our legislature which in 1969 authorized new bonding authority of up to \$200 million for accelerated highway construction plus an additional \$35 million authority for needed bridge replacement. It is simultaneously our goal, to the extent our finances and laws allow, for highway projects to make compensation for the social costs they engender. Highways should be planned to avoid incurring social costs, but just compensation must be made for any that do result. We will do our utmost not to press highway development upon those who do not wish it, but rather to provide those facilities that will meet users' desires.

Make travel on our existing highways safer.—Incremental changes in facilities and regulations, using funds from such sources as the federal TOPICS program, are needed to further reduce accident rates. Careful improvements in such areas as signing and intersection design, in addition to safety benefits related to freeway and expressway construction, are expected to result in improvements in road safety. Further improvements can result from support of safer autos and more skilled drivers.

Preserve existing transit systems and expand their activities where local public support is evidenced.—Within our limited financial means we wish to effect a moratorium on transit system decline. To the extent that highway funds can be used to build outlying parking areas, reserved bus lanes, or other facilities, and to the extent that other federal or state funds are made available, we plan to reverse the decline of transit patronage for every transit system where local government supports our efforts.

Preserve rail passenger service.—Medium-haul rail service in the important Chicago-Milwaukee-Twin Cities and Chicago-Milwaukee-Green Bay corridors appears to have great potential. Service is now close to a "bare-bones" minimum. We encourage support of these services by various means including federal or possibly state subsidy, if available, for the future promise they offer and the present alternative they provide to other common-carrier services.

Preserve and extend bus service, especially to isolated communities.—In support of general state policy to encourage a rural renaissance and economic development outside populated urban areas, we wish to facilitate common carrier, intercity bus service in any manner open to us.

Support improved common-carrier air service.—We plan continued appearances before the CAB on behalf of expanded air service to meet Wisconsin's needs and concurrently relieve overcrowded O'Hare Field.

Update the State Airport Plan and build needed improvements.—General aviation and airline traffic increases have risen much faster than public investments in air facilities. To support safe air travel, Wisconsin must aid in the provision of airports and air navigation aids. To enable the growth of air cargo traffic, freight areas need be built. These airports must be protected also from incompatible use by application of land-use zoning (with compensation for social costs where required).

Promote better utilization of Wisconsin's ports.—The state must advertise its ports and their facilities while supporting the orderly growth and development of water transportation.

Provide multi-modal terminal and transfer facilities.—To allow free flow of passengers and goods between modal systems, the state should promote construction of multiple-use facilities in high-use areas.

Improve planning data and capabilities.—It is the DOT's goal to support a professional staff, and the studies it makes, that is capable of recommending the highest use of investment funds and the best utilization of present public facilities to support economical transportation in accord with public desires. To these ends, we have planned a state census of transportation in 1972 and will use the information gathered in preparing an all-facilities state transportation plan.

Certain of the above-listed goals may seem commonplace; others are likely to have wide-ranging effects on location and growth. Importantly, however, attainment of most of these goals will be strongly influenced by fiscal actions of the Federal government—and choice of these particular goals in itself was a result, in part, of the structure of present federal institutions. In a major sense, except for the suggestions we are privileged to make on occasions such as this before your Committee, the states can only react to federal decisions. Our resource-allocative processes and options are partly contingent on you.

CONCLUSIONS AND RECOMMENDATIONS

My description of our own state DOT's activities, and the goals we have set forth arising out of experience working within federal and state constraints to allocate transport resources, leads me to conclude with some suggestions for an idealized role of state Departments of Transportation within our federal system and some recommendations for policy changes in support of this role. Most basic to this role are revisions at the federal level to permit attainment of flexibility in transportation financing to meet changing needs in support of those transport and related goals that appear uppermost in the value-systems of a state's residents.

The role of State DOTs

Wisconsin's experience with a state DOT suggests that the state's role in transportation, vis-a-vis the federal government, local governments, and the private sector, ideally involves:

- (1) *Sharing in the provision and maintenance of capital facilities for transportation and pricing those facilities on a user-charge basis.* Highway,

airport, railway, and other facilities are all essential to cargo and passenger movement and should receive equal opportunity to be considered by government in terms of promotion or regulation, in the absence of compelling social reasons for special treatment.

If special regional needs exist, there may be reason to give preference to certain modes for serving certain transport demands.

The states should share in financing transport investment on an equal percentage basis for each mode for which public policy supports government provision of capital. Otherwise, if the states continue to finance only 10% of the Interstate Highway System, 50% of the ABC System, and, as a possible example, 75% of port facilities, there is clear incentive especially with limited availability of funds for the state to undertake projects in the order given above, even if project analyses were to show potential net social benefits to be exactly in reverse.

User charges are essential to limit demand, indicate investment needs, and place the burden of payment on beneficiaries. Allowances should be made, however, for payments by non-user beneficiaries.

(2) *Coordinated planning for all transport modes.* The state, when locating and supervising the construction of physical facilities, should consider the effects of the particular projects on the operations of all other transportation facilities. When planning a transportation project, the effects of the project (and alternative projects) on the modal network and the total transport system should be calculated and used in decision-making.

In cases where provision of public transport facilities is likely to change the demand for private transport, the probable results should be made known to all parties involved.

(3) *Subsidy.* For developmental or income-redistributive purposes, states may seek to support particular transport services at a level greater than the market would bear. The state should make clear the reason for and expected result of any such subsidy. (Often income-redistributive goals are more efficiently obtained through use of tax instruments and income supplements rather than via interference with market mechanisms.)

Although the three areas above delimit the major concerns of state DOTs, other state functions appear to include regulatory coordination, provision of special analytical or consultant services to city and county government, and transport facilitation in terms of providing information, reducing unnecessary governmental interference, and improved two-way communication.

The role of federalism in transportation

In essence, our experience suggests the above ideal set of roles for state government in transportation because it appears that state and federal activities both complement and supplement each other. The state is closer to the pulse of its residents; state employees are more easily approached, more conveniently located, and more cognizant of local issues, than are federal administrators. Quite possibly, states can avoid some of the diseconomies of large-scale management that seem to accompany many federal efforts.

That is not to suggest that the advantages of the federal government are not great. Certainly a central government can provide skills and expertise not easily obtained at a state level. Many specialized programs may reach economies of scale in administration only on the federal level. Surely, however, the two governmental levels can cooperatively decide upon spheres of influence. Our experience suggests that such cooperation is most easily and effectively accomplished between the U.S. DOT and a state when all transportation investment and operating functions are assembled under a single head in a state DOT.

Recommendations for Federal policy changes

For the states to operate ideally to improve the allocation of resources to and within the transportation sector via a creative federal partnership, our experiences suggest the following changes in government policy towards transportation:

(1) *Enactment of a single transportation trust fund, incorporating separate funds for each mode or capital expenditure area, with allowance for transfers between fund components under stated conditions.* The enactment of a general transportation trust fund will bring use of the trust-fund device with its advantages for long-run planning, while simultaneously promoting flexibility in public expenditures for transport.

We support the availability of equal investment opportunity for each class of project. Therefore, the trust-fund components should have borrowing power rather than being of the "pay-as-you-go" type. In large part, trust-fund sources should be user fees, varied over the life of a project to offset completely all economic and social costs, in instances when a particular facility is publicly supported. Where capital costs are met by private interests, as in the case of railroad provision of their ways and rolling-stock, obviously the governmental role is different and should involve both the provision of funds at the same capital cost offered to other modes and special governmental grants for development purposes.

The trust fund components should be flexible up to a limit,⁴ such that transfers can be made between components to support the most economical manner of obtaining transport service. Furthermore, it should be explicitly recognized that no need exists to expend all moneys deposited in any trust-fund component, nor is it necessary to expend all funds obtained for transport purposes. For important national reasons (such as the control of inflation) resource commitments should sometimes be delayed. If potential investment projects do not promise benefits in excess of costs at the social opportunity cost of capital, they should not be made.

It is our expectation that the federal DOT would channel all trust fund payments directly through state DOTs, as is now done with highway trust-fund payments. This route provides central administration and equal assessment of need between state regions.

(2) *Permit payments into the transportation trust fund from the general fund for special purposes.* Users of a particular mode of transportation have no unique obligation, in their role as transportation consumers, to support special government programs of welfare payments or developmental subsidy with their trust-fund deposits.

Therefore, so long as these users are meeting the social costs generated by the production of the services they are provided, and so long as user charges are promoting optimal usage of public facilities, such special federal programs should be supported by payments from the general fund to the over-all transportation trust fund. The managers of that fund can then analytically determine the best method of expenditure to meet the desired social need.

General-fund financing or appropriations from logical user-funds should support continued experimentation with new modes or developments in transportation until their potential is realistically ascertained.

(3) *To insure competent planning and project analysis, two percent of the receipts of the transportation trust fund should be earmarked for comprehensive, but inter-modal planning.* Block grants from each component fund provided to state Departments of Transportation (and allocated by the DOTs, as needed, to sub-state planning agencies and urban transportation studies) would provide the funds now lacking to promote competent placement of investments based on attitudinal surveys, traffic forecasts, and analysis. Joint federal-state planning requirements should be developed for all projects.

Additional trust-fund amounts could be provided to support federal specialists who would lend technical assistance to the states.

(4) *Closer coordination of federal-state policy, financing, and regulation in transportation should be promoted by—*

(a) Active liaison between the states and federal government by way of a federal DOT contact stationed in each state capital;

(b) DOT entry into regulatory cases to provide information about investment plans, and;

(c) Controlled federal testing of new programs in the "laboratory" settings of the states.

(5) *Finally, transport project analysis should be required to include calculations, or best estimates, of social costs as well as the more generally computed physical and capital costs. Moreover, all transport projects undertaken should make restitution for any social costs they engender because without the ability to make such payments out of benefits generated, no project is economically justifiable.*

⁴A reasonable limit would appear to be 20%.

It is particularly refreshing to note that recent statements and actions by U.S. DOT officials indicate far greater cognizance of social costs than in the past, and far greater willingness actively to recognize their existence.

The above five suggestions: a flexible transportation trust fund; special funding for general welfare or developmental reasons; planning grants; better state-federal coordination; and consideration of social costs; do have the potential to improve the allocative process greatly. With adoption of those suggestions, plus formation of state DOTs operated as recognized parts of a federalized system flexibly structured to meet the needs of our times, our experience in Wisconsin indicates that significant benefits can be gained.

Chairman PROXMIRE. Thank you, Mr. Bakke.

As I say, that is a fine statement, and I very much appreciate your making it. I am proud of the fact that you do this as an administrator from the State of Wisconsin.

You say here that you think funds ought to be paid from the general fund into the trust fund. Most of the controversy has been the other way. There have been periods of need, and periods particularly of social need, when you need funds for education, for school building, and for other purposes. The Highway Trust Fund seems to be amply providing for highways. And highways may not have the same priority as the educational needs.

Would you feel that funds can be paid out of the trust fund or should under any circumstances be paid out of the trust fund into the general fund?

Mr. BAKKE. We believe, Mr. Chairman, that the Transportation Trust Fund should properly accept all of the economic and social costs that the building of a facility engenders. There are situations where, for developmental reasons, for experimental reasons, or, call it strictly welfare reasons, that the transportation people are called upon for assistance. In that case I believe this might be a proper charge to the general fund.

I am thinking of experimental projects in moving disadvantaged people to places of employment. And I believe that this would be a proper welfare charge.

Chairman PROXMIRE. Disadvantaged people who have suffered because of the transportation policy, that is, because, for example, of a highway that destroys their housing or their place of occupation?

Mr. BAKKE. No. If the housing is destroyed by a transportation facility this would properly be a transportation charge, in my opinion. There are some experimental efforts in moving people from—call it disadvantaged areas to places of employment where they had never worked before. And these are experimental projects. I think transportation people can properly assist in this effort. But I do not believe that they should be—

Chairman PROXMIRE. Under those circumstances why wouldn't it be better to have the general fund pay for this, if it is related in a very slight way to transportation, rather than have the fund pay it? It seems to me that once you adopt the policy of funds going from the general fund into the trust fund, you have a much more powerful argument for funds coming out of the trust fund into the general fund and for other purposes not related at all to transportation.

Mr. BAKKE. Probably these should be paid for by the general fund. Whether it is run through a trust fund and done by transporta-

tion people or not I think would be an individual decision to be made. However, I think there are some experimental and innovative things that should be tried in the field of transportation. And I believe the Federal Government has a long history of financing some of these experimental projects out of the general fund.

These, I think, could more properly be handled by the Department of Transportation through the trust fund.

Chairman PROXMIRE. You say in your statement: "Actions follow analysis to produce maximum social benefits." Congress has the opportunity this year to take some action on the Highway Trust Fund. What is the best way out of this terribly inflexible financial arrangement which we created back in 1956? You suggested a general transportation trust fund. Surely another alternative we should consider is abolishing the trust fund altogether and appropriating funds from general revenue.

If Congress were to put the States on notice that the trust fund would be extended only long enough to fund existing State highway authorizations, would this enable you to bring your interstate highway program to an orderly conclusion?

Mr. BAKKE. If the trust fund—we would advocate the trust fund being extended for interstate purposes beyond the 1974 date in order to give added time. However, we would also consider a limitation on the total amount of the trust fund that would go into Interstate Highways after that.

Chairman PROXMIRE. You consider that that would be good policy?

Mr. BAKKE. Yes, I do, sir.

Chairman PROXMIRE. Do you have any rough rule of thumb in mind as to how much of a limitation would be appropriate?

Mr. BAKKE. I would go along with what I understand is the American Association of State Highway Officials' recommendation, 15 percent after the normal termination date.

Chairman PROXMIRE. You point out in your statement that Wisconsin pays more in user charges than it gets back in Federal highway aid. Would we be better off if the Federal Government got out of the highway business and left it to the States and cities to impose road user charges and decide for themselves how best to allocate the revenue?

Mr. BAKKE. After the completion of the Interstate System, yes. The Interstate System actually is the cause of the highway financing problem in Wisconsin. Since 1956 the highway users of Wisconsin have paid into the Federal Trust Fund approximately \$400 million more than what we have had returned to us for use in the building of facilities in Wisconsin. This has created an enormous transportation financing problem for us in the State.

Chairman PROXMIRE. Why do you have to wait until, you say, the completion of the Interstate Highway System? If we paid so much more in our State, and our State is a typical State, you agree—you are a Republican, I am a Democrat, so you are perhaps more enthusiastic that the State should be left with as much discretion as possible, and the decision should be made at the State level. Why under these circumstances shouldn't we wind down the System of Interstate

Highway operations as rapidly as possible and let the States make their decisions here? After all, with the pattern that has been laid out and the amount of work that has been done, you could count on the States providing highways that would serve the interstate purpose to a very considerable degree. For example, in our State I presume we would go ahead with a Milwaukee-Green Bay operation, to service people from Illinois and Michigan. And we might proceed with other east-west operations as need arose to supplement the need that would serve people traveling across our State. And this would be true not only of Wisconsin but all the different States.

MR. BAKKE. I would say that the biggest disadvantage to a sudden discontinuance of the Federal Government in the trust fund type financing of highways would be the lack of continuity or the break in continuity.

I would say, given a 2-year period to discuss the matter totally within the State, I personally would prefer the financing of facilities by State taxation. And the State of Wisconsin would have been much better off, \$400 million estimated better off from the period 1956 to the present if we financed our highway building with State taxation, not Federal.

Chairman PROXMIRE. Then you do not support the American Association of State Highway Officials' recommendations that the Federal Government should pay 70 percent on all federally aided roads?

MR. BAKKE. If the Federal Government continues in the highway financing business, yes, I would support this. This would be an approximate continuation of the average percentage of financing nationwide. During this period from 1956 to the present time the split in financing in Wisconsin has been about 50-50, not 70-30. So that if we continue with the Federal financing of highway facilities, then, yes, I would support it.

Chairman PROXMIRE. How has it been 50-50? It is 90-10 in the interstate, and it is 50-50 on the ABC?

MR. BAKKE. Yes.

Chairman PROXMIRE. How do you get the ratio down to 50-50?

MR. BAKKE. Totally State financed projects, because of the fact that we did not have as high a percentage of Federal financing as the other States—percentage of the trust fund as other States. We financed many projects with totally State funds.

Chairman PROXMIRE. In your very fine statement on user charges you say: "User charges are essential to limit demand, indicate investment needs, and place a burden of payment on the beneficiaries."

To make user charges fulfill these functions we must relate them more directly to costs than is achieved with the gasoline tax. I gather you feel that we should rely much more than we do on tolls, special licenses and parking fees, and that we should also devise taxes for nonuser beneficiaries. What specific user charges and nonuser charges has your Department been investigating or trying out?

MR. BAKKE. The user charges that we use in Wisconsin at the present time, of course, are the gasoline tax and registration fees. And these are graduated in the case of commercial vehicles. In the

case of aeronautics taxes we use some gasoline taxes and registration fees. These are the user charges which we have in effect in Wisconsin at the present time.

Chairman PROXMIRE. What constraints would Federal laws place on the imposition of user charges by the States and localities or on the users to which revenues can be put?

Mr. BAKKE. The biggest constraint is a preemption. This is affecting us right now in the aeronautics area. We cannot really recommend the financing of the building of aeronautical facilities in the State until we find out what the Congress is going to do in the way of aeronautical taxation, because we do feel that the action by this Congress may preempt the gasoline tax method of taxation so that we will not be able to use this to raise funds on a State basis for aeronautics purposes.

The other constraint is in the way of category of funds. In our department, Mr. Chairman, we account for essentially 60 separate transportation funds—trust funds. To some extent those are interchangeable. But also to some extent they act as a constraint on actions that you would like to take.

Chairman PROXMIRE. Your statement stresses not only the importance of including social costs in any estimate of transportation costs and benefits, but also the importance of making full payment to those who are hurt by highways or other transportation investment.

To what extent is payment of full compensation practical?

Mr. BAKKE. I think it just has to be. We have to find ways to make it possible to fully compensate people for the economic loss that they suffer when we build transportation facilities.

Chairman PROXMIRE. Let me proceed and put it this way. We can and should pay the full relocation costs of those who must move. What about compensation of those that continue to live in disrupted neighborhoods? What about the general cost imposed on nondrivers that cannot participate fully in the automotive society? What possibilities are there for compensating for these general costs, air pollution, for instance?

Mr. BAKKE. I do not know of any way that you can compensate people for air pollution damage. This would be almost impossible to ascertain, I am sure. However, I do believe that in the building of a facility the possibility of air pollution and damage to a neighborhood because of noise pollution must be fully considered before the facility is built.

Chairman PROXMIRE. Perhaps by taxing the automobile when it is sold, or perhaps by taking money from the highway trust fund for the purpose of building treatment facilities to eliminate some of the elements that are put into the air, or by requiring that every automobile have the kind of device I understand they have in California—this might be a step toward it.

Mr. BAKKE. We are investigating that very thing at the present time. There are devices which I personally believe are better than the automobiles generally have that are on the street today. But I also believe that as the operator of approximately a thousand vehicles, our own department has an obligation to make sure that those vehicles are in proper adjustment. We are going to suggest, I think, to the

next session of the legislature that we develop one testing facility just for our own fleet, so that we cannot only keep that fleet in proper condition to minimize exhaust emissions, harmful exhaust emissions, but also perhaps develop some standards that we can use in Wisconsin. California has done a fine job.

Chairman PROXMIRE. Mr. Bakke, I want to thank you very, very much for your testimony. It has been most helpful.

The other witness is Dr. Aaron J. Gellman, a distinguished transportation economist, as I said, and vice president for planning of the Budd Co.

You have a statement, too, Dr. Gellman. We are glad to have you here. And you may go right ahead.

STATEMENT OF AARON J. GELLMAN, VICE PRESIDENT, PLANNING, THE BUDD CO., PHILADELPHIA, PA.; ACCOMPANIED BY JACK BUTTRAM, ASSOCIATE

Mr. GELLMAN. With me is an associate, Mr. Jack Buttram, on my left.

It is a great privilege and pleasure to be invited to discuss with you some views of mine on improving the allocation of Federal funds to and within our transport sector.

In this statement, Senator, rather than deal with specific projects and programs, such as the SST and the Federal Highway program, I have addressed myself to the more general—perhaps more fundamental—question of how Government can best allocate its resources to improve the economic and service performance of the transport sector.

From my experience as executive, corporate director, investor and student of transportation I have come firmly to the conclusion that few, if any, major American industries suffer so greatly from poor innovative performance as does transportation. I believe that the greatest part of our transportation problem in the United States could be solved were all connected with transportation either as entrepreneur, manager, suppliers, regulator, promoter or policymaker to recognize that there is a process called innovation and that much can be gained through skillful exploitation of that process.

The Federal Government, in my view, could do nothing more significant at this time as far as the transport sector is concerned than to use its resources to improve innovative performance in transportation.

The Federal Government has long been concerned about technological developments in civil transportation. Largely as a result of such concern, even before establishing the Department of Transportation in the previous administration, there were funds for the development of innovative transportation equipment. Such money, then and now, often goes to firms having the capability and desire to market the systems or equipment conceived, designed and, possibly, produced in prototype form under total or partial Government financing. In other instances, transport equipment development and prototype funds have gone to organizations such as universities, consulting firms, or

the myriad not-for-profits which have neither the capability nor aspiration to produce market quantities of the equipment thus developed.

Regardless of which of these routes the Government has followed to generate new transport equipment and systems, precious little equipment brought into being in whole or in part with such Government aid has found its way into the marketplace where transport companies, their customers, and the general public can benefit.

Moreover, the prognosis for the widespread introduction of such newly developed transport equipment and systems is no better at present than it has been in the past. I believe it is through an understanding of why this is so that we can point the direction of a modified policy of Government financing to support materially improved performance in the transport sector through skilled exploitation of the relevant technological possibilities.

What is the principal objective the government pursues in supporting transport equipment and transport systems development through grants and contracts? It obviously seeks to promote the best exploitation of technology for the benefit of the general public which finds transportation and the quality of transportation service central to the individual and collective well-being of entrepreneurs, individual citizens and the economy as a whole.

That such a policy benefits transport concerns which frequently are private enterprises should be of no particular concern since the external benefits of improved transportation come down so heavily on the side of the public that exploitation of technology which reduces transport costs and even stimulates demand for a specific firm's or mode's transportation services benefits the public quite enough to justify public investment in support of innovation in transportation.

But note that I said "investment in support of innovation." Clearly governmental expenditures to promote transport equipment development have not been nearly as fruitful as had been anticipated from the standpoint of total benefits to the economy. Such benefits are derived in substantial measure only if the transportation equipment or systems developed—assuming they represent a skilled and appropriate exploitation of the technology—are actually introduced into service widely so that the improvement in transport sector performance flowing from their development can accrue to a broad spectrum of the public. Put another way, improvement in the performance of the transport sector and the dissemination of benefits through such improvement requires a great deal more than just the development of new transport equipment and systems. And this is true whether such hardware or systems exploit available technology or break new ground technologically. It therefore becomes especially important to recognize that the failure of much of the transport sector to use technology to the full stems not from a failure of the technology or of the research underlying it, but rather from the failure to introduce the technology into use—a failure in the transportation field of the process we call "innovation."

The process called innovation relates to the exploitation on a significant scale and in the relevant markets of new technology and

new ideas and new concepts. The mere design of a new transport system or of a new piece of transport equipment, and even the making of a prototype and the thorough testing of it, does not bring the process of innovation through to the point where there is a payoff for the would-be producer of such equipment or systems, for the transport entrepreneur, or for the general public.

Recognition that the process of innovation goes far beyond the development of new equipment or systems gives us an important point of departure for reorienting the Federal Government's policies in support of transport equipment development and improved transport system performance.

In the majority of industries in the United States the strength of the private enterprise system is demonstrated by the entrepreneur's willingness and ability to stimulate and tap both potential and active demand through the "better mouse trap"—and by his skillfully carrying through the process of innovation. This has been less true in transportation—and especially in surface transportation—than in other sectors of the economy largely because of a deficiency or distortion on the demand side of the market for transport equipment and systems.

Among other problems, carriers have often displayed too low an innovation quotient, too low a propensity to innovate in their own production processes and markets. In other words, in transportation the operating entities, be they public or private, have often been so reluctant to try new techniques that suppliers to the carriers have responded to the tremendous barrier to innovation represented by this low propensity to innovate by not investing the time, effort and money required to develop the available technology to the full much less break new technological ground.

Based upon the record in many other areas of our economy there is every reason to believe that if these barriers to innovation were dismantled in significant degree, the suppliers of transport equipment and systems would rise to the occasion and move forward very rapidly to design, develop and produce equipment embodying the latest techniques and technology.

Given this state of affairs, how should the Federal Government allocate the resources which are properly identified as being available to enhance the process of technological innovation in the transport sector—resources devoted to promoting the introduction into use of advanced transport systems and equipment, not merely to support the development of prototypes which, regrettably, are likely to become museum pieces for want of sufficient demand to justify serial production?

In general, I believe that while the Federal Government can properly use some of its resources to stimulate transport equipment development directly, the greatest portion of such resources should for the present be devoted, first, to identifying and understanding the myriad barriers to innovation in the transport sector and, second, to reducing such barriers wherever the Federal Government can either directly or indirectly influence the situation.

The suggestion that the Federal Government should explicitly allocate substantial resources to the identification, understanding and

demolition of barriers to innovation in the regulated industries and sectors of the economy is not entirely new. The actual undertaking of such a program in the transportation field—presumably by the Secretary of Transportation—would nevertheless be an innovation of considerable moment.

In a report published in January, 1967, the Secretary of Commerce's panel on invention and innovation strongly recommended that agencies of Government involved either with policy formulation or regulation develop criteria for judging innovation and analyze systematically the consequences of present policies in light of such criteria.

In addition, the Panel urged establishment of a mechanism through which all responsible policymaking and regulatory agencies can be forewarned as to the likely consequences for invention and innovation of any such actions as they propose to take. To date, this portion of the panel's recommendations has not been implemented but they do provide the Department of Transportation with a guideline for contributing in a major way to improving transport sector performance and for increasing transport's contribution to the economic development of the United States.

I would like to point out that the report of the Panel on Invention and Innovation represents the first and most significant step the Federal Government has ever taken as far as I am aware to understanding that there is a process of innovation, not just in relation to the transport sector, of course, but to the economy as a whole. And I hope at some point when your committee is considering the allocation of Federal funds more broadly than just to the transport sector, that perhaps many of the suggestions and recommendations that this panel made might also be considered.

I might also add that the Brookings Institution is doing a great deal of work now on the effect of economic regulation on technological change in the various regulated industries. As you certainly know, it has been assumed in the legislative process, and generally in the policymaking attendant thereto and following the legislation, that economic regulation is neutral as to technology in the regulated industries. I think we have now demolished this theory. And much of this demolition has been done by Brookings which, incidentally, will soon publish a substantial book on the subject of the effect of economic regulation on technological change in the several regulated industries.

I think we ought to be clear that, at least until past mistakes are undone and a detailed understanding of the process of innovation in transport is gained, the resources required to promote technological innovation in transportation other than through equipment and systems development will be great. Funding for such purposes in the next several years could easily be justified at a level comparable to present Government expenditures for nonmilitary transport equipment and systems research and development.

I would also insert that perhaps one of the ways to approach this problem of getting a better understanding of the transportation sector on the part of the Department of Transportation and the relevant regulatory agencies might be to emulate the quite laudable

effort of the Federal Power Commission several years ago in conducting the National Power Survey.

It seems inexcusable to me that nothing has been done to apply the techniques, the concept, employed by the Federal Power Commission in a parallel study of the transportation system. The benefits that the Federal Power Commission, the power producers, and the equipment suppliers have derived from the National Power Survey should not be denied in the transport sector. And I would suggest that if as skillful a job were done in developing a National Transportation Survey, the benefits would be very substantial indeed.

Now, what specific returns can be realized by removing barriers to innovation in the transportation sector? It is difficult to be precise, but study of transportation and of the process of innovation assures us that increased competition between carriers, both intermodally and intramodally, must result as well as greatly increased competition among transport equipment suppliers who will then find their carrier-customers much more willing and able to consider any ideas which promote either more efficient or better service or both.

It is also very important to note that all too often artificial constraints on innovation distort the process. For present purposes this can best be shown by considering briefly the effect of Federal regulation relative to several of the modes of transportation.

Look at the railroad history in piggy-backing. In 1958 the railroads introduced double-length flatcars for handling trailers, containers, and, later, for moving automobiles on multilevel racks. But it is generally not recognized—even by the regulators and by others in Government who ought to know it—that 85- and 89-foot flatcars were born largely out of the method of rate regulation employed by Interstate Commerce Commission.

The use of quite rigid cost formulas to judge the adequacy of rates makes little sense in the face of a dramatically changing technological environment and the long flatcar decision is but one example among many of how a major mode reached a decision to innovate but had to carry through in a way that limited both performance and profitability.

The ICC's "Rail Form A Cost Formula" has as one of its most important components the cost per car-mile based on historic averages. If the car length is doubled, the formula cost per ton, or per ton-mile, to the extent it is based on the car-mile components of the formula, is dramatically reduced in theory whether or not it is in fact.

Lower ICC formula costs, however, permit lower rates or rather enable the ICC to approve lower rates. In other words, the carriers often have to play a game in order to get such approval; they have to play a technological game where everyone may lose largely because of the character of the economic regulation.

For many reasons the long flatcars into which the railroads are now locked for a great many years, where such traffic is concerned, have not generally reduced the costs of handling such traffic to otherwise attainable levels and may well actually have raised them across the railroad industry taken as a whole. While some carriers may have experienced lower costs, a great percentage of the industry has

experienced higher costs than were necessary to produce this transportation service. The cars are relatively unstable and often require expensive special handling; they are often only half loaded making the ratio of capital invested to the production of transportation higher than necessary.

Another example in another mode: The Civil Aeronautics Board's stress through the 1950's on rate identity for the certificated competitive airlines caused disproportionate emphasis to be placed on flight equipment differences. This gave rise to the development of the turbo-compound engine and the introduction of the later model Super Constellations and the DC-7's.

These were aircraft types predicted to have substantially higher costs associated with their use than did concurrently available aircraft types which were, however, a bit slower. I think it is very important to note that there were many people who did predict that the costs of the then new types of aircraft were going to be higher, moreover there were regulatory remedies suggested to minimize the misallocation of resources by the airlines.

As was forecast, the turbo-compound-powered aircraft were far more expensive to operate but their introduction into use and their spread through the industry was a predictable result in the face of a CAB rate policy which fostered, if it did not explicitly require, price identity among the competitors.

Incidentally, the domestic airline financial crisis of the early 1960's, in my view, was at least as attributable to the turbo-compound aircraft as to the introduction of the jet, the latter of which, of course, did have lower operating costs in contrast with the turbo-compound aircraft which they superseded.

It is worth noting that many airline executives have recently and publicly questioned the wisdom of the rapid buildup of the industry's inventory of jumbo-jet aircraft. Yet they seem powerless to stop it. Whether they should or not, I cannot say. But it would seem that any such impediment to freedom relative to their equipment decisions must stem from Government regulation and policies.

Surely the Government, through its Department of Transportation, ought to know precisely to what extent regulations and policies, by whatever arm of government promulgated, impinge upon management and upon the process of innovation.

I would also point out that in Federal Maritime policy we have found that the operating subsidy historically has not only failed to reward technological innovation, but in some instances has rewarded the lack of it.

Again, we have seen some discussions about airport financing of late, and it is important to note that it would be a great tragedy if there were unrestricted funds made available to terminal financing, for example. Such funds would surely support the construction of monuments not unlike the railroad stations we find in many of our cities.

Should all Government support for transport equipment and transport system development be discontinued while Government comes to grips with the process of innovation in transportation? Absolutely

not, but I do suggest the primary mechanism for promoting such activities be changed. Specifically, I urge the establishment of a Federal Transport Equipment Development Bank.

This bank is best placed under the Secretary of Transportation and its loan program would, among other things, largely supersede the present system of Government grants and contracts available explicitly for the support of civil transport equipment and systems development, especially where profit-making enterprises are concerned.

Such organizations could apply to the Transport Equipment Development Bank for loans to cover design, development, prototype construction, and testing of equipment and systems components. All loans would be on a long-term basis—up to 15 years, perhaps—and would carry an interest rate substantially below current money market levels. With the prime rate presently at eight per cent, for example, loans from the Transport Equipment Development Bank would carry a rate of from 4 to 5 percent, I suggest.

Both the long-term character of the proposed loans and their low-interest rates clearly embody Government subsidy, just as do the grants and contracts they will replace. And the justification for such Government aid and encouragement are the same and relate to the fact that whatever improves national transport systems performance improves also overall economic performance given the universal input characteristic of transportation and the favorable external economic benefits which flow to the public-at-large from improved transport systems performance.

Since, in most cases, the subsidy going to any one concern under the loan approach will be less than obtained under the grant or contract method, there should be far more widespread catalyzation of transport equipment development than previously, even if no more total Government resources, net of repaid loans, are committed under the loan program in the long run.

But establishment of the Transport Equipment Development Bank has far more to recommend it. One of the principal arguments advanced by present and potential transport equipment producers to justify their going slow on R. & D. relates to a shortage of financing to support design, engineering, and development. The Bank's creation would reduce this often significant barrier to innovation.

Again, the grant or contract technique suffers from a necessary (and reasonable) requirement that patents received from work thus supported be freely available for license. Loans from the Transport Equipment Development Bank should not require the borrower to relinquish patent and proprietary rights, certainly as long as repayment schedules are being met.

An indispensable element in the ultimate success of the proposed Bank is the parallel Government program to understand the process of innovation to reduce or remove barriers to innovation in the path of transport equipment suppliers and of carriers.

As noted earlier, there is abundant evidence that where barriers to innovation are only reasonable and minimal, profit-oriented business management in the United States will rise to the opportunity for

making a profit through innovation. Thus, in my proposal, the two DOT programs reinforce one another to achieve the desired objective of stimulating transport equipment and systems development and improving transport systems performance for the common good.

Employment of loans rather than grants or contracts to support transport equipment development also takes advantage of the profit-maximizing drive of the free enterprise system. Frankly, there is something unseemly, I believe, in the Government's giving direct and heavy support to successful business in the development of products (or services) which such firms ultimately might well market at a profit.

Of course, the reluctance to invest their own funds in such developments is often born of the difficulties attendant to innovating in the transport market and the other aspect of the suggested Government program will help by materially boosting the probabilities for successful and profitable innovation in the transport sector.

The loan mechanism also exploits powerfully the pressure exerted by the balance sheet on business managers. A loan on the books that has to be repaid forces the firm to push the developed product as vigorously as possible onto and into the market so as to erase the otherwise detrimental effects on the balance sheet and the profit-and-loss statement.

Before concluding, let me reiterate that the Department of Transportation must not be barred absolutely from directly spending funds, through contracts or grants, to acquire prototype hardware or to sponsor projects which can only be handled in this way and which are essential to improving the innovative and economic performance of the transport sector.

The Transport Equipment Development Bank is the primary mechanism but not the only one. For example, it is painfully clear that the railroads of the United States suffer grievously from the lack of appropriate test facilities where rolling stock components and whole cars can be put through their paces in prototype form prior to serial production.

I might add that in very sharp contrast, in Britain, France and other countries there are such facilities. And the substantial and dramatic improvement in the technological structure of those railroads is very marked indeed and can be traced in the last half dozen years partially to the development of such facilities, which have been provided at relatively small expense, I might add.

Here is a barrier to innovation which the Federal Government could well reduce through provision of such a facility and for which quite properly a charge could be made to help government recover its investment. Something of this approach is being taken in the tracked air-cushioned vehicle area but it is appropriate to wonder whether the Government might also be well advised to provide completely instrumented, comprehensive, test facilities to permit the evaluation of other more conventional types of transport equipment such a railway cars.

Again, there are research and development needs which cut across mode and market lines where the payoff to technological success for

the entire economy is also very great. In such cases quite direct Government involvement is warranted, and may be necessary to generate a break-through. The classic example here is that of tunneling technology which, in fact, is the subject of both DOT and DOT contractor efforts presently.

In sum, if Government were to reorient most of its activities in support of transport equipment development along lines outlined above, I believe the benefits would be materially greater than the costs and, even more important, the benefits would be far greater than can ever be realized from programs which fail to recognize that there is much more to innovation than just research, development, and prototype construction and testing.

Programs such as we have seen in the past stop short by failing to recognize there is a process of innovation; in so doing they also fail to exploit the basic and best characteristic of our free enterprise system.

In the light of Mr. Bakke's statement I would like to add one more remark. Relative to the methods of Government financing for new and expanded transport systems, trust funds have been mentioned, among other techniques. May I plead that we must not make more rigid the allocation of resources to and within the transportation sector. We have suffered enough from static thinking in transport in this country. Let us think dynamically. Technology and technological possibilities change. So does demand, both in level and in character. Let us not do anything that preallocates dollars to and within the transport sector far in advance. Do the opposite. Make more flexible the allocation process. No advantage for any mode or method of transportation is inherent or immutable in the face of changing technology and changing demand. Let us benefit from past experience. Make certain that today's transportation needs are met with today's analysis of the problem, not yesterday's.

Let us not meet such needs constrained by policies or by guidelines for resource allocation which were valid at a time when conditions were vastly different.

I am sure the last thing we want to do in transport is to make the allocation process any more rigid than it is or has been. We want to make this allocation process susceptible to frequent review by virtue of the very reasonable propositions that time changes, demand changes, and technology changes. We have not recognized this very often in past legislation in the transport sector.

Chairman PROXMIRE. Thank you very much, Mr. Gellman. That is certainly a stimulating—I suppose the best way to characterize your statement is that it is innovative in more ways than one.

There are a couple of very serious problems that I see in connection with this. The first area I think most people can certainly agree on. And that is the notion that our regulatory bodies, the ICC and the CAB and other regulatory bodies, should certainly have firmly in mind the impact of their policies on the environment. And they should have as a direct positive policy to encourage innovation rather than discourage it.

The example that you gave of the piggyback operation on the railroads and the example that you gave in aviation are very helpful.

But in this area of your recommendations I just wonder how widespread—can you tell us what other instances there are of inhibition against innovation which is the result of short-sighted regulatory policy, and whether this has been continuously characteristic of both the ICC and the CAB and any other agency?

Mr. GELLMAN. In my view it has had a long history. Certainly in the ICC it has been much more blatant than in the CAB. The rapid march of technology across the aviation scene has buried a lot of mistakes. Rapid change in any industry or company or environment causes all sorts of error to get washed out rather quickly.

But there was one comment that you just made that I would like to challenge. I am not certain that regulatory agencies ought always to encourage innovation. What they ought to explicitly attempt to do is stay out of the way of the natural process. For example, in the case of the turbo-compound aircraft, though it happened back in the fifties, we could see history repeat itself now—

Chairman PROXMIRE. Maybe I should substitute for innovation experimentation—at any rate, a good, practical look at the prospects of innovation, and an opportunity for innovation to proceed to the extent that it is economically feasible, and as you say, the regulatory bodies should get out of the way of innovation, not inhibit it.

Mr. GELLMAN. It is the distortion of innovative processes that is as damaging. If you look at the history of technology, the distortion of the innovative process has done about as much harm as has inhibition of innovation. For example, the aircraft case I cited is not a case of innovation inhibited. It is a case of overstimulation in a sense. The airlines, in order to differentiate their products in a price identity market, had to do it with flight equipment. And the only way they could do it was by having equipment differences. And this got one carrier to go into turbocompound aircraft, and the others had to follow, because here was an advertisable difference, a significant difference in terms of marketing that could not be met with price differences in the marketplace because of CAB attitudes.

Chairman PROXMIRE. And you think the jumbo jet may be the same kind of thing?

Mr. GELLMAN. I am not sure. I think it is too early to tell.

Chairman PROXMIRE. You say it may be?

Mr. GELLMAN. Oh, yes. But I hasten to add, by virtue of certain matters in which we are involved in the aviation field, there is no question in my mind so far but that the 747's early performance has been remarkably good. And it may turn out that the jumbo jet experience is not an apt parallel. I hope this is the case.

Chairman PROXMIRE. What method, what device, what legislation, what resolution—what can we do to encourage the regulatory bodies? Of course, they are independent of the President, but they are creatures of Congress. What can we do to see that they get out of the way of innovation?

Mr. GELLMAN. I feel very strongly that the Secretary of Transportation's organization ought to include within it a group explicitly charged with doing all the analysis and of building up an intellectual infrastructure that permits them to gage the impact of prospective.

policies and decisions on the technologically innovative performance of the transport sector.

Chairman PROXMIRE. What good will this—if it does it what good will it do for the ICC and the CAB?

Mr. GELLMAN. I think there ought to be a much closer link in the sense that DOT ought to have certain power, indeed responsibilities, to make known these impacts, because it is quite clear that the agencies themselves, the regulatory agencies themselves—certainly the ICC—has not taken upon itself to do this. I think, incidentally, that the recommendations that you seek are contained in the Invention and Innovation Panel Report that I mentioned. The recommendations there for legislation, for policy, are quite explicit.

Chairman PROXMIRE. Then you suggest something that is far more controversial. The great strength of the free enterprise system is innovation, the freedom to innovate, and the reward for innovating, and the testing that innovation gets in the marketplace on an equal basis with competition. Yet it is hard for me to accept offhand your suggestion of subsidizing innovation by providing a bank in the Department of Transportation to provide subsidy loans far below market for innovation. Now, unless you have an unlimited amount of capital—and we never have that as you know, we have a limited amount—choices have to be made.

I have been around the Senate long enough to know that those choices are made often on the basis of pressure, politics, the State in connection with the Senator, or Congressman, or Administrator, or a President, and that they are not really made on the basis of the tough, objective determination of the marketplace.

I am concerned that if you set up this kind of a bank for innovation because it is so hard to measure and so hard to determine objectively, that you would not get the kind of results that you hoped.

Mr. GELLMAN. I am perhaps a little more optimistic about it than that, Senator. I certainly would prefer the loan approach to the grant and contract approach we are already following. I am not suggesting that when you average out what the net cost to the government has been—

Chairman PROXMIRE. Let me give you what is really in the back of my mind and what really bothers me very much. The supersonic transport, I think, is a real outrage. The Federal Government is providing well over a billion dollars for research, and so forth, in enabling us to establish a supersonic transport which will be, in my view, of benefit to a very small proportion of the population, plus the fact that there are very, very serious consequences for the environment, plus the fact that President Nixon appointed a task force of outstanding experts, and they almost unanimously agreed that it is a white elephant and we should not fund it. And yet we do it, and we do it for the very reasons I have indicated, because of organized political pressure and financial pressure pushing it. It seems very, very hard to stop, regardless of the arguments we can make on the merits.

Mr. GELLMAN. Without dealing with the specifics of the SST program, I would like to use it as an example for a moment, with no implications as to whether I disagree or agree with your remarks

about its ultimate value to the economy and to society, and so on. Wouldn't you be much better off in achieving your objectives to have this come about through a bank where the developers were at least on the hook for repayment?

Chairman PROXMIRE. That is what I would like to see, see it tested in the marketplace. I would like to see them go to the Chase Manhattan Bank, to the Bank of America, to the other banks and stand in line with everybody else. I do not see why we should have to single out this kind of a commercial operation for special treatment with the kind of funds you recommend. As a matter of fact, that is pretty much what we are doing with the SST—we are going further than that, because they would not have to repay it if it does not work out. But yours is kind of a halfway house.

I say, let them take their chances with everybody else in the marketplace, and that is the most efficient way to determine whether it would work.

Mr. GELLMAN. I think "halfway house" is an excellent way to put it. I believe such a halfway house is entirely warranted in the transport sector, due to its special character.

By the way, I do not think transport is unique in all relevant respects. There are other industries that are as central, as basic, as universal in character as is transportation, but not very many. But transportation is certainly also one of the underdeveloped sectors of the American economy. And, I think, it is entirely warranted that there be some Federal subsidy, if you want to call it subsidy, to the transport equipment and transport systems development process. I suggest further that my proposal embodies a relatively small subsidy, one which does bring to bear the major benefits, the major advantages of the free enterprise system. The power of the balance sheet is brought to bear, and the pressure of the P and L statement.

And in addition, I am suggesting that potential borrowers from this bank compete with other applicants for the funds. I certainly would not suggest that the amount of loan funds be unlimited, certainly not.

And I would further suggest—and I am sure you are far more familiar with its workings than I am—that at least in certain of its sections or divisions, whatever they were called, the RFC did a rather good job of allocating RFC funds to various enterprises and activities in its day.

I see no reason why we could not have reasonably accurate and adequate analysis, and a proper allocation of the available funds from the Transport Equipment Development Bank to potential borrowers.

Chairman PROXMIRE. Let me just interrupt you to say that I am flattered that you refer to my seniority by saying I am one who knows something about the RFC. By the time I had come here the RFC had become the SBA, the Small Business Administration. I was the chairman of the subcommittee that had oversight functions for the SBA for a few years. I am not any longer. But I can tell you, the SBA is not free of politics. The loans are not made on the basis of no political influence, unfortunately. And that seems to be the way of so many government agencies, because they have limited funds, and they have to make determinations which are not always objective, and cannot be.

Mr. GELLMAN. I have had the benefit of a long friendship with a gentleman—I do not believe he would be embarrassed by my mentioning his name—who was as involved in the RFC transport activities as any man, John Barriger. He is in a sense, the dean of railroading in this country, and, in my view, a really great man. John and I have talked a good deal about the workings of the RFC in the transport sector, and I am impressed that things were done there as you and I would like to see them done.

I cannot see why the evaluation of loan applications, the rationing of capital to the various potential borrowers, cannot be handled in that kind of a manner in the proposed Transport Equipment Development Bank.

I would further suggest that even with the kind of subsidy I am talking about, which is embodied in low-interest rates and a long term, I do not think you will find a great many applications for loans from this bank in the early stages of its existence.

Chairman PROXMIRE. I suggest to you, Mr. Gellman, that we have to have a far better documented case that we need this kind of innovation. You have given two areas as examples, one in the railroad industry and one in the aviation industry. In the aviation industry you said we had too much innovation in a sense, at least innovation forced too rapidly.

Mr. GELLMAN. Some of it.

Chairman PROXMIRE. Some of it has been. On the other side, in the railroad industry, I think, all of us agree that there are many, many solid economic factors, as well as factors of human inertia, which have stood in the way of innovation that we could not very well overcome with a bank or with the kind of shifting we have been talking about.

For example, Ralph Nader proposed that we just abolish the Interstate Commerce Commission, that it no longer serves any real purpose. How do you feel about that?

Mr. GELLMAN. I have long felt that the ICC is not attuned to the present. That is about the kindest way I can put it. I think the ICC is a monument to the kind of rigid thinking and of working within a framework of laws developed when the technology and the demand were very different than they are today, the kind of thing I was railing against in the last point I made before we began this dialog. I firmly believe that one of the problems with the ICC is that it was conceived and has been run as though we were still in the twenties. And the technology has dramatically changed, and the market has dramatically changed.

Now, it may be, as some suggest, that we do not need anything parallel to the ICC, that we should just abolish it. I am not sure that is right. But I am reasonably sure that if you abolish it you should put something in its place. I am not sure we want zero regulation in the transport sector and in the areas specifically of the ICC's concern. But we certainly are not getting what we deserve and need at the hands of the ICC as presently constituted and presently manned.

Chairman PROXMIRE. One of the problems that really troubles me a great deal is, we have had a lot of experience, especially on this subcommittee, with the enormous waste and inefficiency and incom-

petence in military procurement. This is the consequence of the heavy hand of government making a great many decisions together with contractors who are in some cases very heavily dependent on government. I am afraid that if you get the government involved to a greater extent in innovation in the transportation field you may have the same unfortunate problem.

So I am very much concerned that if you get this heavy hand of government in further in any way, no matter how good your intentions, you are going to have the same kind of problems in an area that has weaknesses now, but at least weaknesses that tend to be corrected by the market.

Mr. GELLMAN. Senator, I think what I am suggesting clearly gets the government out of this part of the process of innovation in the transport sector, much more out than in. The only two things that I suggest that the government do to expand direct government involvement with hardware is to provide some testing facilities.

Chairman PROXMIRE. You provide the bank. That is a big thing.

Mr. GELLMAN. The bank is far preferable to the grant or contract approach, it seems to me. It goes very much in the direction that you want to go. I do not think we can now go all the way to the Chase Manhattan or other banks as you mentioned. But that could come—should come—if we build a situation where innovation in the transport sector is the same kind of a process that it is in laundry products. I just picked that as a relatively free, unfettered kind of industry thing. Then we won't need any special subsidy to the transport equipment developers and to the transport sector in this sense. Indeed, your phrase "halfway house" is entirely apt because I think my proposals constitute a first step in the direction you want to go.

I think it is very clear that we want to move in the direction of less constraints on the market—the market for transport equipment, the market for transportation. And this certainly moves in the direction of less constraints and less government involvement, far less.

In addition, the resources that the government devotes to this process will go much further, being leveraged up by corporate funds, than is presently the case where relatively little additional funding, I suggest, is put with the contract or grant money. Today, Federal money for transport equipment development sort of stands on its own, in part because the output of such efforts belongs to the government, quite properly. Under my proposal, the proprietary patent positions of the borrower, not someone given money—are preserved for him. And, I think, this is a great inducement to have him leverage up the borrowed money with his funds otherwise generated externally, no matter how. I think we get a great deal more action for the amount of Federal Government money invested under my proposal. And most important, we do move in the direction you want to go, I am quite sure—that is, in the direction of letting the free market determine the allocation of resources both to and within the transport sector ultimately.

Chairman PROXMIRE. You have not spoken at all on the highway program.

Mr. GELLMAN. No.

Chairman PROXMIRE. You are an expert in transportation. You have a great deal of competence in the general area. I would like to ask you a final question. What would you do about the Federal Highway Program? Would you abolish the trust fund, would you go back to toll roads for interstate travel, and turn highway taxing and spending over to the States and cities?

Mr. GELLMAN. I regret to say that I am not as well-versed in the highway program as I ought to be. I do feel as a general axiom that people ought to bear the costs of that which they consume and that indeed there ought to be some recognition of social costs in this.

By the way, there was a remark made earlier about how do you measure some of those things? I think you were talking about pollution and noise, and so forth; don't give up on the science of economics. There is a great deal being done, as I am sure you know, along this line. You may be interested in some of the things being done in Britain on how to compensate people for noise, in the context of the location of the third London airport. This material could be very relevant to your interest in this area.

But getting back to the specific question, I feel that there should be some relationship between people's use of resources and their payment for them.

I do not know that the phenomenon of the trust fund in the highway field is reversible or that this approach is doing more harm than good.

I do think we want to learn from experience. To the extent that there are others better equipped to make such judgments than I am, to the extent that they make a case that this was not a wise move in retrospect, we ought not necessarily to make the same mistake twice. Indeed, if the Federal Highway Program can teach us anything, it will have provided substantial value just for that. If the Highway Trust Fund was good, bad or indifferent, depending on the case made for each of those positions, then we ought to learn those lessons well and apply those lessons in the future in connection with the transport sector.

I would say this however—that anything which rigidifies the allocation of a certain part of our resources to one mode or method of transportation for a long period of time is per se wrong.

Chairman PROXMIRE. You see, what we have gotten into—we are getting into a situation where in the next 15 years we are going to spend \$320 billion on highways, we are going to double the amount we spend on highways according to the present projections. And yet we have these terrific problems that highways are creating within our cities. And we have not really analyzed or considered the consequences of this kind of action, except that we have the momentum going, and we have the vested interest behind it, and so we are moving ahead with it.

Mr. GELLMAN. I do agree that the problems you are concerned with are real—and I would associate myself, if I may, with you in those concerns. Such issues are much more amenable to economic analysis than most think. And, I believe, there is a fair amount of good work being done in this area that could ameliorate some of the

negative effects of not only highway programs, but any program that has a negative effect.

I further believe that we can devise systems for compensating people who are hurt.

But I do want to say this—and this applies generally not only in the highway field but elsewhere. And this is probably not entirely a welcome remark, but I hold this view very strongly. I believe we ought to do everything reasonable to protect our environment and ought to compensate people for the harm that comes to them through such programs. We ought to preserve the Everglades and I believe this devoutly. But I also think that we ought to be very careful not to have the pendulum go too far against technology in general and against transport technology in particular.

What I mean by that is the following: The exploitation of technology and the exploitation of the process of innovation in many areas of the economy of this country have done a great deal to provide us with a rising standard of living, with per capita real income increases, and greater employment even at the lower strata of society. If we stop the technological parade, as it were, and if we lose touch with the innovation process, we are going to pay a very dear price for so doing. I am not saying we should go along as we have gone along. I simply hope the pendulum is not swinging too far. I believe in people making choices on matters that affect them. The San Francisco people and the Embarcadero Freeway decision are terrific. I think that is just marvelous. What the New Orleans people appear to have done in their program is absolutely superb. That is a mechanism for the people to be heard. I think Alan Boyd had a great deal to say about it. And Secretary Volpe has also spoken in favor of that.

Chairman PROXMIRE. Also, as you pointed out briefly, let us get some notion as to what the benefits are for the costs involved. We know that already—the testimony we had yesterday from the top experts in the Department of Transportation was that thousands of the miles of the highway building that we engaged in were not worth the cost; a big part of our highway program is being subsidized in effect. Under any kind of cost-benefit analysis it would show that the cost exceeded the benefits. And yet they want to go ahead with more, they want to double the expenditures, because we have this kind of momentum behind this, and we have this big industry that is going to benefit from it.

I am not talking about standing in the way of technology at all. I think you are absolutely correct, that we have to continue to innovate, we have to give every opportunity for technology to proceed. But we want to do it with our eyes open, we ought to know where it is going. And I just question that we have done that.

Mr. Bakke, before we conclude, earlier Mr. Gellman started out, as I understand it—and it is quite a while ago, and I am not sure that I recall it precisely—it seems to me that there was some rebuttal, or rejoinder, at least, to your position. I just wonder if you would like to respond. As an administrator from the State of Wisconsin it seems to me that you ought to have the last word.

Mr. BAKKE. I do not believe that requires a rebuttal. If I understand correctly, he was pleading for no more rigidity. And

essentially my remarks are tending toward flexibility. So I think the two statements were quite compatible. I found his remarks very interesting. And I do not believe that I take issue with what he said, if I understood him correctly.

Chairman PROXMIRE. I am pleased but disappointed. I was hoping that we could get a real conflict between you fellows. But since we could not start a fight—

Mr. GELLMAN. I did understand your statement to say something about allocating funds to specific modes in fixed percentages or amounts, and I may have misread that.

Mr. BAKKE. I advocated less rigidity than what we have today.

Mr. GELLMAN. OK.

Chairman PROXMIRE (continuing). On that note of harmony and agreement—are you from California?

Mr. GELLMAN. No, I am a native of Richmond, Va., and I live in a suburb of Philadelphia.

Chairman PROXMIRE. On that note of harmony between Virginia, Pennsylvania, and Wisconsin the subcommittee will stand in recess until 10 a.m. tomorrow, and will reconvene in this room to hear a panel on "Highways, Who Pays and Who Benefits."

Thank you very much, gentlemen.

(Whereupon, at 11:35 a.m., the subcommittee recessed, to reconvene on the following day, at 10 a.m., Wednesday, May 6, 1970.)

ECONOMIC ANALYSIS AND THE EFFICIENCY OF GOVERNMENT

WEDNESDAY, MAY 6, 1970

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON ECONOMY IN GOVERNMENT
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The Subcommittee on Economy in Government met, pursuant to recess, at 10 a.m., in room 1202, New Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: John R. Stark, executive director; Loughlin F. McHugh, senior economist; Courtenay M. Slater, economist; and Douglas C. Frechtling, economist for the minority.

Chairman PROXMIRE. The subcommittee will come to order.

For the past 2 days we have been looking at the overall pattern of Federal transportation expenditure. This morning we want to single out the Federal highway program, which is by far the largest item in the Federal transportation budget, for a more detailed look at its costs and benefits. Since it is impossible to talk about transportation without talking about highways, we have already seen many important questions regarding the highway program emerge during our discussions yesterday and the day before.

Much of what we have already heard is disturbing. States build highways because Federal funds are available, not because highways are what is needed most. The Federal Government supports highways because Congress has authorized a highway program, not because anyone has really looked at the costs and benefits of highways. Highway authorizing legislation is not considered by the same committees of Congress which consider other transportation legislation, making it difficult to get an overview of transportation policy. The trust fund type of financing which has made the highway program so inflexible is in danger of being imitated for other modes of transportation.

Fortunately Congress has the opportunity this year to review the highway program. It is important that any new decisions be made on the basis of a full understanding of the impact which the Federal highway program has in determining the nature of our National transportation system and in establishing spending priorities for State and local governments. Our witnesses this morning are all extremely well qualified to contribute to that understanding.

Our first witness is Mr. Peter S. Craig. From 1967 to 1969 Mr. Craig was Assistant General Counsel for the Department of Trans-

portation. Mr. Craig has also had extensive experience as counsel for citizens groups which have opposed highway construction.

Our second witness will be Mr. Christopher Foster, visiting professor of economics at the Massachusetts Institute of Technology and formerly director of economic planning at the British Ministry of Transport. Mr. Foster's background makes him ideally well qualified to discuss both the general principles of highway finance and the British experience—experience from which we could well profit in this country.

Our third witness will be Mr. John F. Kain, professor of economics at Harvard University. Mr. Kain's careful studies of the relative costs of different kinds of transportation and of the relation between residential location, transportation, and job opportunity have attracted considerable attention and, I believe, have even generated some controversy.

Gentlemen, your prepared statements are most interesting. I am looking forward to listening to each of you.

Mr. Craig, you are the leadoff witness. You may go right ahead.

STATEMENT OF PETER S. CRAIG, A FORMER ASSISTANT GENERAL COUNSEL FOR THE DEPARTMENT OF TRANSPORTATION

Mr. CRAIG. Mr. Chairman, I had intended to read about a third of my statement.

Chairman PROXMIRE. Your entire prepared statement will be printed in full in the record.

Mr. CRAIG. Thank you, Senator.

My name is Peter S. Craig. I reside in a Washington neighborhood known as Cleveland Park, at 3406 Macomb Street, N.W. I appear here today, at the kind invitation of the committee, solely as an individual citizen, expressing my personal opinions as to what is wrong, and what needs to be done—to rationalize Federal economic involvement in transportation, particularly as it relates to urban highways.

My conclusion will be that of a "trust buster." I submit that the time is overdue to terminate the Federal-aid Highway Trust Fund and turn to other options providing democratic, local responsibility for public transportation expenditures.

My thesis today is that it is overdue, in the public interest, to abolish the earmarking of Federal tax revenues for predetermined highway investment. I think it is overdue that the Federal-Aid Highway Trust Fund be abolished. Indeed, it is one of the most pernicious "trusts" that has ever existed on the American scene.

Unlike most of the "trusts" of yesteryear, this Highway Trust operates in the most legal manner—it is underwritten by the laws passed by the Congress. And I would like to look, first of all, at how these laws operate.

First of all, all Federal tax revenues related to use of motor vehicles are assigned to the Federal-Aid Highway Trust Fund. These include all of the taxes that I and other citizens pay for purchasing automobile, or tires, or gasoline with which to operate the vehicle. Whatever may be our personal wishes, such taxes are not available to

support anything but expenditures for new highway investment. By law they must be spent on either planning for more highways or 90 percent or 50 percent Federal reimbursement of State planning or construction of highways.

They are not available for any "software" solutions for transportation problems, be they traffic police or transit subsidies or regulatory or pricing restraints on excessive auto travel. Neither are they available for any other "hardware" solutions, be they rapid transit construction or anything else. Such taxes, by law, must be spent on promoting the pouring of more concrete or asphalt for new or improved highways, whether we taxpayers like it or not.

This makes about as much sense as earmarking all Federal income taxes to use for income earners only, or all Federal estate taxes for use for the deceased only. It is totally artificial and arbitrary and, I submit, contrary to the wishes of the taxpayers from whom these revenues are taken.

Not satisfied with the earmarking of these Federal taxes for highway construction only, the Congress reached into each of our States 36 years ago and directed (as a condition for receiving Federal highway aid) that each State have a corresponding earmarking of its own tax revenues (23 U.S.C. 126). All State tax revenues "from State motor vehicle registration fees, licenses, gasoline taxes, and other special taxes on motor-vehicle operators of all kinds" must be spent "for the construction, improvement, and maintenance of highways and administrative expenses in connection therewith."

This automatic earmarking of Federal and State highway-related taxes to new highway investment has had—and will continue to have—the inevitable result of inducing or coercing more and more people to use more and more automobiles for longer and longer trips, without any discernible benefit for them and to the detriment of the public at large—through the deterioration or ultimate demise of alternative forms of transportation, through the uncontrolled suburban sprawl and decline of our central cities, through increased physical danger to the human species resulting from added air pollution, increased noise pollution and ever-mounting loss of life and property damage from automobile accidents.

Absent a quick ending to this highway trust, the only alternative (and an alternative that may only hold the present imbalance from becoming worse) is equally massive State and Federal subsidies to the alternatives—creation of competing "trust funds" to promote public transit, center city housing, et cetera.

There are three basic fallacies advanced by the benefactors of the highway trust in defense of this legislative earmarking of highway-related taxes—

- (1) They are "user charges" and hence it is appropriate to require their allocation to pay for the facilities used;
- (2) They represent the implied desires of persons buying automobiles, tires, gasoline, a driver's permit or license tags; and
- (3) Future "needs" for the pouring of more asphalt and concrete are so great that it would be inequitable if highway users did not pay for most of such needs.

In my prepared statement I discuss in detail each of these three fallacies: First, the "user charges" fallacy. These taxes are not user charges. Second, the fallacy of "implied consent." In our urban areas, quite to the contrary, the people who pay these taxes have indicated they do not want these highways; they would like other options.

And finally I go into the so-called "needs studies" and point out that they are not worth anything.

I will skip to the heading "What Are the Alternatives?" of my prepared statement and resume reading at that point.

I suggest that the present system of determining Federal and State transportation investment decisions through the trust fund device has proved to be a massive failure. Objective reappraisal by the Congress is long overdue.

In reviewing where we stand in 1970 and where we should go from here, it may be instructive to look back over the past 170 years of Federal, State, and local financial involvement in transportation.

Throughout the 19th century, we pursued essentially a "user charge" philosophy in public transportation investment. Transportation facilities were generally privately owned (although given the power of eminent domain by the States) and expected to pay their own way. Government financial involvement was active, but it was generally limited to entrepreneurial action through the purchase of stock or bonds in private enterprises, and then largely at a State or municipal level. The users were expected to pay for the capital investment, operation and interest charges through tolls, rates, fares, and charges.

At first we had the turnpike craze. Thousands of private turnpike, bridge, and ferry companies were chartered by the States to build highways, bridges, and ferries, charging the users for the facilities. All of the first bridges and highways in the District of Columbia outside of the town of Georgetown and L'Enfant's Federal City were such toll-roads (including such present avenues as Wisconsin Avenue, Georgia Avenue, Columbia Road, Bladensburg Road, Kenilworth Avenue, Chain Bridge, Canal Road).

Close behind came the canal craze, followed in turn by the steam railway, the street railway and finally, as the 20th century began, the interurban electric railway and the electric rapid transit lines (elevated or subways) in some of our principal cities.

Success or failure of these enterprises turned on competitive success in the marketplace. And many of them failed. Canals and turnpikes, although once prosperous, rapidly went out of business as the "iron horse" proved to be more efficient than horse- or mule-drawn vehicles on roadways and waterways.

Most of the canals were abandoned, either to be filled in as public nuisances (as the old Washington Canal, now Constitution Avenue) or allowed to revert to wilderness (as the Chesapeake & Ohio Canal, now partially maintained as a national park).

With the widespread demise of the turnpike companies, however, an exception was made in the policy that user charges should pay for all transportation facilities. It had been proved that the users could not pay. Although some turnpikes were abandoned, many had to be

taken over and operated on a subsidized basis by State, county or city governments in order for farmers to reach their markets.

Here in Washington, the last private turnpike went out of existence in 1883 when the D.C. portion of the Georgetown-Tennallytown-Turnpike (Wisconsin Avenue) was sold by the Washington Turnpike Co. to the District of Columbia government for \$3,000.

What started in the last century as an exception in our national transportation policy has, in this country, become the rule, at least in private transportation. With the advent of the motor vehicle early in this century, it was probably feasible to revert to a user charge mechanism for highway users. Instead, however, the momentum has been away from user charges. Wanting help in their burden to improve the toll-free farm to market roads, the State highway departments in 1916 persuaded Congress to initiate the first Federal-aid highway program. The interests of the farmer have long since been forgotten, but the program keeps growing each year.

In the process, there developed built-in hostility toward highway user charges. In the last century, State governments found it difficult to rationalize providing some highways free of tolls while other highways charged tolls. Here in Washington, for example, the citizens of Georgetown succeeded in persuading Congress to authorize purchase of the old Aqueduct Bridge in 1886 for \$125,000 in order that it could be used toll-free. Since the merchants of Washington had a toll-free bridge to Virginia by that time (the 14th Street Bridge), the Georgetown merchants thought they were entitled to the same.

This hostility toward highway user charges is now a part of the Federal-aid highway laws. Title 23, United States Code, section 301 provides that, with limited exceptions, all highways built with Federal-aid "shall be free from tolls of all kinds." The exceptions, in title 23, United States Code, section 129, are quite limited. Tolls may be charged only to cover bonded indebtedness for Federal-aid highways and, once such bonds have been retired, that facility must also be operated without tolls.

It may generally be said, therefore, that State and local governments today are effectively prevented from assessing user charges for the highways they administer. They build and maintain our highways free of any user charge that would cover either the costs of the service rendered or the value of the service received by the users. No one is now free to price highway use in any rational way.

The precedent of toll-free government investment in our highways has, in this century, been extended to our waterways and airways where, again, the facilities are offered toll-free.

With this subsidized, toll-free public investment in highways, waterways, and airways, what has happened to that part of our national transportation system that successfully operated on a user charge basis half a century ago?

The wealthy and once-feared "railroad magnates" and "traction magnates" are now gone. The railroads or urban transit systems they created for profit have languished, starved for new investment. Throughout the country, transit systems have disappeared entirely. Many of those that remain have been taken over by public agencies

for operation. But still the notion persists that such urban transit systems should be self-sustaining, through user charges.

The result makes no sense today. As one civil rights leader commented to the American Institute of Planners a few years ago, our Federal transportation policy for our cities has become one of "socialism" for the rich and "rugged individualism" for the poor; if you own an automobile (and/or a yacht or an airplane) and are interested in private transportation, the Federal Government has substantial new investment earmarked for your benefit, to be used without tolls. But, if you use public transportation, through preference or necessity, you are expected to pay your own way. Private transportation is publicly subsidized by billions of dollars each year.

Public transportation, that is, common carrier service for passengers, receives little or no public assistance; indeed, it suffers serious economic loss each year by the flow of public funds to aid competing private transport.

This pattern is fast wrecking our cities. I believe it must be changed, and changed promptly.

One solution, advocated by many, is to place use of highways in metropolitan areas on a similar "user charge" basis presently applicable to public transit. This course is worth pursuing, but I think it has its drawbacks. It is exceedingly difficult to measure the total "costs" for use of highways and both difficult and expensive to collect the necessary tolls to cover such costs. The investment costs (for planning and engineering, right-of-way acquisition, construction), operating costs and interest costs are rather easily ascertained, but other costs are not.

I speak particularly of the social costs in air pollution, noise pollution, auto accidents, as well as the community costs through displacement of homes and businesses and parks. Even if dollar amounts can be attached to such costs, how are the user charges to be directed to the individuals, families, businesses or environments adversely affected?

If we cannot "vote with our pocketbooks" through an equitable system of user charges assessed against all alternative forms of transportation we might use, then it is essential that we, the people, be given the freedom to implement our own judgments as to how Federal transportation grants-in-aid are spent in some other way.

The restraints must at least come off the marketplace of ideas. Toward this end, of permitting local discretion to solve our own local problems, I would recommend, as a minimum, the following reforms:

(1) The Federal-Aid Highway Trust Fund should be abolished, ending all earmarking of highway-related taxes to new highway construction. This money should be available for nonhighway transportation investment (for example, rail transit or bus transit), for software as well as hardware solutions (for example, subsidizing improved transit service rather than building more highways), and even for nontransportation solutions—a good argument could be made that the District of Columbia would be far closer to solving its present transportation problems if, in lieu of 90 percent Federal aid for interstate freeways, there had been 90 percent grants-in-aid for attractive high density housing in the central city and if, in lieu of 50

percent Federal aid for ABC highways, there had been 50 percent Federal aid for improving single-family homes.

(2) The requirement in title 23, United States Code, section 126 that States have similar highway trust funds earmarking highway-related taxes to highway construction should be repealed and the States should be encouraged to abolish such earmarking of tax revenues under their own laws.

(3) The present requirement in title 23, United States Code, section 302 that proposals for Federal aid must come from state highway commissions authorized to construct highways should be abolished. Instead, each State, in order to qualify for Federal aid, should be required to establish a State Transportation Department (following the lead of the Federal Government and such States as Wisconsin, New York, New Jersey, and Maryland), with authority for urban areas to initiate their own proposals, without concurrence of the State capitol.

(4) All Federal prejudgment of how transportation grants-in-aid must be spent should be abolished. Today, cities may get aid for building new highways. They cannot get Federal aid to tear them down, as San Francisco discovered after it had built the elevated Embarcadero Freeway and as Washington discovered after it had built the elevated Whitehurst Freeway. Cities should be as free to remove yesterday's mistakes as they are to undertake new endeavors.

(5) The present ban in title 23, United States Code, section 301 against highway user charges should be repealed and cities permitted to levy local tolls and taxes on transportation users as regulatory tools to achieve local planning goals. It is generally conceded, for example, that New York City would benefit materially by a rush-hour toll on all automobiles entering Manhattan. Federal law now blocks this option.

(6) Above all, local democracy must be restored in making local transportation planning decisions, by making the end-use of Federal grants subject to local decisions, by the public's elected representatives and/or by popular referendum. The Federal interest in urban transportation expenditures should begin and end with a determination that the decisions on local use of Federal grants-in-aid have been arrived at fairly, objectively and democratically. Thank you very much.

(The prepared statement of Mr. Craig follows:)

PREPARED STATEMENT OF PETER S. CRAIG

FEDERAL TRANSPORTATION POLICY—HIGHWAYS: WHO PAYS AND WHO BENEFITS?

Mr. Chairman and Members of the Committee, my name is Peter S. Craig. I reside in a Washington neighborhood known as Cleveland Park, at 3406 Macomb Street, N.W. I appear here today, at the kind invitation of the Committee, solely as an individual citizen, expressing my personal opinions as to what is wrong—and what needs to be done—to rationalize Federal economic involvement in transportation, particularly as it relates to urban highways.

My conclusion will be that of a "trust buster." I submit that the time is overdue to terminate the Federal-aid Highway Trust Fund and turn to other options providing democratic, local responsibility for public transportation expenditures.

BACKGROUND

Before turning to this discussion, I want to make perfectly clear my qualifications—and lack of same. I was an economist by training (graduating as an economics major from Oberlin College in 1950), turned lawyer (graduating from Yale Law School in 1953), whose introduction to Washington was as a special assistant to Congressman Celler's Antitrust Subcommittee in 1951-52. I became an associate of Covington & Burling in 1953 and for ten years was an attorney for varied transportation interests, including airlines, trucking companies, shipping lines and freight forwarders, before the regulatory commissions and the courts. In 1964, I became Commerce Counsel for Southern Railway. Effective May 1, 1967, I became Assistant General Counsel-Litigation, for the new Department of Transportation, acting as counsel for the Secretary of Transportation in his intervention before the Interstate Commerce Commission, Civil Aeronautics Board and Federal Maritime Commission. I was also primarily responsible for the supervision of court litigation affecting the Department, from common carrier bankruptcy proceedings (such as the New Haven Railroad) to cases seeking to enjoin controversial urban Federal-aid freeway projects (such as the proposed San Antonio North Expressway or the New Orleans Riverfront Expressway).¹ Since April 18, 1969, when Secretary Volpe terminated my "career appointment" at DOT, I have returned to private transportation law practice to represent an express company and (currently) Southern Railway again.

Because of the previous proclivity of the "highway lobby" to attribute my opinions to my present or former clients, I want to make it abundantly clear that I do *not* speak on behalf of any of my clients, former or present. In fact, I am positive they would disavow the views I present.

Instead, I believe I speak for the general, unincorporated public—the 84% of the Washington electorate opposed to construction of Three Sisters Bridge and related freeways, the 95% of the Washington electorate opposed to any freeway construction not approved by popular referendum, the 66% of the Washington's highway commuters who would prefer that their tax dollars go for rapid transit investment rather than highway investment, and the beleaguered residents of most other large cities in this country who are sick and tired of the usually futile fight against the destruction of the urban environment by transportation investment to subsidize the private motorist.

Commencing in the spring of 1959, when I signed a petition opposing the now-dead "Northwest Freeway" in Washington, to the present time, I have devoted more hours than I dare confess to the uncompensated questioning, on behalf of civic organizations and concerned individuals of proposals to displace parks, homes and the urban amenities with more concrete for highways. I was first the unpaid counsel for the Northwest Committee for Transportation Planning, successfully urging to the Congress in 1960 that it prohibit construction of the controversial Glover-Archbold Parkway and Northwest Freeway that would have wiped out numerous acres of parkland, institutional property and private homes in Northwest Washington (including my neighborhood, Cleveland Park). Later, I was chairman of the same civic organization. I was at one time Chairman of the Roads Committee of the Committee of 100 on the Federal City, responsible (along with many others) for instituting the lawsuit resulting in a court order enjoining all freeway construction in Washington in 1968. I am presently a Trustee of the Committee of 100 on the Federal City, one of the plaintiffs in further actions to enjoin local freeway construction. I also have been a card-carrying member of the American Automobile Association for the past 15 years.

I apologize for burdening this record with this personal history. I present it only by reason of the fact that I have found, over the past decade, that my motives have constantly been attacked by the Highway Lobby, both the private sector and the public sector, with accusations that I am a paid "conspirator" to "kill" allegedly "needed" freeway projects in the Washington Metropolitan area. I frankly wish that I had been paid for my efforts. Unfortunately, from my personal point of view, in return for the thousands of hours of moonlighting I have devoted to the problem, my sole income has been one \$100 honorarium for addressing a university class. I have spent more than that in postage out

¹Because of my conflict of interest, I did not participate in any litigation or decisions affecting D.C. highways while at the Department of Transportation.

of my own pocket in advancing beliefs that the Highway Lobby finds so heretical.

THE HIGHWAY TRUST

My thesis today is that it is overdue, in the public interest, to abolish the earmarking of Federal tax revenues for predetermined highway investment. I think it is overdue that the Federal Aid Highway Trust Fund be abolished. Indeed, it is one of the most pernicious "trusts" that has ever existed on the American scene.

Unlike most of "trusts" of yesteryear, this Highway Trust operates in the most legal manner—it is underwritten by the laws passed by the Congress. Let us see, first of all, how it operates:

First of all, all Federal tax revenues related to use of motor vehicles are assigned to the Federal-Aid Highway Trust Fund. These include all of the taxes that I and other citizens pay for purchasing an automobile, or tires, or gasoline with which to operate the vehicle. Whatever may be our personal wishes, such taxes are not available to support anything but expenditures for new highway investment. By law they *must* be spent on either planning for more highways or 90% or 50% Federal reimbursement of State planning or construction of highways. They are not available for any "software" solutions for transportation problems, be they traffic police or transit subsidies or regulatory or pricing restraints on excessive auto travel. Neither are they available for any other "hardware" solutions, be they rapid transit construction or anything else. Such taxes, by law, *must* be spent on promoting the pouring of more concrete or asphalt for new or improved highways, whether we taxpayers like it or not.

This makes about as much sense as earmarking all Federal income taxes to use for income-earners only, or all Federal estate taxes for use for the deceased only. It is totally artificial and arbitrary and, I submit, contrary to the wishes of the taxpayers from whom these revenues are taken.

Not satisfied with the earmarking of these Federal taxes for highway construction only, the Congress reached into each of our states 36 years ago and directed (as a condition for receiving Federal highway aid) that each state have a corresponding earmarking of its own tax revenues. (23 U.S.C. 126) All state tax revenues "from State motor vehicle registration fees, licenses, gasoline taxes, and other special taxes on motor-vehicle operators of all kinds" *must* be spent "for the construction, improvement, and maintenance of highways and administrative expenses in connection therewith."

This automatic earmarking of Federal and State highway-related taxes to new highway investment has had—and will continue to have—the inevitable result of inducing or coercing more and more people to use more and more automobiles for longer and longer trips, without any discernible benefit for them and to the detriment of the public at large—through the deterioration or ultimate demise of alternative forms of transportation, through the uncontrolled suburban sprawl and decline of our central cities, through increased physical danger to the human species resulting from added air pollution, increased noise pollution and ever-mounting loss of life and property damage from automobile accidents.

Absent a quick ending to this Highway Trust, the only alternative (and an alternative that may only hold the present imbalance from becoming worse) is equally massive State and Federal subsidies to the alternatives—creation of competing "trust funds" to promote public transit, center city housing, etc.

There are three basic fallacies advanced by the beneficiaries of the Highway Trust in defense of this legislative earmarking of highway-related taxes: (1) they are "user charges" and hence it is appropriate to require their allocation to pay for the facilities used; (2) they represent the implied desire of persons buying automobiles, tires, gasoline, a driver's permit or license tags; and (3) future "needs" for the pouring of more asphalt and concrete are so great that it would be inequitable if highway users did not pay for most of such needs.

THE "USER CHARGE" FALLACY

Federal and State taxes for the purchase of automobiles, tires, gasoline or licenses are in no sense "user charges." They bear no relationship to the facilities actually used and, in fact, generally cannot be spent for such facilities. Tax revenues collected by the Federal-Aid Highway Trust Fund *must* go for planning or construction of new highways; they cannot generally be

spent for maintenance of existing highways that the taxpayer uses. They cannot, for example, pay or resurfacing or filling of potholes, or traffic lights or streetlights, for clearing of refuse from the highway, for tending grass or landscaping, for traffic police. Generally they *must* be spent on a highway that the highway user does not use.

If highway-related taxes were to be in any sense "user charges," there would have to be a concerted effort to require their allocation to the facilities actually used. The Bureau of Public Roads estimates that State and Federal taxes on highway users total approximately 1.2 cents for every mile traveled. Imagine, therefore, if you will, a penny dropping from your gas tank every 4400 feet, with the pennies being swept up periodically and earmarked for use of that 4400-foot section only.

The street on which I live (Macomb Street in Cleveland Park) is 4400 feet long from Wisconsin Avenue to Connecticut Avenue. Approximately 8,000 vehicles use this highway per day. This means that the Federal and D.C. governments collect approximately \$100 per day from users of this street, or about \$36,500 per year. Over the period of 13 years while I have lived on Macomb Street, this means approximately \$400,000 has been collected from the street's users. Approximately one-third of this money went to the Federal-Aid Highway Trust Fund; not a penny was spent on Macomb Street. Approximately two-thirds of this money went to the D.C. Highway Trust Fund (also established by Congress). Aside from the filling of potholes, the only expenditure from this fund for Macomb Street has been one resurfacing in the past 13 years. Instead of removing the former surface, the D.C. Highway Department (to economize) placed a new surface on top of the old. As a result, there has been substantial damage to abutting properties from erosion as rains have overflowed the gutters. I do not know how much the D.C. Highway Department spent for this resurfacing, but I am sure the unreimbursed damage to the street properties far exceeds the few thousand dollars spent on the resurfacing.

I and other contributors to this \$400,000 in highway user taxes for use of Macomb Street are subsidizing something. What is it? Since the fortunate demise of the proposed Northwest Freeway and Glover-Archbold Parkway, by act of Congress in 1960, the major highway proposal affecting my part of the city has been the North Central Freeway. In a study I undertook in late 1966, I concluded that the net Federal and D.C. subsidy for the proposed North Central Freeway would be in excess of \$6,000,000 per year and if the projected users of such freeway were to be assessed proper user charges they would have to pay from 5 to 6 cents per mile over and above their existing highway-related taxes. On a city-wide basis, I pointed out that the City of Washington and the Federal government would be subsidizing the users of proposed new freeways throughout the city at the level of about \$40 million *annually* and that it would be cheaper to buy and operate the local transit companies free of any user charge.²

Let us not delude ourselves that highway-related taxes can be equated to user charges. The Long Island resident whose wife drives him to the railroad station each morning is paying taxes which are being used for new highways that could destroy his rail commuter service. The bus transit rider is paying fares to a company that is, in turn, paying highway-related taxes for the construction of new roads that may render that bus service uneconomic and put it out of business. In short, taxes on highway use are being used, at both the Federal and State level, to make automobile use an absolute necessity for all people because there will be no other alternative. Already, for over 50% of highway users, they have no alternative but to drive their own private vehicles. The taxes they and others pay are resulting in this percentage becoming higher each year.

THE "IMPLIED CONSENT" FALLACY

The argument is still advanced that when citizens pay taxes on automobiles, tires or gasoline, they are "voting with their pocketbooks" for more new highway construction.

Nonsense.

Some taxpayers may want more highways; some may not. But the ratio for or against a specific project is not determined by taxes we *all* must pay.

In city after city, the persons who fill the Federal and state highway trust funds have indicated that they don't want the new highways that would be constructed with such money. The situation in Washington is typical:

²See "Why Shouldn't Public Transit be Toll-Free, Too?"

A 1963 opinion poll by National Analysts, Inc., of Washington area highway commuters discovered that 66.3% of the auto and bus commuters preferred future investment to be for rapid transit, rather than new highways and parking. In the District of Columbia, the preference was 69.1%. In Alexandria (the lowest of the suburbs) it was still 61.8%.

In May 1968, at the D.C. Democratic primary elections, 95% of the 98,330 registered Democrats voting on the issue, favored a proposal that would have prohibited new freeway construction unless approved by a specific referendum.

At the November 1969 elections, a referendum open to all D.C. voters disclosed that 84% opposed construction of Three Sisters Bridge and related freeways.

Don't tell Washingtonians (all of whom contribute to the Federal and D.C. Highway trust funds) that they want new highways. By every available device, from the polls to the picketline, from the courthouse to the Congress, they have indicated that they don't want the projects these Trusts would build for them.

This reaction has been typical of our major, more densely populated cities. The City of San Francisco rejected over \$200 million of Federal 90% aid, preferring to forfeit their share of the taxes rather than build the freeways this money would subsidize. Citizens in New Orleans have finally succeeded in killing off an expressway that would have destroyed the French Quarter riverfront. Citizens of San Antonio have finally succeeded in persuading the Department of Transportation to withhold Federal matching aid for the controversial North Expressway that would gut the city's park system.

If the defenders of the Highway Trust nurse any illusion that the taxpayers want the projects that would be financed by such trusts, they should be quite willing to make any new Federal-aid highway project dependent upon prior approval in a referendum. I feel certain, however, that you will never see the Bureau of Public Roads or a State Highway Department urge such a democratic course.

THE "HIGHWAY NEEDS" FALLACY

The last defense of the Highway Lobby for the Highway Trust Fund is that their allegedly "expert" studies "prove" new highways will be needed.

The most charitable thing that can be said about such "needs" studies, from the biennial "Highway Needs Report" of the Bureau of Public Roads to similar studies sponsored by State and local highway departments, is they provide employment for a large number of persons. If the studies receive the credibility they deserve (which is nothing), no one will be hurt except for the waste of taxpayers' money.

Asking the Bureau of Public Roads or a State Highway Department to determine "highway needs" is about as fruitful as asking a defendant in a criminal trial to determine his own guilt or innocence. Their bureaucratic lives depend on showing ever-growing "highway needs."

Just to make sure, the Federal-Aid Highway Trust has its built-in bribery: The principal apportionment to States (for the Interstate System) is based on the relative costs for completing the system. Therefore, the higher the "needs" can be shown (through more lanes, more alternate routes, etc), the higher the State's total apportionment. Federal-aid grants for State highway planning are also geared to its capital improvement program: the greater the program, the more planners it may hire to justify still greater aid in future years.

This bribery extends down to the local level where even the best-intentioned "independent" consultant cannot operate objectively. He is, first of all, generally hired, either directly or indirectly, by the State Highway Department, reimbursed 50%-90% by the Bureau of Public Roads. He therefore knows where his bread is being buttered. Beyond this, however, the way Federal transportation subsidies are now rigged, the consultant knows that if he finds a future need for increased travel, there may be 50-90% Federal aid if he recommends a freeway, no Federal aid if he recommends some other solution. His recommendations inevitably will be directed to the alternative which promises the least expense for his employer (the State) and the maximum contribution by the Federal government.

The District of Columbia is a good example of how this process works:

By a joint resolution enacted March 7, 1942, Congress directed the D.C. Government to study the question of subways for Washington. Initially, the D.C. Commissioners referred the question to its Highway Department. Its study, submitted June 24, 1942, concluded in one paragraph that there should

be no rapid transit system but recommended highway underpasses as both "necessary and logical."

Not entirely satisfied with this advice from its Highway Department, the D.C. Commissioners entered into a contract with J. E. Greiner Company of Baltimore and De Leuw Cather & Co. of Chicago to prepare a comprehensive transportation plan for central Washington. These consultants issued a study, "Transportation Survey and Plan for the Central Area of Washington, D.C.," on October 1, 1944, recommending that Washington's extensive streetcar system be improved by placing it underground in the central city. Most of the Highway Department's highway construction projects were rejected as unnecessary. Except for what is now called the Whitehurst Freeway (after the D.C. Highway Director of that day), no freeways were recommended. Rail transit, they concluded, should be the "backbone" of the city's transportation system.

A few months later, Congress authorized planning for a proposed 40,000-mile Interstate Highway System with a promise of 60% Federal aid. Not unnaturally, the D.C. Highway Department suggested that the same two consultants (Greiner and De Leuw Cather) take a second look. They quickly recanted their 1944 findings: Their new (1946) report concluded there was "little likelihood that Washington will ever need a rail rapid transit system." Instead, they suggested that the "backbone" of the city's future transportation system should be a "system of expressways serving all parts of the District and connecting with existing and proposed highways of this type in Maryland and Virginia."

But the 60% bribe proved insufficient. After a freeway war that was relatively tame by today's standards, the D.C. Government decided, as recently as 1954, to build only one new bridge (Theodore Roosevelt Bridge) and only one more freeway (the Southwest Freeway).

Other freeway proposals, from Inner Loop to new radial freeways, were scrapped—they were too destructive to warrant the high cost.

Then Congress came along again and in the Federal-Aid Highway Act of 1956 upped the ante on the Interstate System to 90% Federal aid and directed that the system be built to "freeway" (limited access) standards.

Since then the ardor of the highway builders for new freeways in Washington has been unrestrainable. Freeway "needs" bloomed overnight. Finding consultants who would proclaim such needs was a soft touch; after all, they fed from the same 90% trough. The business community was only too willing to have these huge Federal subsidies poured into the local economy: the end result was unimportant, but the money was all-important. The support of the private Highway Lobby was automatic: more construction contracts, more automobile sales and usage, more tire and gasoline sales were inducement enough. Against this alliance, the taxpaying public—the public that pays the taxes into the Trust Fund—has been powerless. Four different presidents of the United States have tried, without success, to check the juggernaut.

Living primarily from funds generated by the Federal-Aid Highway Trust Fund, both the D.C. Highway Department and the Bureau of Public Roads operate as entities largely independent from the government administrations to which they nominally belong. They consider themselves answerable only to the Roads Subcommittee of the House Public Works Committee, which itself has a vested interest in the perpetuation of the Federal-Aid Highway Trust Fund and never-ending new highway construction. Negative decisions by the National Capital Planning Commission, the D.C. City Council, the Secretary of Transportation, or even the courts are disregarded. They feel their life blood is dependent on the continued, uninterrupted flow of Trust funds for new highways.

Officials at the D.C. Highway Department have been candid with me in admitting that the freeway projects that have sparked local opposition never would have been proposed in the first place if it were not for the promise of 50% to 90% Federal aid. But, given this aid, they sincerely feel they would be doing a disservice to the community if they did not devote their maximum efforts to steering as much of it as possible into their hands for dispersal to worthy contractors.

Consultants employed by the Highway Department are similarly motivated. Privately, they recognize they are not paid to be objective. As long as the system is geared to Federal-aid handouts to consultants who can divine a "need" for new highway construction, that is what they will do. Their economic life depends on it.

The "needs" studies themselves that are produced by the D.C. Highway Department and its consultants are jokes. When it was shown that their traffic forecasts bore no similarity to actual traffic counts (actual traffic in 1965 was far below what had been projected in 1959), they produced new ones. For three years after Congress declared that priority should be given in Washington on new rapid transit construction, the D.C. Highway Department still made its "needs" forecasts based on the assumption that all future travel would be by highway. When both White House and Congress questioned this assumption, the D.C. Highway Department turned to the wildest types of assumptions to generate enough future travel to "justify" its highways. For example, the traffic forecast prepared its 1965 cost estimates submitted to Congress made such assumptions as: (1) several hundred thousand public school children living in the Maryland or Virginia suburbs would commute each day to schools located in the Federal Triangle in 1985 and (2) the number of suburban residents desiring to cross through (or circle around) Washington to work in another state would increase from 10,000 in 1960 to 144,000 in 1985.

I do not think it is necessary to go into any detail on the numerous fallacies that are compounded in the "needs" studies generated by the D.C. Highway Department. I have made numerous reports on them in the past.³

Even if my own work is entirely discounted, the fact remains that every independent governmental-sponsored study of the D.C. Highway Department's estimates of future "needs" has found such needs grossly exaggerated.⁴

The "needs" studies generated by the D.C. Highway Department are not, in any sense, objective analyses of future highway needs but after-the-fact rationalizations to justify continued raids on the Federal and D.C. Highway Trust funds.

I had thought, in my parochialism, that this problem was unique to Washington, which has had no home rule. In my two years at the Department of Transportation, I found that Washington's experience was typical of other cities. If I may generalize, based on my exposure to similar freeway battles in such cities as New Orleans, San Antonio, Memphis, Nashville, Boston and New York, just to name a few:

(1) The claims of the Bureau of Public Roads, state highway departments and local highway construction agencies of "needs" were all based on after-the-fact studies made after the administrative decision to solicit the Federal aid;

(2) Most of such studies came in two waves: the first the immediate post-World War II period when the Congress first authorized a 40,000-mile Interstate System; the second, commencing in the mid-1950's when Congress increased Federal aid for Interstate freeways to 90%;

(3) The Federal, State and local highway construction agencies made no subsequent attempts to verify the soundness of the "needs" studies on which they relied. Independent review generally showed them to be quite arbitrary, highly inaccurate and based on inadequate study. In particular, alternatives to new highway investment were not studied.

(4) In most instances, the promise of increased Federal grants-in-aid for expenditures in the city was enough to win avid support from local business interests such as the Chamber of Commerce or Board of Trade. Generally, transportation decisions in such an organization were initiated by businessmen directly involved in highway transportation, such as highway construction, automobile sales, or trucking operations.

(5) In most instances, the governing local decisions are not made by any body that is politically responsible to the citizens of such community, but rather by a state highway commission, which is isolated both geographically and politically from the persons who will be directly affected by their decision. Generally, the members of such commissions are not elected but hold their jobs as patronage appointments by the Governor. (As a condition to receiving Federal

³ See, e.g., "An Analysis of Proposed Three Sisters Bridge" (Committee of 100 on the Federal City, Feb. 12, 1963); "Rush-Hour Commuting from Virginia to Washington, Past, Present and Future" (Committee of 100, Nov. 1964) and supplement of December 1964; "The 1965 'Gravity Model' Traffic Forecast of the Mass Transportation Survey" (February 15, 1966); "Forecasting 1985 Transportation Requirements" (Committee of 100, Feb. 26, 1966).

⁴ See, e.g., National Capital Transportation Authority, Report to the President, Nov. 1, 1962, and appendices; Clarkson Engineering Company, "Central Potomac River Area Traffic and Planning Study," Aug. 13, 1965; Arthur D. Little, Inc., "Transportation Planning in the District of Columbia, 1955 to 1965: A Review and Critique," March 22, 1966; National Capital Planning Commission, "Policies and Principles for a Transportation System for the Nation's Capital," Dec. 11, 1968 (also approved by the D.C. City Council).

aid, 23 U.S.C. 302 requires state decisions on highways to be made by a state agency with highway construction responsibility. Thus, the bias for favoring highway construction "solutions" to presumed or actual transportation needs is built into the system.)

(6) Attempts, through Federal legislation, to build in planning safeguards, through the requirement of public hearings, the establishment of continuous, comprehensive and cooperative transportation planning, or the preservation of parklands, historic sites, etc., receive only token attention since they are implemented by state organizations interested in highway construction only.

WHAT ARE THE ALTERNATIVES

I suggest that the present system of determining Federal and State transportation investment decisions through the Trust Fund device has proved to be a massive failure. Objective reappraisal by the Congress is long overdue.

In reviewing where we stand in 1970 and where we should go from here, it may be instructive to look back over the past 170 years of Federal, State and local financial involvement in transportation.

Throughout the nineteenth century, we pursued essentially a "user charge" philosophy in public transportation investment. Transportation facilities were generally privately-owned (although given the power of eminent domain by the states) and expected to pay their own way. Government financial involvement was active, but it was generally limited to entrepreneurial action through purchase of stock or bonds in private enterprises, and then largely at a state or municipal level. The users were expected to pay for the capital investment, operation and interest charges through tolls, rates, fares and charges.

At first we had the turnpike craze. Thousands of private turnpike, bridge and ferry companies were chartered by the states to build highways, bridges and ferries, charging the users for the facilities. All of the first bridges and highways in the District outside of the town of Georgetown and L'enfant's Federal City were such toll-roads (including such present avenues as Wisconsin Avenue, Georgia Avenue, Columbia Road, Bladensburg Road, Kenilworth Avenue, Chain Bridge, Canal Road).

Close behind came the canal craze, followed in turn by the steam railway, the street railway and finally, as the 20th century began, the interurban electric railway and the electric rapid transit lines (elevated or subways) in some of our principal cities.

Success or failure of these enterprises turned on competitive success in the marketplace. And many of them failed. Canals and turnpikes, although once prosperous, rapidly went out of business as the "iron horse" proved to be more efficient than horse or mule-drawn vehicles on roadways and waterways.

Most of the canals were abandoned, either to be filled in as public nuisances (as the old Washington Canal, now Constitution Avenue) or allowed to revert to wilderness (as the Chesapeake & Ohio Canal, now partially maintained as a national park).

With the widespread demise of the turnpike companies, however, an exception was made in the policy that user charges should pay for all transportation facilities. It had been proved that the users couldn't pay. Although some turnpikes were abandoned, many had to be taken over and operated on a subsidized basis by state, county or city governments in order for farmers to reach their markets. Here in Washington, the last private turnpike went out of existence in 1883 when the D.C. portion of the Georgetown-Tenallytown-Rockville Turnpike (Wisconsin Avenue) was sold by the Washington Turnpike Company to the District of Columbia government for three thousand dollars.

What started in the last century as an exception in our national transportation policy has, in this century, become the rule, at least in private transportation. With the advent of the motor vehicle early in this century, it was probably feasible to revert to a user charge mechanism for highway users. Instead, however, the momentum has been away from user charges. Wanting help in their burden to improve the toll-free farm to market roads, the state highway departments in 1916 persuaded Congress to initiate the first Federal-aid highway program. The interests of the farmer have long since been forgotten, but the program keeps growing each year.

In the process, there developed built-in hostility toward highway user charges. In the last century, state governments found it difficult to rationalize providing

some highways free of tolls while other highways charged tolls. Here in Washington, for example, the citizens of Georgetown succeeded in persuading Congress to authorize purchase of the old Aqueduct Bridge in 1886 for \$125,000 in order that it could be used toll-free. Since the merchants of Washington had a toll-free bridge to Virginia by that time (the 14th Street Bridge), the Georgetown merchants thought they were entitled to the same.

This hostility toward highway user charges is now a part of the Federal-aid highway laws. 23 U.S.C. 301 provides that, with limited exceptions, all highways built with Federal-aid "shall be free from tolls of all kinds." The exceptions, in 23 U.S.C. 129, are quite limited. Tolls may be charged only to cover bonded indebtedness for Federal-aid highways and, once such bonds have been retired, that facility must also be operated without tolls.

It may generally be said, therefore, that State and local governments today are effectively prevented from assessing user charges for the highways they administer. They build and maintain our highways free of any user charge that would cover either the costs of the service rendered or the value of the service received by the users. No one is now free to price highway use in any rational way.

The precedent of toll-free government investment in our highways has, in this century, been extended to our waterways and airways where, again, the facilities are offered toll-free.⁵

With this subsidized, toll-free public investment in highways, waterways and airways, what has happened to that part of our national transportation system that successfully operated on a user charge basis half a century ago?

The wealthy and once-feared "railroad magnates" and "traction magnates" are now gone. The railroads or urban transit systems they created for profit have languished, starved for new investment. Throughout the country, transit systems have disappeared entirely. Many of those that remain have been taken over by public agencies for operation. But still the notion persists that such urban transit systems should be self-sustaining, through user charges.

The result makes no sense today. As one civil rights leader commented to the American Institute of Planners a few years ago, our Federal transportation policy for our cities has become one of "socialism" for the rich and "rugged individualism" for the poor; if you own an automobile (and/or a yacht or an airplane) and are interested in private transportation, the Federal government has substantial new investment earmarked for your benefit, to be used without tolls. But, if you use public transportation, through preference or necessity, you are expected to pay your own way. Private transportation is publicly-subsidized by billions of dollars each year. Public transportation, *i.e.*, common carrier service for passengers, receives little or no public assistance indeed, it suffers serious economic loss each year by the flow of public funds to aid competing private transport.

This pattern is fast wrecking our cities. I believe it must be changed, and changed promptly.

One solution, advocated by many, is to place use of highways in metropolitan areas on a similar "user charge" basis presently applicable to public transit. This course is worth pursuing, but I think it has its drawbacks. It is exceedingly difficult to measure the total "costs" for use of highways and both difficult and expensive to collect the necessary tolls to cover such costs. The investment costs (for planning and engineering, right-of-way acquisition, construction), operating costs and interest costs are rather easily ascertained, but other costs are not. I speak particularly of the social costs in air pollution, noise pollution, auto accidents, as well as the community costs through displacement of homes and business and parks. Even if dollar amounts can be attached to such costs, how are the user charges to be directed to the individuals, families, businesses or environment adversely affected?

If we can't "vote with our pocketbooks" through an equitable system of user charges assessed against all alternative forms of transportation we might use, then it is essential that we, the people, be given the freedom to implement our own judgments as to how Federal transportation grants-in-aid are spent in some other way. The restraints must at least come off the marketplace of ideas. Toward this end, of permitting local discretion to solve our own local problems, I would recommend, as a minimum, the following reforms:

(1) The Federal-Aid Highway Trust Fund should be abolished, ending all earmarking of highway-related taxes to new highway construction. This money

⁵ This is not true, however, for airports which are operated on a user charge basis.

should be available for non-highway transportation investment (*e.g.*, rail transit or bus transit), for software as well as hardware solutions (*e.g.*, subsidizing improved transit service rather than building more highways), and even for non-transportation solutions—a good argument could be made that the District of Columbia would be far closer to solving its present transportation problems if, in lieu of 90% Federal aid for Interstate freeways, there had been 90% grants-in-aid for attractive high density housing in the central city and if, in lieu of 50% Federal aid for ABC highways, there had been 50% Federal aid for improving single-family homes.

(2) The requirement in 23 U.S.C. 126 that states have similar highway trust funds earmarking highway-related taxes to highway construction should be repealed and the states should be encouraged to abolish such ear-marking of tax revenues under their own laws.

(3) The present requirement in 23 U.S.C. 302 that proposals for Federal-aid must come from state highway commissions authorized to construct highways should be abolished. Instead, each state, in order to qualify for Federal aid, should be required to establish a State Transportation Department (following the lead of the Federal government and such states as New York, New Jersey and Maryland), with authority for urban areas to initiate their own proposals, without concurrence of the State Capitol.

(4) All Federal prejudice of how transportation grants-in-aid must be spent should be abolished. Today, cities may get aid for building new highways. They cannot get Federal aid to tear them down, as San Francisco discovered after it had built the elevated Embarcadero Freeway and as Washington discovered after it had built the elevated Whitehurst Freeway. Cities should be as free to remove yesterday's mistakes as they are to undertake new endeavors.

(5) The present ban in 23 U.S.C. 301 against highway user charges should be repealed and cities permitted to levy local tolls and taxes on transportation users as regulatory tools to achieve local planning goals. It is generally conceded, for example, that New York City would benefit materially by a rush-hour toll on all automobiles entering Manhattan. Federal law now blocks this option.

(6) Above all, local democracy must be restored in making local transportation planning decisions, by making the end-use of Federal grants subject to local decisions, by the public's elected representatives and/or by popular referendum. The Federal interest in urban transportation expenditures should begin and end with a determination that the decisions on local use of Federal grants-in-aid have been arrived at fairly, objectively and democratically.

Thank you very much.

Chairman PROXMIRE. Thank you very much, Mr. Craig.

Our next witness is Mr. C. D. Foster.

Mr. Foster?

**STATEMENT OF C. D. FOSTER, VISITING PROFESSOR OF ECONOMICS,
MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

Mr. FOSTER. Mr. Chairman, thank you very much for inviting me to come here today. I deeply appreciate the honor.

I have submitted a prepared statement which states what I wish to say in greater length. Perhaps I may develop a few things in this statement in these verbal remarks.

One of the difficulties of highway economics is that a road is a very various product, it varies greatly from one place to another. In a country area, or in the remote wilds of Appalachia, a road is a very different commodity, with very different costs, than what it is in the suburbs of the city.

I do not think one would bother very much about these differences and what causes them to be reflected in prices so far as interurban roads are concerned. This is one of the themes of my prepared statement. What does seem important about interurban road systems

is, I think, in total one should get some balance between all the costs that are incurred for road uses, and the revenues paid by them through the gas tax or in other ways.

It is useful, I think, to try and draw up a national profit and loss account for the road system which itemizes the maintenance costs, construction costs, the cost of lighting, police costs, traffic-control costs, and sets these against the revenues.

The point here is not to get absolute equality, but to check to see that one is not either subsidizing road users to a considerable extent and therefore distorting investment in other forms of transport; or on the other hand discriminating against road users, which is quite common, and therefore discriminating in favor of other forms of transportation.

But to my mind more important than this in relation to efficiency in highways is the adoption of investment criteria. It does seem to me that there are great advantages in the systematic use of agreed investment criteria for highway. The tradition of investment criteria goes back a long way, I believe, to the Oregon Department of Public Roads in the 1930's, who pioneered this kind of test.

But in my experience they are used occasionally rather than regularly. And one can work out a rate of return on road improvement in terms of savings in vehicle operating costs, time savings, and accident savings which is a pretty good indication of the benefit that society will derive from that road.

One of the reasons in my experience why highway engineers in the field tend to resist this is, I think, the feeling that it deprives them of their individual responsibility and leaves little room for working out their own views as to why something should be done. I believe that too can be met by recognizing that a highway engineer who feels that there is some special reason for building a road in a particular place can state this and try to argue his case accordingly, saying why the measured rate of return is, in his opinion, not a fully adequate measurement in that particular instance.

I think one of the useful consequences of this is that if a man has to set down on paper beforehand why he believes something is worth doing, making traffic estimates, estimates of time saving, et cetera, that he expects from the investment, it makes back-checking possible. It makes it easier to erect upon this a system by which his superiors are able to see if his predictions were realized, and whether or not the case in the first place was justified. Thus one can lean on the over-exuberant highway official, and encourage the pessimistic one who has a habit of understating his case as a matter of course.

Some of the critical variables in these calculations, such as the value of time to be used, should be a matter for agreed central decision, since a lot of the objections to using cost-benefit methods is similar to that found in commercial firms when there is talk of introducing financial control systems: which is that if you choose your own values you can always get the answer you want to get. The answer to that is not to have full discretion for choosing the values to use.

I believe from my British experience that one can usefully go a very long way in developing a control system of highway expenditure,

using computers and data processing systems, in an integrated way so as to have early warnings of increased costs, escalation of costs, and to have a sequence of stages in which one appraises the desirability of a particular road from the moment when it is a gleam in somebody's eye right through until one is checking up the last costs and paying the bills. And this involves a considerable amount of systems design.

I believe that these kinds of improvements outside cities are important in their own right, important for efficiency. But in a city I think certain improvements could make quite a difference to the way in which it has grown and developed in having wide central repercussions. In cities the problem seems to be a different order of magnitude.

I have found myself during the year I have been in this country wondering, and really not coming to any conclusion, whether, if there had been proper pricing and a systematic use of investment criteria, there would have been so many urban freeways; whether there would be quite so much opposition to some of these new freeways recently; whether there would have been quite such a decline in public transport; whether the metropolitan areas would have spread so far out into suburbs of low density; and indeed whether the problems of the central city would have been as acute.

There might also have been more attention at an earlier stage to the costs of noise and other environmental effects on people who live near the roads and are most put out by their existence. And lastly, I also have found myself speculating whether the poor in particular have not suffered most from the absence of rigorous criteria.

I am not suggesting that there would not have been very many freeways built. I am sure there would have been. Neither do I believe one would have kept public transport the dominant mode. But even quite small changes in the magnitude involved can have significant effect on a city and also on the amounts of public expenditure that would be involved.

The main points in relation to efficiency in cities are the pricing criteria and the investment criteria to be adopted. I have argued in my prepared statement some of the reasons, which I think are becoming familiar, why urban roads tend to be under-priced, and why there is an economic case for adopting fairly sophisticated methods of pricing for the use of roads. In my own country there have been many tests recently of the technical equipment which would make this possible, the kind of meters, and disk systems which could be used to make the price in cities vary with the amount of congestion on the roads, with the time of day in which somebody is traveling, and so on and so forth.

Technically these studies seem to be extremely successful. But introducing road pricing in a full-blooded fashion does raise administrative headaches, and one does wonder at its political possibility. Even if one agrees on technical grounds that there is this distortion, people have become so used to not paying for the roads, or paying for the roads only through the gasoline tax, that maybe it is not feasible to move so far.

But even if it is not—as I said, I believe it should be—but even if it is not, thinking about these distortions can give one a lot of insight into understanding the deficits and desirability of public transport and the desirability of building underground railways in cities. And, as I have argued in my prepared statement, one can get some idea of the return upon mass transit by performing calculations which would accept the existence of this distortion as one of the assumptions.

The last point I would pick up from my prepared statement is the need again for a systematic use of investment criteria in cities. The traditional transportation study has very often found itself running out of money and time when at the end of its life it tries to evaluate the alternatives in an economic manner. Throughout the world there has been a tendency for evaluation of alternatives to be a little quick. We are at a point when it is possible to be as thorough in this as in anything else, and in particular to evaluate different mixtures of public transport and highway investment for the future, and try to get some feel of what the right mixture should be.

Thank you, Mr. Chairman.

Chairman PROXMIRE. Thank you, Mr. Foster.

(The prepared statement of Mr. Foster follows:)

PREPARED STATEMENT OF C. D. FOSTER

As a British citizen, I feel greatly honored to be invited to give evidence. You will appreciate the shortcomings in my understanding of the United States political system; and also that my knowledge of your highway system and transport policies is substantially less than of those of my own country. I hope that what I do not know will not make what I have to say irrelevant.

Given the present interests of your Sub-Committee it seems to me that a sharp distinction is helpful between the interurban and urban problem. They raise rather different issues.

INTERURBAN HIGHWAYS

The pricing question does not seem to be particularly difficult on interurban highways. Gasoline taxes plus vehicle licenses can be used to construct a fairly efficient charging system. The costs¹ that need to be recovered are broadly construction and maintenance costs, the costs of policing the highways and any other costs of traffic management, any lighting and administration costs. I doubt if in the United States interurban road users impose significant costs of other kinds either on Federal or other levels of Government, or on the general public. Examples would be air pollution, noise and congestion; but these are not usually thought to be significant outside cities (except, possibly, in a few isolated cases). Another kind of example would be if there were substantial accident costs which were not covered by insurance, but were borne by Government through Medicare in the case of accidents to the old; or through unemployment payments to those unemployed because of road accidents. It would surely not be unreasonable to expect the road user to cover any such public costs through taxation. But whatever the bill of costs that is calculated, there is probably no great loss of economic efficiency in collecting it through the gasoline tax. To my mind, the gasoline tax would be set ideally in each state at a level determined by the costs of providing and operating its interurban highways, federal and local. A calculation would be made of the total costs attributable to vehicles on these roads; and of the proportion of total vehicle mileage run on them. Thus one could work out approximately the necessary amount to collect per vehicle mile; and from that the approximate rate of tax per gallon of gasoline. (There would of course be a gasoline tax at the same rate within cities, but, as I shall argue, it might not cover all the costs there.) The only major exception to the

¹It is usually not unreasonable to assume that on average there are constant returns to scale in highway provision. In equilibrium short-run and long-run marginal costs, as well as average costs, will be the same.

simplicity of the gasoline tax might be differentiation of the tax burden by *size* and *weight* of heavy goods vehicles and buses, principally because of differences made in wear and tear of the roads. Although not perfectly efficient for the purpose, there is again almost certainly no great loss of efficiency in using annual lump sum taxes (licence fees) to achieve roughly the right differential.

I would judge that outside cities, *investment policy* is a much more important area to consider in the interests of efficiency than pricing policy. In the early days engineering judgement may be not a bad way of determining priorities (helped by the use of such rather arbitrary measures as "sufficiency ratings"); but as the system becomes more complete, it is less obvious what the priorities should be; and easier to make investments which would not show a positive return if evaluated properly. One is working nearer the margin of profitable investment.

I do not know in detail what the procedures of the United States authorities are; but from my own experience these are the measures I believe important:

(1) Cost benefit returns should be worked out on all improvement projects, even quite small ones. Outside cities the main benefits will normally be time savings to users, savings in vehicle operating costs and savings through a reduction in accidents; but if in a particular case an engineer believes there will be other kinds of benefit, he should be allowed to count them, providing he can make a case for them.

(2) It is usually important to get nationwide agreement on the values to be put on time savings, the circumstances in which values are allowed to be higher or lower; and also on accident values. This is similar to policies in private business which lay down certain project evaluation from above, realising that if one lets the originator of the project determine his own values, he would hardly be human if he did not shade the values to reinforce the conclusions he favoured.

(3) In my experience it is important to work up the criteria into a systematic approach to planning and cost control. This is especially necessary because of the long time it takes to plan and construct roads. In the very earliest stages one wants very rough estimates on the returns from a very large number of projects using synthetic information (such as from statistical cost studies) to help get the first batch of projects for further consideration. After a few further rounds it should be possible to make calculations of return which are based on the specific engineering and traffic characteristics of a scheme. With the aid of a computerised information retrieval system, it is then not too difficult to use the same basic framework as a cost control system through the contact and construction stages. One then has the possibility of a data system which makes it much easier to analyse past costs and come up with lessons for the future.

(4) May I also mention the usefulness of systems analysis in another connection? The more complete, the denser a road network becomes the more often one is faced by a decision whether to (a) improve one alternative route between two places, (b) several routes passing through different towns *en route*, or (c) building a new link altogether. The cost implications can be very different. The difficult part of the business is predicting how traffic will react. For example, if one builds a new link, one needs to have some idea of the traffic that will divert to it from existing roads. The only way one can do this at all scientifically is by building computer models of the network. We have done this in Britain; and found that looking at the returns in a network context can make a substantial difference to priorities.

(5) One often hears a regional or development case made for roads. For this to be logical the argument must be that a new or improved road will create substantial amounts of traffic which did not exist before. In my view there is a certain amount of myth and overselling here. Building a road in one place rather than somewhere else, especially within a city, will divert homes and jobs. No one can dispute that Route 128 has had a great effect in changing the locational pattern of the Boston area; but that there are any more jobs in the Boston area, or more wealth, than there would have been if it had been built elsewhere in the Boston area is very doubtful, and it is this last that is relevant in this context.

A road is a two-edged weapon. Often people seem to believe that a new road leading to an area of low wealth and employment will open up new

markets for that area; but it will at the same time make it easier for industries elsewhere to enter. So that the net effect may be a reduction in jobs rather than an increase in the area it was hoped would benefit.

What I believe is useful is that normally road projects should only be approved if they promise a predetermined cost-benefit rate of return. But that there may be a separate budget for "regional" roads; and that criteria of a programme budgeting type should be worked out to get the best value for money.

URBAN HIGHWAYS

The urban situation is much more complicated because (i) there is a case for more variable pricing than the gasoline tax allows; (ii) social costs and benefits are far more important; and (iii) there is much greater need to make economically efficient comparisons between highway construction and public transport improvement.²

(i) *Pricing policy.*—In my own country there has been great interest in new methods of urban road pricing since the report of the Smeed Committee in 1964 (of which I was a member).³ Since then there have been two committees considering the matter further, especially the administrative problems. The Road Research Laboratory has been doing various technical studies. To the best of my understanding, there have been no important policy statements on the matter since I left Britain last September; and there must therefore be limits on my ability to report what has not been published.

The basic case for a more flexible pricing system is that urban roads are a very variable commodity—much more so than non-urban roads for pricing purposes. Roads towards the centre of the city, of given capacity, normally cost far more in land, construction and operating costs than those towards the city's edge. More important than that is congestion. Every additional vehicle coming onto a road finds its costs are greater than the one before because with congestion it uses more gasoline, brakes more frequently, wears out its clutch and brake linings more quickly; and so forth. However, those costs it bears itself. Much more significant, every additional vehicle slows down every other vehicle also and imposes more costs on them. Where there is scarcity private enterprise—and Government—usually uses the price mechanism to ration the commodity, rather than allowing people to form lines and jostle it out. On urban roads we let people form lines. It would be a much more efficient solution if an economic price (equal to short-run marginal costs) were set on highways so as to keep speeds and efficiency up by pricing some vehicles off the roads. Those priced off would use other means of transport, double up in automobiles and travel at some other time of the day than the height of the peak.

But there is another mischief because of the absence of efficient urban road pricing: most of the financial troubles and administrative tangles of public transport come from it. Although now most public transport agencies in cities are caught up in a web of (usually rather irrational) subsidies, they were usually expected to be profitable or at least cover their costs; while urban road-users have not been meant to. This distortion of pricing has biased people uneconomically towards using the road; and has led to more highway investment (relative to investment in public transport, especially subways and surface suburban railways) than would have been the case if the pricing principles had been nearer correct.

In the absence of proper urban road pricing, it is the *economically efficient solution* for subways and surface railways in cities to be subsidised (though only to a determinate extent). Let me explain. In 1963 Professor Beesley and I did a study in London of the possibility of building a new subway.⁴ Approval for its construction had been refused for many years because it was agreed by everyone that it would make a financial loss. Our studies showed that nevertheless London would be better off with it, subsidised. This was because it was predictable that it would draw people off the roads, increase speeds and reduce costs there. It would also of course make it possible to economise on roadbuilding. Thirty-five percent of the benefits, measured in money terms, were

² Investment criteria are also far more difficult to make operational in cities. I believe we are just beginning to make sense of them.

³ Ministry of Transport. *Road Pricing: Economic and Technical Possibilities*. H.M.S.O. 1964.

⁴ C. D. Foster and M. E. Beesley, "Estimating the Social Benefit of Constructing an Underground Railway in London," *Journal of the Royal Statistical Society, Series A*, Vol. 126, 1963. Reprinted in Arrow and Scitovsky, *Readings in Welfare Economics*, American Economic Association, 1969.

anticipated to accrue to road-users, that is, to people who would not use the subway but would benefit from diversion to it. The subway was approved and is now in operation as the Victoria Line. Although the method has been developed, what is essentially the same method is now a routine element in the justification of all such projects in England. From some work I have done in Boston it is my belief that the line of argument is also central to the debate between highways and public transport there.

But what is essentially an investment appraisal method which corrects for the absence of proper road pricing is only a second-best substitute for efficient pricing. The more I have thought about the problems of American and British cities, the more essential road pricing seems to me to be, if there is not to be serious misallocation of resources. It is often argued as if road pricing were a substitute for investment. This is not so. It will indicate where highway (and public transport) investment would be desirable; but without it there will always be an excessive tendency for congestion to recur after road improvements have been made and for there to be overinvestment in urban roads (until the political process rebels against it). (Basically this must be so because successive additions to a city's road system cost more, especially when social costs are considered so that (short-run) marginal cost will be above average cost.) Though it is harder to prove, I would suggest that North American cities must be more decentralized than they would have been, and the difficulties of the central cities somewhat greater, than if there had been an efficient system of urban road pricing (or failing that, an efficient method of subsidising and investing in urban mass transit.)

I also believe that the poor may have suffered most since richer people have tended to gain most from the underpricing of urban roads. (This is a separate argument from any that the poor may have lost most from undercompensation for landtakings and environmental deterioration. This refers to the poor as users.)

While I believe the tendencies have been such as I have described, determining the magnitudes of the effects of these distortions and inefficiencies requires more study (in the United States), I think, than they have been given.

(ii) *Importance of social costs and benefits in cities.*—I have mentioned congestion. But there are others. The usual method of dealing with pollution, noise (and safety) is through regulation; but to my mind there is a danger that the costs of regulation may in some cases be greater than the benefits. Very commonly one feels the most efficient package of, say, safety regulations is not chosen. And in the case of noise (and what is called visual intrusion) the most economic solution may not be regulation of vehicles but in altering the standards of construction so as to reduce the spattering of noise over the neighborhood around the freeway; and also the obtrusive ugliness of the structure. It usually does make much sense to price motorists more because they are ugly or pollute, because it does not make much difference to the quantities of noise and pollution.

(iii) I believe I have discussed most of what is relevant to comparisons between highways and public transport.

In conclusion, I believe that better pricing policies and the use of more relevant investment criteria can greatly improve the efficiency of transport expenditures.

Chairman PROXMIRE. Our last witness is Professor Kain of Harvard. Professor Kain?

STATEMENT OF JOHN F. KAIN, PROFESSOR OF ECONOMICS, HARVARD UNIVERSITY

Mr. KAIN. Thank you, Mr. Chairman. I have a prepared statement as well. However, I would like to summarize or emphasize some aspects of the prepared statement.

Chairman PROXMIRE. Then without objection your prepared statement will be printed in the Record too, and you can proceed to summarize it.

Mr. KAIN. In my prepared statement I discuss a number of improvements in transportation planning and policy that could provide major improvements in urban transportation at practically no cost. These include a number of changes in the transportation planning process and the use of different criteria in designing and managing urban transportation facilities. This morning I would like to emphasize what I regard as probably the most important of these—freeway rapid transit.

A revolutionary improvement in the quality and quantity of urban transportation services could be obtained in virtually every U.S. metropolitan area in a relatively short period of time. Moreover, it would require expenditures no larger, and possibly smaller, than those presently programmed. These gains could be achieved by converting existing urban expressways to rapid transit facilities through the addition of electronic surveillance, monitoring, and control devices and the provision of priority access for public transit vehicles.

Comparative cost analyses prepared by John R. Meyer, Martin Wohl, and me indicate that bus rapid transit systems on either their own rights-of-way or on congestion-free, general-use expressways have a commanding cost advantage over rail under most circumstances and can provide higher levels of service. The cost of grade-separated rail transit systems becomes competitive with new bus rapid transit systems only when urban density is extremely high or when rail transit investments have already been made.

Moreover, there are no technical reasons why freeway rapid transit systems should not have peak-hour speeds equal to or well in excess of those anticipated from any proposed rail rapid transit system, such as the BARTD system currently under construction in the San Francisco Bay area or those proposed for Seattle and Atlanta. Express buses are inherently faster than rail transit because their smaller unit size reduces the number of stops they must make to obtain a full load. In addition to having higher potential line-haul speeds, freeway express buses have the ability to act as their own residential collectors, saving the time and inconvenience of transferring from feeder buses to the rapid transit line.

Still, these higher potential speeds are less important than the markedly lower capital costs of freeway rapid transit. Because they are able to share costly right-of-way facilities with other users, such systems can be provided at a fraction of the cost of fixed-rail systems. There are no major unsolved technical obstacles. We are prevented from obtaining such systems only by our lack of imagination and unwillingness to overcome existing political and organizational rigidities. Development of these systems requires a complete integration of highway and transit planning and a willingness to impose certain rational restrictions on the use of high-performance urban highway facilities, particularly during peak hours.

Modern limited-access highways move huge numbers of vehicles at high speed and with great safety for 20 hours a day. However, for 4 hours they are allowed to become so badly congested that vehicle capacity, speed, and safety are seriously reduced. This is inexcusable. The design of these facilities makes it relatively simple to meter

vehicles onto the expressway and thereby maintain high performance and high speeds even during peak hours.

If transit vehicles were simply given priority access to these uncongested high-performance highways, they could achieve higher average speeds than private automobiles during peak hours in congested areas. Current peak-hour commuters must choose between a relatively slow and unreliable private automobile system and an even slower and undependable public transit system. If the proposed system were implemented, the commuter would have the choice of an automobile system that provides service no worse than that presently available and a transit system with vastly improved service. Since the new high-performance transit system would be substantially faster and more reliable than existing transit service and would also be considerably cheaper than private automobile commutation for many workers, significant numbers of automobile commuters might shift from private transportation to the transit system. If this occurred, automobile commuters who, because of their origins and destinations, are poorly served by rapid transit or who prefer to drive for other reasons might reduce their travel times.

Even more optimistically, this new high-performance alternative might reduce the demand for expensive highway facilities serving central areas and release large amounts of highway funds for use in rapidly growing suburban areas and less urbanized areas or for other purposes entirely. Similarly, if fewer highways were needed in central areas, the dislocations that have caused so much unrest in recent years would be that much reduced. These system effects are a major part of the justification for the BARTD system in San Francisco and for similar rail transit proposals in other cities. However, these rail rapid transit systems are orders of magnitude more costly and provide far less coverage (fewer route-miles) than the highway rapid transit systems proposed here.

In addition to having much lower initial cost, express bus systems can be closely tailored to changes in the location, composition, and level of demand. Metropolitan areas are experiencing increases in incomes, changes in job locations, and suburbanization of the population. All of these forces are causing rapid and significant changes in commuting patterns. Fixed-rail systems are almost incapable of responding to these shifts. However, an express bus system, of the kind described here, can adjust rapidly to these changes since it can operate in a variety of ways over any part of the existing or expanded regional highway network. Each new expressway link enriches the rapid transit system and provides penetration of new areas. In addition, such systems can be easily scaled up or down to meet changes in demand levels. If demand declines, there is almost no loss since there is no unique fixed investment. If employment and population dispersal proceeds far enough or if consumers demand more flexible, costly, and personalized forms of transportation, the proportion of the common right-of-way devoted to public transit during peak hours can be relinquished to automobiles, trucks, and other vehicles.

A number of metropolitan areas already possess extensive expressway networks linking the downtown area with the entire metropolitan area. Fortunately, the rapid development of these expressway systems has been matched by a steady buildup in the know-how and hardware needed to make an expressway rapid transit system operational. Thus, all that is currently needed to create extensive metropolitan rapid transit systems in a number of metropolitan areas is a limited outlay for instrumentation, some modification of ramp arrangement and design, and most importantly a policy decision to keep congestion at very low levels during peak hours and to provide priority access for public transit vehicles.

Instrumentation of the type required is already being evaluated by a number of State highway departments. This is not, as far as I know, because any of them are seriously contemplating the development of highway rapid transit systems. Rather, it is because installation of such electronics on urban expressways is probably justified under any circumstances. Increases in highway capacity and reliability alone will probably pay for such instrumental highways—without even considering the very large benefits that would accrue from using such facilities for rapid transit. Still if these electronic highways are to be used for both rapid transit and private vehicles during peak hours, it would probably be desirable to maintain higher speeds and levels of service than if the facility were to be used for general traffic only. The result of such operating policies would probably be to reduce peak-hour vehicular volumes by some small amount and greatly increase passenger volumes.

In 1966 when I was employed as a consultant to the Department of Housing and Urban Development, Thomas Floyd, director of the demonstration grant program, and I designed a feasibility study of the freeway rapid transit concept and persuaded Vergil G. Stover of the Texas A. & M. Research Foundation to submit a proposal. We asked the Texas A. & M. group to undertake the work because of its substantial experience with expressway monitoring and control systems.

The contract required that preliminary designs and detailed cost analysis be carried out for four existing freeway corridors. The facilities serving these corridors were selected so as to pose a variety of engineering and control problems. The expressways analyzed in the study were:

- (1) The Lodge Freeway in Detroit;
- (2) The Gulf Freeway in Houston;
- (3) I-35W in Minneapolis, and
- (4) The Penn-Lincoln Freeway in Pittsburgh.

From analysis of these four test sites, Stover, and his associates determined that: "only minor construction modifications plus the installation of a surveillance and control system would be needed to implement service on existing freeways."

As table 3 in my prepared statement illustrates, both the capital costs of these modifications and their variation among sites are surprisingly small, ranging from \$26,000 to \$34,000 per mile for the four facilities despite the wide range of topography and freeway

design at the four locations. The annual operating costs for surveillance and control varied between \$15,000 and \$20,000 per mile for the four facilities.

The additional capital outlays required for such a system would differ from one metropolitan area to another, depending principally on the size and complexity of its freeway system. Although obtaining precise cost estimates for individual metropolitan areas would require detailed engineering studies for each, ball-park estimates can easily be made from the cost data developed by Stover and Glennon. For example, it appears that a freeway rapid transit system for Detroit would have an incremental capital cost of about \$5.5 million and a yearly operating cost of about \$3.2 million. For this investment the Detroit metropolitan area would obtain 162 route-miles of rapid transit. A smaller metropolitan area, such as Atlanta, could install a system of this kind for an additional capital outlay of about \$4.2 million and a yearly operating cost of approximately \$2.5 million. Comparable estimates for 20 major U.S. cities are presented in table 4 of my prepared statement.

A large-scale demonstration project in one or two medium-sized metropolitan areas would provide an opportunity to work out some of the remaining technical problems, provide a test for consumer acceptance, and simplify the problem of getting decisionmakers to agree to the highway operations policies that are central to the proposal. The Departments of Transportation and Housing and Urban Development might pay all or a major portion of the cost of a demonstration project for the first State or metropolitan area agreeing to implement such a plan on a 5-year trial basis, if State or city officials would agree to limit peak-hour expressway usage. To provide a meaningful test of the proposal, it would be desirable to select a metropolitan area that has a significant downtown development, a well-developed highway system serving downtown, and fairly high levels of congestion.

The needed electronics could be installed and the surveillance and control system operated for a 5-year demonstration period for between \$15 and \$30 million. However, to fully test the demand for high-performance transit systems, it might be desirable to provide operating subsidies for saturation transit services throughout the entire region during all or part of the demonstration.

The public's response to fast and frequent service would provide much needed information about the demand for high-performance transit services. It is essential that these high levels of service be provided long enough for potential users to regard them as more or less permanent. Five years should be a sufficiently long period to evaluate the longrun impacts of these service improvements on such matters as choice of residence and decisions whether to buy either a first or second car.

It is difficult to estimate the dollar cost of these operating subsidies prior to choosing a particular city and deciding on the level and duration of subsidized service. However, I would guess that a very significant experiment could be carried out for less than \$50 million. This is by no means a trivial amount of money, but it still

compares favorably with the \$1½ billion capital cost of the "BARTD experiment." The comparison is still more favorable since this \$50 million buys a system with two to three times as many rapid transit route-miles as the BARTD system.

In the nearly 10 years since John Meyer, Martin Wohl, and I proposed the concept of freeway rapid transit in a report for the White House panel on civilian technology, there has been a growing interest in the idea. Indeed, the Department of Transportation has recently awarded a contract to study the feasibility of a closely related system which would reserve a freeway lane for car pools and buses. However, neither this proposal nor any of the others I have examined is daring enough or begins to exploit the possibilities of the concept. The interdependence of the urban transportation system requires a far more ambitious attack than any of these proposals contemplates.

Last week I learned that Minneapolis——

Chairman PROXMIRE. You don't mean Milwaukee?

Mr. KAIN. No, I mean Minneapolis. Your particular interest in Milwaukee probably explains the mistake in my prepared statement.

Chairman PROXMIRE. The reason I say that is, I know Milwaukee is very interested in this; they came down and testified before the Banking Committee, which has jurisdiction over mass transit, and they said they wanted very much to do that, and they had an elaborate program. We have no public mass transit in Milwaukee, it is privately owned.

Mr. KAIN. Just yesterday I was talking to people who have been fairly close to transportation planning in both cities. They indicated that Milwaukee was not very interested in the concept in the past. But maybe things have changed. Anything that can be done to generate interest both in Washington and at the local level for this proposal would be desirable. Indeed, I strongly urge you to do all that you can do to insure that the Minneapolis, and hopefully a Milwaukee, proposal are enthusiastically received by the Department of Transportation. The freeway rapid transit concept deserves a major demonstration to test its acceptance and utility and at the first opportunity.

(The prepared statement of Mr. Kain follows:)

PREPARED STATEMENT OF JOHN F. KAIN

HOW TO IMPROVE URBAN TRANSPORTATION AT PRACTICALLY NO COST

INTRODUCTION

Urban transport planning in the United States is seriously deficient. Its principal shortcoming is a failure to analyze and manage the urban transport system as a complex and highly interrelated system consisting of a large number of competing and complementary modes. In spite of "comprehensive" metropolitan transportation studies in nearly every urban area, much talk of "systems analysis," and frequent references to "balanced" transport systems, there is little evidence of any meaningful overall system analysis of urban transport problems. Systems analysis and planning in urban transport has meant the design of "rail rapid transit systems," "highway systems," and, even more frequently, "freeway systems."

Even a casual examination of urban travel makes it clear that these "systems" are only components or limited subsystems of the urban transport

system. Yet these partial "systems" are invariably planned, designed, and operated as though they were independent. Different and frequently inconsistent criteria have been used. "Balanced transport planning" has become the planning of redundant investment in each of these subsystems, rather than a serious effort to determine the "appropriate" mix of each in terms of overall system optimization. The result has been great waste and gross inefficiency.

To a substantial degree these partial views of the urban transportation problem are due to existing institutional arrangements which badly fragment the responsibility for providing urban transportation services. State highway departments, city traffic engineers, and local and regional transit authorities all have major responsibilities for the design, construction, or operation of segments of the urban transportation system in metropolitan areas. Typically, these agencies view themselves as competitors. At best they ignore one another. The unfortunate result is that many opportunities for making substantial improvements in the quality of urban transportation at negligible cost are overlooked or ignored. The most important of these opportunities is the use of existing urban expressways for rapid transit. Freeway rapid transit has the quality of urban transportation in nearly every U.S. urban area at virtually zero cost.

Before considering this freeway rapid transit concept, the paper examines a number of general shortcomings of the urban transit planning process. These fall under three major categories. The premature imposition of constraints, the long-range planning syndrome, and the choice of appropriate criteria.

PREMATURE IMPOSITION OF CONSTRAINTS

What might be termed the "premature imposition of constraints" is the most serious shortcoming of the transport planning process. It arises from a misconception about the respective roles of the technician and policy maker. More than any other factor it is responsible for the failure of transport planners to consider alternatives that might yield large benefits.

"Premature imposition of constraints" assumes a number of different forms. The most common is that engineers, planners, and other technicians fail to consider promising alternatives because they decide, without analysis, that a particular alternative would not be acceptable to the public or to policy makers. Judgments of this kind imply that there are certain absolutes. Yet my experience suggests that communities can be educated, that public opinion can be changed, and that politicians are willing to undertake politically difficult actions if they become persuaded the net benefits are large enough. These judgments also imply that technicians are more capable of determining political feasibility or public acceptability than elected officials and other policy makers. This I regard as both improbable and inappropriate. Only the public and its elected representatives have the right to decide what is and what is not politically feasible or publicly acceptable. It has been my experience that technicians are notoriously bad at making these judgments. Technocrats have the responsibility of providing information on the costs and benefits of alternative actions, not of deciding which alternatives are acceptable. Frequently in complex systems the implications of particular alternative actions are not at all apparent. Thus it is often impossible to estimate, even crudely, the possible benefits and costs of particular actions until they have been carefully examined and the detailed arithmetic has been done. The arithmetic is difficult to carry out in many instances and can only be roughly approximated in others, but this is no excuse for the "premature imposition of constraints."

The worst aspect of "premature imposition of constraints" is that it frequently leads to a situation in which certain alternatives are no longer considered at all. Constraints acquire the status of "immutable laws." More often than not, the original rationale for the "constraints" no longer exists or has been forgotten. Then it becomes all the more necessary to observe them. Conditions may have changed markedly, but the policy remains in force.

It is not difficult to find examples of the "premature imposition of constraints." Peak-hour tolls is one of the most obvious. In nearly every city, state, and country I have visited, I have made a point of asking transport planners about the possibility of imposing peak-hour tolls on particular facilities as a means of managing the level and composition of traffic, obtaining indications about desirable levels of investment (particularly of expensive peak-hour capacity), guiding the location decisions of households, influencing the choice of peak-hour travel modes, and affecting the pattern of metropolitan develop-

ment. With slight variations, the answer was the same everywhere. "The public would not stand for it." "Tolls are politically impossible." "It is a matter of government policy." "We used to have a toll on that bridge, and the public forced us to take it off."

Further discussion on the subject invariably revealed the following facts. No one had really considered the possibility of using peak-hour tolls as a device to manage the use of the road system. No one could begin to suggest the effect of these tolls on the use of road facilities or on the demand for private and public transport. No assessment has been made, or even contemplated, of the costs and benefits of peak-hour tolls under any circumstances. Considerable confusion existed in the minds of the technicians, politicians, and public about the purpose and function of peak-hour tolls.

Typically tolls are regarded as a means of raising revenue to pay for the construction of a particular facility. Consequently they are only imposed on newly constructed facilities and are removed when the facility is paid for. There are substantial objections to using tolls in this way, and technicians, policy makers, and the public are right to reject them. There are far less expensive ways of raising revenue. But more important, the time profile of such tolls is exactly wrong. New facilities almost always have excess capacity. Since the increased use of such under-utilized facilities costs no more, it is undesirable and inefficient to impose tolls which limit their use. The irony of this traditional use of tolls is that invariably they are reduced, or removed altogether, at the very time they would begin to be beneficial. Tolls are desirable only when there is excess demand for capacity and increments to capacity are expensive.

As a general rule, tolls should be imposed on old rather than new facilities. Also, tolls should be imposed only during peak periods when the facility would tend to become congested.

Another aspect of peak-hour tolls should be mentioned. Highway systems in metropolitan areas are highly ubiquitous. This ubiquity makes it both difficult and expensive to devise operational pricing schemes. The costs of capacity are highly variable, even within a fairly small area, and the large number of intersecting streets makes it impractical to collect tolls by traditional methods. A variety of sophisticated electronic metering systems that would permit the use of extremely detailed pricing systems have been proposed. These systems would presumably allow highway-user charges to vary from one block to another and from one street to another and *throughout the day*. Although there has been considerable enthusiasm for such schemes, I remain unpersuaded of their practicality. It appears to me that in most applications their costs would exceed their benefits. In addition, I suspect that more primitive controls would provide almost all of the benefits of highly sophisticated road pricing systems and at a fraction of their cost.

Rivers and other barriers reduce the ubiquity of highway networks by channeling traffic. Thus they increase the possibility of achieving a closer matching between the resource costs of transport facilities and the charges on users. It follows that peak-hour tolls on key bridges should be regarded as a charge for the use of the entire road system (or at least the portions that are the most expensive and difficult to provide) rather than as a charge for the use of that particular bridge or facility. Bridges and other convenient barriers should be considered pressure points that can assist in managing road use in order to obtain that level and composition of traffic that provides the greatest benefit to the community.

Development of rational parking policies, that is, decisions on the number of spaces to be provided in a certain area and their price, is another unexploited possibility for increasing the efficiency of urban transportation systems at virtually zero cost. However, reasoned discussion of this alternative is virtually as difficult to achieve as it is for peak-hour tolls.

Parking policy should be viewed as another possible means of obtaining a closer matching between the payments by road users for urban highways and the cost of capacity. This would mean that parking charges in central areas would usually have two alternative pricing bases. The first is the cost of providing highway capacity into central areas and should apply to the all-day parker, who generally uses the city streets during peak hours. The second is the cost of providing parking spaces. This should apply to the short-term parker, who generally does not use the streets during peak periods. The distinction is that there is usually more than ample capacity during the off-peak periods

and that therefore the cost of highway capacity during these periods should be regarded as zero.

Parking policy in most cities is unbelievably bad. Rates for the all-day (peak-hour) parker are frequently lower than for the short-term (off-peak) parker. Parking is provided on many streets at no cost or at rates that do not begin to cover the costs of new roads or increments to existing ones. In addition, curbside parking usually reduces the capacity of the street system and seriously affects the performance and cost of transit vehicles. Even when curbside street parking does not reduce street capacity or hamper the performance of transit vehicles, it may be greatly underpriced, thereby encouraging peak-hour users to make too much use of the street system.

Admittedly there are formidable problems in analyzing and developing appropriate peak-hour tolls and parking policies. Even simple changes may have complex and far-reaching effects. Therefore, careful and detailed analyses of these possibilities should be undertaken before any new policy is adopted. Careful analysis of all of the alternatives might reveal that the existing set of policies are the right ones. However, it is crucial that these conclusions are reached after the alternatives are fully evaluated and not on the basis of the "premature imposition of constraints."

In many instances introduction of these policies might markedly affect the phasing and even the need for major elements of existing highway plans. For example, the existing freeway plan in Hobart, Tasmania (Australia) is predicated heavily on the construction of a second span of the Tasman Bridge over the Derwent River and the vehicle volumes from that span. Introducing a peak-hour toll that reflects the great cost of bridging the Derwent might delay for a decade, or possibly forever, the need for a second crossing. Recognition of these possibilities might lead to a vastly different design for the Hobart freeway system. Undoubtedly, the Hobart example has many parallels in U.S. metropolitan areas.

THE LONG-RANGE PLANNING SYNDROME

Most current metropolitan transport planning (at least in those instances where there is even a pretense of "comprehensive" urban transport planning) is concerned with conditions and problems 20 or 30 years in the future. While I regard glimpses of the future as useful in decision making, they are only a small part of comprehensive metropolitan transport planning. In fact, it is present and near-term conditions that largely determine choices in the near future. Most existing transportation studies attempt to optimize future rather than current or existing systems and pay little or no attention to the problems of transition from current conditions to future "optimal" conditions.

This orientation has several implications. It builds a pronounced construction or investment bias into the studies. There is a tendency to concentrate on the preliminary design and feasibility of major capital facilities. For highways this leads to an emphasis on the design and justification of elaborate freeway systems, with very little consideration of how they should be used. For public transit this focuses the planners' attention on the construction of major rapid transit facilities, typically fixed rail.

This emphasis on systems in the distant future implies that the existing use of facilities is optimal, that there are no choices about their use in the interim, and that these choices have no effect on a future optimum. All of these propositions are false. For several reasons, not the least of which is the discount rate, the greatest potential benefits are those that might be obtained from current decisions about the use of existing facilities or those to be built in the near future.

Still there is no denying the transport planners' distaste for partial systems. They give great emphasis to the consistency, narrow technical efficiency, and symmetry of the final, complete system. The fact that from the vantage point of current decisions most of the benefits will accrue from partial and uncompleted systems is overlooked entirely. In many instances systems will not be completed, and often this will be the best outcome. Greater benefits may be obtained by several partial systems, although, in terms of engineering "efficiency," they may operate well below the potential of a complete system.

While our knowledge about existing conditions and those of the near future is imperfect, it is still far more detailed and accurate than our knowledge of the mid 1990s and beyond. It follows that the most detailed and sophisticated analyses and planning should be concerned with making better use of existing urban transport capacity and improving near-term investment decisions. Trans-

port planning, as it is currently practiced in most metropolitan areas, turns the process completely around. It produces detailed analyses of projected conditions 20 or 30 years in the future, while it virtually ignores the much more certain developments of the immediate future.

The most difficult problems arise in the operation and management of the existing transport complex. Yet current decisions are typically based on primitive data and crude analysis. Systematic quantitative analysis of these management problems is almost unknown.

CHOICE OF APPROPRIATE CRITERIA

There has been no attempt to analyze a metropolitan transport system in all of its complexity and detail, on the basis of some overall "operational" criterion. One reason may be that such a criterion would be difficult to devise and even more difficult to use. Yet I suspect the more fundamental explanation is found in the existing institutional arrangements and the limited and partial views of the urban transport problem they encourage.

Because of the complexity of the urban transport system and the need for some decentralization in its administration and management, suboptimization is probably both necessary and desirable. My objection is not to suboptimization or to the use of low-level operation criteria, but rather to inconsistent low-level criteria. Given the way in which the low-level criteria currently used in urban transportation were developed or grew up, it would be very surprising if they were consistent.

Developing a more efficient transport system requires that low-level operational criteria be derived from consistent higher level criteria. In the existing situation subsystems based on inconsistent low-level criteria are aggregated in some unspecified way to produce an overall transport system.

Many low-level "operational" criteria are so well disguised in the procedural manuals of the professional engineer that it is often difficult to identify them or to evaluate their implications for the efficiency of the overall system. Further difficulties are created by the failure of transport planners to recognize that many so-called technical criteria contain value judgements that are not neutral. Engineers are probably more guilty of this than most other groups, possibly because they have had more opportunities to make these judgments. Their so-called engineering specifications, or technical criteria, are loaded with poorly understood benefit-cost evaluations.

The "standards" used in the design of particular facilities or entire systems are examples of such low-level criteria, e.g. the detailed specifications required for the urban interstate system such as minimum grades and curvature of the road itself and spacing and design of on and off ramps. In some instances these may be useful rules of thumb and even valid examples of suboptimization, but all too often they are applied to situations for which they were never intended or are no longer appropriate. Much of the controversy surrounding the construction of freeways in built-up areas arises from the highways engineers' insistence that these roads be built to the same specifications as rural interstate highways across the sparsely populated great plains. Although it is important to recognize the pervasiveness of these value-laden criteria, my primary interest is in some more fundamental criteria which I believe determine the actions of road builders, traffic engineers, and public transit operators.

It appears that the overriding criterion of highway builders is to provide free and easy access to all portions of the metropolitan area at all times of the day. Their choice of investments and designs are based on existing and projected traffic usage. In this calculus, the existence of congestion is taken as irrefutable evidence of the need for remedial action, which virtually always takes the form of providing additional capacity. Highway engineers never question whether the current or projected levels and composition of traffic are the right ones, and it is inconceivable to them that some level of congestion on particular facilities may be desirable. The existence of congestion, without regard to the conditions which led to it or the costs or benefits of ameliorating it, is the criterion for action. Severity or degree of congestion provides the ranking of competing projects.

The highway builders' criterion implies that current usage of facilities is a valid indication of consumer demand. But it must be emphasized that current usage represents consumer demand for the facilities only under a particular set of circumstances and does not indicate that consumers, if given the choice,

would be willing to pay for a higher level of service or the construction of additional capacity. Moreover, such indicators are only valid if we assume that the system is being managed or operated properly. Unless the traffic engineer has optimized use of the facility, current traffic volumes or the level of congestion may mean very little.

Traffic engineers have adopted maximization of vehicular flow, often at some arbitrarily selected speed or performance level, as their principal criterion in the operation and management of highway facilities. This rather simplistic, though reasonably operational criterion has nice "analytical" properties; and if vehicles are reasonably homogeneous, no serious capacity restraints exist, and no serious peaking occurs, the criterion may yield reasonably satisfactory results. However, even under these restricted conditions it is possible to think of other criteria that would give different results, for example "minimum travel time on a particular facility" or "minimum door-to-door travel time." These alternative criteria appear at first glance equally plausible, as tractable analytically, and no less arbitrary.

The most serious failing of the "maximization of vehicular flow criterion is that it disregards the composition or mix of traffic. Yet these characteristics are crucial in dense central areas, where severe limits on peak-hour capacity exist and additions to capacity are expensive. The "maximization of flow" criterion treats vehicles as though they were homogeneous in terms of the benefits they confer. Yet there are marked differences in the composition of traffic throughout the day and at different locations, in the relative efficiency of the different vehicles, and in the actual and potential benefits associated with each vehicle. The "maximization of flow" criterion ignores these differences and overlooks a wide range of possibilities for the management of the highway system.

Buses use less street space per passenger than private automobiles at each possible speed of roadway operation.¹ Therefore, the total benefits resulting from a given reduction of bus travel time are much greater than those resulting from a comparable reduction in the travel time for a single automobile traveling during peak hours (or even 1.6 autos, allowing for the difference in street space required by cars and buses).² In many instances, total benefits can be increased by proportional increases in bus speeds and proportional decreases in automobile speeds. This suggests that considerable benefits might be achieved by engineering urban roads in dense central areas (where there are severe capacity shortages) so as to reduce total vehicular flow during the peak hour, to increase the proportion of buses in the traffic stream, and to increase substantially both auto and bus speeds. At worst, this might lead to some small delays for automobiles waiting to use the faster moving facility. However, significant numbers of current auto drivers might shift to the relatively improved bus system. Improved bus speeds might lower costs and permit some reduction in fares causing still more drivers to shift. It is probable that the resulting system would have larger numbers and larger proportions of peak-hour automobile commuters, and higher average travel speeds for both bus users and the remaining auto commuters.

These trade-offs are vividly illustrated by the data in tables 1 and 2 on one-way vehicular and passenger volumes on a six-lane expressway at different performance speeds and with different bus-auto mixes. In Table 1, total vehicular volume is maximized at a speed of 30-35 mph and with no buses. Conditions on the facility at these volumes are characterized by the stop and go (unstable flow) conditions found on existing congested urban expressways. From Table 2, it is apparent that the maximum "hypothetical" passenger volume (157,000) is obtained at this performance speed also. The word "hypothetical" in these calculations is crucial because "actual" volumes will depend on the number of commuters who choose to use transit rather than private automobiles in going to and from work. Although we know less about the demand for transit than would be desirable, all studies agree that the proportion of commuters who use transit in commuting between work and home depends on the relative costs and travel times of the two modes, and particularly the latter. Therefore, the

¹ This discussion deals with passenger travel only. In actual practice, consideration would have to be given to the use of urban highways by trucks and other noncommuting vehicles. Since this discussion is concerned primarily with peak-hour conditions, when passenger travel represents the overwhelming share of all highway use, this important complication can be ignored for the purposes of this discussion.

² This assumes that the benefits from making a particular trip at a particular time and the benefits from travel-time savings are not too dissimilar between car and bus passengers.

"actual," as contrasted with the "hypothetical," number of bus commuters will depend on the performance speed of the facility. For example, if it is assumed that a 30-35 mph performance speed attracts enough transit users to operate 50 buses, the passenger volume at that speed attracts enough users to justify 200 buses, then 11,592 persons per hour would be moved over the facility at a speed of 60 mph as compared to 10,388 persons per hour at a speed of 30-35 mph. Even more optimistically, if there was enough patronage to justify 400 buses, the volume would be 19,264 persons per hour at 60 mph.

TABLE 1.—VEHICLE VOLUMES AT DIFFERENT PERFORMANCE SPEEDS AND BUS-AUTO MIXES:
6-LANE FREEWAY

Buses	30 to 35 miles per hour		50 miles per hour		60 miles per hour	
	Autos	Total	Autos	Total	Autos	Total
0.....	6,000	6,000	4,800	4,800	2,400	2,400
50.....	5,920	5,970	4,720	4,770	2,320	2,370
100.....	5,840	5,940	4,640	4,740	2,240	2,340
200.....	5,680	5,880	4,480	4,680	2,080	2,280
400.....	5,360	5,760	4,160	4,560	1,760	2,160
600.....	5,040	5,640	3,840	4,440	1,440	2,040

Source: Computed from data presented in Vergil G. Stover and John C. Glennon, "A System for Bus Rapid Transit on Urban Freeways," *Traffic Quarterly*, October 1969, table 1, p. 471.

TABLE 2.—PASSENGER VOLUMES AT DIFFERENT PERFORMANCE SPEEDS AND BUS-AUTO MIXES: 6-LANE FREEWAY

Buses	30 to 35 miles per hour			50 miles per hour		60 miles per hour	
	Bus ¹	Auto ²	Total	Auto ²	Total	Auto ²	Total
0.....	0	8,400	8,400	6,720	6,720	3,360	3,360
50.....	2,100	8,288	10,388	6,608	8,708	3,248	8,708
100.....	4,200	8,176	12,376	6,496	10,696	3,136	7,336
200.....	8,400	7,952	16,352	6,272	14,672	2,912	11,312
400.....	16,800	7,504	24,304	5,824	22,624	2,464	19,264
600.....	33,600	7,056	40,656	5,376	38,976	2,016	35,616
3,750.....	157,500	-----	157,800	-----	-----	-----	-----

¹ Assumes 42 passengers per bus.

² Assumes 1.4 passengers per auto.

Source: Computed from data in table 1.

The above two illustrations are strictly hypothetical. Potential transit patronage would vary from location to location and from facility to facility. It follows that the optimal bus-auto mix and performance speed vary widely as well. Several possible combinations are illustrated by the figures. Almost all congested urban expressways are characterized by the set of figures in the upper left-hand corner of Table 2 (8,400 passengers at 30-35 mph). Although much research and experimentation would be needed to obtain the optimal mix and performance speed for every urban expressway, one fact is obvious. The present policy is wrong.

The adoption of traffic engineering methods that reflect user benefits and the different efficiency of buses and private automobiles more accurately than the existing ones could have an immense effect on the performance of the overall transport system. Such changes would affect both the level of transport investment over the long run and the ranking of alternatives in the short run. Changing the traffic engineers' criterion from the "maximization of vehicular flow" to the "maximization of vehicle-user benefits" simply represents the adoption of a criterion consistent with the development of a transport system that maximizes net benefits to the community. Traffic engineers have been doing a superb technical job, but that they have been doing the wrong job. If they set their minds to solving the right problem, they could quickly and cheaply achieve a great improvement in the performance of the urban transport system.

If these traffic engineering and management innovations were combined with reasonably consistent parking policies and a limited use of a peak-hour tolls

on a few very expensive facilities they could revolutionize the urban transport problem within a brief period of time. The urban transport problem in most U.S. cities is not primarily one of too little capacity, but rather one of inefficient use of existing capacity. If existing road systems were optimized in a way that is consistent with benefit-cost maximization of the entire urban transport system, there would be a marked improvement in the quality of transport services and a substantial reduction in user costs.

In general, transit operators must conform to some profitability criteria. Managers of publicly owned systems usually are required to operate the system in such a way as to break even. In some instances this break-even point only includes the covering of operating costs, with capital charges being met from some other source. In other instances, there is some cross subsidization from freight revenues. Moreover, there is considerable cross subsidization of less profitable services by more profitable ones. Usually these cross subsidies are justified as necessary community services and a desirable form of income redistribution. There is far more of this cross subsidization than is desirable. As a general proposition, system efficiency dictates that where there are unusual community benefits from the provision of uneconomic services, the community should provide a direct subsidy for this purpose. Otherwise cross subsidization leads to excessive fares, inadequate service, and a consequent underutilization of these more profitable services.

There is considerable scope for systems analysis and operations research in nearly all transit systems. However, with present institutional arrangements, transit managements have virtually no control over the most important variables which influence the speed and reliability of their services. They can change equipment, modify schedules, market their product better, cut out uneconomic services, improve operations, and the like; but they can do very little by themselves to affect the environment in which they operate. Traffic conditions on the roads are the most important variables affecting their efficiency and performance, yet they have very little control over them under existing institutional arrangements. It is somewhat understandable that, given this situation, public transit operators prefer grade-separated rail systems that are solely under their control. The dependence of transit systems on urban highways underlines the importance of providing the traffic engineer with a correct low-level criterion.

USING URBAN EXPRESSWAYS FOR RAPID TRANSIT

A revolutionary improvement in the quality and quantity of urban transportation services could be obtained in virtually every U.S. metropolitan area in a relatively short period of time. Moreover, it would require expenditures no larger, and possibly smaller, than those presently programmed. These gains could be achieved by converting existing urban expressways to rapid transit facilities through the addition of electronic surveillance, monitoring, and control devices and the provision of prior access for public transit vehicles.

Comparative cost analyses prepared by John R. Meyer, Martin Wohl, and me indicate that bus rapid transit systems on either their own right-of-ways or on congestion-free, general-use expressways have a commanding cost advantage over rail under most circumstances and can provide higher levels of service.³ The cost of grade-separated rail transit systems becomes competitive with *new* bus rapid transit systems only when urban density is extremely high or when rail transit investments have already been made.

Moreover, there are no technical reasons why free-way rapid transit systems should not have peak-hour speeds equal to or well in excess of those anticipated from any proposed rail rapid transit system, such as the BARTD System currently under construction in the San Francisco-Bay area or those proposed for Seattle and Atlanta. Express buses are inherently faster than rail transit because their smaller unit size reduces the number of stops they must make to obtain a full load. In addition to having higher potential line-haul speeds, freeway express buses have the ability to act as their own residential collectors, saving the time and inconvenience of transferring from feeder buses to the rapid transit line.

³John R. Meyer, John F. Kain, and Martin Wohl, *The Urban Transportation Problem* (Cambridge, Mass.: Harvard University Press, 1965).

Still, these higher potential speeds are less important than the markedly lower capital costs of freeway rapid transit. Because they are able to share costly right-of-way facilities with other users, such systems can be provided at a fraction of the cost of fixed-rail systems. There are no major unsolved technical obstacles. We are prevented from obtaining such systems only by our lack of imagination and unwillingness to overcome existing political and organizational rigidities. Development of these systems requires a complete integration of highway and transit planning and a willingness to impose certain rational restrictions on the use of high-performance urban highway facilities, particularly during peak hours.

Modern limited-access highways move huge numbers of vehicles at high speed and with great safety for twenty hours a day. However, for four hours they are allowed to become so badly congested that vehicle capacity, speed, and safety are seriously reduced. This is inexcusable. The design of these facilities makes it relatively simple to meter vehicles onto the expressway and thereby maintain high performance and high speeds even during peak hours.

If transit vehicles were simply given priority access to these uncongested high-performance highways, they could achieve higher average speeds than private automobiles during peak hours in congested areas. Current peak-hour commuters must choose between a relatively slow and unreliable private automobile system and an even slower and undependable public transit system. If the proposed system were implemented, the commuter would have the choice of an automobile system that provides service no worse than that presently available and a transit system with vastly improved service. Since the new high-performance transit system would be substantially faster and more reliable than existing transit service and would also be considerably cheaper than private automobile commutation for many workers, significant numbers of automobile commuters might shift from public transportation to the transit system. If this occurred, automobile commuters who, because of their origins and destinations, are poorly served by rapid transit or who prefer to drive for other reasons might reduce their travel times.

Even more optimistically, this new high-performance alternative might reduce the demand for expensive highway facilities serving central areas and release large amounts of highway funds for use in rapidly growing suburban areas and less urbanized areas or for other purposes entirely. Similarly, if fewer highways were needed in central areas, the dislocations that have caused so much unrest in recent years would be that much reduced. These system effects are a major part of the justification for the BARTD system in San Francisco and for similar rail transit proposals in other cities. However, these rail rapid transit systems are orders of magnitude more costly and provide far less coverage (fewer route miles) than the highway rapid transit systems proposed here.

In addition to having much lower initial cost, express bus systems can be closely tailored to changes in the location, composition, and level of demand. Metropolitan areas are experiencing increases in incomes, changes in job locations, and suburbanization of the population. All of these forces are causing rapid and significant changes in commuting patterns. Fixed-rail systems are almost incapable of responding to these shifts. However, an express bus system, of the kind described here, can adjust rapidly to these changes since it can operate in a variety of ways over any part of the existing or expanded regional highway network. Each new expressway link enriches the rapid transit system and provides penetration of new areas. In addition, such systems can be easily scaled up or down to meet changes in demand levels. If demand declines, there is almost no loss since there is no unique fixed investment. If employment and population dispersal proceeds far enough or if consumers demand more flexible, costly, and personalized forms of transportation, the proportion of the common right-of-way devoted to public transit during peak hours can be relinquished to automobiles, trucks, and other vehicles.

A number of metropolitan areas already possess extensive expressway networks linking the downtown area with the entire metropolitan area. Fortunately, the rapid development of these expressway systems has been matched by a steady buildup in the know-how and hardware needed to make an expressway rapid transit system operational. Thus, all that is currently needed to create extensive metropolitan rapid transit systems in a number of metropolitan areas is a limited outlay for instrumentation, some modification of

ramp arrangement and design, and most importantly a policy decision to keep congestion at very low levels during peak hours and to provide priority access for public transit vehicles.

Instrumentation of the type required is already being evaluated by a number of state highway departments. This is not, as far as I know, because any of them are seriously contemplating the development of highway rapid transit systems. Rather, it is because installation of such electronics on urban expressways is probably justified under any circumstances. Increases in highway capacity and reliability alone will probably pay for such instrumented highways—without even considering the very large benefits that would accrue from using such facilities for rapid transit. Still if these electronic highways are to be used for both rapid transit and private vehicles during peak hours, it would probably be desirable to maintain higher speeds and levels of service than if the facility were to be used for general traffic only. The result of such operating policies would probably be to reduce peak-hour vehicular volumes by some small amount and greatly increase passenger volumes.

In 1966 when I was employed as a consultant to the Department of Housing and Urban Development, Thomas Floyd, Director of the Demonstration Grant Program, and I designed a feasibility study of the freeway rapid transit concept and persuaded Vergil G. Stover of the Texas A. & M. Research Foundation to submit a proposal. We asked the Texas A. & M. group to undertake the work because of its substantial experience with expressway monitoring and control systems.

The contract required that preliminary designs and detailed cost analysis be carried out for four existing freeway corridors. The facilities serving these corridors were selected so as to pose a variety of engineering and control problems. The expressways analyzed in the study were: 1) The Lodge Freeway in Detroit; 2) the Gulf Freeway in Houston; 3) I-35W in Minneapolis, and 4) the Penn-Lincoln Freeway in Pittsburgh.⁴ From the analysis of these four test sites, Stover and his associates determined that: "only minor construction modifications plus the installation of a surveillance and control system would be needed to implement service on existing freeways."⁵

As Table 3 illustrates, both the capital costs of these modifications and their variation among sites are surprisingly small, ranging from \$26,000 to \$34,000 per mile for the four facilities despite the wide range of topography and freeway design at the four locations. The annual operating costs for surveillance and control varied between \$15,000 and \$20,000 per mile for the four facilities.

TABLE 3.—SUMMARY OF ESTIMATED ADDITIONAL CAPITAL COST OF TRAVELED-WAY AND ESTIMATED ANNUAL OPERATING COST OF SURVEILLANCE AND CONTROL SYSTEM FOR THE BUS-FREEWAY SYSTEM

Location—Route and City	Length of freeway to be controlled (miles)	Capital Costs		Annual operating cost for surveillance and control
		Ramp construction and/or modification	Surveillance and control system	
Lodge Freeway, Detroit.....	16.5	\$72,000	\$492,000	\$288,000
Gulf Freeway, Houston.....	11.7	53,000	341,000	235,000
I-35W, Minneapolis.....	14.1	64,000	378,000	243,000
Penn-Lincoln, Pittsburgh.....	14.7	103,000	278,000	226,000

Source: Vergil G. Stover and John C. Glennon, "A System for Bus Rapid Transit on Urban Freeways, Traffic Quarterly October 1969, table V, p. 474.

The additional capital outlays required for such a system would differ from one metropolitan area to another, depending principally on the size and complexity of its freeway system. Although obtaining precise cost estimates for individual metropolitan areas would require detailed engineering studies for each, ball-park estimates can easily be made from the cost data developed by Stover and Glennon. For example, it appears that a freeway rapid transit

⁴J. C. Glennon and V. G. Stover, "A System to Facilitate Bus Rapid Transit on Urban Freeways," Final Report on Contract No. H-807, Urban Mass Transportation Administration, U.S. Department of Transportation, December 1968.

⁵Vergil G. Stover and John C. Glennon, "A System for Bus Rapid Transit on Urban Freeways." *Traffic Quarterly*, October 1969, p. 474.

system for Detroit would have an incremental capital cost of about 5.5 million dollars and a yearly operating cost of about 3.2 million dollars. For this investment the Detroit metropolitan area would obtain 162 route miles of rapid transit. A smaller metropolitan area, such as Atlanta, could install a system of this kind for an additional capital outlay of about 4.2 million dollars and a yearly operating cost of approximately 2.5 million dollars.⁶ Comparable estimates for twenty major U.S. cities are presented in Table 4.

TABLE 4.—ADDITIONAL ESTIMATED COSTS OF THE FREEWAY RAPID TRANSIT SYSTEM IN 20 LARGE CITIES

[Dollars in Millions]

City	Population (1967)	Miles of freeway ¹	Capital cost ²	Yearly operating cost of control system ³
Atlanta.....	1,290	124	\$4.2	\$2.5
Baltimore.....	1,967	86	2.9	1.7
Boston.....	3,243	288	9.8	5.8
Buffalo.....	1,321	71	2.4	1.4
Chicago.....	6,780	341	11.6	6.8
Cincinnati.....	1,362	145	5.0	2.9
Cleveland.....	2,056	166	5.7	3.3
Dallas.....	1,412	164	5.6	3.3
Detroit.....	4,111	162	5.5	3.2
Houston.....	1,797	163	5.6	3.3
Jacksonville.....	507	45	1.5	.9
Los Angeles.....	6,844	459	1.6	9.2
Miami.....	1,116	58	2.0	1.2
New York.....	11,474	899	30.7	18.0
Philadelphia.....	4,766	242	8.3	4.9
Pittsburgh.....	2,381	107	3.6	2.1
St. Louis.....	2,310	156	5.3	3.1
San Francisco.....	2,991	314	10.7	6.3
Seattle.....	1,298	109	3.7	2.2
Washington, D.C.....	2,697	164	5.6	3.3

¹ Miles of freeway open to traffic, under construction, or in final design stages in 1964. From Automotive Safety Foundation, "Urban Freeway Development in Twenty Major Cities," Washington, D.C., August 1964, p. 62.

² Includes the cost of the surveillance and control devices needed for the system and necessary modifications to the freeways and ramps. Based on a cost of \$34,182 per mile, the largest of the 4 figures obtained by Stover and Glennon in any of the 4 test cities.

³ Estimated yearly operating cost of the freeway control system based on a figure of \$20,095 per mile, the largest of the 4 figures obtained by Stover and Glennon in any of the 4 test cities.

A large-scale demonstration project in one or two medium-sized metropolitan areas would provide an opportunity to work out some of the remaining technical problems, provide a test for consumer acceptance, and simplify the problem of getting decision-makers to agree to the highway operations policies that are central to the proposal. The Departments of Transportation and Housing and Urban Development might pay all or a major portion of the cost of a demonstration project for the first state or metropolitan area agreeing to implement such a plan on a five-year trial basis, if state or city officials would agree to limit peak-hour expressway usage. To provide a meaningful test of the proposal, it would be desirable to select a metropolitan area that has a significant downtown development, a well-developed highway system serving downtown, and fairly high levels of congestion.

The needed electronics could be installed and the surveillance and control system operated for a five-year demonstration period for between 15 and 30 million dollars.⁷ However, to fully test the demand for high-performance transit systems, it might be desirable to provide operating subsidies for saturation transit services throughout the entire region during all or part of the demonstration. The public's response to fast and frequent service would provide

⁶ It should be emphasized these estimates are for a "bare" system. They include the cost of installing and operating the needed freeway surveillance and control equipment and making necessary modifications to the expressway, but include no provision for stations or terminals. Although these extras are not essential to the concept, some capital outlays for these purposes might be desirable. It should also be pointed out, however, that not all the benefits of the system would be justified in many urban areas even if no express buses used the facility.

⁷ This would permit full instrumentation and control of up to 250 miles of urban expressway for a five-year period. Only the Boston, Chicago, Los Angeles, New York, and San Francisco-Oakland metropolitan areas have larger freeway systems. A five-year experiment in the San Francisco-Oakland metropolitan area would cost approximately 40 million dollars.

much needed information about the demand for high-performance transit services. It is essential that these high levels of service be provided long enough for potential users to regard them as more or less permanent. Five years should be a sufficiently long period to evaluate the long-run impacts of these service improvements on such matters as choice of residence and decisions whether to buy either a first or second car.

It is difficult to estimate the dollar cost of these operating subsidies prior to choosing a particular city and deciding on the level and duration of subsidized service. However, I would guess that a very significant experiment could be carried out for less than 50 million dollars. This is by no means a trivial amount of money, but it still compares favorably with the one and one-half billion dollar capital cost of the "BARTD experiment." The comparison is still more favorable since this 50 million dollars buys a system with two to three times as many rapid transit route miles as the BARTD system.

In the nearly ten years since John Meyer, Martin Wohl and I proposed the concept of Freeway Rapid Transit in a report for the White House Panel on Civilian Technology, there has been a growing interest in the idea.⁸ Indeed, the Department of Transportation has recently awarded a contract to study the feasibility of a closely related system, which would reserve a freeway lane for car pools and buses. However, neither this proposal nor any of the others I have examined is daring enough or begins to exploit the possibilities of the concept. The interdependence of the urban transportation system requires a far more ambitious attack than any of these proposals contemplates.

Last week I learned that Minneapolis has submitted a request for the funding of a feasibility and design study of a freeway rapid transit system. I strongly urge you to do all in your power to insure favorable consideration of this proposal and similar ones from other metropolitan areas. The freeway rapid transit concept deserves a major demonstration to test its acceptance and utility.

Chairman PROXMIRE. I have more enthusiasm about Milwaukee than Minneapolis. You can appreciate that.

Mr. KAIN. Yes, but I am anxious to see the concept demonstrated anywhere. Therefore I hope that Milwaukee shows some initiative. However, it is even more important that the Federal Government provide some real inducement and encouragement for an experiment of this kind. It should have the very highest priority.

Chairman PROXMIRE. Mr. Kain, you have pointed out how very much we could increase the capacity of existing roads by using express buses. Mr. Craig has argued for doing away with the highway trust fund. Mr. Foster has made the very interesting statement that "as a system becomes more complete, it is less obvious what the priorities should be; and easier to make investments which would not show a positive return if evaluated properly."

The Interstate highway system may well be at this point—or even beyond this point—today. I would like to get your opinions on the need to complete the Interstate highway system.

We have just been told that completion of the planned 42,500 miles will cost at least \$12 billion in Federal funds above the currently authorized amount. Now, do we really need to go ahead and authorize this additional amount, or should Congress cut the cost of the interstate system back to the earlier estimate by deleting some of the mileage?

Mr. Craig, will you start off?

Mr. CRAIG. I do not have any strong views one way or the other in terms of uncompleted mileage that is rural, that is, intercity. I have

⁸John R. Meyer, John F. Kain, and Martin Wohl, *Technology and Urban Transportation* (Washington, D.C.: Executive Office of the President, Office of Science and Technology, October 1962).

not studied that, and I would prefer to pass up any judgment on that at this time.

As to our urban areas, however, I do think it would be beneficial for all concerned to cut back on mileage and on costs. Several presidents have tried, beginning with President Eisenhower in the late 1950's. And he was astonished at how the interstate system which had started off in urban areas with four-lane expressways had become six, eight, and 12 lanes, in the highway departments' competition to get as much aid as possible.

Chairman PROXMIRE. Before we go ahead with it, why shouldn't we insist on getting some kind of investment criteria to determine whether or not the enormous sum involved here, \$12 billion, is justified?

Mr. CRAIG. I think you should. And if you applied any criteria to urban areas, at least from my studies of Washington and other major cities, I think it would soon become apparent that—

Chairman Proxmire. I just do not know. You may well be right. I know that in some of our thinly populated areas you could make an even stronger case on benefit-cost studies. It is very hard, it would seem to me, to justify building an interstate four-lane superhighway from nowhere to nowhere, from a very small town to a very small town. And under the present formula they are doing some of that. On the other hand, depending, of course, on your assumptions, I would think that some urban interstate construction might show a positive benefit-cost ratio.

Mr. CRAIG. It does when you get into a beltway, for example, Capital Beltway. I think you would come out favorably in such an analysis, but once you are inside the Capital Beltway in Washington the costs are so great for the facility itself, and the gasoline taxes and other revenues from its users are so small, that the way I have calculated it there would be about a 5-cent subsidy per mile for every freeway user in the District of Columbia.

These were based on the estimated costs in 1965.

Chairman Proxmire. You say the revenue is so small. You gave an example of going up on Macomb Street from Connecticut to Wisconsin, and you showed that the revenues enormously exceeded the expenditures on that street. I know that street well, because I live two blocks away. I live on Ordway Street between Connecticut and Wisconsin.

Mr. CRAIG. You are right, there is a big profit being made on the street system in the District of Columbia. But I thought your question was about the proposed interstate freeway facilities, as to whether under the investment criteria they pay their own way. And, I think, it is obvious—I would be happy to submit the details of a study we made several years ago relating to this precise situation in the District of Columbia.

Chairman PROXMIRE. We would be glad to have it for the record. (The following study was subsequently supplied for the record by Mr. Craig:)

WHY SHOULDN'T PUBLIC TRANSIT BE TOLL-FREE, TOO?

By Peter S. Craig

In this statement, I would like to address myself to the dilemma confronting Washington, in common with most other American cities. The city is slowly committing economic suicide by following the contradictory policies that private transportation should be publicly-subsidized while public transportation should be self-sustaining from tolls (fares) paid by the users.

The purpose of this statement is, frankly, to be provocative of public debate which touches closely on many interests, public and private, in the hopes that a more rational transportation policy can be evolved for our Nation's Capital and its 2.6 million area residents who, in the last analysis, must foot the bill of our total transportation costs and who must daily suffer from any built-in inefficiencies of this system.

The views expressed are entirely my own, although I must frankly admit that the thoughts expressed herein were provoked initially by the brilliant speech by Victor Gruen, F.A.I.A., in his January 1962 address, "The Appearance of the Federal City," delivered at the Second Annual Community Appearance Conference sponsored by the Metropolitan Washington Board of Trade.

In this speech, Mr. Gruen counseled: "We must rid ourselves of the idea that when considering the construction of public transportation it must be proven that it will be economically self-supporting, but that on the other hand the construction, maintenance, and operation of the trackage for private transportation (highways, freeways, bridges) must be a public service paid out of taxes. It is provable that it is cheaper to transport every urbanite free of charge on newly to be constructed public transit if the cost of land, the toll in life and health, the deterioration of the economic and cultural values caused by private transportation are taken into consideration."

In this same speech, Mr. Gruen stated—erroneously, it is believed: "The city of Ithaca is now experimenting with free bus transportation and indications are that the increased tax income resulting from better business of the downtown stores alone will be sufficient to outweigh the loss of revenue from busfares."

Advice from officials of both HUD and the American Transit Association indicate that the Ithaca experiment was never launched; that a request was made for a demonstration grant from HUD for the project, but it was turned down.

I am aware of no precedent of city-wide public transit being provided on a toll-free basis. There are, however, a number of examples of such subsidized public transportation by private companies not themselves engaged in the "transportation" business. The most common, and now taken for granted, is toll-free *vertical* public transportation provided in all new apartment and office buildings. As Victor Gruen noted in his speech:

"It has often been stated that it would be impossible to get Americans used to the idea of traveling by public transportation. This simply is not true. It may be difficult to do so when there is a choice, but consider the millions who use, daily, the public transportation facilities of high speed elevators in office and apartment buildings, the escalators in department stores and banks, without raising a question or complaint."

"Now of course, were we to introduce automobile ramps into these buildings and create a choice, then we might run into trouble. We don't do so because the costs would be staggering. I submit that the cost of taking care of millions of automobiles in our downtown centers is just as staggering and just as unreasonable."

With notably few exceptions (the Cafritz Building at 1625 Eye Street is one), owners of buildings in Washington take it for granted not only that vertical public transportation should be provided free of any toll to the user but also that there should be no competing provision for toll-free private vehicular travel. And the soundness of this view is perhaps confirmed by the fact that the Cafritz Building experiment—with its tremendous waste of space for auto ramps and parking on each floor—has not been repeated.

There are also numerous privately-sponsored examples in *horizontal* transportation. One of the most noteworthy of these occurred in Washington, sponsored by the Chevy Chase Land Company at the turn of the century. In order to induce the purchase of new homes in Chevy Chase, the Chevy Chase Land

Company for several years provided home-buyers with free commutation service to Washington through its affiliate, the Rock Creek Railway Company (predecessor to Capital Transit).

Currently, one finds a similar example in Fort Worth, Texas, where the Leonard Department Store spent about \$1 million to build a parking lot and a one-mile streetcar line connecting the lot with its downtown store. Both parking lot and the transit line are operated on a toll-free basis, available to anyone. The success of this venture has been so great that the store is currently acquiring more streetcars to increase its service.

Except for such isolated privately-sponsored examples, however, the tradition remains strong today that "public transit" should be supported entirely (or at least primarily) from tolls or fares whereas private travel (pedestrian or vehicular) should be supported entirely from the public treasury. Although the users of "public highways" do, of course, pay for their own means of locomotion, be it shoe leather, bicycles, motorcycles or automobiles, the entire cost of acquiring, constructing, maintaining and operating the highway is borne by the taxpayers.

At the outset, it should be recognized that this is a historic anomaly. Originally, in this country, all transportation, "public" as well as "private," was considered to be the domain of "private enterprise," not "public subsidy." And it was largely due to the competitive superiority of various forms of public transportation in the Nineteenth Century that the necessary means for private travel—highways—became a public charge, paid for by taxes.

When Washington was founded as the Nation's Capital in 1801, the dominant means of travel was private—pedestrian, on horseback or by horse-drawn vehicles—on privately-owned and operated turnpikes and bridges, many of which had been chartered by Maryland or Virginia prior to the establishment of the District of Columbia. Between 1801 and the 1820's, Congress chartered many more such turnpike and bridge companies, each of which charged tolls for the use of its facilities.

Many of the principal highways in the Washington area today date back to these private turnpike and bridge companies—Canal Road and Chain Bridge (originally known as Little Falls Bridge); the original bridge at 14th Street (Long Bridge); the old Aqueduct Bridge (predecessor to Key Bridge); the original bridges across the Anacostia River at 11th Street, Pennsylvania Avenue and Benning Road; Wisconsin Avenue; River Road; Georgia Avenue; Colesville Road; Columbia Road; Bladensburg Road; Benning Road; Naylor Road; Kenilworth Avenue (formerly Eastern Branch Road); Chain Bridge Road in Virginia; Leesburg Pike; Arlington Ridge Road; Jefferson-Davis Highway between the 14th Street Bridge and Alexandria; Columbia Pike; etc.

Public transportation developed on the same private enterprise tradition, with privately-owned companies securing from the states or Congress charters to provide ferry service (*e.g.*, Mason's Ferry, chartered before 1800 between Georgetown and Rosslyn), canal service (Chesapeake & Ohio Canal Co., chartered 1828), steam railroad service (Baltimore & Ohio Railroad, chartered 1828, etc.), and street railroad service (Washington & Georgetown Railroad, chartered in 1862, etc.).

The principle of private ownership and operation of the turnpikes and bridges met with early failure. Commencing in 1810 with the condemnation of Naylor Road, the Government found it necessary to take over the private bridge and turnpike companies as they became unable to repair or maintain their facilities from user tolls. Loss of patronage to the canal trade, the steam railroads and the street railways accelerated this demise. Apparently the last facilities in Washington to survive in private ownership were the Georgetown-Tennallytown-Rockville Turnpike (Wisconsin Avenue), acquired for \$3,000 from the Washington Turnpike Company in 1883 and the old Aqueduct Bridge, acquired for \$125,000 from the company's receivers in 1886.

Under Government operation, each of these bridges and turnpikes became toll-free, with all costs of construction, maintenance and operation paid from tax revenue. This tradition has now become firmly imbedded in the public's thinking—that there should be no toll or fare for private transportation on highways. From time to time, in recent years, economists and planners have suggested that tolls should be charged, but these proposals have not advanced beyond first base. Among the objections raised have been (1) the cost of toll collection facilities and personnel and (2) the time delays to travel they would impose.

Users of competing modes of transportation have not been so fortunate. Toll-free bridges across the Potomac River spelled the end of Mason's Ferry and it was never replaced (unless one counts the present service for tourists operated by the Park Service to Roosevelt (Mason's) Island. The Chesapeake & Ohio Canal, despite early successes, ultimately fell victim to the ravages of spring floods and more efficient steam railroad competition and ceased operations in 1924. The steam railroads, for transporting freight, and the street railways, for transporting passengers, enjoyed remarkable success from the Civil War until the end of World War I when they first began to suffer inroads from the horseless carriage.

The street railways not only were expected to be fully self-supporting from the fares they charged but also were required to pick up part of the burden of the city's highway system. As a condition for its charter, the Rock Creek Railway was required to build the Calvert Street Bridge and to lay out Connecticut Avenue for private vehicles as well as its own streetcars.¹ All streetcar companies were required not only to lay their own track but also to keep in repair the street occupied by such track (even though, in most cases, it could also be used by private vehicles.)

In the era prior to the Model T Ford, public transit did not suffer from the schizophrenic public policy that private travel should be subsidized and common carrier service should be self-sustaining. As Washington's population grew, transit lines were extended; transit patronage grew even faster than population. By 1919, there were over 170 million annual revenue passengers on Washington's transit companies—an average of over 400 rides per year for every resident.

Today, the population of the Washington metropolitan area is six times as great as 1919, but transit patronage today is less. There are only 65 transit rides per year for every resident. Transit fares, once a basic 6 cents per ride, are now a basic 25 cents per ride within the District, with further increases being demanded. Transit service on most routes is slower and less frequent than it was one or two generations ago. Extensions of transit routes to keep up with growing population have been few and far between.

The reason, of course, is obvious—competition from private transportation, particularly the automobile, heavily subsidized at taxpayers' expense.

This subsidization is now reaching utterly ridiculous proportions. Take, for example, the North Central Freeway. After six years of study, the D.C. Highway Department has come up with a proposal which it deems the "least destructive" of various alternatives (the alternative of not building the thing at all seems not to be even a permissive inquiry at the District Building). This 4.33-mile freeway would cost \$115,800,000, or almost \$27 million per mile—funds, of course, the District Government does not have. To raise this sum, it expects grants-in-aid from the Federal aid highway trust fund of over \$104 million. For District matching funds, the District plans to borrow \$11,580,000 at interest rates in excess of 4%. When ultimately repaid, 30 years hence, this will require payment of \$20,450,000 in D.C. funds that are not presently in sight.

The freeway would consume 174.2 acres of land, displacing over 1,000 District residents, wiping out 100 District businesses employing 4,000 people, destroying about 15 acres of parkland (valued at nothing in computing the costs of the freeway) and blighting a broad strip of the city from the Maryland line to the heart of the city. The fact that District residents and taxpayers don't want it is considered immaterial by the D.C. Government. After all, it is its public duty to provide for more and more private transportation.

Let us, however, look at the economics of the situation—ignoring completely the social, aesthetic and business mayhem it will cause:

In what is generally considered the leading text on the economics of urban transportation, *Urban Transportation and Public Policy* (Chandler Publications, 1964), Lyle C. Fitch and Associates compute the annual highway costs as follows:

1. Interest on right-of-way acquisition costs is computed at 4 percent;

¹ When, during the Depression, the city embarked on a program to replace the Calvert Street Bridge and widen Connecticut Avenue, the transit company's successor, in order to escape its highway construction obligations, chose to abandon the streetcar line and replace it with bus service.

2. Interest on construction costs is computed at 6 percent (the additional 2% being an allowance for depreciation and obsolescence, assuming a 50-year useful life);

3. Maintenance and administrative costs are charged by a linear formula (cost per mile equals \$4,000 plus \$.0008 × annual volume of vehicles).

The resulting figure, insofar as it affects the District Government, must then be adjusted by taking into account lost public revenues (property taxes, income taxes, sales taxes, etc.) and new public revenues resulting from the proposed changed land use of the 174.2 acres in question.

The results are shown on the following table. At the assumed utilization of the freeway (111 million vehicle miles annually, or the consumption of 9 million gallons of motor fuel annually over this 4.33-mile freeway), the net loss or subsidy being paid by all governments will be \$6,022,658 per year.

Although the District Government will put up only 10% of the initial cost of the freeway, it must bear 25% of the total subsidy burden, or about \$1.5 million annually. There is no 90% Federal aid reimbursement for the cost of maintenance or for the loss of District taxes; furthermore, the D.C. Highway Department estimates that 90% of all trip "productions" using the freeway—*i.e.*, the home base of the vehicles—will be *outside* the District of Columbia; hence, only 10% of the motor vehicle fuel consumed on the freeway will be fuel sold in the District of Columbia on which the District obtains a sales tax.

PUBLIC SUBSIDY FOR NORTH CENTRAL FREEWAY WOULD EXCEED \$6,000,000 ANNUALLY, INCLUDING \$1,500,000 FROM DISTRICT OF COLUMBIA TAXPAYERS

Segment	Distance (miles)	Lanes	Lane-miles	Annual vehicle miles	
Description ¹ (total area taken, 174.2 acres):					
Rhode Island Ave. to Buchanan St.....	1. 81	8	14. 48	
Buchanan St. to District of Columbia line.....	2. 52	6	15. 12	
Total.....	4. 33	29. 60	111, 000, 000	
			District of Columbia funds	Federal funds	Total
Cost: ²					
Right-of-way.....			\$3, 970, 000	\$35, 730, 000	\$39, 700, 000
Construction.....			7, 610, 000	68, 490, 000	76, 100, 000
Total.....			11, 580, 000	104, 220, 000	115, 800, 000
Per mile.....			2, 674, 400	24, 069, 600	26, 744, 000
Per lane-mile.....			391, 220	3, 520, 976	3, 912, 196
Annual cost: ³					
Right-of-way.....			158, 800	1, 429, 200	1, 588, 000
Construction.....			456, 600	4, 109, 400	4, 566, 000
Maintenance.....			207, 200	0	207, 200
Real estate tax loss.....			241, 458	0	241, 458
Other tax loss.....			500, 000	0	500, 000
Total.....			1, 564, 058	5, 538, 600	7, 102, 658
Annual revenue ⁴ :					
(Other States).....			63, 000	450, 000	513, 000
Total.....			63, 000	1, 017, 000	1, 080, 000
Annual loss (subsidy).....			1, 501, 058	4, 521, 600	6, 022, 658

¹ District of Columbia Highway Department estimates, except annual vehicle-miles (in absence of official estimate, computed at 12,500 vehicles per lane on average workday, annualized on the basis of 300 days per year to allow for lower weekend and holiday utilization).

² District of Columbia Highway Department estimates.

³ Right-of-way, at 4 percent annual interest; construction, at 6 percent per year (4 percent interest on capital outlay and 2 percent depreciation and obsolescence); maintenance, at \$4,000 per lane-mile plus \$0.0008 times annual volume of vehicles; real estate tax loss, District of Columbia Highway Department estimate; other tax loss, estimated (in fiscal year 1966, property tax yielded \$78.1 million; other general fund revenues, \$179,000,000).

⁴ Annual revenue: District of Columbia, estimated at 10 percent (percent of all trip productions in District of Columbia) times 7 cents (District of Columbia gasoline tax) times 9,000,000 gallons (total fuel consumption at 12.4 miles per gallon, U.S. average). Federal, 4 cents per gallon plus 25 percent for estimated taxes on tires, tubes, etc. Other States, 90 percent times 7 cents times 9,000,000 gallons.

It should be pointed out that this annual six million dollar subsidy does *not* include any allowance for possible deterioration of property values (and taxes) on property not taken for the freeway, any factor for added police costs, added parking requirements, added health costs or added accident costs. (By highway department estimates, there would be over two fatal accidents on this section of freeway each year.)

To "break even" on the North Central Freeway, it would be necessary to charge each vehicle using it a toll of five to six cents per mile.

The North Central Freeway, of course, is only a part of the total proposed D.C. freeway system. If it is all built, as presently proposed by the May 25, 1966, Duke-Hartzog compact, the total annual subsidy bill on the D.C. freeway system alone will exceed \$40 million per year (before any allowance for several hundred acres of parkland lost). Some sections already completed, such as the Anacostia Freeway, would have substantially lower subsidy price-tags per mile. Other sections still not constructed, such as the Center Leg, North Leg, Potomac Freeway and Three Sisters Bridge, would have substantially higher price-tags per mile. But the total annual subsidy burden, in the District of Columbia alone, would exceed \$40 million annually.

Would it not make *more* sense—or at least just as much sense—to subsidize public transit to at least this degree?

It would probably be cheaper to provide public transit *free* to all area users.

In terms of initial capital outlay, public acquisition of all of the assets of the local transit companies would be less than one-tenth the cost of the presently-planned freeway system in Washington, less, indeed, than the District's 10% matching obligation for such freeways. (As of January 1, 1965, the book value of all assets of D.C. Transit, AR&W, WV&M and WMA was \$39,460,448.)

In terms of annual cost to the public, the cost would be comparable to the cost of the proposed D.C. freeway system: Initial capital outlay (at 4% interest) \$1,600,000; Annual operating expenses (1964 experience, all 4 companies), \$39,700,000; Total, \$41,300,000.

Under a completely toll-free operation, there would be numerous immediate cost savings that would reduce the above figures—substantial savings in revenue accounting, reduced operations' expenses (by eliminating their fare-booth functions), the amount of which cannot be accurately estimated from published financial data.

This analysis does not necessarily assume public *operation* of public transit, although it does presume public ownership. Private operation could continue, as now, under contract or else be replaced by direct public operation as we do for water supply, police protection, fire protection and other public services.

Toll-free operation of public transit would provide immediate service improvements, by eliminating the time-consuming crush at the door while passengers deposit their coins, secure change, obtain or surrender transfers. In addition, however, it would permit significant service improvements that are not feasible under private ownership dependent upon the fare box—new routes, new express runs, experimental innovations that a private operator, with his own stockholders' funds at stake, would not dare risk but which, from the broader public interest standpoint, would make obvious good sense.

For instance, the national average fatality rate per hundred million passenger-miles in 1963 was 2.30 in automobile travel compared with only 0.23 in bus travel (rail travel is even safer). Therefore, to the extent that travelers can be persuaded, by public action, to change from private auto travel to travel by public transit, sharp reductions in traffic fatalities can be expected. Similar benefits in traffic congestion, reduced air pollution, reduced traffic noise, etc., are apparent.

However the public interest in the "balance" between private and public travel might be struck, such toll-free transit under public ownership and control would at least permit, for the first time in history, the true coordination of urban transportation that the experts constantly remind us to be essential but which, under our present schizophrenic policies, is an ever-fleeting goal.

As was noted in the Institute of Public Administration's report for the Mass Transportation Survey ("Preliminary Financial and Organizational Report, January 1959"):

"No finding of the transportation survey is more firmly grounded than its conclusion concerning the interaction among various forms of transportation. The effects of travel time and terminal facilities on the traveler's selection of

method of travel, the consequence of the expansion of one type of facility upon the use of another, the effects on use of relative costs of different modes of travel—all support the conclusion that the transit problem, the highway problem, and the parking problem are inseparable. * * * To put it bluntly, in order to secure maximum effectiveness the transportation organization must have the power to control all major public enterprises concerned with the movement of people and goods within the area."

Instead of moving toward this goal, we have been moving away from it. Public policy has become pre-occupied with the coddling of private transportation on highways—a public ward by reason of the failure of private enterprise in this field a century ago—while public transit has remained a strictly private concern, the victim rather than the beneficiary of public action.

Concern has been expressed that toll-free transit might encourage "joy riding" by teen-agers. If so, fine. Far better for the general public that impulses for "joy riding" be expressed by use of public transit vehicles, where public surveillance and police protection are easier, than in death-trap jalopies careening recklessly over the highways.

The subject of toll-free transit deserves the most careful and thorough scrutiny. It is gratifying to observe that Mr. James Banks of UPO has already suggested the same idea. It might further be noted that no less an authority than Robert Sommerville, President of the Atlanta Transit System, Inc. (privately-owned) advanced the same suggestion at the First International Conference on Urban Transportation in Pittsburgh last February. Sommerville stated:

"In planning for the future let me put before you a notion which you may at first think ridiculously 'way out' and impossible. But I make it quite seriously.

"I suggest that cities should seriously consider making transit service free to the users. Who charges fares in elevators nowadays? If the cost of vertical transportation is just part of the cost of doing business in our downtowns why not the cost of horizontal transportation too, carrying the same people, after all—customers, clients, workers? In the same way you don't put a coin in a slot every time you want a drink of water or turn on the electric light or boil a kettle.

"You may ask how the cost of free transit service would be met. Spread over a city, related to any of the cost totals with which our chambers of commerce constantly bombard us—business done, retail sales, downtown real estate values, bank deposits, earnings—in relation to any of these figures the cost of free transit service would be miniscule. For a rough example—Metropolitan Atlanta has just over a million people. The Transit System's total revenues are eleven million a year, say a dollar a month per metropolitan resident. Does anyone seriously say that we are so lacking in ingenuity that we couldn't conceive of ways to—let us say—put a dollar a month on water and electric bills?

"What would free transit service do to our downtown?

"It seems to me the prospect is so exciting that merchants might well themselves consider defraying the cost. Just think of the tens of thousands of movements within the downtown area that free movement of people would encourage, the opportunities to go shopping at lunch time, the ways in which people coming into the city for one purpose would be encouraged to stay for some others.

"Entirely new and better forms of mass transportation would be encouraged, ways to provide the ideal of continuous movement—no waiting on the corner for a bus. Probably there would be refinements of the moving sidewalk, shelter from the elements, degrees of comfort and convenience never before possible. Who would then think of using a car simply to get around in the city?

"Can you think of a better way for a city to compete with the suburban shopping plaza? Can you think of a better way to get rid of some of the hideous parking lots that now blight many a downtown, get rid of them and let the area develop its true purpose, housing the myriad activities, that really make up a city.

"Think about this, ladies and gentlemen. Of course, to put it into effect we would have to have communities and community leaders with more imagination and determination than is usual. But you all know that if we were determined enough it could be done and I offer it as my contribution to the thinking of this conference."

Does Washington have this leadership? The challenge is here.

Chairman PROXMIRE. Mr. Foster?

Mr. FOSTER. I am not in any position to pass judgment directly on the next round of the Interstate Highway System. All I can say is that we did have that problem, in my own country, and say a little about what we did on it.

We did work on investment criteria and worked out returns on the next system of road projects put forward for approval. We built a model of the interurban road system in order to try and get some feel as to how far we should build new links and how much we could increase the capacity of old ones. This became part of the approval process.

One of the problems when a highway system is becoming complete is a tendency for engineers in areas of the country which have already got a good road system to use so-called regional reasons for going on improving. Some may be sound. One can have high cost-benefit ratios in remote areas, but there may be a tendency to go on building simply to keep up the same hand of work in an area. A systematic approach can help to distinguish the good from the bad reasons.

Chairman PROXMIRE. Mr. Kain?

Mr. KAIN. My views, I think, are a little bit different. I believe that most of the proposed urban interstate system should be completed, but that we should insist on some major modifications in the design of the remaining segments and the adoption of new operating policies for these expensive, but highly productive facilities. For example, the freeway rapid transit concept which I outlined this morning, would provide a major improvement in the quality of transportation in urban areas.

Many of the uncompleted links of the urban interstate system would enormously enrich such a system. But if the highway builders and operating agencies are unwilling to implement appropriate operating policies, I lose a great deal of my enthusiasm for completing the interstate system. However, if the remaining portions are properly designed, located, and managed the completion of the proposed (pre-1972) system will be a tremendous benefit to our urban areas.

However, if use of the system is not rationalized, the case for completing the system is much weaker.

The Boston area, where I live, is an excellent example. As you probably know, there has been an enormous controversy about the Inner Belt, through Boston, Brookline, and Cambridge. Its construction would involve considerable dislocation and other costs. A number of persons have suggested larger investments in rapid transit as an alternative. However, if the Inner Belt is conceived as a combined auto facility and rapid transit system both objectives could be satisfied. However, if this use of the highway was planned at the outset, the design of the road would be changed. The result would be an even better highway rapid transit system than could be provided using existing roads.

The inner belt would be an essential distributor for such a rapid transit system. A combined auto-rapid transit system of this kind

would provide just about the only lateral mobility for the inner part of the Boston metropolitan area.

During the peak hours it would provide a tremendous improvement in both transit and private vehicles. In the off-peak period and on weekends it would provide enormous benefits to automobile users.

Attaining these benefits depends upon using urban expressways as they ought to be used and not as they have been traditionally used.

Chairman PROXMIRE. I can see a very persuasive psychological factor here in having bus rapid transit instead of subway. Of course, we are building an enormous subway here in Washington, D.C., the biggest public works project in the history of the country, \$2½ billion, for one public works project.

You are proposing something that could persuade people to move off the highway onto public transportation. Say Smith and Jones live right next to each other, and they leave their house at the same time. Smith walks down maybe a half a mile or a quarter of a mile or a couple of blocks and gets a bus. Jones takes the car. And when they get about half-way along the line Jones is caught in a squeeze, the usual rush-hour slow-down, and Smith whizzes by him, and he knows he whizzes by him, and gets to the office 15 minutes earlier.

This kind of visibility, when you see your neighbors going right by you lickety spit in a bus, I think it would have the most vivid impact on going to work. The auto driver knows the cost is greater, because he has to have that extra car for his wife at home and he would see mass transit gets his neighbor to work faster.

Mr. KAIN. I am very much impressed by the psychological arguments also. But I have to admit that the cost differences impress me more.

Chairman PROXMIRE. Let me say the reason that I am impressed with that psychological argument that what we have discovered about the metropolitan rapid transit—I am Chairman of the Appropriation Subcommittee for the District of Columbia here in the Senate, and they have told us that after we have finished completing this enormous subway that the increase in mass transit use will be from 25 percent of the population, which it is now, to 27 percent, in other words, a 2 percent increase, negligible, whereas it might have a somewhat better psychological effect if people could actually see the bus whizzing by.

Mr. KAIN. But the psychology that really impresses me is the difference between, say, an additional capital cost for the San Francisco area of something like \$11 million for as many as 250 miles of rapid transit line as compared to a capital expenditure of a billion and a half dollars for only 75 miles of rapid transit.

Chairman PROXMIRE. The same thing here, instead of \$2½ billion for that subway you could do it for a great deal less, maybe less than a hundred million dollars, with rapid transit buses.

Mr. KAIN. This is the kind of psychology I would hope that Congress would be particularly interested in. Moreover, in addition to the huge cost difference and the psychological factor you identified, there are other advantages of bus rapid transit. The system can be operated in a variety of ways, provide more coverage, and better

penetration of residence and workplace areas. Still, the most powerful argument is the difference in the risk. All that is required is an expenditure of \$10-\$15 million for something that probably ought to be provided anyhow. If the concept doesn't work, nothing is lost. On the other hand if BARTD fails, there is a loss of a billion and a half dollars, which could have been used for other public or private purposes.

Still, in spite of the overwhelming persuasiveness of the case for freeway rapid transit—the idea has been around for at least 10 years—we are still far from the first serious experiment. Although there is more interest than there once was in the concept, much more aggressive leadership by the Federal Government will be required before a meaningful test of the concept is carried out.

The logic of the Federal Government spending hundreds of millions of dollars of subsidies for rail systems, and yet being unwilling to provide both leadership and money to really test this concept escapes me.

Chairman PROXMIRE. What you need is a smashing success story. As you say in your final paragraph, if you can get Minneapolis to do this, Milwaukee to do this in a big way, and it works, then it will catch on in a big way. Because I know from the testimony that we have had from the mayors, there is a great frustration here in Congress with the terrific cost of mass transit. In fact, if we are going to have to finance it on an appropriations basis, it will take several billion dollars over the next 12 years, and maybe \$12 billion of Federal money over the next 10 years, and we will probably not get this money. Every time they have a cutback in the budget—and we will have that periodically—they are going to have to postpone that construction.

And it will make it extremely hard for them to continue it. So if they can do it on this much more economical basis it will be much better.

Mr. KAIN. But it is not going to happen without some real muscle, real money, because there is an enormous lethargy and bureaucratic resistance to the concept. To get the idea tried is going to take some real initiative.

Chairman PROXMIRE. Why do you need new roads to run vehicles and buses? Why not just keep cars off some existing roads?

Mr. KAIN. The systems I have talked about today would use existing freeways.

However, there are some corridors that are not now served by freeways. These missing links are the portions of the urban interstate which I think ought to be completed.

The reason why the concept requires expressways, as opposed to regular streets, is that it is so much easier to control expressways, to maintain the reliability and high speed, that are essential to the system. The secret is being able to guarantee the bus rider that he is going to have a 50- to 60-mile-an-hour trip into downtown, and that the bus is going to arrive on time every day. If he rides a bus operating on existing congested expressways and local streets, he is lucky to average 10 miles an hour, and he may arrive a half hour or hour late.

Some changes in the operation of the local streets may prove to be desirable as well. However, it makes sense to start with expressways because it is so simple and cheap to provide the needed speed and reliability. Moreover, existing urban expressways in many urban areas would provide rapid transit systems to a large portion of the metropolitan area.

Chairman PROXMIRE. Mr. Foster, you stressed the importance of establishing investment criteria for highways, and you say that the social costs of highways should be included in this analysis, if you are to avoid overbuilding of highways. Now, we have not done a job at all on this in the United States. What advice can you give us based on British experience and your own studies for improving our investment analysis?

Mr. FOSTER. I think we are beginning in Britain too, I think developments are taking place—

Chairman PROXMIRE. You include, for example, the disutility, the economic cost of air pollution?

Mr. FOSTER. This is not directly relevant to the building of more highways, it is relevant in trying to work out whether it is worthwhile to—

Chairman PROXMIRE. Why isn't it relevant to building more highways into this city? You bring more air pollution into the city, you bring more cars in.

Mr. FOSTER. It is relevant indirectly in that if you force manufacturers to adopt various standards, this may reduce the number of cars, and therefore reduce the number of journeys that are made.

Chairman PROXMIRE. If you do not build the highways, you reduce the number of cars too.

Mr. FOSTER. But that is not an efficient way to reduce the number of cars, and there is not a lot of evidence that you do reduce the number of cars. People tend to buy a car depending upon their income and their family situation.

Chairman PROXMIRE. They also buy a car and they opt for mass transit, or they opt to build a factory in the suburbs on the basis of whether they have the road system to get to work efficiently. As you funnel more and more efficient highways into the city to make this easier to get in, there is not any question that you are going to have more traffic.

Mr. FOSTER. That is true.

Chairman PROXMIRE. I remember the great system going into Chicago. When it was built people said that they did not think it would be used even in the rush hour. But it was obsolete within a couple of years, grossly inadequate in terms of handling rush-hour traffic. There was just an enormous increase of people using their automobiles to get to work, and a great drop-off in passenger traffic on railroads coming in.

Mr. FOSTER. There are some other effects, too, that need to be pointed out. It is also the case that there was a tremendous reduction in the amount of traffic on the local street system. The gridiron street system in Chicago carried an enormous traffic before the expressway opened. There is a chance that if you have more ex-

pressways coming into that city you would have more air pollution, because you would have more stop-and-go driving, and roughly the same number of cars, maybe a few more. And it is really the stop-and-go driving, and so on, that generates the large amount of pollutants. And so it is not clear at all that the effects of—

Chairman PROXMIRE. Have you seen any study that shows that? That does not convince me logically that this makes sense. If you are building a plant these days—there has been a tremendous tendency to build plants outside the city for the very reason I have mentioned, that there is such a congestion, and such a scarcity of available land. After all, the automobile takes up, I think, 60 percent of all the land in our cities, for streets and for parking and for the other facilities necessary for a car.

Mr. FOSTER. I have looked at all of these questions. There will be fewer cars if you build fewer expressways, but as the average pollution per car, per trip, will rise as congestion arises on the streets.

Chairman PROXMIRE. Mr. Craig?

Mr. CRAIG. I hear Mr. Kain speak, and I disagree with almost everything he states. I am inclined to agree with the Chairman. In all the studies I have made or seen, they indicate that if we build more freeways, we will have more traffic, that means more air pollution. The studies in the District of Columbia disclose that if all the freeways proposed by the District of Columbia Highway Department were built, on the basis of resulting traffic in 1985 we would have twice the air pollution that we had in 1964. This is documented in Public Health Service Publication No. 999-AP-41, published by HEW in 1967.

Chairman PROXMIRE. Doesn't Los Angeles give us a living example there? The principal thing that a lot of planners overlook is that when building highways the savings in time are generally translated into longer trips. People can move further out and still be close to their office. And whereas they may have taken the bus or street car to their office when they lived in, when they live out at Shady Acres the only way they can get to work is through the automobile. And this explosion of our urban areas is primarily the problem of construction of radial freeways.

Mr. CRAIG. You compare the highway corridor with 29 years ago and today. All the freeway corridors have been constructed in this area since then. It is clear, and it is copied everywhere, you have seen it in Milwaukee and Chicago, and other cities, I am sure.

But what irritates me the most, however, is the implication in Professor Kain's speech that Federal muscle is necessary to sell his bus transit ideas. This is my plea, that the Federal Government should keep its muscle out of determining local transportation investment policies. If the Federal-aid dollar can go to our urban areas. I am quite confident that I, as a citizen, could prove as we did here in Washington that Professor Kain's ideas are not the best solution for Washington. They may be a fine solution for Milwaukee or Minneapolis, I do not know. But the Federal Government, via the House Public Works Committee, or even the most enlightened Secretary of Transportation, is not equipped to be making these local investment

decisions. The investment criteria in the last analysis have to be a reflection of public policy. And that public policy has got to be reflected through the ordinary democratic channels for these decisions locally, just as decisions on school investment and decisions on all types of public works investments in the local areas.

I am sure we need improved techniques. And we need to hear from Professor Kain and others. But there has got to be freedom to make these decisions locally. And until there is we are going to be damaging our cities very badly.

Chairman PROXMIRE. Mr. Foster?

Mr. FOSTER. On the pollution issue, I think the difficulty is that sufficient analysis has not been done. There are two opposing tendencies here. If you build more highways you must create more car use and more pollution. Therefore if you take into account pollution in the evaluation of highways as you should, and as we are beginning to be able to do for the first time, then you build fewer highways.

On the other hand it is also true that building fewer highways does mean more traffic on the other streets, where they tend to generate more pollution per car than they would otherwise.

The answer is surely in a particular situation to evaluate the options, as can be done, and choose the right solution. And I do believe there is an overall solution.

My other point is simply this, that it seems to me that a more direct approach to the pollution problem can be had by evaluating regulation of pollution. But that is another strategy which also has its costs and benefits, and we consider it in the same light as the reduction of highway strategy.

Chairman PROXMIRE. Mr. Foster, how about giving us your views on the other elements in making investment studies and investment analysis that would be more useful, on the basis of what you have done in your country?

Mr. FOSTER. I think the noise is an extremely important one. It seems to cause more problems in Britain than the pollution.

Chairman PROXMIRE. Do you consider the noise factor in your analysis?

Mr. FOSTER. Yes, we are, in a slightly rough and ready way, but it makes a difference. It makes most difference to the design of the highways. And there are quite cheap things that one can do to a highway to greatly reduce the noise that is scattered from it.

Chairman PROXMIRE. How about the very simple direct cost and benefits? We just do not have anything like that. We can ask our Department of Transportation for a cost-benefit analysis as to whether or not we should proceed, for example, with 8,000 additional miles of interstate, and they just do not have that, they cannot tell us, they cannot tell us what the benefits or costs were. We did have testimony on Monday of this week that the benefits exceed the cost on some miles of the highway, and the cost exceeded the benefits on others. But they could not give us a picture of what the remainder of the highways system—whether that would give us more benefits than it cost or not. Now, in your own analysis are you able to give at least some rough and ready estimate of whether there is a two to one benefit cost ratio or unity or less?

Mr. FOSTER. The answer is yes, it is now standard. But these network problems that I referred to in my statement, you can look at a whole network and get a different answer in cost terms than if you look at a single link.

Chairman PROXMIRE. What are the benefits that you put into these factors?

Mr. FOSTER. Time-savings, and many others and these other noise and pollution things that are coming in.

On the urban side we have made some progress on the study that was done in Manchester, where we do have cost-benefit ratios for alternative public transport and highway solutions, and mixtures of the two, which we believe makes some sense.

Chairman PROXMIRE. Mr. Craig, you are a lawyer. Does the Department of Transportation have authority under the present law to establish adequate highway investment criteria? Do we need to amend the law? I am thinking particularly of sections 4(b) and 7(a) of the law which established the Department of Transportation. Section 4(b) seems to have some inhibition against investment analysis.

Mr. CRAIG. Yes, I recall—I do not have the act in front of me—that the act as submitted to Congress would have given the Department of Transportation substantial flexibility under section 7. But the congressional committees wanted to keep investment criteria to themselves and put in section 4 a restriction which effectively hobbles the Secretary of Transportation.

Chairman PROXMIRE. It seems to me they put that restriction in so that you could go ahead and build roads and superhighways even though they were very inefficient and unjustified, in States where you have Senators, even though they are States with relatively small population.

Mr. CRAIG. I think it is necessary to give far more freedom to the Secretary of Transportation to develop criteria and change the allocation of Federal-aid than he has done.

Chairman PROXMIRE. So it would be possible for them to go ahead and make this investment analysis without amending the law, is that correct?

Mr. CRAIG. Yes, but they have to bring it to Congress and get your approval of it before they do anything.

Chairman PROXMIRE. Mr. Craig has advocated abolishing the Highway Trust Fund. I would like to get the opinion of the other witnesses on that. I think I have gotten some of it. But I would also like to get your thought on how this might be accomplished, assuming that it is desirable.

I take it that Mr. Kain feels that it should not be abolished, at least you feel that the Interstate Highway System should be completed?

Mr. KAIN. I did mean to give that impression.

Chairman PROXMIRE. I suggested to Assistant Secretary Baker on Monday that he give very serious consideration to limiting any request for extension of the trust fund to the length of time necessary to generate enough revenue to cover existing highway authorizations. This would probably mean extending the trust fund about 2

years beyond its scheduled 1972 expiration date. That should give the States plenty of time to finish up the highest priority sections of the Interstate system. It should give all of us sufficient time to work out an alternative approach to highway finance if we abolish the trust fund.

MR. KAIN. The judgment that I offered was that most of the remaining segments of the urban interstate system are probably justified and ought to be completed, although with some modifications. This should not be interpreted as an endorsement of a particular method of financing that system or subsequent highway investments. I must admit that I find the arguments about trust funds a little confusing. I am generally in sympathy with the idea that if a trust fund is continued, it should be a more general fund for urban transportation. It should not be earmarked in the way it currently is.

Chairman PROXMIRE. Would you favor abolishing the Federal gasoline tax?

MR. KAIN. I regard that as a general fiscal question and do not have particularly strong views about it.

Chairman PROXMIRE. Do you favor, then, having the gasoline tax revenues go into the general fund?

MR. KAIN. I believe so.

Chairman PROXMIRE. You would?

MR. KAIN. I believe so, though, as I indicated before, I am not very dogmatic on questions of this kind. I am far more concerned about the appropriate use of revenues for urban transportation planning and investments. My concern is primarily with improving the efficiency of the urban transportation system. I do not have particularly strong views about broader fiscal questions.

Chairman PROXMIRE. You see, from a fiscal standpoint our problem is this, that highways are insulated from fiscal policy. And we feel on this committee—this is the Joint Economic Committee—we feel that we have a responsibility and a great interest in fiscal policy. We are inhibited. We can cut back on some things, we cannot cut back others. We can cut back the Department of Health, Education, and Welfare, and cut back the OEO, but we cannot touch highways, because that is insulated and separated, and even though it has a profound effect on inflation or employment, depending on how you want to operate it, it pretty much goes along its own way and is insulated.

MR. KAIN. I share your concerns. However, the more serious problem in urban transportation is getting people to consider the urban transportation system as a whole. Insofar as the existing financial arrangements makes it easier for all the actors in the urban transportation arena to ignore one another, it is a very bad method of financing. This is my principal concern. For this reason, I would be equally, if not more, hostile to a mass transit trust fund. What we need are financing mechanisms for urban transportation that break down existing bureaucratic and institutional barriers rather than reinforce them.

Chairman PROXMIRE. You see, when you say you are more hostile, might be more hostile to a mass transit trust fund, the

difficulty is that you can make, it seems to me, a far stronger case for mass transit than you can for highway construction.

Mr. KAIN. There is one important difference. In a rough way the Highway Trust Fund can be regarded as a general user tax on automobile use. It is a very bad pricing system for highways, because it is an average charge for use of the roads instead of a marginal charge, but it is nonetheless a kind of payment by motorists for the roads. Much of Christopher Foster's testimony today and much of what I discuss in my prepared statement is concerned with the problems resulting from a system that charges road users average prices. But the proposed mass transit trust fund bears no relationship to any kind of user costs and benefits. As a result it is a slightly worse concept. I would like to emphasize, however, that I am unable to generate much enthusiasm for a large post-1972 trust fund.

Chairman PROXMIRE. Let me followup that observation by asking this: Yesterday we heard testimony from the secretary of Transportation for the State of Wisconsin, Mr. Bakke. He indicated that his State would really be better off if the taxes were levied and the highways built by the States. Wisconsin pays more into the Federal highway trust fund than they get back in Federal highway aid.

Would you agree, gentlemen, that we should seriously consider taking the Federal Government out of the highway business, abolishing both the gasoline tax and the trust fund? This would leave the States free to tax and spend according to their own priorities, and then you really would have the freedom that you are discussing.

Mr. KAIN. I think you should be very careful of suggestions of this kind. It is necessary to ask what other redistributive aspects of the national fiscal system are you prepared to modify at the same time? I have not examined the nature of this redistribution in any detail. However, there may be valid reasons for some redistribution of this kind in transportation. I can understand why Wisconsin, if it collects more taxes than it spends, would prefer another system. But what about the States that spend more taxes than they receive? Are there valid reasons for redistribution?

There may be particularly strong justifications in the case of the rural interstate. In the instance of the rural interstate there may be some important systemwide or national benefits from a unified system. The benefits—reliability and time savings—for a trucker who goes from Chicago to San Francisco are as much influenced by the quality of roads in South Dakota as in Iowa.

Chairman PROXMIRE. You see, this thing just seems to go on forever. We have, we are told, possible requests for spending \$320 billion for highways between 1970 and 1985, doubling the amount that they have spent previously. And I was wondering how far you would go on this. Are we just going to go on and on until we have the whole country covered with concrete?

Mr. KAIN. You are referring, I imagine, to the highway needs studies. They are simply wrong. Again the problem is not that we have a national system of taxation and the redistribution of these taxes to the States. Rather the problem is that the planning methods

and criteria used for deciding on priorities are unbelievably bad. If the responsibility is turned back to the States, we will simply substitute bad practices in the States for the present Federal-system of bad practices.

Chairman PROXMIRE. Not necessarily. It would seem to me that you might have a much lower gasoline tax, and our resources instead of going into highways, might go into housing, schools, hospitals, and many other things that might be more constructive and more desirable.

Mr. KAIN. I do not see how you can be sure that the result will be better.

Chairman PROXMIRE. It might be.

Mr. KAIN. You may be right. But there may be just as much or more spent on transportation. It depends upon what the pressures are.

Chairman PROXMIRE. I know. But if we abolish any tax, if we abolish the personal income tax, the people would say, the States can pick it up and impose the same tax anyway. I am not so sure. They can pick up some of it. There are competitive reasons why States hold down their gasoline tax, as you know. It makes it much more difficult for a State like New Jersey, or New York, or Connecticut, if they increase their tax out of line with the neighboring States, they are in trouble.

Mr. KAIN. We are now raising questions about the optimum level and structure of taxation. What would constitute an ideal Federal fiscal system? In my view it does not make much sense to confuse the general question of Federal and State tax systems with the particular problems of financing transportation. However, as I indicated previously, insofar as the particular financing instruments used, like the trust fund, lead to undesirable results, they should be abolished or modified.

Chairman PROXMIRE. Isn't the political level where that will be determined? As Lewis Carroll and Humpty-Dumpty say, it is who is to be master that counts, and why shouldn't that determination be on a level as close to the people as possible.

Mr. KAIN. Not necessarily. It depends on whether the benefits are localized. For some parts of the highway system, there are important benefit spillovers and as a result it is better to look at it as a national system. This argument is harder to sustain in the case of urban transportation. At the same time there may be other reasons for Federal support for urban transportation. For these reasons, I am not prepared today to give you a final answer as to whether, if the right criteria were used, a Federal or partially Federally financed transportation system would be inferior or superior to an entirely State financed one.

However, I am prepared to say that it is far from clear to me that a State financed system would be better. If we push this concept to its extreme, I know I am very much against it. This is because I regard the existing differences in income levels among regions and States as among our most serious domestic problems. If you are suggesting that virtually all kinds of governmental activities should be financed locally, it can be easily demonstrated that this is undesirable.

Chairman PROXMIRE. Mr. Craig, did you want to comment at this time?

Mr. CRAIG. I find myself, I think, in concurrence with Professor Kain's fiscal views here. I, too, think the gasoline tax as a Federal tax should be retained. The problem today arises by the way it is earmarked. What he seems to be suggesting is that, instead of being earmarked into the highway trust fund, it might go into something in the nature of an urban transportation fund, apportioned directly to urban areas, bypassing the State, for the urban area to decide under its own criteria how that should be allocated, whether in highways or transit improvement or buses or freeways, or some other transportation use. But he appears to want to keep it earmarked for transportation. I would go a little bit further and would be in favor of no earmarking at all. But I do think that taxes themselves should be retained as Federal revenue sources.

Chairman PROXMIRE. All the statements this morning say some very interesting things about user charges.

Mr. Kain, in your prepared statement, you point out that our frequent policy of charging tolls on new facilities only until they pay for themselves is bad economics. The tolls should be placed on older facilities which have become congested and they should be imposed primarily during peak periods.

We certainly have not made much use in this country of user charges to control highway congestion.

Mr. Foster, you served on a British Government committee, the Smeed Committee, which investigated the practical aspects of road user charges. From your experience, what are the practical possibilities for using parking charges, special licenses, metering, or other devices to cut congestion and make urban road users pay their own way to use it?

Mr. FOSTER. May I agree with Mr. Kain on what he says about the right policy for charging tolls. I think he is absolutely right in saying that charging tolls on new roads is not efficient.

Chairman PROXMIRE. I think there is a lot of logic in that, Mr. Foster.

I can see, for instance, that charging tolls for the use of roads in New York during the peak period would be a wise and helpful action.

Mr. FOSTER. I think this is so. I think the trouble is that the traditional method of charging the tolls works very well in New York, where you have bridges and tunnels which channel the people. But in any ordinary city, where there is land around the city, it is much more difficult to charge tolls. We have done quite a number of studies of this which do suggest very quickly the costs of collecting the tolls, the time spent by people waiting to deposit their money in the toll machine, absorb a very large part of the value of the revenue you actually collect. Thus we tend to reject the toll solution as a method of trying to help the congestion.

Chairman PROXMIRE. Have you tried it in your cities in England?

Mr. FOSTER. No. We just worked out the costs and the benefits and found that the costs were very high.

Chairman PROXMIRE. You have not actually tried it?

Mr. FOSTER. We have not actually tried it. We have tolls on a number of bridges, that is all.

Mr. KAIN. Probably the wrong tolls.

Mr. FOSTER. Probably the wrong tolls.

Chairman PROXMIRE. Mr. Craig, you express some reservation about user charges. Now, the fact that charges can be collected does not justify building a bad road, but would you not favor charges which would encourage better utilization of existing roads and reduce the need for new highway construction?

Mr. CRAIG. Yes, I would. And along that line I think that there are a lot of pricing devices that you have touched on in your question to Mr. Foster that do need to be explored. Locally here from time to time, for example, I have advocated a parking tax limited to the rush hour commuter. If, for example, the District of Columbia were to levy a tax on every automobile that is parked in the central area between the hours of 7 and 9:30, that would have, it seems to me, a very beneficial effect in encouraging more carpooling, and encouraging greater utilization of the transit services, and reducing the peak hour traffic entering Washington at the morning rush hour, when 70 percent of the vehicles that enter the central area have only one person in them, the driver. That could be rather easily collected. It could be done through the parking garages, the parking lot operators, or the Federal offices for Federal employees. Given Washington's political situation, and the suburban Congressmen, I do not know just how the Congress would receive it. But it seems to me theoretically it is a very sound idea.

Chairman PROXMIRE. May I ask you, Mr. Foster, along this line, you indicated that tolls may not be practical, but how about the line Mr. Craig was discussing, licensing and metering? The Smeed Committee did find practical possibilities here, did it not?

Mr. FOSTER. Might I just describe briefly perhaps the more favored system, the one that I favor myself. There have been technical tests since this metering report which suggest that it is feasible technically. This involves giving each car a meter. There are various forms of meters. It could come annually with the license plate. And this meter could be prepaid. And you could buy so many units when you bought your license plate, and exhaust them as you travel around the city. And you will exhaust them by, every time you pass over a wire in the road it would send an impulse into a meter and it would tick off a unit. And in the rush hour there would be several impulses at each charging point.

Chairman PROXMIRE. Have you tried this? It sounds very ingenious.

Mr. FOSTER. Technically it has been tried, and it works. And you can increase the price in the rush hour by increasing the number of shots that the wire in the road fires into your license plate. This does provide a very subtle method of dealing with the congestion problem.

The returns on the cost seem to be extremely high. The Smeed Report—

Chairman PROXMIRE. The returns on the costs seem to be high?

Mr. FOSTER. Very high, of the order of several hundred percent, was the suggestion in the Smeed Report.

Chairman PROXMIRE. Why hasn't this been put into effect if it has been worked out technically and it seems feasible and the principle is good?

Mr. FOSTER. It is a major administrative decision. You have to decide to give every vehicle this kind of license plate with a meter. You have to lay electronic wires almost everywhere. To try to do it in one city would seem to be very unfair, since they will be paying in this rather new way, and others would not. So there has been a lot of discussion of the administrative difficulties and possibilities, which I believe should result in a fairly full report, in the not too distant future.

Chairman PROXMIRE. That would be in response to Mr. Craig's notion—this would not work in Washington, for example, because the local government would be susceptible to congressional pressure, and you have Congressmen from Virginia and Maryland who drive in and whose constituents drive in. But maybe if it is done on a national basis it would be more workable. I take it that because you have a far more national government in your country than we have here this is more feasible.

Mr. FOSTER. But on the other hand it may be more feasible here on a State basis, because the States are larger, and some of your cities are more isolated from other cities. In Britain everything is so mixed up together, one city trailing off into another, it is more difficult to do it on that basis, Mr. Chairman.

I think the great difficulty is really to provide the right package. We always had the feeling that if you could introduce road pricing at the same time as a big improvement in public transport it would be much easier to persuade people that this was sensible. But to do it without a quid pro quo would be much more difficult.

Chairman PROXMIRE. I take it that all of you gentlemen would agree with Assistant Secretary Baker that the gasoline tax is a satisfactory user charge?

Mr. KAIN. Is?

Chairman PROXMIRE. Is.

Mr. KAIN. No, it is not.

Chairman PROXMIRE. I beg your pardon, I misunderstood you.

Mr. FOSTER. I made the point that it was satisfactory it seemed to me, outside cities, but not within, there it could be a base charge, but on top of this there should be a structure of charges to reflect differences in congestion.

Chairman PROXMIRE. It is satisfactory as far as it goes, but you could supplement it with these other devices that we have discussed right now?

Mr. FOSTER. Yes.

Mr. CRAIG. I hope my position is perfectly clear. I would not call it a user charge as presently administered. It has to be earmarked so that it cannot go for the facility—

Chairman PROXMIRE. Maybe I did not express my understanding of your position. You feel that we should not abolish the gasoline tax?

Mr. CRAIG. No, I am in favor of continuing it. But let us not mislead ourselves by calling it a user charge.

Chairman PROXMIRE. The toll charge you would call a user charge?

Mr. CRAIG. Yes, the toll is a user charge.

Chairman PROXMIRE. Why isn't a gasoline tax a user charge?

Mr. CRAIG. Of the Federal gasoline taxes that I am paying, not a penny can go to any highway that I use. It is earmarked for new highway construction only. I discuss this in my prepared statement.

Chairman PROXMIRE. Yes, but not a penny of gasoline tax that you pay goes to anything but some kind of road construction.

Mr. CRAIG. Yes. But it is not a charge for the cost of a highway I am using, it is a charge taken from me to apply to unbuilt highways that I may not want to see built and may never want to use.

Chairman PROXMIRE. You would not insist on any kind of user charge used only for the benefit of that particular user?

Mr. CRAIG. To me a user charge concept implies that a charge is for the facilities being used, yes. When I put 32 cents into the transit fare box, that is a user charge. When I put a dime into the telephone, that is a user charge. When I pay \$2 for the privilege of parking my car, that is a user charge. I am paying for the facility that I am using. But my gasoline tax does not go to the facility that I am using. In fact, by Federal law it cannot.

Chairman PROXMIRE. I see the logic of your argument looked at strictly from your standpoint. But if you look at it from the standpoint of all the consumers of gasoline, and the fact that all of the tax they pay goes into road construction, why isn't this a user charge?

Mr. CRAIG. As I point out in my testimony, the housewife who drives her husband to the Long Island railroad station is paying gasoline taxes which may be used to build new expressways that will render that railroad service uneconomic and put it out of business.

Mr. KATN. She does not pay any gasoline taxes while her husband is riding on the railroad, she just pays the gasoline taxes in getting to and from the station.

Mr. CRAIG. Getting to and from the station.

Chairman PROXMIRE. That gasoline tax helps build the roads on which she operates.

Mr. CRAIG. Federal tax can only go for new highway construction. Some of the New York State taxes might. As I point out in my prepared statement, the users of Macomb Street are subsidizing highway construction elsewhere. The taxes that are paid for by my car and other cars on Macomb Street, going to the library or the store, will not be used to improve or beautify that street at all.

Chairman PROXMIRE. Mr. Craig, your testimony details several provisions of Federal law which would seem to seriously interfere with orderly determination of State and local investment priorities:

1. States are prevented by Federal law from spending motor vehicle or gasoline taxes on anything except highway construction and maintenance.

2. States are prevented by Federal law from charging tolls on highways built with Federal aid.

3. States must channel their applications for Federal highway aid through a State Highway Commission.

It would seem that the very least the Federal Government could do would be to repeal these restrictive legal provisions and give the States a little freedom to operate.

On Monday, I asked Mr. Holmes of the Federal Highway Administration how the 90-10 interstate financing formula has affected State and local resource allocation. In particular, I suggested to him that this financing arrangement has not only led the States to favor highways over other forms of transportation, but also to favor new interstate highways over other road improvements which might cost less in total but for which less Federal aid was available. Mr. Holmes did not seem terribly concerned about the problem of favoring one sort of road over another. I gather you have a somewhat different view. Are you familiar with instances where interstate highways were favored over other, cheaper alternative road projects, just to get the Federal aid?

Mr. CRAIG. Yes. The District of Columbia is a good example. The total estimated cost of all major highway projects in the District of Columbia, using fiscal 1940 as a base year, was \$183 million as of 1956. This included all of the proposed interstate highways that the District of Columbia wanted to build. Since enactment of the Federal Aid Highway Act of 1956, promising 90 percent aid for freeways, the total cost has now passed the \$1 billion mark, even though all the highways in the original interstate highway system as laid out in Washington have been constructed. The motivation of the local highway departments has been to keep adding more lane miles to the interstate system.

For example, the Anacostia-Kenilworth Freeway was originally Route 295. After that freeway was constructed the District of Columbia wanted to add another freeway, so they took that off the interstate system and moved Route 295 to the other side of the Anacostia River, to add an east leg freeway on the west bank of the Anacostia River. Instead of six lanes for Route 66 as originally proposed (Roosevelt Bridge), they now want 12 and have added another six-lane bridge proposal at the Three Sisters Island as I-266 or alternate 66. They have been playing this chess game with these interstate numbers to move on to bigger and more expensive highway construction, so that the total cost of all major projects, highways, in the District of Columbia has multiplied five times under the impetus of this 90 percent Federal-aid.

I am not sure that this is entirely responsive to your question. But it shows the effect at the local level of this 90 percent ratio.

The Highway Department wants money to spend in constructing more highways, and they can increase their share of the kitty. And this has happened in most of our urban areas, just to get more of that kitty themselves, because the apportionment they receive is based upon the comparative costs for completing the system.

If you as a State highway commission or a local highway department can show that the cost of completing your part of the system is much, much higher, you are going to have a higher percentage of the total funds in the Federal-aid highway trust fund.

Chairman PROXMIER. Would you propose to change the 90-10?

Mr. CRAIG. I think all these ratios should be abolished. I would be in favor of continuing the grants to the urban areas, but let the urban areas decide what the best investment should be.

Chairman PROXMIRE. A hundred percent, is that what you say?

Mr. CRAIG. An un earmarked grant. You see, right now—

Chairman PROXMIRE. What I am asking is whether you would retain the present 90-10 formula.

Mr. CRAIG. No.

Chairman PROXMIRE. You would not?

Mr. CRAIG. Or the 50-50.

Chairman PROXMIRE. What would you substitute instead of that?

Mr. CRAIG. Bloc grants.

Chairman PROXMIRE. Without any requirement that local money is to be used?

Mr. CRAIG. And if they want to build freeways, as some cities undoubtedly do, they will build them.

Chairman PROXMIRE. What would the bloc grant require, that they have an option to spend the money on interstate or spend it on local streets?

Mr. CRAIG. On what they, through their local planning process, decide are the best investment criteria that they want to follow.

Chairman PROXMIRE. The only requirement is that it be spent on roads?

Mr. CRAIG. Absolutely not.

Chairman PROXMIRE. You would not require that?

Mr. CRAIG. No.

Chairman PROXMIRE. Should they spend it on housing?

Mr. CRAIG. What is the city of New York going to do with Federal aid if limited to road-building?

Chairman PROXMIRE. Would you have them spend it on housing and education?

Mr. CRAIG. I would favor completely no strings.

Chairman PROXMIRE. Welfare?

Mr. CRAIG. Welfare or anything else. If there must be strings attached, I would only limit it to transportation, in the broadest sense. But you always have trade-offs between transportation and—

Chairman PROXMIRE. Would it enable them just to reduce taxes and not spend it at all?

Mr. CRAIG. If that were the case, yes. I am in favor of bloc grants to urban areas by the Federal Government. Because, you see, Senator, you have trade-offs between transportation and other end uses. I point out in my testimony that probably the city of Washington would have done much more to solve its transportation problems by improved central city housing than by radial highway construction.

Chairman PROXMIRE. This is a very drastic, dramatic, and interesting view, that you would permit the payment to cities or States of substantial sums, but they would not spend it all.

Mr. CRAIG. No, I am not saying that they would not have to spend it all.

Chairman PROXMIRE. I understood you to say that they could use it to reduce taxes.

Mr. CRAIG. They could use it for that.

Chairman PROXMIRE. That is what I had in mind, if they had a situation where they felt their transportation was a little high, instead of increasing the property tax to meet their needs, their welfare needs, and so forth, they would simply take this Federal gasoline tax money they were getting and use it to reduce their property taxes.

Mr. CRAIG. I do not see why we should attach labels to this source of tax revenue any more than the Federal income tax or the Federal-State tax or anything else. What I am speaking now in favor of really is similar, I think, to the President's proposal that there be some bloc grants to pass through the State to urban areas.

Chairman PROXMIRE. Mr. Foster, you mentioned in your statement a study you once made which showed that 35 percent of the benefit of the new subway line in London would accrue not to subway users but to road users. So it is possible apparently to measure the benefit to road users of improving public transportation systems. It is not only possible, you have done it. If this much of the benefit of public transit improvement accrues to highway users, then those who would restrict the use of highway trust-fund revenues solely to building more highways are very shortsighted indeed, isn't that correct?

Mr. FOSTER. I would agree with that. I think Mr. Craig's suggestion of an open-ended bloc grant is very interesting, and that is a revolutionary way of expenditure control. If you are not prepared to go as far as that, it does seem to me that it is a good idea to have a local bloc grant.

Chairman PROXMIRE. Let me interrupt to tell you why we are not prepared to go that far, why I think Congress would not be. The reason is, of course, that if you do this kind of thing and say, just take the money and do whatever you want with it, there is a tendency—because all of us who are elected to office are politicians, we have to look to the next election, we have constituents who do not like us to raise their taxes, and our constituents do like us to provide their services. So what a Congressman or a Senator is doing is raising their taxes so that we can make a bloc grant to a mayor or Governor to hold down their taxes. So the Governor runs against me when I run for the Senate next time, and says I am a big spender, or I am a big taxpayer, which is even worse, and on the other hand he is the man who held your taxes down and provided all these nice services. That is not just a theory, it is a fact. I have run into many people in the Congress who feel that way. So you have to tie it to some kind of mandated action on their part, either housing, or welfare, or something. But it seems to me it cannot be open-ended in the sense that they do not have to show that they spent it somewhere.

Mr. FOSTER. I would endorse that. In Britain we had exactly the same objection to a proposal of that kind.

But as a half-way house it does seem to me that there are great advantages to making it possible to use funds alternatively for public transport or highway improvement.

And perhaps I might go back for a minute to the highway trust fund. Winston Churchill abolished our highway trust fund in 1926. But I was involved in government in many discussions with high-

way authorities about the possibility of resurrecting it. We were not persuaded. There are two issues here. One is that a highway trust fund makes it difficult to get good control over investment. It is not the fund that is objectionable, it is the fact that all the money has to be spent on highways, whether or not a satisfactory return is promised at the margin. If you want to eliminate the bad effects of the highway trust fund you can do this by making it a requirement that the money in the fund is only spent if a satisfactory return is yielded on the investment. It seems to me that another way of attacking the situation is not at the Federal level, but indeed to consider whether or not there might be a trust fund or bloc grant or the equivalent at the State level. And to exercise control over it in the sense of allowing the local people to spend the money on transportation purposes if and only if they can produce the evidence in the form of rates of return or other preagreed valid measures that the money is going to be worth spending. But if you do not introduce some kind of limitation of this kind you are simply handing out the money to them to mis-spend on transport, or spend wisely on transport, at their own pleasure.

It would seem to me that there were advantages in having a safeguard from the Federal point of view that certain investment criteria must be calculated and reach certain standards before approval is granted.

Chairman PROXMIRE. I have just one more question.

Mr. Craig, you say in your prepared statement that "defenders of the highway trust . . . should be quite willing to make any new Federal-aid highway project dependent upon prior approval in a referendum."

I am not sure a referendum on each federally aided highway project would really be practical, but certainly our procedures for determining citizen preferences seem to need improvement. In the event that the Federal Government does continue to finance highways, what should we do to strengthen our laws and procedures for protecting local citizen preferences?

Mr. CRAIG. Well, the most important thing is to take the Federal prejudgment for determining alternatives off the scales. They are very destructive to sound planning—the 90-10 ratio and 50-50 ratio and 0-100 ratio that exist now. But I frankly think that in anything of such major impact as an urban freeway a referendum is a perfectly feasible requirement. Ninety-five percent of the District residents went on record—I am sorry, of the District of Columbia Democrats, this was in the primary election—as wanting Congress to make any new freeway in Washington subject to approval by the residents of Washington. I do not see anything impractical about such a requirement.

It would have resolved our freeway problems here years ago if Congress had followed that suggestion, and with substantial savings to the Federal-aid highway trust fund.

Chairman PROXMIRE. Mr. Kain, how do you feel about that?

Mr. KAIN. I think there is a bit of a problem here. One difficulty is, what level you give a veto power. There is clearly a conflict in many situations in that those who receive the benefits are often

different from those who bear the costs of improvements. One feature of urban highways is that they require rather specialized pieces of land. Typically, most of the benefits from a new highway do not accrue to residents of the community through which it passes. As a result you would probably never build an expressway if you had to obtain the approval of, say, every city block through which the expressway must pass.

Chairman PROXMIRE. I am sure that Mr. Craig recognizes that. You are right about that. That is certainly my experience with people whose home is going to be condemned and taken, that they are overwhelmingly against it, and they work hard to try to stop these highway programs. And, obviously, these people would veto it. But at the same time, I am not exactly sure what group would be included in the referendum, because after all the interstate highway system would be used by all the people in the country, and whether you should confine it to the State which is conducting the referendum, or the people in the city, if you are going to come through the city—the trouble with a referendum in Washington is that people from New York and all around the country would be using it.

Mr. KAIN. As a result, I would emphasize appropriate planning criteria and the payment of adequate compensation. I am very much concerned about the costs imposed on many urban residents by highway construction. Therefore I would put the emphasis on trying to improve compensation systems, and less on this sort of veto power.

We have a lot of experience with local vetoes in Massachusetts, and it is not at all clear to me that they produce particularly good results.

Chairman PROXMIRE. In a democracy people ought to have a right to say what happens to their society.

Mr. KAIN. We have a representative form of government, and we do not have referendums on every decision.

Chairman PROXMIRE. No, except that in this representative form of government we tend to delegate these decisions to interested groups, really, to some extent at least. And the bureaucracy—their constituency becomes a highway lobby. And I am not sure how representative a decision it is now as compared to a decision in which you would ask—at least on major highway systems, you would make it possible for people to have a voice, direct voice.

Mr. KAIN. I am not saying that there would be no system of referendums of some kind that I would not support. But I have a feeling that these are really very complex, interdependent decisions.

Chairman PROXMIRE. You say we do it by compensation. How can we compensate for noise and pollution and neighborhood disruption?

Mr. KAIN. There are two kinds of actions you can take. First, you can often modify the design of a particular facility. As Christopher Foster suggested in his testimony, it is often possible to reduce freeway noise, to improve their esthetics, and make other design improvements. None of these possibilities have been given enough attention in determining the location and design of freeways. However, even with the best design job possible, some individuals will be made worse off. These individuals ought to be generously compensated. If they are asked to accept costs in the name of some broader

good, we should give them generous monetary compensation and whatever other assistance is needed to make them whole again. There are a variety of methods that can be used to correct the injustices that have all too often resulted from highway construction in the past. I would be much more concerned that these appropriate techniques and criteria be developed and used, than citizens be given an empty and meaningless yes or no decision over what is probably a bad technical job in the first instance.

I can imagine situations where some kind of citizenry approval might lead to better decisions. However, I would place more emphasis on the measurement and identification of these costs and on devising methods for incorporating them into the evaluation and design of all sorts of public investments, not just highways.

Recognition of these indirect costs will affect the design and location of particular facilities. Still, even when you have a best design, which incorporates considerations of these costs, there should be provision for the generous compensation of individuals who bear the unavoidable costs.

Chairman PROXMIRE. Excuse me, it is going to be very hard to compensate anybody for the noise.

Mr. KAIN. They can move.

Chairman PROXMIRE. And it is going to be very hard to compensate them for the air pollution.

Mr. KAIN. There are some people that are perfectly happy to put up with some noise if they have more of something else. When I worked at RAND there was an employee who owned a house at Playa del Rey, which is right at the end of the runway at Los Angeles International. Everything was fine until they introduced jets. The noise drove him up the wall. When he tried to sell, he had a terrible time trying to find someone to buy his house.

Chairman PROXMIRE. He finally found a deaf family?

Mr. KAIN. No, he finally found an Air Force officer, who was assigned to RAND and who had lived on air bases all his life. He thought the noise was great. Indeed he claimed he could hardly sleep without it.

This admittedly unusual example illustrates that there are differences of taste and a price that will just compensate for adverse influences. There are some people who are willing to put up with the noise if they can buy the property for less.

Chairman PROXMIRE. Thank you, Mr. Kain.

I want to thank you gentlemen very much. You have been fine panelists. It has been a very interesting morning and your testimony will be very helpful to the committee.

The subcommittee will now stand in recess until tomorrow morning, when we will convene to hear four witnesses on the supersonic transport.

(Whereupon, at 12:15 p.m., the subcommittee recessed, to reconvene on the following day, at 10 a.m., Thursday, May 7, 1970.)