

Highways Role In Our Transportation System

By: Francis C. Turner
Federal Highway Administrator

We live in a nation of more than 200 million people whose annual production of goods and services is approaching \$1 trillion.

Our people and their goods and services are on the move constantly, day and night, week in and week out, month after month. The transportation system that makes this movement possible accounts for about one dollar out of five of our total national product.

The system offers movement by air, water, rail, pipeline and highway, and combinations of these modes.

Information for 1968, the latest available, lists total transportation costs of \$171.4 billion. The bill was divided as follows:

For rail, \$12.0 billion (7 percent); air, \$9.8 billion (5.7 percent); water, \$5.2 billion (3 percent); pipeline, \$1.2 billion (0.7 percent); freight forwarders, traffic management and shipments not assigned by mode, \$1.2 billion (0.7 percent), and highways, \$142 billion (82.9 percent).

Highways, then, account for four of every five transportation dollars, and about 16 percent of the Gross National Product.

Going further, we find that truck movements account for \$55 billion, or 73 percent of the total freight transportation bill while movement by automobile and bus account for \$87 billion, or 90 percent of the costs of passenger transport.

These cost figures reflect the dominant role of highways in the movement of people and goods.

Urban areas are almost totally dependent on highway transportation. In 1968, in urban areas of more than 50,000 population, 99 percent of all person trips and 98 percent of all person miles of travel were by highway vehicle, with 92 percent by auto, 6 percent by bus, 2 percent moved by rail.

In smaller urban areas the proportion of travel by highway is practically 100 percent.

In intercity travel in 1969 it is estimated that of 1.130 billion (not million) person miles of travel, 977 billion were by automobile and 26 billion by bus, for a total of 1,003 billion, or 88 percent of the total. Air travel was second with 111 billion passenger miles, or less than 10 percent of the total.

In the movement of goods, virtually all movement within urban areas is by truck. In intercity movement highway transportation is not overwhelming, but it is larger than many realize. Of a total of some 1,850 billion ton miles of goods movement in 1968, 430 billion, or about 23 percent, were by truck. Rail movement, with its longer haul distances, accounted for 41 percent. However, the value of truck transportation is considerably greater in proportion, as indicated by the fact that regulated and private truck carriers together accounted for 73 percent of the freight transportation bill.

Presentation of these figures in no way derogates the contributions of any of the modes in our transportation system. Certainly all are needed to provide the mobility of people and goods our nation requires, and each of the modes should be encouraged to do the job it does best as complementary—not competing—elements of the total system.

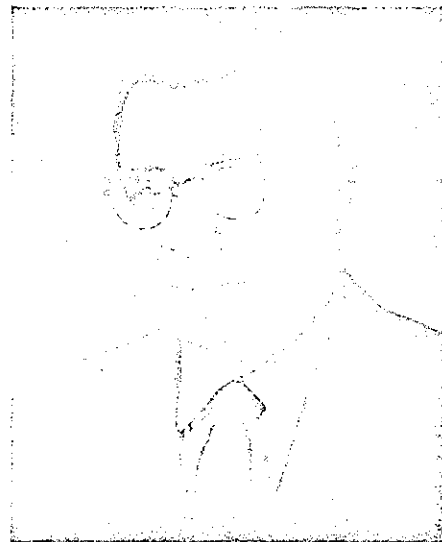
But the figures are evidence of the fact that within our transportation system highways are the predominant mode. They provide the overwhelming proportion of the transportation services used by Americans today. They are the backbone of the transportation services used by Americans today. They are the backbone of our whole mobility network.

Highways tie all the other modes together. No one of the other modes can be self-contained like highways can. No one of the others can provide all of the travel required for either goods or services to their final destination and thus must depend on highways at some part of the trip.

Virtually every air traveler, for example, requires highways to complete some part of every trip. But more than that, the airplane crews, maintenance operations, air traffic control, passenger food service, and the whole air terminal complex couldn't function without highways. The same applies to rail travel.

So highways are not only a large prime mover of people and goods in their own right, but they also provide essential services to complete the operations of all the other modes.

It is hard to conceive of very many trips or freight movements that do not



depend on highways to some substantial extent.

Furthermore, there is every reason to believe highways will continue to be the predominant mode in the future. There is no alternative in sight which can provide either the volume or the variety of transportation services which are so indispensable to the way of life we Americans have chosen.

Even given the optimum development of air transport for long-range trips, and of fixed rail systems—surface or subway—for intermediate length trips and commuting trips in densely developed metropolitan centers, there will remain a tremendous volume of trips that cannot be accommodated by these modes or by foot. These will be highway trips.

Nearly 80 percent of all American families now own automobiles and the number owning two or more cars has increased 1.6 times in 8 years. Motor vehicle travel now exceeds a trillion vehicle miles a year, and is expected to reach 1.5 trillion miles in 1985, or nearly a 50 percent increase in 15 years.

Moreover, most of the trips are short. Today, 80 percent of all automobile trips are less than 10 miles in length, and 60 percent are less than 5 miles. Some 82 percent of commuters use automobiles as a means of transportation.

But highway transportation does not only serve the private vehicle; it also provides the greatest part of public mass transportation. This fact has not always been fully appreciated, and we have not taken full advantage of our highways' potential in this regard.

Buses already carry 70 percent of all transit passengers in our urban areas, and in all probability buses of one kind or another will continue to be the only form of mass transit in at least 95 percent of our urban areas of 50,000 or more population.

Expanded bus usage, encouraged perhaps by high-speed vehicles operating
(Continued on Page 26)

Highways Role

(Continued from Page 7)

during peak hours on exclusive bus lanes, could increase the people-carrying efficiency of our highways, reduce vehicular congestion, and lessen the demand for additional highway facilities.

With our population growing and urbanization continuing, this facet of the highway role—its service to public transportation—will merit increasing attention in the future.

Highway Needs in the New Decade

(Continued from Page 12)

known costs associated with a greater emphasis on environmental considerations.

All in all the decade of the Seventies appears to be a tremendously busy one for the highway industry. There seems to be more need than currently anticipated funds can cope with. There appears to be a variety of projects which can keep the contractors busy — big and small. There will undoubtedly be a fair enough share of sticky problems to keep the highway administrators on their toes.

It looks like a good decade. It is up to all the elements of the highway industry to make it so.

H. H. Huber Environmental Quality Control Specialist

(Continued from Page 14)

straw mulch be placed immediately following the grading and specified tillage operations. Also, mulching of prepared areas will be permitted at any time of the year as a means of preventing erosion.

Measures have also been taken eliminating air pollution on construction projects in 10 major metropolitan air basins of the state.

The Department also has put into effect stronger agreements on design with state conservation agencies. All highway work is reviewed by these agencies and recommendations incorporated into construction plans to minimize environmental infringement.

Huber has long been identified with conservation groups and has worked closely with Boy Scouts and outdoors associations. He is an avid outdoorsman and camper and claims with "small expenditures in planning, large values will result in conservation."

He is married to the former Nellie B. Stump of Hershey, and the couple has a son, Randall B., 15.

Divided highways aren't meant to be conquered. If you don't signal it may be a turn for the worse.

Ralph E. Hefner, ARBA's New President

(Continued from Page 8)

established needs, with an extension of the Federal Highway Trust Fund through 1985.

2. Increased emphasis on the improvement of the Federal-aid primary and secondary systems. The Interstate System should be completed at the earliest practical date. After the existing commitment as to mileage and financing is fulfilled, Federal aid for highways should be extended under a uniform matching ratio.

3. Establishment of a new urban Federal-aid system for the improvement of arterial streets in metropolitan areas of more than 50,000 population.

4. Establishment of a new program of bridge replacement, whereby States would be permitted to use up to 10 percent of their annual Federal-aid apportionments for the replacement of critically deficient bridges, without State matching; and, with matching, to use a specifically designated bridge apportionment to replace other obsolete bridges and to build additional river crossings.

5. Provision for the limited application of Federal-aid funds to provide fringe parking, exclusive bus lanes and bus turn-offs in support of highway-oriented mass transportation, with the proviso that Federal-aid highway funds not be used for the construction of service buildings or purchase of equipment.

6. Provision for the continuation of the Federal-aid primary and secondary programs, subject to revisions to be made based on the functional classification study and a new study on apportionment formulas.

7. Specific project-by-project cost study reports on the community impact elements involved in highway construction to the end that costs of joint and multiple development projects may be allocated equitably.

8. Extension of the relocation housing assistance provisions of the 1968 Highway Act to cover all Federal and Federally aided programs involving land acquisition.

9. Provision for the reimbursement of the State for the Federal share of preliminary engineering costs by means of a fixed-percentage-of-construction-cost payment.

10. Provision for a study to seek ways to improve the effectiveness of the Federal-State highway partnership, with due consideration for the roles of local government and the coordination of highway with other transportation programs.

Edwin H. Webster Announces 1970 Prize Bridge Competition

(Continued from Page 8)

attention on designs that are outstanding in their aesthetic appeal."

Any steel bridge located within the United States, and which was completed and opened to traffic during the calendar year 1969, is eligible for entry.

Selection of the winners will be by a distinguished panel of professionals who will judge the entries on June 18. The members of the Jury of Awards are:

Samuel S. Baxter, Water Department Commissioner, City of Philadelphia, Philadelphia, Pennsylvania.

Dr. James Chion, Professor of Civil Engineering, University of Colorado, Boulder, Colorado.

Wayne S. Hertzka, FAIA; Hertzka & Knowles, San Francisco, California.

Frank M. Masters, Jr., Consulting Engineer, Harrisburg, Pennsylvania.

Francis C. Turner, Federal Highway Administrator, U. S. Department of Transportation, Washington, D. C.

Stainless steel plaques will be affixed to the prize winning bridges. An Award Certificate will be presented to the designer, general contractor, steel fabricator, and owner of each of the award winning bridges.

Submissions must be postmarked prior to June 6, 1970. Details of the program and entry information can be obtained from AISC, 101 Park Avenue, New York, N. Y. 10017.

Where Are Our Taxes Going?

(Continued from Page 11)

total was \$17—federal, state and local. By 1910, the figure was up to \$96; in 1950, \$337, and in 1960, the average tax load was \$628.

The National Chamber estimates the total per capital tax for 1970 will be more than \$1,050 for every man, woman and child in America.

"Road Contractors Work To Spare that Tree"

(Continued from Page 15)

"It's not unusual to find a highway engineer rerouting a road or redesigning a bridge these days just to save a rare or unusual tree," Turner added. "It has become routine for us to look for opportunities to make the highway serve as more than just arteries of transportation. Roadside embankments have often been used as dams to create lakes for fishing and recreation, and cleared highways have become shelters for recreational facilities all across the land."

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