

URBAN TRANSPORTATION

Joint Report to the President by the
Housing and Home Finance Administrator and the Secretary of Commerce

Letter of Transmittal to the President from the Secretary of Commerce and
the Housing and Home Finance Administrator

I. Conclusions

II. Recommendations

III. Supporting Information

A. Urban Growth Trends

B. Urban Transportation Planning

1. Urban Planning Assistance Programs (Section 701)
2. Highway Planning and Research Program (1-1/2 percent funds)
3. Joint Efforts

C. Federal-aid Highway Program

D. Present Mass Transportation Programs

E. Capital Requirements & Financing for Urban Mass Transportation

F. Assistance for Displaced Families and Businesses

G. Research

1. Highway
2. Mass Transportation

IV. Addendum - Report of the Institute of Public Administration,
"Urban Transportation and Public Policy" and
appendix

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I. CONCLUSIONS

1. Urban transportation is a major determinant of how people live and work in an urban setting. The type and quality of transportation bears heavily upon questions of concentration versus dispersion of urban populations, growth or decline of central business districts and core cities, the success or failure of urban renewal, housing and public improvement programs, recreational and cultural opportunities, and the relationships of suburbs and smaller outlying cities to the central city and to each other.
2. The different means of urban transportation are closely inter-related. Action on any one mode will affect the others. For example, decisions respecting suburban railroads serving large cities affect the level of automobile use, which in turn affect the efficiency of surface transit. Despite spectacular progress in highway facilities, in no metropolitan area has a freeway system yet been completed. There is need for improvement in coordination and increasing efficiency of transportation in urban areas.
3. Our highways play a vital role in urban transportation and will continue to do so. They provide for the movement of both people and goods by private vehicle; and the roadbed for a substantial portion of public mass transportation.

The Bureau of Public Roads will in the future

- (a) permit the reservation of highway lanes for the exclusive use of specific types of motor vehicles when comprehensive transportation plans indicate this to be desirable, and
 - (b) encourage the development of rail transit and highway facilities in the same right-of-way whenever more effective transportation will result.
4. Increased emphasis on mass transportation is needed because only a balanced system can provide for:
 - (a) The achievement of land-use patterns which contribute to the economic, physical and social well-being of urban areas;
 - (b) The independent mobility of individuals in those substantial segments of the urban population unable to command direct use of automobiles.
 - (c) The improvement in overall traffic flow and time of travel within the urban area.
 - (d) Desirable [standards of] transportation at least total cost.



5. Comprehensive planning is the first step in achieving good urban transportation. Planning should be a continuing process and should include all of the interdependent parts of the urban community and all agencies and jurisdictions involved, and should be coordinated with policy making and administration. Transportation planning should be a part of systematic land use and development planning. It should be for the system as a whole rather than for its individual components--private vehicles, buses or rail transit.

The Bureau of Public Roads will, in the future, emphasize that highway planning must include the planning of adequate traffic control systems, parking facilities, and circulation systems on city streets commensurate with the volumes and composition of traffic anticipated on freeways and major arterial streets.

6. To make transportation plans effective will require coordinated direction of construction and operations for all parts of the transportation system. The form of direction or coordination will vary from one area to another because of the diversity of political jurisdictions and operating responsibilities for transportation.
7. Mass transportation must be viewed as a public service and often cannot be a profit-making enterprise. While mass transportation is provided on a more or less limited scale in hundreds of localities, it is generally not possible to support a large-scale investment program from the fare box. But the price to the community and the Nation of inadequate mass transportation can be uneconomic uses of land and higher than necessary costs of public facilities, excessive travel and increasingly aggravated congestion at peak hours.

The most compelling need for mass transportation is during peak periods of movement to and from work. In many areas, it can meet this need better than other forms of transportation. But the off-peak slack means insufficient revenues to cover total operating expenses and needed capital investment. Efforts to cover total costs by increasing fares and decreasing service have proved self-defeating: those who can afford to pay are increasingly impelled to use autos; and the aged, low-income people and others heavily reliant upon public transportation are unduly penalized.

8. In view of the importance of mass transportation for urban development and the impossibility of financing a large capital improvement program for the fare box, a public contribution is clearly needed. Because of the fragmentation of local government in urban areas and their limited means for raising tax funds, substantial Federal financial participation is called for. Without Federal help the

*and a matching
local contribution*

most that can be expected are piecemeal efforts which cannot be effective. Federal assistance on a substantial scale for mass transportation along with continuation of the needed highway program would encourage rational local investment decisions leading to better balanced urban transportation systems. Federal aid for capital improvements would also facilitate levels of services and fares which will attract sufficient users so that mass transportation can make its potential contribution to urban growth and renewal.

9. Every urban community that seeks Federal aid must want good transportation enough to make a substantial contribution of its own. This will give the local people a stake in a sound capital investment program and a pocketbook concern with sound management and efficient operations.
10. Construction of highways and mass transportation facilities frequently cause great hardship to families and businesses which are displaced. Location decisions should take full account of effects on established neighborhoods, and when people and businesses must be displaced, their moving expenses should be paid from public funds and families should be assured of relocation in suitable housing.
11. Long-range progress in urban transportation, as in other fields must be encouraged by a large and sustained research effort. Through extensive technological and economic research we can look forward to the creation of improved transportation systems which will serve the needs of future urban growth and renewal at minimum total cost.

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II. RECOMMENDATIONS

4

General

1. To improve competence in the urban planning process, both the Bureau of Public Roads and the Housing and Home Finance Agency should be enabled to offer to the States and local governments more guidance, increased technical service, and training for personnel in the technical aspects of planning.
2. Suitable relocation housing should be assured to families displaced by Federally-assisted construction of highways and transit facilities. Also the moving expenses of families and businesses should be met from Federal funds. Legislative provisions for such assistance should parallel the provisions for the Urban Renewal Program.

Recommendations for Urban Mass Transportation

1. Mass transportation projects which are parts of comprehensively planned urban transportation systems should be eligible for Federal grants covering 2/3 of project cost which cannot reasonably be financed from expected net revenues. Local or state contributions would have to cover the other 1/3 of net project cost.
2. For an emergency three-year period, Federal grants of 1/2 net project cost should be made available where there is an urgent need to preserve an existing facility or service that otherwise probably would cease to be available for transportation purposes; where an official program for a coordinated transportation system is being actively prepared; and where the assisted project can reasonably be expected to be required for such a system.
3. An authorization for grant contracts of \$500,000,000 should be made available over a three-year period, with \$100,000,000 authorized in fiscal 1963.
4. Federal loans ^{already authorized} should continue to be available where private funds cannot be obtained on reasonable terms for financing mass transportation projects. Where a Federal grant is involved, the loan could cover the portion of capital outlay financed from revenues where financing is not otherwise available on reasonable terms.
5. Long-term Federal assistance should be made available only (a) where an organization exists empowered to plan for substantially all of the urban area to be served, (b) where transportation planning as a part of comprehensive area-wide development planning is being conducted as a continuing process and (c) where the assisted project will be administered

through a public agency as a part of a unified or officially coordinated transportation system for all or substantially all of the urban area.

- 6. Federal grants and loans should be made only to qualified local public agencies. Such agencies, however, could lease facilities and equipment or make other arrangements for private operation of assisted mass transportation systems.
- 7. In order to encourage and help finance needed economic and technological research in mass transportation, the \$25,000,000 authorized for the demonstration grant program should be made available for these purposes and an additional \$10,000,000 a year should be authorized for the next three fiscal years.
- 8. Legislative provisions should be made in advance for inter-state compacts for the establishment of agencies to carry out transportation and other regional functions in urban areas extending across State lines.

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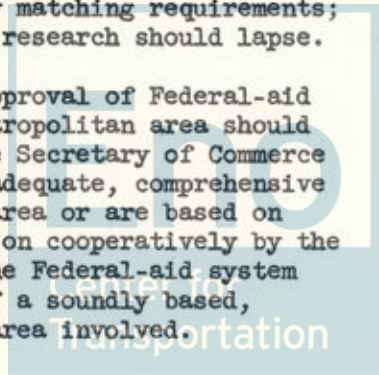
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Recommendations for Urban Highway Programs

- 1. Federal-aid secondary funds should be made available for expenditure on extensions of that system in urban areas.
- 2. Use of Federal-aid highway funds should be permitted for the construction of highway facilities for the exclusive use of specific types of motor vehicles whenever comprehensive transportation plans indicate this to be desirable.
- 3. Funds for highway research should be augmented by providing that an additional 1/2 of 1 percent of the funds apportioned to the States for the Federal-aid primary system, the Federal-aid secondary system, and extensions of these systems in urban areas be available for this purpose.
- 4. The use of Federal-aid highway funds made available for planning and research purposes should be required rather than permissive; the matching of such funds by the States should be required in accordance with statutory matching requirements; and the funds not used for planning and research should lapse.
- 5. Beginning no later than July 1, 1965, approval of Federal-aid highway programs for projects in any metropolitan area should be made contingent upon a finding by the Secretary of Commerce that such projects are consistent with adequate, comprehensive development plans for the metropolitan area or are based on results of a continuing process carried on cooperatively by the States and local communities and that the Federal-aid system so developed will be an integral part of a soundly based, balanced transportation system for the area involved.

legislative consent

and comprehensive transportation planning



III. SUPPORTING INFORMATION

A. Urban Growth Trends

The rate of the urbanization process in the United States in recent decades has been spectacular: 70 percent of the Nation's population now lives in urban areas. For these urban areas, transportation problems have been complicated not only by the tremendous population increase but by the changing pattern of urban growth. In the last decade (1950-60), metropolitan area growth constituted 85 percent of the total national population increase, but more than three-fourths of this growth in the metropolitan areas took place outside of the central cities.

Economic prosperity, coupled with improved mobility, have enabled an increasing number of American families to live in suburban areas. This residential outflow from the central cities has been accompanied by extensive commercial and industrial decentralization, and as a result urban travel patterns have changed materially from those of former years. There has been a relative decrease, and sometimes an absolute decrease, in the numbers of trips to the central business district, while the numbers of crosstown trips have risen rapidly.

These changes, in turn, have greatly affected modes of travel. Since World War II, automobile usage has been increasing while transit patronage has been declining steadily. From 1956 to 1960, the number of revenue passengers carried by busses and street cars declined by about 22 percent, while the number carried by grade-separated transit declined by only 4 percent. Today, in most urban areas, over 85 percent of the total daily travel is by automobile. On the other hand, at peak hours 40 to 90 percent of the travel to the central business district in our larger cities continues to be made by public mass transportation.

By 1980 the total population of the United States is expected to reach 250 million, and it is anticipated that three out of every four persons will be living within urban areas. Occupying only about 2 percent of the Nation's land area, the urban areas will contain not only a great concentration of the total population but of commerce and industry as well. Over half of the total population in 1980--some 140 million people--are expected to be living in 40 great urban complexes, each with a population exceeding 1 million.

By the year 2000, less than 40 years hence, the Nation's total population may well reach 350 million. If present trends continue, 85 percent of these people will live in urban areas; more than 50 urban complexes will have attained the million population mark.

These estimated increases and concentrations of population clearly indicate the tremendous demand for transportation facilities for which we now need to plan.

B. Urban Transportation Planning

7

1. Urban Planning Assistance Program--Section 701

The purpose of the Urban Planning Assistance Program (Section 701 of the Housing Act of 1954, as amended) is to assist State and local governments in dealing with planning problems in metropolitan and other urban areas; to facilitate comprehensive planning for urban development on a continuing basis; and to encourage these governments to establish and improve planning staffs.

Planning grants may be made to State planning agencies for planning assistance to smaller cities and communities either singly or in groups with a population of less than 50,000. Agencies empowered to perform metropolitan or urban regional planning may receive grants directly or through State agencies. Special provisions are made for officially designated redevelopment areas, disaster areas and Federally impacted areas. Finally, grants are available for State and inter-state comprehensive urban planning and for related research and coordination.

Emphasis is given to encouraging planning for entire urban areas. Needed technical assistance for planning and organizing to carry out plans on a unified metropolitan or regional basis may be provided by the Housing Administrator.

Under the law, comprehensive planning which may be assisted "includes the following, to the extent directly related to urban needs: (1) preparation, as a guide for long-range development, of general physical plans with respect to the pattern and intensity of land use and the provision of public facilities, including transportation facilities, together with long-range fiscal plans for such development; (2) programming of capital improvements based on a determination of relative urgency, together with definitive financing plans for the improvements to be constructed in the earlier years of the program; (3) coordination of all related plans of the departments or subdivisions of the government concerned; (4) inter-governmental coordination of all related planned activities among the State and local governmental agencies concerned; and (5) preparation of regulatory and administrative measures in support of the foregoing."

The Housing Act of 1961 made two major additions in the basic authority. The first was to explicitly encourage the planning of "coordinated transportation systems" as a part of comprehensive planning. Such planning includes comprehensive urban transportation surveys, studies and plans to aid in solving problems of traffic congestion, to facilitate the circulation of people and goods in the metropolitan and other urban areas, and to reduce transportation needs. Second, the authorization for appropriations was increased from \$20 million to \$75 million, and the amount of the grant permitted was increased from one-half to two-thirds. The funds may be used jointly with funds available for planning surveys and investigations under other Federally-aided programs such as the $1\frac{1}{2}\%$ funds of the highway program.

As of December 31, 1961, section 701 grants had assisted comprehensive planning for 1,922 small communities, 123 metropolitan or regional areas, and 16 states. Grants totalling \$22,285,000 had been approved to that date.

2. Highway Planning and Research Program (1½-percent funds)

The annual authorizations made by the Congress for Federal aid for highways are apportioned among the States by methods prescribed by law. Under the Federal-aid legislation, 1½ percent of the funds so apportioned annually to each State are earmarked for highway planning and research.

This provision, as initiated in legislation of 1934, applied to planning only; research was added by legislation of 1944. As now codified in section 307(c) of Title 23--Highways, U.S.C., the legislation provides that

"Not to exceed 1½ percent of the sums apportioned for any year to any State...shall be available for expenditure upon request of the State highway department, with the approval of the Secretary (of Commerce), with or without State funds, for engineering and economic surveys and investigations, for the planning of future highway programs and the financing thereof, for studies of the economy, safety, and convenience of highway usage and the desirable regulation and equitable taxation thereof, and for research necessary in connection with the planning, design, construction, and maintenance of highways and highway systems, and the regulation and taxation of their use."

While no specific proportion of the 1½-percent funds is designated for urban planning, it will be noted that both planning and research in planning are included in the descriptive list of work for which the funds may be used. The States are responsible for initiation of programs of planning and research projects to be undertaken with the 1½-percent funds, and the overall needs in each field in each individual State are the basic criteria used by Public Roads in reviewing the programs for approval.

In recent years the 1½-percent funds have been used to great advantage in many States in conducting a variety of studies related to urban highway planning. Many of the studies have ultimately produced actual capital improvement programs which are now under construction.

While the Federal-aid legislation does not require each State to use all of the 1½-percent funds allotted to it, for planning and research, nor is statutory matching required (10 percent State matching for Interstate funds; 50 percent State matching for ABC funds), it has been Public Roads' policy in the past to urge them to do so.

As with the Federal-aid funds for highway construction, the 1½-percent funds are not advanced to the States prior to use. The Federal-aid share of the cost of projects is claimed by the States on a reimbursement basis, subject to Public Roads audit.


3. Joint Efforts

The Department of Commerce and the Housing and Home Finance Agency have agreed to the use of highway and urban planning funds jointly in an urban area where local and State bodies are prepared to establish coordinated planning. Both agencies are pledged to stimulate and cooperate in a continuing process of planning and development coordination which will:

1. Give consideration to all forces, public and private, shaping the physical development of the total community.
2. Cover land uses and controls as well as plans for physical development and combine all elements of urban development and redevelopment into a clear-cut, comprehensive plan of what the citizens want their community to become.
3. Cover the entire urban area within which the forces of development are interrelated.
4. Involve in the planning process the political jurisdictions and agencies which make decisions affecting development of the metropolitan area.
5. Link the process of planning to action programs.

The objective of this joint effort is not merely a planning process but the development of effective cooperation and coordination both among the local governments within a metropolitan area, and between these governments and the State and Federal agencies involved in area development activities. In this way it can be assured that transportation will play its proper part in serving and helping to shape the community in the form its citizens desire.

Interagency committees have been set up at the national and regional level to promote better understanding of the cooperative approach and to aid in working out necessary arrangements. Although these arrangements have been in force for only a short time, excellent joint planning programs have been initiated in key areas and an increasing number are in the negotiation stage. Joint planning programs are under way in 16 areas, and consideration is being given to the initiation of programs in 22 additional areas.

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C. The Federal-aid Highway Program

The Federal-aid highway program is contributing substantially to the solution of the urban transportation problem. Construction of the 41,000-mile Interstate System is well underway. Financing of the 90-percent Federal share of its total \$41 billion cost has been assured by Federal legislation which has provided sufficient revenue to the Highway Trust Fund for both the Interstate and the regular Federal-aid highway programs. Over 5,000 miles or 13 percent of the Interstate System are in urban areas, and they will account for 45 percent of the total expenditure--the latter figure closely paralleling the proportion of total system travel generated in the urban areas.

On the Federal-aid primary and secondary systems the urban portions total 33,000 miles of city streets and expressways. Federal-aid funds for the improvement of these systems (commonly called the ABC program) are traditionally authorized biennially by the Congress, the latest provision being \$925 million for each of the fiscal years 1962 and 1963. These funds are matched 50-50 by the States. Under the Federal legislation, 45 percent of the ABC Federal aid is for work on the primary system (either rural or urban portions), 30 percent for the secondary system, and 25 percent specifically for the urban portions of the two systems. Projects costing \$1.5 billion were completed in fiscal year 1961 under the ABC program, and 29 percent of this was spent in urban areas.

The construction of new highways and the improvement of existing streets and highways is an essential part of the urban transportation program. New and improved facilities are needed to provide for the movement of goods as well as for personal travel by automobile. In addition, freeways, with improved feeder routes, make possible the development of freeway bus systems to serve public mass transit needs.

It is essential that the Federal-aid highway programs, including the provisions for urban highway construction, continue undiminished. No increases in authorizations are recommended at the present time. However, greater flexibility in the use of Federal-aid highway funds to meet urban transportation needs can be provided by amending the Federal-aid highway legislation to permit the State highway departments to use Federal-aid secondary funds on extensions of that system in urban areas. Federal participation in projects on such extensions is now generally limited to urban funds. This will be particularly helpful in certain States containing many individual and grouped urban areas that are finding it increasingly difficult to improve the extensions of Federal-aid secondary routes into urban areas because the improvement of arterial streets in larger cities has a greater priority for the use of available urban funds.

Studies have indicated that under certain conditions the reservation of highway lanes for the exclusive use of specific types of motor vehicles will assist in solving urban transportation problems.

Also, in some instances, more effective urban transportation will result from the development of rail transit and highway facilities in the same right-of-way. However, the additional cost occasioned by the rail facilities could not be borne by highway funds; moreover, many rail rights-of-way needed for a balanced system will require corridors separate from freeways.

D. Present Mass Transportation Programs

As recommended by the President in his special message on our Nation's housing, national concern with the importance of mass transportation for urban development was first recognized in Federal law by the enactment of the Housing Act of 1961. That Act provided for two new assistance programs for urban mass transportation to be administered by the Housing and Home Finance Administrator. These were in addition to strengthening the urban planning assistance program, as discussed in an earlier section.

First is a program of loans for financing the acquisition, construction, reconstruction, and improvement of mass transportation facilities and equipment. Loans may be made to State and local public agencies where such financing is not otherwise available on reasonable terms. Where economically warranted, loans may have maturities as long as 40 years, and they must be of such sound value or so secured as reasonably to assure repayment. The facilities and equipment acquired with such loan may be operated by the borrowing agency or by private firms or other public agencies under a lease or other approved arrangement.

In order to assure that proposed improvements are in conformance with sound planning, the law requires that there is being actively developed (or has been developed) for the whole area served by the applicant, a program for the development of a comprehensive and coordinated mass transportation system and that the proposed facilities or equipment will be required for such a system. There is a further administrative requirement that the mass transportation program shall be a part of a comprehensively planned transportation system, including highways, to serve the urban growth and renewal needs of the area. These requirements may be waived where there is an immediately urgent need for the provision of facilities or equipment to be commenced prior to the time that the planning program could reasonably be expected to be completed.

Loans up to a total of \$50 million are authorized. Loan commitments under the present program cannot be made after December 31, 1962.

The second new program provides contract authority of \$25 million in Federal grants for mass transportation demonstration projects. The Federal grant may cover two-thirds of the cost of projects which will assist in carrying out urban transportation plans and research. They may include the development of data and information of general applicability on the reduction of urban transportation needs, the improvement of mass transportation service, and the contribution of such service toward meeting total urban transportation needs at minimum cost. Federal grants may not be used for major long-term capital improvements.

The purpose of the program is to stimulate fresh thinking and experimental undertakings which will bring about improved service and greater efficiency in the mass transportation field. Small as well as large cities all over the country are interested in experimenting with changes in levels of service and fare structures, technological improvements, and improvements of the relations of mass transportation to other parts of the urban transportation complex. They have difficulty in raising their 1/3 contribution to the cost, however, since the demonstrations

are expected to have general applicability to similar localities. The exclusion of major long-term capital improvements from eligibility for Federal assistance also makes many worthwhile projects ineligible.

A combined appropriation of \$42.5 million is available in the fiscal year 1962 for both the new mass transportation demonstration grant program and the loan program.

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E. Capital Requirements and Financing for Urban Mass Transportation

Total capital requirements for mass transportation in the next decade are estimated at \$9.8 billion by the Institute of Public Administration in its report to the Secretary of Commerce and the Housing Administrator. The estimates are rough approximations and probably on the conservative side, but they are based on intensive study of published information and on-the-spot investigations in 26 urban regions.

In the smaller cities, a recent survey by the American Transit Association revealed that 69% of their membership responding to a questionnaire indicated that replacement of buses was their most pressing problem, and 42% indicated that an outright subsidy was the only form of assistance which could be effective because of their condition.

The major purposes to be served by the estimated \$9.8 billion total investment requirements are: presently planned new systems, \$2.8 billion; extensions of existing systems, \$1.7 billion; rehabilitation and replacement, \$4.3 billion; new projects now being considered for initiation in the next decade, \$1 billion. For all these purposes, rights-of-way and structures are estimated at \$6.4 billion and rolling stock at \$3.4 billion.

It is not possible at this time to estimate precisely the amount of Federal grant and loan assistance that will be needed in the next decade to enable urban areas to make the investments that will be required if mass transportation is to make its proper contribution to sound urban development and renewal. As the first stage in a long-range program, we recommend that \$500 million in Federal grants be made available over the next three years, that the present \$50 million loan authority be made permanent, and that adequate funds be provided from grant authorizations for undertaking and stimulating badly needed economic and technical research and development in urban transportation. The progress that cities and urban regions can make in the next three years in planning and programing their comprehensive transportation systems and the experience gained in analyzing applications for Federal assistance will give a greatly improved basis for estimating long-term needs.

The recommended program of Federal grants would cover two-thirds of the net cost of capital outlays for mass transportation projects. Any net revenues which can reasonably be expected from transit operations would be used to support as much as possible of total project cost. The amount that fare collections can reasonably be expected to exceed operating costs depends on detailed analysis of each situation.

Many bus systems can meet most of their equipment costs from revenues if they can obtain loan funds on reasonable terms. To make their proper contribution to urban transportation, however, service of many systems must be improved and offered at reasonable fares. Such service improvements may cost more than the fare box will carry. There may also be requirements for substantial investment in fixed facilities such as separate rights-of-way and boarding facilities which cannot be fully amortized from revenues.

Net receipts also may cover a large part of the cost of rolling stock for urban rail systems, depending on the total position of the system. But experience indicates that in most circumstances the heavy investments now required for rights-of-way, rail installation and subway construction cannot be covered from the fare box.

Except in truly emergency situations, the investment of Federal, State or local public funds in mass transportation is justified only where the facilities are part of a comprehensive transportation system which is designed to serve the prospective growth and renewal needs of the whole urban area and is administered on a fully-coordinated basis. This kind of planning, programing, and organization takes time to develop. Many areas have undertaken the process, but only a few are well-advanced in making it truly comprehensive.

Federal planning assistance through the section 701 urban planning assistance program and the use of $1\frac{1}{2}$ percent highway research and planning funds is stimulating a great increase in State and local urban planning efforts. Mass transportation will not receive proper attention in planning and action programs, however, unless local officials see the realistic possibility of installing and effectively operating the systems which would be called for in good planning. Such a possibility usually is doubtful if the urban areas must look forward to covering the total public cost of good mass transportation from their own limited tax resources. This is the basic reason for recommending a Federal program to cover two-thirds of such cost.

The demand for Federal grants probably will be moderate in the early years of the program because of essential planning and administrative requirements, but if these requirements for sound urban development are to be met, local communities must have reasonable assurance that Federal support will be available when needed for investments in mass transportation.

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F. Assistance for Displaced Families and Businesses

Thousands of families and businesses are caused great hardship by the construction of highways, mass transportation routes, and other public improvements. The Bureau of Public Roads estimates that about 15,000 families and 1,500 businesses will be displaced each year in the next six to eight years by the completion of the Interstate highway system. Family displacements by Federally-assisted urban renewal activities are running about 30,000 a year and are expected to average more than 35,000 a year over the next decade. Around 4,000 businesses are being displaced annually by urban renewal. Another 30-35,000 families a year are estimated to be displaced by other public actions in urban areas. This means that some 85,000 urban families have to move each year because of public action, much of it assisted with Federal funds.

Under the Federally-assisted urban renewal program, families must be assured the availability of decent, safe and sanitary housing when they are displaced by demolitions, code enforcement, and other urban renewal activities. Also the moving expenses of families and businesses are paid from Federal urban renewal program funds. For families needing such assistance, the average payment is about \$65. The average payment to businesses is about \$1,150.

In order to alleviate hardship caused by public action and to provide equity in treatment, provisions similar to those for urban renewal should be made in the Federal-aid highway program and also in other Federally-assisted programs causing displacements.

G. Urban Transportation Research

Extensive research must be undertaken to improve the technology of urban transportation and to furnish public officials and industry dependable information on the relations among different forms of transportation and the rest of the urban economy. As summarized by the Institute of Public Administration: "Topics on which work is needed include: improvement of vehicles, roadbeds, power systems, traffic control systems, and other technology; methods of projecting demand for urban transportation; influence of different modes of transportation on urban development and land use; determinants of individual transportation behavior; costs and pricing of different transportation modes; and administering and financing urban transportation systems."

1. Highway Research

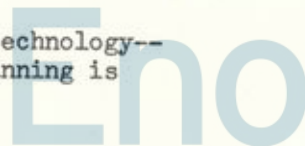
The Bureau of Public Roads, since its very beginning in 1893, has had an important influence in highway research, both through the efforts of its own staff and through its leadership and guidance to others. With the authority for use by the States of the 1-1/2 percent funds for research, since 1944, the Bureau's influence has been broader than ever.

In addition to studies related to the physical problems of road building and maintenance, a great deal of Public Roads research in more recent years has been directed toward the problems of planning, design and operation of highways. Mathematicians, geographers, city planners, and psychologists are now included in the Public Roads staff. Work accomplished or underway, either directly or by sponsorship, varies broadly. As examples may be cited studies of human behavior as related to driving; evaluation of economic and social effects of highways; methods of forecasting highway usage, tax revenues, and needs; correlation of travel with such factors as land use and employment; and evaluation of electronic controls for driver and vehicle guidance. Much of this research is oriented directly toward urban transportation problems.

Since 1944 the Bureau of Public Roads has participated with the State highway departments in conducting travel habit studies designed to provide factual data needed for urban transportation planning. The early studies were pioneering efforts and their analyses left much to be desired, especially in projecting future travel desires. However, these studies continue to be a basic planning tool, and analyses of the data collected and tabulated in one city after another have led to the establishment of quantitative measures of the basic relations between travel desires and land use and other social and economic factors of the metropolitan area. The establishment of these quantitative measures has made possible the integration of transportation and general land use planning, which is now deemed essential for realistic planning. It is now possible to study the interaction that exists between transportation and economic development and land use.

It is essential that research be continued and expanded to provide more precise planning study techniques; to search more deeply into the factors affecting urban development; to quantify more accurately the relationships between land use and travel; and to learn more about the attitudes and desires, with regard to all aspects of urban living, of the individual citizen.

Research is also essential in transportation technology--both of the vehicle and of the roadbed--if planning is truly to prepare for the future.

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It is believed that the Federal Government has a responsibility to stimulate additional highway research activities in the Federal-State cooperative area. To accomplish this, an additional 1/2 of 1 percent should be made available from funds apportioned to the States for the Federal-aid primary system, the Federal aid secondary system and extensions of these systems in urban areas (the ABC program) for highway research purposes. This additional 1/2 of 1 percent, together with State matching funds, would amount to almost \$10 million annually. This sum would be in addition to the present 1-1/2 percent which is currently being used for highway planning and highway research.

2. Research in Mass Transportation

Work is needed to improve transportation facilities and equipment including model and prototype construction, with emphasis on transit vehicles and power systems, traffic signaling, automatic controls, and methods of construction. It is essential to stimulate and support experimentation with new equipment and systems to test their practicality and demonstrate their effectiveness in improving and reducing the total cost of urban transportation.

Outstanding among the many studies which need to be made of the economics of urban transportation are questions of why groups of people choose different means of urban travel under various conditions and how their choices would be effected by changes in the quality and cost of different kinds of private and public transportation that might be made available. Planning and investment decisions for highways and mass transportation are profoundly affected by what people believe about the answers to these questions. But there is little systematic knowledge on which to base these beliefs. The Administration, therefore, has requested the Congress to appropriate funds for a substantial study of these problems by the Housing and Home Finance Agency. This study would start with analysis of information which has been developed in the course of urban transportation planning and would be coordinated with related studies supported by the Bureau of Public Roads.

The Housing Administrator should be given broad authority to conduct urban transportation research and development projects. Depending on what is most appropriate for the particular project,

the studies and research should be carried on by agency staff or be made under agreement or contract with other government agencies, universities, the National Academy of Sciences, non-governmental research agencies, state and local governments or individuals. It is recommended that the funds authorized last year for mass transportation demonstration grants be made available for those purposes by modifications of present legislation. An additional \$10 million a year for the next three years also should be provided from the capital grant funds proposed for the new mass transportation assistance program. Such broad authority and substantial financing are required to make a good start toward basic improvements in urban mass transportation technology and economics.

The logo for the Eno Center for Transportation, featuring the word "Eno" in a large, light blue, sans-serif font inside a light blue square border.

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