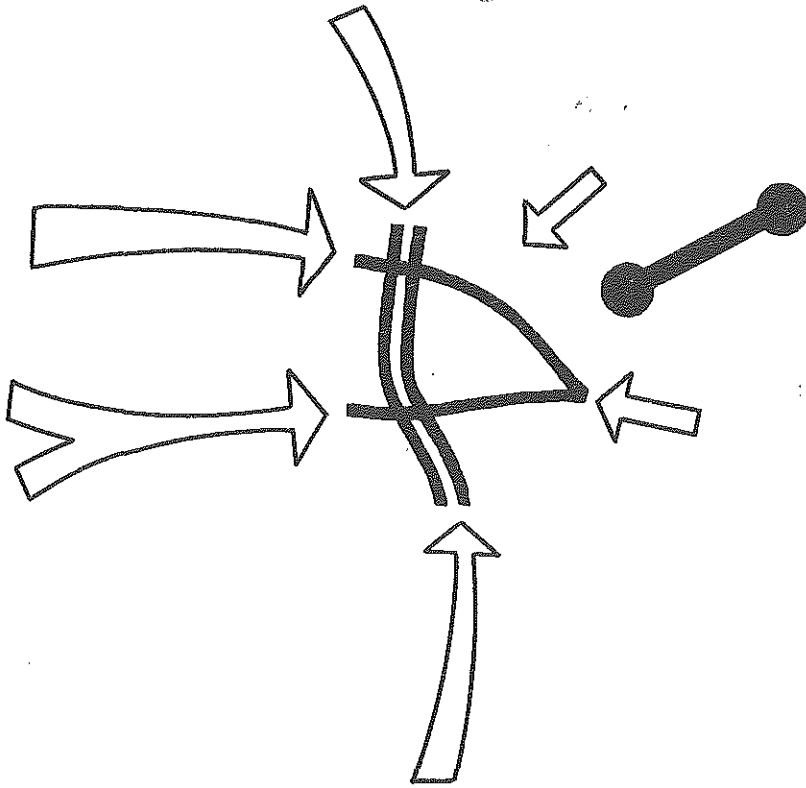


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A Report to the Governor of Michigan  
by his  
Special Commission on Transportation  
1965 - 1966

A FINAL REPORT OF RECOMMENDATIONS  
TO  
THE GOVERNOR OF MICHIGAN  
BY  
HIS SPECIAL COMMISSION ON TRANSPORTATION

June 15, 1966

This report is submitted by the members of Governor Romney's Special Commission on Transportation.

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With special thanks to the following advisors to the Commission who contributed so much in time and effort to our deliberations.

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*Ending six months of intensive effort, Chairman Charles F. Adams is shown here as he presents the final report to Governor Romney at the last meeting of the Commission in Bloomfield Hills, June 15, 1966.*

**PREAMBLE**

In the final analysis, regional, state, multi-state and national transportation systems--the highways, railroads, airlines, waterways and pipelines--exist for the purpose of moving goods and people among the industries of the economy, the sources of production and points of consumption. They are the channels through which the social and recreational needs of the people are met. Therefore, the various channels of transportation systems are critical components of the regional, state, multi-state and national economy. They play a critical role in the development of all geographic regions, and they are an integral part of urban development. They touch every aspect of modern society.

We believe it is basically a state responsibility to act in the areas of planning, financing, co-ordinating and promoting to assure a proper atmosphere for the development of a balanced transportation system in Michigan. We believe it is important to act on a state-wide basis, consistent with comprehensive state and regional planning, rather than simply to react to individual community and regional actions, which plan only for the perimeters of their individual areas. And because of the interrelated problems of the states in the Great Lakes area, multi-state co-ordination and co-operation is also necessary.

Because investments in transportation are going to be made with or without planning, great opportunities will be lost if private and public leadership at the state level does not accept planning responsibility.

The transportation system initiated by one generation is one of the most important legacies handed down to the next generation. Decisions are being made and will continue to be made in this field which will determine the next generation's inheritance.

It is in this spirit and it is with this conviction that we submit the following recommendations.

## I. PROBLEMS AND RECOMMENDATIONS

The problems confronting Michigan in the proper development of a balanced transportation system fall into six general categories--automotive, air, public transit, rail, water, and pipeline. In addition to these, there are problems and circumstances of a generic character which touch on each. It is the purpose of this section to touch on major problems confronting each area and to recommend a course of solution.

Although we have consulted with leading authorities in each field, we wish to make it clear that this report is not final or definitive. Its intent is to suggest means for coping with these problems so that properly instituted bodies may work more fruitfully toward their solutions.

## GENERAL TRANSPORTATION PROBLEMS

### 1. Problem

There is a serious shortage of basic data on most of the state's transportation segments, including forecasts of transportation demands on various modes and on changing socio-economic and physical patterns.

#### Recommendation

Basic and uniform data accumulating and analyzing machinery must be created immediately in a central agency of state government.

### 2. Problem

Urban and rural land uses reflect a pattern which is too often irrational and which leads to serious problems not only in transportation, but in other land use areas.

#### Recommendation

State and local land use planning must be accelerated. State assistance and co-ordination of land use programming should be offered to municipalities through state and regional authorities.

### 3. Problem

The problem of adequate and co-ordinated terminal facilities (interface) will continue to grow for all forms of transportation in Michigan.

#### Recommendation

A comprehensive study should be inaugurated as soon as possible. A total and co-ordinated program of long-range land acquisition should be developed.

### 4. Problem

There is a serious shortage of planners and technically trained people in almost all fields of transportation.

#### Recommendation

The establishment of better transportation engineering programs in Michigan universities and colleges should be encouraged to educate and develop a greater pool of



manpower in these areas. There should also be a greater emphasis on basic transportation research and development.

#### 5. Problem

There is too little consideration given to the aesthetic values of our developing transportation systems--including the appeals of sight, sound, and smell--and in the predictable emotional reactions of people to the design of our systems.

#### Recommendation

This problem should receive immediate attention and should be considered an integral part of the over-all transportation planning approach.

#### 6. Problem

Public support for and regulation of various modes of transportation has not always been consistent.

#### Recommendation

State policies should be re-evaluated to assure that regulation and support are given on a fair and consistent basis to the end that Michigan will develop equitably a truly balanced transportation system.

#### 7. Problem

There is a great diffusion of authority and responsibility at the state level in the regulation of transportation in Michigan. There is no authority over the co-ordination, planning, promotion and financing of transportation at the state level. There is a similar lack of co-ordination at and between the regional and local levels.

#### Recommendation

Immediate attention must be given to the creation of needed governmental structures.

### AUTOMOTIVE TRANSPORTATION PROBLEMS

#### 1. Problem

There is a growing highway traffic congestion problem in almost all urban areas in Michigan.

#### Recommendations

a) Reduction of congestion through improved traffic engineering and control devices is necessary. Experiments such as the removal of all on-street parking should be undertaken.

b) An increase in parking facilities in metropolitan areas must be encouraged.

c) The state should offer an urban traffic counseling service in co-operation with Michigan's universities to provide technical assistance to Michigan's urban centers.

## 2. Problem

Although Michigan's state-wide highway system is recognized as one of the nation's best, existing data indicates that demand and use continue to exceed present highway construction programs.

### Recommendations

- a) Everything possible should be done to maintain Michigan's brisk pace in urban and interurban highway construction.
- b) The state's role in assisting in the construction and maintenance of county and municipal roads should be re-examined to see how it can be strengthened.

## 3. Problem

Present procedures for the location and acquisition of rights-of-way have resulted in stalemate situations that are not in the public interest.

### Recommendations

- a) Local option procedures on rights-of-way should be revised so that local communities cannot unreasonably delay needed projects.
- b) Consideration should be given to a fuller use of present rights-of-way to maximize utilization of air and underground space.

## 4. Problem

Highway safety is a constant and growing concern at the municipal and county levels as well as at the state level.

### Recommendations

- a) Safer design of roads and highway structures should be encouraged.
- b) Semi-annual or periodic safety inspection should be mandatory.
- c) Driver licensing should be re-examined and strengthened in every possible way.
- d) Better law enforcement on the highways should be required.
- e) Driver education for all new drivers should be mandatory.
- f) Additional driver improvement schools for violators and high accident drivers are needed.
- g) The state should accelerate the development and construction of freeway networks in urban areas.
- h) State participation in impending federal legislation on car safety should be encouraged.
- i) The state should encourage a safety regulatory climate that is favorable to maximum technological progress.
- j) A uniform traffic accident reporting system for the state should be established.

## AIR TRANSPORTATION PROBLEMS

### 1. Problem

Michigan's commercial airports with few exceptions are not prepared to handle the weight and speed of jets now coming into service. This will mean considerable cost and delay in having the entire state take advantage of air transit technology. In addition, commercial airports throughout the state are generally so close together that it is difficult for any carrier to operate on a basis of multiple stops for short distance routes.

### Recommendation

State airports of the future should be developed on a regional basis to handle the new, larger and faster commercial jets. Individual airports for each city should be retained and altered to accommodate feeder airline service and the rapidly growing numbers of business and private aircraft.

### 2. Problem

The transportation of people in outlying areas to airports not served by regional facilities will be a problem -- as will be the transfer of air passengers from one terminal to another.

### Recommendation

Air taxi service must be developed in areas where there is insufficient volume for airline service. This should be done by private operators and should be supported in every possible way by the state so that travel can be readily available to all sections of the state. Helicopter or other rapid service between airports and between airports and urban areas should be encouraged.

### 3. Problem

Ground transportation to major airports, which now frequently takes more time than the ensuing flights, will become even more of a deterrent and handicap to the development of air transportation.

### Recommendation

Better highways to airports should be encouraged and co-ordinated with expanded helicopter service or other forms of rapid service.

### 4. Problem

Small airport terminals are often inadequate for modern airlines and private aircraft.

### Recommendation

Minimum standards for all airport facilities should be established to assure greater safety and convenience to all air travelers. This would, in addition, improve the image of the area and the state to out-of-state visitors.

Standards for jet noise should be established and jet noise abatement encouraged.

#### 5. Problem

The problem of air safety will continue to be more serious as faster planes with larger passenger loads are used.

#### Recommendation

Minimum state safety standards for equipment should be examined, and the standards for the licensing of private pilots should be strictly enforced.

### PUBLIC TRANSPORTATION PROBLEMS

#### 1. Problem

There is a serious lack of public understanding of the needs and requirements of public transportation.

#### Recommendation

An understanding of the importance of public transit by the entire community -- not just by those who use public transportation -- should be promoted. The degree to which public transportation should be supported by outside sources should be carefully examined so that the fares of public transit may be kept as low as possible and so that equipment may be maintained in the best possible condition.

#### 2. Problem

Public transportation is an important part of an integrated system in an urban area. Yet ridership and financial return have declined in recent years, thereby reducing the quality of service offered which further discourages use.

#### Recommendation

A study should be considered that will measure level of service and existing attitudes toward public transit to determine the most acceptable forms.

#### 3. Problem

Mixed modes of transportation using the same rights-of-way often create serious problems.

#### Recommendation

Preferred rights-of-way and other traffic preferences for both public and private transit should be explored.

#### 4. Problem

The time lapse between the decision to provide modern public transit and its implementation has been increasing. This has made it difficult to provide the public with modern transportation facilities.

Recommendation

The use of public funds to support engineering studies and designs of public transportation systems in urban areas should be encouraged because engineering in this field lags far behind the need for better equipment. The state's universities and industries should be encouraged to direct more attention to this problem.

## RAIL TRANSPORTATION PROBLEMS

1. Problem

The co-mingling of different modes of transportation, especially involving rail, has created serious problems of safety, convenience, and time loss to Michigan citizens.

Recommendation

A program should be undertaken to eliminate grade crossings in all urban areas for low speed trains and to eliminate all grade crossing everywhere for future high speed trains.

The extent to which the elimination of these crossings would benefit the public and other transportation modes should be evaluated and appropriate governmental assistance should be determined. Programs similar to those in Canada and Illinois should be considered.

2. Problem

Certain facilities and operations of Michigan's railroad system which are currently judged essential to the state's citizens and to the state's economy appear to be financially unsound, yet cannot be eliminated or discontinued without state action.

Recommendation

An alternate solution must be found by the state to continue service of little-used railroad lines which appear to be financially unsound and unfeasible, i. e., alternate means of transportation or assistance in improving equipment and service.

3. Problem

Unrealistic speed limits in some municipalities inhibit normal rail operations.

Recommendation

A realistic look at these regulations should be made by the state and necessary actions taken.

## WATER TRANSPORTATION PROBLEMS

### 1. Problem

Michigan lacks proper harbor and docking facilities for competitive long-range growth.

#### Recommendation

An immediate canvass of these needs should be made and every effort should be expended to put Michigan in a more competitive position. The question of public vs. private ownership of port facilities should be professionally analyzed to see which mix is needed and can best speed expansion of such facilities. The interrelationships between water transportation and other modes must be carefully evaluated to promote a balanced transportation system for Michigan.

### 2. Problem

There is a lack of proper recognition of the economic advantages of water transportation in and to Michigan -- and of Michigan's present harbor and docking facilities.

#### Recommendation

An ambitious state and private effort should be made to promote the use of Michigan's harbors to the national and world trades.

### 3. Problem

Michigan does not have an efficient route to the Gulf of Mexico from its principal port through the Ohio River waterway.

#### Recommendation

Michigan should be linked into the Inland Waterway System and participate in the current Interconnecting Waterway effort. The feasibility of developing an Inland Waterway System within the state of Michigan should be investigated.

### 4. Problem

Michigan does not have totally adequate marinas and canals for private boating and for economic expansion in outstate areas.

#### Recommendation

A survey of Michigan's long-range inland waterway needs should be undertaken. Licensing of marinas and boat operators should be considered.

PIPE LINE TRANSPORTATION PROBLEM

Problem

Inadequate consideration of pipeline as a basic means of transportation in Michigan for both goods and people has resulted in a lack of proper planning and promotion.

Recommendation

Pipeline must be considered in all basic planning in terms of right-of-way, design development, and financing, so that it can eventually take its proper place in the transportation mix.

## II. RECOMMENDED STRUCTURE



To meet the transportation problems confronting Michigan, it is necessary that a permanent agency be established at the state level. This agency should be properly empowered to recommend, administer, and act on behalf of the state to develop and maintain a balanced transportation system. The following recommendations are therefore made:

1. A single Transportation Unit should be established with appropriate directorship inside state government. This Unit should be a major element in the governmental structure and should be vested with co-ordination, planning, promotional, financial, and regulatory responsibilities.
2. The Governor should charge his Commission on Urban Problems with the responsibility for recommending which department should house the new Transportation Unit.
3. In the interim, the Governor should charge the Director of the Department of Commerce with the responsibility for developing a framework for transportation planning and co-ordination.
4. It is recommended that the Director of the Department of Commerce designate the State Resource Planning Division to develop regions within the state to serve as a basis for the establishment of regional transportation bodies.
5. A small Advisory Commission should be appointed by the Governor and attached to the Department of Commerce on an interim basis for the purpose of developing specific recommendations in such areas as the state's responsibility in co-ordinating, planning, programming, financing, promoting, and regulating transportation in Michigan.
6. An International Regional Commission on Transportation for the Great Lakes Region should be established. This Commission should include the states of Minnesota, Wisconsin, Illinois, Michigan, Indiana, Ohio, Pennsylvania, New York, and the Province of Ontario. This Commission should immediately address itself to future transportation problems in the Great Lakes corridor or megalopolis and determine the basic transportation structures required.
  - a) This Commission should plan and develop a compatible and comprehensive transportation system for the Great Lakes Region.
  - b) This Commission should sponsor and administer any systems analysis programs involving transportation in the Great Lakes corridor.
  - c) This Commission should co-operate in building and analyzing experimental transportation projects.
  - d) A special congress should be convened, sponsored by the State of Michigan, to establish this Commission and to determine its organization and to direct its activities.

### III. MAJOR PROJECTS

## 1. Need

There is a debilitating lack of uniform data base and information on transportation systems in Michigan and an inadequate forecast of the demands that will be placed on existing or projected systems at various points in time. No prediction exists as to how changes in the socio-economic structure will alter transportation needs and uses of the systems. This is, and has been, a serious deterrent to state-wide policy formulation and decision making both on an immediate and on a long range basis.

### Recommendation

A continuing transportation systems analysis program must be initiated. Only systems analysis can provide meaningful data and suggest instruments for experimenting with the relative merits of alternate policies and programs. Systems analysis can be looked upon as the technique for increasing the professional competency and capability of the scientific community. This is necessary if Michigan is to keep abreast of the ever-expanding technical complications and demands placed on existing and projected transportation systems. Mathematical models of population growth and change should be constructed. Population data must be related to variables such as the geographic distributions of commercial and industrial activities. A first generation model should take from one to three years to develop and should provide immediate and significant answers. It should lead to new understanding and insight into the future of Michigan transportation. Subsequent generations of the system should provide ever-increasing and even more accurate decision-making information.

a) This program should begin on a state-wide basis, utilizing public and private resources.\* It should then be moved as quickly as possible into a co-operative multi-state project with all available private and public facilities within the Great Lakes Region contributing to and benefiting from the project. The leadership for this program should come from Michigan -- core of the transportation industry.

b) The cost of a continuing systems analysis program should be planned on a minimal basis at the beginning, building in cost only as it grows in its ability to contribute to the solution of problems.

c) Steps should be taken to obtain a Federal Demonstration Grant for the first generations of this systems analysis program.

d) Co-ordination of this program should be assigned to the new organizational structures recommended in this report.

## 2. Need

Pressures on transportation terminal facilities in the state are growing. The future will require more, better, and different kinds of co-ordinated terminal facilities for all needs.

### Recommendation

An immediate analysis of future needs should be initiated, an inventory of possible sites and solutions compiled, and arrangements should be made to acquire or reserve adequate land for future terminal use.

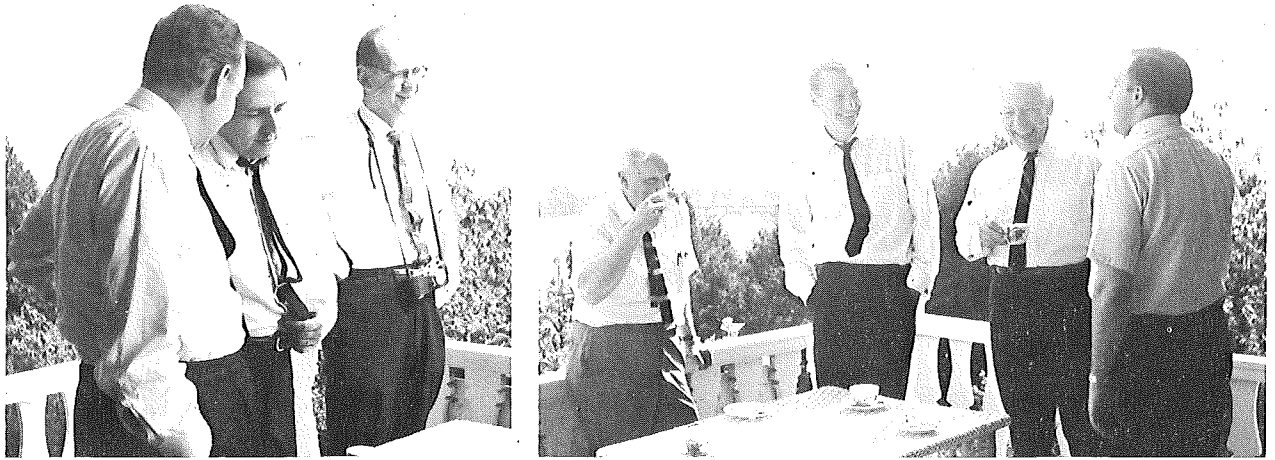
\*In setting up and operating these programs, every effort should be made to avoid duplication of on-going programs. Co-operation should be encouraged with all public and private organizations affected by transportation planning.

**OFFICIAL SUBMISSION**

These recommendations have been formulated by the 33 members of the Governor's Special Commission on Transportation. Deliberations extended over a period of six months. The full commission met six times. Numerous subcommittee meetings were held with experts on the various modes of transportation. These recommendations were unanimously approved by the full commission and are hereby submitted to the Governor for his approval.

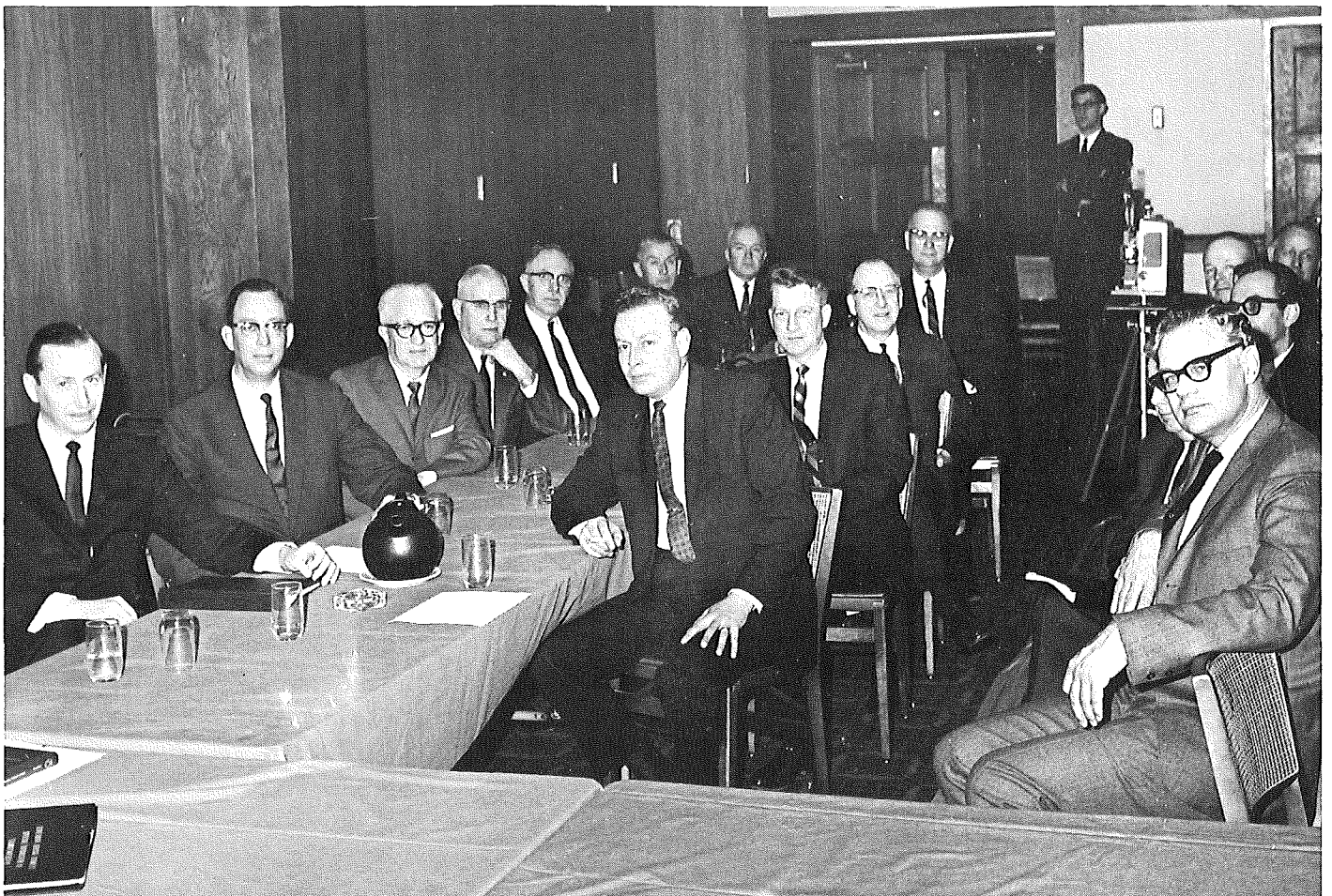
It is the desire of the commission that a representative group of its members be called to meet annually, or at periodic intervals, to review progress on these recommendations and to report to the Governor such additional recommendations as might be relevant to the proper development of Michigan's transportation systems.

/s/ Charles F. Adams, Chairman



*Coffee break at Mackinac.*

*A partial view of the Commission at one of the many sessions.*



GOVERNOR ROMNEY'S  
SPECIAL COMMISSION ON TRANSPORTATION  
THE RELATIONSHIP BETWEEN TRANSPORTATION  
AND OUR EXPANDING SOCIETY  
REPORT OF SUBCOMMITTEE ONE  
MAY, 1966

## THE RELATIONSHIP BETWEEN TRANSPORTATION AND OUR EXPANDING SOCIETY

### INTRODUCTION

Public opinion has become increasingly focused within the past few years on the pressing problems of transportation. This concern has found expression most recently in the President's transportation message of 2 March, 1966, wherein he stated, "America today lacks a co-ordinated transportation system that permits travelers and goods to move conveniently and effectively from one means of transportation to another, using the best characteristics of each." He recommended that all agencies involved in the different aspects of transportation be consolidated into one Department of Transportation in which all efforts to solve the transportation crisis will be combined to achieve more efficient management organization.

A mirroring of this concern about transportation is apparent in the State of Michigan as well. Increasingly, questions like the following are being asked. What should Michigan state government's role be in transportation? How can Michigan best meet the transportation needs of its people and its industry, and support the suppliers of transportation services? How can Michigan develop investment criteria and analytical techniques to assist all levels of government, industry, and others in transportation investments? What role should the state government take in relation to federal and municipal governments on transportation matters? It certainly seems apparent that answers to such questions can only begin to be formulated after comprehensive study.

This subcommittee has been asked to address itself to the question: "*What is the relationship between transportation and our expanding society?*" It is self-evident that transportation is not only an important ingredient in the expansion of our society, but it has a corollary effect of creating the means for an increase in the standard of living and all that it implies. In concerning itself with this question, the committee believed that the objectives of the Commission will be realized if we can identify and define major problem areas that have a special relationship in terms of the needs of society, and make recommendations concerning specific solutions to these problems.

A number of important questions are outlined below that will need to be answered by research and considered opinion before a meaningful program can be developed. Following these questions a list of specific recommendations are given for consideration by the Commission.

1. *How are the public and private sectors of the transportation system related?*

Extent of governmental regulation

Extent of governmental subsidy

Extent of governmental operation

Investigations of systems of other states

2. *What are the attitudes of Michigan society in regards to the various modes of our transportation system?*

This will require an investigation of the extent to which the development of an integrated transportation system will satisfy society's needs and desires.

Why are we an automobile oriented society? Is lack of public transportation a result or cause?

Is fear of flying a deterrent to the development of this mode of transportation?

To what extent is the "flight to the suburbs"--the desire for ranch style housing, open spaces, etc.--a cause or result of our transportation system?

3. *Is flexibility of the different transportation modes, both internally and in conjunction with other modes, sufficient to meet the needs of our changing society?*

Do fixed rail facilities permit adequate response to changes in direction of residential growth?

Does competition tend to encourage parallel facilities by competing modes of transportation?

To what extent would publicly provided inter-modal facilities--e.g., bus terminal parking and drive-in facilities--stimulate a co-ordination of modes?

To what extent are the views of management and labor toward new concepts affecting the development of a co-ordinated system?

4. *How can an integrated transportation system be developed on an intrastate basis and at the same time consider regional and national requirements?*

Does the development of the so-called strip city overlapping state lines require the development of a different type of transportation system in connection with other states?

Should Michigan as the core of the midwest strip city assume a leadership role in regional transportation planning?

5. *Can our transportation system be moulded to assist in providing the necessary new jobs for our expanding population?*

Does government have a responsibility to insure the attractiveness of our state to business and industry's planned improvements in its transportation system?

Is there a state responsibility to insure the continuance of an uneconomical portion of the total transportation system to serve all areas of the state?

6. *Must our transportation system be developed to provide local transportation to those who cannot afford individual transportation for work or recreation or who cannot use it, i.e., the young, the elderly, the sick or disqualified?*

Can we keep a breadwinner gainfully employed by providing or even subsidizing public transportation?

7. *How can we translate the changing needs and desires of our society into appropriate changes in our transportation system? How can we anticipate these new needs and desires?*

Reduction in working hours will produce increased interest in new recreational outlets which, in turn, will affect our transportation needs.

Growing interest in aesthetics will influence the transportation system through emphasis on expenditures of funds to eliminate that which is offensive to society, such as billboard control, opposition to ugly parking structures.

New concern for influence of systems on public health will result in requirement for expenditure of funds to eliminate unhealthy conditions which, in turn, will influence direction of development.



**RECOMMENDATIONS:**

The subcommittee recommends extensive staff studies in the following areas to afford adequate data on which a judgment on the problems raised may be made by the Commission:

A comparative study of Michigan and other selected states with respect to the extent of regulation, subsidy, and direct operation of the various modes of transportation by the state and its political subdivisions.

A study of the several modes of transportation in terms of flexibility of physical plant and operational arrangements and the extent to which this has a relationship to meeting the needs of an evolving society.

A survey of the special transportation problems of the Washington, D. C., Boston, and the Los Angeles "strip cities" to provide guidance for the emerging "strip city" in the Midwest.

A staff study of the use and potential use of systems of mass transportation of people in Michigan. (The TALUS Survey may afford adequate data on this subject in the Detroit Metropolitan Area.)

The Subcommittee recommends that the Commission engage the Services of an appropriate agency to make opinion surveys on the following:

The effect of attitudes on the development of our several modes of transportation.

Opinion with respect to needs and desires of the public for public transportation.

Prepared by Subcommittee One

Robert E. Fryer, Director, Michigan Municipal League (Chairman)

Herbert Norder, President, American Academy of Transportation

Fletcher N. Platt, Manager, Traffic Safety and Highway Improvement Department,  
Ford Motor Company

GOVERNOR ROMNEY'S  
SPECIAL COMMISSION ON TRANSPORTATION  
  
RELATIONSHIP BETWEEN URBAN AND  
STATE-WIDE TRANSPORTATION SYSTEMS  
  
REPORT OF SUBCOMMITTEE TWO  
  
JUNE, 1966

## RELATIONSHIP BETWEEN URBAN AND STATE-WIDE TRANSPORTATION SYSTEMS

To define the relationship between urban and state-wide transportation, it is felt that three major factors should be considered:

1. Complementary functions of existing transportation systems
2. The population explosion with its further vertical growth and urban sprawl
3. An evaluation of the reaction of various other states in legislative actions designed to fulfill the transportation needs

The study indicates a definite relationship in existing modes of transportation between people and goods, i.e., the rights of way on highways, railroads, air, and water are utilized in the transportation of both people and goods. In the total origin to destination movement of people and goods, several modes of transportation may be used, and these modes or interchanges require co-ordination. Population shows a continued expansion of urban boundaries to the point, projected in the Doxiadis study, of Saginaw virtually being in the Detroit urban area. State and urban activities in other states have been limited in scope, basically as a reaction to some existing urban need.

### FURTHER STUDY

To suggest any conclusions or actions by the state assumes that its responsibility, accumulation, and analysis of further data in the following areas is necessary:

1. An adequate bank of information pertaining to existing modes of transportation must be assembled. This requires standardization of data supplied on a regular basis.
2. Study must be made of the activities and achievements of the various planning and regulatory agencies in an effort to co-ordinate these activities.

### CONCLUSIONS

Transportation must be considered as total transportation, involving both the movement of peoples and goods. Transportation for people includes movement to and from work; to and from shopping areas and schools; on personal trips and on ever-increasing recreation travel. Both raw materials and manufactured articles must be transported effectively to allow for our expanding economy. Each need may dictate a different form of transportation. Yet all systems must be co-ordinated if an efficient use is to be made of land space and effective transportation is to be produced for maximum economic growth.

To avoid the pitfalls of activities in other states and produce a maximum effort in Michigan toward promoting and achieving economic expansion capabilities by stimulating the balanced transportation systems, capable of providing for this expansion, it appears that the basic responsibility for planning, development, and control of these systems is a state-wide function.

We believe it is basically a state responsibility to *act* in the co-ordination of planning and promoting the proper atmosphere for the development of a balanced transportation system on a state-wide basis, rather than to *react* to individual community actions which plan only for the perimeters of the individual area.

Therefore, we recommend that state authority be established, properly charged with the responsibility for *planning* and *promoting* the atmosphere and activities to meet these transportation needs of the future.

## EXISTING SYSTEMS

### *Urban Transportation--Goods*

Insignificant amount by water

Practically none by air

Railroad beltlines and spurs move considerable volume to and from factories and warehouses

Most of goods transport uses the motor truck

The airports, wharves, and freight terminals are origins of much of the truck transport in urban areas

### *People*

The major portion of transportation for people in Michigan cities is by private automobile. The balance of movement of people is by motor bus. There are no urban railway systems for transporting people in Michigan.

### *State-wide Transportation--Goods*

Considerable waterborne commerce is being carried on; however, the major portion is interstate or international. There are five major ports based on volume of goods.

Air freight is showing some increase attributed to flexibility of system and speed of delivery.

Railroads haul a large share of all freight, particularly the heavier shipments of metal, coal, assembled equipment and implements.

Motor trucks are second to the railroads in the hauling of intercity freight. The motor truck has been employed because of the speed and flexibility of the individual unit.

Intercity transportation of people is still largely accomplished by motor vehicle. The development of both the vehicle and the highway system has gradually increased the flexibility and comfort and decreased the travel time for the individual traveler. The motor vehicle requires a minimum of transfer inconvenience at either the origin or destination of the trip.

In Michigan there is some water transportation of people on the lakes in connection with automobile ferry service.

Air travel has shown marked increase in passenger miles in recent years although more than half the population has never traveled by air. Terminal or transfer facilities are important factors in the volume of air travel if the length of trip is equal to one day or less.

Rail and bus intercity travel has been about equal during the past several years; however, with the approaching completion of the Interstate Highway System and the improved facilities in the motor bus, the railroads may be placed in a still more rugged competitive position.

To define the relationship between urban and state-wide transportation systems, the complementary function of each system must be considered. It may appear that each operates completely independently; yet a stoppage in either segment quickly demonstrates their interdependence.

In spite of the interdependence of the various segments, the over-all co-ordination is left with the individual modes, giving the transportation systems the following characteristics:

1. There is no central office at either the city or state level that is charged with the co-ordination or balancing of all systems of transportation.
2. State and municipal policies toward a co-ordination of all systems are not established or are not clear where established.
3. State and municipal policies have not been consistent among the various modes of transportation.
4. There appears to be a lack of basic data on the broad subject of transportation on which to make sound policy decisions.

Based on current studies and research, certain conclusions can be reached; namely, (1) the major portion of individual transportation will be accomplished with wheeled vehicles, driver controlled, on pneumatic tires; (2) most of the distribution of goods in urban regions and other distribution points will be by motor truck.

Immediate attention must be given to the regions and corridors of congestion, so that all present work can be co-ordinated and a constant alertness maintained for practical developments for the improvement of total transportation.

The following list includes some of the conditions that should be considered in the future study of the problem:

1. The accident potential of high density highway travel, both urban and state-wide by individually controlled vehicles
2. The area that must be set aside for terminal parking of vehicles in the urban regions
3. The effect of larger motor trucks on the total service of the highway system
4. The space requirements for airport facilities to serve the urban regions and the terminal transfer facilities necessary
5. The state and municipal policies relative to docking and wharf facilities to capitalize on the potentials of waterborne commerce
6. The future developments of high speed and large volume units for railroad transportation of goods

7. The future development of railroad passenger units for both urban and state-wide transportation of people
8. The dual use of railroad rights-of-way in urban regions

#### SUMMARY STATEMENTS

1. The existing transportation systems form the greatest supporting activity to the economic health and development of the state.
2. Basic data is decidedly lacking in some modes to aid in making sound policy decisions.
3. Responsibility for co-ordination of all modes is not placed in one agency at either the state or city level of government.
4. State and municipal policies are inconsistent among the various modes of transportation and, in some cases, have not been established.

#### CONCLUSIONS

In each instance we have summarized the legislative actions showing the reaction of various states in fulfilling the transportation needs as the legislature saw them. While the actions vary from the establishment of Commissions to study the problem to the awarding of subsidies for operation, each action in other states has had similar goals.

1. The action in all cases dealt with the movement of people only.
2. The actions are all restrictive in area. In several instances, superseding actions to preceding actions were necessary to broaden the scope of activity and/or planning. (Even the superseding actions are restrictive in area.)
3. In each instance, the state is the motivating body.

All of the activities undertaken in each state show a considerable period of time, up to 15 years in the California area, from the time the original need presented itself, until a concrete action could result.

The normal procedure seems to be the development of a study group to determine the *mass* transportation needs of a specified area through analysis of traffic patterns and present transportation, projecting these into a system capable of handling the projected traffic in the restricted area, development of financing necessary through state financial assistance, and/or bond issues.

The authorities created usually have been granted certain controls over the activities of private companies or that segment of the operation involved in the planning or have been charged with the responsibility for development of a new method.

In the midst of an extraordinary ex-urban growth, doubts arise regarding the ultimate effectiveness of the current approach. Few cities have adequately planned their future development to know where highways or transportation systems ought to be located and how they might serve to promote the economic growth of an entire area and better communities. Efforts to solve the entire transportation problem in most states have been complicated by the absence of unified administration.

Responsibility for each form of transportation has been divided among different agencies and again among the various units of government and industry sharing transportation responsibilities. The transportation problem is not being solved, partly because no agency of government is responsible for its solution. Effective transportation cannot be provided without the organizational arrangements that make possible a unified total approach to the planning, financing, and operation of a transportation system as a whole: a system capable of transportation, serving both goods and people now and in the foreseeable future.

#### RECOMMENDATIONS

1. Further study must be made of the legislative approaches possible from an organization, responsibility, and/or authority and scope standpoint. This study group must have an awareness of the need for developing an organization capable of state-wide co-ordinated action among all facets of transportation potential (local, county, state, and industry), to promote and assist in the development of an effective transportation plant, capable of stimulating the location, development, and consequent movement of people and goods on a total state-wide or interstate basis.
2. Study and co-ordination of the various transportation problem activities by cities, counties, and other groups.

Prepared by Subcommittee Two

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GOVERNOR ROMNEY'S  
SPECIAL COMMISSION ON TRANSPORTATION  
  
RELATIONSHIP BETWEEN MODES AND  
METHODS OF TRANSPORTATION (INTERFACE)  
  
REPORT OF SUBCOMMITTEE THREE  
  
JUNE, 1966



THE RELATIONSHIP  
BETWEEN MODES AND METHODS  
OF TRANSPORTATION (INTERFACE)

As one delves into the methods of transportation available and visualized for the future, it becomes more and more apparent that the development and integration of any transportation system is perhaps less a matter of technology, and more a matter of economics, politics, and public opinion. Transportation technology has developed tremendously and is continuing to do so at an accelerating rate. Added stimulus in this direction would appear not to be needed. In fact, were we to introduce a new composite system from "scratch," we would very likely adopt present developments with modifications. Evidence of this is in the Bay Area Development, where concept is the only really new feature.

On the other hand, while most current system developments are merely extensions of older systems, utilizing similar updated equipment, numerous new "Sky Rides" etc., are in the artist sketch stage. Technology to bring these sketches into physical reality is not lacking. Here, though, public acceptance must be generated if these more exotic systems are to supersede the old in the development of completely new concepts.

Detroit--and Michigan--are unique to some degree in that, with minor exception, no definite system pattern has yet evolved. A completely new system of the future could be established technologically without lost motion or system abandonment.

Thus, one point which necessarily must be considered in the introduction of any general or integrated system or combination thereof, relates to public acceptance of a very probable change in landscape, in addition to the willingness of the public to change current habits and utilize the conceived system.

Furthermore, certain systems, modes, or methods of transportation may well place restrictions on private travel (to insure use, justify cost, and, in some instance, even permit physical installation). For example, in building expressways in Detroit, no provision was made--and still apparently does not enter future planning--to allow for rapid bus or rail transit routes along the rights-of-way. It is definitely a possibility that for the sake of providing better public service a system might be adopted requiring the use of these rights-of-way for rapid transit with consequent displacement of individual unit users.

There has been documentation in reports to the Commission, both by guests and members, to indicate a quickening interest in the application of advanced technology to transportation systems. Among these are:

"Trends in Transportation Technology"  
by Jack White of the General Motors Corporation

"Transportation Systems Best Bets for the Future"  
by Robert Wolfe of the Cornell Aeronautical Laboratories

These are illustrative of present developments and concepts, and cover, on a sample basis, specific types which may be expected to become a part of future systems.

It then becomes appropriate to speak of modes in a somewhat generalized way and emphasize those characteristics which are less susceptible to technology. Probably the chief characteristic of significance is the medium and environment through which the mode operates. The medium may be air, surface (ground and water), or subterranean. Physically, the systems in each medium may vary in terms of their impact on interface locations, sizes, and other characteristics. For example, there are substantial differences between the terminal characteristics for vertical takeoff aircraft and supersonic transports; yet there are similarities with regard to their locational characteristics and the need for supporting facilities. Ground systems, primarily rail and highway, are similar in terms of the potential wide coverage of interface location; yet there are technical and economic factors which best suit the two modes for different tasks.

One must finally consider the organizational and institutional structures such as type of carrier, as defined by the ICC, and the orientation of modes to corporate organization.

Modal interfaces are extremely complex organisms to understand, to design, and to operate. Operationally, they require flexibility of a high order to respond to the surges in demand resulting from failures of one of the subsystems. Institutionally, they are prey to the clashes between labor and other groups structured on a modal orientation.

There is no evidence of the availability of a good data base to be of assistance to this committee in structuring recommendations with regard to interfaces. It is believed, however, that the need for such data is minimal and that the state can adopt policies which will encourage a flowering of the appropriate governmental and private actions necessary for the development of an efficient transportation mode interface system.

These actions necessarily encourage safe and economical movement. They must also respond to opportunities to utilize advanced technology, particularly the handling of materials and data control systems. It would appear that this involves the ability to acquire sites for terminals, to protect the interests of both direct and indirect beneficiaries of facilities, and to secure adequate financing through use of taxation and franchise capabilities.

If one classifies travel by medium, mode, organization, and demand characteristics, and further identifies the possibility of more than two modes meeting at an interface, as well as the appropriate use of interfaces for warehousing and processing activities, it appears that on occasion there are several hundred possible interactions.

From among these many possibilities there are several of immediate concern which warrant state action. These include air-ground systems and ground-ground systems involving public transportation and private conveyances. In the area of goods movement, the bulk interchange with seagoing vessels is important as is the air-ground interchange. Each of these interchanges could be aided by reviewing state regulatory activities, state support, and where appropriate, state enabling legislation for local governments.

For many reasons, some of them resulting from state policies, the movement of persons and goods in Michigan is often taking place by travel modes which are clearly inappropriate. This often results from the difficulty involved in transferring from one mode of travel to another in a convenient way as well as the characteristics and availability of certain systems. It is the recommendation of this committee that state authority be used where appropriate to encourage the safe and economic movement of persons and goods from origin to destination

through aiding the development of, or improvement of, terminals and other points of modal interchange.

Prepared by Subcommittee Three

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GOVERNOR ROMNEY'S  
SPECIAL COMMISSION ON TRANSPORTATION  
RELATIONSHIP BETWEEN LEVELS OF GOVERNMENTAL JURISDICTION  
REPORT OF SUBCOMMITTEE FOUR  
JUNE, 1966

## RELATIONSHIP BETWEEN LEVELS OF GOVERNMENTAL JURISDICTION

### PREAMBLE

Transportation systems must be provided at all levels of governmental jurisdiction within the state to serve the needs of the citizens and their economic and social enterprises. The modes of transportation required are closely related to the levels of personal and corporate activity involved in the movement of people and materials. While individual and mass travel to and from work constitutes the major requirement for facilities for the movement of people, other travel purposes have become increasingly significant in modern life. Social visiting, organizational, and recreational trips along with medical service and hospital trips require a network of transportation facilities at every level of government. The transportation of materials--raw, semi-finished and final products--is of critical economic importance. Likewise, transportation facilities providing access to a variety of services--personal, business and professional--are both economically and socially essential.

All transportation facilities utilized by the citizens and economic enterprises of Michigan come under some form of supervision by the state. Direct or indirect guidance or control is exercised by one or another state agency or commission. The complex of state direction and influence over the various modes of transportation has developed over time in response to problems and pressures. The variety of transportation facilities, public and private, that today provide for the movement of goods and people, constitute a state transportation system. But it is a system that grew like Topsy; it was never designed.

### CURRENT JURISDICTIONS

Jurisdiction over all forms of transportation in Michigan is centered in the state. The *Michigan Public Service Commission* was established in 1939 (Act 3, P.A. 1939) and is the successor of a series of state agencies dating back to the Office of the Michigan Railroad Commissioner, created in 1873.

The Commission's jurisdiction at present extends over railroads, motor carriers, water carriers, and electric, gas, telephone, water, and oil pipeline utilities. The scope of the Commission's regulations extends over regulations of conditions of service, safety, control, and regulation of rates and charges, public convenience and necessity, and authorization to issue stocks, bonds, notes, or other evidence of indebtedness.

To determine what the rights, powers, and duties of the Michigan Public Service Commission are and how the Commission may exercise these rights, powers and duties, the three basic acts:

Act 300, Public Acts of 1909, as amended  
(MSA s 33.21 et. seq.)

Act 419, Public Acts of 1919, as amended  
(MSA s 22.1 et. seq.)

Act 3, PA 1939 (MSA s 22.13 (1) et. seq.)

must be construed together. Act 300, Public Acts of 1909, as amended, includes much of the substantive law dealing with railroad regulation. The other two acts are primarily enabling acts and provide brief general outlines of the Commission's jurisdiction.

In addition to these major acts, specific powers of the Commission are derived from a number of other acts. A copy of these acts is contained in the 1964 Annual Report of the Michigan Public Service Commission. Several of these acts have been amended since then, but none of the acts have been repealed and no new acts have been enacted except for the purpose of amending existing acts.

The *Michigan Department of State Highways* has jurisdiction over the state trunk line system, which is the major road system of the state. *County Road Commissions* have jurisdiction over the county road system. *City and Village governments* have jurisdiction over the streets within their borders, except those which are designated as state trunk lines or county roads. The Department of State Highways must obtain the consent of cities and villages for the location of state trunk lines within the boundaries of such governmental units. Earmarked gas and weight tax funds are dispensed by the Department of State Highways to counties, cities, and villages for the purpose of road construction. The Department has authority and responsibility for dispensing federal aid money throughout the state. The Department has such additional responsibilities as the issuance of permits to transporters of excess-width farm equipment and furnishing information relating to road congestion to the Public Service Commission on request.

The *Department of Aeronautics* and the *Michigan Aeronautics Commission* were created by s 26, Act 327, PA 1945, as amended, MSA s 10.126. Section 27 of that act, MSA s 10.127, created the office of Director of Aeronautics, who is an appointee of the Michigan Aeronautics Commission. This Commission and Department have general supervision over aeronautics within this state and were specifically authorized to create a state airways system, s 51, Act 327, PA 1945, as amended, MSA s 10.151. The Department and Commission are authorized to register aircraft, s 76 of said act, MSA s 10.176; license pilots, s 83 of that act, MSA s 10.183; and approve airports, landing fields, aeronautic facilities, and airport managers, s 86 of that act, MSA s 10.186; and are authorized to promulgate and enforce a traffic code, s 107 of that act, MSA s 10.207. As a result of the Executive Organization Act, Act 380, PA 1965, s 233, MSA s 3.29 (233), the Department of Aeronautics and the Michigan Aeronautics Commission were transferred to the Department of Commerce by a Type I transfer.

The *Department of Agriculture* has jurisdiction over the transportation and marketing of fluid milk, Act 233, PA 1965, MSA s 12.617 (101) *et seq.* It has jurisdiction over the transportation of fruits and vegetables, Act 228, PA 1959, as amended. It has jurisdiction over, among other things, the transportation of Christmas trees, Act 124, PA 1933, as amended, MSA s 13.341 *et seq.* It also has jurisdiction over the vehicular transportation of migrant workers, Act 228, PA 1965, MSA s 17.425 (1) *et seq.*, and it issues permits for the transportation of swine, Act 181, PA 1919, as amended, MSA s 12.389. These are merely some examples of the type of responsibility that the Department has in this area.

The *Governor's emergency powers* include the regulation of public and private transportation, Act 302, PA 1945, as amended, MSA s 3.4 (1). The Governor may also impose a quarantine and prohibit the importation of animals into the state. Sections 13 and 14 of Act 181, PA 1919, as amended, MSA ss 12.382 and 12.383.

The *State Waterways Commission* has jurisdiction over watercraft carrying passengers for hire, Act 228, PA 1965, as amended, MSA s 17.109 (1) *et seq.*; and regulates motor boats, Act 245, PA 1959, MSA s 18.1286 (1) *et seq.* The State Waterways Commission was abolished as such by s 258 of Act 380, PA 1965, MSA s 3.29 (258); and its powers, duties, and functions were transferred to the Department of Conservation in a Type III transfer.

*Mass transportation authorities* are not state agencies. Provision for the incorporation of a mass transportation authority by certain cities is contained in Act 55, PA 1963, as amended. At the municipal level, the local government through the control of franchises does have certain powers over bus lines operated by private enterprise. Municipalities may also establish and operate a public transportation system.

This analysis reveals that jurisdiction over the construction and regulation of transportation facilities in the state of Michigan is distributed, by law, to several state agencies. There is no single central authority or body that overarches the various modes of transportation in terms of planning, construction, operation or regulation.

#### PERSPECTIVE AND APPROACH

Over the past 25 years, the economic and population growth of the state has been most manifest in burgeoning urban complexes, covering larger and larger geographic areas. At the same time, economic and social traffic between these growing urban concentrations and recreational travel between such population centers and park and vacation areas of the state have greatly increased. It has become clear, therefore, that the state transportation system must be designed and directed to meet the needs of the changed and changing economic and population configuration of Michigan.

Indeed, the state transportation system can fulfill its strategic and unique function only as a key component of a comprehensive state development plan. The role of the transportation system in facilitating and encouraging economic and urban development is critical at every level of governmental jurisdiction. The proper function of a transportation system is service, support, and stimulation to an agreed upon pattern of state growth and development, not as the determinant of that pattern. The feedback between transportation facilities and land development must be recognized and included in the development of the state plan.

The state economy is certainly more than the sum total of its local (regional, county, and city) economies. But its basic components are these local economies in their interactions with each other and with the various sectors of the national economy. A basic requirement, therefore, of a state transportation system is that it must serve not only the state economy, but also its local economies in their intrastate and interstate relationships.

It is neither desirable nor feasible for the state to provide or direct all transportation facilities within its borders. Hence, it must operate on a clear assignment of responsibility and function and on provision of assistance in various forms to its levels of jurisdiction--municipal, county, and regional. As yet, the state has developed no clearly enunciated and unified policy in this regard. Both the situation today and the needs of tomorrow dictate that the state formulate and adopt such a comprehensive transportation policy as a framework for operations. The jurisdictional obligations of each level of government must be clearly defined regarding the transportation functions to be performed or to be provided for.

## FUNCTIONAL ANALYSIS OF MODES OF TRANSPORTATION (PRIVATE AND PUBLIC)

## MOVEMENT OF GOODS

## MOVEMENT OF PEOPLE

Long Haul*(Interstate and Intrastate)*

Rail  
 Water  
 Air  
 Pipe Lines (oil and gas)  
 Highways (motor truck)

Rail  
 Highway (bus and private car)  
 Air  
 Water (commercial for pleasure)

Short Haul*(Inter-regional and Intercity)*

Rail  
 Motor Truck (highways)  
 Water  
 Air (specialized)  
 Pipe Lines

Highway (bus and private car)  
 Air  
 Rail  
 Water (pleasure craft)

Intra-regional and County

Motor Truck (on highways)  
 Rail (including switching)

Highway (bus and private car)  
 Rail (commuter)  
 Mass Transit  
 Water (pleasure craft)

Intracity

Motor Truck (streets)  
 Rail (switching)

Streets (buses and private car)  
 Mass Transit

This outline reveals that most of the modes of transportation serve various levels of function as related to governmental jurisdictions. Mass transit at the intra-regional, county, and city levels appears to be the most specialized mode.

## CONCLUSIONS

1. It is imperative that the state formulate and adopt a comprehensive transportation policy, covering all modes of transportation.

Unlike other major industrial states, Michigan has neither a transportation policy nor a unified state agency to administer transportation affairs.

The policy should be based on the community of interest of all levels of jurisdiction within the state and should encompass and co-ordinate all departments of state government involved in transportation facilities.



2. Based on this policy, the state should develop a statement of jurisdictional functions and responsibilities as the logical and feasible framework for the operation of transportation facilities at each level of government.

Such a statement, with due and proper legislative implementation, should provide aid and encouragement on the part of the state to enable each level to fulfill its obligations and perform its functions.

It would be incumbent on the state to divide its territory into appropriate functional regions, with their component parts of counties and cities, to provide for sound and related jurisdictional operations of transportation facilities. Within such a geographic structure, recognition could be given to the different types and degrees of transportation problems, and the various measures of encouragement and assistance required from the state to resolve these problems.

3. To accomplish the objectives stated above, it is strongly recommended that a joint executive-legislative Transportation Study Commission be established. The task of this Study Commission would be to conduct a through study and develop basic action steps for the establishment of a state transportation policy and system. In addition to representatives of the executive and legislative branches of state government, the Commission should include appropriate local officials and citizen members. The work of the Commission should have adequate financial and staff support.

Prepared by Subcommittee Four

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Commission (Chairman)

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GOVERNOR ROMNEY'S  
SPECIAL COMMISSION ON TRANSPORTATION  
THE RELATIONSHIP BETWEEN THE COST OF BUILDING  
AND MAINTAINING THE SYSTEM vs. METHODS OF FINANCING  
REPORT OF SUBCOMMITTEE FIVE  
JUNE, 1966

THE RELATIONSHIP BETWEEN THE COST OF BUILDING  
AND MAINTAINING THE SYSTEM vs. METHODS OF FINANCING

GENERAL STATEMENT

The relationship varies with these costs. The lower the costs, the less the problem.

PREMISE

Complete and balanced transportation facilities are essential to the movement of people and products and to the economic development of the State of Michigan.

Historically, the development, operation, and maintenance of any facility has been financed by the users. This has generally been true regarding transportation facilities. Departure from this principle can be justified only when it can be clearly demonstrated that it is required to serve the common good. This same principle should be applied in consideration of future development of transportation facilities.

GUIDELINES

The continuing development of existing forms of transportation facilities can probably be financed by the user as in the past. Ample precedent exists for the successful financing and operation of most facilities--such as intercity highways--with which the state is likely to be concerned in the future.

The development of improved, and in some cases, new forms of rapid mass transit systems for the growing metropolitan areas may qualify as the exception to the general principle of having the user pay all the costs. This is the most challenging and difficult innovation into which the state is likely to have to inject itself in the future.

URBAN RAPID MASS TRANSIT--PAST PROBLEMS

1. The properties involved have traditionally been built at tremendous cost, in fixed locations, involving modes of transport not readily updated in function, concept, and operating equipment or methods.
2. Such systems have been generally involved in commuter transport where there have been two peak loads involving intense usage and maximum utilization of both equipment and personnel. The merging strength of labor unions--on railroads especially--has made labor costs almost prohibitive by requiring the payment of a full day's wages for only one or two rather brief periods on duty.

3. The demand for urban rapid transit is not especially elastic with fares over the short term. But over the long term, and especially in the presence of competitive alternatives such as the private automobile on public highways, users have repeatedly demonstrated a willingness to use these alternative modes even at considerably greater cost. This, in turn, has reduced patronage and further raised the unit operating costs of the remaining passengers.
4. Users are also voters, and the question of fares has been a highly explosive political issue down through the years. When fares become what seems to be excessive, in terms of historical levels, demands for public subsidy out of other and broader sources of tax revenue have been clamorous.
5. Buses may be regarded as constituting all or part of a rapid transit system, but their record in Detroit has caused people looking for a solution to the transportation problem to sign a rather low priority to this mode as the total answer.

The economics are not quite so bleak as in the case of a railroad system, but the fact remains that the DSR record of losing traffic (prior to last year) is not a favorable background for considering it as the total answer to the problem. The situation that has permitted the Chicago Transit Authority and similar authorities in other major metropolitan areas to establish a rather creditable record, finds no counterpart in the Detroit area or other urbanized areas throughout Michigan.

#### FINANCING AND CAPITAL COSTS OF URBAN MASS TRANSIT SYSTEMS

The riders' tolerance of higher fares is so low and his conscious and unconscious preference for alternatives so strong, that the point of diminishing returns on higher fares is reached and passed quite early. Therefore, the economics of such a system render meaningless the covenant--customary in most revenue bond contracts--requiring the authority to set user charges at whatever level may be required to cover operating expenses.

1. The proponents of new systems, tested mainly on a pilot-plant scale, have demonstrated great ingenuity in minimizing the classical handicaps of rapid transit railroad operations, whether on the ground, over the ground, or under the ground. Innovations in automatic operations do hold out hopes that some of the financial asperities of an outmoded past may be averted, some of the operating costs eliminated, some of the capital costs reduced, and some maintenance expenditures lowered. However, it is more than a coincidence that the municipal bond-rating services usually refrain from rating revenue bonds for new ventures. Where there is no basis for the credit of a bond issue, other than assumed, pro forma, hypothetical and estimated figures, the credit is not assured. If the bonds can be sold at all, the interest costs will be high. This is especially true since the coverage of total debt service charges may double, but not exceed this sum. This coverage can readily be quite volatile, representing, as it does, the relatively small difference between much larger figures of revenue intake and operating expenses.
2. Thus, unseasoned engineering advances, though they may prove essential to a solution of the problem, will not, in themselves, add much to the credit standing upon which public sales of bonds must rest.

3. It follows from all the foregoing that some existing and assured public source of credit must be pledged, at least contingently, to support the revenue bonds issued to finance the capital costs of a rapid transit system. The contingency, of course, is that of inadequate net revenues available to service the debt--principal and interest.

This principle is well known and widely used in various forms. The State of Michigan Loan Fund for qualified bonds of Michigan School Districts is a case in point. It is only one of various devices whereby a number of states achieve the same end result of permitting school districts to raise funds which they otherwise might not be able to raise. The familiar mechanism of the "special-general" bonds--the special assessment bonds of local municipality, made attractive by their secondary and contingent status as General Obligations--is well known.

It is not possible at this point to suggest specific means of accomplishing the above. This will depend upon many other prior decisions concerning modes of transport and the structure of legal entities created or mobilized in solving the basic problem. However, the following approach seems only reasonable:

*Since urban rapid transit must serve commuters, some for many miles away, routes--regardless of mode chosen--will cross a multiplicity of municipal borders. In all probability, the only type of instrumentality of the state that would be politically acceptable, would be one limited in purpose to the ad hoc problem--in short, a Transportation Authority, either local to the particular region served, or alternatively on a state-wide basis. The credit upon which this or, ultimately, perhaps these can be contingently nourished, must be that of the State of Michigan, or very closely and dependably related to it.*

## CONCLUSIONS

The less acute the problems of maintaining a viable system, the more the pattern of financing can be free to follow more conventional, pre-existing, and accustomed methods of raising funds. Boldness in trail-breaking is required when established methods of coping with the problem have proven to be inadequate.

### Prepared by Subcommittee Five

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 Arthur R. Forster, Assistant Director, Highway and Traffic Safety Section, General Motors Corporation  
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### Assisted by

Charles W. Walton and Robert Storer, Manufacturers National Bank of Detroit  
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GOVERNOR ROMNEY'S  
SPECIAL COMMISSION ON TRANSPORTATION  
THE RELATIONSHIPS BETWEEN AVAILABLE SOURCES  
OF ENERGY AND TYPES OF SYSTEMS DEvised  
REPORT OF SUBCOMMITTEE SIX  
JUNE, 1966

## THE RELATIONSHIPS BETWEEN AVAILABLE SOURCES OF ENERGY AND TYPES OF SYSTEMS DEvised

### FINDINGS

1. The State of Michigan is presently supplied with sufficient quantities and forms of energy to handle all types of transportation now in use. All indications are that this quantity can be increased to meet expanding demands, at least until the year 2000 named in this study.
2. Although there are many programs attempting to develop new types of energy convertors, there appears to be sufficient raw materials to meet the foreseeable demand. It is not anticipated that new convertors will make any major impact on transportation within the next 10 to 15 years. It is reasonable to assume, however, that some small efficient energy conversion units will be in mass production near the turn of the century.
3. Because of the many favorable characteristics of electricity and the absence of unfavorable characteristics, such as air pollution, etc., it is anticipated that more and more modes of transportation will depend on energy in the form of electricity for their power.
4. Because of the recent, extensive, professional studies made on this subject, this Committee has elected to list these reports and have them constitute the bulk of the technical data. These data have been listed separately.
5. This Committee is of the opinion that in order to properly discharge our responsibility we should consider the future of transportation systems in their entirety so as to consider better the future of energy needs and to make appropriate comments thereto. We therefore are including "A Concept of an Energy Transportation System" by Dr. Robert A. Boyd, and are making a recommendation that encompasses and goes beyond our assignment.

### PREFACE

Although the current trend in studies of transportation and urban development needs is to collect large volumes of statistics relating to the problem, such information is often of little direct value in future planning of the type that is needed for the State of Michigan. Consequently, in this subreport, statistics shall be used only to support the fact that advanced planning should be undertaken on a comprehensive basis.

### TECHNICAL DATA

Many reports developed recently contain information pertinent to this assignment; however, the subcommittee, in view of opinions that will be presented subsequently, did not elect to abstract data from these reports but rather to make them a part of this subcommittee report for use in more realistic future planning. These supporting documents are as follows.

1. "Energy in the Michigan Economy--A Forecast"

Energy Study Group, Bureau of Business Research, Graduate School of Business Administration, The University of Michigan.

## 2. "Michigan in the 1970's"

William Haber, W. Allen Spivay, and Martin R. Warshaw, Bureau of Business Research, Graduate School of Business Administration, The University of Michigan.

## 3. "Future United States Transportation Needs"

A. H. Norling, United Research, Inc., Cambridge, Massachusetts.

## 4. "State of Michigan Emergency Resource Management Plan - 1X Petroleum - Appendix 'G' - Maps of Oil and Gas Fields, Crude Oil, Gas and Product Pipe Lines; Refineries, Terminals, etc." This manual was developed by the Petroleum Task Force in co-operation with the Michigan Department of Conservation.

## COMMENTS

Our course is fairly well charted for the next 5 to 10 years, but the rapid advancements in technical knowledge points to substantial improvements resulting in a more integrated and efficient system of transportation for the state and the nation by the turn of the century. Inconveniences and problems associated with present modes of transportation demand improvement. The will of the people as presently being expressed in Congress will have an effect in bringing these changes about. Advances in the theory of electronics, laser beams, super conductors, etc., are bringing us closer to the day of the automated highway and the domed city.

With mature reflection, it is obvious that most of our current problems in transportation can be attributed to inadequate and unimaginative urban planning and inadequate utilization of new technology in modernizing and planning transportation systems. Any acceptable plan for an integrated transportation system in Michigan must give major consideration to these two factors.

Most communities that have urban transportation problems can trace them to outmoded practices of land use, tax structures, jurisdictional restrictions, and geometrical physical relationships. While continuing to follow these practices, the use and acceptance of the individualized transportation vehicle and the associated problems have increased to such an extent that most current effort is being devoted to remedial measures. And yet, it can be demonstrated mathematically that there is a maximum size to a central-core city that can be served adequately and efficiently by any ground transportation system.

Planners must realize that people have become so accustomed to the use of the automobile that any ground transportation system other than the individualized vehicle or a mass transportation system that accepts the individualized vehicle will have little effect on the over-all transportation problem of the near future. Consequently, it is imperative that in our transportation and planning we take into account the fact that our society is accustomed to and will accept mobility.

Projections on the future growth of the East North Central portion of the United States (Wisconsin, Illinois, Michigan, Indiana, and Ohio) indicate that by 1985:

1. the population will increase by 34 per cent, with 77 per cent of the total living in urban areas,
2. the population of the Detroit metropolitan area will increase by 56 per cent,



3. the Gross National Product for the area will increase by 102 per cent, (\$1,960.),
4. the Disposable Personal Income, per capita, will increase by 45 per cent,
5. the Freight-ton Miles will increase by 72 per cent, and
6. the total Passenger Miles will increase by 104 per cent, with 80 per cent of this total for personal reasons and 20 per cent for business reasons. Only 9.5 per cent will be by common carrier.

These statistics serve to emphasize the need for comprehensive, realistic planning of urban development and transportation that will benefit future generations. This advanced planning must be done for each community in the state, not only as an urban center but as a component of an integrated state-wide society. The most important factor in this planning is the continued use of the individualized vehicle; in one form or another it will be the predominant influence on the movement of people for the foreseeable future.

This subcommittee realizes that other subcommittees of the Commission have assignments which cover factors pertinent to the comprehensive planning recommended. However, this subcommittee has elected to make recommendations and define a course of action independent of the others. These will be set forth in the following section.

#### RECOMMENDATIONS

Since any program of transportation planning cannot be successfully carried forward without its being accompanied by urban and community planning on a state-wide basis, it is first recommended that the Governor develop plans for the establishment of a State of Michigan Department of Transportation and Urbanology.

The major responsibility of the Department would be to develop a master growth plan for the State of Michigan, taking into account the requirements of each major urban area and the most appropriate composite transportation arrangements. It is not reasonable to expect that the Department could contain, particularly at the outset, the necessary knowledge, experience, and technology required for its formidable assignments. Beyond a permanent administrative co-ordination group involving a cadre of planning directors and a few experts, the department would avail itself of the services of knowledgeable staff members from the state universities on some appropriate appointment basis. The American Academy of Transportation, hopefully, would also have valuable services which could be made available. Through the close association with the universities, studies can be carried out in depth and along interdisciplinary lines utilizing not only the ability of trained researchers, but also the ability of graduate students who would concurrently be obtaining special training for transportation and urbanology. These students would provide an invaluable resource from which to recruit. The state's effort must be sustained on a continuing basis if it is to be successful and if it is to attract and retain outstanding talent in the area of transportation and urbanology.

For this Department to be effective, it must also be responsible for the total planning of the expansion of all present modes of transportation and for the planning and installation of safety regulations and safety facilities.

It is not the intent of this subcommittee to attempt to outline all the responsibilities and objectives of the proposed Department; however, we have certain studies to suggest that might aid substantially in the over-all planning activities.

They are as follows:

1. What are the variations in the basic requirements for transporting people and goods? Are the requirements sufficiently different for two separate systems to be devised? Could one of these systems be a pipeline system, incorporating the present system for liquid fuels and gases, with a terminal in each urban center?
2. What are the economic and operational advantages, if any, of having a common terminal in each community for all modes of transportation that serve that community?
3. With the expectation that all modes of ground transportation may ultimately be operated and controlled electrically, what are the technical and economic requirements for the establishment of a state-wide electrical network for this purpose?
4. What are the operational and economic advantages and disadvantages in up-grading and expanding our present system of freeways and highways?
5. What are the operational and economic advantages and disadvantages in up-grading and expanding facilities for other modes of transportation, such as port facilities, rail facilities, pipelines, airports, airways, etc.?

Prepared by Subcommittee Six

Richard H. McManus, President, McManus Engineering, Inc. (Chairman)

Dr. Robert A. Boyd, Assistant Director, Research Administration, The University of Michigan

L. R. Kamperman, Vice-President, Leonard Refineries, Inc.

Dr. Milton E. Muelder, Vice-President for Research Development, Michigan State University

THE UNIVERSITY OF MICHIGAN  
OFFICE OF RESEARCH ADMINISTRATION

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RESEARCH ADMINISTRATION BUILDING — NORTH CAMPUS  
ANN ARBOR, MICHIGAN 48105

February 8, 1966

Mr. Richard H. McManus  
McManus Engineering, Incorporated  
16100 West Eight Mile Road  
Southfield, Michigan

Dear Dick:

As chairman of the Steering Committee of Governor Romney's Transportation Commission, concerned with the relationship between available sources of energy and the type of system, I thought you might be interested in a concept of an energy-transportation system. The attached outline is of necessity brief; however, it could serve as a basis for discussion.

Hope to see you in the near future.

Sincerely,

/s/ R. A. Boyd, Ph. D.  
Assistant Director  
Research Administration

RAB:mc  
Enclosure

## A CONCEPT OF AN ENERGY TRANSPORTATION SYSTEM

The greatest deterrent today to an integrated, all-purpose ground transportation system is the lack of uniformity in the energy convertors that are used as engines in automobiles, trucks, buses, and other surface vehicles. With the advent of new power sources, such as those dependent upon thermionic conversion and the like, wherein the output energy is in electrical form, a new concept of a ground transportation system can be developed.

Since the new technological advances in propulsion devices, computers, controls, superconductivity, etc., utilize the fundamental electric properties of all matter, it is now possible to conceive an all-electric transportation system for people and goods--one that is coincident in part with an energy distribution system.

It is not possible here to describe the system in any detail, since most of the components and their integration must be developed through research. However, certain advantages of such a system will be briefly discussed in the hope that an extensive research program can be formulated along these lines.

One of the difficulties in the ground transportation of people, especially in the large metropolitan areas, is the conflict of individualized vehicles and mass transit vehicles. The individualized vehicles cause unacceptable congestion of streets and freeways and, consequently, cause discussion and promotion of various mass transit systems and their merits. And yet, by their very nature, mass transit systems as conceived today cannot provide totally acceptable transportation for the people that have become accustomed to automobile use. Therefore, a total transportation system that contains both the individualized segment and the mass segment appears to have some merit.

An all-electric system could be developed to provide this combination of services. For instance, envision an individualized vehicle powered by a convertor, such as a fuel cell with an energy transfer system of electric motors. This vehicle is capable of operating independently, much like the present automobile. But in addition, it is capable of operating under computerized control from an independent electric energy system. This electric energy system would penetrate the large metropolitan areas and connect them to the smaller cities, towns, and other population centers. These individualized vehicles would operate independently in local situations, but would be linked to the energy systems under computerized control of speed, destination, cost of energy, safety, etc., for greater distances and for areas of high density travel. This same energy-transmission system should also accept large vehicles for groups of people and for shipments of materials. This independent and yet controlled transfer of individuals, groups of individuals, and shipment of goods would overcome one of the serious difficulties of our present freeway system; namely, an intermingling of automobiles, buses, and trucks which, in turn, leads to inefficiency of travel and increased exposure for accidents.

In addition to the advantages inherent in the physical transfer of people and goods, the all-electric energy distribution system has many other advantages. Some of these are as follows:

1. *Reduction of Air Pollution.* It is generally conceded that the internal combustion engine is a large contributor to air pollution, especially in large metropolitan areas. The type of energy convertor herein considered would not possess this liability.

2. *Ease of Vehicle Control.* All devices for control of speed, destination, and the like would be electrical in nature (many even of solid state) and would operate in cooperation with, and as a part of, the energy distribution system.
3. *Cost of Operation.* Many of the energy convertors of the type referred to have efficiencies of conversion that are two and three times greater than for the internal combustion engine. Also, with the advent of materials that are superconducting at operating temperatures, the cost of distributing electric energy in the entire system would be drastically reduced.
4. *Heating, Lighting, and Refrigeration* During the time that the vehicles are attached to the energy-distribution system, the heating, lighting, and refrigeration systems of the vehicles could draw their electric energy from the major system. This becomes especially convenient as thermoelectric heating and cooling are developed for practical use.
5. *Parking Control for Individualized Vehicles.* Since these individualized vehicles have electric drives, and, therefore, are capable of being controlled through an electric system, parking in public garages and lots could be made automatic through a computer network.

It is immediately apparent that this transportation system is merely a concept; and yet with the technological advances currently being undertaken, the system is logical and merits additional study, research, and demonstration.

R. A. Boyd, Ph. D.  
Assistant Director of Research Administration  
The University of Michigan  
February 7, 1966



*Discussion of Michigan's future leadership in transportation research was continued over coffee by (l. to r.) John Byington, Jack White, Richard McManus, Charles Adams, and Jack Tompkins.*

*The strategy committee here at work in the Governor's residence on Mackinac Island are (l. to r.) Commission members: Nicholas Thomas (lower center); George Casady, Richard H. McManus, George Duff representing Dwight Havens; William Fucik; John Byington; Chairman Charles F. Adams; Glen Bachelder; and H. J. White. Barely visible at right is Jack Tompkins.*

