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Supplement To
TRANSPORTATION IN MICHIGAN - 2000 A.D.

**A GUIDE FOR STUDY
POLICY-PROCEDURE**

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Prepared for
JOHN C. MACKIE
STATE HIGHWAY COMMISSIONER
DECEMBER, 1962

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A G U I D E F O R S T U D Y

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Prepared by
Engineering Development
Committee
December, 1962

A C K N O W L E D G E M E N T

A considerable amount of work was done in the process of preparing the Report of the Engineering Development Committee entitled, "Transportation in Michigan, 2000 A. D.", which was not included therein.

There is also a great background of experience represented in members of the Committee that can be of value to the department in the years to come.

We therefore submit this Supplement to those who will be charged with the planning functions of the department and specifically acknowledge the efforts of Mr. J. D. Cruise for the major portion of this Supplement.

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Foreword

This is a supplement to the report, "Transportation in Michigan, 2000 A. D., A Guide for Study, Policy - Procedures." It is separated to enable a presentation and an explanation in some detail of the experience, knowledge and ideas that generated the Committee's report. It serves to expand and explain the bases and principles that led the Committee to formulate the recommendations contained in the presentation.

For convenient reference, the parts are in a similar order as in the presentation. In some instances there are additional subheadings and additional materials that are of interest and contribute to an understanding of the problem. Together they constitute an appraisal of the present problem of how to start to plan for the accomplishment of the transportation facilities that are required for the next generation.

The first importance is to start the attack. The second importance is to start to gather, analyze and make useful the information that is needed for advance planning of transportation facilities for an increasing number of people to live, work,

prosper and enjoy recreation in the socio-economy of Michigan.

The need to start planning transportation facilities for Michigan's future is long overdue. Tangible usable information is available now. Preliminary and initial concepts can be adopted to guide the immediate future. There is so much to do that care should be exercised in choosing and adopting principles, concepts and procedures. Decisions can be made with regard to usable data and what more is needed. It is equally important to make decisions to enable the planning process to be useful guidance for management functions.

It is necessary to start to explore the urban region highway problem. The rural phase can be adopted and advanced as rapidly as time permits. One of the objectives of the presentation and supplement is to point out the information that can be used and the additional information required for continued progress.

THE TRANSPORTATION PROBLEM

For a generation or more, foresighted people have expressed concern because the United States does not have a transportation policy to guide the federal agencies concerned with transportation and for the states to follow in accomplishing the facilities. This condition continues to handicap a rational approach for the development and planning of transportation facilities in Michigan. A further handicap is the record of nonproductive attempts at statewide comprehensive planning in the past. These two handicaps should be kept in mind in the approach to a solution.

The Committee is convinced that the department should explore the history of highway transportation development and use the experience to guide the planning of Michigan's future highway facilities.

Good highway planning takes into account all modes of transportation to develop the most satisfactory and efficient integration of modes and systems. Integration of modes of transportation is an integration of terminal facilities for overall efficiency and convenience. All principal transportation terminals are located in or near the cities. The integration is a part of the urban phase of transportation planning.

Michigan is two peninsulas in the Great Lakes Region. There is little trans-state traffic or long distance hauling within the state. It is close to and closely associated with a large population in adjoining states. It has in abundance the resources for growth. Its geography, natural resources and industry are particularly adaptable to highways for intra-state and interstate transportation. Trans-state movement of people and goods is mostly by two railroads and the principal airlines that serve Detroit. Michigan's development has been by highway development. This will continue.

Following the advent of the auto, bus and truck, highway systems were developed and Michigan grew and prospered. It was so successful it became complacent. The highway systems were not improved in step with the advancing economy. In the early 1950's, prosperity in Michigan started to lag, generating a serious handicap. The one promising accomplishment was Act 51, P. A. 1951, as amended in 1955 and consolidated in 1957. This enabled the ten-year construction program, 1957-1967. A large mileage of similar highways are needed for the future. These highways must be planned, financed and built. In addition, adequate highway facilities must be provided in the urban regions to enable economical efficient transportation for industry.

Long-range transportation planning in Michigan is highway planning that includes adequate connecting links with the terminals for the other modes of transportation. The principal

transportation requirements are, in order of importance:

(1) industry - the manufacturing process; (2) outdoor recreation - lake shore, lakes, streams and forests; (3) commerce - the distribution of goods and services; and (4) the movements of people. Balance between these four principal requirements is essential for the well being of the socio-economy.

There is evidence that dormant Michigan is awakening to recognize the value of its inherent aptitudes and natural resources.

Briefly, Michigan's principal assets are:

1. People

- (a) That have produced leadership in times of crisis and stress;
- (b) Skilled in development, organization and management of manufacturing process;
- (c) In the labor reservoir with inherent and developed skills in assembly of manufactured goods;
- (d) The majority of which are proud and anxious to be employed in gainful work;
- (e) Who have insisted on good government. Like all people they are often apathetic towards their government representatives.

2. A plant

- (a) That is in a median condition compared with other states, particularly the New England states;

- (b) Organized on the assembly line principle with good highways;
- (c) That can be expanded to meet needs and opportunities;
- (d) That includes vacationing and tourist facilities.

3. Resources

- (a) Minerals for heavy industry;
- (b) Ample available supply of fresh water;
- (c) Outdoor recreation
 - (1) The finest beaches in the world on the Great Lakes,
 - (2) Inland lakes,
 - (3) Streams,
 - (4) Forests
 - (5) Snow and terrains suitable for winter sports
- (d) A varied and invigorating climate;
- (e) A large and prosperous urban population within nearby states.

THE VEHICLE

The report contains a statement of the vehicle foreseen for planning the state's freeways, expressways, highways, roads and streets. The statement briefly points out the principal physical characteristics and limitations of the vehicle. The physical properties of the vehicle in movement are the principal consideration in planning the several kinds of highway facilities.

Other considerations of the vehicle in the planning process are safety and facility investment. Both of these considerations should be given equal weight in considering the vehicle and its future.

Safety

It is accepted that the means for automatic control of motor vehicles are known and can be applied. It would be convenient and relaxingly pleasant to travel in an automatically controlled vehicle at two or three times the speed of normal freeway travel. Experience so far with automation of vehicles carrying people is that there must be continual surveillance by a specially trained human being. The greater the speed, the greater the perspective requirements that are far beyond the subnormal driver.

With this viewpoint, it would seem that technological development has a long way to go. It seems unlikely that automatic and human control of vehicles can be mixed on one roadway.

In spite of this serious handicap of the individual, the research of this idea should be encouraged. By-products of objective research are often beneficial. Certainly highway safety is in need of physical controls that will improve the perception and reaction of the driver. One possibility is the development of devices to keep the driver alert and to warn of impending dangers. The monotony and hypnotic effects of freeway driving are hazards that may be compensated by research with the principles of automation.

Facility Investment

It appears that automatic and manual control of vehicles should not be mixed in one traffic stream. This idea limits the use of automatic controlled vehicles to a small mileage. It is beyond the known financial ability to automate all vehicles and all of the different kinds of roads and streets.

DEVELOPMENT OF HIGHWAY SYSTEMS IN THE NINETEENTH CENTURY

The network of Michigan roads and streets began centuries ago as Indian trails. Nearly all of the principal highways radiating from Detroit were first narrow paths marked by blazed trees and campfire ashes. Lesser trails branched off to form a network similar to the present trunkline system and principal county roads.

For 150 years after the first settlements in Michigan there were no wagon roads into the interior. Without roads, growth lagged behind the development of other sections of the Northwest Territory. During the War of 1812 lack of wagon roads was disastrous in the Michigan Territory. In 1816 federal troops started to build wagon roads between the forts and into the interior. Settlements in the interior started to develop. Additional roads into the interior were built by the territorial government.

When Michigan became a state in 1837, federal road building stopped. The new state had little money for maintenance. The roads soon became impassable. As a natural result, traffic to the interior was reduced. Few wagons came into Detroit. Hotels built for the accommodation of farmers were unoccupied. Firewood became scarce. Detroit businessmen came to the conclusion that plank roads should be built across the lowlands into the interior. The first plank road company, the Detroit

and Port Huron, was chartered in 1844. In 1848, the Legislature passed a General Plank Road Act to regulate operations. Plank roads were built and tolls charged. The planks decayed. The roads could not be kept up with the tolls received. The companies abandoned operation. Mark Twain after a stage coach trip to Grand Rapids remarked, "The road would not have been bad if some unconscionable scoundrel had not now and then dropped a plank across it."

From the time of the first settlements, the building of city streets was a local responsibility. The first paved street in Detroit was two blocks of Atwater. This was authorized by the Common Council about 1835.

The revised state constitution of 1850 provided for township jurisdiction of all rural roads. This constitution also transferred to township control the roads that had been built by the federal and state governments. This constitution bespoke the prevailing belief that roads were largely the responsibility of the people who lived along them. With the statute labor system then in effect the property owners and the township residents worked the roads. The roads built under this system connected the farms with the township trading centers. The median radius of a trade area was five miles - the distance that a team and wagon with load could go and get back in a single day. The work, carried out by untrained officials and inexperienced labor, was poorly done. There was little chance for building inter-township roads.

The Legislature in 1883 established a "Stone Road District" in Bay County consisting of Bay City, West Bay City and six surrounding townships. It authorized the "Stone Road Board" to levy 1/2 mills on all property in the cities and in the townships to build three stone roads to Bay City.

The act was amended every two years to 1893. The accomplishments of the "Stone Road District" were so satisfactory that it became a model for subsequent legislation. It confirmed the belief that a highway building unit larger than a township was needed to connect market centers with one another.

The first magazine wholly given to advocating improved rural roads was "Good Roads." The League of American Wheelmen published the first edition in January, 1892. This led the farmers, fearful of taxes, to say, "Nobody wants good roads but the bicyclist."

The Legislature in 1893 passed the "County Road Act." It permitted a county by a vote of the people to set up a county road commission and to levy a road tax of not more than three mills. This act with amendments has enabled Michigan to be outstanding among the states in county roads, accomplishment and administration. It took 37 years of promotion, patience and amending legislation to establish the 83rd county road commission.

In 1905 only eighteen counties had adopted the county road system. The township supervisors supported by farmers generally opposed county roads. They feared loss of control and increased property taxes.

DEVELOPMENT OF HIGHWAY LEGISLATION
IN THE TWENTIETH CENTURY

At the start of the twentieth century, the years of agitation and promotion by the League of American Wheelmen, supported by city auto owners, stirred the Legislature to action.

1900 The first International Good Roads Congress was held in Port Huron in July, 1900. Few legislators or public officials depending on rural votes dared to attend the meeting and be identified with the good roads movement.

1901 The League of American Wheelmen, organized in 1879, started the "Good Road" movement. They later gained the support of automobile owners who lived in cities.

The 1901 Legislature authorized a committee on highways to investigate and report a plan of improvement, and means therefor, to the next Legislature.

The Michigan Highway Committee reported in 1903 with specific recommendations that the State Constitution be amended to permit: improvement of highways by the state, a state highway department and state aid for roads.

1903 The Highway Committee report was written into the Governor's message. A debate about "words" in the concurrent resolution caused delay of a vote by the people in April, 1903. The word "highways" might mean railroads, canals or other modes of transportation.

Act 203, P. A. 1903, provided for a commissioner of highways, a deputy commissioner, "who shall be a competent civil engineer," other employees and an appropriation of \$5,000.

The Attorney General advised the Auditor General that the act was unconstitutional.

1905 The concurrent resolution considered by the Legislature in 1905 used the words, "public wagon roads" instead of "highways." There were 2,959 automobiles registered in the state.

The 1905 Legislature passed the resolution for constitutional amendment providing state expenditure for "Public Wagon Roads." Act 146 of P. A. 1905 provided for a state highway commissioner, a deputy, an organization and authorized aid to counties and townships. The state highway department was established to give instruction "in the art of building, improving and repairing of

public wagon roads and bridges, collecting reports;" also to furnish outline plans and specifications.

The constitutional amendment was adopted by the people in April, 1905, with a favorable majority in all 83 counties. The state highway department was organized, records were started, township supervisors reported. The procedures set up were followed throughout the life of state reward. This procedure failed to connect towns with one another. The Legislature provided and continued appropriations for state reward until 1925.

The Legislature by concurrent resolution invited the third annual convention of the American Road Makers Association to Port Huron in 1905. The Legislators now were anxious to be identified with good roads movement.

1907 Townships were authorized to levy a "road repair tax."

1912 A conservative and cautious Commissioner reported in the biennial report:

"The demand for improved roads is general, but there is yet much discussion over which roads shall be improved first. The farmer and merchant are most benefited by radial roads which reach out from the various trading centers, like the

spokes of a wheel, and put forth strong arguments to sustain their positions. They tell us that the volume of travel drops off very rapidly as the distance out from a given town increases, which is true, for it is usually twice as great on the first mile as it is on the third and fourth miles out. Then it drops off very markedly as each cross road is passed until a point is reached where the traffic divides with the next nearest town. This is always at or near the point where the inducements offered and the efforts required to reach the two towns about balance, and is never at the midway point unless the roads and market conditions are equal in both directions. Hence, if roads are to be first built where they will serve the most people and the greatest volume of traffic, they must be built almost simultaneously from the various market centers out, favoring to some extent the principal market places, but completing all of the roads near the towns before the distant ends are connected up and through roads thus secured.

"Opposed to this plan are the tourists and people who desire to drive from town to town and who are very busy in arguing that a mile of good road at this town and a mile at the other town accommodates nobody in particular and gives evidence of an entire lack of system in road building, which is akin to the waste of money. The coming of the automobile has largely added to this latter class of people, who, in fact, constitute a very large part of the people of the other class; for the merchants and farmers who, for business reasons, need the radial roads first, have become automobile owners and now are yearly, weekly or daily visitors of quite distant as well as the nearby towns. This has brought to their notice and then to our attention, the wretched condition of many outlying roads, which for economic reasons have heretofore been neglected. Such people are loud in their demands that the through roads be improved and are anxious and willing to pay their proportion of the cost of such improvement. All of these people, who in the very business by which they earn money to pay for their recreation adhere rigidly

to the principles of economy and will not spend a dollar unless it shall be returned to them with profit, are ever ready to spend money for good roads with a free hand and are not prone to count the cost nor the returns on the investment. In no other way can the insistent demand for through roads be explained. Nevertheless, this demand is plain and urgent and the road builder who does not heed it is likely to be run over by the wheels of progress.

"There is yet another reason why Michigan should give some heed to the demands of the motor car. It manufactures 60% of all the cars made in the United States. In 1910, the value of automobiles produced in Michigan was more than a million dollars greater than that of twelve of her staple and leading farm crops. Can such an industry be ignored? Though at present the automobile is largely a pleasure vehicle, the next ten years will see its economic possibilities developed beyond the dreams of the most sanguine, but good roads must be the rule and not the exception before that time shall arrive.

"Some of the benefits that will then be derived may be summed up as follows:

1. The number of days in the year that a team can use the road will be increased;
2. Crops yielding a greater tonnage and a greater profit per acre can be grown, e.g., wheat and sugar beets;
3. Light loads can be hauled at greater speed;
4. Any rise in the market can be taken advantage of;
5. More markets can be reached by each farmer;
6. Car shortage in the fall can be reduced;
7. Money shortage will be less frequent as the marketing season is extended;
8. Rural mail and parcels post will be more rapidly extended, because of lessened expense;

9. Motor cars and trucks will largely take the place of horse drawn vehicles on the highways. Market gardeners around Detroit are already beginning to use them and are saving three-fourths of the time formerly spent on the road."

1913 Efforts of the advocates of through routes from city to city finally convinced the people and enabled the Legislature to pass the State Reward Trunkline Act. There were 60,468 automobiles registered.

Act 334, P. A. 1913, provided for laying out some 3,000 miles of trunklines between the cities and naming the towns enroute. It authorized double reward, made appropriations and provided full authority to survey, make plans and carry out construction. Initiative remained with the people acting through road districts, townships and counties.

The department organization was expanded to initiate trunkline work. It continued to carry out the provisions of state reward on other roads. Improvement of the state trunkline system began. Double state reward and motorist pressure caused the building of an integrated system of good roads. An annual traffic census was initiated. This was continued until 1931. It was discontinued as an economy measure.

1915 The demand for new roads in the more populous areas of the state and particularly new subdivisions. was greater than could be satisfied from available funds.

The 1915 Legislature passed the Covert Act authorizing property owners to initiate road construction by petition, paying half the cost by assessment. Governmental units were authorized to issue bonds. Motor vehicle weight tax was enacted. Allocation of proceeds was 50% state, 50% townships and counties.

This act enabled local authorities to build a large mileage of roads. Although abused by some promoters, it permitted the start of urbanization. The department supervised construction and bonding for inter-county Covert Roads and super highways.

1916 The national interest in the development of good roads caused action by Congress for federal aid for highways.

The Federal Aid Road Act of 1916 authorized and appropriated funds to be administered by the Secretary of Agriculture.

It directly caused the states to organize state highway departments equipped with staffs of capable engineers.

1917 Congress required enabling legislation for the states to qualify for federal aid.

Act 99, P. A. 1917, approved the federal legislation and made an adequate appropriation.

1918 In the winter of 1918, snow was removed from 590 miles of highways for passage of cars and trucks essential for the war effort.

1919 Initiative by township and county officials limited by the tax base could not produce a statewide highway system. Road users and administrators alike concluded that a bond issue was needed. There were 262,125 vehicles registered.

In the 1919 spring election the voters amended the Constitution and authorized a \$50 million bond issue by an overwhelming majority. Act 19, P. A. 1919, authorized the Commissioner to take full charge of trunkline construction and maintenance.

The counties, road districts or townships continued to participate in the cost of construction. Local approval of alignment was required. In all, the bond issue and matching funds improved 3,398 miles of trunkline roads and bridges.

1921 The experience gained and the transportation emergency of World War I pointed to desirable amendments

of federal legislation. Highway transportation of people and goods had become a national necessity.

Federal Highway Act of 1921, amended and supplemented the 1916 Federal Aid Road Act. The federal aid highway system was spelled out with limited mileage. Act 106, P. A. 1923, directed the Commissioner to operate a ferry service across the Straits of Mackinac.

This federal legislation amended and supplemented, enabled the nationwide system of highways. In the winter of 1922-23, a system of snow removal was initiated on 1,115 miles of main trunklines.

1925 It became apparent that gravel and stone roads would not hold up under heavy traffic and that a substantial part of the trunkline system would have to be rebuilt. A better administrative and financial plan was needed.

A dedicated and foresighted Governor led the Legislature to enact a series of laws: a two-cent tax on gasoline; state reward was abolished; the state to pay the full cost on trunkline construction and maintenance.

Local rural control of location ended. Administrative provisions of the act permitted the improvement of an efficient trunkline system connecting the cities.

A reorganized central control highway department evolved and an 8,900 mile trunkline system was improved.

1927 The motor fuel tax was raised to 3 cents. An urban state trunkline system was established with \$2,000 per mile allocated to cities for maintenance.

1931 By 1931 the impact of the depression brought about the reorganization of the highway administrative and financial structure. The people acting through the Legislature, concluded that they could no longer afford good roads. The cities were pressing for a share of the motor vehicle funds.

Act 130, P. A. 1931, the McNitt Act - a property tax relief measure - provided for the counties to gradually take over the township roads. A share of the motor vehicle taxes allocated to counties was authorized for cities and villages. The Dystra Act of 1931 made provision for larger state participation in urban trunkline costs.

This ended township road building and maintenance. The township roads taken over were in poor condition. The allocated state funds were not sufficient. The counties were forced to curtail county primary road improvements. Michigan was among the first to cooperate with city governments and spend

state funds on city streets.

1932 The depression approached its lowest ebb; farm prices touched bottom, urban unemployment rose, local government defaulted on bonds issued under the Covert Act.

The Horton Act of 1932 was an attempt to meet an emergency. It drastically revised the distribution of motor vehicle funds. It reduced the weight tax on passenger cars from 55 to 35 cents per 100 pounds.

This act designed to meet a set of emergency conditions became an administrative and financial structure that lasted for 19 years. It handicapped the development of transportation facilities.

1941 The Legislature provided for limited access highways. It authorized borrowing by the state. Local participation was a requirement.

1944 The facts gathered by the Highway Planning Surveys since 1935 had been interpreted and presented to Congress and the Legislature. They had brought into reality highway facilities far beyond those first imagined by the highway planners.

The Federal Aid Act of 1944 provided for three federal aid systems: the primary, the secondary, and the interstate. It established urban areas and authorized funds to be appropriated for construction on each system and on the extensions into urban areas.

1947 On August 2, 1947, the Bureau approved the National System of Interstate Highways that had been selected by joint action of the states.

1951 Through promotion of a highway needs study, the Michigan Good Roads Federation aroused public interest in better roads.

Act 51, P. A. 1951, completely revised highway administrative procedures with a new financial structure for the support of all roads and streets. It authorized the determination of road and street systems by the state, the counties, and the cities and villages.

The Commissioner established a local government section to administer for him the provisions of the act as they pertained to the local governments. Construction of better roads was renewed throughout the state.

1955 The need for additional traffic capacity on the high-traffic-volume principal trunklines became apparent. It was recognized that the financial plan provided in 1951 was not sufficient.

The Legislature increased the motor fuel tax and designated an arterial highway system to be financed with the state's share of the increase.

This initiated the construction of expressways and freeways off the Interstate System.

1956 The Interstate System needed a financial plan for progress toward reality.

In the 1956 Federal Aid Highway Act, the Congress established the trust fund.

Construction of Interstate System was enabled.

1957 Another highway needs study and a financial plan authorized by the Legislature, had been completed. It was realized that the state required bonding to catch up with the growing requirements for state trunklines.

The Legislature amended and supplemented Act 51, P. A. 1951, to incorporate the provisions of an act adopted in 1955. It authorized additional bonding.

The Commissioner reorganized the department, published a five-year construction program with scheduled letting dates. With this national first, he successfully carried out the mandate of the Legislature.

1962 Michigan needs a state transportation policy, a long-range plan for highways with a sound financial structure to enable continued progress.

THE PLANNING PROCESS

The planning process is inventory and survey, coordinated effort, compilation, analysis, interpretation, forecast, concept formulation, government relations, public acceptance, foreseeable needs, finance programs, route location and approvals. A tangible product of the planning process are state and regional transportation plans. The planning process enables justification and local approval of capital improvement and operation of facilities. The planning process precedes engineering, location, design and construction. The planning process is the background that guides management in the formulation of policies and programs for action.

The function and objectives of the planning process are little understood. This is particularly true in Michigan state government. This is a fact for the department to recognize in providing for the transportation facilities that are needed for the state to develop resources.

The planning process that enabled the Commissioner's ten-year program should be reviewed and overhauled to cope with the requirements of highway transportation needs in an urbanizing state. The planning process for urbanization is practiced in the large principal cities. It has been limited in scope by the incidence of boundary lines and a lack of experience, knowledge and guides for regional transportation planning. Recently the process has expanded

outward by counties and by regions. For the planning of transportation facilities, regional planning needs state guidance. A guidance that can be furnished by the state highway department.

Inventory and Survey

The first and most necessary step is an inventory in comprehensive form of the history, development and present condition of the physical plant and existing plans for the improvement of the plant. For the transportation planning process the inventory should include the current condition of all modes of transportation and the foresight of each responsible organization. It also includes the current plans for localities. As the planning process matures, the scope of the inventory increases. With broadening scope the problem of comprehensive; that is, useful, forms of the information becomes increasingly complex. The inventory becomes the basis that management can refer to guide its operational decisions. Objective surveys to gather information are construed to be a part of the inventory.

Coordinated Effort

Coordination is essential and a part of the planning process. One should know about the work of others and coordinate with agencies responsible for the several elements of comprehensive planning. The highway planning process for transportation is an activity concerned with the total socio-economic structure. Part of the job is to recognize responsibilities delegated to others. The practice of good

government relations and guidance for others will greatly improve the end products of comprehensive transportation planning.

Compilations

The planning process requires organization of information gathered by inventory and by surveys in understandable form in a fashion that is useful for analyses and is available for others to use. This includes the organization of the statistical information that is continually gathered.

Analysis

The planning process requires that the information gathered by inventory and survey be analyzed and interpreted. Too little attention and effort has been applied to this phase. Factual surveys without analyses and interpretation are useless. The oversight of this deficiency constitutes a serious handicap in the planning process. The immediate correction is an essential action to enable the department to forecast the physical and financial requirements of the future. An example is the wealth of origin-destination data that can be analyzed to formulate a traffic estimating procedure for statewide highway systems and regional transportation plans.

Interpretations

The planning process is the interpretation of factual information to guide forecasts, concepts, projections and tangible foresights. Knowledge, experience, curiosity and

imagination are qualifications for this activity. Sound interpretations will produce sound plans for developing the transportation facility requirements for the latter part of this century.

Forecasts

The planning process requires forecasts that are based on statistical history, experience and growth projected into the planning period future. The essential forecasts are population, motor vehicle ownership, motor vehicle use, the movement of people and goods, economic growth and the state's share of the national product.

To better forecast the traffic loads on the various transportation routes, the forecasting must be segregated into the state trunkline system and county road systems in rural areas and into the systems in urban regions. In each case the forecasts must be related to land use, commerce and industry. These steps are necessary to develop a completely integrated traffic forecasting and estimating process. They are among the tools and bases required for progressive planning.

Concepts

The planning process requires concepts or ideas. The concepts are formulated as the processes progress. They are the ideas that guide the course of the planning to the end product; that is, capital improvement. Concepts should be sound, reasonable and acceptable to others. This means they should be founded on factual data well organized,

presented and tested. In generating a concept assumptions are used. Conjectures must be kept at a minimum. Planning is a process of rational projection based on factual data, experience and knowledge. It produces the tangible outline of requirements to satisfy an established need. An integrated highway system by jurisdiction is a product of analyses, interpretation and concept.

Government Relations

The planning process requires communication with all levels of government agencies concerned with public transportation facilities. Transportation is the means for the movement of government action. It is wise to understand government organization, functions and responsibilities. The planning process recognizes that responsibilities are delegated to each agency and level of agency. State, regional, county and city requirements must be integrated and taken into account. The integration of transportation plans for each level is a government relation function. It must be continued with patience until a mutually satisfactory transportation plan is formulated. In the planning process like the democratic process the need for compromise should be recognized. The culmination of this phase of government relations will be the adoption of a workable development plan for the state and for each region.

Public Acceptance

In the planning process all modes of communication should be utilized. The people need to be prepared to accept a transportation plan. Communication with the public is a requirement and a part of the process that leads to the building of public facilities. The culmination of this phase of the planning process is the regional approval of a transportation plan jointly formulated with local planning commissions. This should be the stage for federal agency approvals of regional transportation plans.

Foreseeable Needs

Needs studies are a part of the planning process. They are an estimate of the financial requirements over a foreseeable period of time - usually twenty years. They can be the principal guide for the formulation of a financial plan and construction programs. The quality of a needs study can be no better than the quality of the preceding phases of the planning process. Michigan has conducted three needs studies. The tangible results from the first two expressed in legislation and finance have been gratifying.

Each of the three needs studies is formulated on a comprehensive state trunkline development plan that is based on data gathered in the 1930's. The procedures and methods for carrying out the work have been considerably improved.

After thirty years it is timely to completely review and revise the basic plan and the traffic estimating and forecasting process. It is essential that the basic data for the next needs study be updated to represent current analyses and interpretations.

Finance

The planning process produces two broad concepts; the development plan for all highway systems, and a corresponding financial plan to enable the accomplishment of the required facilities over a period of years. Due to the state, county and municipal government structure, it is wise to have the financial studies carried out by outside specialists. In the interest of the state trunkline system and the state highway department, it is equally wise to review, analyze and present to the public and the Legislature the financial needs for an orderly development of the highways under state jurisdiction. One of the principal end products of the planning process is a sound financial plan that will permit a construction program in gear with needs.

Programs

Financial planning for capital improvement is the construction programming process. The department has been outstandingly successful with this phase of the planning process. It has established that long-range five-year construction programs can be formulated, scheduled and carried out. Public understanding and acceptance of the

process is evidence that this efficient procedure can be continued. When one is most successful, self-analysis is in order. In this instance, it is doubly wise to ascertain why the first five-year program was so successful and what are the causes of the difficulties that are now accruing.

Route Location

Route location is a function of the planning process that requires experience and background with a knowledge of land use, economics, city planning, traffic engineering, geometric requirements of highway design and highway costs. All of these abilities are applied to the location of a highway facility that will best serve transportation, be compatible with the other elements of a comprehensive plan, and integrate in the most economic system to fulfill travel desires. These are determinants of the feasibility of a facility. A proposed facility has to be feasible and justified to enable approval by the local governing bodies.

Approvals

The planning process involves approvals of: policy by the department; comprehensive statewide urban region and city state trunkline plans by the Commissioner and local planning commissions; highway needs study results by the department, the counties and the cities and in turn by the Legislature; long-range construction programs by the Commissioner, the Commissioner's advisory board, the Administrative Board and in the case of a Federal-aid route by the Bureau of Public Roads; of route location by the Commissioner,

the Bureau of Public Roads and the counties and cities involved. With the approval of location of a route by the local governing body engineering surveys can be initiated. All of these approvals are justified, performed and made a matter of record through the planning process. They need to include contractual arrangements between the governments involved for good administration and mutual action.

Programmed construction of routes and sections of routes perform as units of a system. The planning process is essential to assure the most efficient use of an improved facility at the least cost and the greatest safety.

REVIEW OF A METHOD FOR THE DETERMINATION
OF THE RURAL STATE TRUNKLINE SYSTEM

The data for the rational method of highway classification was collected 25 years ago. The method has been used for 20 years. Since World War II the population of the state has increased nearly 50 per cent. There have been changes in the socio-economic structure. The growth has trended to decentralization with recentralization in new locations of the essential services that people must have for life, work and play. Additional leisure time with higher real income has greatly increased the patronage and expansion of outdoor recreational facilities. All of this has changed the traffic pattern and increased the use of the automobile for transportation of peoples and goods.

The changes that have occurred make it axiomatic that methods based on data collected and analyzed and then adopted 20 years ago needed to be reviewed to determine their validity for use with highway system administration and long-range planning.

The rational method has stood the test of time. The basic principles are accepted by legislators, government officials and highway administrators at the several levels of government - federal, state, county, and city and village. The principles have been adopted and studies have been carried out in a number of states.

During World War II, the Planning and Traffic Division researched the problem of highway classification and evolved, out of the highway planning survey traffic data, a rational method for highway classification based on the relative importance of the several classes of populated places. It was found that the more important a populated place, the greater the traffic attraction from outside its immediate trade area. This principle in coordination with available statistics and information founded the rational method that has been used for the classification of all rural roads for appropriate jurisdiction by the counties and the state. The method has been adopted for the solution of rural federal-aid system classification problems. It has provided the bases and justification for the changes in the federal aid systems.

The department needs a rational method of highway classification that is based on present and foreseen conditions. It needs to be alert to changing situations and their impact on the highway systems. Transfers of jurisdiction of highway routes between the department, the counties and the cities and villages have to be based on a rational method of classification supported by factual justification. Each change of route jurisdiction should be fully justified with the agencies concerned.

Principles of Highway Transportation Service

Highway transportation service of some kind is needed to enable the individual to live, work, shop and seek recreation.

It is the mode of transportation that serves most or all of the socio-economic functions for living - the home, the shop, the factory, the mine, commerce, the school, cultural and social recreation, and outdoor recreation. It is the principal mode of transportation that enables government to function. Every enterprise uses highway transportation service for a part or for all of its transportation requirements.

For administration, operation and advance planning purposes, it is necessary to classify the several kinds of highway transportation service in relation to the several highway systems. A sound procedure is needed to identify those routes that should be under the jurisdiction of the state, the counties, and the cities and villages for the most satisfactory service at the least cost commensurable with the importance of the principal function of the route. The procedure should be based on recently reviewed and analyzed socio-economic data.

The principal function of each route in the rural highway system is to interconnect the more important places in each county to evolve an integrated system of routes providing statewide transportation service for truck, bus and passenger car trips between the principal trade centers. It should integrate with the less important secondary systems of principal county roads and city and village streets.

The principal function of the county roads comprising the county primary system is to reach and connect the several kinds of small centers in the county. The county

primary system includes roads that collect and disperse traffic for the land service roads and streets. It provides a county-wide service, leads into the cities and villages and integrates with the state trunkline system.

In the cities, the state trunkline routes extend to the central business district. Where justified by state-wide traffic use, state trunkline bypass routes are integrated with the routes into the city. The problem of street classification and a plan of attack to define the degree of state jurisdictional responsibility in urban regions is the objective of an additional study.

This review is limited to the plan of attack for highway classification to determine the extent of the rural state trunkline system and to identify the routes that should be included in the system.

Scope

The problem was approached on the premise that the last general determination of a state trunkline system, the system used in the 1960-80 needs study, is sound. The present classification can serve as a guide to establish group brackets to identify places of similar importance.

This approach considers the rural state trunkline system as an intercounty system of highways connecting and serving the principal populated place in each county and generally serving that place in the directions of closest association and interest.

For this purpose, the available federal census and other data were studied;

1. 1960 population of incorporated places by three statewide areas and 83 counties;
2. 1958 federal census retail trade and 1960 state sales tax data;
3. 1958 federal census of wholesale trade statistics by merchant wholesalers;
4. 1956 federal census and 1960 state banking deposits statistics;
5. 1960 average 24-hour traffic flow on the state trunkline system;
6. Daily and weekly newspapers.

Other statistics can be suggested for study as time permits and as they become available.

The study progressed to an identification of independent trade centers, the grouping of these centers in groups similar in importance, ranging from the most important to the least important. A state trunkline system that would directly connect all trade centers judged to be of statewide importance was sketched. A map of the results is a part of the presentation.

Phases of the Study

The general phases of the study are itemized above. The principles, procedure, interpretation and comments for each phase will be discussed in the same order. The federal census and similar state collected data were computed on a dollar value per capita basis for each county and for

each city where the dollar data is available. In all instances the 1960 population figures were used. The per capita dollar value was judged to be the better measure of the degree of activity covering each of the socio-economic values. It is the most suitable for comparisons between places of similar and differing importance. This conforms with the concept that the state trunkline system connects and services the more important place in each county.

The density of population by counties in Michigan varies from 4,393 persons per square mile in Wayne County to 4.4 persons per square mile in Keweenaw County. The Upper Peninsula and the northern Lower Peninsula are sparsely populated. The population of a sparsely populated county implies a principal trade center of small population. The population of the important trade centers now served by the state trunkline system was studied to determine high and low limits of population for each classified group of populated places. For this purpose it was found that the state could be divided into three regions: the upper peninsula, the lower peninsula above Townline 16, and the lower peninsula below Townline 16. An initial exploratory review of the economic statistics in relation to place size suggested that the same group values could be applied to both the upper peninsula and the northern lower peninsula north of Townline 16; further, that the statistics for each of the three areas should be analyzed, studied and interpreted independently of one another. The entire state was

viewed and decisions reached after the interpretations were made for each of the areas.

This is a study of the state of Michigan, however, the state has been divided into three major regions. This concept permits the classification of trade centers into four classes: metropolitan, regional, district and complete market trade centers. This is the same classification of trade centers that was used in the original rational method of highway classification. It was found that the incomplete market center is not important for state trunk-line classification.

Trade Centers

The independent trade centers in each of the three regions of Michigan have been identified by size, location, per capita retail trade, and banking service. The trade centers have been compared with places where daily and weekly newspapers are published. The trade centers that were identified in this manner were classified by degree of relative importance in conformance with the group indices outlined in this prospectus. Trade centers that are satellites of metropolitan central cities or are a contiguous part of a metropolitan area were not classified.

In the interest of consistency, the terminology of the trade centers defined in the rational method of trade centers has not been changed. The definitions are revised to conform with hypotheses adopted for this study.

A principal hypothesis was that the delineated areas of the state were first considered independent of one another. The most important places in each area are classified; metropolitan trade centers, Escanaba, Marquette and Sault St. Marie in the upper peninsula and Alpena and Traverse City in the lower peninsula above Townline 16 are examples. A state trunkline system serves the governmental, social and economic needs of the state. At the national and interstate boundaries it integrates with similar systems in Canada and with the state trunkline routes of similar importance in Ohio, Indiana and Wisconsin. Routes of similar importance in these states and in Illinois can be identified by use of the same principles and procedures.

The definitions for trade centers contained on page three of a prospectus for highway classification prepared by the Office of Planning in June, 1961, are revised to conform with the hypothesis - considers Michigan as an entity.

Metropolitan Center

A distribution and service center of the greatest importance with a large trade area overlapping several trade areas of lesser statewide importance. A place that serve as a major center in the Michigan socio-economic structure and functions to completely meet the essential needs of the people that live in the entire trade area.

With this definition, Marquette, Alpena, Bay City and Jackson are among those classified as metropolitan centers.

Regional Center

A place that offers complete services to meet the essential needs of the people that live in its extensive trade area. It generally serves as a partial distribution center. It offers professional and specialized services for the people in the several lesser trade areas and centers that its extensive trade area overlaps. It is generally quite important in one or more economic categories. With this definition, Ironwood, Iron Mountain, Petoskey, Cadillac, Battle Creek and Port Huron are characteristic regional centers.

District Center

A place which is a minor distributing center that furnishes market, professional and specialized services sufficient to satisfy the people that live in the trade area. It usually overlaps several areas for lesser market centers or trade centers of statewide importance. Typical examples of this class of center are Ontonagon, Manistique, Rogers City, Manistee, Niles and Hillsdale.

Complete Market Center

A place which offers complete service to its trade area in professional and specialized services. It may be identified as the most important place in the county by a large trade area and a relatively large population in comparison with nearby trade centers. When judged with all

the factors, it appears to be of sufficient statewide importance to be served by a state trunkline route. Typical examples of complete market centers under this definition are Mohawk, Gwinn, Kalkaska, Mio, Cassopolis, Tecumseh and Sandusky.

Trade centers of lesser importance may provide services similar to those provided by a complete market center. They have a small population and relatively a small trade area. In good agricultural land they appear prosperous. Additional research and analyses is needed to clearly define the several degrees of trade centers that are not important statewide.

It was expedient to classify the identified trade centers in conformance with the above definitions. This was done with the group limits applied to population, retail trade, merchant wholesale trade and banking deposits in each of the three areas.

1960 Population

When the state is divided into three regions, the population of independent trade centers within each region is significant. The population is very significant when it is determined for all of the immediate trade area. This would take into account the populations of satellite communities. Per capita dollar values computed with the total population of an immediate trade area would significantly differ from those calculated with the population inside the incorporated limits of the central place. The segregation

of the state's population by the immediate population of each trade area is a task that would have required a considerable amount of compilation by clerical people; in this exploratory study it could not be done. In a detailed analysis the segregation could be carried out.

The population grouping adopted for the four classes of trade centers were:

Ref. No.	Class of Trade Center	<u>1960 Population Group Limits</u>	
		<u>Upper and Northern Lower Peninsula</u>	<u>Southern Lower Peninsula</u>
1	Metropolitan Center	More than 15,000	More than 80,000
2	Regional Center	4,000 to 15,000	30,000 to 80,000
3	District Center	2,000 to 3,999	5,000 to 29,999
4	Market Center	Largest in county	Largest in county

Subsequent utilization of this grouping in relation to activities within the three regions indicated that minor refinements may be needed. It appears that population is a measure of relative importance and should be studied in detail. More refinement, analysis and interpretation of how most of the people are occupied should be carried out.

Retail Trade

The 1958 federal census of retail trade and the fiscal 1960 state sales tax statistics have been studied in some detail. In this exploratory study the retail trade per capita dollar values are not directly significant. It is believed that they will be significant when the values are calculated with the population of the immediate trade area and segregated by general classes of goods. Objective analysis of federal and state retail trade should be rewarding

for an understanding of the future of Michigan. In correlation with interpretations of federal census selected service data it is predicted that confirmation of place classification will result. Its use for understanding the economic potentials will contribute significantly. It may provide considerable enlightenment with problems of identifying overlapping trade areas by economic function and type of goods.

In this exploratory study, per capita dollar values of retail trade were segregated in three groups:

<u>Term</u>	<u>Per Capita Retail Trade</u>
High	Over \$1500
Normal	\$1100 to \$1500
Low	Less than \$1100

A high per capita dollar value generally indicates an extensive immediate trade area or a good agricultural trade area around a smaller city. In some instances, it suggests a high tourist and resort patronage. Outstanding is the city of Petoskey with a per capita trade of \$3,210 in 1958. This kind of patronage also identifies Alpena (\$1,870), Charlevoix (\$1,825), Cheboygan (\$2,120), and Traverse City (\$2,480) as important tourist resort centers. A study of the fluctuation of sales tax returns by months confirmed this finding.

Wholesale Trade

The 1958 federal census of wholesale trade provides excellent data for the identification and classification of the more important trade centers. The data for cities and villages is limited to places with a population of

more than 5,000 persons. It is sparse in the least important or poor counties. Some iteration was necessary to establish group limits of per capita dollar values for trade by merchant wholesalers. A number of comparisons were carried out for important places in the nearby states. The 1954 federal census data was available and was used for this purpose. The immediate wholesale trade areas for principal cities in the nearby states extend into Michigan. The principal cities are Duluth, Minnesota; Green Bay, Wisconsin; Milwaukee, Wisconsin; Chicago, Illinois; South Bend and Fort Wayne, Indiana; and Toledo, Ohio. The following per capita dollar values for group limits by class of trade center were:

<u>Ref. No.</u>	<u>Class of Trade Center</u>	<u>Per Capita Dollar Values 1958 Census of Wholesale Trade</u>
1	Metropolitan Centers	More than \$900
2	Regional Centers	\$900 to \$400
3	District Centers	\$399 to \$200
4	Market Centers	Less than \$200

The study revealed that these group values for classification could be the same for each of the three areas adopted for this study.

The per capita dollar values for wholesale trade are for sales by merchant wholesalers. This class of wholesalers tends to locate their establishments in cities that are centrally located for the distribution of their goods to retail establishments. They are more inclined to locate in market centers.

In the sparsely populated counties the wholesale trade data involve a small number of establishments with corresponding low volume of sales. Much of this information is withheld to avoid disclosure.

A great deal of informative and useful data can be obtained by objective analyses of the distribution of goods by wholesalers. A workable understanding of this important function in the economy is essential for transportation planning and the integration of highway systems.

Bank Deposits

The 1956 federal census of banking deposits provides banking deposit figures for each county. The "1961 Michigan Bank Director" published by R. L. Polk and Company of Nashville, Tennessee, includes for each national and state bank a statement of the total assets at the end of 1960. The statement includes demand and time deposits. The demand and time deposits are not segregated by headquarter and branch banks. The deposits of Michigan National Bank, approximating a half-billion dollars are stated as one item. This banking establishment, with the central office in Lansing, operates banks in Lansing, Grand Rapids, Saginaw, Flint, Battle Creek, Port Huron, Marshall, Charlotte and Vermontville. Using the 1956 federal census of banking deposits and deducting the deposits of independent banks in a county, the deposits of a Michigan National Bank can be approximated.

With few exceptions, the amount of banking deposits clearly identifies the most important places in each county. The amount of banking deposits is one of the better indices for distinguishing the relative importance of a populated place.

Statistics for banking are available for practically all of the identifiable trade centers. Independent trade centers, incorporated as city or village, with more than 500 population without banking service are: Channing, Maple Rapids, Armada, Dimondale, Sunfield and Climax. Banking service is found in the following places with less than 400 population: Alden, Allendale, Alto, Bear Lake, Cascade, Cedarville, Clarksville, Delton, Emmett, Fair Haven, Fountain, Gagetown, Indian River, Kaleva, Luther, Mecosta, Mesick, Munith, Pompeii, Port Hope, Posen, Ruth, Sand Lake, Stanwood, Trenary, Tustin, and Winn. Judging from location, most of these small populated places are nearly complete market centers. They are not of statewide importance.

The location of banks and branch banks is an excellent index to identify a trade center. The magnitude of deposits can be used to identify relative importance.

An understanding of banking in relation to transportation is important for planning the various networks of highways. A preliminary study of the data available leads to the conclusion that further analyses are desirable. The analyses should be correlated with location and circulation of daily and weekly newspapers.

Daily and Weekly Newspapers

Support of a daily newspaper signifies a place of considerable importance - one that qualifies for statewide highway transportation service. Extent of daily newspaper circulation is an index of the area served by a trade center. The location of a weekly newspaper indicates that the place of publication is a complete market center. The statistics of newspaper location, circulation and areas of circulation should be studied for identification of trade centers and their relative importance.

1960 Average 24-Hour Traffic

The 1960 average 24-hour traffic flow map for the state trunkline system was studied to identify extensive and immediate trade areas for the populated places that were found to be of statewide importance. In most instances this was practical. The information on the map served to reaffirm the long established principle that points of minimum traffic volume serve to delimit the boundaries of the immediate trade area. People tend to patronize the nearest place where goods and services that they need are available. The traffic counts that are available over the state trunkline system could be quite useful for the delineation of trade areas.

State Trunkline Classification

The trade centers thus classified were connected: first, for metropolitan centers; second, for regional centers; third, for district centers; and finally, for complete market

centers of statewide importance. The routes evolving from each step were identified as functioning for statewide highway transportation purposes in conformance with the importance of the class of trade centers they connect. The process was reviewed several times and some changes were made as the work was carried out. A copy of the state map indicating the classification of the trade centers and a tentative system is a part of the presentation. It was found that it will be necessary to study certain routes in greater detail and it may be necessary to add to the hypotheses.

Organization

The study outlined in this review was a pilot endeavor to reexamine the hypotheses and principles of highway classification based on identifying the relative importance of the populated places within Michigan.

Use of recently collected statistical information was found practical for this purpose.

The function of highway classification for the state trunkline system and federal aid systems is a responsibility of the Office of Planning. The task of carrying out the study in detail with the establishment of justifications should be assigned to that office with assurance that additional traffic count and origin-destination data will be collected by the Traffic Division where needed.

ANALYSES AND SURVEYS
FOR THE
HIGHWAY TRANSPORTATION PLANNING PROCESS

The Bureau of Public Roads and the state highway departments, in the mid-1930's, initiated the highway planning surveys to gather, compile, analyze and interpret information regarding: the mileage and condition of all classes of highways; their use by traffic; and their financing in relation to all costs of government. This basic function of highway administration has been continued by the states. It is financed on a matching basis by the national Congress. The interpreted results have been presented to the state legislatures and to Congress. They provided the bases for modern highway legislation and finance.

Michigan has continued, over a period of 25 years, to use the basic highway user and motor vehicle characteristic statistics and relationships that were collected in the initial studies. It is timely that the value and use of that information be appraised. The object is to design an information gathering survey with specific objectives covering information that is needed now to guide highway legislation, administration and planning in the remainder of this century. Need the same information be gathered again? How would the information be used and how important is that use? This should be clearly spelled out.

The following steps are suggested before a series of information gathering surveys are finally formulated

and initiated:

1. The kind of highway transportation information that should be used to inform the people;
2. The kind of information that is needed to formulate the bases of a plan to obtain amended highway legislation and ample funds to build the highways, roads and streets that are needed;
3. The kind of information the Bureau of Public Roads can use in the interest of Federal highway legislation - this should be in specifics rather than possibilities;
4. The kind of information that is needed to justify changes in jurisdiction of highway routes;
5. The kind of information that is needed for a method of traffic estimation and forecast that will take advantage of modern techniques and computing equipment;
6. Overall analyses and facts are also needed to integrate transportation planning with the urbanized regional problem. Regional urban transportation planning is imminent. Experience has demonstrated that five to ten years is the time required to initiate, gather information, analyze, interpret, plan and activate the construction of principal

units in an urban region highway and transportation plan.

Satisfactory construction programming by five-year increments can best be carried on by a gradual change in principles and policies as the collection, analysis and interpretation of information progresses. This suggests the focusing of attention to the principal elements of the state trunkline system which will implement the future prosperity of Michigan as urbanization continues.

In order to continue with state trunkline planning and programming by five-year increments, it is necessary to set up concepts and identify the kind of information that is needed now for:

1. Classification of rural roads and streets to identify the extent of the state trunkline system under state jurisdiction for development and operation;
2. Formulation of warrants for the justification of transfers of jurisdiction between the state and the counties. This is a specific problem to be studied in detail. Such a study may reveal that each case will require an appropriate land-use and traffic survey;

3. Positive supportable information is needed now to answer pertinent questions about the use of freeways and the changes brought about by the expanding urbanization since World War II;
4. One of Michigan's greatest resources is vacationing and touring. Information should be gathered about this important industry during the winter, spring, summer and fall seasons.

In order to predict growth it is necessary to understand the past. These fundamental requirements need to be considered in the design of a survey.

Additional Information - General

It is anticipated that attitudes and desires of people can be found by modern sampling and interview techniques. The objective is to find what people want in the way of highway service, what they will support and how they want to pay for it. This objective is briefly stated. Most important is to find out what the people will support in view of relative costs and bases of taxation and fees for highway transportation service. How to gather and analyze the information is a task for the specialist. It probably involves an educational campaign to inform the people before a survey can be made.

The planning process needs an estimate of the traffic by type and weight of vehicle and relative

quantities contributed by class of place. Trip maker information similar to that being developed for large urban regions is needed for traffic estimation in relation to foreseen land uses and socio-economic development. Degree of trip maker ability by the several classes of urban places are needed for traffic estimation forecasting and highway programming problems.

Additional Information - Urbanized Regions

This phase of preparation for the design of a survey involves analyses of available information and progress by others with the analysis of extensive regional surveys: Detroit, Chicago, Pittsburg, Jersey and current research by the Chicago and Detroit surveys. The work outlined for this phase should be carried out before a transportation survey is initiated in the Detroit region. The experience and counsel of principals of the above should be sought. It is obvious that the rapid progress by others should be taken into account and additional information gathered before initiating any survey.

There are two divergent viewpoints about the future urban regions and the place of the central city and the central business district in the socio-economy:

1. Reestablish the values and the functions of the central city and its business district as they existed before the advent of the motor vehicle. This viewpoint is so

positive that its proponents would establish deterrents to the use of the automobile in the central city. They would guide the future back to the eighteenth century type of central city. They tend to overlook some of the essential requirements for a prosperous central city. The committee cannot support this viewpoint.

2. In a region the central city and the central business district will continue to change with the expansion and increase in the number of satellites of all kinds made feasible by the automobile. The future urbanized region will continue to change and be guided by the use of the automobile and the limitations of providing highway and parking facilities. Michigan will continue this trend with feasible changes that will promote the rebuilding of the central city with a pattern for continued use of the automobile.

The analyses and surveys outlined in this discussion are founded on the latter viewpoint. Michigan is an industrial state where the automobile, the truck and the highway are a part of the assembly line essential to the manufacturing process.

This approach accepts the following concepts, principles and procedures with confidence that traffic can be estimated region-wide and then statewide for the principal highway transportation arteries.

1. People have adjusted, and will continue to adjust, to their environments. There are limitations, both physical and financial, for the future urbanized regions, the central city and the central business district. These limitations can be identified.
2. Expansion and growth will take place where the basic facilities can be developed:
 - a) Central city with cultural background and people with the inherent qualities that caused Michigan to lead in developing the modern manufacturing process;
 - b) Where an ample supply of fresh water can be made available from the Great Lakes or northern Michigan;
 - c) Where there is good government;
 - d) Where there is a heritage of progress in the changing environment.

To carry on the above and conceive the information that is needed to mold a pattern of expanding regions:

1. Determine the essential basic purpose of usage of the automobile, both passenger cars and trucks;

2. Develop patterns for each of the basic usages for people, wholesale and retail trade, services, businesses, commerce and manufacturing by general types;
3. What are the functions that are now performed in the central business district -
 - a) That must and can best be carried out there;
 - b) That want to stay in the central business district;
 - c) That need not be located in the central business district;
 - d) That satisfy and service the functions that should remain.

While these studies are underway the department can continue the current policy of improving state trunk-line extensions into the cities.

STUDY FOR THE
PRINCIPLES OF URBANIZED REGION
HIGHWAY CLASSIFICATION

Michigan is well advanced in the application and administration of the principles of rural highway classification. It has a head start among the states in applying these principles to the extension of state trunklines into the central city to the central business district through cooperative effort with local city planners, officials and governments. The increasing number and expansion of urbanized regions compels attention now to this problem.

There are two approaches to the problem of state highway department responsibility in Michigan's rapidly expanding metropolitan regions.

Hypothesis I

The principal responsibility of the commissioner is to locate, design and construct state trunkline highways. He is a competent highway engineer elected by people that expect good roads and good maintenance wherever the state trunkline markers are erected. This principle implies the operation of a state trunkline system of the least mileage compatible with state and federal legislation and objectives.

Policy. Continue the present policy; penetration of inter-city trunkline routes into the central city to the central

business district. Provide bypasses of cities and metropolitan regions where justified by volume of intercity traffic. Cooperate with local planning officials, city officials and governing bodies for this purpose. Urban transportation planning is a function of local governments and regional planning commissions. Reasons for this policy are:

- a) An organization geared to current planning and administrative effort by the department;
- b) Current recognition of urban requirements by a conservative, rurally oriented state government;
- c) Financial policy and outlook have been founded on this policy since 1925;
- d) The status quo of the urgency for the development of intercity state trunkline routes with greater capacity, safety and convenience.

This is a popular policy. The prestige of the commissioner and state in highway circles is among the highest, probably the highest, in the country. The principal Michigan cities have been reasonably satisfied; however, they expect consistent consideration. This policy needs to be reviewed to consider the urbanizing metropolitan regions.

Hypothesis II

Hypothesis II presents a difficult situation. The department must continue to retain and improve the goodwill that has been generated. This calls for an examination of administrative principles and policies in face of declining funds available for a construction program and a changing viewpoint by the people and the Legislature. It is particularly urgent that the department consider the current trend of federal and state administrations' concern with the plight of the cities and the socio-economic base for an expanding population. Michigan is an industrial state that needs a state government sympathetic with industrial expansion. An integrated urban transportation policy for planning, financing, programming and building is indicated to the department.

Michigan is an industrial state with a wealth of natural and inherent resources. It ranks high among the states in agricultural production. It is a water wonderland, a good place to live. It is two peninsulas, bordered by the Great Lakes. It has the fresh water that can bring good industry to Michigan. More than any state, it depends on highways for the transportation of people and goods.

The need for a favorable environment for the expansion and diversification of manufacturing is now recognized by the state administration. Action can be expected.

A foresighted highway department can assume the leadership in the highway transportation planning phases for Michigan's industrial resurgence. Resurgence is certain, the state has all the essentials. Objective leadership has occurred in the past, it will occur again.

Comprehensive urban planning at the local levels is progressing. There is progress in regional planning. The former needs to be coordinated for integration with county regional and state highway planning. The latter needs to be directed to a transportation plan integrated with the state trunkline system, the county road systems and the arterial street systems. The department is in a position to perform this function for Michigan.

Policy. The department should study the problem of highway classification and development in metropolitan regions composed of several independent governing bodies. It should determine how the state, the counties and the cities and villages can best plan and develop the highway transportation facilities. The objective is a clear cut urban region highway development policy with appropriate state guidance. Reasons for this policy are:

- a) State and regional agencies that can plan and act are essential for guiding the future of Michigan with highway transportation planning;

- b) Increasing state and federal concern with the plight of the cities require a state agency able to assume responsibility and act with regard to transportation problems concerning: freeways, highways and rapid and mass transit;
- c) Michigan is a highly urbanized state. Its outdoor recreational facilities are patronized by people who live in Michigan cities and the cities in nearby states.

A clear positive state trunkline policy for urbanized regions is needed to cope with the mounting problems generated by freeway construction. The basic principles need to be identified and be understood by all. Consistency of action is compelling. The coordinated endeavor is needed to maintain and improve the goodwill that has been generated with the present policy by exploring the potential of the current events, trends and needs.

Approach

The principles of state, county and city and village highway classification are established. Like all principles for state and local government, they should be studied for revision, alteration and broad expansion for planning and administration during the latter part of the twentieth century. It is predicted that the population will double

and the principal cities will expand into urbanized regions with multiple overlapping governments.

This study outlines an attack with the premise that government at all levels is not prepared to legislate the new forms of regional government that the people would be willing to support. The realization of a form of regional government is years away in the future. It will take time and patience to develop and establish the responsibilities, to find and train officials capable of administering and of performing the high quality government relations required. The tax basis for financing this activity is another important essential for the establishment of an acceptable regional government that can act and produce tangible results.

Regional highway transportation planning is needed now to guide the expanding urban regions. The function is obliged to follow and be limited by current state legislation; state highway administration and enabling acts for county, township, municipal and regional planning.

State Legislation

The following is an outline of action to initiate the study. The initial step is a digest of the state statutes related to highway administration, comprehensive county and city planning and regional planning. The digest should be followed by an inventory of the practical application by existing planning agencies.

State Highway Administration

The administration of Act 51 of the Public Acts of 1951, as amended, should be digested with objective of determining its limitation and possible amendments to broaden the concept and spell out the function of the department's responsibility in regional highway problems.

Comprehensive Municipal Planning

A digest of this enabling legislation and a review of the activities of planning commissions established under this legislation is essential for an understanding of the limitations of comprehensive city planning in relation to regional planning. This phase of the study could contribute significantly to good relations with the central cities and their satellite communities.

A similar digest and review should be carried with the established county planning commissions. It is important that the function for comprehensive county planning in guiding regional urbanization be clearly understood.

Regional Planning

Considerable experience and knowledge is being generated by the two staffed regional planning commissions and the southeastern Michigan highway planning commission. The enabling legislation and the experience and knowledge gained should be digested and reviewed. This is the most important part of this initial phase.

It is important this initial phase of the study be methodically carried out and reported.

The Detroit Metropolitan Region

Michigan's future in this century is principally the expansion of industrial activity, services and outdoor recreational facilities. It will be supplemented with further development of natural resources mostly outdoor recreational resources.

Industrial expansion for the most part will follow the pattern of metropolitan regions. Metropolitan regions will need highway transportation and be served by other modes of transportation in combination with highway terminal connections, such as:

1. Water transportation with ample port development for service to markets, warehouses, utilities and industries;
2. Rail transportation with ample terminals, passenger stations, produce terminals, warehouses, utilities and industries;
3. Air transportation, airports by function and small helicopter ports;
4. Rail rapid transit to the central business district along corridors of development. Detroit is the only foreseeable possibility for rail rapid transit. A transportation survey and considerable time will be required to determine and justify the rail rapid transit needs for the Detroit region.

The growth of the Detroit metropolitan area in this century is the background for a study to determine the influence that molded the present complex. The influences can be segregated, comprehended and choices made of the good and the bad. In Detroit, the central city has been guided by a master plan. The Detroit City Plan and similar efforts in the City of Detroit should be studied from the beginning of motor vehicle transportation to find the guiding influence of planning that led to the current conditions and developments.

Since World War II, the development and expansion of the region has been guided by results of studies carried out by the Detroit Area Regional Planning Commission and the Detroit Area Traffic Study.

The development of the Detroit Metropolitan Region since 1925 should be clearly understood. The function of organized comprehensive planning in guiding the growth should be clearly reported to enable the establishment of principles and functions for regional transportation planning.

Analyses and Surveys

Analyses and surveys comprise a third phase of the study outlined in this proposal. Regional transportation planning is imminent. Ideas of the analysis of information that is now available and for the information that needs to be collected are a subject for a supplemental discussion.

Action

The department should be prepared to do the staff work for the Legislature to revise highway legislation with modern principles of taxation, administration and allocation. It is important that the plight of the cities and the urbanized regions be considered and the need for coordinated urban highway development be taken into account.

An initial step to this objective is the formulation of a small task force to carry on and initiate the phases outlined in this study. The function of this task force is to consolidate a method for regional highway classification and to identify the responsibilities of existing highway agencies for providing satisfactory highways. This function and approach is a correlation of rural highway classification and comprehensive city planning.

A secondary function of the task force could be the integration of all modes of transportation in the regions with particular attention to the problem of the need for rail rapid transit in the Detroit region. This is particularly urgent since it is a region that grew with and is fashioned from the development of the motor vehicle as a mode of transportation.