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"MODEL ORGANIZATION FOR A STATE HIGHWAY DEPARTMENT"

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Twenty-Fourth Annual Meeting  
of the American Association  
of State Highway Officials

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## "MODEL ORGANIZATION FOR A STATE HIGHWAY DEPARTMENT"

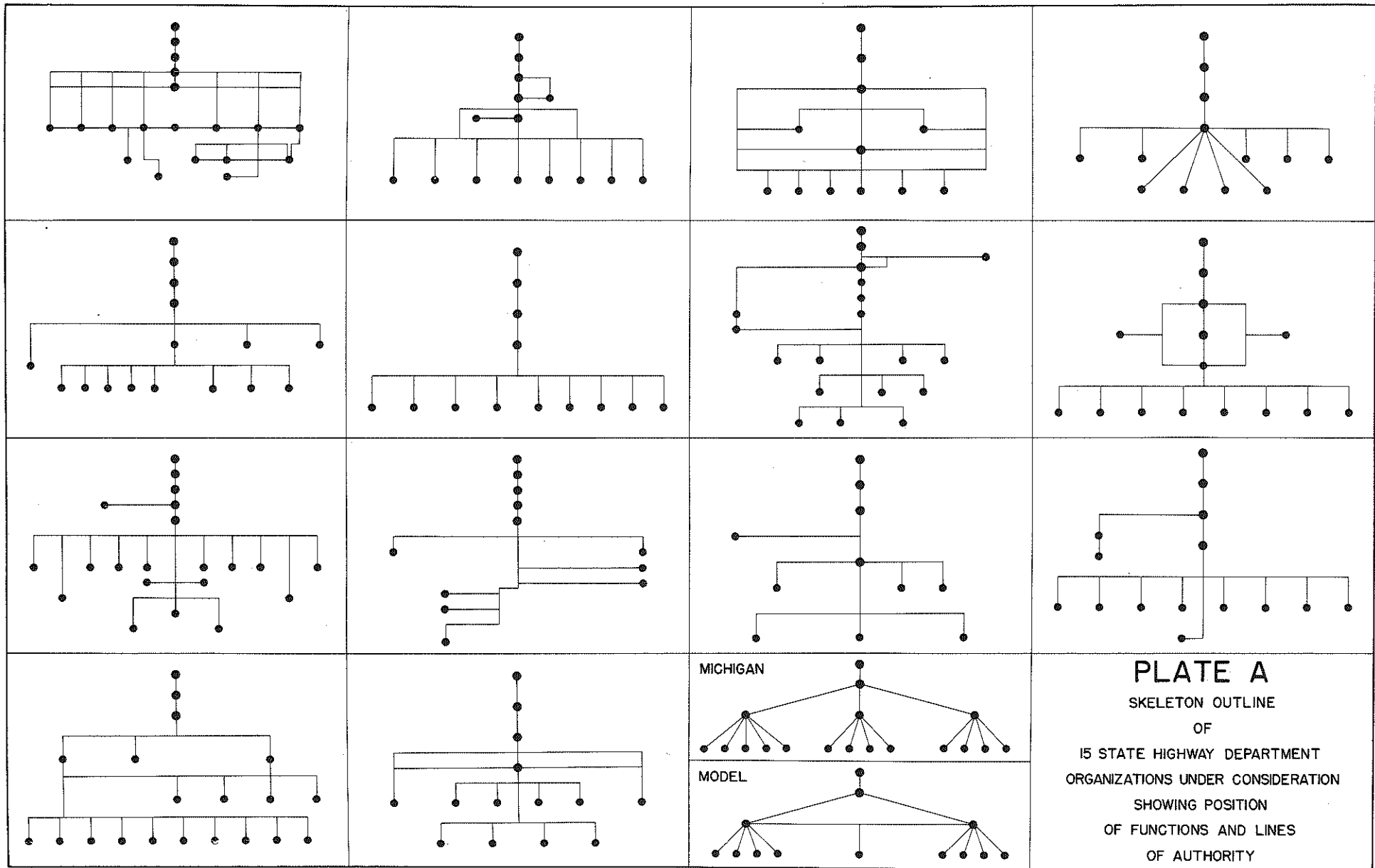
In the program of this 24th Annual Meeting of the American Association of State Highway Officials, attention is directed by the Committee on Public Relations and Publicity to the desirability of a sound and comprehensive public relations and publicity work program in every state highway department.

It is probable that the Committee on Administration as well as the Executive Committee of this association will want to review and act upon the conclusions of the Public Relations and Publicity Committee before this convention is adjourned.

Before proper consideration can be given to that subject and the relation of such a division to the department as a whole, it seems necessary to consider certain fundamental organization problems as they exist today in the various state highway departments.

Over a period of years, the Michigan State Highway Department has given consideration to its form of organization and has made frequent changes to find the most effective and smooth working pattern.

For several years we have desired to discuss the subject of organization with the members of this association. But the matter did not come to head until the immediate consideration of the formation of a division almost entirely new to all the state highway departments was before the association. The chairman of the program committee, Mr. Carl W. Brown of Missouri, and the chairman of this committee,



Mr. H. A. Hopkins of California, have graciously consented to a consideration of this problem of organization by the Administrative Committee.

In the preparation of this paper and the accompanying charts, a detailed study was made of the organization charts of some 15 states, including Michigan.

Without wishing to appear unduly critical, it seems apparent by observing Plate "A" that these various organization charts have grown up like "Topsy." They are today fashioned around the personalities of the executives of the various state highway departments rather than being formed from a clear analysis of the functions to be performed. There are, however, many notable examples of careful study having been given to organize the departments on a sound basis. It is evident, too, that highway administrators are keeping abreast of the times by the placement of special functions in the organization relating to the newer problems, such as traffic, safety, aeronautics, parks, travel, highway patrol, motor vehicle registration, landscape architecture, secondary highways, and municipal and federal relationships.

Plate "A" also reveals an apparent lack of appreciation for the necessity of indicating direct line authority from the top to the bottom of the organization. In one organization chart this condition is magnified to the extent that there can be shown lines of authority tracing upward from a district engineer to 22 different individuals on

the chart. We all recognize that no district engineer can function effectively with 22 bosses. He cannot efficiently function with more than one boss.

In the progress of this paper a model organization chart will be assembled and reference will be made to it. The word "model" as it is used in this paper is taken from Webster to mean pattern or example or standard, and not the meaning which might be implied of a "perfect" organization.

The model organization chart is not intended to fit every case. A study of only 15 states shows clearly that this cannot be done. But it is believed that a standard model may be used as a guide to reshape the organization plan along more efficient lines in every state highway department.

While organizations obviously must be built around individuals, there is always the possibility that death may overtake key men. A fundamental plan should be worked out in every organization which would continue necessary functions on an efficient basis in this event.

#### EXECUTIVE ORGANIZATION

Plate "B" shows the processes whereby the principal executive officers of the various state highway departments are selected. In all 15 states, except Nevada and Michigan, the Governor chooses a Highway Commission or a Highway Director. In Nevada the legislature has assigned this duty to a Highway Board

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STATE	PEOPLE ELECT	ELECTED AUTHORITY APPOINTS	COMMISSION SECRETARY MEMBER OR NON - MEMBER	PRINCIPAL ADMINISTRATIVE OFFICER	PRINCIPAL ENGINEERING OFFICER	TITLES OF PRINCIPAL ASSISTANTS	NUMBER OF PRINCIPAL ADMINISTRATIVE AND ENGINEERING DIVISIONS IN CENTRAL HEADQUARTERS	NUMBER OF DIVISIONS OR DISTRICTS IN FIELD ORGANIZATION
CALIFORNIA	GOVERNOR	HIGHWAY COMMISSION (5 MEMBERS AND SECRETARY)	NON - MEMBER	DIRECTOR OF PUBLIC WORKS	STATE HIGHWAY ENGINEER AND CHIEF OF THE DIV. OF HIGHWAYS	ASS'T STATE HIGHWAY ENGINEER PRINCIPAL ASS'T ENGINEER	12	11
IDAHO	GOVERNOR	COMMISSIONER OF PUBLIC WORKS		DIRECTOR OF BUREAU OF HIGHWAYS			9	5
ILLINOIS	GOVERNOR	DIRECTOR OF PUBLIC WORKS AND BUILDINGS			CHIEF HIGHWAY ENGINEER		9	10
KANSAS	GOVERNOR	HIGHWAY COMMISSION (6 MEMBERS)		DIRECTOR OF HIGHWAYS	STATE HIGHWAY ENGINEER		11	6
LOUISIANA	GOVERNOR	HIGHWAY COMMISSION (3 MEMBERS)	MEMBER		STATE HIGHWAY ENGINEER		11	3
MISSISSIPPI	GOVERNOR	HIGHWAY COMMISSION (3 MEMBERS)	NON - MEMBER	DIRECTOR	CHIEF ENGINEER		13	8
MISSOURI	GOVERNOR	HIGHWAY COMMISSION (5 MEMBERS)	NON - MEMBER	CHIEF ENGINEER		ASS'T CHIEF ENGINEER	10	10
NEBRASKA	GOVERNOR	DEPARTMENT OF ROADS & IRRIGATION			STATE ENGINEER	CHIEF OF THE BUREAU OF ROADS AND BRIDGES	11	8
NEVADA	LEGISLATURE	HIGHWAY BOARD GOVERNOR ATTORNEY GENERAL CONTROLLER	NON - MEMBER		STATE HIGHWAY ENGINEER	ASSISTANT STATE HIGHWAY ENGINEER	16	5
NEW MEXICO	GOVERNOR	HIGHWAY COMMISSION (3 MEMBERS)	MEMBER		STATE HIGHWAY ENGINEER	ASSISTANT STATE HIGHWAY ENGINEER	7	5
OKLAHOMA	GOVERNOR	HIGHWAY COMMISSION (4 MEMBERS)	MEMBER	SECRETARY MEMBER	CHIEF ENGINEER		17	6
OREGON	GOVERNOR	HIGHWAY COMMISSION (3 MEMBERS)	NON - MEMBER		STATE HIGHWAY ENGINEER		9	5
WASHINGTON	GOVERNOR	DIRECTOR OF HIGHWAYS					9	6
WISCONSIN	GOVERNOR	HIGHWAY COMMISSION (3 MEMBERS)	MEMBER		STATE HIGHWAY ENGINEER		7	9
AVERAGE							10	7
MICHIGAN	STATE HIGHWAY COMMISSIONER			DEPUTY COMMISSIONER IN CHARGE OF BUSINESS ADMINISTRATION	DEPUTY COMMISSIONER CHIEF ENGINEER	ENGINEER OF CONSTRUCTION AND OPERATIONS	10	8

## PLATE B

TABLE SHOWING METHOD OF SELECTION, TITLES AND RESPONSIBILITIES OF PRINCIPAL HIGHWAY EXECUTIVES

consisting of the Governor, the Attorney General and the State Controller; while in Michigan the people elect a single State Highway Commissioner who is required to be a registered civil engineer.

The Highway Commissions consist of a minimum of three and a maximum of six members in the states considered, and have for the most part staggered and overlapping terms which prevent a complete turnover in personnel at each election of the Governor. About one-third of the states have as their principal administrative officer a director, while the remainder are operated under the direction of a state highway engineer.

A further analysis of the organization charts reveals the reason for the two methods of administrative control. There are two kinds of executive responsibility within a state highway department; that strictly of an engineering character, and that of a non-engineering character, usually of a business nature. While the engineering divisions of the administrative organization are fairly well standardized, the functions which we choose to call business functions, rest in many places in the organization insofar as authority is concerned.

In some cases these functionaries report to the Director of Public Works, in some cases to the State Highway Engineer, and in many cases they report directly to the State Highway Commission, which of course subjects them to the possibility of political manipulation,



since the commission is almost always directly appointed by the Governor.

This applies particularly to purchasing and personnel.

We are therefore led to the first obvious conclusion---that a state highway department, under its appointing authority, whether it be the Governor, the State Highway Commission, a Director, a Commissioner, or an Engineer (which is the policy determining organization) should have a fundamental two-way division of responsibility with a principal officer at the head of each group of functions. The engineering should be headed by a competent highway engineer and the business group by a competent administrative officer, each equipped by education, training and experience to handle problems of a large nature.

As will be seen from Plate "B" the number of principal functions handled within the state highway organization average 10, which gives each of the two principal officers supervision over five directors or engineers. You will agree with me, I believe, that there is ample work involved under this organization plan to engage the full capacity of each of the two administrative officials.

In practically all of the states specialized functions necessarily add to the principal functions of the organization. Many of the states, however, have gone a step further and added a considerable number of minor functions to their organization plan. Organizations tend to become cumbersome and unwieldy under this influence. A determined effort should be made to keep the organization set-up simple and to place minor functions under major divisions.

Plate "B" further reveals that the states have an average of about seven geographical districts or divisions, presided over

STATE	USUAL MAJOR DIVISIONS											DIVISION OF MAJOR STATE OR REGIONAL IMPORTANCE	OTHER SPECIAL DIVISIONS, PRINCIPAL SUBDIVISIONS, OR FUNCTIONS				
	SURVEYS	DESIGN	CONSTRUCTION	MAINTENANCE	BRIDGES	RIGHT OF WAY	MATERIALS TESTING - RESEARCH	EQUIPMENT	OFFICE ENGINEER	ACCOUNTING-AUDITING	HIGHWAY PLANNING SURVEY		HIGHWAY PATROL	MOTOR VEHICLE REGISTRATION	OTHERS		
CALIFORNIA	X	X	X	X	X	X	X	X	X	X	X			CITY AND CO-OPERATIVE PROJECTS			LEGAL
IDAHO	X	X	X	X	X	X	X	X	X	X	X						LEGAL
ILLINOIS	X	X	X	X	X	X	X	X	X	X	X			BUREAU OF COUNTY ROADS AND CITY STREETS	X		
KANSAS	X	X	X	X	X	X	X	X	X	X	X						SAFETY LEGAL
LOUISIANA	X	X	X	X	X	X	X	X	X	X	X						LANDSCAPE - LEGAL PURCHASING
MISSISSIPPI	X	X	X	X	X	X	X	X	X	X	X			FEDERAL AID ENGINEER	X		
MISSOURI	X	X	X	X	X	X	X	X	X	X	X						TRAFFIC LEGAL
NEBRASKA	X	X	X	X	X	X	X	X	X	X	X			BUREAU OF IRRIGATION, WATER POWER & DRAINAGE - STATE PLANNING BOARD		X	CLERICAL AND RECORDS
NEVADA	X	X	X	X	X	X	X	X	X	X	X				X		LANDSCAPE - ARCHITECTURAL PURCHASING - PUBLICITY - STATISTICAL
NEW MEXICO	X	X	X	X	X	X	X	X	X	X	X						
OKLAHOMA	X	X	X	X	X	X	X	X	X	X	X			FEDERAL AID ENGINEER PURCHASING AGENT		TITLE DIV.	LANDSCAPE - LEGAL SAFETY - AERONAUTICS
OREGON	X	X	X	X	X	X	X	X	X	X	X						LEGAL - TRAVEL PARKS - TRAFFIC
WASHINGTON	X	X	X	X	X	X	X	X	X	X	X			SECONDARY HIGHWAYS			
WISCONSIN	X	X	X	X	X	X	X	X	X	X	X						SAFETY
TOTAL	6	10	14	14	11	9	12	6	10	11	14				4	2	
MICHIGAN	X	X	X	X	X	X	X	X	X	X	X			STATE FERRIES BETWEEN PENINSULAS - PUBLIC RELATIONS			

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PLATE C

ANALYSIS OF MAJOR DIVISIONS AND FUNCTIONS OF 15 STATE HIGHWAY DEPARTMENTS

usually by a district engineer.

#### STATE HIGHWAY ENGINEERING AND ADMINISTRATIVE DIVISIONS

Plate "C" is intended to show graphically at a glance major divisions into which the state highway departments are divided. In the first group of columns are shown the major divisions of the states under consideration. In the second principal column the special divisions of major state or regional importance are shown. And finally, other special divisions of a local or subordinate character are indicated.

Considering the functions which we have referred to as being of an engineering character, we find that the functions of surveys and design are sometimes treated together and sometimes established as separate divisions. In every department studied there is a major construction division. Likewise it is almost universally the case that the department has a bridge division and a maintenance division, as well as a principal division to which is given responsibility for selection of materials, testing or doing research work. Likewise, highway planning surveys are now carried on as a major division, in all of the states studied.

Therefore, the second conclusion to be drawn from our studies for the model organization chart, Plate "D", is that there should be six principal divisions of the engineering group. The suggested names are SURVEYS & DESIGN DIVISION, CONSTRUCTION DIVISION, MAINTENANCE DIVISION, BRIDGE DIVISION, RESEARCH & TESTING DIVISION, and HIGHWAY PLANNING SURVEY. While the Highway Planning Surveys

APPOINTING AUTHORITY  
GOVERNOR  
STATE HIGHWAY COMMISSIONS  
DIRECTOR COMMISSIONER OR ENGINEER

PRINCIPAL ADMINISTRATIVE OFFICER

PRINCIPAL ENGINEERING OFFICER

LAND AND LEGAL DIVISION  
OFFICE MANAGEMENT DIVISION  
FINANCE DIVISION  
PUBLIC RELATIONS DIVISION

GEOGRAPHICAL DISTRICT ENGINEERS

SURVEYS AND DESIGN DIVISION  
CONSTRUCTION DIVISION  
MAINTENANCE DIVISION  
BRIDGE DIVISION  
RESEARCH AND TESTING DIVISION  
HIGHWAY PLANNING SURVEY

PLATE D

MODEL ORGANIZATION CHART FOR A STATE HIGHWAY DEPARTMENT

may have something of a temporary character, in some more or less important manner they will be a continuing function with every state highway department.

There now remain for consideration several other functions, not always classified alike, but of a general similar character. Practically every department has a right-of-way division; likewise attention is given to legal problems in all departments.

The weakness seems to prevail of labeling the person charged with the responsibility for office management as the Office Engineer. Into this division is usually classified the important responsibility of handling personnel problems..

In all departments attention is given in varying degrees to the problems of finance, auditing, accounting and purchasing. And the Michigan State Highway Department has established a division of public relations.

While there are some other functions not covered by the foregoing groupings, it seems that they form an adequate outline to perform the work to be done and other functions may safely be classified within the broad groups indicated.

And therefore the third conclusion is drawn for the model organization chart---that the divisions coming beneath the principal administrative officer should be called the LAND & LEGAL DIVISION, the OFFICE MANAGEMENT DIVISION, the FINANCE DIVISION, and the PUBLIC RELATIONS DIVISION.

STATE HIGHWAY COMMISSIONER  
 BY STATE-EX-OFFICIO MEMBER  
 STATE ADMINISTRATIVE BOARD  
 STATE BOARD OF AERONAUTICS  
 STREAM CONTROL COMMISSION CHAIRMAN  
 TOURIST AND RECREATION COMMISSION  
 HIGHWAY REVENUE BOARD  
 BY EXECUTIVE APPOINTMENT  
 STATE PLANNING COMMISSION  
 BY U.S. SECRETARY OF COMMERCE APPOINTMENT  
 COMMITTEE ON STREETS AND HIGHWAY IMPROVEMENTS  
 BY APPOINTMENT OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS  
 SPECIAL COMMITTEES ON ADMINISTRATIVE DESIGN POLICIES

MICHIGAN  
 STATE HIGHWAY DEPARTMENT  
 MURRAY D. VAN WAGONER  
 STATE HIGHWAY COMMISSIONER  
 ORGANIZATION CHART  
 JULY 1, 1937

# PLATE E

PEOPLE

STATE HIGHWAY COMMISSIONER<sup>①</sup>  
 MURRAY D. VAN WAGONER

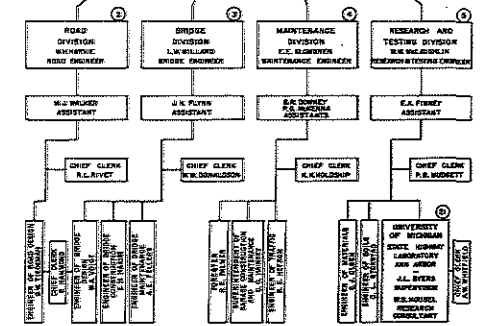
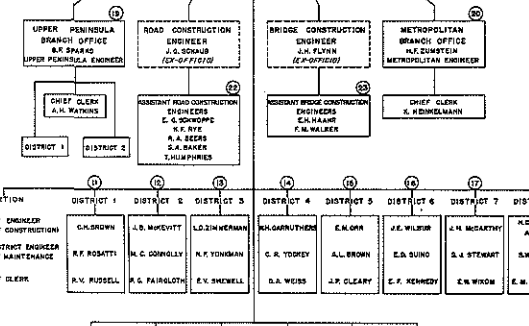
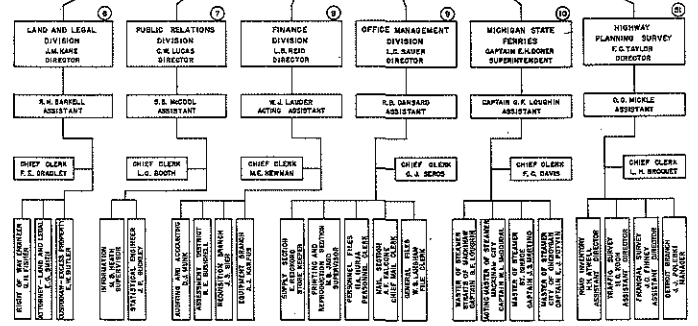
ADVISORY BOARD  
 M.E. DODLEY CH.  
 H.C. HOLETT  
 S.D. WALSON  
 T.E. JOHNSON  
 W.J. KELLY

SECRETARY TO COMMISSIONER  
 S.F. ROSE

DEPUTY COMMISSIONER  
 IN CHARGE OF  
 BUSINESS ADMINISTRATION  
 G. DONALD KENNEDY

DEPUTY COMMISSIONER  
 IN CHARGE OF  
 CONSTRUCTION AND OPERATION  
 HARRY C. COONS

DEPUTY COMMISSIONER  
 CHIEF ENGINEER  
 V. B. STEINBAUGH



EXPLANATION

- ① The numbers in the circles are used to indicate the pay roll areas into which the pay roll of the State Highway Department is divided and are used principally in administration and accounting.
- ② The Highway Planning Survey is a temporary activity conducted in cooperation with the United States Bureau of Public Roads and the Works Progress Administration.

APPROVED JULY 1, 1937  
 Murray D. Van Wagoner  
 STATE HIGHWAY COMMISSIONER

### THE MICHIGAN ORGANIZATION

It would be unsportsmanlike to offer a general criticism of highway organization of this character without exposing to the purview of those present the plan being followed in our own state. There is submitted as Plate "E" the organization chart of the Michigan State Highway Department, which does not in all respects adhere to the model suggested but in many respects does follow the pattern.

A particular division that exists in the Michigan State Highway Department not customarily found in others, serves to point to the fact that such special divisions do occur in many states—namely, the Michigan State Ferries, operating across the Straits of Mackinac between the Upper and Lower Peninsulas of Michigan.

A Highway Planning Survey has been placed in the administrative organization rather than the engineering organization, in accordance with a theory of checks and balances in governmental affairs to be followed even in the organization of a state highway department. At the present time the business manager of the department is an engineer.

About a year and a half ago the Business Research Corporation of Chicago was retained to analyze the Michigan State Highway Department. This was preliminary to the passing of a state civil service act, and also intended by voluntary means within the department to shape the organization in the best possible manner prior

to its being fixed in a definite pattern for probably many years to come under civil service.

The recommendations of this organization included a separate group for field operations, and therefore these functions were grouped under a deputy commissioner in charge of construction, operation and maintenance.

The strong centralized organization of the Department necessitates the field operation groupings. It is a necessary complement to the business management and engineering groups. It is clear that close gearing of these functions is essential to maximum effectiveness and efficiency.

All policies of the department are formulated in the central office, which include design, maintenance programs, finance, personnel, public relations, etc. The district office's concern is to carry out these policies. It is believed that this centralized control has brought about a unity of purpose and esprit de corps extending from the central office to its far flung field organization that could not otherwise be obtained.

No description of the Michigan department would be complete without a reference to a system that has aided immeasurably in the smooth functioning of the organization throughout its many district offices, division offices, laboratories and special headquarters. In each of these units a chief clerk has been appointed who not only is responsible for office management duties in that department unit, but is also charged with the carrying out of many of the everyday



problems that arise in a state highway department relating to the social and recreational problems, functions that have to do with the general welfare of the department and activities such as one recently completed in the state. The chief clerks gave assistance in the passage of the amendment prohibiting the diversion of motor vehicle revenues, which carried in the last November 8 election in Michigan by a majority of 280,000 votes, and by a substantial majority in every one of the state's 83 counties.

Most members of this committee probably will agree that a sound public relations program is necessary to the functioning of a state highway department, but some may question the place of importance the division occupies on the model organization chart and in the Michigan State Highway Department organization chart.

To the departments which are not now engaging in any public relations activities let me say that the solid support of the general public is vitally necessary if we as highway administrators are to accomplish the job that lies ahead of us. To mention only a few practical problems---a public relations division can demonstrate its worth by helping us sell the story of the highway planning surveys, in reducing the diversion evil, in public safety educational work and in encouraging recreational travel.

After a thorough trial for a period of more than five years, the Michigan highway department has found that a full-fledged public relations division with an important status in the organization has

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brought excellent results in public understanding and public support of the highway job.

As chairman of the diversion committee of the American Road Builders' Association for a number of years, Michigan's state highway commissioner, Murray D. Van Wagoner, advocated the passage of constitutional amendments to prevent diversion of motor vehicle revenues. To date 7 of the 48 states now have anti-diversion amendments written in the Constitution.

It is the earnest hope of Commissioner Van Wagoner that the remaining states will take up this fight against diversion.

Likewise, for two years, as chairman of the Public Relations and Publicity Committee of this association, Commissioner Van Wagoner has urged the state highway departments to inaugurate public relations divisions. We believe that further progress in this direction will be made in the coming year because of the necessity to convince the public that the results of highway planning surveys be adopted, and because of the need to prevent the growing diversion evil.

#### CONCLUSION

It is hoped that the foregoing paper will afford the opportunity for discussion and criticism of the suggested model and that it will ultimately lead to the adoption of a model organization chart to which the various state highway departments may in the course of time direct their efforts.