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MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

Annual Report
of
Planning & Traffic Division

EXHIBIT 3

PROGRESS REPORT
For January 1954

Planning and Traffic Division

Operations of the Planning and Traffic Division during January 1954, are reported as follows:

TRAFFIC CONTROL SECTION

Signals

Requests for 25 signals were received and 14 signals were denied. Ten traffic surveys were requested, 21 field trips were made, 10 layouts were obtained, and one progressive signal system was timed. Authorizations were issued for 15 stop-go signals, three flashers, one modernization, four interconnection systems and the removal of one stop-go signal; the total estimated cost was \$82,400. The section assisted in a study of the behavior of drivers as they approach traffic signals.

Signs

Plans were reviewed and approved for re-signing the following routes: M-37 from the north line of Newaygo County to Traverse City, M-30 from M-46 to the north line of Gladwin County, and US-23 from the Ohio state line to the north line of Livingston County. Final plans also were approved for signing the one-way streets on the route of US-10 in the city of Saginaw.

During the month, 30 work orders for the erection of signs were issued from the Lansing office; the estimated cost was \$25,763. In the same period, the district offices issued work orders representing an estimated expenditure of \$24,614. Work is continuing on plans for the fabrication of several experimental signs for use on the Detroit expressways.

Regulations

Orders were issued for the establishment of five new speed control zones, for the revision of seven such zones, and for the revocation of two zones. Three requests for speed control zones were refused, work was done on 10 zones, and speed studies of 12 zones were requested. One parking control order was issued during the period.

ACCIDENT ANALYSIS SECTION

The Section received 1,919 reports of accidents on the rural state trunkline system during the month. Of these, 89 were referred to the Maintenance Division and 12 involved requests for traffic engineering attention.

MAPPING AND GRAPHIC DESIGN SECTION

Material for the April 1953, edition of the Official Highway Map was completed and forwarded to the printer. Exhibit material, charts, and publications were prepared for the second annual Michigan Highway Safety Seminar held at Kellogg Center on January 25 and 26. Other operations included drawing: city, village, and urban area maps; determination and cancellation maps; charts and maps for urban state trunkline selection reports; and speed and parking control zone sketch maps.

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
January 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

ROUTINE STUDIES AND REPORTS

The Motor Fuel and Registration and Weight Tax Reports for December 1953, were prepared and transmitted to the Bureau of Public Roads. The State Highway Finance and the Motor Vehicle Statistics Annual Reports for 1953 are being prepared. The annual report of local highway finance for 1952, prepared by the Local Governments Section of the Executive Division under provisions of Act 51, P.A. 1951, was transmitted to the Bureau.--Financial and Economic Research Section.

Data from the 30 fixed-type automatic traffic recorders were collected and reported to the Bureau of Public Roads; 232 manual classification counts were taken at the recorder stations. The 30th and 200th high hours are being listed from the permanent traffic recorder data for 1953 and the year's annual daily volumes at each station were computed and graphs are being drawn. The manual for the 1954 operation of the annual loadometer survey is being prepared.--Traffic Surveys Section.

STATEWIDE RURAL TRAFFIC SURVEY

During January, 203 manual eight-hour vehicle classification counts were taken and the data were checked, tabulated on cards, and entered in the permanent traffic record books. Scheduling of traffic counts at control stations during February was completed.--Traffic Surveys Section.

Following the revision of the major control stations in the Upper Peninsula, changes in the minor control stations were about 65 percent completed during the period. Station location maps and a list of changes were prepared and sent to the Traffic Surveys Section.--Financial and Economic Research Section.

STATEWIDE ROAD AND STREET INVENTORY

During the month, 970.2 miles of roads and streets in one county were inventoried. About 61 percent of the estimated total 121,111 miles of roads and streets in the state have now been completed by the field crews.--Traffic Surveys Section.

Field data covering 55 counties have been received from the Traffic Surveys Section; the data for 39 counties have been coded and coding is in progress for one county.--Records and Road Inventory Section.

REVISION OF COUNTY MAPS

Nine county maps are now being revised on the basis of data from the current road inventory. Four revised maps are being reviewed by the Bureau of Public Roads.--Mapping and Graphic Design Section.

SYSTEM PLANNING

Federal Aid Primary System

A complete map of traffic flow on US-24 (Telegraph Road) from West Road to M-102 was prepared; it shows 24-hour annual average turning movement volumes at all major highway intersections. The proposed relocations of US-12 in the Albion and Marshall area were reviewed and traffic estimates were prepared to show the probable distribution of traffic when these projected facilities are built. A study is being made of the justification for establishing a new Federal Aid primary route from the Michigan-Ohio state line to a junction with US-23 near Cheboygan.

Special studies were started of traffic and turning movements for projected route locations on US-12 between Kalamazoo and Benton Harbor and on M-59 between Utica and Pontiac. A start was also made on a study of the traffic that could be assigned to a contemplated route for M-43 westward from Lake Odessa to Holland.
-- System Planning Section.

Federal Aid Secondary System

Complete F.A.S. systems for Muskegon and Ottawa Counties were submitted to the Bureau of Public Roads. Six man-days were spent in Benzie and Antrim Counties making field reconnaissances and conferring with the road commissioners relative to selection of expanded F.A.S. systems in those counties. Maps, route descriptions, and statements of justification in support of an expanded system in Benzie County were prepared. --System Planning Section.

SELECTION OF URBAN STATE TRUNKLINE SYSTEMS

Battle Creek

Planning of the arterial street and state trunkline systems was continued and the various proposed plans were reviewed and analyzed. Additional desire line diagrams were drawn to show the principal zones of attraction for the traffic using each of the rural trunklines in the area.

Flint

The tabulation and plotting of desire line data pertaining to state trunkline traffic were continued as a part of the studies for the selection of state trunkline routes.

Kalamazoo

Work was started on the tabulations and sketches of desire line data for traffic from the external stations which, together with the like material already prepared regarding travel between the geographic areas and the central business district, will be incorporated in the final report.

Lansing

Data produced by the "intersection study" were used to plot the origins, destinations, and turning movements of estimated traffic on a possible route for US-16 on Main-St. Joseph Streets and Waverly Road. --System Planning Section.

ORIGIN-DESTINATION STUDIES

Expansion factors were computed and requisitions for IBM operations were drawn up for processing data from the Jackson Traffic Study. Findings of investigations of

discrepancies in early tabulations of Detroit Survey data were reported to the Detroit Survey Office. --Financial and Economic Research Section.

TRAFFIC PLANNING

Roadside control work orders with an estimated cost of \$3600 were written. Roadside control studies were made at five additional locations and 20 driveway applications were received and reviewed. Three field investigations of roadside control and driveway problems were made.

Nine road plan projects involving 37 miles of roadway were reviewed for operational adequacy and recommendations were made regarding five projects to the Road Division. Fourteen projects and spot locations are currently under study for re-design.

Recommendations were submitted to the Road Engineer for revisions of the US-12--US-12BR interchange east of Jackson and of the preliminary design for the US-12 Ann Arbor north bypass. --Traffic Planning Section.

HIGHWAY FISCAL AND TRAFFIC RESEARCH

The allocation of Federal Aid Secondary funds to the counties for the fiscal year ending June 30, 1955, was prepared and transmitted.

Work was begun on a long-term forecast of annual vehicle miles of highway travel in Michigan. Factors being used are the Bureau of the Census' forecasts of population in the United States and in Michigan, motor vehicles per capita, and the average annual travel per vehicle. The study of adequacy determination continued with the experimental selection and tabulation of highway physical features which may be used in formulating a rating system.

Amounts of travel on the Michigan State Ferries by months and years for 1952 and 1953, and the monthly and annual collections of motor fuel and weight tax revenues for 1952 and 1953 and estimated for 1954 and 1955, were tabulated for use by the Commissioner and others. An analysis was made of the indices used for distributing funds and the amounts distributed from the Motor Vehicle Highway Fund to the several counties in the Upper Peninsula. --Financial and Economic Research Section.

CONTROL SECTIONS AND UNIFORM RECORDS SYSTEM

Log record diagrams for 735 control sections have been analyzed to October 1, 1953, and county tabulation sheets for 20 counties have been prepared to January 1, 1954. Control section maps showing the Federal Aid system have been prepared up to 1953 and five proposed termini revision sketch maps were prepared and one is in process; 727 diagrams showing current status as of October 1, 1953, have been completed. The annual revision of control section maps was in progress. Data for revision of the Maintenance Division's operations sections have been completed for 28 counties and one county is nearly done. --Records and Road Inventory Section.

ROAD LIFE STUDY

In the preparation of control section log diagrams, all data have been brought up to October 1, 1953, for 727 control sections and construction data have been brought up to June 1, 1953, for 78 counties.--Records and Road Inventory Section.

OPERATIONAL TRAFFIC SURVEYS, STUDIES AND ESTIMATES

The following observations of traffic were made during the period: eight machine counts of traffic volumes on M-59 in Oakland and Macomb counties and two such counts

on M-150 in Hazel Park; seven machine and turning movement counts on trunklines in Wayne, Oakland, Macomb, Clinton, St. Clair and Ionia Counties; and a combined machine, turning movement and pedestrian count and speed study on M-53 in the village of Romeo. Special speed studies were made at seven locations in Romeo and at 16 locations in Hazel Park. Information from the experimental speed study stations in Ingham County is being summarized and tabulated. Data representing 1953 average daily and 30th high hour traffic were furnished on 11 projects for the Executive Division, eight projects for the Bridge Division, and two projects for the Road Division. --Traffic Surveys Section,

Traffic estimates were prepared for 28 locations for the Local Government Section of the Executive Division, at two locations for the Route Location Section of the Road Division, and at four locations for the Bureau of Public Roads, --Traffic Surveys, System Planning, and Financial and Economic Research Sections.

WORK FOR OTHER AGENCIES

Data from the permanent traffic recorder stations and from the Statewide Traffic Survey stations were sent to the traffic consultants for the Michigan Turnpike Authority. --Traffic Surveys Section.

Reports, trip tables, maps and other data were assembled for the engineering consultants of the Turnpike Authority.--System Planning Section.

MICHIGAN
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PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY

February 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 55 counties.
(Field work temporarily suspended due to adverse weather conditions.)
2. Material prepared for coding: 46 counties completed; 1 in progress.
3. Coding completed for 40 counties; 1 in progress.
4. Key punching and verifying: 21 counties completed; 8 in progress.
(Work done by IBM Section of Finance Division.)

Note: County Road Commissions have exhibited a keen interest in this inventory and 35 counties have made transcriptions or microfilmed field notes for their respective counties and 13 counties are in the process of making transcripts of notes.

STATE-WIDE TRAFFIC SURVEY

1. 193 - eight-hour vehicle classification counts taken, checked and tabulated.
2. Preliminary grouping of minor control stations for Upper Peninsula 90 percent complete.
3. Sketches are in preparation of the general area adjacent to count stations for future use in determining influence of cultural development on traffic.
4. Schedule of counts for March completed and transmitted.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. Preliminary state Trunklines plan in process of review and discussion with city. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report in preparation for submittal to Department officials and B.P.R. for review.
3. Jackson - Tabulation and analysis of O.D. data in progress.

RECORDS AND ROAD LIFE

1. State Trunkline data by control sections in preparation for coding and tabulation for Road Life tables: completed for 79 counties; 1 in progress.
2. Preparation of codes and manual of instructions temporarily inactive.
3. Preparation of Control Section Log diagrams showing pertinent information as of January 1, 1954: 79 counties completed and 2 counties in progress.
4. Annual revisions, additions and changes in control sections prepared for action by records committee.
5. Special tabulations of data and information prepared for other divisions: 5 completed and 1 in progress.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
Motor fuel tax collections
registrations and weight tax
2. Annual reports - GTD; MCR; MVR and GT for 1953 completed and transmitted.
MCD; MVD; SI; SE; and SB ready for transmittal.

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county in process - to test effectiveness of criteria and proposed methods.
2. Prepared tabulation of allocation of Federal-aid funds by (1) land area - population and highway mileage and (2) population only - for purpose of comparison.
3. Forecast of annual vehicle miles of highway use and average miles per vehicle by various criteria and methods. Report in preparation.
4. Report on vehicle miles of road and street use for 1952 and 1953 prepared and submitted.
5. Development of method for expanding short-time turning movement counts to average daily is in progress.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review by Department officials.
2. Urban Federal-Aid Systems - Partial system selected for Bay City and Owosso and submitted to B.P.R. Partial system selection in progress for Saginaw and Lansing.
3. Federal-Aid Primary: revisions prepared and submitted for routes #1 and 13.
4. Federal-Aid Secondary - System selected and submitted to B.P.R. for Benzie County. System selection in progress for Antrim County. Individual route selections for two routes in Cheboygan County and two routes in Saginaw County prepared and submitted to B.P.R.
5. Federal-Aid Secondary System - Maps revised and brought up-to-date for seven counties.
6. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program started.

MAPPING AND GENERAL DRAFTING

1. Maps of 8 counties have been completed, approved and printed.
2. Maps of 4 counties completed and submitted to B.P.R. for review and approval.
3. Maps of 11 counties in progress.
4. 1953 Michigan traffic flow map in progress.

SPECIAL MAPPING ASSIGNMENTS - none

GRAPHIC DESIGN

Material for Annual Highway Conference prepared.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 11; County F.A.S. projects - 31.
2. Roadside control studies completed for 9 locations and in progress for 6 locations. This included 5 field investigations.
3. 28 driveway applications were reviewed and 4 field investigations made.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1,440.
2. Referred to Maintenance Division for investigation - 48.
3. Referred to District Traffic Engineer for investigation - 11.
4. Comparison of accident record on limited access highways (expressway) with uncontrolled access highways is in progress.
5. Accident study comparing accident experience before and after installation of traffic control devices completed for 2 locations.

SPEED RESEARCH STUDIES

1. Data taken for 5 special 24-hour speed studies in Ingham County, computations made, graphs of average speed, model speed and traffic volumes prepared for comparative purposes.
2. Special speed studies made at 2 locations.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 8 road projects were reviewed and analyzed for traffic operation and recommendations submitted.
2. Plan prepared for intersection design and traffic channelization for 2 locations.
3. 3 route location engineering reports were reviewed and analyzed for traffic operation and recommendations submitted.
4. Special machine traffic counts were taken for 12 locations; turning movement counts taken at 11 of these locations; pedestrian counts at 6 of them; vehicle classification counts at 2. Data analyzed; recorded and submitted.
5. Field trips by supervisory personnel were made checking 11 locations for future traffic studies.
6. Traffic estimates prepared and submitted for 17 locations.
7. Traffic data for selected trunkline routes and locations requested by other agencies - 5 requests completed; special counts for 15 projects taken and submitted; analysis of turning movements made for 2 locations.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 170 manual classification counts taken at permanent recorder stations; 30th and 200th high traffic hours tabulated for each of the permanent stations for 1953.
2. A six-year traffic average for each day of week for each month for each station was prepared.

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PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
March 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 55 counties; in progress for 2 counties.
(Field work resumed after temporary suspension due to adverse weather conditions.)
2. Material prepared for coding: 46 counties completed; 1 in progress.
3. Coding completed for 40 counties; 2 in progress.
4. Key punching and verifying: 21 counties completed; 8 in progress.
(Work done by IBM Section of Finance Division.)

Note: County Road Commissions have exhibited a keen interest in this inventory and 35 counties have made transcriptions or microfilmed field notes for their respective counties and 13 counties are in the process of making transcripts of notes.

STATE-WIDE TRAFFIC SURVEY

1. 122 eight-hour manual vehicle classification counts and 38 twenty-four-hour machine counts were taken, checked and tabulated.
2. Preliminary grouping of minor control stations for Upper Peninsula completed; in progress for Lower Peninsula.
3. Sketches are in preparation of the general area adjacent to count stations for future use in determining influence of cultural development on traffic.
4. Schedule of counts for April completed and transmitted.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. Preliminary state Trunklines plan reviewed and discussed with city. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report submitted to Department officials for review preparatory to submittal to B.P.R.
3. Jackson - Tabulation and analysis of O.D. data in progress. Determination of internal expansion factors in progress.
4. Lansing - Review of report and revisions in progress.
5. Flint - Traffic study and analysis to estimate traffic on a west bypass in progress.

RECORDS AND ROAD LIFE

1. State Trunkline data by control sections in preparation for coding and tabulation for Road Life tables: completed for 80 counties; 1 in progress.
2. Preparation of codes and manual of instructions temporarily inactive.
3. Preparation of Control Section log diagrams showing pertinent information as of January 1, 1954: 80 counties completed and 3 counties in progress.
4. Special tabulations of data and information prepared for other divisions: 4 completed.
5. Preparation of data for tables for 25th Biennial Report in progress.
6. Preparation of P.R. (former SM) tables for B.P.R. in progress.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Annual reports - MCD; MVD; SI; SE; and SB completed and transmitted.

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county in process - to test effectiveness of criteria and proposed methods.
2. Forecast of annual vehicle miles of highway use and average miles per vehicle by various criteria and methods - 75 percent complete.
3. Development of method for expanding short-time turning movement counts to average daily is in progress.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review by Department officials.
2. Urban Federal-Aid Systems - Partial system selected for Lansing-East Lansing and submitted to B.P.R. Partial system selection in progress for Saginaw.
3. Federal-Aid Primary: revisions prepared and submitted for routes #30 and 9.
4. Federal-Aid Secondary - System selected and in preparation for submittal to B.P.R. for Antrim County. Individual route selections for two routes in Kalamazoo County and one route each in Missaukee, Iron and Monroe Counties prepared and submitted to B.P.R.
5. Federal-Aid Secondary System - County maps revised and brought up-to-date - temporarily inactive.
6. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program in progress.

MAPPING AND GENERAL DRAFTING

1. Maps of 11 counties have been completed, approved and printed.
2. Maps of 4 counties completed and submitted to B.P.R. for review and approval.
3. Maps of 14 counties in progress.
4. 1953 Michigan traffic flow map completed - being printed.

SPECIAL MAPPING ASSIGNMENTS - none

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies -- continuing.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 5; County F.A.S. projects - 31; Bridge - 4.
2. Roadside control studies completed for 4 locations and in progress for 4 locations. This included 5 field investigations.
3. 47 driveway applications were reviewed and 6 field investigations made.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 2,027.
2. Referred to Maintenance Division for investigation - 56.
3. Referred to District Traffic Engineer for investigation - 19.
4. Comparison of accident record on limited access highways (expressway) with uncontrolled access highways is in progress.
5. Accident study over a four-year period to determine effectiveness of highway lighting - in progress for 2 locations.

SPEED RESEARCH STUDIES

1. Data taken for 5 special 24-hour speed studies in Ingham County, computations made, graphs of average speed, model speed and traffic volumes prepared for comparative purposes - completed and transmitted.
2. Special speed studies made at 6 locations - completed.
3. Quarterly speed studies at 21 permanent count stations completed for first quarter of 1954.
4. Analysis of speed data (24-hour periods) at 5 locations for determining: (a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 4 road projects were reviewed and analyzed for traffic operation and recommendations submitted on 8 projects.
2. Special machine traffic counts were taken for 48 locations; turning movement counts taken at 14 of these locations; pedestrian counts at 8 of them. Data analyzed, recorded and submitted.
3. Traffic estimates for 80 locations in progress.
4. Traffic counts and turning movements taken at 30 stations on an existing location preparatory to a "Before and After Study" of traffic movement and diversion.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 193 manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 30 permanent count stations were prepared.

MICHIGAN
STATE HIGHWAY DEPARTMENT
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PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
April 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 55 counties; in progress for 3 counties - approximately 80 percent complete.
2. Material prepared for coding: 47 counties completed; 2 in progress.
3. Coding completed for 42 counties; 2 in progress.
4. Key punching and verifying: 21 counties completed; 8 in progress.
(Work done by IBM Section of Finance Division - temporarily inactive.)

Note: County Road Commissions have exhibited a keen interest in this inventory and 41 counties have made transcriptions or microfilmed field notes for their respective counties and 7 counties are in the process of making transcripts of notes.

STATE-WIDE TRAFFIC SURVEY

1. 173 eight-hour manual vehicle classification counts and 52 twenty-four-hour machine counts were taken, checked and tabulated.
2. Sketches are in preparation of the general area adjacent to count stations for future use in determining influence of cultural development on traffic.
3. Schedule of counts for May completed and transmitted.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. Preliminary state Trunklines plan reviewed and discussed with city. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report submitted to Department officials for review preparatory to submittal to B.P.R.
3. Jackson - Tabulation and analysis of O.D. data in progress. Determination of internal expansion factors in progress.
4. Lansing - Review of report and revisions in progress. Initial draft of revised report in progress.
5. Flint - Traffic study and analysis to estimate traffic on a west bypass completed.
6. Niles - Study made of probable usage by US-31 traffic of a bypass on east side of Niles.

RECORDS AND ROAD LIFE

1. State Trunkline data by control sections in preparation for coding and tabulation for Road Life tables: completed for 80 counties; 1 in progress.
2. Preparation of codes and manual of instructions - temporarily inactive.
3. Preparation of Control Section log diagrams showing pertinent information as of January 1, 1954: 81 counties completed and 2 counties in progress.
4. Special tabulations of data and information prepared for other divisions: 4 completed.
5. Preparation of data for tables for 25th Biennial Report in progress.
6. Preparation of P.R. (former SM) tables for B.P.R. in progress - 90 percent complete.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. For Detroit Metropolitan Study - prepared tabulation of number and classification of vehicles for years 1951, 1952 and 1953.
3. State Ferries: number and classification of vehicles carried in 1953 and 1954.
4. Prepared material on highway finance for TV program.
5. Prepared material and data for 3 other agencies on user revenues.

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county completed - to test effectiveness of criteria and proposed methods. Awaiting review.
2. Forecast of annual vehicle miles of highway use and average miles per vehicle by various criteria and methods - 90 percent complete.
3. Development of method for expanding short-time turning movement counts to average daily is in progress.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review by Department officials.
2. Urban Federal-Aid Systems - Partial system selected for Saginaw and submitted to B.P.R.
3. Federal-Aid Secondary - System selected submitted to B.P.R. for Antrim County. Selection of System for Branch and Huron Counties in progress. Individual route selections for Kalamazoo, Branch and Alcona Counties prepared and submitted to B.P.R.
4. Federal-Aid Secondary System - County maps revised and brought up-to-date for Grand Traverse, Berrien, Gratiot and Barry Counties.
5. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program in progress.

MAPPING AND GENERAL DRAFTING

1. Maps of 11 counties have been completed, approved and printed.
2. Maps of 4 counties completed and approved by B.P.R. - ready for printing.
3. Maps of 14 counties in progress.
4. 1953 Michigan traffic flow map completed, printed and distributed.
5. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police.
2. Preparation of map of Upper Peninsula showing state Trunkline and County Primary Road System - completed.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Preparation of Safety Exhibit material for display purposes.
3. Layout, design and processing of roadside posters for traffic safety.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 14; County F.A.S. projects - 35; Bridge - 6.
2. Roadside control studies completed for 4 locations and in progress for 5 locations. This included 4 field investigations.
3. 48 driveway applications were reviewed and 4 field investigations made.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1,891.
2. Referred to Maintenance Division for investigation - 44.
3. Referred to District Traffic Engineer for investigation - 11.
4. Comparison of accident record on limited access highways (expressway) with uncontrolled access highways is in progress.
5. Accident study over a four-year period to determine effectiveness of highway lighting - completed. Report in preparation.
6. Analysis of Accidents at Drive-In Theatre locations - 1953 - in progress.
7. Accident study before and after installation of traffic lights (flasher and stop and go) - completed for 3 locations.
8. Accident study and analysis for 12-month period at 1 location.

SPEED RESEARCH STUDIES

1. Special speed studies made at 15 locations - completed.
2. Analysis of speed data (24-hour periods) at 5 locations for determining:
(a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 9 road projects were reviewed and analyzed for traffic operation and recommendations submitted on 7 projects; included 7 field investigations.
2. Special machine traffic counts were taken for 31 locations; turning movement counts taken at 26 of these locations; pedestrian counts at 2 of them and classification counts at 2. Data analyzed, recorded and submitted.
3. Traffic estimates for 80 locations in progress.
4. Traffic counts and turning movements taken at 30 stations on an existing location preparatory to a "Before and After Study" of traffic movement and diversion.
5. Time and delay study and turning movement made at 1 location.
6. 1954 Loadometer Instructional and Operational Manual for 9 stations completed.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 143 manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 30 permanent count stations - continuing.
3. Installation of Streeter-Amet Recorders completed at 19 of the 30 permanent traffic recorder stations.

MICHIGAN
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PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
May 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 57 counties; in progress for 1 county - approximately 90 percent complete.
2. Material prepared for coding; 52 counties completed; 1 in progress.
3. Coding completed for 44 counties; 2 in progress.
4. Key punching and verifying: 21 counties completed; 8 in progress.
(Work done by IBM Section of Finance Division - temporarily inactive.)

Note: County Road Commissions have exhibited a keen interest in this inventory and 43 counties have made transcriptions or microfilmed field notes for their respective counties and 6 counties are in the process of making transcripts of notes.

STATE-WIDE TRAFFIC SURVEY

1. 262 twenty-four-hour machine counts were taken, checked and tabulated.
2. Sketches are in preparation of the general area adjacent to count stations for future use in determining influence of cultural development on traffic.
3. Schedule of counts for June completed and transmitted.
4. Special study made at one location to verify traffic flow pattern.
5. Arrangements made for periodic classification counts at Straits Ferries to determine extent of foreign commercial usage.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. Preliminary state Trunklines plan reviewed and discussed with city. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report submitted to Department officials for review preparatory to submittal to B.P.R.
3. Jackson - Tabulation and analysis of O.D. data in progress. Determination of internal expansion factors in progress.
Traffic volume, turning movement, classifications and pedestrian counts - tabulated and transmitted to city together with traffic flow map.
4. Lansing - Review of report and revisions for Trunkline report in progress.
5. Niles - Study made of probable usage by US-31 traffic of a bypass on east side of Niles. Traffic flow diagrams including turning movements prepared.
6. Port Huron - Prepared traffic estimate for relocation of section of US-25 between Lapeer and Pine Grove Avenues.

RECORDS AND ROAD LIFE

1. State Trunkline data by control sections in preparation for coding and tabulation for Road Life tables: completed for 83 counties.
2. Preparation of codes and manual of instructions - temporarily inactive.
3. Preparation of Control Section log diagrams showing pertinent information as of January 1, 1954: 83 counties completed.
4. Special tabulations of data and information prepared for other divisions: 4 completed.
5. Preparation of data for tables for 25th Biennial Report in progress.
6. Preparation of P.R. (former SM) tables for B.P.R. - typing in progress.
7. Control Section Diagrams (current status) in process of printing for distribution.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. For Detroit Metropolitan Study - prepared tabulation of gasoline consumption annually for years 1939 to 1953, inclusive.
3. Prepared monthly and accumulative tabulation of vehicle miles to March 1954.

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county completed - to test effectiveness of criteria and proposed methods. Awaiting review - temporarily inactive.
2. Forecast of annual vehicle miles of highway use and average miles per vehicle by various criteria and methods - complete.
3. Development of method for expanding short-time turning movement counts to average daily is in progress.
4. Prepared questionnaire for Council of State Governments relative to highways.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review by Department officials.
2. Federal-Aid Secondary - Selection of System for Branch and Huron Counties in progress. Individual route selections for Cass and Wayne Counties prepared and submitted to B.P.R.
3. Federal-Aid Secondary System - County map revised and brought up-to-date for Kalamazoo County.
4. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program in progress.

MAPPING AND GENERAL DRAFTING

1. Maps of 15 counties have been completed, approved and printed.
2. Maps of 14 counties in progress.
3. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police.
2. Preparation of map of southern Lower Peninsula showing state Trunkline and County Primary Road System - in progress.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Preparation of 15-foot Highway Exhibit Panel for display purposes completed.
3. Layout, design and processing of roadside posters for traffic safety.
4. Preparation of material for T.V. program on highways.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 12; County F.A.S. projects - 12; Bridge - 4; other - 6.
2. Roadside control studies completed for 7 locations and in progress for 17 locations. This included 7 field investigations.
3. 59 driveway applications were reviewed and 6 field investigations made.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1,428.
2. Referred to Maintenance Division for investigation - 37.
3. Referred to District Traffic Engineer for investigation - 13.
4. Comparison of accident record on limited access highways (expressway) with uncontrolled access highways - completed.
5. Accident study over a four-year period to determine effectiveness of highway lighting - completed. Report in preparation.
6. Analysis of accidents at drive-in theatre locations - 1953 - completed.
7. Accident study before and after installation of traffic lights (flasher and stop and go) - completed for 2 locations.
8. Accident study and analysis for 12-month period at 1 location - completed.

SPEED RESEARCH STUDIES

1. Special speed studies made for 18 locations at 106 stations - completed.
2. Analysis of speed data (24-hour periods) at 5 locations for determining:
(a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 13 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 7 field investigations.
2. Special machine traffic counts were taken for 56 locations; turning movement counts taken at 24 of these locations; pedestrian counts at 3 of them and classification counts at 2. Data analyzed, recorded and submitted.
3. Traffic estimates for 80 locations in progress - 25 percent completed.
4. 1954 Loadometer Instructional and Operational Manual for 9 selected stations completed, transmitted to B.P.R. and approval received.
5. 1953 A.D.T. and commercial traffic analyzed, computed and transmitted for 11 Trunkline sections.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 137 manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 29 permanent count stations - continuing.
3. Installation of Streeter-Amet Recorders completed at 23 of the 29 permanent traffic recorder stations.
4. Recorder station 604 (US-24 south of US-25 north of Monroe) - discontinued

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
June 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 58 counties; in progress for 2 counties.
2. Material prepared for coding; 52 counties completed; 1 in progress.
3. Coding completed for 45 counties; 3 in progress.
4. Key punching and verifying: 21 counties completed; 8 in progress.
(Work done by IBM Section of Finance Division - temporarily inactive.)

Note: 46 counties have made transcriptions or microfilmed field notes for their respective counties and 2 counties are in the process of making transcripts of notes.

STATE-WIDE TRAFFIC SURVEY

1. 563 twenty-four-hour machine counts were taken, checked and tabulated.
2. Sketches are in preparation of the general area adjacent to count stations for future use in determining influence of cultural development on traffic.
3. Schedule of counts for July completed and transmitted.
4. Special study made at one location to verify traffic flow pattern.
5. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage - continuing.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. Preliminary state Trunklines plan reviewed and discussed with city. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report submitted to Department officials for review preparatory to submittal to B.P.R.
3. Jackson - Tabulation and analysis of O.D. data in progress. Determination of internal expansion factors in progress.
4. Lansing - Review of report and revisions for Trunkline report in progress.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - temporarily inactive.
2. Special tabulations of data and information prepared for other divisions - 4 completed.
3. Preparation of data for tables for 25th Biennial Report in progress.
4. Preparation of P.R. (former SM) tables for B.P.R. - completed and transmitted.
5. Control Section Diagrams (current status) in process of printing for distribution. Completed for 3 of the 8 districts.
6. Map revision data prepared and submitted to 2 mapping companies.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Annual reports - Disposition of receipts from taxes on motor fuels, vehicles and carriers - in progress. New legislation relating to highways, motor vehicles and highway users - completed and transmitted.
3. Other reports - Straits ferry traffic by months through March 1954 - completed and transmitted.
Highway finance data, state and local, for Automotive Safety Foundation - completed.

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county completed - to test effectiveness of criteria and proposed methods. Awaiting review - temporarily inactive.
2. Development of method for expanding short-time turning movement counts to average daily - temporarily inactive.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review.
2. Federal-Aid Secondary - Selection of System for Huron County - completed and submitted, and Branch County in progress. Individual route selections and revisions for Ingham, Leelanau, Wayne, Monroe and Oceana Counties prepared and submitted to B.P.R.
3. Federal-Aid Secondary System - County System map revised and brought up-to-date for 7 counties.
4. Federal-Aid Primary System - Renumbering - temporarily inactive.
5. Federal-Aid Urban System - Selection of partial system for Saginaw and Lansing-East Lansing area - revised and submitted to B.P.R.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program in progress.
2. Plan prepared showing anticipated traffic flow and interchange movement on proposed US-12 relocation - Kalamazoo to Stevensville.

MAPPING AND GENERAL DRAFTING

1. Maps of 15 counties have been completed, approved and printed.
2. Maps of 3 counties - completed - submitted to B.P.R. for approval. Maps for 11 counties in progress.
3. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.
2. Preparation of map of southern Lower Peninsula showing state Trunkline and County Primary Road System - in progress.
3. Preparation of accident map for State Police - for publication purposes.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety.
3. Layout and design of proposed covers for official highway map - October 1954 edition and for April 1955 edition.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 4; County F.A.S. projects - 14; Bridge - 3. Traffic estimates made for complete F.A.S. System of Huron County.
2. Roadside control studies completed for 9 locations and in progress for 16 locations. This included 5 field investigations.
3. 95 driveway applications were reviewed and 8 field investigations made.
4. Program for revision of driveway standards initiated.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1,933.
2. Referred to Maintenance Division for investigation - 63.
3. Referred to District Traffic Engineer for investigation - 19.
4. Accident study before and after installation of traffic lights (oversize green arrow; stop and go) - completed for 2 locations.
5. Accident study in connection with speed zone revision in urban area - completed.

SPEED RESEARCH STUDIES

1. Special speed studies made for 9 locations at 41 stations - completed.
2. Analysis of speed data (24-hour periods) at 5 locations for determining: (a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.
3. 21 station quarterly speed study at permanent recorder stations made - in process of computing and analyzing.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 28 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 3 field investigations.
2. Special machine traffic counts were taken for 45 locations; turning movement counts taken at 20 of these locations; pedestrian counts at 7 of them and time and delay study at 1. Data analyzed, recorded and submitted.
3. Traffic estimates for 80 locations in progress - 90 percent completed.
4. Annual loadometer survey taken at 9 selected stations - data for 8 of the 9 stations coded and in process of tabulating.
5. Special tire pressure study was made at one of the scale houses.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 208 manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 29 permanent count stations - continuing.
3. Installation of Streeter-Amet Recorders completed at 25 of the 29 permanent traffic recorder stations.
4. Recorder station 605 (US-25 and M-29, 550' south of N. Jct. M-29) - converted to a directional count station by installation of a second magnetic detector and Streeter-Amet Recorder.
Selection of new location for station #616 made - moving station started.
Site for an additional station on US-2 north of St. Ignace selected - installation started.
Selection of new location for station 617 (US-41 and M-28 west of M-95) made - moving station started.

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
July 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 58 counties; in progress for 3 counties.
2. Material prepared for coding; 54 counties completed; 1 in progress.
3. Coding completed for 46 counties; 3 in progress.
4. Key-punching and verifying: 21 counties completed; 8 in progress.
(Work done by IBM Section of Finance Division - temporarily inactive.)

Note: 46 counties have made transcriptions or microfilmed field notes for their respective counties and 2 counties are in the process of making transcripts of notes.

STATE-WIDE TRAFFIC SURVEY

1. 539 twenty-four-hour machine counts were taken, checked and tabulated.
2. Sketches of the general area adjacent to count stations for future use in determining influence of cultural development on traffic - completed.
3. Schedule of counts for August completed and transmitted.
4. Traffic counts for 65 counties - for 1951, 1952, 1953 and 1954 - compiled.
5. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage - continuing.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. State Trunklines plan reviewed and discussed with city. Maps in preparation to show proposed phases for development of the Trunkline System. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report submitted for review preparatory to submittal to B.P.R.
3. Jackson - Tabulation and analysis of O.D. data in progress. Determination of internal expansion factors completed.
4. Lansing - Review of report and revisions for Trunkline report in progress.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - in progress.
2. Special tabulations of data and information prepared for other divisions - 4 completed.
3. Preparation of data for tables for 25th Biennial Report in progress.
4. 2 special assignments completed: construction and improvement data on Trunklines for Oakland County since 1946; data for Highway Finance Study (Sec. 13) for statistical tabulations coded for IBM key-punching.
5. Control Section Diagrams (current status) in process of printing for distribution. Completed for 5 of the 8 districts.
6. Map revision data prepared for October edition of Official Highway map.
7. P.R. reports 522-523-528 completed including local mileage reports.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Annual reports - Disposition of receipts from taxes on motor fuels, vehicles and carriers - completed.
3. Other reports - Straits ferry traffic by months through June 1954 - completed and transmitted.
4. Highway Users Conference Questionnaire - revenue and expenditure phase prepared.

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county completed - to test effectiveness of criteria and proposed methods. Awaiting review - temporarily inactive.
2. Development of method for expanding short-time turning movement counts to average daily - temporarily inactive.
3. Financial tables for 25th Biennial Report in progress.
4. Long-term forecast of motor vehicle miles to 1985 - 95% complete.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review.
2. Federal-Aid Secondary - Selection of System for Huron County - completed and submitted, and Branch County in progress. Individual route selections and revisions for Ingham, Leelanau, Wayne, Monroe and Oceana Counties prepared and submitted to B.P.R.
3. Federal-Aid Secondary System - County System map revised and brought up-to-date for 7 counties.
4. Federal-Aid Primary System - Renumbering - temporarily inactive.
5. Federal-Aid Urban System - Selection of partial system for Saginaw and Lansing-East Lansing area - revised and submitted to B.P.R.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program in progress.
2. O. D. survey of commercial vehicles at 3 Canadian ports of entry - for U. S. State Department through BPR - completed and coded for Port Huron. Survey for Ambassador Bridge and Tunnel made by Detroit Metropolitan Survey - completed. Coding in progress - Lansing office.

MAPPING AND GENERAL DRAFTING

1. Maps of 15 counties have been completed, approved and printed.
2. Maps of 3 counties - completed - approved by B.P.R. for printing. Maps for 12 counties in progress.
3. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.
2. Preparation of map of southern Lower Peninsula showing state Trunkline and County Primary Road System - completed.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety - continuing.
3. Layout and design of covers and miscellaneous corrective material for official highway map - October 1954 edition - completed and submitted to printer.
4. Art work for cover - April 1955 official highway map - in progress.
5. Preliminary make-up prepared for "School Child Safety" booklet.
6. Billboard layouts "Welcome to Michigan" in progress.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 4; County F.A.S. projects - 14; Bridge - 3. Traffic estimates made for complete F.A.S. System of Huron County.
2. Roadside control studies completed for 8 locations. This included 5 field investigations.
3. 85 driveway applications were reviewed and 5 field investigations made.
4. Program for revision of driveway standards initiated.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1,956.
2. Referred to Maintenance Division for investigation - 40.
3. Referred to District Traffic Engineer for investigation - 27.
4. Accident study before and after installation of traffic lights (stop and go) - completed for 2 locations.
5. Accident study in connection with speed zone establishment on a 5-mile rural Trunkline Section - completed.

SPEED RESEARCH STUDIES

1. Special speed studies made for 2 locations at 1 station - completed.
2. Analysis of speed data (24-hour periods) at 5 locations for determining:
(a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.
3. 21-station quarterly speed study at permanent recorder stations - computed, analyzed, tabulated and transmitted.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 28 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 3 field investigations.
2. Special machine traffic counts were taken for 53 locations; turning movement counts taken at 31 of these locations; pedestrian counts at 9 of them and classified turning movement at 1. Data analyzed, recorded and submitted.
3. Traffic estimates for 80 locations - completed.
4. Annual loadometer survey taken at 9 selected stations - data coded and in process of tabulating.

PERMANENT TRAFFIC RECORDERS

1. Data from 27 permanent count stations collected and reported; 126 manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 29 permanent count stations - continuing (showing daily traffic volumes 1948 through 1953).
3. Installation of Streeter-Amet Recorders completed at 25 of the 29 permanent traffic recorder stations.
4. Selection of new location for station #616 made - moving station completed.
Site for an additional station on US-2 north of St. Ignace selected - installation completed.
Selection of new location for station 617 (US-41 and M-28 west of M-95) made - moving station started - installation in progress.

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
August 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 61 counties; in progress for 2 counties.
 2. Material prepared for coding; 56 counties completed; 1 in progress.
 3. Coding completed for 46 counties; 3 in progress.
 4. Key-punching and verifying: 25 counties completed; 4 in progress.
(Work done by IBM Section of Finance Division - temporarily inactive.)
- Note: 48 counties have made transcriptions or microfilmed field notes for their respective counties.

STATE-WIDE TRAFFIC SURVEY

1. 609 twenty-four-hour machine counts were taken, checked and tabulated.
2. Schedule of counts for September completed and transmitted.
3. Traffic counts for 76 counties - for 1951, 1952, 1953 and 1954 - compiled.
4. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage - continuing.
5. Selection of Count Stations on county roads for 83 counties and showing locations on county maps - complete (for use by counties in getting traffic data for Highway Needs Study).

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O.D. data in progress. State Trunklines plan reviewed and discussed with city. Maps in preparation to show proposed phases for development of the Trunkline System. Material for report in preparation.
2. Pontiac - Tabulation and analysis of O.D. data completed. Preliminary state Trunkline plan in process of review and discussion with city. Initial draft of report submitted for review preparatory to submittal to B.P.R.
3. Jackson - Tabulation and analysis of O.D. data in progress. Determination of internal expansion factors completed.
4. Lansing - Review of report and revisions for Trunkline report in progress.
5. Ann Arbor - Field investigation for suggested one-way street operation on trunklines; preliminary report prepared.
6. Special short O.D. studies (external only) set up for 8 cities (all under 10,000 pop.) - to determine percentage of through traffic and warrants for bypasses. Field work completed - analysis of data in progress.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - in progress.
2. Special tabulations of data and information prepared for other divisions - 4 completed.
3. Preparation of data for tables for 25th Biennial Report - in progress.
4. Sec. 13 - Highway Needs report - statistical tabulations - completed.
5. Control Section Diagrams (current status) in process of printing for distribution. Completed for 5 of the 8 districts.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Annual reports - State Bond forms SB-1, 2 and 3 completed and transmitted to B.P.R.
3. Other reports - Straits ferry traffic by months through June 1954 - completed and transmitted.

4

HIGHWAY ECONOMICS RESEARCH

1. Highway rating (Sufficiency Rating) - Criteria for rating established; methods in process of preparation. Ratings for Trunkline control sections for one county completed - to test effectiveness of criteria and proposed methods - temporarily inactive.
2. Development of method for expanding short-time turning movement counts to average daily - work resumed.
3. Financial tables for 25th Biennial Report - completed.
4. Long-term forecast of motor vehicle miles to 1985 - completed.
5. Sec. 13 - State Highway Finance Study - completed and transmitted to B.P.R.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Plan of desirable state Trunkline system, based on highway classification principles, is in readiness for review.
2. Federal-Aid Secondary - Selection of System for Charlevoix and Branch counties - in progress. Individual route selections for Iosco, Jackson and Monroe counties prepared and submitted to B.P.R.
3. Federal-Aid Secondary System - County System map revised and brought up-to-date for 7 counties.
4. Federal-Aid Primary System - Renumbering - temporarily inactive.
5. Federal-Aid Urban System - Selection of partial system for Charlotte - submitted to B.P.R.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for use in preparation of a \$500,000,000 road program in progress. 2,300 miles have been analyzed and sufficiency ratings established.
2. O. D. survey of commercial vehicles at 3 Canadian ports of entry - for U. S. State Department through BPR - completed and coded for Port Huron. Survey for Ambassador Bridge and Tunnel made by Detroit Metropolitan Survey - completed and coded. Material transmitted to BPR.
3. Sec. 13 - Highway Needs Study - completed and transmitted to BPR.
4. Sec. 13 - Toll Road Feasibility Study - in progress.

MAPPING AND GENERAL DRAFTING

1. Maps for 15 counties have been completed, approved and printed.
2. Maps for 3 counties - completed - approved by BPR for printing. Maps for 12 counties in progress.
3. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety - continuing.
3. Layout, design and execution of exhibit for State Fair at Detroit.
4. Art work for cover - April 1955 official highway map - in progress.
5. Preliminary work for Highway Needs Study - in progress.
6. Billboard layouts "Welcome to Michigan" - temporarily inactive.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 9; County F.A.S. projects - 21; Bridge - 5.
2. Roadside control studies completed for 3 locations - studies in progress for 11 locations. 5 field investigations were made.
3. 65 driveway applications were reviewed and 5 field investigations made.
4. Program for revision of driveway standards: field work 95% complete. Analysis of data in progress.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1974.
2. Referred to Maintenance Division for investigation - 76.
3. Referred to District Traffic Engineer for investigation - 21.
4. Accident study before and after installation of traffic lights (stop and go) - completed for 3 locations.
5. Study of accident rates at Trunkline junctions in relation to existing traffic controls - in progress.

SPEED RESEARCH STUDIES

1. Special speed studies made at 8 Permanent Traffic Recorder Stations.
2. Analysis of speed data (24-hour periods) at 5 locations for determining:
(a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 12 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 5 field investigations.
2. Special machine traffic counts were taken for 43 locations; turning movement counts taken at 43 of these locations; pedestrian counts at 10 of them and stop sign observance study at 1. Data analyzed, recorded and submitted.
3. Annual loadometer survey taken at 9 selected stations - data coded and tabulated. Tables W-1 to W-6 in preparation.

PERMANENT TRAFFIC RECORDERS

1. Data from 27 permanent count stations collected and reported; 178 short manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 29 permanent count stations - continuing (showing daily traffic volumes 1948 through 1953).
3. Selection of new location for station 617 (US-41 and M-28 west of M-95) made - installation completed.
4. Traffic data for stations 610 and 631 (new recorder stations near St. Ignace) obtained and in preparation for submittal.

Handwritten: 10/1/54

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
September 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 61 counties; in progress for 3 counties.
2. Material prepared for coding; 57 counties completed; 1 in progress.
3. Coding completed for 48 counties; 3 in progress.
4. Key-punching and verifying: 21 counties completed for rural and urban; 13 counties completed for rural only. (Work done by IBM Section of Finance Division.)

STATE-WIDE TRAFFIC SURVEY

1. 435 twenty-four-hour machine counts were taken, checked and tabulated.
2. Schedule of counts for October completed and transmitted.
3. Traffic counts for 77 counties - for 1951, 1952, 1953 and 1954 - compiled.
4. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage - continuing.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O. D. data in progress. State Trunklines plan in process of revision.
2. Pontiac - Tabulation and analysis of O. D. data completed. Temporarily inactive.
3. Jackson - Tabulation and analysis of O. D. data in progress.
4. Lansing - Trunkline report in progress.
5. Special short O. D. studies (external only) for cities under 10,000 population - to determine percentage of through traffic and warrants for bypasses. Field work completed for 5 cities - analysis of data completed for 2 cities and in progress for 3.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - in progress. Design of code sheets and punchcard form in progress.
2. Special tabulations of data and information prepared for other divisions - 6 completed.
3. Preparation of data for tables for 25th Biennial Report - in progress.
4. Control Section Diagrams (current status) in process of printing for distribution. Completed for 7 of the 8 districts.
5. Revision of Trunkline mileage log - in progress.
6. Revision of Trunkline route descriptions - in progress.
7. Preparation of work maps for Report to Governor - Biennial Report - completed.
8. 4 requests for special highway data - completed.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Other reports - Straits ferry traffic by months through August 1954 - completed and transmitted.
3. Preliminary work and review of available data for Highway Needs Study - started.

HIGHWAY ECONOMICS RESEARCH

1. Development of method for expanding short-time turning movement counts to average daily - inactive.
2. Financial tables for 25th Biennial Report - 5 tables on receipts and expenditures completed.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Federal-Aid Secondary - Selection of System for Charlevoix and Branch counties - in progress.
2. Federal-Aid Secondary System - County System map revised and brought up-to-date for 15 counties.
3. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Study of state Trunkline needs for Highway Needs Study and programming in progress. 4,000 miles have been analyzed and preliminary ratings established. In process, analysis and review to eliminate discrepancies.
2. Special Report for Governor on Trunkline ratings and programming for 1955-1956 - completed.

MAPPING AND GENERAL DRAFTING

1. Maps for 19 counties have been completed, approved and printed.
2. Maps for 12 counties in progress.
3. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety - continuing.
3. Display map and overlays for Report to Governor - completed.
4. Art work for cover - April 1955 official highway map - in progress.
5. Preliminary work for Highway Needs Study - in progress.
6. Billboard layouts "Welcome to Michigan" - temporarily inactive.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 12; County F.A.S. projects - 18; Bridge - 2. Others - 5.
2. Roadside control studies completed for 12 locations - studies in progress for 5 locations. 5 field investigations were made.
3. 58 driveway applications were reviewed and 5 field investigations made.
4. Program for revision of driveway standards: field work completed. Analysis of data in progress.
5. Tabulation of traffic data for Memorial Day, July Fourth and Labor Day for 1953 and 1954 for 7 permanent recorder stations for State Police - completed.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 2,035.
2. Referred to Maintenance Division for investigation - 83.
3. Referred to District Traffic Engineer for investigation - 38.
4. Accident study before and after sign revision - completed for 1 location.
5. Study of accident rates at Trunkline junctions in relation to existing traffic controls - inactive.

SPEED RESEARCH STUDIES

1. Special speed studies made at 21 permanent traffic recorder stations; computation and analysis in progress.
2. Analysis of speed data (24-hour periods) at 5 locations for determining: (a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - in progress.
3. Speed studies at 10 selected sections of trunkline completed.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 21 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 1 field investigation.
2. Special machine traffic counts were taken for 17 locations; turning movement counts taken at 14 of these locations; pedestrian counts at 10 of them, and vehicle classification count at 1. Data analyzed, recorded and submitted.
3. Annual loadometer survey taken at 9 selected stations - data coded and tabulated. Tables W-1 to W-6 prepared - in preparation for transmittal to B. P. R.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 150 short manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 29 permanent count stations - continuing (showing daily traffic volumes 1948 through 1953).
3. Data from 7 permanent traffic recorder stations completed for State Police.
4. Preparation of traffic data for highway rating and programming completed for sections of 7 trunkline routes.
5. Special traffic data tabulations prepared for 9 locations.

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
October 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 65 counties; in progress for 1 county.
2. Material prepared for coding; 59 counties completed; 1 in progress.
3. Coding completed for 50 counties; 2 in progress.
4. Key-punching and verifying: 40 counties completed - rural and urban.
(Work done by IBM Section of Finance Division.)

STATE-WIDE TRAFFIC SURVEY

1. 398 twenty-four-hour machine counts were taken, checked and tabulated.
2. Schedule of counts for November completed and transmitted.
3. Traffic counts for 79 counties - for 1951, 1952, 1953 and 1954 - compiled.
4. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage - continuing.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo - Tabulating and analysis of O. D. data in progress. State Trunklines plan in process of revision - temporarily inactive.
2. Pontiac - Tabulation and analysis of O. D. data completed. Temporarily inactive.
3. Jackson - Tabulation and analysis of O. D. data in progress.
4. Lansing - Trunkline report in progress.
5. Niles - Preparation of Trunkline plan in progress.
6. Battle Creek - Special study prepared on Trunkline M-78 proposed location, and US-12 BR proposed location, with traffic assignments and turning movements.
7. Flint - Special study prepared on relocation of M-78 - Flint southwest.
8. Special short O. D. studies (external only) for cities under 10,000 population - to determine percentage of through traffic and warrants for bypasses. Field work completed for 9 cities - analysis of data completed for 2 cities; in progress for 1.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - ready for printing. Design of code sheets and punchcard form ready for printing.
2. Special tabulations of data and information prepared for other divisions and departments - 7 completed.
3. Preparation of data and tables for 25th Biennial Report - completed.
4. Revision of Trunkline mileage log - in progress.
5. Revision of Trunkline route descriptions - in progress.
6. Revision of mileage chart for official highway map - in progress.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Other reports - Straits ferry traffic by months through September 1954 - completed and transmitted.
3. Preliminary work and review of available data for Highway Needs Study - in progress.

HIGHWAY ECONOMICS RESEARCH

1. Development of method for expanding short-time turning movement counts to average daily - inactive.
2. Study of cost of passenger car ownership and operation for Michigan registrations 1954, on per mile basis - in progress.
3. Study of trends and forecasts of population, vehicle registration - commercial and passenger cars, persons per vehicle; development of graphs and curves - in connection with Highway Needs Study - in progress.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Federal-Aid Secondary - Selection of System for Charlevoix and Hillsdale Counties completed and submitted. Branch County temporarily inactive. Individual routes selected and submitted for Midland and Gratiot Counties.
2. Federal-Aid Secondary System - County System map revised and brought up-to-date for 15 counties.
3. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Analysis of state Trunklines for Highway Needs Study and programming: Condition and Sight Distance Survey completed for 4,100 miles; data in process of assembling and establishing of ratings.

MAPPING AND GENERAL DRAFTING

1. Maps for 19 counties have been completed, approved and printed.
2. Maps for 12 counties in progress.
3. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.
2. Preparation of maps for Highway Needs Study in progress.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety - continuing.
3. Layout, design and processing of maps and charts for 25th Biennial Report - in progress.
4. Art work for cover - April 1955 official highway map - completed. Layout and art work for reverse panel in progress.
5. Preliminary work for Highway Needs Study - in progress.
6. Billboard layouts "Welcome to Michigan" - in progress.
7. Perspective drawings for railroad crossings for signalization - in progress.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 12; County F.A.S. projects - 18; Bridge - 2. Others - 5.
2. Roadside control studies completed for 5 locations - studies in progress for 5 locations. 6 field investigations were made.
3. 48 driveway applications were reviewed and 2 field investigations made.
4. Program for revision of driveway standards: field work completed. Analysis and review in progress.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 1,789.
2. Referred to Maintenance Division for investigation - 59.
3. Referred to District Traffic Engineer for investigation - 14.
4. Accident study on three-mile section of four-lane undivided highway over four-year period - in progress.
5. Study of accident rates at Trunkline junctions in relation to existing traffic controls - inactive.

SPEED RESEARCH STUDIES

1. Special speed studies made at 21 permanent traffic recorder stations; computation and analysis - completed.
2. Analysis of speed data (24-hour periods) at 5 locations for determining: (a) time data should be taken; (b) establishing criteria; (c) determining speeds for speed zones - completed.
3. Speed studies for 12 selected sections of trunkline at 86 separate stations - completed.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 22 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 3 field investigations.
2. Special machine traffic counts were taken for 27 locations; turning movement counts taken at 24 of these locations; pedestrian counts at 6 of them, and vehicle classification count at 3. Data analyzed, recorded and submitted.
3. Annual loadometer survey taken at 9 selected stations - data coded and tabulated. Tables W-1 to W-6 completed and transmitted to B. P. R.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 202 short manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 29 permanent count stations - continuing (showing daily traffic volumes 1948 through 1953).
3. Preparation of traffic data for highway rating and programming completed for sections of 4 trunkline routes.
4. Special traffic data tabulations prepared for 4 locations.

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
November 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 65 counties; in progress for 3 counties.
2. Material prepared for coding; 61 counties completed; 1 in progress.
3. Coding completed for 51 counties; 2 in progress.
4. Key-punching and verifying: 49 counties completed -- rural and urban.
(Work done by IBM Section of Finance Division.)

STATE-WIDE TRAFFIC SURVEY

1. 314 twenty-four-hour machine counts were taken, checked and tabulated.
2. Schedule of counts for December completed and transmitted.
3. Traffic counts for 81 counties -- for 1951, 1952, 1953 and 1954 -- compiled.
4. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage -- continuing.

METROPOLITAN AREA TRAFFIC STUDIES

1. Kalamazoo -- Tabulating and analysis of O. D. data in progress. State Trunklines plan in process of revision -- temporarily inactive.
2. Pontiac -- Tabulation and analysis of O. D. data completed. Temporarily inactive.
3. Jackson -- Tabulation and analysis of O. D. data in progress.
4. Lansing -- Trunkline report in progress.
5. Niles -- Preparation of Trunkline plan in progress.
6. Battle Creek -- Inactive.
7. Flint -- Inactive.
8. Special short O. D. studies (external only) for cities under 10,000 population -- to determine percentage of through traffic and warrants for by-passes. Field work completed for 9 cities -- analysis of data completed for 3 cities; in progress for 5.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - ready for printing. Design of code sheets and punchcard form - ready for printing.
2. Special tabulations of data and information prepared for other divisions, departments, and others - 3 completed.
3. Preparation of material and data for 1955 Truck Operators map - completed and ready for printer.
4. Revision of Trunkline mileage log - in progress.
5. Revision of Trunkline route descriptions - in progress.
6. Revision of mileage chart for official highway map - in progress.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Estimate of vehicle miles of road and street use in 1953 and through September 1954 - completed.
3. Preliminary work and review of available data for Highway Needs Study - in progress.
4. Estimate of gross gallonage (exclusive of industrial and commercial naphtha) by months for 1953 - prepared for American Petroleum Institute.

HIGHWAY ECONOMICS RESEARCH

1. Development of method for expanding short-time turning movement counts to average daily - inactive.
2. Study of average cost of passenger car ownership and operation for Michigan registrations 1954 - completed.
3. Study of trends and forecasts of population, vehicle registration - commercial and passenger cars, persons per vehicle; development of graphs and curves - in connection with Highway Needs Study - in progress.
4. Assembling control station traffic count data for testing established traffic patterns - in progress.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Federal-Aid Secondary - Individual routes selected and submitted for Schoolcraft and Mackinac Counties.
2. Federal-Aid Secondary System - County System map revised and brought up-to-date for 15 counties.
3. Federal-Aid Primary System - Renumbering - temporarily inactive.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Analysis of state Trunklines for Highway Needs Study and programming: Condition and Sight Distance Survey completed for 9,000 miles; data in process of assembling and establishing of ratings.

MAPPING AND GENERAL DRAFTING

1. Maps for 19 counties have been completed, approved and printed.
2. Maps for 4 counties completed; transmitted to B. P. R. for review and approval.
3. Maps for 14 counties in progress.
4. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.
2. Preparation of maps for Highway Needs Study in progress.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety - continuing.
3. Layout, design and processing of maps and charts for 25th Biennial Report - 90% complete.
4. Layout and art work for reverse panel of April 1955 edition of official highway map - completed.
5. Preliminary work for Highway Needs Study - in progress.
6. Billboard layouts "Welcome to Michigan" - inactive.
7. Perspective drawings for railroad crossings for signalization - in progress.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 6; County F.A.S. projects - 27; Bridge - 4. Others - 8.
2. Roadside control studies completed for 4 locations - studies in progress for 6 locations. 6 field investigations were made.
3. 61 driveway applications were reviewed and 2 field investigations made.
4. Program for revision of driveway standards: field work completed. Analysis and review in progress.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 2,188.
2. Referred to Maintenance Division for investigation - 60.
3. Referred to District Traffic Engineer for investigation - 20.
4. Accident study on three-mile section of four-lane undivided highway over four-year period - completed.
5. Study of accident rates at Trunkline junctions in relation to existing traffic controls - inactive.
6. Accident study, before and after installation of flasher signal - completed for 1 location.

SPEED RESEARCH STUDIES

1. Speed studies for 4 selected sections of trunkline at 18 separate stations - completed.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 10 road projects were reviewed and analyzed for traffic operation and recommendations submitted; included 3 field investigations.
2. Special machine traffic counts were taken for 26 locations; turning movement counts taken at 23 of these locations; pedestrian counts at 3; pedestrian violation study at 1; vehicle time gap study at 3; speed study at 1. Manual vehicle classification count taken at 1 location. Data analyzed, recorded and submitted.
3. Annual loadometer survey taken at 9 selected stations - data coded and tabulated. Tables W-1 to W-6 completed and transmitted to B. P. R.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 223 short manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 30 permanent count stations - continuing (showing daily traffic volumes 1948 through 1953).
3. Preparation of traffic data for highway rating and programming completed for 59 sections of trunkline routes.
4. Special traffic data tabulations prepared for 2 locations.
5. Listing 200 highest hour counts at each station and comparison of per cent each hour of the average daily traffic - 85% complete for 1953; in progress for 1954.
6. Vehicle classification study at 4 permanent recorder stations initiated. To be conducted for one 24-hour period each month.

MICHIGAN
STATE HIGHWAY DEPARTMENT
Charles M. Ziegler
State Highway Commissioner

PLANNING AND TRAFFIC DIVISION

PROGRESS REPORT OF WORK PROGRAM
OF MICHIGAN HIGHWAY PLANNING SURVEY
December 1954

Activities of the Planning and Traffic Division included in the work program of the Highway Planning Survey, sponsored jointly by the Department and the Bureau of Public Roads, are reported as follows:

STATE-WIDE ROAD AND STREET INVENTORY

1. Field work completed for 66 counties; in progress for 3 counties - suspended until April 1, 1955.
2. Material prepared for coding; 61 counties completed; 1 in progress.
3. Coding completed for 51 counties; 2 in progress.
4. Key-punching and verifying: 49 counties completed - rural and urban. (Work done by IBM Section of Finance Division.)

STATE-WIDE TRAFFIC SURVEY

1. Portable traffic recorder counts discontinued in the December schedule: 197 manual 8-hour classification counts taken and tabulated.
2. Schedule of counts for January 1955 completed and transmitted.
3. Traffic counts for 83 counties - for 1951, 1952, 1953 and 1954 - compiled.
4. Periodic classification counts at Straits ferries to determine extent of foreign commercial usage - continuing.

METROPOLITAN AREA TRAFFIC STUDIES*

1. Jackson - Tabulation and analysis of O. D. data continuing.
2. Lansing - Trunkline report - inactive.
3. Niles - Preparation of Trunkline plan completed - submitted for review.
4. Special short O. D. studies (external only) for cities under 10,000 population - to determine percentage of through traffic and warrants for by-passes. Field work completed for 9 cities - analysis of data completed for 3 cities; in progress for 2.

* Progress retarded on these studies due to work on Highway Needs Study.

RECORDS AND ROAD LIFE

1. Preparation of codes and manual of instructions for Road Life tables and other purposes - completed. Design of code sheets and punchcard form - completed.
2. Special tabulations of data and information prepared for other divisions, departments, and others - 3 completed.
3. Preparation of material for 1955 spring edition of official highway map - completed.
4. Revision of Trunkline mileage log - in progress.
5. Revision of Trunkline route descriptions - in progress.
6. Revision of mileage chart for official highway map - in progress.
7. Annual revision of Control Section maps and descriptions in progress.

HIGHWAY FINANCE AND MOTOR VEHICLE STATISTICS

1. Monthly reports to B.P.R. prepared and transmitted:
motor fuel tax collections
registrations and weight tax
2. Preliminary work and review of available data for Highway Needs Study - in progress.
3. Estimate of annual debt service on a \$500,000,000 bond issue prepared.
4. Annual Finance and Motor Vehicle reports for B.P.R. - initiated.

HIGHWAY ECONOMICS RESEARCH

1. Development of method for expanding short-time turning movement counts to average daily - in process of review.
2. Study of trends and forecasts of population, vehicle registration - commercial and passenger cars, persons per vehicle; development of graphs and curves - in connection with Highway Needs Study - in progress.
3. Assembling control station traffic count data for testing established traffic patterns - 50% complete.
4. Preparation of method and determination of size of sample for determining needs in cities under 5,000 population - for Highway Needs Study.

HIGHWAY CLASSIFICATION AND SYSTEM SELECTION

1. Federal-Aid Secondary - Individual routes selected and submitted for Allegan, Houghton and Baraga Counties.
2. Federal-Aid Secondary System - County System map revised and brought up-to-date for 15 counties.

SPECIAL AND MISCELLANEOUS HIGHWAY STUDIES

1. Analysis of state Trunklines for Highway Needs Study and programming; Condition and Sight Distance Survey completed for 9,000 miles; data in process of assembling and establishing of ratings. Material in process of preparation for coding.
2. Traffic flow maps prepared showing:
 - (a) Origin and destination of traffic crossing the "Straits";
 - (b) Origin and destination of estimated future traffic (1976);
 - (c) Showing assignment of estimated 1976 traffic on "Straits Bridge" to selected routes;
 - (d) Showing estimated distribution of traffic to US-27 and proposed relocation of US-27 (Cheboygan County) - for 1953 traffic and estimated 1976 traffic.

MAPPING AND GENERAL DRAFTING

1. Maps for 19 counties have been completed, approved and printed.
2. Maps for 4 counties completed; approved by B.P.R. - at printers.
3. Maps for 4 counties completed - submitted to B.P.R. for review and approval.
4. Maps for 11 counties in progress.
5. Preparation of special maps and sketch maps - continuing.

SPECIAL MAPPING ASSIGNMENTS

1. Preparation of assembled county maps for Lower Peninsula for State Police - inactive.
2. Preparation of maps for Highway Needs Study in progress.

GRAPHIC DESIGN

1. Preparation of charts and maps for Metropolitan Area traffic studies - continuing.
2. Layout, design and processing of roadside posters for traffic safety - continuing.
3. Layout, design and processing of maps and charts for 25th Biennial Report - completed.
4. Work for Highway Needs Study - in progress.
5. Billboard layouts "Welcome to Michigan" - inactive.
6. Perspective drawings for railroad crossings for signalization - in progress.

TRAFFIC PLANNING

1. Traffic estimates prepared: Road Location and Design - 6; County F.A.S. projects - 27; Bridge - 4. Others - 8.
2. Roadside control studies completed for 2 locations - studies in progress for 6 locations. 4 field investigations were made.
3. 54 driveway applications were reviewed and 3 field investigations made.
4. Program for revision of driveway standards: field work completed. Analysis and review in progress. Preliminary layouts started.
5. Analysis for traffic operations made for 13 locations and recommendations submitted. 4 field investigations made.

TRAFFIC ACCIDENT ANALYSIS

1. Accident reports reviewed and analyzed - 2,661.
2. Referred to Maintenance Division for investigation - 119.
3. Referred to District Traffic Engineer for investigation - 14.
4. Accident study made for 4 by-passes - report in progress.
5. Study of accident rates at Trunkline junctions in relation to existing traffic controls - inactive.

SPEED RESEARCH STUDIES

1. Speed studies for 8 selected sections of trunkline at 84 separate stations - completed.
2. Report on increase of average speeds from 1950 to 1953 at 4 permanent traffic recorder stations - prepared.

OPERATIONAL TRAFFIC STUDIES

1. Plans for 27 road projects were reviewed and analyzed for traffic operation and recommendations submitted. Recommendations submitted for 13 other locations; included 4 field investigations.
2. Special machine traffic and turning movement counts were taken for 7 locations. Manual vehicle classification count taken at 1 location and turning movement taken at 1 location.
3. Annual loadometer survey taken at 9 selected stations - data coded and tabulated. Tables W-1 to W-6 completed and transmitted to B.P.R.

PERMANENT TRAFFIC RECORDERS

1. Data from 30 permanent count stations collected and reported; 172 short manual classification counts taken at permanent recorder stations.
2. Monthly traffic volume graphs for each of the 30 permanent count stations - continuing (showing daily traffic volumes 1948 through 1954).
3. Preparation of traffic data for Highway Needs Study completed for 51 sections of trunkline routes.
4. Special traffic data tabulations prepared for Lenawee County; for 6 sections of trunkline routes and for 24 other locations on trunklines.
5. Listing 200 highest hour counts at each station and comparison of per cent each hour of the average daily traffic - complete for 1953; 60% complete for 1954.
6. Vehicle classification study at 4 permanent recorder stations initiated. To be conducted for one 24-hour period each month. Classification counts made at stations no. 607 and no. 611.
7. Tabulated traffic data for cities over 5,000 population (93 cities) for Highway Needs Study purposes.