

| | | | |
|--|--------------------------------------|---|--------------------------------------|
| 1. Report No. UM-HSRI-77-54-1 | 2. Government Accession No. | 3. Recipient's Catalog No. | |
| 4. Title and Subtitle Michigan Transportation Research Program Annual Report for Fiscal Year 1976-1977. Volume 1. | | 5. Report Date Sept. 1977 | 6. Performing Organization Code |
| | | 8. Performing Organization Report No. UM-HSRI-77-54-1 | |
| 7. Author(s) J. M. Witkowski, L. E. Newland | | 10. Work Unit No. (TRAIS) | 11. Contract or Grant No. 76-1823 |
| 9. Performing Organization Name and Address Michigan Transportation Research Program Highway Safety Research Institute University of Michigan Ann Arbor, Michigan 48109 | | 13. Type of Report and Period Covered Annual report Oct. 1, 1976-Sept. 30, 1977 | |
| | | 14. Sponsoring Agency Code | |
| 12. Sponsoring Agency Name and Address Michigan State Highway Commission Michigan Department of State Hwys. & Trans. Box 30050, State Highways Building Lansing, Michigan 48909 | | | |
| 15. Supplementary Notes | | | |
| 16. Abstract The first year's progress of the Michigan Transportation Research Program (MTRP) is reported. MTRP is an inter-university, inter-industry organization to support the research and demonstration program formulations and evaluations of the Michigan Department of State Highways and Transportation, and other elements of state government as appropriate. Committee and staff activities of MTRP are reviewed and project formulations are described. The planned activities for next year are outlined. | | | |
| 17. Key Words | | 18. Distribution Statement | |
| 19. Security Classif. (of this report) | 20. Security Classif. (of this page) | 21. No. of Pages | 22. Price |

ACKNOWLEDGEMENT

The management and staff of the Michigan Transportation Research Program (MTRP) deeply appreciate the time and effort devoted to MTRP by its many participants. In particular, Michigan firms and universities have supported the voluntary participation of their members in committee activities, working sessions, and efforts directly contributing to the birth and progress of MTRP in assisting state government to develop needed and innovative transportation research and analysis activities. Their contributed activities have extended to the national level as well, and their concepts and perspectives have served to shape the evolution, growth, and planned activities of this unique program for the future.

The sponsorship and support of the Michigan State Highway Commission: Chairman Mr. Peter Fletcher; Vice-Chairman Mr. Carl V. Pellonpaa; Commissioner Mr. Hannes Meyers, Jr.; and Commissioner Dr. Weston E. Vivian, has been essential to the existence and success of MTRP. Mr. John Woodford, Director of the Michigan Department of State Highways and Transportation and Mr. Charles Uray, Chief Deputy Director, have offered suggestions and advice on the scope of activities of MTRP.

Mr. James C. Kellogg, Deputy Director of the Bureau of Urban and Public Transportation and his many staff members have been especially helpful and supportive. In particular, acknowledgement is made to Mr. Ivan Bartha, Mr. Fred Lammert, Mr. Wolf Mueller, and Mr. Les Sinclair for their participation in MTRP committee and staff activities. Special acknowledgement is made to Mr. Thomas Lebovic who has worked closely and tirelessly with the MTRP staff and committees, performing valuable liaison and day-to-day support of MTRP activities.

Special mention should be made of the encouragement and support given to MTRP by Senator David Plawecki, Representative William Ryan, Representative Thomas Anderson, Representative Michael Conlin, and the Transportation Quadrant Committee and their staffs of the Michigan State Legislature.

To the many individuals, too numerous to identify, who have given their assistance, information, and support to MTRP in a multitude of ways, we express our appreciation. Without the help of all those mentioned here, the establishment of this new form of inter-governmental, inter-industry, inter-university activity would not have been possible. Because of the unique

cooperative spirit embodied in MTRP, a new model for state and local level technical and scientific activities and knowledge transfer is emerging which is benefitting Michigan, which may be transferrable to other states and regions, and which can support the thoughtful and efficient evolution of the national transportation system.

Table of Contents

| <u>Volume I</u> | <u>PAGE</u> |
|--|-------------|
| 1.0 Introduction..... | 1 |
| 1.1 Overview of Fiscal 1976-1977..... | 4 |
| 1.2 Overview of the coming year..... | 5 |
| 2.0 Activities of the MTRP Committees..... | 7 |
| 2.1 The Advisory Committee..... | 7 |
| 2.2 The Ad Hoc Committees..... | 12 |
| 2.2.1 Energy Efficiency Ad Hoc Committee..... | 12 |
| 2.2.2 Ad Hoc Committee for the Michigan Car-on-Trains Project..... | 14 |
| 2.2.3 Ad Hoc Committee for the Review of the MDSH&T UPTRAN 1977-78 Demonstration and Development Program..... | 16 |
| 2.2.4 Bus Evaluation Ad Hoc Committee..... | 18 |
| 2.2.5 Hybrid-Electric Bus Ad Hoc Committee..... | 20 |
| 2.2.6 Ad Hoc Committee on Transportation for Mobility-Limited Persons...22 | 22 |
| 2.2.7 Ad Hoc Committee on Transportation and Urban Geography/Demography..23 | 23 |
| 3.0 Other activities..... | 24 |
| 3.1 Assistance to other state agencies..... | 24 |
| 3.2 Energy Contingency Plan..... | 25 |
| 3.3 Transportation Energy White Paper..... | 25 |
| 3.4 Long Range MTRP Planning Methodology..... | 26 |
| 3.5 Federal Funding..... | 27 |
| 3.6 MTRP News Letter..... | 28 |
| 3.7 Contacts with other states..... | 28 |
| 3.8 Keewenaw Research Center..... | 28 |
| 3.9 Liaison with Delta Nu Alpha..... | 29 |

Annual Report
of the
Michigan Transportation Research Program
Fiscal Year 1976-1977

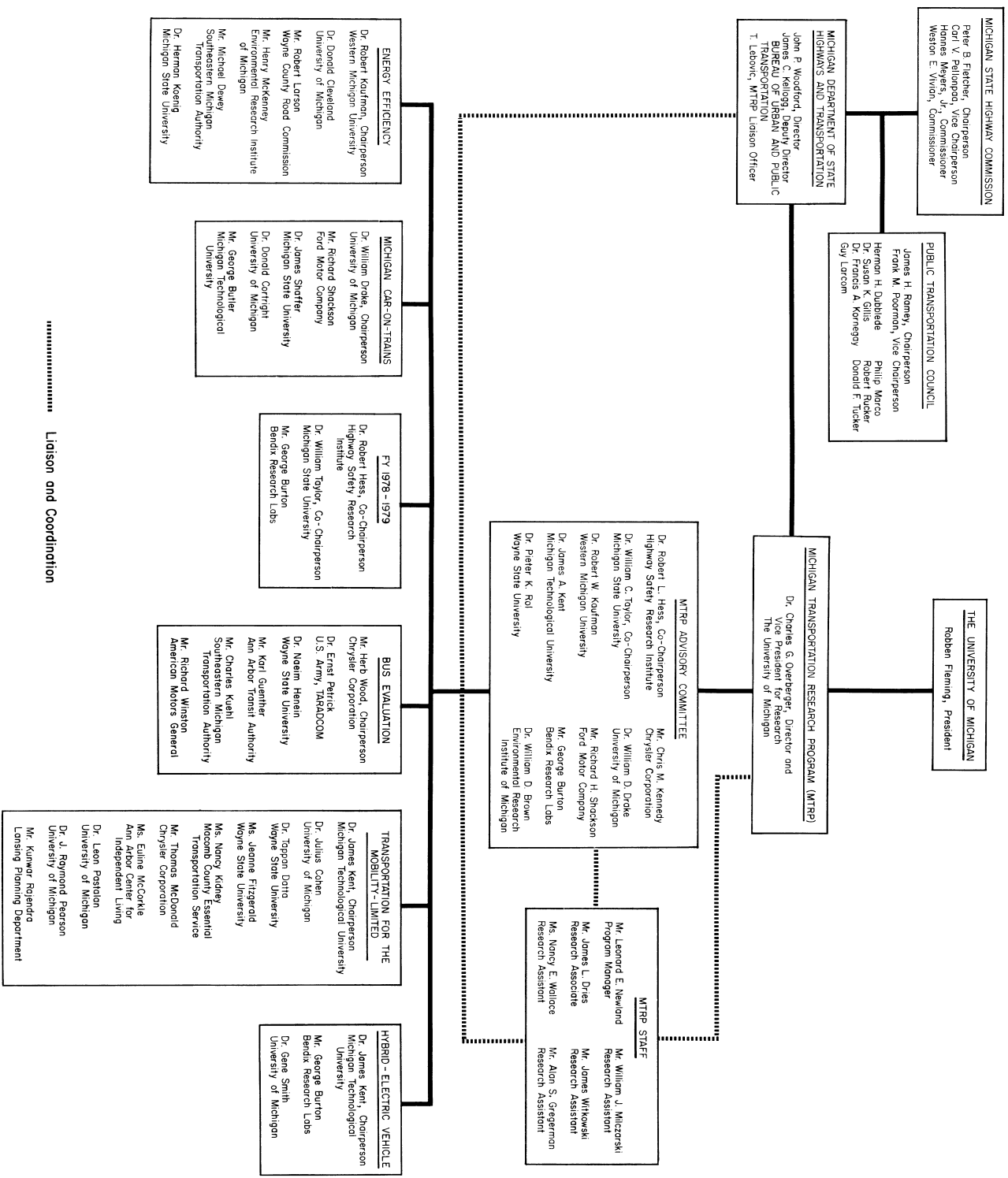
1.0 Introduction

This report is a review of the first year's activities of the Michigan Transportation Research Program (MTRP). The emphasis in this report is on the activities of the final quarter of fiscal year 1976-1977. However, a summary of the first three quarters of FY76-77 is also contained. Detailed reviews of the first three quarters of FY76-77 are contained in the Quarterly Progress Reports issued previously.

The MTRP began operating in October, 1976, as a result of Governor Milliken's 1975 proposal to the Michigan State Legislature that academic and business resources in Michigan be organized to assist the state government in formulating transportation research, demonstration, and development programs. The MTRP is funded by the Michigan State Highway Commission through the Michigan Department of State Highways and Transportation (MDSH&T) and its Bureau of Urban and Public Transportation (UPTRAN). Members of the MDSH&T participate in MTRP on a coordinating basis. Figure 1 shows the MTRP organization.

The MTRP is directed by Dr. Charles G. Overberger, Vice-President for Research at The University of Michigan, with the general program activities guided by the co-principal investigators, Dr. William C. Taylor, Chairperson of the Department of Civil Engineering, Michigan State University, and Dr. Robert L. Hess, Director of the Highway Safety Research Institute, The University of Michigan. A state-wide Advisory Committee supports the Program Director and is co-chaired by the principal investigators. It is composed of academic and business professionals noted for their contributions to transportation research and transportation-related endeavors. Ad hoc committees are formed by the Advisory Committee, using experts from the academic and business

Organization of the Michigan Transportation Research Program, FY 1976-1977



Ad Hoc Committees

communities to prepare research projects and recommendations on specific transportation subjects. The ad hoc committees currently active in the Program are shown in Figure 1.

The purposes of MTRP are to formulate, recommend, conduct, manage, and procure useful research and analysis activities which will achieve the following goals as approved by the Advisory Committee and Program Director in April, 1977.

- (1) To identify and coordinate transportation research and analysis expertise in the academic and private sectors of Michigan to assist and support the Michigan Department of State Highways and Transportation and other elements of state government as appropriate in the planning, improvement and continued development of the Michigan transportation system.
- (2) To increase transportation research, analysis, demonstration, and educational activities in Michigan through increased federal and other non-state funding to provide a broader resource base to support state government activities, private sector development, and transportation systems operations.
- (3) To develop an understanding of the relationship between transportation and economic development and to recommend or identify areas for initiatives and methods of stimulating economic development in Michigan through the improvement of existing transportation systems, and the identification of innovative transportation systems, operations and products.
- (4) To obtain information, experience, and methods of information analysis to develop a better understanding of Michigan's needs to move people and freight and to show the impacts of alternative actions on the environment, energy, safety, fiscal costs, and equity.

1.1 Overview of FY76-77

During the beginning of the first year the primary effort was in organizing the Program, reviewing the current and presently projected research and demonstration programs for UPTRAN, recommending changes or additions and beginning the analysis of Michigan's future transportation research needs. Much of the early program activity focused on the review and identification of state research and demonstration program needs. These activities were conducted by the staff and by the FY77-78 Demonstration and Development Ad Hoc Committee. Other ad hoc committees were established as specific research topics or areas of interest were identified.

During the first year, MTRP extended its compiled expertise to other state agencies. Requests from the State Quadrant Committee, the State Legislature, and the Michigan Aeronautics Commission, resulted in three research papers and a draft of a request for proposal (RFP) to be used in the development of a new state airport development management system.

Other program efforts have resulted in the conceptualization of a long-range transportation planning methodology for the MTRP. The personnel have been assembled for the development of a white paper on transportation energy which will focus on the problems and issues facing the State and an RFP has been developed and circulated for the development of a short-range transportation energy contingency plan for Michigan. Also, the Advisory Committee is currently reviewing a proposal submitted to the Program for a preliminary study on the safety aspects of small bus public transportation. In an effort to expand program visibility and generate outside interest, the publication of the MTRP Newsletter began during this first year.

Considerable emphasis has been placed on Program efforts to obtain federal funding in support of MTRP activities. Several trips to Washington have been made by the MTRP staff. Initial federal reaction to the Program has been most promising. A concept paper describing the potential for interaction between the MTRP and the President's Office of Science and Technology Planning has been developed and sent to the Office of the Secretary of

Transportation, Assistant Secretary for Governmental Affairs. Recent interest from the Urban Mass Transit Authority (UMTA) in life cycle costing for bus procurement has opened another avenue for potential federal assistance. Life cycle costing for small bus procurement is one of the current research topics being pursued by the Bus Evaluation Ad Hoc Committee of the MTRP. The activities of the Ad Hoc Committee on Transportation for the Mobility-Limited also promise to stir interest at the federal level.

The MTRP organization has also come to the attention of other state governments. The MTRP is a unique organization at the state level, and as such its progress and success could act as the catalyst for the establishment of similar programs in other states. While other states have established staff or advisory organizations for the utilization of science and technology in state government, no other organization of academic and industrial participants has been specifically assigned the task of advising government on transportation research.

1.2 Overview of the Coming Year

During the coming year the MTRP will broaden its activities, with emphasis on the development and implementation of federal and federal-state funded programs. Ongoing projects of this type will be continued and implemented. These are: longer-term transportation energy contingency plan; hybrid-electric small bus; life cycle procurement of small buses; SEMTA accessibility corridor demonstration evaluation; and projects in support of the President's Office of Science and Technology Policy (OSTP). In addition, new projects which could be candidates for funding by the federal government or through federal-state joint funding will be identified and developed, and, as feasible, implemented.

Emphasis will also be placed on identifying and executing short-term studies of immediate benefit to the MDSH&T demonstration, development, and planning activities. These studies will be developed from requests from MDSH&T and proposals from MTRP. Also, MTRP will continue to consider study and informational requests from the Michigan State Legislature and elements of the executive branch of the state government.

The near-term longer-range research planning methodology currently under development by MTRP will be used in the coming year to develop recommendations for the evolution of Michigan's transportation system, to identify emerging problems the state government will face, to identify alternative actions which state government can take, to identify emerging opportunities for Michigan's private sector, and to formulate programs for federal funding of particular interest to the State of Michigan.

In support of these ongoing and new activities, the MTRP Advisory Committee will be expanded in membership and representation. Additional members from Michigan's industrial and business communities will be invited to serve on the Committee, and additional ad hoc committees will be appointed in new project areas.

2.0 Activities of the MTRP Committees

2.1 The Advisory Committee

First Quarter (October 1, 1976 - December 31, 1976)

Organization of the Advisory Committee was completed during this quarter and the first meeting was held on November 18, 1976. The scope of the committee activities was outlined and a mechanism for research development was established. This method originally consisted of the formation of standing panels to review broad impact areas and define research projects, and ad hoc committees created to evaluate specific research projects. This approach was subsequently revised by eliminating the panel concept. The Advisory Committee is now charged with the review of broad impact areas, with ad hoc committees established to evaluate these research areas, and also to formulate and monitor specific research projects.

Several potential research areas were discussed and an investigation concerning the activities of other states in determining their transportation needs was initiated. Details of these activities are contained in the Quarterly Progress Report for this period.

Second Quarter (January 1, 1977 - March 31, 1977)

Advisory Committee meetings were held on January 13, 1977 and February 19, 1977.

Major Actions:

- I. As a result of action* by the Advisory Committee, the Program Director recommended three research projects to MDSH&T/UPTRAN. The Deputy Director of UPTRAN agreed

and requested that MTRP conduct or procure the recommended research. Four ad hoc committees were formed. They were:

- A) Ad Hoc Committee for the Michigan Car-on-Trains Project
- B) Ad Hoc Committee for the Energy Efficiency Analysis Project
- C) Ad Hoc Committee for the Review of the MDSH&T/UPTRAN 1977-78 Demonstration and Development Program
- D) Ad Hoc Committee for the Small Bus Evaluation Project.

II. Review of Work Statements for the Michigan Car-on-Trains and the Energy Efficiency Analysis Projects.

III. Initial development of MTRP goals and objectives.

IV. Allocation of \$6,000 to retain a consultant to review the state of the art regarding vessels suitable to perform the passenger and freight carrying tasks implied in Representative Michael Conlin's request regarding ferry service across Lake Michigan.

V. Allocation of \$3,500 to produce a handbook on transportation financing mechanisms, and selection of Dr. Francis X. McKelvey of Michigan State University to prepare this document.

Details of these activities are contained in the Quarterly Progress Report for this period.

Third Quarter (April 1, 1977 - June 30, 1977)

Major Actions:

- I. In a continuing effort to promote research on topics of state-wide interest, two new ad hoc committees were formed. They were:
 - A) The Hybrid-Electric Vehicle Demonstration Program Ad Hoc Committee
 - B) The Ad Hoc Committee on Transportation for the Mobility-Limited.
- II. Approval of statement of MTRP goals and objectives.
- III. Approval of work plans for:
 - A) Car-on-Trains study
 - B) Energy Efficiency Analysis Project
- IV. Allocation of \$10,000 to prepare a White Paper on transportation energy for the State and selection of consultants to to prepare this paper.
- V. Approved prioritization of FY77-78 Demonstration and Development Program for UPTRAN.
- VI. Staff report entitled Review of Research Evidence Bearing on the Desirability of Using Retroreflective License Plates in Michigan was reviewed and submitted to Representative Anderson (a report written in response to a specific request by Representative Anderson).

VII. Adoption of procedures for the:

- A) Review of proposed research projects
- B) Disposition of information requests
from the Michigan Legislature

VIII. Review of the McKelvey report entitled "Alternative Funding Mechanisms for Public Transportation in Michigan" Recommendation that the report be revised before being issued as an MTRP document.

IX. Initiation of the development of an appropriate method for dealing with the review of proprietary devices and materials.

X. Approval of the continuation of the activities of the FY77-78 UPTRAN Demonstration and Development Ad Hoc Committee for FY78-79, with appropriate change in the Ad Hoc Committee name and delegation of the authority to approve prioritization of the research.

Details of these activities are contained in The Quarterly Progress Report for this period.

Fourth Quarter (July 1, 1977 - September 30, 1977)

The Advisory Committee met twice during this final quarter, on August 10, 1977 and September 29, 1977. Minutes of these meetings are contained in the Appendix of this report.

Major Actions:

I. Acceptance and approval of the preliminary report on the Cross-Lake-Michigan Ferry study.

- II. Approval of a request for proposal for a Short-term Transportation Energy Contingency Plan for Michigan. This RFP was also sent out for competitive bids during this quarter. A copy of the RFP is contained in the Appendix.

- III. Approval of a revised charge to the Ad Hoc Committee on Transportation for the Mobility-Limited.

- IV. Acceptance for review of a proposal from the Keweenaw Research Center, Michigan Technological University, on preliminary Study on the Safety Aspects of Small Bus Public Transportation Systems (Contained in the Appendix).

- V. Approval of the allocation of funds to the Ad Hoc Committee on Transportation for the Mobility-Limited for the purpose of developing a draft research design for the evaluation of the SEMTA Demonstration of Corridor Vehicle Accessibility in Metropolitan Detroit. The Advisory Committee urged the Ad Hoc Committee to pay particular attention to:
 - A) The implicit longer-term public policy issues of national as well as state concern.

 - B) The issue of providing service to all mobility-limited persons through:
 - 1. system wide equipment capabilities
or
 - 2. selective and highly focused sub-systems (specialized transportation, small buses).

2.2 Ad Hoc Committees

2.2.1 Energy Efficiency Ad Hoc Committee

This Ad Hoc Committee was formed during the second quarter of FY76-77. The charge of the Advisory Committee to this Ad Hoc Committee was in the form of three questions:

1. Should the proposal from the Michigan Department of State Highways and Transportation that MTRP accept the funds for the recommended project (Energy Efficiency Analysis) and conduct and/or procure the research be accepted.
2. If so, what methodology and scope of work is appropriate?
3. What capabilities are necessary to conduct the analysis? Can individuals and/or organizations in Michigan be identified as sources for conducting the analysis?

Second Quarter (January 1, 1977 - March 31, 1977)

This Committee met ~~once~~ during this quarter, on February 7, 1977.

Major Actions:

- I. Approval of a recommendation to the Advisory Committee that the MTRP accept funds from the MDSH&T and that the funds be used to formulate, procure, monitor, and evaluate the Energy Efficiency Analysis project.
- II. Approval to accept the recommended Energy Efficiency Analysis project as presented in the "Statement of Work". (This "Statement of Work" is contained in the Quarterly Progress

Report, January 7, 1977 - March 31, 1977. It was subsequently revised as per recommendations by the Advisory Committee into a "Work Plan" which is contained in the Quarterly Progress Report, April 1, 1977 - June 30, 1977.)

Details of these actions are contained in the Quarterly Progress Report for this period.

Third Quarter (April 1, 1977 - June 30, 1977)

This Ad Hoc Committee met three times during this quarter, on April 7, May 25, and June 16, 1977.

Major Actions:

I. The Ad Hoc Committee agreed to recommend to the Advisory Committee:

- A) That program funds not to exceed \$10,000 be authorized to procure a "white paper" for publication and public distribution representing a position of the MTRP concerning the strong probability and significance of transport and other energy shortages within the next few years, the implications of this for Michigan, and a methodology for total energy planning at the local-regional level ("energy task forces").
- B) That the statement of work be revised and incorporated in a package for competitive bidding to potential sources to be recommended by the Ad Hoc Committee subsequently, and in terms of timing, the "white paper" recommended above, and the transportation energy contingency plan (energy efficiency analysis) should proceed

simultaneously.

- C) That a follow-on study and program be developed for region specific transportation energy planning.

- II. Revision of the original Statement of Work into a Work Plan for the Energy Efficiency Analysis Project.
- III. Selection of the task force to prepare the Transportation Energy White Paper.

Details of these activities are contained in the Quarterly Progress Report for this period.

Fourth Quarter (July 1, 1977 - September 30, 1977)

The Ad Hoc Committee did not meet during this quarter. However, progress was continued through staff activities and the activities of the white paper task force.

Major Actions:

- I. Development and circulation by staff of an RFP for the Short-Term Transportation Energy Contingency Plan. (See Appendix for RFP).
 - II. Initiation of Transportation Energy White Paper by Task Force.
- 2.2.2 Ad Hoc Committee for the Michigan Car-on-Trains Project

This Ad Hoc Committee was formed during the second quarter of FY76-77. The charge of the Advisory Committee to the Ad Hoc Committee is in the form of three questions:

- 1. Should the proposal from the Michigan Department

of State Highways and Transportation that MTRP accept the funds for the recommended project (Michigan Car-on-Trains) and conduct and/or procure the research be accepted?

2. If so, what methodology and scope of work is appropriate?
3. What capabilities are necessary to conduct the analysis? Can individuals and/or organizations in Michigan be identified as sources for conducting the analysis?

Second Quarter (January 1, 1977 - March 31, 1977)

This committee met on February 9, 1977.

Major Actions:

- I. Approval of recommendation that MTRP accept funds from MDSH&T to conduct or procure the research involved in this project.
- II. Modification and approval of the scope of work for this project and initiation of a statement of work.
- III. Decision to negotiate a contract for this project rather than conducting a competitive bid procedure.

The details of these activities are contained in the Quarterly Progress Report for this period.

Third Quarter (April 1, 1977 - June 30, 1977)

This committee did not meet during this quarter. However, significant progress was realized through staff activities.

Major Actions:

- I. Completion of project Work Plan
- II. Submission of request to MDSH&T for acquisition of relevant origin and destination data.
- III. Preliminary negotiations of consulting arrangements.

Details of these activities are contained in the Quarterly Progress Report for this period.

Fourth Quarter (July 1, 1977 - September 30, 1977)

Project continuation is contingent upon obtaining sufficient origin and destination travel data for Michigan and its environs. The data available from MDSH&T was obtained late in the fourth quarter and at the time of this writing it was being reviewed by staff and the ad hoc committee.

2.2.3 Ad Hoc Committee for the Review of the MDSH&T UPTRAN 1977-78 Demonstration and Development Program.

This committee was formed during the second quarter of this year. There was no formal charge developed for this committee, however, its general function is the review and the evaluation of the research content of proposed UPTRAN demonstration and development projects.

Second Quarter (January 1, 1977 - March 31, 1977)

This committee met twice during this quarter, on February 5 and March 28, 1977.

Major Actions:

- I. Charged staff with evaluating and ranking the 1977-78 UPTRAN Demonstration and Development Program based on a project's "researchability."

II. Review of project proposals submitted by Representative Conlin of The Michigan Legislature.

- A) Recommendation that staff assisted by a consultant propose an analysis of the potential for improved Cross-Lake Michigan Ferry Service for both rail transportation and passenger-auto transportation.
- B) Recommendation that the Bureau of Planning of the MDSH&T be approached indicating that MTRP would be willing to support any activity concerned with the analysis of light-density rail lines with regard to the development of a formula for determining subsidy within the State of Michigan.
- C) Recommendation to the Advisory Committee that an investigation concerning assumptions in the SEMTA study and studies by the Wayne County Road Commission, and Oakland County, is worthwhile and supportive of legislative activities.
- D) Recommendation that an ad hoc committee be established to study the benefit cost analysis of rail passenger subsidy in Michigan.
- E) Recommendation to the Advisory Committee that an analysis of alternative financing programs for public transportation be prepared as a "handbook" for reference by the Quadrant Committee and the legislature.

III. Recommendation that the Advisory Committee consider the formation of an ad hoc committee to study the Hybrid-Electric Bus.

IV. Recommendation to the Advisory Committee that an ad hoc committee be formed to assume general responsibility for

possible research into the mobility problems of the elderly and handicapped.

Details of these activities are contained in the Quarterly Progress Report for this period.

Third Quarter (April 1, 1977 - June 30, 1977)

This committee did not meet during this quarter. However, staff efforts continued on the review and prioritization of the UPTRAN FY77-78 Demonstration and Development Program.

Fourth Quarter (July 1, 1977 - September 30, 1977)

This committee met once during the fourth quarter. The minutes of that meeting are contained in the Appendix.

Major Actions:

- I. Final approval of the review and prioritization of the UPTRAN FY77-78 Demonstration and Development program. (See Appendix for the Prioritization procedure and the Staff Evaluation of the 1977-78 UPTRAN Demonstration and Development program.)
- II. Initiation of evaluation of the FY1978-1979 UPTRAN Demonstration and Development Program. Recommendations to UPTRAN developed for the following projects: (1) energy efficiency, (2) mobility-limited demand analysis, (3) branch line rail analysis.

2.2.4 Bus Evaluation Ad Hoc Committee

This committee was established during the second quarter of the first year. The first meeting of this committee was held on March 22, 1977.

The charge of the Advisory Committee to the ad hoc committee is in the form of three questions:

1. Should the proposal of the Michigan Department of State Highways and Transportation that MTRP receive the funds for the recommended project and conduct and/or procure the research be accepted?
2. If so, what methodology and scope of work is appropriate?
3. What capabilities are necessary to conduct the analysis? Can individuals and/or organizations in Michigan be identified as sources for conducting the analysis?

Second Quarter (January 1, 1977 - March 31, 1977)

Major Actions:

- I. Approval to accept State funds to conduct this project.
- II. Approval of the scope of work for the development of a life cycle cost model for small buses.

Details of this quarter and the scope of work for this project are contained in the Quarterly Progress Report for this period.

Third and Fourth Quarters (April 1, 1977 - June 30, 1977 & July 1, 1977 - September 30, 1977)

This committee did not meet during that latter half of the first year, however, significant advances were made, through staff activities, towards furthering the development of a life-cycle cost methodology. Meetings with representatives of the U.S. Army Tank Automotive Research and Development Command (TARADCOM)

have resulted in the draft of a study plan of a cost benefit analysis of small transit vehicles (see Appendix). TARADCOM has conducted a life-cycle cost analysis on buses for transportation of ambulant adults, and they have tentatively agreed to initiate the study plan based on data supplied by the Ann Arbor Transportation Authority. (See Appendix for Meeting Report.) At the time of this writing, the MTRP is awaiting a response from TARADCOM on the potential of establishing a contract for the performance of the study plan.

The Federal Urban Mass Transportation Administration (UMTA) has presently contracted for the development of a Life-Cycle Costing Methodology for large transit vehicles. The MTRP is actively pursuing UMTA support of its efforts in this area.

2.2.5 Hybrid-Electric Bus Ad Hoc Committee

This committee was formed during the third quarter of this year. The charge to this committee is to:

1. Review the technical and developmental aspects of a hybrid-electric bus prototype development and a demonstration plan for a combined Michigan-based program.
2. Review the capabilities and interests of Michigan firms and/or individuals to be involved in such a program.
3. Develop a strategy for organizing a Federal-State funding program for this project and recommend to the Advisory Committee:
 - a) Whether a combined prototype development and demonstration program, or some other alternative program should be pursued,

- b) how the State monies might best be used,
- c) what Michigan sources should be involved,
- d) and what the estimated cost and duration of an overall program might be.

Third Quarter (April 1, 1977 - June 30, 1977)

Several meetings were held during this period to discuss the general strategy and options concerning the ERDA Electric and Hybrid-Electric Demonstration Program. Discussions were held with representatives of Ford and Chrysler, and a meeting was held with AM-General Corporation to determine the extent to which these companies would care to participate with the ad hoc committee. Details of those meetings are contained in the Quarterly Progress Report for this period.

Fourth Quarter (July 1, 1977 - September 30, 1977)

This committee did not meet formally during this quarter, however, discussion continued on ways and means of bringing a hybrid-electric bus demonstration to the State of Michigan. A question arose as to the local implications of MTRP testing or evaluating a proprietary device, and as of this writing legal assistance is being sought on this matter. A trip was made to the Jet Propulsion Laboratory in Pasadena, California (the JPL will function as ERDA's project office for complete systems analysis, construction and demonstration of hybrid vehicles), to explain the ad hoc committee activities, and to assess the potential for ERDA activity in Michigan through MTRP. The trip report is contained in the Appendix.

2.2.6 Ad Hoc Committee on Transportation of Mobility-Limited Persons

This committee was created during the third quarter, but did not formally meet until the fourth quarter of this year. The first meeting of this committee was held on September 23, 1977. Minutes of this meeting are contained in the Appendix. The original charge from the Advisory Committee to this Ad Hoc Committee was to:

- (1) Perform technical monitoring and research in support of MDSH&T/UPTRAN demonstration projects for FY77-78 that deal with transportation of mobility-limited persons.
- (2) Recommend specific research and demonstration projects for transportation of mobility-limited persons for FY78-79.
- (3) Develop a framework for conducting mid-range (5-10 years) research in the area of transportation of the mobility-limited. In preparing this framework, consideration would be given to the impacts of changing demographic patterns in the State, and their implications for future travel patterns and needs of the mobility-limited.
- (4) Develop criteria for defining mobility-limited. In formulating these criteria, federal and state regulations would be reviewed and the impact of these regulations on public transportation would be studied.

This change was subsequently revised by the Ad Hoc Committee and approved by the Advisory Committee. The revised change reads:

- (1) Perform technical monitoring, develop materials (including, but not limited to, coordination and training materials), and recommend specific research and demonstration projects relative to transportation of mobility-limited persons.

- (2) Develop a plan for carrying out long-term research relative to transportation for the mobility-limited. Consideration will be given to the impacts of changing demographic patterns in the State and the effect of various public policies concerning transportation services for the mobility-limited.

Fourth Quarter (July 1, 1977 - September 30, 1977)

Major Actions:

- I. Revision of Committee charge
- II. Recommendation to the Advisory Committee that this Ad Hoc Committee undertake an evaluation of the SEMTA Demonstration of Corridor Vehicle Accessibility in Metropolitan Detroit. (The proposal for this project, as developed by SEMTA, is contained in the Appendix.)

2.2.7 Ad Hoc Committee on Transportation and Urban Geography/Demography

This ad hoc committee was in the formulation stage during this first year. Staff activities focused on the definition of the scope of activities for this committee and the solicitation of vitae from potential members. (See Appendix for additional vitae.) In general, this committee will be formed to study the relationships between transportation and urban development. As of this writing a formal charge has not been approved by the Advisory Committee.

3.0 Other Activities

3.1 Assistance to State Agencies.

During the first year, the MTRP established an informal policy to assist state agencies in the disposition of transportation related problems or questions. On several occasions, specific requests from members of the state government or a state agency resulted in the compilation of resource material and generation of a research report.

Specific requests from the State Quadrant Committee resulted in:

- (1) The allocation of \$3,000 for the first draft of a resource paper prepared by Dr. Francis X. McKelvey of Michigan State University on alternative funding mechanisms for public transportation in Michigan was presented to the Advisory Committee for review. When completed, this paper will be published by MTRP. This document is presently being revised and will be issued as an MTRP report in the coming year.
- (2) The allocation of \$6,000 for a study of the Cross Lake Michigan Ferry alternatives by Professor Harry Benford of The University of Michigan's Department of Naval Architecture and Marine Engineering.

Results of this study indicate that air-cushion vehicles for autos and passengers similar to British hovercraft are operationally feasible and economically competitive with conventional hull designs. These vehicles could reduce a 4½ hour crossing to one hour. The possible implications for tourism are significant. Presentation of the findings to the Advisory Committee, UPTRAN, representatives of the Department of Commerce and the Michigan Travel Commission, and the Quadrant Committee were all well received. This report will be published in the coming year.

A staff report was completed during the third quarter entitled Review of Research Evidence Bearing on the Desirability of Using Retroreflective License Plates in Michigan. This report initiated from a request by Representative Thomas J. Anderson. After review, the Advisory Committee transmitted the report to the state with a note that it is not a recommendation.

In response to a request from Mr. J. D. Ramsey, Deputy Director, Bureau of Aeronautics, the MTRP staff assisted in the development of the research concept for the input phase of the Airports Development Management System. This resulted in the draft of an RFP to be used in the development of this project. (See Appendix for copy of RFP.)

In response to requests by the UPTRAN staff, the MTRP staff (1) reviewed an UPTRAN position paper on transportation energy during the fourth quarter, and (2) prepared a report entitled, A Concise Annotated Bibliography on the Energy Efficiency of Various Transportation Modes.

3.2 Energy Contingency Plan.

The RFP for the development of a short-term energy contingency plan has been issued by the MTRP to eleven bidders including all academic institutions represented in this Program. The Energy Efficiency Ad Hoc Committee will evaluate the proposals with the aid of MTRP staff. Successful proposal and work plan information will be reviewed by UPTRAN, and will then be subject to review and final approval by the Public Transportation Council and the Highway Commission. This will be a \$60,000 project. (See Appendix for RFP.)

3.3 Transportation Energy White Paper.

A task force was assembled during the third quarter to begin preparation of the White Paper. The members are:

Mr. Clarence Generette
President
Voorhees-Generette

Dr. Herman E. Koenig
Director, Center for Environmental
Quality
Michigan State University

Mr. Michael E. Dewey
Small Bus Manager
SEMTA

Mr. Murray Greyson
Senior Research Scientist
ERIM

Dr. Donald I. Warren
Chairperson
Department of Sociology-Anthropology
Oakland University

This task force has conferred on several occasions for the development of this paper. Formal meetings were held on July 19 and September 21, with other conferences being held via the computer conferencing system of The University of Michigan. Staff reports of those activities and progress of the paper are contained in the Appendix.

3.4 Long Range Planning Methodology.

Mr. Len Newland has continued the preparation of a long range transportation planning methodology. This paper suggests a method of performing research planning and formulation in a "futures" context with a five year time horizon.

The methodology provides for sufficient analysis to identify issues and opportunities which may require action by state government and the private sector within the five year time period, and for the development of research, demonstration, and analyses which can assist in resolving these issues and exploiting these opportunities. It also provides a context in which the longer view of research needs for the MDSH&T/UPTRAN Demonstration and Development Program can have a continuity and a rationale through time. Finally, it is meant to provide a systematic process where federal funds can be identified which apply to Michigan R & D needs, now and in the future.

This document has been reviewed by the Advisory Committee and subsequently revised. The most current edition appears in the Appendix.

3.5 Federal Funding.

Substantial effort has been made to solicit Federal support for MTRP Activities. Most of this was confined to the second half of this year.

Third Quarter (April 1, 1977 - June 30, 1977)

Contacts were made during this quarter with the Transportation Systems Center (TSC) and with the Department of Transportation (DOT) Office of Research and Development Policy. Reaction of the TSC was very supportive of MTRP activities. It was suggested that the TSC could supply personnel and technical assistance to MTRP. However, funding for MTRP research was not available at this time. Contacts with the DOT have generated interest in MTRP, and DOT reaction is promising. Details of these contacts are contained in the Quarterly Progress Report for this period.

Fourth Quarter (July 1, 1977 - September 30, 1977)

Contact was made during this quarter with Mr. Joseph Goodman, Service and Methods Demonstration Division, Office of Transit Planning, UMTA, USDOT, via a staff visit to Washington, D.C. Details of this trip are contained in the August 2, 1977 Trip Report in the Appendix.

Contact was also made with the newly formed Office of Science and Technology Policy (OSTP). This is a Scientific Advisory Office for the President. Details on the functions of OSTP can be found in the information contained in the Appendix.

The Staff Manager, Mr. Newland, has also prepared a concept paper entitled "Proposed MTRP Activities in Support of the Inter-governmental Science and Technology Advisory Panel (ISETAP), Office of Science and Technology Planning (OSTP)". This document was forwarded to Al Linhares, Chief, R & D Policy Analysis Division, USDOT, where it was received quite favorably. This

document outlines the potential for MTRP interaction with federal demonstration and transportation research programs. This material is contained in the Appendix.

Recent interest in life cycle costing by UMTA may provide an avenue for Federal support for MTRP. The activities of the Ad Hoc Committee on Transportation for the Mobility-Limited also attracted federal interest.

3.6 MTRP Newsletter.

Volume I, Number I of the MTRP Newsletter was published during this first year in an effort to obtain a higher level of information flow among the governmental agencies and personnel with transportation related expertise throughout the state and the nation. The newsletter will be published quarterly and can be obtained through the office of the MTRP.

3.7 Contacts with Other States.

The activities of the MTRP have stirred considerable interest within other state governments, and other universities.

Inquiries have been made by out-state universities as to the organizational structure of MTRP and its potential for aiding in the solution of state transportation problems. Details concerning the content of these inquiries are contained in the Appendix.

3.8 Keewenaw Research Center.

At the last Advisory Committee meeting of this year (September 30, 1977), a proposal was submitted through the MDSH&T to the MTRP. This proposal, submitted by the Keewenaw Research Center, is for a pre-proposal study on the safety aspects of small bus-public transportation systems. This would result in a proposal to the Michigan State Legislature for a program that would focus on Michigan's small bus equipments, particularly those used for the elderly and handicapped. In a continuing effort to aid the State in support of

transportation related research, the Advisory Committee agreed to accept the proposal for review and will make recommendations to the MDSH&T concerning the disposition of this proposed research activity. A copy of the original proposal is contained in the Appendix.

3.9 Liaison with Delta Nu Alpha.

In the first half of this year, members of the MTRP staff met with members of the Southeastern Michigan Chapter of Delta Nu Alpha. Delta Nu Alpha is an organization made up of professionals in goods transportation, representing shippers and carriers nationally.

The general discussion at this meeting focused on the ways that MTRP could support the research needs of Michigan's logistical transportation industry. Other areas of consideration and specific project topics were also discussed. Details of this meeting are contained in the Appendix. Since the first meeting, a continuing liaison has been established between the Program and Delta Nu Alpha, which has the potential of identifying specific transportation related research for the State of Michigan.