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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		
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18. Proposed MTRP Activities in support of the Intergovernmental Science and Technology Advisory Panel (ISETAP), Office of Science and Technology Planning (OSTP).
20. Memo to Len Newland (September 22, 1977). Subject: Interest of Washington State University Faculty in the Organizational Structure of MTRP.

21. Minutes of May 31, 1977 Meeting of the Southeastern
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Minutes
Michigan Transportation Research Program
Advisory Committee Meeting
Southfield, Michigan
August 10, 1977

Advisory Committee members in attendance:

Dr. William C. Taylor (Co-Chairperson)
Chairperson, Department of Civil Engineering
Michigan State University

Dr. William D. Drake
Urban and Regional Planning
The University of Michigan

Mr. George Burton
Automotive Program Management
Bendix Research Laboratories

Dr. Robert W. Kaufman
Institute of Public Affairs
Western Michigan University

Mr. Herb Wood
Chrysler Corporation
(Representing Mr. Chris Kennedy)

Observers:

Dr. James T. Wilson
Institute of Science and Technology
The University of Michigan
(For Dr. Charles G. Overberger)

Mr. Richard H. Shackson
Environmental Research Office
Ford Motor Company

Mr. Ivan Bartha
Acting Division Head
Transit Systems Development and
Demonstration

UPTRAN

Dr. James A. Kent
Dean of Engineering
Michigan Technological University

Dr. Dominic Bitondo
Director and General Manager
Bendix Research Laboratories

Mr. Henry H. McKenney
Environmental Research Institute of
Michigan
(Representing Dr. William M. Brown)

Dr. Pieter K. Rol
Associate Dean
College of Engineering
Wayne State University

Dr. Tappan Datta
College of Engineering
Wayne State University

Dr. Gene E. Smith
Associate Professor of Mechanical
Engineering
The University of Michigan

Mr. Robert M. Scher
Research Associate
College of Naval Architecture and
Marine Engineering
The University of Michigan

Mr. Volker Elste
Research Associate
College of Naval Architecture and
Marine Engineering
The University of Michigan

Mr. Howard M. Bunch
Transportation Research Program Manager
Highway Safety Research Institute
The University of Michigan

Mr. Thomas Lebovic
Transportation Engineer
Bureau of Urban and Public Transportation

The meeting convened with a welcoming address given by Dr. Dominic Bitondo on behalf of Bendix Research Laboratories.

The minutes of the June 29, 1977 meeting were considered and approved.

Mr. Newland provided a brief summary of the activities of the Bureau of Urban and Public Transportation (UPTRAN) Small Bus Operations Management Training Conference in Houghton, Michigan.

Staff Attendance:

Mr. Leonard E. Newland
Program Manager

Mr. James L. Dries
Research Associate

Ms. Nancy E. Wallace
Research Assistant

Mr. William J. Milczarski
Research Assistant

Mr. James Witkowski
Research Assistant

Mr. Dries gave a status report on the Energy Efficiency Ad Hoc Committee activities. The consultants' work on the white paper is progressing with the aid of improved communications with a computer conferencing system. It is anticipated that a draft copy of the paper will be available in four weeks. The RFP for the short-term contingency plan was considered. It was agreed that the wording in I-3 concerning the use of the "Michigan Conservation Plan Summary" would be changed from the "plan should include" to the "plan should consider:", so that the consultant would not be overly constrained to a single plan development. It was further agreed that a six month performance period be permitted for completion of this project. The report was accepted.

The Staff provided report concerning the disposition of the MTRP evaluation of FY77-78 UPTRAN/MDSH&T Demonstration and Development projects was accepted. Dr. Taylor noted that the FY77-78 Demonstration and Development Ad Hoc Committee had decided to move away from a consideration of all projects recommended in the Demonstration and Development Program. Instead, emphasis will be limited to three research areas: energy Efficiency, mobility-limited demand analysis, and branch-line rail analysis which are of particular interest and importance in strengthening transportation research endeavors in the state. It was further suggested that MTRP should begin to move away from its very reactive role in considering demonstration and development projects and move to a more pro-active role. It was suggested and agreed that staff should begin work on a more pro-active method of evaluation of the UPTRAN/MDSH&T program. A staff-developed proposal will be submitted to the Advisory Committee for their consideration at the next meeting.

Ms. Wallace submitted a progress report on the formation of the Ad Hoc Committee on Transportation of mobility-limited persons. The report was accepted. It was noted that the committee membership is not yet final and that the staff is actively looking for an experienced operator or an individual in transportation planning or public service who may (himself/herself) be handicapped. Mr. Shackson commented on the need for close communication between the Ad Hoc Committee and the Advisory Committee. In view of this consideration, Dr. Kent tentatively offered to become the chairman of the Ad Hoc Committee.

Mr. Dries gave a brief report on his trip to Washington and his discussion with Mr. Joseph Goodman concerning federal funding for MTRP. Len Newland reported on the

probability of increased contact between MTRP and the Office of Science and Technology Policy (OSTP). Dr. Kent suggested that individuals from OSTP might be invited to participate in future Advisory Committee meetings. Mr. Shackson then suggested other means of seeking federal funds through the newly-organized research directorate of the U.S. Department of Transportation or perhaps the National Transportation Commission. Mr. McKenney noted that the Michigan Energy Extension Service might also have shared interests with MTRP, and might be a source of funds.

Mr. Howard Bunch, Mr. Robert Scher and Mr. Volker Elste gave a presentation on the initial findings of the Cross-Lake-Michigan Ferry study. The slide presentation report of the MTRP-funded study was approved.

Staff provided a status report on the revisions of the McKelvey report. It was noted that the report had been released to Representative Conlin and that a mail-gram disclaimer had been sent to recipients of the unrevised report. Dr. Taylor suggested that there were three options before the Committee:

- 1) delete the conclusions and issue the report as the work of the consultant,
- 2) revise the report and issue it as an MTRP document or
- 3) never issue the report.

Mr. Newland advised the Committee on the progress of the Car-on-Trains Ad Hoc Committee. There can be no further action carried out by this committee until the transportation demand data is released by MDSH&T. The Bus Evaluation Ad Hoc Committee is also awaiting data from TARCUM on life-cycle costing. Mr. Shackson remarked that another suitable data source might be found from Mr. William T. Howard, Director of Transportation for the Government of Ontario.

Mr. Newland reviewed the Advisory Committee comments concerning his working paper on a longer-range planning methodology for the Program. It was suggested that a working group composed of Mr. McKenney, Mr. Shackson and Mr. Newland be formed to further develop this methodology.

Mr. Witkowski reviewed a revised charge for a possible Ad Hoc Committee on Transportation and Urban Demography. He requested that Advisory Committee comments on the revisions be sent to him before September 1, 1977, so that action could be taken on forming the Committee at the September Advisory Committee meeting.

Mr. Witkowski also provided a status report on the RFP currently being developed for the Michigan Aeronautics Commission Aireport Development Management System.

The next Advisory Committee meeting was scheduled for September 30, 1977 in Ann Arbor.

The meeting was adjourned at 3:30 p.m.

Minutes

Michigan Transportation Research Program
Advisory Committee Meeting
Ann Arbor, Michigan
September 30, 1977

Advisory Committee members in attendance:

Dr. Robert L. Hess (Co-Chairperson)
Director, Highway Safety Research Institute
The University of Michigan

Dr. James A. Kent
Dean of Engineering
Michigan Technological University

Dr. Robert W. Kaufman
Director, Institute of Public Affairs
Western Michigan University

Mr. Richard H. Shackson
Environmental Research Office
Ford Motor Company

Dr. William D. Drake
Urban and Regional Planning
The University of Michigan

Dr. Pieter K. Rol
Associate Dean, College of Engineering
Wayne State University

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Mr. Henry McKenney
Environmental Research Institute of Michigan
(representing Dr. William M. Brown)

Guest Speakers:

Mr. James C. Kellogg
Deputy Director of UPTRAN

Dr. Sung Lee
Keweenaw Research Center
Michigan Technological University

Mr. Keith Baldwin
Keweenaw Research Center
Michigan Technological University

Dr. Charles G. Overberger
Vice-President for Research and
MTRP Program Director
The University of Michigan

Observers:

Mr. Brent O. Bair
Oakland County Road Commission

Dr. James T. Wilson
Institute of Science and Technology
The University of Michigan

Mr. Thomas Lebovic
Transportation Engineer
UPTRAN

Minutes - Sept. 30, 1977

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Staff Attendance:

Mr. Leonard E. Newland
Staff Manager

Mr. James L. Dries
Research Associate

Ms. Nancy E. Wallace
Research Assistant

Mr. William J. Milczarski
Research Assistant

Mr. James Witkowski
Research Assistant

Mr. Alan S. Gregerman
Research Assistant

Mr. William M. Ladd
Center for Urban Studies
The University of Michigan, Dearborn

The meeting convened at 10:30 a.m.

The minutes of the August 10, 1977 meeting were considered. Dr. Kaufman commented that he had not received a staff-developed proposal for a more pro-active method of evaluating UPTRAN's demonstration and development projects. Mr. Newland responded that the staff proposal for FY78-79 would be available for the next meeting. The minutes were then approved.

Mr. Dries gave a status report on the activities of the FY78-79 Demonstration and Development Program Ad Hoc Committee. He remarked that the staff

was presently evaluating UPTRAN's demonstration and development projects in a similar manner to its evaluation of the FY77-78 projects. However, this evaluation will try to be proactive rather than reactive through the introduction of additional project categories. The Ad Hoc Committee will meet within the next two to three weeks. The evaluation will be completed in October.

Mr. Dries gave a status report on the activities of the Energy Efficiency Ad Hoc Committee. A draft of the white paper will be available for the next Advisory Committee meeting. In addition, he noted that the Michigan Short-Term Energy Contingency Plan RFP was mailed to the potential bidders on September 12, 1977, and that the closing date for bids had been extended to October 17, 1977. In line with these remarks, Mr. Shackson noted that General Motors had issued a new report on energy consumption for 50 selected SMSA's. Mr. Newland responded that the staff would obtain this report.

Mr. Newland reported on his recent contacts with the Federal Government. He stated that the concept paper, which outlined the role that MTRP might play in supporting DOT and its technology transfer activities, was well received by DOT and OST in Washington, D.C.

Mr. Newland and Ms. Wallace reported on inquiries received from the State of Washington.

Dean Kent reported on the first meeting of the Ad Hoc Committee on Transportation for Mobility-Limited Persons. The Advisory Committee considered the purpose and scope of an MTRP evaluation of a SEMTA demonstration project. The demonstration involves making all vehicles in a selected corridor in Detroit fully accessible. SEMTA has requested that MTRP perform an evaluation of this project. A major concern of the Committee was that the public policy issues of such a demonstration be made explicit in the evaluation. As an example, the trade-off of special purpose vehicles against fully accessible line haul buses should be considered. The following motion was unanimously approved:

The MTRP Advisory Committees agrees to allocate financial resources 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 urges that the Ad Hoc Committee pay particular attention to:

- 1) The implicit longer-term public policy issues of national as well as state concern.
- 2) The issue of providing service to all mobility-limited persons through a) system wide equipment capability or b) selective and highly focused subsystems.

Discussion turned to the charge for this Ad Hoc Committee. With minor changes in language, the charge was approved by the Advisory Committee. (The charge is attached to these minutes.)

Mr. Kellogg discussed the need to develop safer small buses. He then introduced Dr. Sung Lee and Mr. Keith Baldwin of the Keweenaw Research Center. They presented a proposal to conduct a preliminary study on the safety aspect of a small bus public transportation system. They requested support from MTRP in the amount of \$8,000 to cover expenses for the first phase of their work. They anticipate that a more comprehensive research program will be developed after this initial work. The Advisory Committee felt that such research would be important. The Committee asked Dr. Lee to submit a more detailed proposal, additional information on the Keweenaw Research Center, and information regarding project personnel so that action could be taken at the next meeting.

Dr. Charles G. Overberger, Director of MTRP, addressed the Committee. He reviewed the goals and objectives of the program, and the progress to date

in achieving them. He indicated that he is considering the appointment of additional people from the private sector to the Committee. He also urged all members to continue and expand their contacts with transportation professionals around the State.

Mr. Witkowski reported on his activities in assisting the Michigan Aeronautics Commission with the preparation of an RFP for the Airports Development Management System. The Committee felt that the RFP was well done. Several members suggested that this proposal might be used for other modes in the future, and that it was a potential attractor for federal funding.

Mr. Newland presented a status report on 1) Cross Lake Michigan Ferry Alternatives, and 2) Alternative Funding Mechanisms for Public Transportation in Michigan.

Mr. Dries discussed the activities of the Car-on-Trains Ad Hoc Committee. He described the data which has been received from MDSH&T. After the data is reviewed, the Ad Hoc Committee will meet to outline future activities.

Mr. Witkowski delivered a status report on the activities of the Bus Evaluation Ad Hoc Committee.

Mr. Witkowski offered a revised charge for the proposed Transportation and Urban Demography/Geography Ad Hoc Committee. Advisory Committee members will be polled before the next meeting for comments on the charge.

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Request for Proposal for a
Short-term Transportation Energy Contingency
Plan for Michigan

Definitions:

Michigan Transportation Research Program: The Michigan Transportation Research Program is an agency, located at the Highway Safety Research Institute, The University of Michigan, Ann Arbor, Michigan. It has been established through a contract between the State of Michigan and The University of Michigan for the purpose of performing and promoting research on transportation subjects which are of benefit to the State of Michigan. Dr. Charles G. Overberger is the current program director.

Energy Efficiency Analysis Ad Hoc Committee: A temporary committee formed by the Michigan Transportation Research Program Advisory Committee to oversee the preparation for and performance of research in the subject area of transportation energy efficiency.

I-1. Purpose

The purpose of this procurement is to develop a short-term transportation energy contingency plan which could be implemented in the State of Michigan within a short period of time if a serious transportation energy shortage were to occur.

I-2. Issuing Office

This Request for Proposal (RFP) is issued by The University of Michigan under the provisions of its contract with the State of Michigan. Any contract resulting from response to this RFP will be with The University of Michigan. The issuing office will be the only point of contact in the state for this RFP.

I-3. Problem Statement

The work to be performed by the contractor is the preparation of a plan which could be used to quickly mobilize transportation resources in Michigan in the event of a future energy shortage. At present, there are no operational or financial plans for state government responses to severe transportation fuel shortages in Michigan. Under such conditions, the State of Michigan would be called upon to provide leadership in alleviating the situation. Michigan's economy and employment could be seriously affected by shortages, depending upon their magnitude and duration. The extent to which the conventional and innovative modes of public transportation can provide "backup" to the existing auto-highway system is not known.

Modal energy efficiency analyses have been made and are generally available. Measures of modal capacity should also be made. The volumes and purposes of statewide personal trips and goods movements should be estimated from existing data and literature.

The development of a transportation energy contingency plan would proceed by comparing the effectiveness, in terms of net fuel savings and transportation services provided, of alternative transportation system configurations. The alternative configurations must be achievable with existing equipment resources and should be capable of full implementation within a six-week period. The alternative configurations could include expanded use of bus and commuter rail facilities to achieve work and shopping trips, elimination or reduction of personal trips made for purposes other than work or shopping, car pooling incentives, consolidation of small goods shipments to take advantage of more fuel-efficient bulk modes, the substitution of communications for work, shopping and leisure travel, and changes in working hours.

The analysis of the alternative configurations would be made under different energy shortage scenarios. The scenarios should include a shortage of the same severity as experienced in 1973-74, and a more severe shortage. Possible trade-offs between petroleum fuel users (utilities, manufacturing, households, transportation) should be considered in the short-term plan. The

evaluation of alternative transportation system configurations will be in terms of net fuel savings over current levels of consumption, the effectiveness of transportation services provided and the social and economic impacts of the alternatives. Thus, different transportation system configurations could be recommended for different levels of transportation energy shortage.

The objective of the transportation energy contingency plan is to meet Michigan's specific needs by restructuring available public and private transportation resources and by introducing innovative methods to make maximum use of the facilities and resources now available. Care should be taken in recommending innovative methods, particularly with regard to lead times required for equipment deployment and innovation implementation. Energy requirements for the organization and operation of a recommended system must be considered. There should be a positive benefit from the innovation in terms of immediate energy conservation. The social and economic impacts of alternative systems should be considered in the selection of recommendations.

The plan should include, but not be limited to, the measures outlined in the transportation section of the March 14, 1977 "Michigan Conservation Plan Summary", published by the Energy Administration, Michigan Department of Commerce. Briefly, that plan calls for energy savings through the use of automobile and van pools, public transportation, legal right turns on red traffic signals, vehicle performance and maintenance programs, driver education programs, enforcement of the 55 mph. maximum speed limit and recycling of waste lubricating oil.

The services of a competent consultant are being sought to prepare this contingency plan through a competitive bidding process.

It is anticipated that this study will commence no later than September 1, 1977 and will be completed no later than December 15, 1977.

I-4. Type of Contract

It is proposed that, if a contract is entered into as a result of this RFP, it will be a time and materials contract with maximum fixed price which may not be exceeded and which will be determined through negotiation. Negotiations may be undertaken with those contractors whose proposals as to price and methodology show them to be qualified, responsible and capable of performing the work. The contract that may be entered into will be that most advantageous to The University of Michigan, price and methodology considered. The University of Michigan reserves the right to consider proposals or modifications thereof received at any time before the award is made, if such action be in the interest of the University.

I-5. Rejection of Proposals

The University of Michigan reserves the right to reject any and all proposals received as a result of this RFP, or to negotiate separately with any source whatsoever in any manner necessary to serve the best interests of the University of Michigan. This RFP is made for information or planning purposes only. The University of Michigan does not intend to award a contract solely on the basis of any response made to this request or otherwise pay for the information solicited or obtained.

I-6. Incurring Costs

The University of Michigan is not liable for any cost incurred by contractors prior to issuance of a contract.

I-7. Preproposal Conference

A preproposal conference is not scheduled.

I-8. Inquiries

Questions that arise must be submitted in writing to the Michigan Transportation Research Program. Questions and answers thereto will be provided all contractors, however, the names of contractors submitting questions will not be disclosed outside The University of Michigan and the Michigan Transportation Research Program. All questions must be submitted on or before the date specified in the cover letter.

I-9. Addenda to the RFP

In the event it becomes necessary to revise any part of this RFP, addenda will be provided to all contractors who receive the basic RFP. If the revision is subsequent to the closing date for submission of proposals, addenda will be sent only to contractors who have confirmed their intent to submit a proposal.

I-10. Response Date

To be considered, proposals must arrive at the Issuing Office on or before the date specified in the cover letter. Contractors mailing proposals should allow normal mail delivery time to ensure timely receipt of their proposals.

I-11. Proposals

To be considered, contractors must submit a complete response to this RFP, using the format provided in Part II. Each proposal must be submitted in six copies to the Issuing Office. No other distribution of proposals will be made by the contractor. Proposals must be signed by an official authorized to bind the contractor to its provisions. For this RFP the proposal must remain valid for at least (60) sixty days.

I-12. Acceptance of Proposal Content

The contents of the proposal of the successful bidder may become contractual obligations, if a contract ensues. Failure of the successful bidder to accept these obligations may result in cancellation of the award.

I-13. Economy of Preparation

Proposals should be prepared simply and economically, providing a straightforward, concise description of the contractor's ability to meet the requirements of the RFP. Fancy bindings, colored displays, promotional material, etc., are not desired. Emphasis should be on completeness and clarity of content.

I-14. Oral Presentation

Contractors who submit a proposal may be required to make an oral presentation of their proposal to The University of Michigan. These presentations provide an opportunity for selected contractors to clarify their proposals to insure thorough mutual understanding. The Issuing Office will schedule these presentations.

I-15. Prime Contractor Responsibilities

The selected contractor will be required to assume responsibility for all services offered in his proposal whether or not he produces them. Further, The University of Michigan will consider the selected contractor to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the contract.

I-16. Contract Payment Schedule

Payment for any contract entered into as a result of this RFP will be made monthly upon receipt of contractor's billing statement. Monthly billing will be in equal increments of the contract amount. Monthly payment shall be (80%) eighty percent of the total billing, with the remaining (20%) twenty percent to be paid when the final report is accepted by the Issuing Office.

I-17. News Releases

News releases pertaining to this RFP or the service, study or project to which it relates will not be made without prior University of Michigan approval, and then only in coordination with the Issuing Office.

I-18. Disclosure of Proposal Contents

After contract award, a summary of total price information for all submissions will be furnished to those contractors participating in this RFP. Except for this summary of total prices, cost and price information provided in the proposal will be held in confidence and will not be revealed or discussed with competitors. If a proposal contains any information that the contractor does not want disclosed to the public or

used by the Government for any purpose other than evaluation of his offer, each sheet of such information must be marked with the following legend:

"This information shall not be disclosed outside The University of Michigan or be duplicated, used or disclosed in whole or in part for any purpose other than to evaluate the proposal; provided that if a contract is awarded to this offeror, or as a result of, or in connection with the submission of such information, The University of Michigan shall have the right to duplicate, use, or disclose this information to the extent provided in the contract. This restriction does not limit the University's right to use information contained herein if obtained from another source".

I-19. Independent Price Determination

- a. By submission of a proposal, the offeror certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that in connection with this proposal:
 - (1) The prices in the proposal have been arrived at independently, without communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor; and
 - (2) Unless otherwise required by law, the prices which have been quoted in the proposal have not been knowingly disclosed by the offeror and will not knowingly be disclosed by the offeror prior to award directly or indirectly to any other offeror or to any competitor; and
 - (3) No attempt has been made or will be made by the offeror to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.
- b. Each person signing the proposal certifies that:

- (1) He is the person in the offeror's organization responsible within that organization for the decision as to the prices being offered in the proposal and that he has not participated, and will not participate, in any action contrary to a. (1), (2) and (3) above; or
 - (2) He is not the person in the offeror's organization responsible within that organization for the decision as to the prices being offered in the proposal but that he has been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated, and will not participate, in any action contrary to a. (1), (2) and (3) above, and as their agent does hereby so certify; and that he has not participated, and will not participate, in any action contrary to a. (1), (2) and (3) above.
- c. A proposal will not be considered for award if the sense of the the statement required in the Cost and Price Analysis portion of the proposal has been altered so as to delete or modify a. (1), (2) and (3) above. If a. (2) has been modified or deleted, the proposal will not be considered for award unless the offeror furnishes with the proposal a signed statement which sets forth in detail the circumstances of the disclosure and the Issuing Office determines that such disclosure was not made for the purpose of restricting competition.

PART II INFORMATION REQUIRED FROM CONTRACTORS

Contractor proposals must be submitted in the format outlined below:

SECTION I. BUSINESS ORGANIZATION

State the full name and address of your organization and, if applicable, the branch office or other subordinate element that will perform or assist in performing the work hereunder. Indicate whether you operate as an individual, partnership or corporation;

if as a corporation, include the state in which you are incorporated. If appropriate, state whether you are licensed to operate in the State of Michigan.

SECTION II. STATEMENT OF THE PROBLEM

State in succinct terms your understanding of the problem presented by this RFP.

SECTION III. MANAGEMENT SUMMARY

Include a narrative description of the proposed effort and of the product that will be delivered. A proposed outline of the final report or reports, as discussed in Part IV-3 is required.

SECTION IV. WORK PLAN

Describe in narrative form your technical plan for accomplishing the work. Indicate the number of manhours you have allocated to each task. Include a PERT-type display, time related, showing each event, task and decision point in your work plan.

SECTION V. PRIOR EXPERIENCE

Experience in transportation economics, operations, planning and management should be noted in this section along with experience in energy conservation planning. Experience in planning the movement of goods and passengers should be included. Proposals submitted should include, in this section, descriptions of qualifying experience to include project descriptions, costs and starting and completion dates of projects successfully completed. The names, addresses and telephone numbers of responsible officials of the client organizations for whom work has been successfully performed will be included in this section.

SECTION VI. MANPOWER

The consulting firm must be able to staff a project team which possesses expertise in the fields of transportation economics, transportation operations, transportation management, public finance,

energy conservation and systems analysis. The proposal will include the names and qualifications of those professional persons to be employed in the performance of the contract. The physical locations of professional personnel during the performance of the contract will be noted in this section. The time periods devoted to the contract's performance by professional persons will be noted. Individuals who are considered critical to the contract's performance will be identified by name and title.

SECTION VII. AUTHORIZED NEGOTIATORS

Include the names and phone number of personnel of your organization authorized to negotiate the proposed contract with the State.

SECTION VIII. COST AND PRICE ANALYSIS

The information requested in this section is required to support the reasonableness of your quotation and is for internal State use only. The data will be held in confidence and will not be revealed to or discussed with competitors. This portion of the proposal must be bound and sealed separately from the remainder of the proposal. Use the format below:

- 1) Manpower Costs. Itemize so as to show the following for each category of personnel with a different rate per hour:
 - a. Category; e.g., project manager, senior analyst, etc.
 - b. Estimated hours.
 - c. Rate per hour.
 - d. Total cost for each category and for all manpower needs.
- 2) Cost of Supplies and Materials. Itemize.
- 3) Other Direct Costs. Itemize.
- 4) General and Administrative Burden or Overhead. Indicate percentage and total.
- 5) Transportation Costs. Show travel costs and per diem separately.
- 6) Independent Price Determination. Include a statement substantially as follows: "This cost and price analysis is submitted in full

The short-term plan should consider the diversity of transportation resources in Michigan, the need for immediate action by the state in the event of a transportation energy shortfall and the probable long-term nature of a transportation energy shortfall. Such a plan would provide practical alternative actions which could be used by the state until long-term plans are available.

IV-2. Scope of Work

The procurement requires completion of the tasks listed below. The contractor shall supply the necessary facilities, services, materials, and personnel required to perform the work specified. The contractor shall demonstrate in his proposal that he understands the nature of the problem and shall indicate how he will perform each task.

Task 1: PROJECT PLANNING AND COORDINATION

The objective of this task is to ensure that project efforts are adequately planned, that they are subsequently executed in a timely and efficient manner, and that the contractor's contributions are properly coordinated with the overall project work activities and results.

The efforts under this task will include liason between the contractor and the sponsor, the development of deliverables as specified, the conduct of internal project management and the conduct of meetings with the sponsor, as required.

A project liason representative on the bidder's staff will be identified in the bidder's response.

Task 2: ESTIMATION OF TRANSPORTATION REQUIREMENTS AND MODAL ENERGY USE.

The trip-making characteristics of persons in Michigan and the goods flows necessary for continued logistical support of households and industries in Michigan will be determined from available data. An examination of the literature and existing data bases should be performed to determine the

compliance with the provisions of the paragraph titled 'Independent Price Determination' in Part I of the RFP to which this proposal is a response."

SECTION IX. ADDITIONAL INFORMATION AND COMMENTS

Include any other information that is believed to be pertinent but not specifically asked for elsewhere.

PART III
CRITERIA FOR SELECTION

All quotations received shall be subject to an evaluation by the Issuing Office as deemed appropriate for the purpose of selecting the contractor with whom a contract will be signed. The following factors will be considered in making the selection:

a. Capability and qualification - 40%

This criterion considers the ability of the contractor to meet the terms of the RFP, including the time constraints for the contract's performance, and the quality, relevance and recency of similar projects completed by the contractor. The competence, experience and education of professional persons who will be assigned to the project will also be considered. This criterion will also consider the qualifications of the proposed project manager and the amount of management time dedicated to the project.

b. Technical approach for project completion - 50%

Proposals will be evaluated on the uniqueness, completeness, reasonableness, clarity and feasibility of the technical approach that will lead to successful completion of the project. The proposer's approach to each task will be carefully reviewed.

c. Price - 10%

It is estimated that this project should be completed with one (1) person year of effort or less.

findings of recent studies. Recent study findings should be presented. Data on Michigan personal trip-making have been gathered by the Michigan Department of State Highways and Transportation, the Michigan Department of State, the Michigan Department of Commerce and the Michigan Department of Natural Resources. Data on goods movements are available through the Michigan Department of State Highways and Transportation, Michigan Public Service Commission, and the Interstate Commerce Commission, U.S. Department of Transportation. A list of contacts at two of these agencies and a short description of the data is attached at Exhibit 1.

Estimates of average modal energy use will be obtained through a search of the literature. Estimates of energy use of specific transportation systems in Michigan (e.g., dial-a-ride, fixed route bus systems, aircraft, trucks, various rail configurations) should be obtained or prepared. Data on modal energy use will be used in concert with information on current modal capacities and use levels to estimate current levels of modal and aggregate fuel consumption.

Estimates of modal energy use will be made in ton-miles per unit of fuel for goods movements. Both passenger miles per unit of fuel and seat miles per unit of fuel will be used to estimate modal energy use for passenger movements.

Task 3: ESTIMATION OF EXISTING AND POTENTIAL CAPACITY

The ability of public transportation systems in the state to handle increased levels of use for all trip purposes should be evaluated. This should be done in terms of spare capacity on existing services as well as the potential for increasing services. Alternative public and private transportation system actions should be postulated and reviewed. Their potential effectiveness, in terms of service and energy efficiency, should be evaluated.

Potential energy efficiency for each mode should be determined in terms of each mode's fuel consumption when carrying its full passenger or goods load. For example, a six-passenger automobile getting 16 miles per gallon

of fuel could produce 96 passenger-miles per gallon of fuel when fully loaded. Estimates of the fuel efficiency practically achievable should also be made and used in the contingency plan. Thus, using the example above, a six-passenger automobile might reasonably be expected to carry only three people regularly to and from work and would achieve only 48 passenger-miles per gallon of fuel.

Task 4: ALTERNATIVE ENERGY SCENARIOS AND TRANSPORTATION
SYSTEMS CONFIGURATIONS.

Possible levels of motor fuel availability for use by the transportation sector in Michigan will be selected jointly by the Michigan Transportation Research Program Staff, the Michigan Transportation Research Program Energy Efficiency Analysis Ad Hoc Committee and the contractor. The estimate of fuel resources available to Michigan's transportation sector will be made for a fuel shortfall identical to the 1973-74 shortfall, and for a more serious shortfall than that of 1973-74. The levels of shortfall selected will be based on the consideration of information made available by the state and federal governments. All developed energy scenarios will assume that energy shortfalls will not be of a limited duration as was the case in 1973-74. The various developed transportation system configurations which are workable within the energy scenario's fuel availability constraints will be noted.

Task 5: REVIEW STRUCTURAL AND INSTITUTIONAL BARRIERS
TO INCREASED TRANSPORTATION EFFICIENCIES

Structural and institutional barriers to increased transportation efficiencies include route and type of cargo restrictions imposed on common carriers by regulatory bodies, labor restrictions imposed by contract and by law; safety regulations imposed by law and common practice, individuals and transportation organizations, and operating procedures imposed by law, contract or common practice in commercial agreements between various firms. Those structural and institutional barriers which are noted to inhibit transportation efficiency should be listed and alternative regulations or structures

proposed which would aid in improving short-term transportation efficiency and effectiveness. Special note should be taken of those barriers to short-term transportation efficiency which can be lifted by state-level administrative acts.

Task 6: PLAN DEVELOPMENT

A. Develop Preliminary Plan.

Forms of subsidies, sanctions and controls which could be used by state government to implement the plan should be assessed. A preliminary contingency plan should be developed in which state actions would be recommended. The plan will include both technical and policy options. Energy consumption by the transportation systems recommended in the plan should be estimated. These estimates should be compared with current system energy consumption estimates prepared in Task 2.

The policy options recommended should not require additional administrative labor to implement or enforce. Plans will be written for all levels of motor fuel availability estimated in Task 4 above. The plans will note specific actions which may be taken by the state government and will include modal and aggregate fuel consumption for each proposed alternative system configuration within a particular shortage scenario. Aggregate net fuel savings over current levels of consumption by type of fuel will be noted for each proposed alternative system within a particular shortage scenario. If trip purposes are to be prioritized, the bidder will provide a discussion of the prioritization rationale in his response. The alternative transportation configurations will include a null or "do nothing" alternative for each level of transportation energy shortfall. The impacts of the various recommended transportation system configurations on Michigan industry and population groups will be considered in the selection of the transportation alternatives.

B. Review of Proposed Transportation Configurations and Policy Options.

The contractor will meet with the Michigan Transportation Research Program Energy Efficiency Analysis Ad Hoc Committee and representatives of the Michigan Department of State Highways and Transportation to review the various alternative transportation configurations and policy options selected.

C. Develop Final Plan.

A final set of transportation configurations and policy options for each level of shortfall will be selected as the result of the meeting described in Task 6-B. Net fuel savings will be calculated, as described in Task 6-A, for each selected set of transportation configurations and policy options.

Task 7: ESTIMATE THE IMPACTS OF THE SHORT-TERM PLAN

The proposed changes to the current transportation system will affect different population groups to varying extents. Concentration of state efforts on subsidies to car pooling suburban commuters could result in gains by suburban dwellers not shared by rural and inner city residents. An additional excise tax on gasoline purchases would have a greater impact on low income persons than on high income persons as the tax would consume a larger proportion of a low income person's disposable income.

The incidence of changes in transportation services and costs should be estimated as well as the incidence of transportation subsidies, sanctions and financing plans. Incidences should be estimated for various industries, income groups, occupations, types of residence areas (e.g., urban, suburban, rural), region of residence (Southeastern Michigan, Southwestern Michigan, Western Upper Peninsula), age groups and categories of physical mobility limitation.

IV-3. Deliverables

The following reports will be submitted to the sponsor's office:

1. Findings regarding the transportation needs of Michigan from past studies and available data along with the assumptions to be made on modal energy use will be reported (25 copies) by the contractor to the Michigan Transportation Research Program at the completion of Task 2.
2. A report to the Michigan Transportation Research Program (25 copies) which details the assumed levels of energy shortfall will be provided upon the completion of Task 3.
3. A report (25 copies) on the structural and institutional barriers to more energy efficient transportation will be provided to the Michigan Transportation Research Program at the completion of Task 5.
4. A report (25 copies) on the preliminary transportation configurations and policy options selected and their impacts on Michigan industry and population will be provided to the Michigan Transportation Research Program at the completion of Task 6-A.
5. A report (25 copies) which details the features of the final transportation configurations and policy options selected in Task 6-B will be provided to the Michigan Transportation Research Program at the completion of Task 6-C.
6. A printed final report (50 copies) will be furnished upon the completion of Task 7.

Exhibit 1: Contacts and Description of Available Data Sets

Michigan Department of State Highways and Transportation

Contact: Mr. Richard Esch, (517-373-2663)

Data sets include weekday origin and destination automobile travel data, freight waybills for Michigan rail traffic and weekday/weekend Macinac Bridge use data.

Michigan Department of State

Contact: Mr. Martin Lee, (517-373-2857)

The Michigan Driver Experience Survey is a data set covering origins, destinations and trip purposes for automobile drivers over all of Michigan. The survey will be available in September, 1977.



September 6, 1977

Deputy Director
Michigan State Department
of Highway and Transportation
Lansing, Michigan 48924

Dear Mr. Kellogg:

It was an unexpected pleasure that I had a chance to meet you recently and discuss the possibility of a research project at the Keweenaw Research Center on the Small Bus System.

Keith Baldwin and I put together an interdisciplinary team of faculty members to conduct a preliminary study on the safety aspects of a small bus transportation system. We are willing to undertake this initial study with no salary compensation. Only the travel expenses and those related to report preparation are requested. This is done with anticipation that the present study will result in the formulation of a more comprehensive research project and that these same people will then form the nucleus of the team to conduct that program.

I would like to reiterate one important point that I made to you during your visit to our facility. The Keweenaw Research Center has a long experience in many types of vehicle-related research programs. Our experience and facility, combined with the technical expertise we can draw from the University faculty, are ideally suited for handling the type of study program being proposed.

The KRC will be the coordinating center for the proposed research project. Keith Baldwin will direct the team effort. For the administrative and coordination aspects of the project you may call upon me at any time.

I hope to hear from you soon.

Sincerely,

S.M. Lee
Director
KEWEENAW RESEARCH CENTER

Enclosure

SML/jv

Proposal

Preliminary Study on the Safety Aspect of Small Bus
Public Transportation System

Submitted to

Michigan State Department of
Highway and Transportation
Lansing, Michigan

by

Keweenaw Research Center
Michigan Technological University
Houghton, Michigan 49931

September 9, 1977

INTRODUCTION

The safety of the public when utilizing public conveyances is an important aspect of any transportation system. In a complete analysis, the success of the system may well hinge on how safe it is. Numerous accidents will raise insurance rates to the point where the cost of operation becomes prohibitive. Conversely, safety 'overkill' where the psychological well-being of the passenger is sacrificed in the interest of safety will lead to a loss of riders with the attendant loss of revenues and the system will again fail. The trend in legal decisions is placing a greater burden on system operators to provide a demonstrably safe system. It is apparent that a successful transportation system must meet rider's varied and at times complex needs in a safe manner.

Small bus systems are potentially capable of operating in low population density areas over small and intermediate sized areas while providing a degree of personalized service unavailable with large bus systems. However, there are built-in limitations along with the possibility for increased service. The newness of the concept raises a host of questions which must be answered if small bus systems are to meet with wide-scale public acceptance.

In the Houghton-Hancock area, 'Dial-A-Ride' operated on a subsidized basis for about one and one-half years. During this time many practical problems arose. Ranging from package storage (such as skis) to the cost of insurance (one of the major expenses) this system provided a glimpse at the difficulties of operating such a system. This system had a remarkably accident-free record. However, if it had operated for a longer time or if it were extended to state-wide operation the picture might be different.

Safety factors which influence small bus systems may be broken down into three major categories.

1. Bus Design

The safety standards of large bus systems have been established for a number of years and while limited in many ways in that they do not allow for the aged or handicapped, these standards do provide for minimal automotive design requirements such as braking, visibility, etc. Equivalent safety standards

for small buses do not exist industry wide. In fact, small buses are a composite assembled by chassis companies and body companies. There has been no over-all look by industry at the resultant safety standards of the assembled small bus.

2. Bus Operation

One key to safe operation of a small bus system is the driver and his training. He is not only intimately involved with bus driving but must also interact with each of the passengers. His alertness and temperament become an integral part of the safety pattern. There have been many studies on safe driving characteristics, but there is no clear evidence that drivers are chosen with such studies in mind. While it seems unlikely that any driver can always respond correctly to each of the numerous possibilities for accidents that arise in each day's operation, clearly some drivers are remarkably successful in avoiding accidents while others are not.

Bus operation also includes dispatching, time scheduling, routing, etc. which contribute to safety. Such ideas as scheduling routes to avoid major arteries at rush hour is obviously desirable. There is much data available on traffic patterns and accident probability but it is not clear that this has filtered into planning the operation of small bus systems other than through individual driver awareness.

Bus systems operate in the public domain and as such are subject to a wide variety of laws governing public conveyances. To the extent that laws restrict or require operational conditions to be met, they must be considered in a study of safety standards.

3. Human Physiological and Behavioral Factors

Underlying safe operation of the small bus system are the factors of human behavior which determine whether safety measures will be accepted and whether operations can be maintained within the established safety requirements with due regards to various physiological limitations. The wide variety and special needs found in the bus riding population give some measure of the complexity of the problem. Differing requirements ranging

from those of small babies being carried or moved in buggies to the elderly; from those of the handicapped to the active teenager must be met by the small bus system in a safe and practical manner. A special attention must be given to the limited physical dexterity of the elderly and the handicapped.

Establishing the needs and requirements of the riding population is a necessary prerequisite for establishing safety standards.

PROPOSAL

It is proposed to assemble an interdisciplinary team consisting initially of a mechanical engineer, a civil engineer, a biologist, a physicist and a behavioral scientist to examine the various aspects of bus safety requirements. To this group a legal expert may be added depending upon the initial information gathered. This team not only includes specialists capable of examining and coordinating the various aspects of bus system safety but also includes one professor who served on the 'Dial-A-Ride' commission for the Houghton-Hancock system.

The team will initially establish those parameters which seem most significant and conduct literature surveys and personal interviews to delineate the scope of the problems and weigh their relative importance. As a result of the initial examination some areas will require expansion while others may prove to be limited in scope. With this perspective in mind a detailed survey of the state-of-the-art will be made to establish present practices and standards.

The following general areas will be examined although this list is intended only as an indication of the scope of the study and should not be considered to be restrictive since additional areas may become relevant.

1. Survey current bus and public transportation safety standards.
2. Survey bus safety research and testing.
3. Survey research on active and passive safety restraints.
4. List and interview all small bus manufacturers and manufacturers of related items such as seats, lifts, etc.
5. Examine the physiological variability in the riding public to identify special needs.

6. Interview manufacturers of wheelchairs and various prosthetic devices which may influence bus safety.
7. Interview bus dispatchers and drivers to ascertain their experiences related to safety problems.
8. Examine problems related to package handling.
9. Examine special driving problems associated with rain, sleet, ice and snow to see how safety standards may be involved.
10. Examine human behavior patterns which may influence the incorporation of any safety standards.
11. Examine the insurance ramifications of the current bus safety picture.

The final report from this study will be a document which covers the current practices as they relate to small bus safety and serves as a source to identify those companies and groups who have an instructive input when considering the small bus safety problem. The report will make specific recommendations as to what areas should be included in an in-depth study of the safety problem and will propose the methods and sources from which a complete safety program can be developed.

MANPOWER REQUIREMENTS

The initial study will include five people at the professional rank from Michigan Technological University. They will devote sufficient time to explore their area of the program during an approximately 6 month period of time.

IMATED BUDGET

For the proposed initial study, all the professional staff will devote the necessary time and effort with no charge to the Department of Highways and Transportation. This will be done with the anticipation that the present phase of work will lead to formulating a comprehensive research program at its conclusion.

The fund requested is to cover the expenses related to visiting manufacturers of buses, wheel chairs, and other prosthetic devices, interviewing people experienced in various aspects of bus operation and in preparation of the report.

Travel and Per Diem (5 people at \$1,500 each)	\$7,500.00
Telephone and Postage	200.00
Report Preparation	300.00
<hr/>	
TOTAL	\$8,000.00

9-08-77

MINUTES

Ad Hoc Committee on FY1977-78
Research and Demonstration Program Meeting

Howell, Michigan

July 26, 1977

Ad Hoc Committee members:

Dr. William C. Taylor
Michigan State University

Dr. Robert L. Hess
The University of Michigan

Staff in attendance:

Mr. Leonard E. Newland
Staff Manager

Ms. Nancy E. Wallace
Research Assistant

Observers:

Mr. Thomas Lebovic
UPTRAN

Staff provided a brief review of the evaluation packet for the 1977-78 MDSH&T Demonstration and Development Project.

Dr. Hess suggested that the packet could serve as an informational document which would be prepared by MTRP but not circulated as a program recommendation. He further suggested that all references to added recommendations for research content should read added observations concerning research content and other passages

July 26, 1977

Page Two

be reworded so that the packet would have a more informational rather than evaluative tone.

Dr. Taylor suggested that a cover letter be prepared with MTRP recommendations for specific research projects within the suggested FY77-78 budget which would be of particular interest to long-term state and MTRP objectives. The projects which he felt were suitable for a longer-term consideration included:

- Energy Efficiency Analysis
- Mobility-Limited Demand Study
- Branch Line Rail Analysis.

Dr. Hess concurred and it was agreed that the MTRP Staff would prepare a brief description of the three identified projects. It was also agreed that the evaluation packet of the 1977-78 MDSH&T Demonstration and Development Program would be corrected and then released as an informational document. The cover letter will be submitted to MDSH&T as an MTRP recommendation for three specific research projects which appear to be of particular value to state longer-range research needs.

Mr. Lebovic noted that the reference to the "MDSH&T program" on the first page of the Staff Evaluation should be amended to read "UPTRAN Demonstration and Development". Mr. Lebovic also provided several interesting comments concerning the similarities and differences between the SEMTA data display and automated vehicle monitoring project and the project on automatic bus monitoring and sign control being carried out by CATA. Apparently there is less overlap between these projects than their descriptions would imply. The SEMTA study focuses on developing a system for a large diffuse urban transit system whereas the CATA project is smaller and may be less applicable to a large urban transit network.

As a general comment, Dr. Taylor noted that there were apparent difficulties with the prioritization criteria. In several instances projects which appeared to have little research content outsourced projects which specified interesting research potential. Dr. Hess commented that a ranking methodology had recently

FY77-78 Ad Hoc Committee Minutes

July 26, 1977

Page Three

come to his attention and that the staff might want to review the paper and perhaps further literature for the evaluation of FY78-79 projects.

The meeting was adjourned at 12:55 p.m.

Prioritization Procedure for the MDSH&T/UPTRAN
1977-78 Public Transportation Demonstration and Development
Program and Proposed New Research Topics

The purpose of the MTRP Advisory Committee review of the UPTRAN 1977-78 Public Transportation Demonstration and Development Program is to offer suggestions to MDSH&T/UPTRAN concerning changes or additions to projects.

The first step in the review procedure was evaluation of the adequacy of the research content of the proposed projects. Each project was evaluated to determine whether adequate research content was identified in the stated project tasks; whether additional research content could be identified for a given demonstration project; and, finally, whether the proposed project appeared to have no research content. The projects which appeared to have research content either in their original state or with Staff recommendations were then ranked.

The criteria used in the ranking procedure were derived from the goals of the State of Michigan as set forth in Public Act 51 for public transportation and the five criteria developed by the Michigan Transportation Research Program.

The goals of Act 51, section 10d. (2), are:

- a) Creation and preservation of public transportation services determined to meet transportation requirements in urban and rural areas.
- b) Provision of increased access to jobs, education, recreation and other cultural and social activities through public transportation.
- c) Encouragement of desirable economic development in urban and rural areas.
- d) Encouragement of proper land utilization and enhancement of the environment in urban and rural areas.
- e) Relief from congestion on existing streets and highways and reduction to a minimum the amount of land required to meet future demands for additional transportation needs.

The Michigan Transportation Research Criteria are:

- a) Is the research directly applicable to providing solutions to the problems addressed?
- b) Can the research be done? Does data exist, or is it easily assembled or generated?
- c) Is the research useful and/or supportive of ongoing programs for future fiscal years?
- d) Is the contribution of the research from the project unique, in that it has not been done elsewhere by other researchers, including federal and other state governments?
- e) Is the proposed conduct of the research in the project the most efficient way of determining the unknown information, in terms of both the cost effectiveness of the effort and the maximization of information obtained.

Staff Evaluation of the 1977-78 MDSH&T

Demonstration and Development Program: Project Prioritization and Recommendations for Additional Project.

As per the request of the Advisory Committee in the May 25, 1977 meeting:

The following outlines the methodology used by the MTRP Staff in identifying the research content and prioritizing projects in the 1977-1978 MDSH&T Demonstration and Development Program. Included is a description of the ranking process which the MTRP Staff carried out. Also presented is a list of the final State objectives stated in Act 51 and the five MTRP criteria which were used in the ranking process.

The summary table indicates the six program content categories which were used to group the proposed projects.

- transportation system management
- transportation for the mobility-limited
- consumer service improvement
- transit planning and development
- transit security
- energy-related projects

Each project is then assigned a category rank as well as a rank relative to all projects in the MDSH&T program. Also included is a staff evaluation of the research content of the proposed FY77-78 projects. The final page of the summary table provides the results of the ranking process for new research projects which were proposed to the MTRP Advisory Committee by Representative Conlin, Dr. William Taylor and the MTRP Staff.

The final attached section briefly describes those projects for which Staff suggests additional research content. The purpose of this section is to highlight the research content which the MTRP Staff proposes for inclusion in the MDSH&T demonstration projects.

) It is the Staff's concluding recommendation that the decision as to the final disposition of the MTRP recommendations concerning additions or changes to the UPTRAN 1977-78 Public Transportation Program be delegated to the FY77-78 Demonstration and Development Program Ad Hoc Committee.

SUMMARY TABLES OF:

- FY77-78 Demonstration and Development Program

- Recommended new research in addition to the MDSH&T/UPTRAN 77-78 Demonstration and Development Program

Program -- Staff Recommendations		Of	Conti	Mean	Categ	Overa	Program
Program Content	Project Name	Research Content	ation	Score	Rank	Rank	Budget
CONSUMER SERVICES IMPROVEMENT	Statewide Transportation Marketing Assistance Program	Adequate	YES	3.2	1	7	\$490,000
	Public Relations Program for Rapid Transit Construction Projects	Added Recommendations	NO	3.2	1	7	\$100,000
	Intercity Transit Reservation System	Adequate	YES	2.5	2	13	\$100,000
	Specialized Driver Education For Transit Operators	Added Recommendations	NO	2.4	3	14	\$ 50,000
	CBD Free Fare Demonstration	Added Recommendations	NO	2.3	4	15	\$ 75,000
	Data Display for Transit Activity	Added Recommendations	NO	2.2	5	16	\$ 75,000
	Special Recreation Transit Service	None	YES				\$ 70,000
	Transit Services Development	None	YES				\$240,000
	Woodward Avenue Improvement Program	None	NO				\$ 0
TRANSIT PLANNING AND DEVELOPMENT	Michigan Transportation Research Program	Adequate	YES		1		\$180,000
	Branch Line Rail Analysis	Adequate	YES	3.4	3	5	\$165,000
	Coordination Consolidation and Referral for Small Bus Operations	Adequate	NO	2.9	2	10	\$100,000
	Coordinated Master Plan for all Detroit CBD Transit	None	NO				\$100,000

FY 77-78 Demonstration and Development

Program -- Staff Recommendations

Program Content	Project Name	Staff Evaluation Of Research Content	Continuation	Mean Score	Category Rank	Overall Rank	Proposed Program Budget
Transit Security	Ridership Security Program	Added Recommendations	NO	3.1	1	8	\$100,000
	Safety Training Bus	Added Recommendations	NO	2.4	2	14	\$ 35,000
	Energy Efficiency Analysis	Added Recommendations	YES	4.2	1	1	\$ 30,000
	State Employees Van Pool	Added Recommendations	YES	3.7	2	2	\$250,000
	Hybrid Transit Vehicle Propulsion	Adequate	NO	3.5	3	4	\$ 90,000

Program -- Staff Recommendations		Project Name	Research Content	Con ati	Mea Sco	Cat Ran	Ove Ran	Budget
Program Content								
TRANSPORTATION SYSTEM MANAGEMENT	Vehicle Monitoring for Service Confirmation	Added Recommendations	NO	3.5	1	4	\$ 40,000	
	F.A.R.E.	Added Recommendations	YES	3.0	2	9	\$150,000	
	Automatic Bus Monitoring and Sign Control Using Digital Data Systems	Added Recommendations	YES	2.5	3	13	\$100,000	
	Management Development and Inter-transit Exchange	Adequate	YES	2.4	4	14	\$ 44,000	
	Automated Inventory Control and Cost Analysis	Added Recommendations	NO	2.1	5	17	\$ 92,000	
	Statewide Salary Supplement Program	Added Recommendations	YES	1.8	6	18	\$160,000	
	Centralized Heavy Maintenance Facility	None	YES				\$255,000	
	Maintenance Fund	None	YES				\$ 44,000	
	Intercity Bus Equipment - Design of Handicapped Ramp or Lift	Added Recommendations	NO	3.7	1	2	\$120,000	
	Elderly and Handicapped Transportation Improvement Program	Added Recommendations	NO	3.4	2	5	\$250,000	
TRANSPORTATION FOR THE MOBILITY- LIMITED	Elderly and Handicapped Accessibility	Added Recommendations	NO	2.6	3	12	\$280,000	
	Public Transit Capabilities to Accomodate the Elderly and Handicapped	Added Recommendations	NO	2.5	4	13	\$ 25,000	
	Transit Information Aids for the Blind	Added Recommendations	NO	2.3	5	15	\$ 30,000	

DEPARTMENT OF THE ARMY

US ARMY TANK-AUTOMOTIVE RESEARCH AND DEVELOPMENT COMMAND
WARREN, MICHIGAN 48090



DRDTA-VS

6 May 1977

L.E. Newland
Staff Director
Highway Safety Research Institute
University of Michigan
2901 Baxter Road
Ann Arbor, MI 48109

Dear Mr. Newland:

The US Army Tank Automotive Research and Development Command (TARADCOM) has conducted a life cycle cost analysis on buses for transportation of ambulant adults. The main emphasis of the analysis was the 28 to 44 passenger capacity buses. A copy of this report has been made available to you.

As a direct result of this analysis, the Army has purchased and is expecting delivery of a more expensive, longer life bus with a diesel engine, automatic transmission power train and with better suspension, durability and overall economy of operation.

Life cycle costing comparison techniques were used in this bus analysis and are used extensively in other studies involving military and commercial vehicles. A key factor in life cycle costing is operational and maintenance data. The Army keeps extensive records on all its vehicles which include small buses and vans. Commercial fleet operators have been extremely cooperative in supplying the necessary data base.

The personnel at TARADCOM/TARCOM complex are also well versed in specification writing as these are one of our main products. A copy of MIL-B-62261, the new bus specification has also been made available to you.

In anticipation of what would be expected of us in event that you take advantage of our expertise, a copy of a draft study plan is attached for your review.



DRDTA-VS
Mr. L.E. Newland

6 May 1977

Our next meeting is at your discretion. At that time we would expect specific requirements from you in regard to what our contractual responsibilities would be.

Sincerely,

1 Incl
as stated

J.O. Nouse
JOSEPH O. NOUSE
C, Systems and Cost Analysis Office

STUDY PLAN
COST BENEFIT ANALYSIS OF SMALL TRANSIT VEHICLE

1. Statement of the Problem

The competition and high volume of sales of buses and singular purpose of application in the 30 and over passenger capacity sizes has resulted in a durable, economically operating product that users have enjoyed the benefit of. The competitive volume purpose environment does not exist for small buses. The sales volume has not been sufficient to induce potential small transit vehicle manufacturers to develop a durable economically operating bus. The wide variety of application of these small buses has further complicated the problem.

Selection of a small transit vehicle or vehicles to meet the specified needs of the Michigan Department of State Highways and Transportation is further complicated by the myraid of types and styles of small buses available. The possible selections, ranging from extended station wagons through converted vans and recreational vehicles, to scaled down buses. Plush, super-ride vehicles are also available that are used for public relation and promotional purposes. Previous studies by MDSHT have shown that none of these vehicles have proven entirely satisfactory for their applications. Thus, a question naturally arises. Would Michigan be better off developing a performance specification for a small transit vehicle and purchasing such a bus for their needs?

~~SECRET~~ WORKING PAPER

2. Purpose of Study

a. Conduct a cost-benefit analysis on a life cycle basis of commercially available small transit vehicles with available options as compared to a vehicle produced to this specification.

b. Develop a performance specification for a family of small transit vehicles that would meet MDSHT requirements of operational efficiency, economy, capacity, dependability, durability, and initial cost.

3. Study Assumptions and Limitations

a. Sufficient detail is available to allow definition of the requirements of MDSHT for a family of small transit vehicles to allow development of a strong performance specification.

b. Volume of potential sales from MDSHT and other sources will be sufficient to induce potential bus manufacturers into a competitive market position.

c. Operational and Maintenance data on commercially available small buses will meet minimum requirements of this study.

4. Background of Study

This study was initiated by the MDSHT when they became concerned that commercially available small transit vehicles may not meet their requirements for cost effective bus program.

5. Scope

a. Candidate Vehicles

(1) Experimental buses (12-20 Passenger Buses)

~~CONFIDENTIAL~~ WORKING PAPER

- (2) Van Conversions (12 Passenger)
- (3) Recreational Vehicles Conversion
- (4) Scaled Down Buses

b. Cost Elements

- (1) Initial (basic and modifications)
- (2) Deployment
- (3) Operation
- (4) Maintenance
- (5) Scrap
- (6) Training and Equipment
- (7) Warranty

6. Elements of Analysis

a. Background Study

- (1) Review of MDSHT Studies
- (2) Review of outstate experience

b. Development of Field Requirements

- (1) Passenger and Payload
- (2) Economy of Operation
- (3) Durability
- (4) Efficiency of Operation

c. Development of Performance Specification

- (1) Coordination with Users
- (2) Coordination with Potential Suppliers

d. Operational and Maintenance Analysis

- (1) Existing small transit vehicles
- (2) MDSHT Specification Bus

WORKING PAPER

- e. Initial Investment Analysis
 - (1) Existing Small Transit Vehicles
 - (2) MDSHT Specification Bus
- f. Benefit Analysis
 - (1) Existing Small Transit Vehicles
 - (2) MDSHT Specification Bus
- g. Life Cycle Model Analysis

7. Schedule of Events

	COMPLETION DATE INITIATION DATE +
Prepare Study Plan	+ 1 week
Conduct Background Review	+ 3 weeks
Development of Field Requirements	+ 6 weeks
Development of Performance Specifications	+ 8 weeks
Benefit - O&M and Cost Analysis	16 weeks
Life Cycle Model Analysis	18 weeks
Final Report with Conclusions	+ 20 weeks



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

September 12, 1977

MEMO TO: Members of the Bus Evaluation Ad Hoc Committee
FROM: J. M. Witkowski, MTRP Staff *JMW*
SUBJECT: TARADCOM Life Cycle Costing Methodology

On August 31, 1977 I attended a meeting in Warren, Michigan with Mr. Wolf Mueller and MR. John Johnson of MDSH&T, and Mr. Douglas Hackenbruch of the Tank Automotive Research and Development Command (TARADCOM) Systems Analysis Division.

Mr. Hackenbruch's work was instrumental in the development of a life cycle costing methodology used for the procurement of commercial buses by the U.S. Army. The subject of this meeting was the potential use of this methodology by the State as an analysis tool for the evaluation of the total life cost of small buses. The use of this methodology is dependent on the availability of sufficient historical maintenance statistics for the buses to be analyzed.

Mr. Mueller has recently received operational and maintenance data records for the small bus fleet of the Ann Arbor Transportation Authority (AATA). This information was forwarded to Mr. Hackenbruch, who has agreed to review this data to determine its suitability for use in the life cycle costing methodology. Mr. Hackenbruch indicated that given sufficient data, this technique could determine (within ~~significant~~ limits): *confidence*

1. The total life cycle cost of a vehicle which could be used in a comparative analysis of vehicles from various manufacturers.
2. The optimum retirement life of a vehicle.

This information could be used by the State to select vehicles for its small bus fleet at a minimum life cycle cost and aid in drafting maintenance specifications for future vehicles. However, there is an apparent weakness in the technique in

that it is incapable of incorporating new vehicle components into the life cycle cost unless there is sufficient on-road maintenance data available. This could seriously deter the evaluation of vehicles reported to meet State maintenance specifications using new components specifically produced for this purpose.

The following recommendations should be considered:

1. Provided the data supplied by the AATA is sufficient to develop a life cycle cost for this fleet, a contract should be generated to procure a sample life cycle cost using the TARADCOM methodology.
2. Given a sample life cycle cost for the AATA small bus fleet and documentation of the TARADCOM methodology, a separate contract should be generated to produce an evaluation and assessment of this methodology on the basis of its comparison to the state-of-the-art in life-cycle costing and its use of accepted economic evaluation procedures.
3. Provided the TARADCOM methodology is determined to meet State needs, serious consideration should be given to determining a mechanism (short of on-road testing) for including new vehicle components in the analysis procedure.
4. A sufficient data base should be accumulated to develop life cycle cost estimates for vehicles manufactured by those companies that would supply vehicles to the State or to companies subsidized by the State such that a comparative analysis could be developed using the TARADCOM methodology.
5. A standardized maintenance record keeping procedure should be established by the State such that these records could be easily incorporated into a life cycle costing methodology. This procedure would be required of all companies using State owned vehicles or receiving State subsidy for operating costs.

JMW/ucn



The University of Michigan

COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING

550 EAST UNIVERSITY
ANN ARBOR, MICHIGAN 48109

2 August 1977

Memo to: Leonard Newland

From: Gene E. Smith

Gene E. Smith

Subject: Trip Report on Visit to Jet Propulsion Laboratory of July 15, 1977

I visited the Jet Propulsion Laboratory in Pasadena, California on July 15, 1977 to acquaint them with the Michigan Transportation Research Program and to discuss hybrid (heat engine-electric) vehicles and forthcoming programs related to same. Eight JPL personnel were in attendance at this meeting. (See accompanying letter and list of personnel).

During the first part of the meeting I described the Michigan Transportation Research Program in terms of its inception, organization and general goals. I then discussed in specifics the purpose of the ad hoc committee on hybrid vehicles. Discussion centered on the use of hybrid vehicles in mass transportation systems in general and small bus or van applications in dial-a-ride systems in particular. JPL personnel were somewhat surprised by the widespread utilization of dial-a-ride systems in the state of Michigan and they acknowledged as how this was one potential use area they had not considered. While discussing the ad hoc committee interest in hybrid vehicles for mass transit systems I conveyed to them our contention that a successful demonstration of hybrid vehicles under the Electric and Hybrid Vehicle Act (P.L. 94-413) should include applications in controlled environments with specified mission profiles, e.g., mass transit applications. JPL personnel supported this position but informed me that they were only a project office to carry out ERDA's programs and that ERDA's position was firm that vehicles must be designed for multi-use functions by the general public. It was agreed that a hybrid van built for general delivery use would fulfill this requirement and that use of such a vehicle in a dial-a-ride application would certainly be within the demonstration part of the act as long as the vehicle was not designed exclusively for transit system operations.

In discussing JPL's involvement in hybrids I learned that JPL will function as ERDA's project office for complete systems analysis, construction and demonstration of hybrid vehicles. NASA-Lewis will act as their counterpart for component development. JPL's initial program will be a selection of several contractors to conduct a complete design analysis of a hybrid vehicle to meet mission requirements established by the contractor. Such mission re-

Memo to: Leonard Newland
2 August 1977
page 2

quirements must be justified on the basis of their impact on the national energy scene. An RFP (request for proposal) for this design phase will be issued in November or December. Upon completion of the design phase two contractors from those originally selected under the RFP will be selected to actually construct vehicles to their design. Thus potential bidders under the design RFP are expected to have manufacturing capabilities. This fact should be kept in mind in the event that some team under the auspices or urging of the Michigan Transportation Program elects to respond to the design RFP.

I also visited the laboratory facilities related to JPL's hybrid program and learned that they are now in the process of instrumenting a chassis dynamometer facility for evaluating hybrid vehicle performance. JPL does not itself have a hybrid vehicle which they have assembled nor do they anticipate such a program. However, they did have a heat engine-electric hybrid prototype vehicle built by Volkswagon on site for evaluating not only the vehicle but for evaluation of their test procedures and instrumentation. JPL is also generating a computer program for simulation of hybrid vehicles in order to assess different design concepts.

GES:mlh

MINUTES

Michigan Transportation Reserach Program
Ad Hoc Committee for Transportation Planning
for the Mobility-Limited
September 23, 1977

The meeting was called to order at 1:45 p.m., September 23, 1977 in the Bates Room,
The Michigan Union, The University of Michigan, Ann Arbor, Michigan.

The following members, observers, and staff were in attendance:

Dr. James A. Kent (Chairperson)
Dean of Engineering
Michigan Technological University

Mr. Kunwar Rajendra
Transportation Coordinator
Lansing Planning Department

Ms. Jeanne Fitzgerald
Assistant Director for Administrative
and Program Development
Institute of Gerontology
Wayne State University

Mr. Thomas Lebovic
UPTRAN
(Observer)

Mr. J. Raymond Pearson
Chairman of Mechanical
Engineering
The University of Michigan

Mr. Les Sinclair
UPTRAN
(Observer)

Dr. Paul L. Olson
Research Scientist
Highway Safety Research Institute

Mr. Michael Dewey
Small Bus Operations Manager
SEMTA

Ms. Nancy Kidney
Director
Macomb County Essential Transit
Service

Mr. Leonard E. Newland
MTRP Staff Manager
The University of Michigan

Ms. Euline McCorkle
Director
Ann Arbor Center for Independent
Living

Ms. Nancy E. Wallace
MTRP Staff

Mr. Alan Gregerman
MTRP Staff

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MTRP Staff

Mr. Alan Gregerman
MTRP Staff

Mr. Newland, MTRP Staff Manager, opened the meeting with a brief presentation on the history and organizational structure of the Michigan Transportation Research Program. Following the MTRP presentation and staff introductions, committee members introduced themselves and gave a brief summary of their backgrounds.

After the proposed charge for the Ad Hoc Committee was read in full by Dr. Kent, the Committee began their consideration of the charge item by item. Mr. Rajendra questioned the nature of the MTRP review and technical monitoring of the FY77-78 Demonstration and Development Program. Mr. Newland responded that the review process was initiated and carried out upon request from MDSH&T/UPTRAN. He further indicated that an MTRP response had already been submitted to UPTRAN for the FY77-78 budget and that project assistance was required but should not be limited to the demonstration budget for FY78-79. Mr. Lebovic stressed the role MTRP played in providing a long-term view to research and research planning for MDSH&T/UPTRAN. Mr. Lebovic also indicated that the review of the UPTRAN Demonstration and Development Program is not the only purpose of MTRP and that the Program also seeks new research ideas and federal funding for identified research.

Dr. Kent questioned the possible overlap which might exist between the UPTRAN standing committee on transportation planning for the elderly and handicapped and the Ad Hoc Committee. Mr. Sinclair responded that the UPTRAN Committee has been in existence since the spring, however, its current actions were limited because the FY77-78 budget had not yet received legislative approval. Mr. Sinclair felt that there need not be overlap because this committee represented a body of expertise which was not present within UPTRAN and that their roles could therefore be complementary. Additionally, Mr. Sinclair suggested that the charge might be expanded to include more than merely the review of the MDSH&T/UPTRAN projects and include research review for state transit authorities and other agencies in the State who are presently engaged in providing transportation services to the mobility-limited.

Discussion then turned to making item number one into a more general statement of purpose without a specific reference to the review of the MDSH&T/UPTRAN Demonstration and Development Projects. Mr. Rajendra recommended that items one and two might be consolidated into one charge item and include reference to MDSH&T/UPTRAN

review as only one aspect of a more general charge. Dr. Kent stressed the need to retain both the technical monitoring and research roles of the program. Mr. Lebovic suggested a consolidation which would read "1) Perform technical monitoring and recommend specific research and demonstration projects for transportation of mobility-limited persons."

Dr. Kent asked for an indication of consensus on the combination of Items (1) and (2) as stated. All agreed.

Item number three of the charge was then considered. Mr. Newland stated that this charge item was suggestive of the dual role of MTRP as both a reactive mechanism to research developed at the state level and a research program that is also responsible for identifying the hard investment and planning choices that will face the State in the future. Ms. Wallace commented that the methodological development which was suggested in Item (3) pertained to a current need to develop better data bases and evaluation procedures for current studies so that long-term planning would be feasible. Ms. McCorkle agreed that there may be a need for such a data base development, however, she stressed the need to include policy evaluation research which is also necessary for long-term planning. Mr. Pearson then recommended that the notion of long-term planning should be retained in Item (3), however he suggested that the wording become: "Develop a plan for carrying out long-term research on transportation for the mobility-limited. Consideration will be given to factors such as the impacts of changing demographic patterns in the State and the effects of previously instituted policies concerning transportation service for the mobility-limited." Mr. Sinclair and Ms. McCorkle both expressed reservations about the meaning of "policy implications" of transportation for the mobility-limited in a long-term research context, however, a consensus was arrived at for this item.

Dr. Kent suggested that Item (4) should be changed from "develop criteria for defining mobility-limited..." to "review existing criteria for defining mobility-limited". Ms. McCorkle stated that defining such criteria was an extremely difficult task although evidently crucial to providing a common understanding for the Committee. Mr. Sinclair suggested that there exists an extensive literature on various definitions of handicapped and elderly. He stated that it might be wasteful of the Committee's resources to expend time in developing new criteria or definitions. Mr. Rajendra then recommended deleting item number four. A consensus was reached to delete item number four and a staff request was made to provide the Committee with a review of existing

literature on such definitions by the next Ad Hoc Committee meeting.

Mr. Sinclair reopened the debate on item number one by suggesting that training packets be developed for transit authorities. He proposed that a project to develop technical materials would make good use of the expertise of the Committee and would aid local agencies in better providing transportation services for the elderly and handicapped. Ms. Kidney suggested that Mr. Sinclair's idea of technical assistance might be incorporated into item one. Mr. Sinclair and Professor Pearson then adapted a new wording for Item (1) so that it would read: "Perform technical materials (including but not limited to coordination and training materials), and recommend specific research and demonstration projects for transportation of mobility-limited persons."

A consensus was then reached on a charge that would be comprised of two items. Staff was requested to prepare the newly worded draft charge so that a final vote could be taken at the next Ad Hoc Committee meeting.

Mr. Michael Dewey, Small Bus Manager at SEMTA, was then introduced and proceeded to give a brief presentation on a SEMTA demonstration project entitled "Demonstration of Corridor Vehicle Accessibility in Metropolitan Detroit". Mr. Dewey proposed the project as a possible evaluation study that might be undertaken by the MTRP Ad Hoc Committee on Transportation Planning for the Mobility-Limited. After a brief question and answer period concerning the research design of the project, Mr. Rajendra placed a recommendation before the Committee that stated, "The Ad Hoc Committee on Transportation Planning for the Mobility-Limited recommends to the MTRP Advisory Committee that the Ad Hoc Committee undertake an evaluation of the SEMTA Demonstration of Corridor Vehicle Accessibility in Metropolitan Detroit provided adequate funding is provided". The recommendation was seconded by Ms. Kidney and received unanimous approval.

Meeting dates for the next meetings were left dependent on a staff poll of suitable dates in approximately three weeks time. The meeting was adjourned at 4:45 p.m.

CHARGE FROM THE MTRP ADVISORY COMMITTEE TO THE
AD HOC COMMITTEE ON TRANSPORTATION OF MOBILITY-LIMITED PERSONS

- (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.



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

September 22, 1977

MEMO TO: MTRP Advisory Committee
FROM: MTRP Staff
SUBJECT: Proposed MTRP Evaluation of SEMTA's
Demonstration of Corridor Vehicle
Accessibility in Metropolitan Detroit.

Please find attached a draft copy of a proposed evaluation project from SEMTA entitled Demonstration of Corridor Vehicle Accessibility in Metropolitan Detroit. The project was presented to the MTRP staff on August 31, 1977 by Mr. Michael Dewey, Small Bus Manager, SEMTA.

The attached proposal should be viewed as seminal in content. It is of interest in that it may afford the Ad Hoc Committee a needed structuring endeavor which would hopefully engage the many talents represented by the Ad Hoc Committee membership. The proposal is also of interest in that it will meet a direct research need on the part of Michigan's largest Transportation Authority.

After a careful consideration of the SEMTA research proposal, MTRP Staff feels that it may be suitable for possible federal funding. The research design speaks to common national concerns such as determining that transportation demand for the mobility-limited and developing criteria to meet UMTA's requirement for "special effort" for accessible transportation. Furthermore, there appears to be only one other such project underway in the country, so that a careful project development could make a significant contribution to transportation policy planning and to the reputation of MTRP.

/ucn
Enclosure

PROPOSAL FOR A

DEMONSTRATION OF CORRIDOR VEHICLE ACCESSIBILITY

.. IN METROPOLITAN DETROIT

February, 1977

SOUTHEASTERN MICHIGAN TRANSPORTATION AUTHORITY

211 FORT STREET WEST

DETROIT, MICHIGAN 48226

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This program proposal was developed by a team of SEMTA Operations and Planning staff with assistance from SEMCOG staff. Team members included Karen Boka, Michael Dewey, Charles Kuehl and Rachel Rothberger.

1. Demonstration Objectives

Considerable controversy has surrounded the issue of how best to provide accessible public transportation to the physically and mentally handicapped who are unable to use current standard transit equipment. In simplified form, the issue is often cast as a choice between 1) a specialized door-to-door demand-responsive system or 2) provision of level-changing mechanisms (such as wheelchair lifts) on vehicles operating in conventional fixed-route service.

After considerable analysis and a rapidly growing body of operating experience in transporting the handicapped, the Southeastern Michigan Transportation Authority has taken the position that the most effective means of providing service to wheelchair users is via a comprehensive demand-responsive system approach. However, many wheelchair users have maintained that they should, as a matter of right, be able to ride regular line service.

Almost no operating experience with lift-equipped vehicles in fixed-route service exists, although many public transit agencies are experimenting with programs designed to deal with these issues. The Houston transit system has operated limited lift-equipped line service since August, 1976, with four vehicles on three routes. Ridership by wheelchair users has totalled approximately 12-14 per day, mostly on one of the three routes.

SEMTA is engaged in a major program of demand-responsive service development for the handicapped, elderly and other priority groups. The program involves expansion of current services by 85 demand-responsive vehicles over the next 12 months.

The basic objective of this proposed Demonstration of Corridor Vehicle Accessibility is to test the premise that accessible vehicles operated on fixed routes will meet the mobility needs of the handicapped and many of the elderly and that the use of the fixed-route mode will be cost-effective.

To test that premise adequately, the proposal team recommends that at least one major travel corridor be made 100% accessible, so that lift-equipped service is possible with every bus on the relevant line or lines. Other possible approaches which have been considered and rejected include: 1) adding a smaller number of accessible vehicles "on top of" existing service, so as to provide some longer headway for accessible service than for regular service, or 2) replacing some fraction of regular service vehicles with accessible vehicles.

These options were rejected principally because they would provide a lower service level to handicapped persons than to others, and thus would not, in our judgment, be a credible demonstration which directly addresses the concerns of the handicapped. Thus this proposal is effectively to flood a corridor with all new accessible vehicles of advanced design, and to monitor the results closely and independently.

2. Corridor Selection Criteria

Seven corridors in the Detroit Metropolitan area have been identified as candidates for this demonstration. Each corridor represents a wedge slice of the area and is presently served by D-DOT and SEMTA on the major street or streets bisecting the area. The corridors are these:

1. East Jefferson, from Detroit to Mt. Clemens.
2. Gratiot, from Detroit to Mt. Clemens.
3. Van Dyke, from Detroit to Utica.
4. Woodward, from Detroit to Pontiac.
5. Grand River, from Detroit to Farmington and West Bloomfield.
6. Michigan, from Detroit to Wayne.
7. Fort and W. Jefferson, from Detroit to Gibraltar.

The task of ranking corridors to determine the one corridor which can best demonstrate the potential ridership of accessible buses requires the application of criteria which include elements of potential use and operational considerations. The criteria include:

- 1) Proximity of major generators including employment centers, universities, shopping areas and medical establishments.
- 2) Concentrations of handicapped and elderly persons as indicated by the 1970 census, which identifies these groups within a census tract by absolute number and relative densities.
- 3) Existing transit service operated by both D-DOT and SEMTA over portions of the corridor. Corridors over which private carriers also operate present substantial problems in the procurement and assignment of the specialized equipment.
- 4) Substantial current transit schedules including peak hour service and base headways of at least 60 minutes offered by both authorities.
- 5) Efficient operations characterized by minimal branching and off-route interlining, to maximize the impact of the accessible vehicles in the demonstration corridor. One division dispatching (for each authority) is desirable in order to hold spare fleets to manageable size. The efficiency of the service is measured by the ratio of lift-equipped service miles per lift equipped vehicle.
- 6) Service area covering urban, suburban, and rural areas, including, if possible, two or more counties.
- 7) Minimal transfers required for through service along the corridor.

The criteria serve to eliminate four of the candidate corridors, is briefly described below:

<u>Corridor</u>	<u>Discussion</u>
1	East Jefferson is served by two SEMTA routes which feed a third SEMTA route and D-DOT. Thus many passengers transfer to complete their trip. This transfer would be time consuming and difficult for handicapped passengers.
3	Van Dyke is also a transfer route during much of the day. In

Corridor

Discussion

addition, two private carriers serve the corridor as well as SEMTA and D-DOT.

- 5 Grand River is primarily served by D-DOT. During peak hours only, a SEMTA Park & Ride route operates from West Bloomfield and Farmington Hills. During the midday, SEMTA offers service on Seven Mile Road with a transfer to D-DOT's Grand River routes.
- 7 Fort and West Jefferson are primarily within SEMTA's service area and would not offer many opportunities for D-DOT to demonstrate accessible service. These routes are entirely within Wayne County.

Of the remaining corridors, Michigan serves fewer major educational and medical institutions. It is also in Wayne County only. However, since D-DOT runs alternate Gratiot buses through the central business district and to the city limits via Michigan, Michigan is operationally linked to Gratiot within the City of Detroit. Thus, the remaining alternatives are:

- 1) Woodward (all buses, Detroit to Pontiac)
- 2) Gratiot (all buses, Detroit to Mt. Clemens) and Michigan (alternate buses, Detroit CBD to Detroit city limits).

3. Detail Analysis: Woodward vs. Gratiot-Michigan

Application of the remaining criteria yields a close ranking between Woodward and Gratiot-Michigan. Both are linked to major generators, with Woodward having an edge in terms of medical, cultural, and educational institutions. Both D-DT and SEMTA operate over these corridors with comprehensive peak, base, off-peak and week-end service. No private carriers are involved on either route. Through service is provided; transfers are needed only for relatively unusual trips on both corridors.

Studies which have attempted to identify geographical concentrations specifically of wheelchair users, including efforts in the Detroit area, have consistently failed to find such concentrations except for persons in institutions. Since the population of wheelchair users thus seems to be evenly spread among the general population, we have little choice but to use the census figures which are available as an indication of the relative concentrations of mobility limited persons.

Two census classifications are relevant in this case: elderly population (age 65 or older) and partially handicapped persons (ages 16-64). The table below compares the 1970 population in these classifications of all census tracts which adjoin either Woodward or Gratiot-Michigan. "Partially handicapped" is defined as a person with a handicap of any sort who nevertheless works or is capable of working. (Another census classification for "totally handicapped" was not used because it pertains in large measure to persons who are unable to leave either their homes or institutions.) Population figures for the elderly are reduced to 25% of their full value as a best estimate of the mobility-limited elderly, as identified in available study materials.

Elderly and Partially Handicapped Populations:
Woodward and Gratiot-Michigan Corridors
(1970 Census Data)

Corridor	25% of Population 65 +	Percent of Regional Pop. 65 +	Partially Handi- capped Population (16 - 64)	Percent of Regional Part.H'cap.	Total
Woodward	8,664	9.1	10,500	6.4	19,164
Gratiot-Mich.					
Gratiot	6,437		10,467		16,904
Michigan	<u>1,519</u>		<u>2,244</u>		<u>3,763</u>
TOTAL	7,956	8.3	12,711	7.8	20,667

It should be stressed that these figures pertain to the entire range of handicaps and not specifically to wheelchair use or other severe transportation-related disabilities. Available estimates indicate a total metropolitan area population of about 17,000 wheelchair or walker users, out of a total mobility limited population (all ages) of about 192,000. As the table above shows, Woodward and Gratiot-Michigan are close in terms of population in the relevant census categories, with an average of 7.3 - 8.3% of the regional combined mobility-limited elderly and partially handicapped working age population in each corridor. If persons using wheelchairs or

walkers are distributed the same way as populations in the most nearly relevant census categories, either Woodward or Gratiot-Michigan corridors have 1320-1370 wheelchair/walker users along them. There is thus no strong basis for choice between the two corridors on the basis of served population.

The final point of comparison between Woodward and Gratiot-Michigan is a best estimate of the cost-effectiveness of the demonstration effort. Two measures are used: approximate quantity of buses required, and lift-equipped service miles provided per lift-equipped bus in the fleet.

For a first measure of buses required, we can take the number of buses currently in scheduled service along the corridors, as shown below:

Vehicle Requirements, Current No-Lift Service
Woodward vs. Gratiot-Michigan

Corridor	Operator	Best Headway (Minutes)	Buses Used	Approx. Spares	Total Buses
Woodward	D-DOT	3	39	6	45
	SEMTA	5	30	5	35
	Totals	-	69	11	80
Gratiot-Mich.	D-DOT	4	29	5	34
	SEMTA (Gratiot Only)	10	10	2	12
	Totals	-	39	7	46

Bus requirements for current Woodward service are thus 80, compared to 46 for Gratiot-Michigan, favoring the latter. The efficiency of the Gratiot Corridor is substantially higher than Woodward for both D-DOT and SEMTA. Efficiency is a function of service miles provided, the speed of the service, and the amount of non-productive layover time required. The higher the ratio of service miles provided per bus, the more efficient the service. The ratios are shown below:

Service Efficiency (Daily Service Miles per Bus), Woodward vs. Gratiot-Michigan

Operator	Woodward Corridor Efficiency	Gratiot-Michigan Corridor Efficiency
D-DOT	130	155
SEMTA	118	175
Average	124	165

In summary, detailed comparison of Woodward vs. Gratiot-Michigan as demonstration corridors reveals the following:

- a) Both allow comprehensive all-day service along major travel corridors, including a wide range of areas served.
- b) Both present minimal problems for operating complexity and transfer requirements.
- c) They have approximately equivalent corridor populations of potential users.
- d) Woodward serves more important destinations, including Wayne State University and the Detroit Medical Center.
- e) Gratiot-Michigan service will require only about 60% of the vehicles needed for Woodward.
- f) Gratiot-Michigan will provide 33% more service miles per lift-equipped bus than Woodward.

We conclude that Gratiot-Michigan is the best candidate for a demonstration of corridor vehicle accessibility. An additional demonstration benefit is that through routing of alternate D-DOT buses between Gratiot and Michigan will allow longer trips. Finally, Gratiot-Michigan automatically provides a test of two levels of lift-equipped service: 100% accessibility along Gratiot and 50% along Michigan.

4. Operating Plan and Budget

The discussion above has identified Gratiot-Michigan as the most effective demonstration corridor for accessible (lift-equipped) fixed-route vehicles. This section considers the service adjustments necessary and the funding required to implement 100% accessible Gratiot service on both SEMTA and D-DOT, together with approximately 50% accessible Michigan Avenue service which is provided as a consequence of D-DOT's through-routing of Gratiot and Michigan operations. No SEMTA Michigan Avenue service is proposed to be lift-equipped; accessible service would be within Detroit City limits only along Michigan.

Introduction of lift equipment can have detrimental effects on current service in at least two ways:

- (a) Increased running time because of additional time required to operate lifts at boarding/d disembarking points. A full lift cycle takes 2-3 minutes for operation per wheelchair passenger.
- (b) Provision of space for wheelchairs reduces seating capacity for non-wheelchair riders. Four regular passenger spaces must be omitted for a one-wheelchair bay, if the bay is in use. A convertible jumpseat arrangement allows use of two of those spaces if no wheelchair rider is aboard. * Unless the number of buses in service is increased, seated passenger capacity along a line is reduced by use of wheelchair-equipped vehicles.

Estimating the effects of these factors requires some idea of the likely number of wheelchair riders per bus per day. From published materials on trip frequency and the estimate of 1350 wheelchair or walker users along the Gratiot-Michigan service corridor we regard it highly unlikely that wheelchair or walker service will be required more than six times per bus per day, on average. **

This relatively low frequency of use, entailing 12-18 minutes of additional running time per bus over a day's operation, is within the range of variation normally expected from different traffic and weather conditions, and should, in most cases, be sufficiently small to be made up in scheduled layover times. Consequently, no scheduled increases in running time are proposed.

However, because lift equipped vehicles provide fewer seats for non-handicapped users, the effect of this reduced capacity must be applied to determine an appropriate number of vehicles to serve non-handicapped persons. The accessible-corridor program should not be used to increase crowding on peak hour service or otherwise avoidably contribute to service deterioration. Gratiot (and Woodward) services in particular are operating essentially at full seated capacity during peak hours.

Maintenance of current line capacity with reduced seating capacity per vehicle will require 1-2 additional SEMTA buses and 2-3 additional D-DOT buses on Gratiot-Michigan. (Comparable figures for Woodward are 2-4 additional buses each for SEMTA and D-DOT.) The exact quantity of additional vehicles required to maintain capacity

* For two wheelchair bays, eight regular seats are omitted if both are in use, but four can be recovered if neither bay is occupied and two if only one bay is occupied.

** Development as follows: 1350 users x 8 total trips/user/week=10800 total trips/week, or about 2000 per weekday by all means of travel. Of these, assume 15% are by bus, yielding 300 trips/day, which is about 6 per bus per day.

depends on the specific model of advanced design bus procured. The General Motors RTS-2 cannot accommodate wheelchairs at all in a single-door (SEMTA use) configuration, and thus requires additional seating loss to allow for a rear exit door/lift. Even at full seated capacity without wheelchair provision, the RTS-2 has two fewer seats than the Flxible 870. The result is that the Flxible 870 has four more seats than the RTS-2 in a single-door wheelchair configuration, and two more seats when double doors are used for D-DOT service.

In either case, the number of buses required should include an allowance for programmed service expansion of approximately 10%, plus a 15% spare fleet which is appropriate for new equipment designs whose required maintenance is unknown. Briefly, staff recommends a minimum purchase of 53 Flxible 870 or 57 General Motors RTS-2 buses for use on the Gratiot-Michigan corridor. Of the additional seven (or eleven) buses thus recommended above the current usage of 46, three (five) are solely as a result of wheelchair introduction at current service levels and four (six) are to allow programmed service expansion to be lift-equipped as well.

The recommended demonstration program budget is shown on the following page, in two versions depending on the type of vehicle acquired. This budget portrays only additional costs which would pertain to lift-equipped service as opposed to continuation of programmed service including a 10% expansion. At an estimated handicapped ridership of 1620 per week, or 84,240 annually (not correcting for initially smaller usage), additional revenue would amount to approximately \$29,000 at an assumed 35c average fare. Net additional operating cost per handicapped rider on these assumptions would thus be \$3.58 for the 53-bus program, and \$4.91 for the 57-bus program.

The operating budget embodies a recommendation that at least 12 months of service be evaluated to cover a full range of weather and demand conditions.

ESTIMATED BUDGET: CORRIDOR VEHICLE ACCESSIBILITY DEMONSTRATION

GRATIOT - MICHIGAN CORRIDOR

	<u>53-Vehicle Program</u>	<u>57-Vehicle Program</u>
A. CAPITAL		
Life Option @ \$8000	<u>\$424,000</u>	<u>\$456,000</u>
B. OPERATING - 12 Mos.		
(1) Additional operating cost of 3 (or 5) buses at marginal annual cost of \$47,700/bus (SETRA), \$53,400/ bus (D-DOT).	154,500	255,600
(2) Maintenance of lifts at \$1500 annual cost/lift	79,500	85,500
(3) Additional liability insurance cost at \$600/bus (estimated from METS experience)	31,800	34,200
(4) Training and marketing	30,000	32,000
(5) Monitoring and evaluation-contracted to independant consultant	<u>35,000</u>	<u>35,000</u>
TOTAL ADDITIONAL OPERATING COST	<u>\$330,200</u>	<u>\$442,300</u>
TOTAL COST-CAPITAL AND OPERATING	<u>\$754,200</u>	<u>\$898,300</u>

5. Marketing, Monitoring and Criteria for Evaluation

A credible demonstration program must include:

- (a) Sustained involvement of handicapped and elderly persons as individuals, in groups, and as represented by agencies.
- (b) Training for operators and supervisors in contact with handicapped and elderly persons.
- (c) A marketing program which presents accessible transit to a new market while maintaining and increasing use of the transit system by non-handicapped persons.
- (d) Data monitoring to detect use and provide prediction measures which are sensitive to demographics and level of service provided.
- (e) A demonstration duration of one full year's operation with particular importance placed on system use during adverse weather conditions.
- (f) Development of widely-disseminated criteria to be applied periodically and at the end of the demonstration period, which will serve to evaluate the cost-effectiveness of the demonstration in comparison to other alternatives. These criteria should be developed and discussed thoroughly before lift service initiation.
- (g) Independently contracted evaluation of the service, arranged by the Bureau of Urban and Public Transportation of the State of Michigan, so as to be free of bias.

At the conclusion of the demonstration period, specific decisions based on such independent evaluation should be made to continue, modify, move, expand, or eliminate service with lift equipment on urban fixed routes. Specific attention should be addressed to effective strategies for phased implementation of expanded service, if such expansion is judged effective. Potentially different responses by handicapped users to the different levels of service between the Gratiot and Michigan corridors should be key information in developing such strategies.

Inter-Department Correspondence

MEMORANDUM

To _____ 10/5

Subject _____

Li Jim -

ATTACHED IS MY CVTA -

LOOKING FORWARD TO RECEIVING
THE PROGRAM INFORMATION.

DENN ANDERSON

From _____ Date _____

Dept. _____ Phone No. _____

0-7000

VITA

Donn L. Anderson
2380 Kewanee Way
Okemos, Michigan 48864
Telephone: 517 349-3288

Personal:

Married
Three Children
Born: January 21, 1932
Birthplace: Sawyer, Michigan
Social Security No. 382-26-4555

Education:

B.S. Michigan State University, 1955
Major: Civil Engineering

M.B.A. Michigan State University, 1964
Major: Business Administration
Area: Management

M.U.P. Michigan State University, 1965
Major: Urban Planning

Professional Experience:

Associate Professor, Urban Planning, School of Urban Planning and Landscape Architecture, Michigan State University, East Lansing, Michigan. September 1968 to present.
Teaching schedule includes courses in Comprehensive Planning, Methods of Analysis, Site Analysis and Design, and Transportation Planning.

Assistant Dean, College of Social Science, Michigan State University, East Lansing, Michigan. September 1969 to September 1972.
Administration of the College of Social Science Undergraduate Program.

Assistant Director, Division of Natural Resources, Bucks County Pennsylvania Planning Commission, Doylestown, Penn. August 1965 to September 1968.
Administration of water resource development program, comprehensive planning for county water supply and waste water facilities, administration of county natural resources program.

Professional Experience Continued:

Senior Engineer, Engineering and Development, Flexonics Division of Calumet and Hecla Inc., Bartlett, Illinois. August 1961 to September 1962.

Research, development and production planning for the manufacture of aero-space components.

Engineer, Palma Knapp Incorporated, River Forest, Illinois. July 1959 to August 1961.

Consultants to private industry for design and development of equipment and products.

Engineer, Research and Development, The Martin-Marietta Company, Denver, Colorado. July 1956 to July 1959.

Systems analysis of structural components for aero-space development program.

Engineer, Research and Development, Boeing Company, Seattle, Washington. June 1955 to July 1956.

Research and development of materials and techniques used in manufacturing.

Professional Service:

Commissioner, Meridian Charter Township Planning Commission, Ingham County, Michigan. 1970-1973.

Chairman, Environmental Resources Commission, Charter Township of Meridian, Ingham County, Michigan. 1971-1973.

Executive Committee, Technical Planning Coordinating Committee, Tri-County Regional Planning Commission, Lansing, Michigan. 1975 to present.

Vita

Name Kathleen Molnar Brown

Home Address 2306 Ellsworth Road, Apt. 301
Ypsilanti, Michigan 48197

Telephone (313) 434-5453

Office Address 4530 LS&A Building
The University of Michigan
Ann Arbor, Michigan 48109

Telephone (313) 764-0341

Date and Place of Birth 28 July 1947; Passaic, New Jersey

Marital Status Married; No Children
Husband's Name: William A. Brown
Husband's Occupation: Regional Planner

Education B.A., Syracuse University, 1969.
Syracuse, New York
Major: Geography

M.A., Kent State University, 1971.
Kent, Ohio
Major: Geography

Ph.D., University of Minnesota, 1976.
Minneapolis, Minnesota
Thesis Title: "Nonpublic Schools and
Neighborhood Stability: Geographic
Considerations for Public Policy in
Education."

Teaching and Research Appointments September, 1974 to June, 1978. Visiting
Assistant Professor, Department of Geography,
University of Michigan, Ann Arbor, Michigan.

September, 1973 to June 1974. Research
Assistant, AAG Comparative Metropolitan
Analysis Project, University of Minnesota,
Minneapolis, Minnesota.

March, 1973 to June, 1973. Teaching
Associate II in Economic Geography,
University of Minnesota.

June, 1972 to September, 1972. Assistant
Planner II, Cape May County Planning
Board, Cape May Court House, New Jersey.

Teaching and Research
Appointments, Continued

September, 1971 to June, 1972. Teaching
Assistant, University of Minnesota.

June, 1971 to September, 1971. Assistant
Planner I, Cape May County Planning Board,
Cape May Court House, New Jersey.

June, 1969 to June, 1971. Research Assistant,
Center for Urban Regionalism, Kent State
University, Kent, Ohio.

Fellowships and Honors

National Science Foundation Traineeship.
September, 1972 to August, 1973. University
of Minnesota.

Organizations

Association of American Geographers

Courses Recently Taught

Introduction to Human Geography; Introduction
to Location Analysis; History of Urban
Systems; Centers of Trade and Industry; and
seminars in location theory and urban analysis.

Current Research Interests

Education Systems in Metropolitan Areas;
Ethnicity in U.S. Cities; History of Urban
Form.

Departmental Activities

Most recent responsibilities include:

Membership on the departmental Executive Committee, 1976-1978.

Reorganization of the undergraduate program.

Preparation of a brochure on Geography at Michigan which will be
sent to all high schools throughout the State of Michigan.

Publications

Articles

John S. Adams and Kathleen Molnar Brown, "Public School Goals and Parochial
School Attendance in Twenty American Cities", in John S. Adams, ed.
Urban Policymaking and Metropolitan Dynamics: A Comparative Geographical
Analysis. Cambridge, Mass.: Ballanger, 1976, 219-256.

Book Reviews

Gordon J. Fielding. Geography as Social Science. New York: Harper and Row, 1974.
Reviewed for Journal of Geography (forthcoming).

Unpublished Papers

- K. Molnar Brown. "Metropolitan School Desegregation Policy and the Suburban Ethnic Community: Cleveland, Ohio," to be presented at the Joint American-Hungarian Seminar in Urban Geography, Ann Arbor, Michigan, ~~October~~, 1977. *Spring, 1978.*
- K. Molnar Brown. "Ethnicity, Nonpublic Schools, and Neighborhood Stability," Meetings of the Association of American Geographers, Salt Lake City, Utah. April, 25, 1977.
- K.M. Molnar. "Public Goals and Nonpublic Schools," Meetings of the Association of American Geographers, Seattle, Washington. May 1, 1974.
- K.M. Molnar and J. AuWerter. "A Dynamic Study of the Population Density Surfaces of Akron Ohio: 1930-1970," Ohio Academy of Sciences, Akron, Ohio. April 23, 1971.

Research Reports

- John S. Adams. New Homes, Vacancy Chains, and Housing Submarkets in the Twin City Area. Minneapolis, Minn.: Center for Urban and Regional Affairs, University of Minnesota, 1973. (Contributor).

In addition to the book review above, I have refereed manuscripts for the Annals of the Association of American Geographers and for several private publishing firms.

Addendum

Articles in Preparation for Social Science Quarterly (by invitation)
Economic Geography
Geographical Review

CURRICULUM VITAE

NAME: David Gordon Dickason
ADDRESS: (Home) 1332 Hillcrest
Kalamazoo, Michigan 49008

(Office) Department of Geography
325 Wood Hall
Western Michigan University
Kalamazoo, Michigan 49008



TELEPHONE: (Home) 616-381-6094

(Office) 616-383-1834

DATE & PLACE OF BIRTH: December 3, 1938; Rangoon, Burma

MARITAL STATUS: Married; two boys.

SOCIAL SECURITY NO.: 286-36-0616

EDUCATION:	Ph.D.	Indiana University	1970
	-	University of California, Berkeley (Hindi)	1964
	-	University of Chicago (Hindi)	1963
	M.A.	University of Pittsburgh	1963
	B.A.	College of Wooster, Ohio	1960

ACADEMIC EXPERIENCE:	Associate Professor of Geography Western Michigan University	1973 - present
	Assistant Professor of Geography Western Michigan University	1968 - 1973
	Instructor in Geography Western Michigan University	1966 - 1968
	Teaching Assistant & Fellow in Geography Indiana University University of Pittsburgh	1962 - 1964; 1966 1960 - 1962

SPECIALIZATION:

Transportation Geography & Transportation Economics

Quantitative Methodology & Computer Usage

Geography of Social & Economic Development

South & Southeast Asia

FOREIGN AREA EXPERIENCE: India, Pakistan & Burma 13 years

PROFESSIONAL MEMBERSHIPS:

Association of American Geographers

American Geographical Society

Association of Asian Studies

American Association of University Professors

PUBLICATIONS:

- (Co-Editor) Bibliography of Social Science Periodical Publications on Asia: 1975. Asian Studies Occasional Paper No. 1. Kalamazoo, Mich.: University Library Services, Western Michigan University, 1977. Pp. iii + 120 (with E. Cha). (forthcoming)
- "Americans on Ice: Factors Behind the Indo-American Ice Trade," Journal of Asian Studies (submitted May 8, 1976; decision expected imminently)
- "Transportation Perspectives of Kalamazoo County," in L. Schmalz, editor, Environmental Handbook of Kalamazoo County, Kalamazoo, Mich.: Department of Geology, Western Michigan University, 1977 (forthcoming)
- (Review) Steensgaard, Niels, The Asian Trade Revolution of the Seventeenth Century: The East India Companies and the Decline of the Caravan Trade, Chicago: University of Chicago Press, 1974. Pp. 441, in Journal of Historical Geography, 1977 (forthcoming)
- "Quality-of-the-Landscape Evaluation," in Jack S. Wood, editor, Environmental Assessment: Kalamazoo-Black-Macatawa-Paw Paw Rivers Basin, Vol. 1, Kalamazoo: Institute of Public Affairs, Western Michigan University, 1976. Pp. VI 1-57. (with P.P. Micklin).
- "The Indian Hill Station," Geographical Review, Vol. LXV (1975), pp. 115-117.
- "Burma: From Colonialism to Socialism," in A.K. Dutt, editor, Southeast Asia: Realm of Contrasts, Dubuque, Ia.: Kendall/Hunt Publishing Co., 1974, pp. 112-122.
- "Precipitation Probabilities as Indices of Climatic Variation Over the Eastern United States," The Professional Geographer, Vol. XXIII (1971), pp. 301-307, (with N.D. Strommen and V. Eichenlaub).
- The Efficiency of the Major Indian Seaports. Ann Arbor: University Microfilms, 1972, (Ph.D. Dissertation, Indian University, 1970) pp. 227.
- "An Application of Linear Programming: The Case of Indian Wheat Transportation," National Geographical Journal of India, Vol. XIII (1967), pp. 125-140 (with J.O. Wheeler).
- (Review) Kluchi, Shinzo and Kenzo Tange, eds., Regional Structure of the Japanese Archipelago (Atlas), Tokyo, Japan: The Japan Center for Area Development Research, 1967, in The Professional Geographer, Vol. XX (1968), p. 136.

PUBLICATIONS cont'd.:

- (Videotape) "Urbanization in the Non-Western World," Western Michigan University, 1970.
- (Videotape) "Manpower Development in the Non-Western World," Western Michigan University, 1970.
- (Videotape) "Middle East & North Africa: I," Western Michigan University, 1969.
- (Videotape) "The Ecological Setting of the Non-Western World," Western Michigan University, 1970.

PAPERS:

- "Bombay's Changing Internal Spatial Structure: 1961-1971," Midwest Conference on Asian Affairs (Athens, Ohio), November 15, 1975.
- "Americans on Ice: Factors Behind the Indo-American Ice Trade," Second University of Wisconsin Conference on South Asia (Oshkosh, Wis.), November 15, 1974.
- "Ice to India: The Entrepreneurship of Frederic Tudor," Michigan-Ontario Universities Rotating Seminar on South Asian Studies (Ann Arbor, Mich.), April 13, 1974.
- "Structural Components of the Soviet Climatic System," Michigan Academy of Science, Arts, and Letters (East Lansing, Mich.), March 22, 1974 (with P.P. Micklin).
- "Transport and Economic Development: Railroads in Burma," National Council for Geographic Education (Milwaukee, Wis.), October 28, 1972.
- "Natural Ice in New England's Maritime Trade," East Lakes Division, Association of American Geographers (Indiana, Pa.), October 5, 1972.
- "Shipping Services in the Development of the Indian Port of Mormugao," Michigan Academy of Science, Arts, and Letters (East Lansing, Mich.), April 5, 1972.
- "Trade and Newspaper Circulation in Michigan's Lower Peninsula," Michigan Academy of Science, Arts, and Letters (Kalamazoo, Mich.), April 23, 1971 (with S. Hewitt).
- "Residential Change Among Mobile Home Occupants in Kalamazoo County, Michigan," Michigan Academy of Science, Arts, and Letters (Kalamazoo, Mich.), April 23, 1971 (with H.A. Raup).
- "Use of Regional Precipitation Probabilities as Indicators of Climatic Variation Over the Eastern United States," West Lakes Division, Association of American Geographers (DeKalb, Ill.), October 23, 1970 (with V. Eichenlaub).
- "Port Efficiency in India," Michigan Universities Rotating Seminar on South Asian Studies (Kalamazoo, Mich.), March 16, 1967.
- "On the Taxation of Road Transport in the United States of America," Ministry of Transport (Bombay Office), Government of India, July 1965.
- "Burma's Railroad Problems," Indiana Association of Traffic and Transportation Managers (Bloomington, Ind.), May 4, 1963.

UNIVERSITY SERVICE:

- Member, Campus Planning Council, 1977-present
- Member, College of Arts & Sciences Promotion Committee, Western Michigan University, 1976-1977
- Secretary & Member, College of Arts & Sciences Promotion Committee, Western Michigan University, 1975-1976
- Chairman, Asian Studies Programs, Institute of International & Area Studies, Western Michigan University, 1974-present.
- Associate Director (Transportation Planning), Institute of Public Affairs, Western Michigan University, 1974-present
- Member, Advisory Council on Environmental Affairs, Western Michigan University, 1974-present
- Member, Russell Seibert Fund Review Committee, Western Michigan University, 1973-1975
- Member, Waldo Sangren Fellowship Review Committee, Western Michigan University, 1973-1975
- Member, Board of the Institute of International & Area Studies, Western Michigan University, 1974-1975
- Member, Faculty Senate Committee on Alternate Administrative Models, Western Michigan University, 1972-1973.
- Member, Faculty Senate Criteria for Promotion Sub-Committee, Western Michigan University, 1972-1973.
- Member, Asian Studies Executive and Program Development Committee, Institute of International & Area Studies, Western Michigan University, 1971-1972
- Member, Asian Studies Committee, Institute of International & Area Studies, Western Michigan University, 1967-present.
- Chairman, Michigan-Ontario Universities Rotating Seminar on South Asian Studies, 1975 & 1971-1973. (Participating institutions: University of Michigan, Michigan State University, Oakland University, University of Windsor, Western Michigan University)

DEPARTMENTAL SERVICE:

Member, Graduate Committee (WMU), 1977-present; 1970-1973

Member, Lucia Harrison Endowment Committee (WMU), 1977-present

Member, Chairman Selection Committee (WMU), 1974; 1970-71.

Editor, GEOVIEW (Newsletter, WMU), 1974-present

Acting Chairman (WMU), April-July 1973

Computer Center Representative (WMU), 1970-present

Member, Faculty Evaluation Committee (WMU), 1972-73

Organizer of user-oriented, time-shared computer program library (WMU), 1971-72

Co-ordinator of teaching evaluation procedures (WMU), 1969-70

Organizer of Quantitative Analysis Laboratory (WMU), 1969-70; 1974; 1977

Organizer of Berry Research Center (WMU), 1968-69

Member, Planning Committee (WMU), 1968

Member, Graduate Diagnostic Examinations Committee (WMU), 1969-72

Chairman, Undergraduate Committee (WMU), 1967-68

Representative to University Libraries Committee (WMU), 1967-68

GRANTS & HONORS:

Project Director, Lucia Harrison Trust Award, 1977, \$700
Title: "Changing Kalamazoo: 1960-1970"

Travel Grant, Lucia Harrison Trust, 1976, \$236
Purpose: Attendance A.A.G. Annual Meeting, New York City

Audio-Visual Grant, U.S.-Japan Trade Council, 1976, \$500
Purpose: Acquisition of films on Japan

Instructional Development Grant, Western Michigan University, 1975 & 1976, \$900
Purpose: Acquisition of visual illustration of regional art and architecture of South Asia

Grant-in-Kind, Warner and St. Julian Vineyards, Paw Paw, Mich., 1976, \$100
Purpose: Provision of sherry for the reception of the national conference "The Indian Ocean and Persian Gulf in World Affairs"

Sabbatical Research Leave, Western Michigan University, 1973, \$7,000
Title: "The Transport Relations of India's Urban System"

Faculty Research Grant, Western Michigan University, 1973, \$860
Title: "New England's Trade in Natural Ice"

Project Director, NSF Scientific Equipment Grant, 1970, \$3,100
Purpose: Equip a quantitative analysis laboratory in geography

Ph.D. Dissertation Grant-in-Aid, Indiana University, 1964, \$500
Purpose: Field research on port efficiency in Japan and the United Kingdom

Junior Research Fellowship, American Institute of Indian Studies, 1964, \$8,100
Title: "The Efficiency of the Major Indian Seaports"

NDFL Fellowship, University of California, Berkeley, 1964, \$1,100
Purpose: Study Hindi (second year)

Ford Foundation Summer Grant, University of Chicago, 1963, \$875
Purpose: Study Hindi (first year)

Scholarship, College of Wooster (Ohio), 1956-1960, one-half tuition

OTHER:

Editorial Consultant, Kendall/Hunt Publishing Co., 1977

Manuscript Referee, The Southeastern Geographer, 1975

Panel Chairman, Michigan Academy of Science, Arts, and Letters, Ann Arbor, Mich., April 5, 1975

Participant, Standard Oil of Indiana's Company-Faculty Forum, Chicago, Ill., April 29-May 2, 1973

Participant, Scholar-Diplomat Seminar, U.S. Department of State, December 11-15, 1972, Washington, D.C.

Staff Member, National Science Foundation Summer Institute in Geography, Western Michigan University, 1971

Consultant, Science Associates, Inc., McLean, Va., 1973-1974

Consultant, Boxboard Research and Development Association, Kalamazoo, Mich., 1971

LANGUAGES:

Hindi (two years formal study)

Burmese (one year formal study)

French (Ph.D. proficiency)

German (Ph.D. proficiency)

BASIC (Intermediate programming capacity)

MARK DAVID DUBAY

HOME ADDRESS

1714 Bloomfield #22
Kalamazoo, MI 49001
Telephone 616-345-7579

BUSINESS ADDRESS

City of Kalamazoo
Planning Division
241 W. South St.
Kalamazoo, MI 49007
Telephone 616-385-8031

PERSONAL
INFORMATION:

Age : 27
Marital Status: Married
Birthplace : Bay City, Michigan
Weight : 185 lbs.
Height : 6'2"
Health : Excellent

PROFESSIONAL
EXPERIENCE:

August 1973
to July 1976

Transportation Analyst
Bureau of Transportation Planning
Michigan Department of State
Highways and Transportation (MDSH&T)

My experience with the MDSH&T during this three year period included but was not limited to:

- Providing traffic estimates and travel, social and economic impact measurements to various regional transportation studies within the Department.
- Writing several reports documenting procedures utilized in regional highway and rail travel analysis.
- Conducting original research into the development of techniques for the projection of socio-economic trends and impacts through the use of computerized statistical and transportation planning batteries.
- Collecting, analyzing and evaluating data used in the research and development of techniques for multi-modal travel analysis.

MARK DAVID DUBAY

- Designing and writing new computer routines for transportation planning research and development.
- Supervising and coordinating the activities of transportation analysts and technicians in various phases of the transportation planning process.

July 1976
to Present

Associate Planner
Planning Division
Community Development Department

As indicated in the following summary, my experience with Planning Division of the City of Kalamazoo has covered a broad range of planning activities:

- Participated in the research and preparation of the City's recently adopted Comprehensive Plan.
- Wrote and contributed to several components of the Comprehensive Plan which includes the Housing, Residential and Commercial Elements.
- Coordinated the preparation of portions of the County's Overall Economic Development Program (OEDP)
- Act as liaison to the City's Historical Commission which is in the process of conducting a comprehensive historical sites and buildings survey.
- Coordinated the preparation of the City's five year Transportation Improvement Program (TIP).
- Serve as a member of various committees and sub-committees within the Kalamazoo Area Transportation Study (KATS) which is in the process of completing a long range Transportation Plan for the urban area.

PROFESSIONAL SKILLS:

Computer Hardware: Able to operate key punches, terminals (both batch and time sharing modes), card readers and printers.

Computer Software: Able to utilize transportation planning packages provided by both Burroughs and Control Data Corporations. Write basic FORTRAN IV programs for file manipulation and model development and employ the SPSS and BASIS statistical packages supplied by the aforementioned computer companies.

PUBLICATIONS:

Author: Residential Element - City of Kalamazoo (Oct. 1976)
Housing Element - City of Kalamazoo (Aug. 1976)
Railroad Financial Impact Analysis - MDSH&T
(Jan. 1976)
Preliminary Investigation: A Technique for the
Projection of Accident Rates - MDSH&T
(April 1975)
Statewide Travel Impact Analysis Procedures - MDSH&T
(Sept. 1974)

Contributor: Comprehensive Plan - City of Kalamazoo (June 1977)
Overall Economic Development Program - Kalamazoo
County (April 1977)
Commercial Element - City of Kalamazoo (Dec. 1976)

PROFESSIONAL
AFFILIATIONS:

Associate Member, American Institute of Planning since 1974 and Member, American Society of Planning Officials since 1973,

EDUCATION:

Michigan State
University

Master's Degree in Urban Planning
(M.U.P.) - December of 1975.

Minor area of study: Transportation Planning

An honor student with 3.6 GPA.

Aquinas College

Bachelor of Arts Degree with a major in Political
Science, May, 1972.

Special courses included several in economics,
finance, accounting, statistics and research
methods. Actively involved in college and
student affairs 1968-1972.

An honor student with a 3.3 GPA.

RESUME

SNEHAMAY KHASNABIS
1151 Winthrop
Troy, Michigan 48084
Telephone: (313) 689-3542

A. PERSONAL: U.S. Permanent Resident, Citizen of India,
5'4-1/2", 130 lbs.
Born 11/4/39
Married, two children

B. HIGHER EDUCATION:

1962	BE Civil Engineering, University of Calcutta
1970	MCE Civil Engineering, N.C. State University (Transportation) Raleigh, N.C. USA
1973	Ph.D. Civil Engineering, N.C. State University (Transportation) Raleigh, N.C. USA

Doctoral Dissertation: A Study of Land Use
Changes Along Controlled Access Highways in
North Carolina.

C. EMPLOYMENT RECORD: (India)

1962-1963	Graduate Trainee, Jessop and Company Structural Workshop, Calcutta, India (Design and construction of heavy civil engineering structures)
1963-1968	Assistant Engineer, Public Works Department, West Bengal, India (Planning, Design and Construction of Public Facilities)

D. EMPLOYMENT RECORD: (USA)

1968-1969	Teaching Assistant for undergraduate courses in Civil Engineering at N.C. State University as follows: CE 332 - Civil Engineering Materials (Senior level courses) CE 201 - Surveying —(Junior level course)
-----------	--

- 1969-1973 Research Assistant for three Highway Research Projects, Engineering Research Division, N.C. State University. Research activities include formulation of methodology, collection and analysis of field data, use of computer simulation as a research tool, application of statistical techniques to make valid conclusions and preparation of research reports.
- 1972-1973 Highway Planning Engineer with the Planning and Research Department of North Carolina Department of Transportation, involved in various urban transportation planning studies including mathematical modeling, demand forecasting, systems design, etc.
- 1974-1975 Transportation Planner, Barton Aschman Associates, Inc., Washington, D.C.; engaged in various urban transportation and regional planning, transit planning and traffic engineering studies in different urban areas in the eastern part of the USA.
- 1975 to Present Assistant Professor, Department of Civil Engineering, Wayne State University, Detroit, Michigan; responsible for teaching advanced courses in traffic and transportation engineering, also actively associated with various research projects currently being conducted in the Department of Civil Engineering.

Courses taught at Wayne State University:

- CE 0762 - Traffic Engineering II
Control and Operations
- CE 0768 - Traffic Models
- CE 0603 - Analytical Models in Design
and Construction Systems
- CE 0605 - Economics in Construction and
Design Systems
- CE 0567 - Transportation Engineering II
- CE 0564 - Traffic Engineering I
- CE 0765 - Mass Transportation Systems

E. PROFESSIONAL
ASSOCIATIONS:

American Society of Civil Engineers

Transportation Research Board

Member, Committee on Social, Economic and Environmental
Factors of Transportation (A1B03-TRB)

Institute of Traffic Engineers

Member, Committee on Planning for Bicycle
Transportation (6Y14-ITE)

Member, Traffic Safety Committee and Technical
Committee Michigan Section, ITE

F. HONORARY SOCIETY
ASSOCIATIONS:

Chi Epsilon

Signa Xi

G. REPORTS AND
PUBLICATIONS:

1. "Land Use Changes and Traffic Generations on Controlled Access Highways in North Carolina". Final Report, Highway Research Program, North Carolina State University, Raleigh. July 1971. (With W.F. Babcock)
2. "A Study of No-Passing Zone Configurations on Rural Two-Lane Highways in North Carolina". Final Report, Highway Research Program, North Carolina State University, Raleigh. March 1972. (With C.L. Heimbach and J.W. Horn)
3. "A Study of Land Development and Traffic Generation on Controlled-Access Highways in North Carolina", Highway Research Board Meeting, January 1973, Record #467. (With W.F. Babcock)
4. "Relating No-Passing Zone Configurations on Rural Two-Lane Highways to Throughput Traffic", Highway Research Board Meeting, January 1973, Record #437. (With C.L. Heimbach)
5. "Category Models -- A Case for Factorial Analysis" Traffic Engineering, October 1973, Volume 44, No. 1. (With A. Chatterjee)
6. "A Study of Development Characteristics Along Urban Controlled-Access Freeways in North Carolina and Their Relationship with the Freeway". Final Report, Highway Research Program, North Carolina State University, Raleigh. June 1974 (With W.F. Babcock).
7. "Synthesizing Travel Patterns for a Small Urban Area", Traffic Engineering, August 1975, volume 45, No. 8, (With M.R. Poole).

8. "A Transit Distributor System for Downtown Alexandria". Paper presented at the Intersociety Conference on Transportation, held in Atlanta, Ga., in July 1975, sponsored by ASCE, ASME, ASIE, ITE and others (with J.G. Pickard, and W.E. Mann). Published in ASME Technical Digest 75-ICT-10.
9. "Impact of a Beltline Type of Freeway Upon a Medium-Sized Urban Area in North Carolina" - Transportation Research Record #583, pp. 71-77, 1976 (With W.F. Babcock).
10. "A Systems Approach Toward Interfacing Transportation Modes for Better Access to a CBD Area", paper presented at the 1976 Annual Meeting of the Transportation Research Board (with H.R. Joyner and J.G. Pickard), accepted for publication.
11. "Evaluation of Bicycle Left-Turn Control Strategies at Urban Intersections Using a Computer Simulation Model". Paper presented at the 4th Intersociety Conference on Transportation, Los Angeles, California, July 1976 (with K. Opiela and T.K. Datta).
12. "An Analysis of Freeway Impact on Five Urban Areas in North Carolina", paper presented at the 56th Annual Meeting of TRB, in January 1977. Accepted for publication.
13. "Household Stratification Models for Travel Simulation" paper published in the Transportation Engineering Journal of the American Society of Civil Engineers, (Vol. 103, No. 1 January, 1977, pp. 199-213) (With A. Chatterjee and L.J. Slade).
14. "Traffic Simulation As A Highway Design Tool", paper published in the Transportation Engineering Journal of the American Society of Civil Engineers, ASCE (Vol. 103 No. TE3, May 1977, pp. 369-384) (With C.L. Heimbach.)
15. "Transit Demand Modeling for a Small Urban Area Based Upon Attitudinal Data", submitted to the Transportation Engineering Journal of ASCE.

H. FUNDED RESEARCH: (Principal Investigator)

1. "A Simulation Model for Interfacing Bicycle Movement with Auto Traffic", sponsored by Office of Research and Sponsored Program Services, Wayne State University. Amount \$4340. (Completed Project)
2. "Comparative Evaluation of Traffic Law Enforcement in Michigan, Ohio and Pennsylvania", sponsored by the Auto Club of Michigan. Amount \$6114. (Completed Project)
3. "The Feasibility of Joint Development in Selected Transit Station Locations in the Detroit Metropolitan Area", funded by the Urban Mass Transportation Administration, UMTA, U.S. Department of Transportation. Amount \$57,799. (Project currently underway)

I. REPRESENTATIVE PROJECTS:

1. Project Engineer
Major Hospital Building Projects and Associated Residential Development in India (West Bengal Public Works Department)
2. Design Engineer
Planning & Design of Major Civil Engineering Structures in India (West Bengal Public Works Department)
3. Research Assistant
Computer Simulation of Highway Traffic to Study the Relationship between No-passing Zone Configurations and Thoroughput Traffic on Rural Four Lane Highways in North Carolina (North Carolina State University)
4. Research Assistant
Land Use Changes and Traffic Generation Associated with Controlled-Access Highways in North Carolina (North Carolina State University)
5. Research Assistant
Development Characteristics along Urban Controlled - Access Freeways in North Carolina and Their Relationship with the Freeway (North Carolina State University)
6. Project Director
Transportation Demand Forecasting and Systems Planning for Wilkesboro area and for Goldsboro area in North Carolina (North Carolina Department of Transportation & Highway Safety)
7. Project Director
Travel Demand Forecasting for a Regional Highway Network Involving a Four-County area in North Carolina using Synthetic Techniques (North Carolina Department of Transportation & Highway Safety)
8. Project Engineer
Updating of the Thoroughfare Planning Study of Raleigh Urban Area in North Carolina (North Carolina Department of Transportation & Highway Safety)
9. Project Director
Relocation of a Railroad Right of Way in a Rural area in St. Mary's County in Maryland (Barton-Aschman & Associates, Inc.)
10. Project Director
Traffic Analysis of a Proposed Retail Core-Development in Boston CBD (Barton-Aschman & Associated, Inc.)

11. Principal Transportation Planner
Alexandria Mini Transit System Concepts -- A Downtown Transit Distributor System, Virginia (Barton-Aschman & Associates, Inc.)
12. Principal Transportation Planner
Nashua Transportation Study, New Hampshire (Barton-Aschman & Associates, Inc.)
13. Co-Project Director
Development of a Thoroughfare Plan for Historic James City - County Area, Virginia (Barton-Aschman & Associates, Inc.)
14. Technical Advisor
Travel Demand Forecasting on a Statewide Level for North Carolina (Barton-Aschman & Associates, Inc.)
15. Co-Investigator
Transportation Demand Modeling for Lansing - Kalamazoo - Flint Urban Areas, Michigan using UTPS Package (Wayne State University)
16. Co-Investigator
City Wide Pedestrian Safety Study for Pontiac, Michigan (Wayne State University)
17. Technical Consultant
Southfield Transit Study, Michigan (Goodell-Grivas, Inc.)
18. Technical Consultant
Local Area Transportation Needs Criteria Development, SEMTA, Michigan (Goodell-Grivas, Inc.)
19. Technical Consultant
Ann Arbor Bus Pre-Emption Study, AATA, Michigan (Goodell-Grivas & Associates, Inc.)
20. Technical Consultant
Kalamazoo County Crash Prevention Program, Michigan (Goodell-Grivas, Inc.)
21. Technical Consultant
Various Traffic Engineering Projects in the Michigan Area (Goodell-Grivas, Inc.)
22. Project Director
A Simulation Model for Bicycle Movement (Wayne State University)
23. Project Director
Traffic Law Enforcement Evaluation Study (Wayne State University)
24. Project Director
Feasibility Study of Transit Station Joint Development (Wayne State University)

RESUME

GARY WILLIAM KRAUSE

Address:

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(313) 791-2465

Business

Southeast Michigan Council of Governments
800 Book Building
1249 Washington Blvd.
Detroit, Michigan 48226
(313) 961-4266

Personal Data:

Born: January 2, 1942
Height: 6'
Weight: 175 lbs.
Health: Excellent
Married, Two Children

EDUCATION:

A. S. in Engineering, 1963
Oakland University and
St. Clair County Community College

Bachelor of Science, 1965
Michigan State University

Masters of Urban Planning Degree Work, 1967
Michigan State University

Professional Program in Urban Transportation
Planning, 1972
Carnegie-Mellon University

PROFESSIONAL EXPERIENCE:

Present

Planning Director
Southeast Michigan Council of Governments

Responsibilities: To define the Council of Governments' annual work program and budget, taking into consideration its designated responsibilities as the Metropolitan Planning Organization for Southeast Michigan. Requirements from the U. S.

PROFESSIONAL EXPERIENCE (continued):

Departments of Transportation, Housing and Urban Development, Criminal Justice, Environmental Protection Agency, and Office of Management and Budget must be balanced with State of Michigan and local agency objectives to achieve a realistic planning effort. This has required working with officials and key staff from local, regional, state and federal agencies, to focus the content of the Council's programs and their fiscal support.

Specific tasks within this broad responsibility have been to:

- . Define and advise the Executive Director as to the opportunities and constraints associated with the Council's planning responsibilities in the areas of transportation, land use, housing, water, sewer and storm drainage, and criminal justice.
- . Directly negotiate the terms of federal and state grants for the support of the Council's programs.
- . Work in a coordinative manner with Policy and Advisory body officials and representatives of other agencies toward the accomplishment of the Council's planning program.
- . Coordinate through the Technical Director, Program Managers, and key elected officials the periodic review of the Council's Planning Prospectus, General Development Plan, and Unified Work Program to determine their consistency and compatibility and make recommendations for changes in adopted policy. This function also involves editing of the Council's technical and policy documents.
- . Serve as a supplemental communications link to member governments, related groups or agencies on matters dealing with Council plans and policies; including the organization and participation in public hearings, meetings, and workshops.

PROFESSIONAL EXPERIENCE (continued):

Experience Highlights in Current Position

- . Initiation of Transit Ridership Security Project utilizing the Council's Criminal Justice Planning staff in combination with UMTA fiscal resources.
- . Development and execution of a Memorandum of Understanding between the Council of Governments, Michigan Department of State Highways and Transportation, and the region's transit operators.
- . Adoption of the State's first regional land use policy plan.
- . Reorganization of the Council's planning staff under state and federal designations as a Metropolitan Planning Organization.
- . Layout of the Council's Study Design for completion of the U. S. Environmental Protection Agency's water quality management plan.

Previous Positions
with the Council of
Governments
January 1970-September 1974

Chief of Transportation Planning
and
Manager of Transportation and Land Use Planning

Responsibilities: Supervision of a technical staff charged with the development of a comprehensive regional transportation plan. Required of this position was the ability to develop both a technically sound and politically feasible program. This necessitated the negotiation with federal and state agencies on technical content as well as the development of citizen and elected official advisory committees.

The necessity to better coordinate land use planning and transportation issues resulted in my being subsequently designated to head both functions. This position consisted of supervising a staff of twenty-five

PROFESSIONAL EXPERIENCE (continued):

plus persons covering the land use, open space/recreation, housing, and transportation components of the Council's general development plan. Included in this experience was the overall responsibility for contact with funding agencies and a program reporting system.

Experience Highlights:

- . Providing Council leadership in the organization of the Ann Arbor Urbanized Area Transportation Study Committee (UATS).
- . Successful public hearing and adoption process for the region's first comprehensive long-range transportation plan.
- . Development of a prototype Unified Work Program.
- . Initiation of a regional transportation capital improvement program (TIP) prior to federal requirements.
- . Formation of the Council's technical and advisory committee structure.

Past Employment

August 1967-December 1969

Transportation and Land Use Study (TALUS)
A special project of the Detroit Regional Planning Commission.

Position: Transportation Engineer

Responsibilities: Supervision of the design, coding, testing and analysis of the highway and transit network computer simulations used as the basis for the regional plan recommendations. This position involved the supervision of a technical staff in excess of ten persons, development of several household and travel survey instruments, negotiation of contracts for consultant services, presentation of findings to technical and policy committees, and coordination with federal, state and local agencies.

PROFESSIONAL EXPERIENCE (continued):

Subsequent assignments lead to the supervision of the majority of the technical staff in documenting the results and recommendations of this five million dollar, multi-year regional transportation and land use study.

November 1964-July 1967

Tri-County Regional Planning Commission
Lansing, Michigan

Position: Assistant Planner

Responsibilities: Primary responsibility for the data collection, design, coding, testing and evaluation of the traffic assignment networks used in the growth model and transportation model stages of the regional plan development.

Associated with the transportation element of the regional plan were: assignments involving publication of the street inventory information; a study of computer mapping for data analysis; the drafting of uniform road standards for the Region; and coordination with the Michigan Department of State Highways on the State Transportation Needs Study.

May 1964-October 1964

Stark County Regional Planning Commission
Canton, Ohio

Position: Assistant Planner

Responsibilities: General planning involving the detailing of a regional plan to a single community. Formation of special purpose land use, bus transit and highway recommendations.

PROFESSIONAL SOCIETIES:

Urban and Regional Information
Systems Association

HONORS:

Guest Lecturer:
University of Michigan
Wayne State University
Michigan State University
Old Dominion University's NAASA
Transportation Project
Eastern Michigan University

REFERENCES:

Furnished upon request

Barbara B. Murray, Ph.D.

Ford Motor Company
World Headquarters
Room 340
The American Road
Dearborn, Michigan 48121

(313) 337-7613

Dr. Barbara B. Murray holds both a Ph.D. and an M.A. in economics from Wayne State University, a M.B.A. in finance from the University of Detroit, and a B.S. in geology from Michigan State University. Her graduate studies emphasized industrial organization, market structures and performance, public utilities, micro-macro economics, financial management, urban-regional economics, and the economics of regulation.

Dr. Murray is an economist in the Materials Strategy Department of Supply Staff for Ford Motor Company. She is a member of the Board of Directors and Audit Committee of Allied Supermarkets, Inc. She has been an Associate Professor at the University of Michigan. She has also recently conducted seminars on consumerism and business policy for the University of Michigan Division of Management Education and for the United States Civil Service Commission Executive Seminar Series, has been also appointed an Adjunct Professor at Wayne State University and the University of Windsor-Canada. Additionally, she has been a consultant to a variety of business and governmental organizations. In addition to publishing two books in economics and numerous articles, she has also been the keynote speaker at The Economic Club of Detroit. Dr. Murray's experience includes:

- . Economic feasibility study for a bank acquisition by a major bank holding company. The study included identification of the economic characteristics of the banking market, growth trends, and the export base multiplier for the area for determining cyclical impact. In addition, market share and the components of deposit growth were determined for the major banks in the market.
- . Designed the methodology and conducted the financial evaluation for a Federal Energy Administration project on load management of electrical energy by medium sized industrial firms. The analysis determined the rate of return on investment, rate of return of capital, and payback periods associated with the investment. Also, the amount of investment subsidy required to meet management investment criteria was determined as well as the cost effectiveness of the investment.
- . Preparation of an economic forecast and its impact on loans and deposits of credit unions within the State of Michigan.
- . Preparation of economic feasibility studies and expert witness testimony for de novo and branch bank applications for various state and national banks. Earnings estimates were calculated to determine profitability.

Barbara B. Murray, Ph.D.

In addition, Dr. Murray has authored two books:

Consumerism: The Eternal Triangle-Business, Government and Consumers,
Goodyear Publishing Co., Pacific Palisades, California, January 1973.

Study Guide and Workbook for Contemporary Economics, First Edition,
Worth Publishing Co., New York 1971

She has also published numerous articles in various areas of economics.
Included among these articles are:

"Economic Outlook for 1977," Detroit Free Press, November 1976

"Economic Outlook for 1976," Detroit, December 15, 1975

"Irreversibility of Pollution and Depreciation Policies," in
the Change and Scope of Public Utility Regulation, D.C. Heath
and Co., New York 1975

"Regional Electric Power Consumption: A Statistical Description
and Proposed Forecasting Method,:" Proceedings of the New England
Economic and Business Conference, October 1974.

"A Method for Evaluating Public Utility Performance," in Experimental
Policies in the Public Utility Industry, Ballinger Publishing Co.,
New York 1973

"A Pure Theory of Local Expenditures Revisited," Proceedings of the
Conference on Urban Economics, Wayne State University Press, May 1973

"A Model for Identifying the Components of Change in Medical Service
Costs," Proceedings of the American Institute of Decision Making
Sciences, November 1971

"Political Fragmentation and Inequality of Fiscal Capacity in the
Milwaukee SMSA: A Comment and Some Further Evidence," National Tax
Journal, March 1971

"Metropolitan Interpersonal Income Inequality: A Rejoinder," Land
Economics, February 1971

"Review of Six Papers on the Size Distribution of Wealth and Income,"
Mississippi Valley Journal of Business and Economics, Winter 1971

"The Coefficient of Interarea Variation as a Measure of Spatial Income
Inequality," Journal of the American Statistical Association, June 1970

"Economic Indicators," Social Reporting in Michigan: Problems and Issues,
Technical Report A-37, State of Michigan, February 1970

"What Revenue Sharing Means to Michigan," Detroit, December 22, 1969

Barbara B. Murray, Ph.D.

"Central City Expenditures and Out-Migration to the Fringe," Land Economics, November 1969

"An Economic Profile of a Potential Ghetto," Marquette Business Review, Summer 1969

"Urban Issues and Urban Universities," American Association of Collegiate Schools of Business Bulletin, April 1969

"Growth Characteristics of the State of Michigan Labor Force," Technical Report No. 22, State of Michigan, February 1969

"Metropolitan Interpersonal Income Inequality," Land Economics, February 1969

In addition, Dr. Murray has been a speaker on the economic outlook for The Economic Club of Detroit and a guest speaker for various business and professional groups on economic issues. She has also presented numerous papers at various professional meetings, which include the following papers:

"Urban Corporation: Power and Responsibility," MBA Day, University of Detroit, April 1976

"Economic Outlook for 1976," The Economic Club of Detroit, December 1975

"State Crime Statistics: "Do The Traditional Determinants Explain?" Atlantic Economic Conference, September 1974

"A Comment on Optimal Depreciation Charges: Pricing the Products of Pollution Equipment," Inter-University Public Utility Conference, May 1974

"Comment on the General Equilibrium Analysis of the Incidence and Effects of a Value Added Tax of the Consumption Type," Midwest Economic Association, March 1973

"Shift Analysis of Revenues for the Regulated Firm," Inter-University Public Utility Conference, October 1973

"An Index of Spatial Inequality of Demand for Health Care Services," Regional Meetings of the American Statistical Association, May 1972

"Model for Identifying the Components of Change in Medical Service Cost," American Institute of Decision Making Sciences, October 1971

Dr. Murray has received several professional awards. Among these are:

- . Who's Who in American Women
- . Who's Who in American Men and Women of Science
- . Beta Gamma Sigma
- . Fellowship, Committee on Urban Economics Resources for the Future

Barbara B. Murray, Ph.D.

- . Outstanding Educator of the Year (1973) by Outstanding Educators of America
- . Headliner Award, Women of Wayne Alumni Association
- . Who's Who in World Education

In addition, Dr. Murray is also active in professional economic associations as:

- . American Economic Association
- . National Association of Business Economists
- . Membership Committee, The Economic Club of Detroit
- . Chairperson of the Nominating Committee, Midwest Economics Association, 1976
- . Member-Executive Board, Economics Society of Michigan
- . Member-Executive Committee, Inter-University Committee on Public Utility Economics
- . Past Vice-President of the Midwest Economics Association
- . Past President, Detroit Association of Business Economists
- . Past Vice-President, Detroit Association of Business Economists
- . Past President, Detroit Chapter of the American Statistical Association
- . Past Vice-President, Detroit Chapter of the American Statistical Association

In addition, Dr. Murray is also active in various community groups as:

- . Member-Executive Committee of Wayne State University Alumni Board
- . Member-Ad Hoc Committee on Casino Gambling, Greater Detroit Chamber of Commerce

Dr. Murray has also organized and conducted seminars on consumerism and business policy for the University of Michigan, Division of Management Education and for the Executive Seminar of the U.S. Civil Service Commission. Additionally, she has been an Adjunct Professor at the University of Michigan, University of Windsor, Wayne State University, and Central Michigan University.

Biographical Information

Name: Eugene D. Perle

Date of Birth: January 24, 1936

Place of Birth: Jersey City, New Jersey

Marital Status: Married, three children

Education:

University of Chicago--- Chicago, Ill.	Ph.D., 1964
Syracuse University-- Syracuse, N.Y.	M.A., 1959
Dartmouth College-- Hanover, N.H.	A.B., 1957

Fellowships and Awards:

Senior Fullbright-Hays Lectureship, Center for Urban and Regional Studies, Tel Aviv University, Israel, September 1973- July 1974.

Union Carbide Fellowship, The Transportation Center at Northwestern University, Evanston, Illinois, 1961-1962.

Professional Experience:

Associate Professor, Department of Urban Planning and Adjunct Associate Professor, College of Engineering, Wayne State University, 1969- present.

Visiting Fullbright-Hays Professor, Center for Urban and Regional Studies, Tel Aviv University, Tel Aviv, Israel, 1973-1974.

Visiting Lecturer, Department of Geography and Urban Studies Program, Hebrew University, Jerusalem, Israel, Spring 1974.

Visiting Lecturer, Department of Geography, Ben Gurion University of the Negev, Beersheba, Israel, Spring 1974.

Associate Director, Center for Urban Studies, Wayne State University, 1970-1973.

Principal Staff Scientist, Transportation Research and Planning Office, Ford Motor Company, August 1968-June 1969.

Assistant Professor, Department of Geography, University of Pittsburgh, June 1965-June 1968.

Senior Research Associate, Transportation Research Institute, Carnegie-Mellon University, May 1967-August 1968.

Assistant Professor, Department of Geography, Indiana University, September 1963-June 1965.

Research Assistant, The Transportation Center at Northwestern University, 1961-1963.

Professional Organizations:

Regional Science Association
Association of American Geographers
American Statistical Association
Urban and Regional Information Systems Association
Association of American University Professors
Transportation Research Board, NAS-NRC, Committee ALCO4.

Consulting Experience:

The Israel Institute of Transportation Planning and Research
Ministry of Transportation, Israel
Southeast Michigan Council of Governments
New Detroit, Inc.
City of Detroit, Community Development Commission
U.S., Office of Management and Budget
U.S., Department of Transportation
Planning Institute, Belgrade, Yugoslavia
Regional Economic Development Institute, Pittsburgh, Penna.
Consad Research Corporation, Pittsburgh, Penna.
Sores, Inc., Montreal, Canada

Administration:

Council for the International Exchange of Scholars(CIES), Member of screening committee for geography, 1976-1979.

Associate Director, Center for Urban Studies, Wayne State University, 1970-1973.

Transportation Research Board, NAS-NRC, Committee ALCO4 member, 1971-present.

Environmental Studies Advisory Committee, Wayne State University, 1975-1977.

College of Engineering, Wayne State University, Deans Committee to evaluate civil engineering department, 1971-1973.

College of Engineering, Wayne State University, Committee on Transportation Programs, 1970-1973.

Faculty Grants-In-Aid Committee, Wayne State University, 1970-1971.

National Science Foundation, Evaluator of proposals for the social sciences and engineering sciences.

Curriculum Committee, Department of Urban Planning, Wayne State University, 1972- present.

Advisor and consultant, "Feasibility of Joint Development in the Detroit Metropolitan Area", Urban Mass Transportation Administration research grant to Wayne State University, Summer 1977- July 1978.

Principal Investigator, "The Socio-Economic Structure of Detroit", Research grant from the City of Detroit, Community Development Commission, December 1972-June 1973.

Principal Investigator, "The Social Ecology of Southeast Michigan", Research grant from the Southeast Michigan Council of Governments, April- July 1973.

Research Program Coordinator, Sustaining grant from the Bank of the Commonwealth to the Center for Urban Studies, Wayne State University, July 1969-July 1971.

Principal Investigator, "Social Reporting in Michigan", Research grant from the Office of Planning Coordination, State of Michigan, October 1969-May 1970.

Participant:

Panelist, "Comments on Target Rotation and Normative Policy Analysis", Annual meetings of the Association of American Geographers, Salt Lake City, Utah, April 25, 1977.

Panelist, "Oblique Rotation, Higher Order Analysis and Areal Aggregation", East Lakes meetings of the American Association of Geographers, Ann Arbor, Michigan, October 16, 1976.

Lecturer, Special seminar on mathematical models of urban structure, Graduate Program in Urban Studies, The Hebrew University, Jerusalem, Israel, March and April 1974.

Workshop chairman, International Conference on Disaggregate Demand Modelling, Highway Research Board and the Engineering Foundation, South Berwick, Maine, July 8-13, 1973.

Workshop Chairman and Organizaer, "Papers on the Value of Travel Time", Highway Research Board, NAS-NRC, Washington, D.C. January 22, 1973.

Chairman and Organizer, "Urban Social and Political Indicators", Special panel, annual meetings of the American Political Science Association, Los Angeles, Calif., September 8, 1970.

Lecturer, "Transportation Planning Models", Seminar for East European Planners, Ljubliana, Yugoslavia, July 1970.

Publications:

Metropolitan Structure and Change: Essays on Social Ecology
(In preparation).

"Variable Mix and Factor Invariance", (In preparation).

"Target Rotation and Normative Policy Analysis in Urban Ecology",
Environment and Planning A, (forthcoming Winter 1978).

"Scale Changes and Impacts on Factorial Ecology Structures",
Environment and Planning A, Vol. 9, 1977, pp. 549-558.

"Comments on Target Rotation and Policy Analysis", Association of
American Geographers Program Abstracts, 1977, p. 76.

"Policy Issues", Behavioral Demand Modeling and Valuation of Travel
Time, Transportation Research Board, Washington, D.C., Special
Publication 147, 1974, pp. 31-35.

Socio-Economic Structure of Metropolitan Detroit: A Summary. Final report
of the Structure of Metropolitan Detroit Project, prepared for the
Southeast Michigan Council of Governments and the Community Development
Commission, City of Detroit, July 1973, 51 pp.

"The Structure of Metropolitan Detroit", Editor of ten technical reports
prepared under a research grant for the Southeast Michigan Council
of Governments and the Community Development Commission, City
of Detroit, January-June 1973.

"Urban Information Systems and Urban Indicators", Government Data
Systems (3), no. 6, November-December 1973, 15 pp.

An Analysis of Methodology and Regional Forecasts for Southeast Michigan.
Prepared for the Southeast Michigan Council of Governments,
May 1972, 76 pp.

Regional Forecasts for Southeast Michigan. Prepared for the Southeast
Michigan Council of Governments, March 1972, 41 pp.

"Social Reporting: Problems and Potential", Proceedings, Urban and
Regional Information Systems Association, 1971, pp. 64-74.

"Local Societal Indicators: A Progress Report", Proceedings, Social
Statistics Section, American Statistical Association, 1970, pp. 114-120.

Urban Affairs Quarterly. Vol. 6, No. 2, December 1970. Editor of this
special volume on urban indicators. Editor's Introduction, pp. 135-143.

Perle, E.D. et. al., Social Reporting in Michigan: Problems and Issues.
Technical Report A-37, Office of Planning Coordination, State of
Michigan, February 1970.

"Railroad Passenger Decline: A Research Note", The Geographical Review, (LIX), No. 4, October 1969, pp. 614-616.

"Urban Mobility Needs of the Handicapped: An Exploration", in Geographic Studies of Urban Transportation and Network Analysis(F. Horton, ed.) Studies in Geography, No. 16, Northwestern Univ. Press, 1968, pp.20-42.

Perle, E.D.(Ed.), Latent Demand for Urban Transportation. Study D-3, U.S. Department of Housing and Urban Development, Washington, D.C., May 1968.

The American Metals Complex. Final report for Resources for the Future Inc., by the Center for Regional Economic Studies, University of Pittsburgh, March 1967.

"Service Quality and Distribution Systems Costs", Chapter V in Intermodal Freight Transportation Coordination(M.J. Roberts, ed.), Prepared for the Undersecretary for Transportation, U.S. Department of Commerce, November 1966.

Transportation Forecasting Methodologies. Prepared for the Undersecretary for Transportation, U.S. Department of Commerce, October 1966.

"Estimation of Transportation Demand", Papers and Proceedings, Regional Science Association (XV), 1965, pp. 203-215.

"Metropolitan Transportation 1980", Economic Geography, 41(4), October 1965. A book review.

The Demand for Transportation: Regional and Commodity Studies in the United States. University of Chicago Press, 1964.

"The Demand for Transportation: A Comparative View", December 1963 and "Time Series Analysis of Transportation Development", October 1962. Both studies are portions of reports submitted to the U.S. Army Transportation Research Command by the Transportation Center at Northwestern University.

RESUME OF

NOVEMBER 1977

MICHAEL J. RABINS

Chairman
Mechanical Engineering Department
Wayne State University
667 Merrick
Detroit, Michigan 48202
313 577-3843

Home: 29988 Fernhill Drive
Farmington Hills, Michigan 48018
313 851-5530
U.S. Citizen

Born: February 24, 1932
Married: Three Children

Education:

Bronx High School of Science, Bronx, N. Y. 1949.
Mass. Inst. of Tech., Cambridge, Mass., B.S. in
ME, June 1953.
Carnegie Inst. of Tech., Pittsburgh, Pa., M.S. in
ME, June 1954.
Univ. of Wisconsin, Madison, Wisconsin, Ph.D in
ME, June 1959.

Awards and Honors:

University Fellow, University of Wisconsin, 1956-57.
Sigma Xi, 1959.
Honorary Membership in Pi Tau Sigma (NYU) 1961.
Lindback Award for Distinguished Teaching (NYU) 1965.
National Science Foundation Faculty Fellowship
(at Berkeley) 1967-1968.
Honorary Membership in Tau Beta Pi (NYU) 1970.
Visiting Professor, University of Tokyo, Spring, 1971
(under auspices of the Japan Society for the
Promotion of Science).
Elected as Fellow of the American Society of Mechanical
Engineers, 1974.
Visiting Professor, Laboratoire d'Automatique, Polytechnique
Institut de Grenoble, France, Spring, 1975.
DOT Award for Superior Performance, April, 1976.
DOT Secretary's Award, January, 1977.
DOT Secretary's Silver Medal, September, 1977.

Professional Societies:

American Society of Mechanical Engineers (Chairman of
Publicity and Newsletter Committee of the Automatic
Control Division, 1963-1967; Secretary of the Division
1968-1970; Editor of ASME Quarterly, "Dynamic Systems,
Measurement and Control," 1970-1974; Elected to five-
year term on the A.C.D. Executive Committee, 1972-1977;
Chairman of the Division, 1975-1976; Elected Member-at-Large
of ASME Policy Board, Communications, 1976-1979.)

AAUP
AAAS
ISA

Professional Experience:

M. W. Kellogg Co., New York, N. Y. - Feb. - July 1952;
Student Engineer.

M. W. Kellogg Co., New York, N. Y. - June - Aug. 1953;
Design Engineer.

Carnegie Institute of Tech., Pittsburgh, Pa., Sept. 1953 -
June 1954; 1/2 time teaching assistant.

Carnegie Institute of Tech., Pittsburgh, Pa., July 1954 -
June 1955; 1/2 time research eng.

Republic Aviation Corp., Farmingdale, L. I., July 1955 -
Feb. 1956; Design Engineer.

Atlantic Design Co., New York, N. Y., Feb. - Sept. 1956;
Stress Analyst.

Univ. of Wisconsin, Madison, Wisc., Sept. 1957 - Aug. 1958;
1/2 time instructor.

Univ. of Wisconsin, Madison, Wisc., Sept. 1958 - June 1959;
Instructor.

Univ. of Wisconsin, Madison, Wisc., Sept. 1959 - Aug. 1960;
Asst. Professor.

New York University, New York, N. Y., Sept. 1960 - Aug. 1964;
Asst. Professor.

Chandler Evans Corp., West Hartford, Conn., June - Sept. 1962;
Project Engineer.

I.B.M., Poughkeepsie, N. Y., June - Sept. 1964;
Project Engineer.

Agency for International Development (U. S. State Department),
June and July 1966; Guest Lecturer at Jadavpur Univ.,
Calcutta, India - during summer Institute on Mechanical
Instrumentation.

Bell Telephone Laboratories at Murray Hill, N. J.
June - Aug. 1967; Member of Technical Staff, working on
guidance and control problems.
Also summer 1968 and 1969.

New York University, New York, N. Y., Sept. 1964 - 1970;
Associate Professor of Mechanical Engineering.

Polytechnic Institute of Brooklyn, Brooklyn, N. Y., June 1970 -
Present (on leave); Professor of System Engineering and
Director of the System Engineering Program.

Department of Transportation, Director of Office of University
Research, September 1975 - 1977.

Wayne State University, Detroit, Michigan, September 1977 -
Chairman of the Mechanical Engineering Department

Professional Engineering License

Registered Professional Engineer (Control System Engineer)
in the State of California, Certificate No. C51463.

Consulting Experience:

Fairbanks Morse Co.
Barber Colman Co.
Turner Construction Co.
Ohio Brass Co.
Chandler Evans Corp.
Reliable Automatic Sprinkler Co.
Amster and Rothstein (patent attorneys)
Singer-General Precision, Inc.
Evaluation panelist for the N.S.F.

Consulting Experience: (Continued)

Acor Corp.
R. Gary and Co.
Ideal Toy Co.
Emenee Toy Co.
Bell Telephone Laboratories
Gulf and Western, Inc.
James and Franklin (patent attorneys)
Writing introductory engineering course notes for an N.S.F. study

Books: "Control and Dynamic System Response," Y. Takahashi, M. J. Rabins and D. Auslander, Addison-Wesley, Reading, Massachusetts, 1970.

"Introducing Systems and Control," David M. Auslander, Yasundo Takahashi, Michael J. Rabins, McGraw-Hill, Inc., New York, 1974.

"An Introduction to Dynamic Systems and Feedback," Michael J. Rabins, Department of Operations Research and Systems Analysis, Polytechnic Institute of New York, NSF Monograph, July, 1973.

"Introduction to Engineering," edited by M. Rabins, N.Y.U. School of Engineering and Science. (A set of notes for a freshman engineering course.)

Technical Papers:

"The Dynamic Frictional Characteristics of Molded Friction Materials," M. J. Rabins and R. J. Harker, ASME Paper No. 60-WA-35, MACHINE DESIGN, March 1961.

"Torque Capacity of Friction Devices with Nonlinear Frictional Elements," R. J. Harker and M. J. Rabins, ASME Paper No. 62-WA-77.

"The Effect of Temperature on Molded Friction Materials," D. P. Garg and M. J. Rabins, Journal of the Institute of Australian Engineers, March 1965.

"Teaching Engineering to Freshmen - A Favorable Experience at N.Y.U.," M. J. Rabins, Journal of the American Society of Engineering Education, May 1966.

"A Technical Note on a Semi-Graphical Synthesis Procedure," M. J. Rabins and C. Wasynczuk, ASME Journal of Basic Engineering, June 1967.

"A Synthesis Technique for Nonlinear Control Systems Using a Frequency Domain Stability Criterion," D. P. Garg, D. Auslander and M. J. Rabins, 1969 JACC Proceedings, and ASME Journal of Basic Engineering, June 1970.

"A Parameter Plane Comparison of the Popov and Circle Criteria for Nonlinear System Synthesis," D. P. Garg and M. J. Rabins, 1970 JACC Proceedings (in Atlanta).

"A Proposal for an Offshore Jetport serving the Metropolitan New York Area," P. E. McCormack, R. S. Milanese, R. S. Miller and M. J. Rabins, Joint Transportation Conference Proceedings, October, 1970 (in Chicago).

"Stability Bounds for Nonlinear Systems Designed Via Frequency Domain Stability Criteria," D. P. Garg and M. J. Rabins, ASME Journal of Dynamic Systems, Measurement and Control, September, 1972.

"Systems Engineering and Social Systems," Michael J. Rabins, Journal of the Society of Instrument and Control Engineers, Vol. 11, No. 2, February, 1972 (In Japanese).

"On Urban Dynamics," Michael J. Rabins, Systems and Control, Vol. 16, No. 7, July, 1972 (In Japanese).

"Concentrated Design Experience in an Urban Environment," Journal of the American Society for Engineering Education, J. J. Conti, D. C. Miller, V. Agosta, M. J. Rabins, Vol. 64, No. 5, February, 1974.

"A New View of the Modal Control Technique," H. Ju, M. J. Rabins, and C. D. Han, ASME Journal of Dynamic Systems, Measurement, and Control, September, 1975.

"Comments on 'A New View of the Modal Control Technique,'" H. Ju, M. J. Rabins and C. D. Han: "A Letter to the Editor," by J. P. Guerin and M. J. Rabins, ASME Journal of Dynamic Systems, Measurement, and Control, September, 1975.

"Simplification of High-Order Mechanical Systems Using the Routh Approximation," M. Hutton and M. J. Rabins, ASME Journal of Dynamic Systems, Measurement, and Control, December, 1975.

"A Design Technique to Achieve Pole Placement and Static Accuracy," M. Nougaret and M. J. Rabins, 1976 Joint Automatic Control Conference Proceedings.

Publications and Reports:

"Report to Department of Buildings of New York City on the Telephone Company Explosion at 5030 Broadway, October 1962," H. Margolin, R. C. King and M. J. Rabins.

"The Dynamics of Accessed Tape Loops," M. J. Rabins, IBM Tech. Note.

Publications and Reports: (Continued)

"Constructing Hydraulic Test Bench Facilities at Modest Cost,"
M. J. Rabins, HYDRAULIC AND PNEUMATICS, October 1966.

"Guidance and Control of Underground Tunneling Missiles,"
M. J. Rabins, In-house report at Bell Laboratories, Murray Hill,
N. J., Sept. 1967 and Sept. 1968.

"On This New Journal," M. J. Rabins, ASME Journal of Dynamic
Systems, Measurement and Control, March, 1974. (Initial Editorial).

"On This Young Journal," M. J. Rabins, ASME Journal of Dynamic
Systems, Measurement, and Control, September, 1974. (Editorial).

"A Report to the Executive Committee of the ASME Automatic
Control Division - Membership Profile," M. J. Rabins and
H. Bozenhardt, August, 1975. (Long-range planning document).

The Fiscal Year 1977 and 1978 Annual Solicitation Booklet
for the Program of University Research in the Department of
Transportation.

Program Development and Direction:

Chairman of a Polytechnic Institute Committee which developed,
under Sloan Foundation funding, a new multi-disciplinary
project type course entitled "System Design in Societal
Problems." This one-year course has successfully run each
year since 1972.

Chairman of a Polytechnic Institute Committee which developed,
under Sloan Foundation funding, a new B.S. degree program
entitled "Social and Technical Sciences." This degree
program was approved by New York State in 1973.

Program Director of an NSF sponsored summer Science-Student-
Training-Program each year since 1971. This program, entitled
"Technology and Society - System Analysis and Simulation," is
presented each summer to about 50 gifted high school students with
demonstrated mathematical ability and covers modeling, digital
computing and analog simulation.

Director of the Program of University Research in the Department
of Transportation from September 1975 through September 1977, with
responsibility for soliciting, reviewing, contracting and monitoring
about \$4 million of research at about 60 universities each year.

Faculty Committee Activities:

At N.Y.:

Chairman of Ad-hoc Committee to study Freshman Scholarship Problems (1964).

Chairman of Committee to develop Introduction to Engineering Course (1964-1965).

Course Coordinator (of Introduction to Engineering) 1965-1967, 1968-1969).

Undergraduate Committee (1964-1965, 1966-1967).

Mech. Eng. Dept. Scholarship Committee (1962-1964).

Director of Mech. Eng. Dept. Ph.D. Qualifying Exams (1963-1967).

ASME Student Advisor (1960-1963).

Pi Tau Sigma Treasurer (1963-1964).

Residence Hall Committee (1965-1967).

Linear Discrete Systems Course Committee (1964-1966).

Freshman Liaison Committee (1965-1966).

Engineering College Ombudsman (1968-1970).

At Polytechnic:

Sloan Foundation Grant Course Committee and study group

AAUP Policy Committee and Bargaining Committee

Faculty Senate Executive Committee

Chairman, Faculty Senate Grievance Committee

Mellon Foundation Grant Steering Committee

Course Responsibilities:

Undergraduate: Statics, Dynamics, Strength of Materials, Kinematics, Vibrations, Machine Design, Engineering Analysis, Senior Research and Design Projects, Automatic Controls, Concepts of Modern Technology (a freshman course) and Modeling and Simulation of Social Systems (a simulation course).

Graduate: Linear and Nonlinear Automatic Controls, Mechanical Instrumentation, Thesis Direction, and Modeling of Social Systems.

Patents:

Two patents for self-energized friction clutches assigned to the Fairbanks-Whitney Co. of Beloit, Wisconsin.

Research Activities and Area of Specialization:

Experimental investigations of mechanical friction phenomena.

Analytical studies of nonlinear feedback control systems.

Computer studies of automatic control system compensator synthesis.

Primary experience and interest in the design and analysis of dynamic mechanical systems.

Simulation studies of dynamic social systems with feedback.

Presently working on systems requiring a multi-disciplinary approach.

RESUME

Maurice W. Roach
Director
Wayne County Planning Commission

Office Address:

Wayne County Planning Commission
730 City-County Building
Detroit, Michigan 48226
Area Code 313-224-5018

Home Address:

39552 Mayville
Plymouth, Michigan 48170
Area Code 313-455-0982

Date and Place of Birth:

June 26, 1935
Port Huron, Michigan

Education:

Masters Degree in Urban Planning awarded August 1964
Michigan State University
School of Urban Planning - 1958-1959
East Lansing, Michigan

Bachelor of Science in Urban Planning awarded June 1958
Michigan State University - 1956-1958

Antioch College 1953-1956
Yellow Springs, Ohio
Majored in Geography - Transferred to Michigan State University

Port Huron High School - Graduated 1953

Summary of Professional Work Experience:

Wayne County Planning Commission - October 1977 - Present

Appointed County Planning Director on October 1, 1977. The County Planning Director, under the direction of the Planning Commission, is responsible for formulating and directing the agency's technical work program. As Director, I present staff work to the Commission and represent the Commission at official meetings, public hearings, and meetings with civic, technical, or professional groups, and with representatives of state, county, and local government.

Wayne County Planning Commission - February 1968-September 1977

Served as Assistant Director in all phases of planning activity as directed by the Wayne County Planning Commission. This included township zoning reviews, federal grant reviews, local planning assistance, county-wide planning programs, and internal office administration such as grant applications and budget activities. It included, in the absence of the Director, the presentation of Commission activities before legislators and administrators at the local, state, and federal levels of government.

During this nine year period, my principle program responsibilities were in the activities of the Riverfront Development Task Force (Chairman), County input for activities of the Bureau of Census, conduct of two Coastal Zone Management Programs within the County, review functions of the Greater Detroit Area Hospital Council, program activities of the SEMCOG Air Pollution Control Task Force (Chairman), as well as active participation in a variety of transportation and recreation planning activities, including participation in the federally assisted "701" Planning Programs conducted by the Planning Commission.

Detroit Regional Transportation and Land Use Study - September 1965-Feb. 1968
Planner III

Served as Project Supervisor in the preparation of a 7-County Geographical Coding Program and Population Studies. This involved direct supervision of 15 staff and administrative liaison with Consultants. Resigned to accept position with Wayne County Planning Commission.

Detroit Metro Area Regional Planning Commission - July 1960-August 1965
Principal Planner

Served as Secretary to the Technical Study Team which developed the above (TALUS) Program. I also participated in the conduct of the Wayne County Coordinating Zoning Committee. (An activity which is now conducted by the Wayne County Planning Commission.) I participated in the conduct of the Housing and Urban Development sponsored Metropolitan Wayne County Airport Study. Resigned this position to accept position with Transportation and Land Use Study.

Note: The two above agencies were later to become the Southeast Michigan Council of Governments (SEMCOG).

Military Service: December 1959-December 1965

Served 6 years in the U.S. Army Reserves, including six months active duty at Ft. Leonard Wood, Missouri from January 1960 to July 1960, and was honorably discharged in December 1965 with the rank of Spec. E-5.

Educational Work Experience:

During the period of enrollment at Antioch College, served as a Draftsman and Land Use Data Collector at both the Dayton (Ohio) City Plan Board and the Springfield-Clerk County (Ohio) Regional Planning Commission, under the Antioch Cooperative Job Program. Each assignment was full-time for a period of six months.

Upon completion of undergraduate work at Michigan State University, I was employed for a four month period by Harold M. Lewis, Planning Consultant, New York City. A major assignment was development neighborhood plan for a section of Wilmington, Delaware.

Also served four quarters as a graduate assistant at the Michigan State University Institute for Community Development and Service. I was principally involved with research in mechanized land use tabulation techniques and an inter-disciplinary community assistance program in the Grand Haven-Spring Lake Area of Michigan.

Occupational Affiliations:

1. American Institute of Planners - 1958, elevated to Member Status 1968. Served as member of Michigan Chapter Executive Committee (1967-72), Vice President (1972-74) and Chapter President (1975-76). Also served as delegate from Michigan to the Institute's National Planning Policy Conference - 1975 and 1977.
2. Certified as Planner-in-charge for 701 Urban Planning Assistance Programs in Michigan on July 12, 1968.
3. Member Wayne County Supervisory Employees Association, Sept. 1975.
4. Member Association of County Planning Directors, National Association of Counties.

Marital Status:

Married to Margot Phemister on January 12, 1963. Three children - Maggie, Suzanne and Andrew.



COUNTY OF OAKLAND

DANIEL T. MURPHY, COUNTY EXECUTIVE

September 21, 1977

Mr. William Ladd
Center for Urban Studies
University of Michigan-Dearborn
4901 Evergreen Road
Dearborn, Michigan 48128

Dear Mr. Ladd:

With this short note I am enclosing a brief biographical sketch of myself. It is my understanding that you will be using it in connection with my expressed interest in serving on an ad hoc transportation committee.

Hope to hear from you soon.

Sincerely,

A handwritten signature in cursive script, appearing to read "George", is written over a large, stylized flourish.

George N. Skrubb
Manager
Advance Programs Group

gns:fa
enc.

GEORGE NILS SKRUBB

Birmingham, Michigan: born December 13, 1923 at Grosse Pointe Park; graduate of Harvard University; '50 BCP and '51 MRP degrees; Current Position: Manager, Advance Programs Group, County Executive Office, Oakland County; Director, Oakland County Planning Division, 1952-1977; served in U.S. Navy 1943-46 on Guam, Okinawa and China; College of Fellows, faculty Harvard University 1951-52; Director of City Planning, Marquette, Mich. 1947-48; Past President, Michigan Chapter, American Institute of Planners 1966-67; Past President, Detroit Chapter, American Society for Public Administration 1968-69; appointed to Michigan Board of Registration for Professional Community Planners by former Governor George Romney 1967; reappointed by Governor Milliken to 1977, served as Chairman from 1967-1970; received License Number One as Licensed Professional Community Planner in the State of Michigan; Member, Board of Directors, North Oakland County Chamber of Commerce; Past Secretary, Pontiac Rotary Club; Former Member Cranbrook Institute of Science; Member, National Association of Counties; Member, American Society of Planning Officials; Former Senior Member, American Society for Public Administration; Former Member, American Institute of Planners; Former Member, National Board of Examiners, American Institute of Planners; and Former Member, The Institute of Management Sciences.

September, 1977

from the desk of ROBERT B. SMOCK

Subsequent to the attached:

1970 to 1976 Associate Dean of Academic Affairs and Director of Institutional Analysis, The University of Michigan-Dearborn.

Published "Man and the Urban Environment" in Environment: Resources, Pollution & Society, W W Murdoch, Editor (Stamford, Conn: Sinauer Associates, 1971).

Elementary Human Ecology, in manuscript, being trial taught.

VITA: ROBERT B. SMOCK

Personal:

Born 1925, married, four children.

Education:

B.A., Adrian College, 1946

M.A., Ph.D., Wayne State University (Sociology), 1956 and 1962.

Professional Experience:

1946-48 Secondary school teaching.

1948-51 Social work supervision.

1951-55 Assistant Research Director, United Community Services, Detroit.

1956-62 Associate Director, Urban Research Laboratory, and Instructor, Sociology, Wayne State University.

1963 to date, University of Michigan Dearborn Campus; currently Professor of Sociology, [Chairman of Behavioral Sciences, Director of Center for Urban Studies to 1970.]

Publications (Recent):

"A Comparative Description of Capacity Restrained Traffic Assignment," in Highway Research Record #6: Traffic Assignment. Washington, D.C.: National Academy of Science -- National Research Council, 1963.

"Prologue to the Sociological Study of Debt," A Paper presented to the Ohio Valley Sociological Society, 1963.

"Academic Conflict Between Sociological Researcher and Teacher," Ohio Valley Sociologist, 29 (December, 1963), 2-3.

"The Debts of Government, Business, and the Family," A Paper presented to the Michigan Sociological Association, 1964.

with J. Simmons, "The 1963 Detroit Experiment in Traffic Forecasting," Proceedings of the 43rd Annual Meeting of the Highway Research Board, Washington, D.C.: National Academy of Science -- National Research Council, 1964.

"The Sociological Study of Mental Illness," A Paper presented to the Society for the Practice of Psychosomatic Dentistry, 1965.

"Technical Advances in the Regional Planning Process," Bulletin of the Michigan Society of Architects, 42 (September, 1967), 21-23.

The Inner-City Worker, Dearborn, Michigan: The University of Michigan Dearborn Campus Center for Urban Studies, 1967.

"The Utility of the Burgess Ring Theory in the Study of Metropolitan Areas," A Paper presented to the Ohio Valley Sociological Society, 1968.

Memberships (Selected):

Fellow of the American Sociological Association: Secretary-Treasurer, Michigan Sociological Association, 1964-68; Vice-President, UMD Chapter AAUP; past member, Research Committee on Michigan Juvenile Court Reporting, Wayne County Mental Health Council, Technical Study Team of Detroit Regional Transportation and Land Use Study.

Post-doctoral Professional Experience
of Robert B. Smock to 1968-69:

APPOINTMENTS:

The University of Michigan Dearborn Campus,
Assistant Professor of Sociology, 1963-65,
Associate Professor of Sociology, 1965-68,
Professor of Sociology, and Chairman, Section of Behavioral Sciences, 1968-69.

CENTER FOR URBAN STUDIES:

The Center was established by Dr. Smock in 1964 for the purposes of providing
a) surveys and systems research to the people and agencies of metropolitan
Detroit, b) technical survey and computer services to the faculty and
administration of the University, and c) social research experience for
the students of the University. Its projects have included:
or the Detroit Regional Planning Commission (Project TALUS), a 40,000 interview
survey of the 1965 population characteristics.
or Prof. Ernest Harburg, technical assistance on a study of the relationship
between blood pressure, race, genetics, and stress.
or the Oakland County Planning Commission, a survey of living patterns and
attitudes to aid planning policy formulation.
or Taylor Township, a survey of popular response to a poverty-program community
action center undergoing a budget reduction.
or the Detroit Mayor's Commission on Human Resource Development, a study of
the employment of work trips of inner-city residents.
or the City of Saginaw, a survey concerned with people's preferences regarding
housing to help prepare a Model City Proposal.
or the Model City program of Detroit, a survey of attitudes and characteristics
of the inner-city population.
or Prof. Donald Pelz, technical assistance on a study of the safety training
of a cross-section of youthful drivers.
or the Michigan Department of State Highways, a survey of population char-
acteristics and travel behavior in Port Huron.
or the United Community Services of Metropolitan Detroit, technical assistance
on a study of the medical needs of the aged.
or Prof. Nancy Schlossberg, technical assistance on a study of the special
counseling needs of older male college students.
or the Detroit Regional Planning Commission (Project TALUS), development
of a computer model of the process of trip generation.
or the Michigan Department of State Highways, the editing on computer tape
of survey information to aid freeway planning.
or the Michigan State Fair Commission, a survey of the reasons why people
attend the Fair.
These projects have been financed by contracts ranging in amount from less than
one thousand dollars to over one million dollars, and averaging about
\$350,000 per year.

DETROIT REGIONAL TRANSPORTATION AND LAND USE STUDY (TALUS):

In 1965-67, Dr. Smock was given two-thirds time leave by the University to
serve the Southeastern Michigan Council of Governments as Technical Director
of TALUS. He designed, staffed, and supervised the research stages of this
four-year, five-million-dollar comprehensive regional planning project.

TEACHING:

Urban sociology, social stratification, research methods, ~~social welfare~~,
human ecology.

LIST OF PUBLICATIONS of ROBERT B. SMOCK to 1962:

"Labor's Representation in the Church." Michigan Christian Advocate. Vol. 72, No. 19 (May 10, 1945).

The Geographic Distribution of Delinquent Types. Unpublished M. A. Thesis, Dept. of Sociology and Anthropology. Detroit, Michigan: Wayne State Univ. 1952.

A Survey of Operations of the Girls' Training School of Michigan. With Roger M. Lind, et al. Two vols. Lansing, Mich.: State Dept. of Social Welfare, 1953.

Maps of Population Characteristics and Social Conditions in Detroit and Neighboring Communities. With James H. Norton. Detroit, Mich.: United Community Services, 1954.

"Consumer Credit and Social Status." In Proceedings, Fourth Michigan Consumer Credit Conference. Albion: Albion College, 1955.

Social Rating of Community Areas in Metropolitan Detroit. With James H. Norton. Detroit, Michigan: United Community Services, 1955.

"What is the American Family?" Edited by Bureau of Business Research in Consumer Credit and the American Family, Proceedings, 1956 National Consumer Credit Conference. Mich. Business Papers No. 32. Ann Arbor: Univ. of Michigan, 1956.

"How the American Family Feels About Consumer Credit." In Proceedings, Sixth Michigan Consumer Credit Conference. Albion: Albion College, 1958.

"The Importance of the Consumer Attitude Toward Credit." Address to 42nd Annual Convention of the Michigan Consumer Finance Association. Washington D. C.: National Consumer Finance Association, 1958.

"The Confused American Family." In Proceedings of the Credit Union Week-End Institute, Eastern Michigan University, Ypsilanti. Detroit: Michigan Credit Union League, 1959.

"Methods of Keeping O-D Data Up to Date." With Albert J. Mayer. Ed. by Highway Research Board in Traffic Origin and Destination Studies. Bulletin No. 253. Wash. D. C.: National Academy of Sciences -- National Research Council, 1960.

Sociology Test Questions. Assisting Thomas F. Hault, Editor. Farmington, Michigan: Berryford and Sons, 1960.

Traffic in Detroit in 1953 and 1958. Detroit: Wayne State University Institute for Regional and Urban Studies, 1960.

"An Iterative Assignment Approach to Capacity Restraint on Arterial Networks." Ed. by Highway Research Board in Trip Characteristics and Traffic Assignment. Bulletin No. 347. Wash. D. C.: National Academy of Sciences - National Research Council, 1962.

"Planning Research for Expressways and Thoroughfares." Ed. by Oakland County Planning Comm. in Planning Conference Papers. Oakland Center: Michigan State Univ. Oakland, 1962.

Social Change and Personal Debt: An Historical Introduction to the Sociology of Consumer Credit. Ph.D. Dissertation, Department of Sociology and Anthropology, Wayne State University, 1962.



WAYNE STATE UNIVERSITY

CENTER FOR URBAN STUDIES

DETROIT, MICHIGAN 48202

September 14, 1977

Mr. James M. Witkowski
Michigan Transportation
Research Program
Highway Safety Research
Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, MI 48109

Dear Mr. Witkowski:

When we spoke on the telephone, I indicated doubt of my appropriateness for your committee. Since listening to you and reading the material you sent, I have changed my mind. From a selfish viewpoint, such an activity fits well with my role as Coordinator of Research for the Center for Urban Studies and my special interest in encouraging academics to perform and report research findings which are useful in the public domain. Although I have not been directly involved in transportation research for about ten years, this latter interest, along with my general professional activities, should make it possible for me to be a contributing member if appointed.

Even if not a member of the committee, I would be happy to help in any way I can. With regard to your request for other names, I have already responded and can think of no others.

Thank you for your call and letter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Sue M. Smock".

Sue M. Smock
Coordinator of Research

SMS:bb

enclosure: 1

1969 Wayne County Planning Commission, "Wayne County Crime Control and Prevention Study"

1968 - 1969 Wayne State University, College of Education, "N.O.B.E.L."

1967 - 1968 Lafayette Clinic, "1967 Riot Study"

1962 - 1964 State Highway Department. Population and Traffic Forecasting and Model Building

(At various times I have been a consultant to other projects on a short-term basis. In this capacity, I have written parts or all of 'in-house' reports which do not appear in the Publications section)

TEACHING:

Part-time faculty, Department of Urban Planning, Wayne State University, 1974-Present.

Part-time faculty, College of Education, Wayne State University, 1973-1974.

Part-time faculty, Sociology Department, Wayne State University, 1971 & 1972.

Part-time faculty, EPDA Institute, College of Education, Wayne State University, 1969 & 1970.

Part-time faculty, Henry Ford Community College, Social Science Division, 1964-65.

Part-time faculty, Institute for Labor and Industrial Relations, Wayne State University and University of Michigan, 1963.

Part-time faculty, Department of Sociology & Anthropology, Wayne State University, 1957-1962.

(Courses include: Research and/or evaluation methodologies, public policy research, statistical methods, social demography)

PRESENT RESEARCH ACTIVITIES:

Project Director - Project START Evaluation 9/16/75 -
Subcontract through Project START which has grant from
LEAA #19974-1F76

Project Director - "An Analysis of Child Development Service Needs" 9/15/75 - 4/15/77
Grant from Department of Health, Educ. & Welfare #90-6-481

Co-Director - Practice and Life Patterns of Women and Men Physicians
9/2/76 - 9/2/77
Contract from Department of Health, Educ. & Welfare #HRA 230-7A-305

Indepth Analysis of Productivity of Men and Women Physicians
Contract from Department of Health, Educ. & Welfare #100-76-0113

Project Director - Epidemiological Study of a Heroin Population

cont'd -

PUBLICATIONS:

- Myer, Albert J. and Smock, Sue Marx, "Social Change Religion & Birth Rates," The American Journal of Sociology, Vol. LXII, No. 4. Jan. 1957, pp.383-390.
- Myer, Albert J. and Smock, Sue M., "Negro-White Inter-marriage," Center for Urban Studies, Wayne State University, 1959.
- Smock, Sue, "The Grand River Experiment," Community Values as Affected by Transportation: Highway Research Record, No. 2, Washington, D.C., National Academy of Sciences, National Research Council, 1963.
- Smock, Sue M., "Public Response To Increased Service: The Grand River Bus Passenger", Urban Research Laboratory Wayne State University, 1964
- Smock, Sue, "Community Problems and Needs: Views of Detroit Inner-City Black Population," Center for Urban Studies, March 1973.
- Smock, Sue and Bagley, Phyllis, "The Public Benefits Team: A Project Appraisal," Center for Urban Studies, Wayne State University, June 1972.
- Ross, Stuart and Smock, Sue, "A Descriptive Analysis of Demographic and Drug Characteristics of Applicants to a Multi-Modality Treatment Program," Proceedings, Fifth National Conference on Methadone Treatment, Vol. 1, Washington, D.C., March, 1973.
- Washington, Ed: Smock, Sue; Ross, Stuart, "Differential Analysis of Client and Non-Client Heroin Using Population," presented at Drug Abuse Treatment Program/ A Symposium, October 1-3, 1973, Portland, Oregon.
- deGraaf, Beverly and Smock, Sue, Day Care in Yugoslavia--A Case Study, Johns Hopkins University Center for Metropolitan Planning and Research, Baltimore, Md., 1972.
- Smock, Sue and Lowinger, Paul, "The Effects of Coercive Treatment in Drug Abuse," presented at the American Orthopsychiatric Association Meeting, April, 1974. To be published in American Journal of Orthopsychiatry.
- Analysis of 1970 Census Data, Detroit/Wayne County Child Care Coordinating Council.
- Spitzer, Kurt; Smock, Sue; Haworth, Letitia, "The Refinement and Modification of an Instrument for Assessing the Achievement of Interpersonal Skills of Social Work Students, Institutional Report No. 4, Cooperative Assessment of Experiential Learning (CAEL), September 1975.
- Smock, Sue and Smith, James, "A Description of the Black Population of Detroit - 1974," for Station WJLB, Feb. 1976.
- Smock, Sue; Ropke, Ronald; Berkley, Rosemary, "Community Problems and Needs: Views of Detroit Inner-City Black Population," March 1976.
- Lewis, Steven A.; Lichtman, Cary; Smock, Sue, "Interim Evaluation Report," Project START, August 1976.
- Heins, Marilyn, MD; Smock, Sue; Jacobs, Jennifer; Stein, Margaret, "Productivity of Women Physicians," for Journal of the American Medical Association, Oct. 1976.
- Smock, Sue and Ropke, Ronald, "The Detroit Inner-City Black Population: Their Changing Opinions, 1973 & 1976," submitted for publication, Dec. 1976.
- Heins, Marilyn, MD; Smock, Sue; Martindale, Lois; Jacobs, Jennifer; Stein, Margaret, "A Comparison of the Productivity of Women and Men Physicians," for Journal of the American Medical Association, Dec. 1976.

ewis, Steven A.; Lichtman, Cary and Smock, Sue M., "Evaluation of Community Based Enriched Probation Program," paper at American Psychological Meetings. Sept. 1977, San Francisco.

ADDITIONAL PROFESSIONAL ACTIVITIES

In the role of coordinator of research for the WSU Center for Urban studies, there are two additional functions not reflected in the standard vita. I act as methodological consultant to faculty who wish to research a specific question. I consult and advise community groups and agencies concerning: (1) information retrieval systems; (2) data collection; and, (3) entire research/evaluation programs.

VITA

ROBERT I. WITTICK

Personal Data:

Born: October 13, 1942
Marital Status: Single
Present Address: 4663 Woodcraft, Okemos, MI 48864
Present Position: Associate Professor, Department of Geography and the
Computer Institute for Social Science Research, Michigan State University,
East Lansing, MI 48824
Phone Numbers: (Area Code 517) 353-8756 (Geography), 353-2040 (CISSR),
349-4744 (home)

Education:

University of Iowa; Ph.D. (Geography), 1972
(Dissertation title: "The Development of an Integrated Geographic
Information System")
Western Michigan University; M.A. (Geography), 1966
Elmhurst College, Elmhurst, Illinois; B.S. (Business Administration), 1964

Honors and Awards:

Member, Pi Gamma Mu, honorary social science fraternity
Member, Gamma Theta Upsilon, honorary geography fraternity
Tuition Scholarship, University of Iowa, 1969-1970

Teaching Experience:

Associate Professor, Michigan State University, 1976-present
Visiting Assistant Professor, University of Iowa, Spring 1976
Assistant Professor, Michigan State University, 1972-1976
Instructor, Michigan State University, 1970-1971
Part-time Instructor, University of Iowa, Summer 1968, 1969-1970

Areas of Teaching Interest: (Dates indicate when course was taught)

Computer Techniques in Geography (1969-1976)
Transportation Geography (1971-1975)
Urban Geography
Economic Geography (1968, 1970-1971, 1973)
Quantitative Methods in Geography (1975-1976)

Research Experience:

Supervisor, computer aspects of Michigan Atlas Project, 1975-1976
Consultant, General Motors Transportation Systems Division, 1975
Consultant, IGU Commission on Geographical Data Sensing and Processing,
1974-1975
Computer Consultant, Department of Geography, University of North Carolina at
Charlotte, December 1973
Systems Consultant, A.A.G., Urban Goals Project, Summer 1972
Member, Technical Section, CISSR, Michigan State University, 1970-present
Research Assistant, U.S.C.S. Remote Sensing Project, Summer 1969, 1969-1970
Departmental Computer Programmer, University of Iowa, 1968-1969
Computer Center Graduate Trainee, University of Iowa, Summer 1967
Research Assistant, Kalamazoo County Planning Commission, Spring 1965

Special Research Training:

Computer Mapping Course, The University of Chicago, October 1965
Computer Center Graduate Trainee, University of Iowa, Summer 1967

Areas of Research Interest:

Computer Techniques in Geography (particularly Automated Mapping)
Geographic Information Systems
Urban Transportation Geography
Network Analysis

Administrative Experience:

Director, Geography Program Exchange (funded through National Science Founda-
tion and Michigan State University), 1971-present
Head, Technical Section, Computer Institute for Social Science Research, 1974
Acting Director, Computer Institute for Social Science Research, July 1974
Coordinator, Research Support Services, CISSR, 1974-1975

Publications:

- "A Spatial Model for Examining the Journey-to-Work in a Planning Context",
with Frank E. Horton, *The Professional Geographer*, July 1969.
- "On Place Utility and the Normative Allocation of Intra-Urban Migrants", with
Lawrence A. Brown and Frank E. Horton, *Demography*, April 1970.
- "The Development of a Geography Program Exchange", with Duane F. Marble,
*Geocoding-71: Papers from the Working Session on Geographic Base File
Development*. Cambridge, Mass.: Urban Data Processing, Inc., 1971.

Publications (continued):

- "Utilization of Remote Sensors in Urban Transportation Studies", with Frank E. Horton, *Remote Sensors as Data Sources for Urban Research and Planning*, A Final Report Submitted to the Geographical Applications Program, United States Geological Survey, Evanston, Ill.: Remote Sensing Laboratory, Northwestern University, April 1971.
- "Rejoinder to Casetti's 'Critical Notes on an Alleged Operationalization of the Concept of Spatial Utility'", with Lawrence A. Brown and Frank E. Horton, *Demography*, November 1972.
- "The Geography Program Exchange: Present Operations and Future Goals", *Computer Applications in Geography*, edited by Mark S. Monmonier, Department of Geography, State University of New York at Albany, October 1972.
- "An Instructional Unit for Simulating Urban Residential Segregation", with John D. Stephens, *The Professional Geographer*, August 1975.
- "A Computer System for Mapping and Analyzing Transportation Networks", *Southeastern Geographer*, May 1976.
- "A Geographic Computer System for the Analysis and Graphic Depiction of Spatial Point Data", *Geographical Analysis*, July 1976.

Papers Read at Professional Meetings:

- "A Spatial Model for Examining the Journey-to-Work in a Planning Context", with Frank E. Horton, presented at the West Lakes Section of the Association of American Geographers, Madison, Wisconsin, October 1968.
- "On Place Utility and the Normative Allocation of Intra-Urban Migrants", with Lawrence A. Brown and Frank E. Horton, presented at the Annual Meeting of the Population Association of America, Atlantic City, New Jersey, April 1969.
- "The Development of a Geography Program Exchange", with Duane F. Marble, presented at the Annual Meeting of the Urban and Regional Information Systems Association, New Orleans, September 1971.
- "The Geography Program Exchange: Present Operations and Future Goals", presented at the SUNY/Albany Conference, *Conversation in the Disciplines*, Albany, New York, October 1972.
- "A Geographic Information System for the Analysis and Description of Spatial Point Data", presented at the Michigan Academy of Arts and Sciences Annual Meeting, East Lansing, March 22, 1974.

Papers Read at Professional Meetings (continued):

- "The Role of the Computer Institute for Social Science Research in the Development of Automated Mapping Software", presented at the College of Human Medicine, Michigan State University, Conference, *Applied Mapping: An Exploratory Exchange of Ideas*, East Lansing, September 18, 1974.
- "The Migration System of Tegucigalpa, Honduras: Examples of Automated Spatial-Analytic Methods", with John D. Stephens and Robert N. Thomas, accepted for presentation at the Sixth Annual Meeting of the Latin American Studies Association, Atlanta, Georgia, March 1976.
- "Development of an Operational Technology Transfer Center Within Geography", with Duane F. Marble, presented at the International Geographical Congress, Moscow, July 1976.

Technical Reports:

- "Department of Geography Manual of Computer Programs", Special Publication Number 1, Department of Geography, University of Iowa, October 1968.
- "Some General Statistics Programs Used in Spatial Analysis", Technical Report 71-1, Computer Institute for Social Science Research, Michigan State University, January 1971.
- "Some Spatial Statistics Programs Used in Spatial Analysis", Technical Report 71-3, Computer Institute for Social Science Research, Michigan State University, February 1971.
- "CONTUR: Contour Mapping on the CalComp Plotter", Technical Report 71-4, Computer Institute for Social Science Research, Michigan State University, March 1971, with John D. Loikow.
- "Perspective Views and Block Diagrams on the CalComp Plotter", Technical Report 71-5, Computer Institute for Social Science Research, Michigan State University, April 1971, with John D. Loikow and John D. Stephens.
- "Special Purpose Mapping Routines for the CalComp Plotter", Technical Report 71-6, Computer Institute for Social Science Research, Michigan State University, May 1971, with John D. Loikow and John D. Stephens.
- "Some Programs Used for Tree-Ring Analyses", Technical Report 71-7, Computer Institute for Social Science Research, Michigan State University, December 1971, with Jay R. Harman.
- "Two Programs for the Solution of the Transportation Problem of Linear Programming", Technical Report 71-8, Computer Institute for Social Science Research, Michigan State University, December 1971.

Technical Reports (continued):

- "AZMAP: Azimuthal Map Transformations", Technical Report 71-9, Computer Institute for Social Science Research, Michigan State University, December 1971.
- "LATMAP: Mapping Latitude/Longitude Coordinates onto a Polyconic Projection", Technical Report 71-10, Computer Institute for Social Science Research, Michigan State University, December 1971.
- "Additional General Statistics Programs Used in Spatial Analysis", Technical Report 71-11, Computer Institute for Social Science Research, Michigan State University, December 1971.
- "Additional Spatial Statistics Programs Used in Spatial Analysis", Technical Report 71-12, Computer Institute for Social Science Research, Michigan State University, December 1971.
- "LANDUSE: A Computer Program for the Simulation of Agricultural Land Use", Technical Report 71-13, Computer Institute for Social Science Research, Michigan State University, December 1971.
- "BLOCKS: Plotting Planar Projections of Three-Dimensional Block Models", Technical Report 71-14, Computer Institute for Social Science Research, Michigan State University, December 1971.
- "Small Scale Mapping and Associated Data Files", Technical Report 72-13, Computer Institute for Social Science Research, Michigan State University, November, 1972.
- "CASP: Choropleth Map Construction on the CalComp Plotter", Technical Report 73-1, Computer Institute for Social Science Research, Michigan State University, April 1973, with John Loikow and DeWitt Braud.
- "SYMVU: Perspective Views Depicting Area Outlines", Technical Report 73-2, Computer Institute for Social Science Research, Michigan State University, April 1973.
- "A Set of Subroutines Used for the Construction of Line Printer Scatter Diagrams", Technical Report 73-3, Computer Institute for Social Science Research, Michigan State University, April 1973.
- "NONCELO: Hagerstrand's Simulation of Diffusion Over an Irregular Lattice", Technical Report 73-4, Computer Institute for Social Science Research, Michigan State University, April 1973, with John D. Stephens.
- "GEOSYS: An Information System for the Description and Analysis of Spatial Data, Version 2", Technical Report 73-6, Computer Institute for Social Science Research, Michigan State University, May 1973, (out of print).

Technical Reports (continued):

- "FLOW: An Information System for the Analysis and Graphic Description of Spatial Networks", Technical Report 74-51, Computer Institute for Social Science Research, Michigan State University, March 1974, with DeWitt Braud.
- "GEOSYS (Version 4): An Information System for the Description and Analysis of Spatial Data", Technical Report 74-53, Computer Institute for Social Science Research, Michigan State University, October 1974.
- "CLUSTER: Clustering Analysis of Variables", Technical Report 74-23, Computer Institute for Social Science Research, Michigan State University, January 1975, with Richard E. Stobby.
- "POLYREG: Polynomial Regression", Technical Report 74-24, Computer Institute for Social Science Research, Michigan State University, January 1975, with Deepak V. Desai.
- "COVAR: Generalized Analysis of Covariance", Technical Report 74-25, Computer Institute for Social Science Research, Michigan State University, January 1975, with Deepak V. Desai.
- "CONGROUP: Contiguity Grouping", Technical Report 74-26, Computer Institute for Social Science Research, Michigan State University, January 1975, with Deepak V. Desai.
- "INTERIM: Iterative Factor and Discriminant Analysis", Technical Report 74-27, Computer Institute for Social Science Research, Michigan State University, January 1975, with Deepak V. Desai.
- "DISCR: Stepwise Multiple Discriminant Analysis", Technical Report 74-28, Computer Institute for Social Science Research, Michigan State University, January 1975, with Anne E. Nieberding.
- "ATLAS: A Retrieval System for Michigan County Data", Technical Report 75-5, Computer Institute for Social Science Research, Michigan State University, October 1975.
- "CALFORM", Technical Report 75-6, Computer Institute for Social Science Research, Michigan State University, October 1975.

Grants Received:

- Mathematical Social Science Board: "Geography Program Exchange"; funded by NSF (\$12,000), 1971-1973.
- Biomedical Support: "Cluster Analysis and Computer Mapping"; funded by NSF (\$1,000), Leighton Price, co-grantee, 1971-1972.

Grants Received (continued):

All-University Research Grant: "Computer-Assisted-Instruction Units"; funded by MSU (\$350), 1970-1971.

All-University Research Grant: "Computer-Assisted-Instruction Units II"; funded by MSU (\$250), 1971-1972.

All-University Research Grant: "Automated Cartography Units"; funded by MSU (\$195), 1972-1973.

All-University Research Grant: "CAI Interactive Graphics"; funded by MSU (\$185), 1973-1974.

All-University Research Grant: "A Software System for the Depiction and Analysis of Spatial Area Data"; funded by MSU (\$175), 1974-1975.

All-University Research Grant: "Development of a Computer System for the Analysis and Graphic Depiction of Spatial Flows"; funded by MSU (\$250), 1975-1976.

Michigan State University Campus Committees:

Geography Computer Liaison Committee (1970-present)
Geography Curriculum Committee (1970-1973); Chairman (1972-1973)
Geography Staffing Committee (1973-1974, 1975-present)
Geography Admissions and Awards Committee (1973-present)
Geography Advisory Committee (1975, 1976-present)
Geography Cartography and Remote Sensing Committee (1972-present)
Geography Atlas of Michigan Steering Committee (1974-present)
Computer Institute Software Evaluation Committee (1972-1973)
Computer Institute Technical Priorities Committee (1972-1973)
College of Social Science Graduate Committee (1975-present)
College of Social Science Computer Operations Committee (Chairman) (1970-1971)
Computer Laboratory Users' Advisory Committee (1976-present)
Computer Laboratory Operations Advisory Committee (1972-1974); Secretary (1972-1973)
Computer Laboratory Statistical Advisory Sub-Committee (1971-1972)
Computer Laboratory Graphics Users Sub-Committee (1973-present)
Provost's Census Tape Committee (and Technical Sub-Committee thereof) (1970-1971)

Invited Conferences:

NSF Conference for the Use of Computers in Geography, Minneapolis, Minnesota,
June 1970.

NSF Conference for Mathematical Geographers, Tucson, Arizona, May 1971.

SUNY Conference for Computer Applications in Geography (Speaker), Albany,
New York, October 1972.

References:

Dr. Lawrence M. Sommers, Chairman
Department of Geography
Michigan State University
East Lansing, Michigan 48824

Dr. James L. Phillips, Director
Computer Institute for Social Science Research
Michigan State University
East Lansing, Michigan 48824

Dr. Clyde F. Kohn, Chairman
Department of Geography
University of Iowa
Iowa City, Iowa 52242

Dr. Frank E. Horton
Vice President for Academic Affairs and Research
Southern Illinois University
Carbondale, Illinois 62901

Dr. Duane F. Marble
Department of Geography
State University of New York at Buffalo
Buffalo, New York 14226

I. Research Title: Automatic Data Processing for the Airports Development Management System.

II. Research Field: Airport Planning and Development.

III. Research Problem Statement:

The present method of determining state airport needs (both airside and landside) is based on the manual review of each individual airport request for airport improvements, and a comparison of these requests with the individual airport master plan. Sponsor requests are reviewed by the Federal Aviation Administration (FAA) and assessed using the FAA criteria (1). At the state level, requests are reviewed by the Michigan Aeronautics Commission (MAC) and assessed using criteria developed by the MAC (2). Using the MAC criteria the airports are rated individually and not against other airports. Development projects are compared to master plans to determine if they are consistent. Existing airport conditions are compared to the master plan to determine each airport's sufficiency rating, which is the percentage of the master plan that has been completed. However, there is no written criteria to determine the impact of proposed airport improvements on the objectives in the state airport system plan, and hence there is no comparison of improvements between airports on a systemwide basis. Therefore, an airport with an aggressive master plan can receive a high priority rating for proposed improvements irrespective of how these projects meet statewide airport needs.

In recognition of this deficiency, the State of Michigan has initiated the development of a new approach to determining airport needs and implementing state airport system projects. The MAC Airports Development Management System (ADMS) is designed to coordinate and administer airport development projects. The system will generate a five year state airport system development plan, and will have the flexibility to periodically update the five year program. The system design is biased toward adaption to automatic data processing (ADP) for the many calculative operations entailed. The ADMS is dependent on a procedure for identifying airport needs.

This proposed research will concentrate on the development and implementation of a methodology to identify state airport needs based on several key elements and to select demand indicators. The methodology must have the capability to project needs for a five year period for each airport. It must also be able to integrate new data into an existing five year program and produce a revised plan based on this new information. As presently envisioned, the analysis capabilities are to include:

1. The generation of systemwide activity statistics and a comparison of those statistics with those projected in the state airport system plan.
2. Generation of systemwide physical inventory information for airports of various functional classifications.
3. Compliance and status reports on airport development projects.
4. The impact of proposed airport improvements on the objectives listed in the state airport system plan.
5. Comparative analyses of the planned improvement to determine if it is consistent with the airport master plan and the state airport system plan.

IV. Objectives

A. Phase I - Methodology Conceptualization

1. Definition of MAC needs - This activity will determine the information required by the MAC to assess airport development needs and develop a five year system plan. It will also determine the capabilities required by the MAC to monitor and analyze the effects of system development.
2. Identify key elements and demand indicators required to assess airport development needs. - These elements (either developed or from a body of supportive literature) must be capable of being incorporated at this time into an ADP analysis technique. The elements/indicators must be applicable to the analysis of all airport classifications within the state, and be capable of generating a forecast of future airport development needs. (These elements will be reviewed and approved by the MDSH&T and the MAC prior to proceeding with Activity 3 of Phase I).
3. Conceptual Design of ADMS input phase. - This task will determine the theoretical layout of the needs assessment methodology. A description of the input phase as it is presently envisioned is enclosed (see attachment). This task will determine how the various key elements/indicators will be integrated with the sponsor's requests and airport master plans to produce a description of airport development needs. Completion of this task should produce:
 - a. A detailed definition of the data base requirements and an assessment of data availability to analyze airport needs.
 - b. A detailed definition of the analysis capabilities of the

needs assessment methodology.

- c. A description of the output of this methodology and its potential use as a needs assessment tool.

This technique should develop a description of the systemwide airport development needs such that a comparison with individual airport master plans would reveal any significant discrepancies in the need for proposed development.

4. Study design and implementation schedule of project Phases II and III. When completed, this task will encompass a detailed description of the intended approach and time schedule for completion of Phases II and III of this project.

Note: Continuation of Phase II and Phase III work is contingent upon satisfactory completion and approval of Phase I. The elements of Phase I will be reviewed and approved by MDSH&T and MAC. However, a proposal of the intended approach to, and work requirements of, Phases II and III is required at this time.

B. Phase II - Design of Test System

1. Data base from sample airports - This task will involve the collection of sample data to be used to test the preliminary system analysis components. A description of the data requirements and data requirements and data availability should result from the completion of Phase I. All data shall be capable of being processed and maintained on magnetic tape, disk or punched cards.
2. Development of analysis components - This task will entail the development of the preliminary ADP needs assessment system, including programming and documentation of any computer programs and general system assembly. The system will be designed to develop a five year airport development plan, the system must provide for flexibility to test the plan sensitivity to changes in key input parameters.
3. Testing and critique of preliminary system - Once the system is developed, it will be tested using the sample data gathered in Activity 1 of Phase II. Test results should indicate if revisions in the methodology are necessary. Results of this activity will be reviewed by MDSH&T and MAC personnel and suggestions for system improvements will be made.
4. Implement preliminary system changes - System changes, including changes in the analysis components and data base will be made, and the revised system will be tested as in Activity 3, Phase II.

5. Finalize system design - After preliminary testing and revision, the final system design will be reviewed and approved by the MDSH&T and the MAC before proceeding with Phase III.

C. Phase III - System Implementation

1. Data collection - The required data for all Michigan airports will be collected and processed onto magnetic tape, disk or punched cards. The data will be reviewed for accuracy and revised as required. Final data sets should be capable of retrieval by individual airport, airport classification, and other select categories, and should be capable of revision and update.
2. Test analysis capabilities of final system - The system capabilities will be determined using data from all airports. Sensitivity analysis will be performed, and the final results will be reviewed by MDSH&T and MAC personnel.
3. Generate user's manual - A fully documented users manual will be developed which will include:
 - a. Flow charts showing the analysis procedure for all systems components including the main program(s) and all subroutines or subsystems, including a printout of all computer programs developed.
 - b. System data requirements, including a sample and description of all data files, and techniques for accessing and revising or updating data files.
 - c. A detailed description of the system analysis capabilities including a description (with samples where applicable) of all input files needed and output files created by any programs or sub-programs incorporated in the final system.
 - d. A step-by-step procedure for accessing, maintaining and running any computer programs developed for this system including, memory requirements, computer time requirements, and remote terminal capabilities.
 - e. Other information deemed necessary by MDSH&T and MAC personnel.
4. Activate final system - Complete implementation of the final system on MDSH&T computers will be required before completion of this contract. Implementation will require the development of the information necessary to produce a five year needs projection for the state airport system.

B. Required Copies of Reports.

1. Interim Reports - 12 copies each
2. Final Report - 6 copies
3. Executive Summaries - 250 copies
4. User's Manual - 20 copies

C. Automatic Data Processing Requirements

1. Any computer programs written and/or data files created on magnetic tape, disk or punched cards must be capable of being processed on MDSH&T computer equipment.
2. Any computer programs and/or data files developed must be accessible through both batch and remote teletype systems.
3. All computer programs developed must be written in standard COBOL or Fortran languages.
4. MDSH&T personnel will be available to supply technical assistance in the development of computer programs and/or data files on the MDSH&T computer system.
5. MDSH&T computer systems and support services will be available (although use is not mandatory) for the development and completion of this contract. The system consists of:
 - a. Burroughs 7760 Computer
 - b. 9 track magnetic tape system at 1600 BPI with complete disk capabilities
 - c. Teletype and timesharing capabilities
 - d. Batch turnaround time is approximately 24 hours
 - e. Approximate costs are \$1,000 per cpu hour or \$300 per cpu hour plus \$300 per IO hour

More information can be obtained from:

Mr. Greg Dick

Manager, MDSH&T Computer Services Division

Phone: 1-517-373-2359

6. The following must be contained in the proposal:
 - a. Manufacturer and model of computer to be used for development of the system
 - b. Turn-around time and memory requirements
 - c. Peripheral equipment requirements

V. References

1. Airport Development and Program (ADAP) Authority, Program Policy, Eligibility and Allowability Criteria (Book I), U.S. Department of Transportation, Federal Aviation Administration Order 5100.17, August 1971.
2. MAC Airport Rating System for: Master Plans, Airport Layout Plans, Existing Facilities, Program Priorities, Michigan Aeronautics Commission, Lansing, Michigan, November 1975.
3. National Airport Systems Plan, U.S. Department of Transportation, Federal Aviation Administration Order 5090.3A, November 1976.
4. Michigan Aeronautics Commission Airport Development Management System.
5. Michigan State Airport System Plan through 1990, Final Report, Michigan Department of State Highways and Transportation, August 1974.

VI. Special Requirements:

A. Meetings

1. At least one representative of the selected Contractor will be required to meet with representatives of the Bureau of Aeronautics six (6) weeks prior to the beginning of work.
2. The members of the contract team will be required to meet with, and present their proposal to, the commissioners of the MAC and the project director 15 to 30 days prior to the beginning of work.
3. Meetings will be required during the work period to present Interim Reports. Interim reports will be required upon completion of:
 1. Activity 2 of Phase I.
 2. Phase I
 3. Activity 3 of Phase II
 4. Phase II
 5. Activity 2 of Phase III

It will be to the contractor's advantage to prepare these interim reports in such a manner that they can be easily integrated into the final report.

- d. Computer time requirements and applicable rates
- e. Remote terminal capabilities, including communication lines and modes required
- f. Geographical location of computer to be used
- g. Description and specifications for system analysis and/or programming, including man-hours of effort and cost estimates
- h. Description of any special ADP equipment and/or services required
- i. Description of any special software support required

VII. Funds Available

Phase I

Phase II

Phase III

VIII. Contract Time

Phase I - 6 months

Phase II - 18 months

Phase III - 12 months

IX. Authorization to begin work: The approximate start up time for the project is

X. Submit eighteen (18) individually bound copies of the proposal to:

Mr. Robert Thomas

Michigan Aeronautics Commission

Capital City Airport

Lansing, Michigan 48906

Phone: 517-373-1834

XI. Proposal Deadline:

Proposals are due not later than 4:30 p.m., . This is a firm deadline and extensions are not granted. In order to be considered, all 18 copies of the agency's proposal must be in the offices of the MAC not later than the deadline shown. The MAC does not recognize the U.S. Postal service, or any other organization, as its agent for purposes of accepting proposals. All proposals arriving after the deadline shown will be rejected.

In the event that proposals are hand carried on their due date, be aware that the offices of the MAC are located on the 2nd floor of the Terminal Building Capital City Airport in Lansing, Michigan.

XII. Special Notes:

- A. The essential features required in a proposal for this research are detailed in

Proposals must be prepared according to this document.

- B. The proposals will be reviewed by a selection committee comprised of personnel from the MAC, the computer services division of the MDSH&T, Airport Design, the Department of Management and Budget and others. Selection of an agency is made only by the project panel and in consideration of:
1. The proposer's demonstrated understanding of the problem;
 2. The merit of the proposed research approach and experiment design;
 3. The probability of success in meeting the project's objectives;
 4. The qualifications of the investigators, particularly practical experience and past successes ("track record") in the same or closely related problem area; and
 5. The adequacy of the facilities.

The total funds available are made known in the Project Statement and line items of the budget are examined to determine the reasonableness of the allocation of funds to the various tasks. If the proposed total cost exceeds the funds available, the proposal is rejected.

- C. The project manager will be:

Mr. Robert Thomas
Michigan Aeronautics Commission
Capital City Airport
Lansing, Michigan 48906
Phone: 517-373-1834

- D. All proposals become the property of the State of Michigan.



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

August 2, 1977

MEMO TO: Michigan Transportation Research Program
Advisory Committee
FROM: James L. Dries, MTRP Staff *JLD*
SUBJECT: Progress Report, Energy Efficiency Analysis
White Paper and Short-Term Transportation
Energy Contingency Plan RFP.

The persons selected to prepare the white paper met on July 19, 1977 to discuss the conduct of the project. The following persons attended:

Mr. Clarence Generette
President
Voorhees-Generette.

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

August 2, 1977

Mr. Leonard E. Newland
Staff Manager
Michigan Transportation Research Program

Mr. James L. Dries
Research Associate
Michigan Transportation Research Program

General approaches to the white paper's preparation were discussed. It was decided to use the CONFER II computer conferencing system of The University of Michigan to pass messages and texts between the participants. The system can be accessed through the computer facilities at Wayne State University and Michigan State University.

A training class was held on July 27, 1977 on the use of the conference system. A bibliography of publications related to the white paper topic has been prepared and distributed through the conferencing system.

The RFP for the Short-Term Transportation Energy Contingency Plan has been prepared and is currently under administrative review by The University of Michigan. The RFP includes the Work Plan approved by the Advisory Committee at its June 29, 1977 meeting.

JLD/ucn



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

September 22, 1977

TO: MTRP Advisory Committee
FROM: MTRP Energy Efficiency Analysis Ad Hoc Committee, MTRP Staff
SUBJECT: Status of the Michigan Short-Term Transportation Energy Contingency Plan RFP and the Michigan Transportation Energy White Paper.

The Michigan Short-Term Transportation Energy Contingency Plan RFP was mailed to potential bidders on Wednesday, September 12. A copy of the RFP and a list of potential bidders to whom the RFP was mailed is attached. The closing date for bids is listed as October 14, 1977 at 4:30 p.m. but will be extended to October 14, 1977 at 4:30 p.m. No bids or inquiries have been received in response to the RFP as of this writing.

The Michigan Transportation Energy White Paper team met again on September 21, 1977 to develop a detailed paper outline. The detailed outline, with data and source references will be presented to the Ad Hoc Committee for its review and comment during the week of October 2, 1977. A preliminary paper, incorporating the Ad Hoc Committee's comments, will be available for the Advisory Committee's review during its October, 1977 meeting.

MICHIGAN TRANSPORTATION RESEARCH PROGRAM (MTRP)

MOBILITY RESEARCH PLANNING

A Program Methodology Concept

L. E. Newland

(Working Paper)

June 6, 1977

Overview and Rationale

This paper suggests a methodology for 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 the resolution of these issues and the exploitation of 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 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.

A five-year time frame has been chosen as a best estimate of a "near term future" definition in which technological, economic, demographic, and policy changes can be anticipated with some degree of accuracy, and rational alternative actions and reactions can be recommended. During this time frame an understanding of transportation needs is implicit to the methodology, as well as at least a partial understanding of evolving needs. However, the end purpose of the methodology is to develop the research and analysis tasks needed to better understand these needs and to anticipate governmental, entrepreneurial, and institutional decision and action alternatives which evolving mobility requirements will require for the sustenance and growth of the Michigan economy.

In any analytical process data availability and quality is crucial to the development of useful results. In planning studies, even in a near term future context, the analytics involved in performing projections can be formalized and computerized, but implicit in the process there will be inevitable assumptions and estimates. This methodology seeks to make these explicit, and to provide a format which is rigorous enough that the analytical processes will be comprehensive, in that relationships between important variables can be identified and understood sufficiently well that at least alternative results of interactions can be estimated.

Methodology Tasks

The tasks to implement the research planning methodology are identified, and their interrelationships are illustrated in figure 1.

(1) Present Allocation of Supply (Modes) to Demand (Industry/Population Sectors).

Statewide transportation demand and modal supply would be disaggregated into "industry/population sectors" as illustrated in Table 1. These groupings were selected to be representative of important industries and activities within Michigan's economy, and important demographic and spatial categories within Michigan's society which tend to have their own peculiar transportation requirements and mode usage to support their basic economic and social activities. (Other such groupings may be identified.) The demand-supply relationship variables would be quantified (e.g., passenger miles and ton miles). For the initial phases of the study, where such data is not available estimates would be made from studies in the literature which would seem to be compatible with the Michigan environment, and existing survey mechanisms would be utilized for data collection where possible, or survey plans developed. In particular, the trip-making behavior of the elderly and handicapped will probably require the use of survey techniques for data collection. However, elderly and handicapped travel demand and trip behavior studies are appearing in the literature which may be at least in part generalizable to Michigan.¹

The freight and industrial logistics demand sector refers to the movement

1. E.g., see "Problems of the Carless", DOT-TST-76-101, U.S. Department of Transportation, Office of University Research, June 1976. Also an existing survey mechanism in the state of Michigan which can readily gather trip purpose and trip making behavior data is available through the ongoing driver licensing survey by the Michigan Department of State, under the direction of Martin Lee.

LOW CHART - FIVE-YEAR MICHIGAN MOBILITY RESEARCH PLAN METHODOLOGY
 (Anticipating "Hard Choices" and Opportunities)

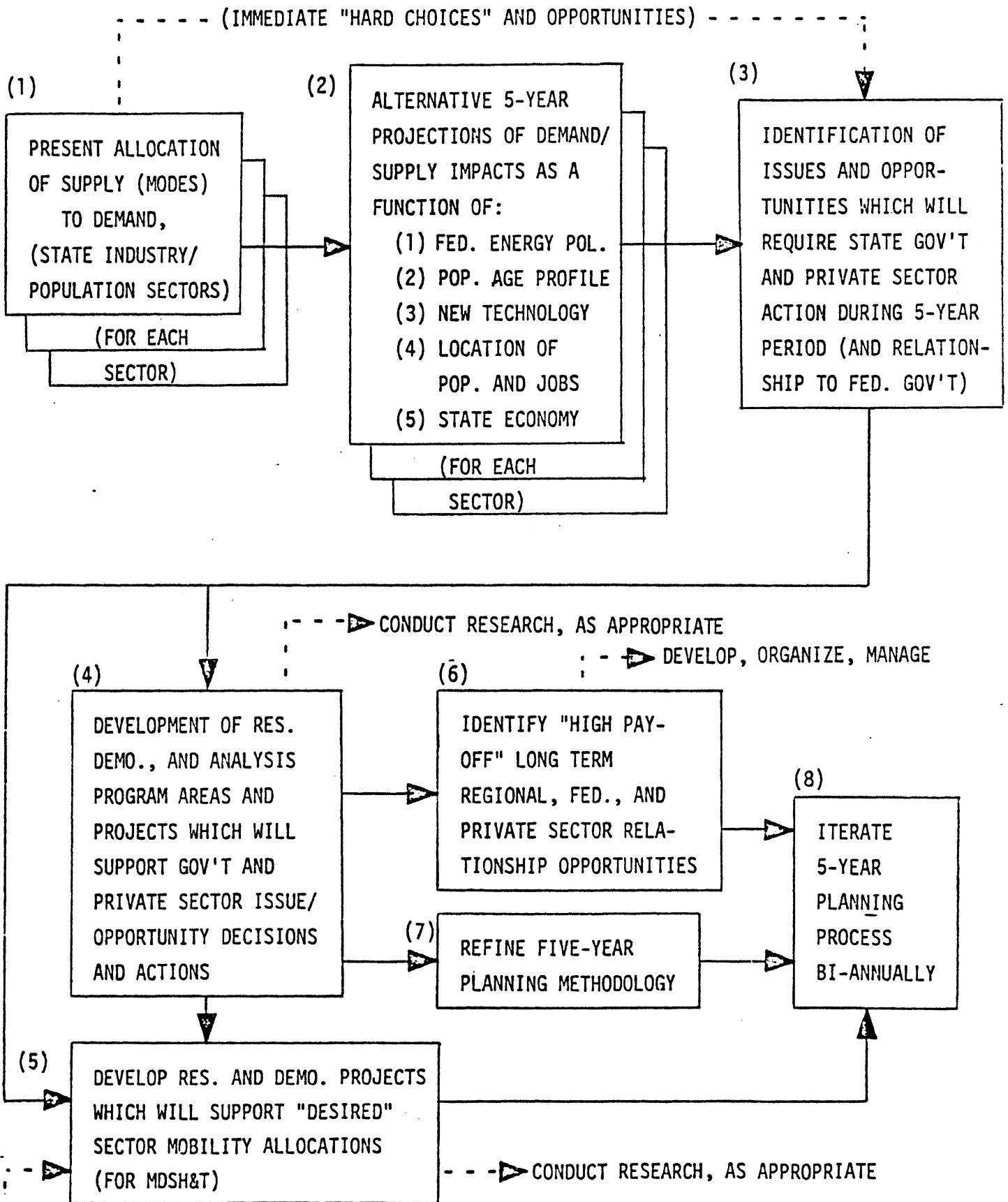


TABLE 1.

PRESENT ALLOCATION OF SUPPLY (MODES)
TO DEMAND (INDUSTRY/POPULATION SECTORS) IN MICHIGAN

(Qualitative expressions in lieu of quantitative
measures: H - High; M - Medium; L - Low)

INDUSTRY/POPULATION SECTORS

(DEMAND)

APPLY)	Freight and Industrial Log	Elderly and Handicapped	Agricultural and Rural	Tourism	Urban Development
<u>PASSENGER Urban:</u>					
-auto	H	M+		H	H
-bus	X	L-M		M-H	L-M
-rail	X	L		M	M
-lt. rail	X	L		M	M
-AGT	X	?		?	?
-taxi	L	H		M	L-M
-ferry	X	L		L	M
-bicycle	X	L		L	L-M
<u>FREIGHT Urban:</u>					
-auto	H	M-H			H
-truck	H	M-H			H
-rail	X	X			M
-taxi	L	L-M			L
<u>PASSENGER Rural & Int. City:</u>					
-auto	H	H	H	H	H
-bus	X	M	M	L-M	M
-rail	X	L	L-M	L-M	L-M
-ferry	X	L	L	L-M	L
-air	X	L-M	L-M	M	M
<u>FREIGHT Rural & Int. City:</u>					
-auto	H	H	L		L
-truck	H	H	H		H
-rail	M-H	L-M	M		H-M
-air	-L	L	L		L-M
-maritime	M-H	L	L-M		M-H
<u>INTERMODAL</u>	H	L	M	L-M	H

of goods, materials, and commodities for the total industrial sector of Michigan. If necessary, the demand-supply variables for this sector could be further disaggregated into specific industries (e.g., automobile, chemical, etc.).

The elderly and handicapped sector will include retirees, and it will be important that trip purposes be identified for the demand-supply variables since the travel-time budget for this social category is greater than others and a better appreciation of "latent" demands for this category will require the additional information.

The agricultural industry in Michigan is the state's second largest (the automobile industry is first); the agricultural and rural category represents all non-urban population with the definition of urban based upon a population and population density minimum and an assessment of the economic characteristics differentiating small rural cities and small cities in major urban regions.

Tourism is the third largest industry in Michigan, and recently was the third largest among the states of the United States. Data bases exist² to support the development of demand-supply variables for this category, and trip distances as well as the determination of trips originating in Michigan and outside of Michigan with destinations in this state is in the data. It has been theorized that during the oil embargo many of the vacation trips originating in Michigan and bound for non-Michigan destinations were diverted back to this state having an opposite, positive effect on tourism. To evaluate this phenomenon, vacation trips from Michigan to non-Michigan destinations would have to be determined or estimated.

The urban development category contains the demand-supply variables for urban centers and regions and includes commerce and business which is heavily concentrated in these regions. Mode-split characteristics of these areas are generally well documented, and of particular interest

² See Attachment (1).

for this category will be trip purposes (job, consumption, educational-social, and freight and commodity flow which support commerce and business as opposed to industry and manufacturing in the first sector).

The demand sectors (categories) are defined so as to be useful in the ensuing planning tasks and in subsequent policy development by focusing on recognizable groupings which directly relates to Michigan's social and economic development. However, there will be inherent difficulties in distinguishing between agricultural and rural, and tourism. Measures of intermodal transaction for most of these categories may be impossible except, perhaps, in a qualitative way. Nevertheless, these difficulties should not be insurmountable.

The results of this task would be a compilation of state wide demand-supply transportation characteristics which would become the data base, subject to refinement (Task 7), for the planning and analysis tasks which follow. It is possible that during this task that immediate public policy choices and state government and private sector opportunities and initiatives would be identified and communicated.

(2) Alternative Five-year Projection of Demand/Supply Impact

For each of the demand sectors there would be five-year scenario alternatives for each of five "parameters":

- a. federal energy policy and associated energy scarcity levels and distribution constraints (the transportation of energy).
- b. the population age profile of Michigan both in aggregate and in selected regions.
- c. new technologies, their efficiencies, and the probability of their implementation. Included in this parameter would be the improvement of existing transport technology.

- d. The location and distribution of population and jobs and the associated changes in job trip distances both in the aggregate and in selected regions.
- e. changes in the state's economy with regard to Gross State Product and supporting aggregate variables, and job and income implications for selected regions.

Relationships exist between the parameters such that their associated scenarios will often be interdependent. The first three are "driving" parameters with regard to the last two. The initial results of this task would be based on hand calculations and estimates. However, an element of this task would be to develop a model, or modify an existing applicable one, in which iterations through multiple scenarios could be performed quickly.

The result of this task would be an evaluation of the impacts of the scenarios for the five parameters on the transportation demand for the various sectors and the availability of modal supply. The most probable scenarios and outcomes for the five-year time period would be identified. Conclusions with regard to the potential implications for employment and the state economy, as well as transport demand and supply, would be developed.

(3) Identification of Issues and Opportunities

The results of task (2) would be evaluated with regard to probable public financing alternatives, transportation operational changes, product and service development opportunities, state government and industry initiatives, and initiatives with regard to the development of funding relationships with the federal government and other states or regions. Based on these alternatives, recommendations would be made with regard to specific state public policy developments and private sector plans and programs. This task would result in a preliminary report.

(4) Research Programs to Support Issue/Opportunity Decisions

Given the alternative issues and opportunities identified in the preceding task, this task would involve the development and recommendation of research, demonstration, and analyses to support the decision making process by state government and the private sector concerning these issues and opportunities. These supportive activities could take the form of providing information and short term analyses on a "quick reaction" basis; more protracted research on the impact of the implementation of potential public policies; research on the impact of the implementation of new or improved technologies; the development of implementation and funding strategies for demonstration of new systems and operations; the analysis of economic and social development opportunities associated with transportation; etc. Where new legislation is an appropriate alternative, these activities could include assistance in the analysis and generation of that legislation. When options are identified involving the encouragement of federal government to take action jointly with the state or unilaterally with regard to transportation issues, plans and strategies for accomplishing this could be developed.

Where appropriate, these recommended research and analysis activities would be conducted by MTRP.

(5) Develop Research and Demonstration Projects for Desired Mobility Allocations

As a part of MTRP's ongoing activities, the demonstration and development program of the Bureau of Urban and Public Transportation (UPTRAN), Michigan Department of State Highways and Transportation (MDSH&T) would be reviewed and recommendations made for new or additional research content. This activity would be done in concert with the UPTRAN staff and would involve, among other things, the analysis and comparison of federal programs, as is now being done. The recommended development and demonstration projects (and changes) would be in support of larger implementation programs to satisfy desired transportation needs as

perceived by the public and government leaders, and as appropriate these perceptions would include and be conditioned by the research to develop issue and opportunity decisions as generated in task (4).

The recommended research would be conducted by MTRP, as appropriate.

(6) Identify Regional, Federal, and Industrial Relationships

Because of the complex interplay between state transportation systems and those of the surrounding region, as well as the nation, and the influence of federal and state regulations and initiatives on transportation, Michigan industry, and the Michigan economy, long term "high pay-off" opportunities would be identified and evaluated to develop positive government and industry relationships. These relationships would be based upon a broad spectrum of opportunities: innovative joint federal and state technological and procurement demonstrations; development of new uses for rail abandonment on a state and regional basis; state and federal encouragement of new technology introduction into the auto-highway system with resultant products and job opportunities; joint state-private development of "trip-attractors" to bolster and expand Michigan tourism; state-federal demonstration of mobility innovation for the elderly and the handicapped; joint multi-state car-on-train service exploiting counter-seasonal trip attractions; state-industry intermodal cargo experiments; state-industry-federal rail coal car production planning, etc. These and other relationship opportunities would be conceptualized and evaluated, and recommendations would be made concerning implementation strategies and program content. MTRP would serve as the focal point for the development of these relationships and their management, as requested.

(7) Refine Five-year Planning Methodology

The planning program methodology and model would be refined, expanded, and/or contracted in scope as experience with the process developed.

(8) Iterate Five-year Planning Process Bi-annually

Though the preceding tasks may be initiated sequentially in time, in all probability work would continue to proceed simultaneously after the first full iteration of the process.

MTRP Organizational Aspects

The work described above would be conducted by MTRP staff with the aid of consultants. Ad hoc committees would be appointed for each of the identified industry/population sectors (demand). The committees would perform ongoing surveillance of staff and consultant activities for each of the sector areas of their responsibility, and report to the advisory committee on progress. The work projects which involve interrelationships between the demand sectors or which have significant implications for individual sectors and for public policy options would be reviewed and approved by the advisory committee.

Conclusion

Clearly, during the balance of this century, Michigan's economy and society will be in a state of uncertain transition. The rate and duration of this transition can only be guessed, but potential implications are ominous. The extent to which MTRP, through this suggested research program planning and analysis methodology, can anticipate hard public policy choices and practical high gain commercial, industrial and government opportunities, even to an imperfect degree, could have a significant influence on the health and quality of life of the state of Michigan and its citizens in the years to come. Through experience with this program and transition the academic community of this state could create new research methodology, curricula, and careers to better understand and manage social and technological transitions in the future; the private sector could more rapidly recognize markets and design and implement products and services which would emerge from the genesis of the transition itself; state government could more efficiently utilize its procedures and agencies with sufficient time to take comprehensive and equitable action; and the federal government and nation could benefit, as Michigan benefits, from a more orderly and controlled transition with more positive than negative impact. This program, or its equivalent, if embraced and promulgated should receive national

attention and, at least in part, federal sponsorship. The resources are available, and the organization for its management has been established and is in operation, and the probability of positive results is high.



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

August 2, 1977

MEMO TO: Michigan Transportation Research Program
Advisory Committee
FROM: James L. Dries, MTRP Staff *JLD*
SUBJECT: Trip Report, Visit to UMTA, Washington, D.C.,
July 25, 1977.

On July 25, 1977 I met with Mr. Joe Goodman, Service and Methods Demonstration Division, Office of Transit Planning, UMTA, U.S. Department of Transportation. Mr. Goodman explained the programs and demonstration projects that this office is currently performing. He noted that because of the federal budgetary process, lead times of from two to three years are usually necessary before the beginning of most demonstration projects. I emphasized that my purpose in visiting him was to initiate a contact and to emphasize the potential Michigan has for future demonstration projects. He noted that demonstration projects were usually placed in the locality that generated the demonstration proposal.

We reviewed the projects currently planned for FY77-78 and FY78-79.

FY77 Projects:

- Traffic Signal Preferential and Identification System for Transit.
A method of allowing transit vehicles to preempt traffic signals in order to improve transit vehicle flow and provide them a performance advantage over private vehicles.

- Auto-Restricted Zone Demonstrations.
Demonstrations of auto-free central business districts or the restrictions of the use of automobiles in certain areas at specified times.

FY78 Projects:

◦ Timed Transfer Demonstrations.

Improved suburban transit by coordination of line bus schedules and transfers from line buses to local feeder buses.

FY79 Projects (Oct. 1, 1979 Funding):

◦ Freeway Reserved Lanes.

The use of a newly provided lane for express busses and car pools only. Freeway shoulders could be converted to this use or additional lanes could be provided in freeways currently planned.

◦ Signal Preferential Treatment.

Preferential treatment for transit vehicles by signal preemption or progression, possibly in conjunction with reserved lanes.

◦ Transit Reliability.

Development of a strategy to inhibit "bunching" of following transit vehicles behind a late running transit vehicle.

◦ "Honor System" Fare Collection.

Demonstration of the use of machine-dispensed transit tickets which are only randomly checked for "true fares". Possible benefits are a reduction in transit personnel requirements, the possibility of rear door boarding and improved bus operations.

◦ Belt Way Express Bus Service.

A demonstration of express bus service on a beltway around an urban area, connecting to radial feeder routes.

◦ Zone Bus System.

Simplification of bus service within feeder zones which, in turn, connect to line haul transit lines. Such service could make service patterns more apparent to potential riders and enhance ridership.

Jim Dries

• Trip Report

Page Three

Several of the demonstration areas above could be applicable to urban areas in Michigan. Mr. Goodman noted that Michigan, particularly the Detroit area, would be well suited as a site for demonstration projects. We should maintain contact with Mr. Goodman and attempt to put him in touch with the various transportation authorities in the State.

**P.L. 94-282
National Science and Technology Policy,
Organization, and Priorities Act of 1976**

PRESIDENT

**Director & Associate Directors
Appointed by President
with Advice/Consent
of Senate.
Annual S&T Report Req'd
Budget:
\$750K for FY 76
\$500K for FY 76 TQ
\$3M for FY 77**

**Office of Science
and Technology Policy
(OSTP) Director
4 Assoc. Directors**

**President's Committee
on Science and Technology
8 — 14 Members
+ Director of OSTP**

**Intergovernmental Science,
Engineering and Technology
Advisory Panel**

Chairman: Director of OSTP or Representative

**At least 10 Members from States (Appointed
by Director of OSTP.)
Director of NSF or Representative**

**Federal Coordinating
Council for Science,
Engineering and
Technology**

Chariman: Director of OSTP

**Representatives From: DOA, DOC, DOD,
HEW, HUD, DOI, DOS, DOT, VA, NASA,
NSF, EPA, ERDA others as invited**

- 24 Month "Life"
- Renewable by President
- Members, Chariman and
- Vice Chariman Appointed
- by President.
- Interim Report: 12 Month
- Final Report: 24 Month
- Analyze Overall Context
- of Federal Science,
- Engineering & Technology
- Budget:
- \$750K for FY 76
- \$500K for FY 76 TQ
- \$1M for FY 77

State, Regional, Local input
to Federal S, E & T decisions.

Members are policy rank designated by
Head of Agency.
Replaces "Federal Council for Science and
Technology". For Interagency Coordination,
Cooperation, Issues.

Operational Concept of the Panel

The suggested mode of operation for the Panel in its first year is the following:

A. Panel members identify current or emerging problems where Federally sponsored research and development or evaluation activities could make substantial improvements in the efficiency, effectiveness or costs of services or the ability to govern. Examples of some of the possible problems are shown in Exhibit 2. This will be done at the first meeting of the Panel and continued, if necessary, at a second meeting in early 1977.

B. Interested Panel members and staffs of members, the professional interest groups, NSF/RANN and OSTP would review the problem/research areas identified in A. They would meet with Federal officials responsible for intergovernmental research in the various Federal agencies to determine the nature of the current research efforts and to obtain views from the Federal officials on how the identified problems might be better addressed. Interested Panel members and staff will then make a preliminary assessment of the problem/research areas which would appear to have substantial benefits for state and local governments.

C. Panel members would establish priorities for problem/research items developed in B. Several items for state governments and several for local and regional governments would be selected for detailed development of research plans. The remaining items could be developed at a later date or could be submitted without elaboration. It seems important to concentrate the limited staff resources on carefully developing and structuring a few sound work plans than on presenting a broad but sketchily defined wish list. This will probably take place at a May 1977 meeting of the Panel.

D. Interested Panel members and staff supporting the Panel would develop a detailed plan for each of the priority problem/research areas suggesting research approaches which the Federal government might take to address those problems. Such plans might identify the approximate level of efforts, the general nature of the research to be addressed, some of the possible research approaches, and the most appropriate Federal agency or agencies to direct the research.

E. Panel members meet with Executive Branch officials and appropriate Cabinet officers to present and discuss proposals for Federal research efforts on the priority problem/research items. This would probably take place in late summer or early fall of 1977.

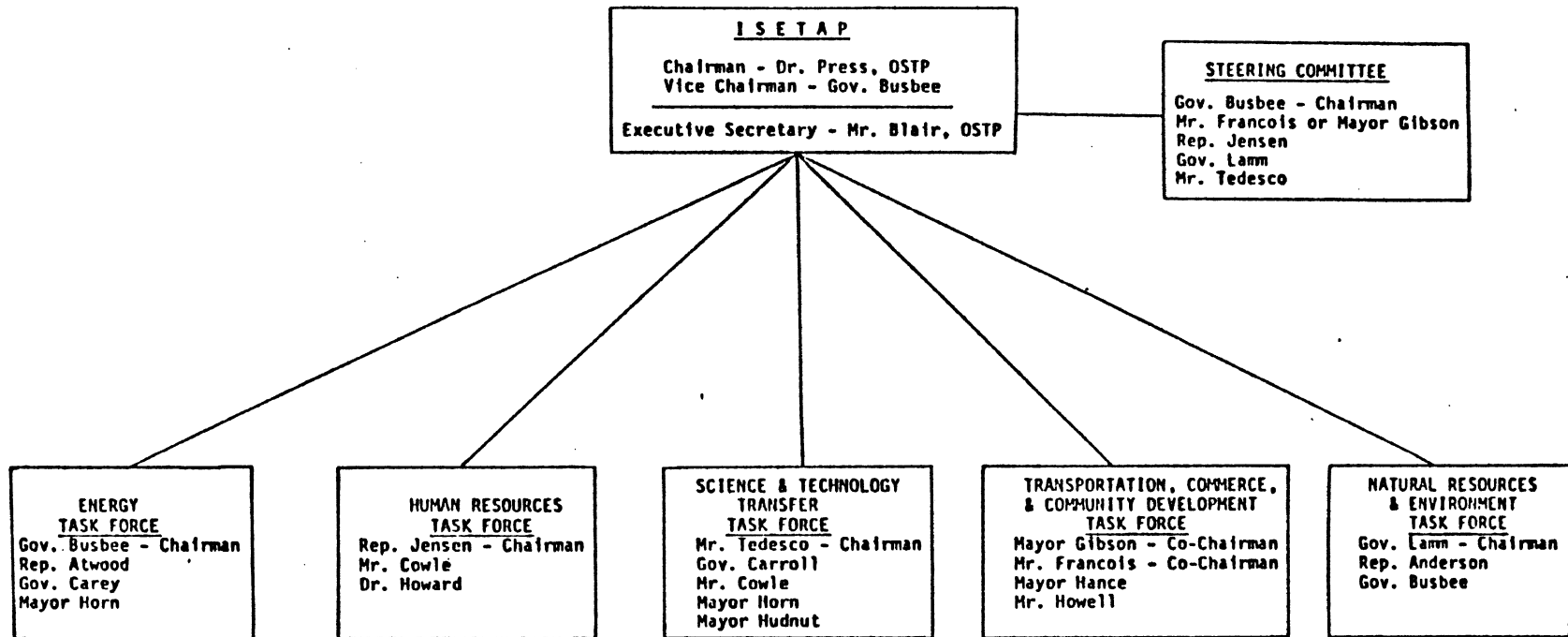
The December 7, 1976 Meeting

It would be useful for Panel members to be prepared at the first meeting to discuss problems which they see as most pressing and to identify members of their own staffs or of the professional interest groups who could work with NSF and OSTP staff in developing the detailed problem/research agendas. George Busbee will present prepared comments to initiate the discussion on problems and Federally sponsored research opportunities affecting state governments. Ted Tedesco will present prepared comments to initiate the discussion on local and regional governments. Neal Pierce, contributing editor of the National Journal, will highlight certain problems and trends in the area of state and local government personnel management.

EXHIBIT 1MEMBERSHIP OF THE
INTERGOVERNMENTAL SCIENCE, ENGINEERING
AND TECHNOLOGY ADVISORY PANEL

<u>NAME</u>	<u>CURRENT POSITION</u>	<u>EDUCATION/ BACKGROUND</u>
Thomas Anderson	House Assistant Majority Leader, Michigan	Engineer
Genevieve Attwood	State Representative Utah	Geologist
George Busbee	Governor, Georgia	Lawyer
Hugh Carey	Governor, New York	Business, Former Congressman
Julian Carroll	Governor, Kentucky	Lawyer
Stan Cowle	County Executive Hennepin County, Minn.	Public Administration
Francis Francois	Councilman, Prince Georges County, Md.	Engineer and Patent Law
Kenneth Gibson	Mayor, Newark, New Jersey	Engineer
Margaret Hance	Mayor, Phoenix, Arizona	Civic Leader
Charles Horn	Mayor, Kettering, Ohio	Lawyer
Kenneth Howard	State Budget Director, North Carolina	Public Administration
Charles Howell	Executive Director, Middle Georgia Planning and Development Commission, Macon, Ga.	Industrial Geography
William Hudnut	Mayor, Indianapolis, Indiana (combined city/ county gov't)	Minister, Former Congressman
Thomas Jensen	House Minority Leader, Tennessee	Business
Richard Lamm	Governor, Colorado	Lawyer
Ted Tedesco	City Manager San Jose, California	Public Administration

ORGANIZATION
OF THE
INTERGOVERNMENTAL SCIENCE, ENGINEERING AND TECHNOLOGY ADVISORY PANEL
(ISETAP)



Note: Each Task Force to have additional members as appropriate from State and local governments, public interest groups, research organizations, universities, etc. Each Task Force will also have a full-time staff member and a Federal Liaison Officer.

REPORT OF THE INTERGOVERNMENTAL SCIENCE ENGINEERING
TECHNOLOGY ADVISORY PANEL STEERING COMMITTEE MEETING

January 21, 1977

2:00 p.m.

New Executive Office Building

Participants:

Governor Busbee	Georgia
Representative Jensen	Tennessee
Mr. Cowle	Hennepin County, Minnesota
Mr. Eckfield	USCM - Representing Mayor Gibson
Mr. Wetmore	NSF - Representing Dr. Atkinson
Dr. Hersman	Colorado - Representing Governor Lamm
Mr. Smith	Assistant Director, OSTP
Mr. Blair	Executive Secretary
Mr. Howell	Georgia

Major Points Addressed:

1. The Panel has to have teeth. Members do not want to serve on an organization that is not going to be influential. The Steering Committee needs to work with the Science Advisor, OMB, and the Special Assistant to the President for Intergovernmental Relations to develop an effective working relationship. In this relationship, the Panel would offer suggestions for new programs or revisions in existing ones. It would also react to requests for opinions and advice from OMB and from the Science Advisor.
2. There is a need to develop a stronger organization for the Panel. Suggestions were offered for organizing it in terms of task forces similar to the OMB arrangement. Staff members will work on an organization plan which will be presented to the Steering Committee and to the full Panel for action at the spring meeting. The Steering Committee needs to be involved closely in the activities of the various task forces. It was suggested that the Steering Committee be reconstituted so that it consists of the Vice Chairman of the Panel and the heads of each of the various task forces.
3. The type of Panel products which will influence OMB most strongly are thoughtful, thorough analyses of the problems with good documentation, justification for Federal action, and well-developed recommendations.
4. The Steering Committee will wait to meet with the new Science Advisor before scheduling meetings with OMB and the Special Assistant for Intergovernmental Affairs.

REPORT OF THE INTERGOVERNMENTAL SCIENCE ENGINEERING
TECHNOLOGY ADVISORY PANEL STEERING COMMITTEE MEETING

January 21, 1977

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New Executive Office Building

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4. The Steering Committee will wait to meet with the new Science Advisor before scheduling meetings with OMB and the Special Assistant for Intergovernmental Affairs.

5. The next full Panel meeting was scheduled for Friday, March 25, 1977, in Washington, D.C. It will be a full day meeting. The two Task Forces will have working sessions on March 24, to which all Panel members are invited. The meeting date might be delayed if no Science Advisor has been appointed by that time.

6. Representative Jensen suggested that the next Panel meeting or at some early Panel meeting that a presentation be made on the planned International Energy Exposition in Knoxville. It was tentatively decided that a half hour presentation be made at the next Panel meeting.

7. Dr. Hersman reported on the First Processes Task Force meeting in Denver on January 14. A report on the meeting is available.

TENTATIVE AGENDA

Intergovernmental Science, Engineering & Technology
Advisory Panel Meeting
NEOB Room 2008

March 25, 1977 9:00 a.m. to 3:00 p.m.

- 9:00 Opening Remarks by the Chairman, ISETAP
(Suggested topics will be provided)
- 9:30 Panel Organization: Suggestions from the Steering Committee presented by Busbee or Cowle. Discussion and Action by the Panel. (Suggestions from the Steering Committee will be mailed to members prior to the meeting. Smith and Blair provided suggestions shown in EXHIBIT 1 to Cowle and to Busbee's staff.) Appointment of Task Force Chairperson by the Chairman/indication of Federal official to provide staff support. (Blair will check on appointments before meeting.) Setting date for next Panel meeting.
- 10:00 Meeting with Jack Watson. Role of Watson and his office in Intergovernmental R&D (broadly defined). Willingness and availability of Staff Member to work with OSTP. Discussion of ways ISETAP and its Task Forces can interact with Watson's office.
- 10:30 Meeting with Bert Lance. Discussion of major problems with Federal Intergovernmental R&D efforts. OMB views on intergovernmental activities, Federal Regional Councils, prospects for any focal point for intergovernmental matter in OMB. Establishing a working relationship of Panel with OMB where OMB will give close consideration to ISETAP recommendations — and where OMB will turn to ISETAP when appropriate. OMB reaction to certain problems and ISETAP requests. Establishing OMB liaison with Task Forces and with Panel.

- 11:15 Discussion of Processes Task Force Report. Brief presentation by Tedesco. Panel reaction to report. (Task Force report will be submitted to Panel Members in advance of meeting.) Consensus views on what items to develop. OSTP Director's announcement of establishment of a Federal team to work with Task Force to develop several of them. (The draft report is being reviewed by the Task Force on March 8.)
- 12:30 Sandwich luncheon. (Panel Members order lunch from Kay's Delicatessen - pay for their own food and eat in Room 2010.)
- 1:15 Discussions of Priority Problem Identification Task Force Report Brief presentation by Tom Anderson. Panel reactions to report and Panel Member on next steps to take.
- 2:15 Presentation on EXPO 81. Representative Jensen made a request at the January 21 Steering Committee meeting that a group be allowed to make a presentation at a Panel meeting on Energy EXPO '82. Busbee agreed unenthusiastically, providing there was enough time. The attached material describes Energy EXPO '82.
- 2:45 Other items for discussion.
- 3:00 Adjournment



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

DRAFT - 9/8/77

CONCEPT PAPER

PROPOSED MICHIGAN TRANSPORTATION RESEARCH PROGRAM (MTRP) ACTIVITIES IN SUPPORT OF THE INTERGOVERNMENTAL SCIENCE AND TECHNOLOGY ADVISORY PANEL (ISETAP), OFFICE OF SCIENCE AND TECHNOLOGY PLANNING (OSTP)

The purpose of this concept paper is to support discussions concerning the potential sponsorship of activities and tasks which would have immediate and long-term use in the development of projects and programs as a part of the activities of ISETAP/OSTP. Also, the proposed MTRP tasks and the MTRP experience itself, could assist in the development of a state/regional structure which could provide inputs into the ISETAP/OSTP planning process and technology transfer of results back to the state/regional and local levels.

Proposed MTRP Tasks:

1. Research, Development, and Demonstration Projects Recommendations.

As an ongoing activity, MTRP would formulate project recommendations for submittal to appropriate ISETAP Task Forces. The recommended projects would be detailed in terms of scope of work, duration and cost, as required. Their rationale and relevance to state and national transportation needs, and to federal programs, would be described. MTRP would be prepared to assist the appropriate Task Forces and/or their staffs in the evaluation of these recommendations (in terms of revisions, additional information requirements, data, etc.) and their coordination through ISETAP, OSTP and the appropriate Federal departments and agencies.

At the outset of activities, MTRP would be prepared to recommend relevant projects currently being formulated. These are:

a. Statewide Short-Term Transportation Energy Contingency Plan.

Scenarios of varying degrees of transportation energy shortfall, and duration of shortfall, would be postulated. Probable impacts on various social groups and economic entities would be developed and responsive initiatives would be recommended for state and local government, transportation authorities and operators, firms, and individuals. The plan would be concerned with sudden shortfalls and actions that could be taken over a six to eight week time period. It would seek ways to rapidly implement operational and equipment changes and to find means of efficiently integrating public and private transportation resources (e.g., the use of public transit dispatching facilities to rapidly organize car/van pools, etc.) so that economic dislocations could be reduced in severity. The plan would recognize potential federal reactions (e.g., gas rationing, pricing, etc.) and would be pre-planned and in-place in case of fuel emergency.

b. Statewide Long-Term Transportation Energy Contingency Plan.

A methodology would be generated for local/sub-regional energy contingency planning which would relate the transportation energy consumption sector to other consumption sectors. A management and transfer mechanism would be developed so that these locally generated plans could be formulated upward into a statewide plan which focuses on the longer-term management of the state's energy budget, in the face of alternate potential energy contingencies.

c. Hybrid-Electric Small Bus Development and Demonstration.

A hybrid electric small bus would be developed and demonstrated in Michigan. At present, the ERDA Electric and Hybrid-Electric Vehicle Demonstration Program does not include public transit vehicles apparently due to the fact that public transit is a relatively

small energy consumer. Nevertheless, heat-engine hybrid-electric technology has potentially significant implications for small bus, demand responsive operations. These transit and para-transit operations are in widespread use nationally for the transportation of the elderly and handicapped. Vehicles used in these operations experience "start - stop" driving cycles similar to commercial urban delivery vans and are similar in physical configurations. Most, in fact, are converted vans. Because of the rigorous driving cycles, the converted vans are not very energy efficient or physically durable.

A demonstration of heat-engine hybrid-electric technology in the more controlled environment of public transit operations would have the advantage of reducing safety and liability regulatory and legal difficulties and of enhancing the quality and quantity of evaluative data which could be captured, -- and at the same time, would provide a rigorous "mission profile" more similar to the private passenger vehicle than any other public transit vehicle. The demonstration could yield valuable data on what should be a significantly greater longevity of the hybrid-electric's predominantly electrical drive line and hence impact on small bus economics. Furthermore, a demonstration in Michigan would provide the automobile industry with a very visible (possibly even "hands on") perception and experience with this technology.

MTRP would organize firms, individuals, and academic institutions with demonstrated ability to develop and test hybrid-electric technology necessary for the developmental aspects of this project.

d. Accessibility Corridor Demonstration.

MTRP would develop the research-design and conduct the "before and after" evaluation of a fully accessible line haul bus corridor to be selected in Southeastern Michigan. All line haul buses in this corridor would be equipped with lifts and the corridor selection would maximize the density of elderly and handicapped persons.

Evaluation would test the ridership, accessibility aspects, and cost benefit characteristics of accessible line haul buses and compare that to "doorstep" small bus operations and integrated small bus/large bus operations. The timeliness of such a demonstration is important to evolving Federal policy with regard to "accessibility" and large and small bus specifications. An element (line haul buses) of a potential policy of total accessibility would be tested.

e. Small bus life cycle costing and procurement.

At present, there are over 40 small bus systems operating in Michigan consisting of 222 vehicles of which 45 are lift equipped. The operational life time of these vehicles is very short (approximately four years) as compared to larger transit coaches. The Michigan Department of State Highways and Transportation procured and owns these vehicles, and is strongly interested in determining whether more durable vehicles could be designed and manufactured particularly if a new procurement method could be developed which would encourage manufacturers to make design changes in the vehicles' mechanical systems. The U.S. Army Tank Automotive Research and Development Command (TARADCOM) Warren, Michigan, is a participant in the MTRP. TARADCOM recently developed a life cycle costing methodology and specifications for the procurement of a 45 passenger military bus. MTRP will fund TARADCOM to develop such a specification for a small bus using their life cycle costing methodology.

Based upon this, MTRP would recommend to ISETAP that the Urban Mass Transit Administration (UMTA) award a capital grant to a transportation authority(s) in Michigan which would include provision for a "procurement demonstration" using the TARADCOM methodology. Such a "demonstration" should create considerable interest nationwide and may provide UMTA an alternative procurement strategy for both small and large buses. MTRP would evaluate the procurement process and compare the cost benefit aspects of more durable small buses at higher prices versus the lower cost, shorter life existing converted van.

MTRP would coordinate this activity closely with appropriate elements of DOT, UMTA, and APTA.

2. MTRP Experience Transfer

Through correspondence, direct contacts and meetings, MTRP would introduce its program, organization, and progress to key individuals in other state governments and regional organizations. It would expand its newsletter distribution and the frequency of its publication. Through DOT/OST Governmental Affairs, it would establish a liason with and provide information to ISETAP and OSTP, as well as the national organizations of state officials, such as the National Governor's Conference and the National Conference of State Legislators. MTRP would design, call and manage a national conference through the auspices of The University of Michigan and under the sponsorship of DOT/OST and/or OSTP. Conference papers and panels would cover such topics as MTRP description; description of similar or related programs and organizations in other states; methods of identifying and prioritizing research, development and demonstration projects; the nature ISETAP/OSTP organization and the thrust of its activities; methodologies for long-range transportation planning; the implications of transportation for state and regional economic development; a look into the future of transportation opportunities and problems; etc. Also, MTRP would establish liasons with relevant professional organizations.

3. Implementation Planning and Execution

MTRP would develop the processes and methodologies for establishing MTRP-like organizations in other state and regional contexts. This "lateral" transfer mechanism would be coordinated closely with DOT/OST and OSTP both in its design and use. Meetings, seminars and work sessions would be held with key individuals and organizations in other states. Observers would be invited to MTRP Advisory Committee and Ad Hoc Committee meetings. A handbook would be prepared cataloging procedures and research program formulation methodologies. In essence, this process would initiate the development of a state and regional level base infra-structure for ISETAP/OSTP for the orderly and comprehensive development of research, development and demonstration topics for its consideration in transportation and other areas as well.

4. Develop Transfer Mechanism

MTRP would develop a transfer mechanism for the dissemination of MTRP and other research results to elements of state and local government and to state firms, institutions, agencies and individuals. For this purpose, the use of the state network of academic institutions and community colleges and extension services would be investigated. When the procedure is designed and implemented, and if it proves workable, it will be "laterally transferred" as in section 3 above.

5. Accelerate MTRP Development

MTRP would expand and accelerate its development in order to hasten the transfer to other states and regions of more comprehensive research planning results and methodologies. At present, MTRP responds to state government agencies with information and short-term analyses concerning immediate problems,

and Transportation public transportation demonstration and development program by prioritizing research topics, developing new ones, and recommending program changes. However, the nature of the organization, having participants from both the academic community and the private sector, and the character and capabilities of those participants and their firms and institutions are such that MTRP is probably best suited to taking a longer view of transportation system development and research requirements. As a result, MTRP is presently developing an outline of a methodology for performing research planning and formulation in a "futures" context with a five to ten year time horizon. The methodology would provide for sufficient analysis to identify issues and opportunities which may require action by state government and the private sector within the planning time horizon, and for the development of research, demonstration and analyses which can assist in the resolution of these issues and the exploitation of these opportunities. (Figure 1 is a generalized schematic of the kind of methodology presently being considered.)

The motivation behind the desire to undertake this type of methodological development is quite clear in Michigan's case, and probably obtains in other states and regions of the country as well. During the balance of

this century, Michigan's economy and society will be in a state of uncertain transition. The rate and duration of this transition can only be guessed, but potential implications are ominous. The extent to which MTRP, through its longer-term research program planning and analysis methodology can anticipate "hard" public policy choices and practical high gain commercial, industrial and government opportunities, even to an imperfect degree, could have significant influence on the health and quality of life of the State of Michigan and its citizens in the years to come.

Through experience with this longer-range planning program, and transition, the academic community of this State could create new research methodology, curricula, and careers to better understand and manage social and technological transitions in the future; the private sector could more rapidly recognize markets and design and implement products and services which would emerge from the genesis of the transition of itself; State Government could more effectively utilize its procedures and agencies with sufficient time to take comprehensive and equitable action; and the Federal Government and the nation could benefit as Michigan benefits, from a more orderly and controlled transition with more positive than negative impact.

MTRP would develop and implement this planning methodology, study its potential use in other areas as well as transportation, and provide for its transfer to other states, as appropriate.

6. Regional MTRP Relationships

Regional transportation flows impact on Michigan's economy and society as they do in all other states. MTRP would develop transportation research and engineering needs based on regional dynamics by establishing relationships with academic, governmental and private sector organizations in the Great Lakes region. In this area, regional commissions already exist for a variety of subjects. Liason and coordination would be established and methodologies would be developed for participatory research

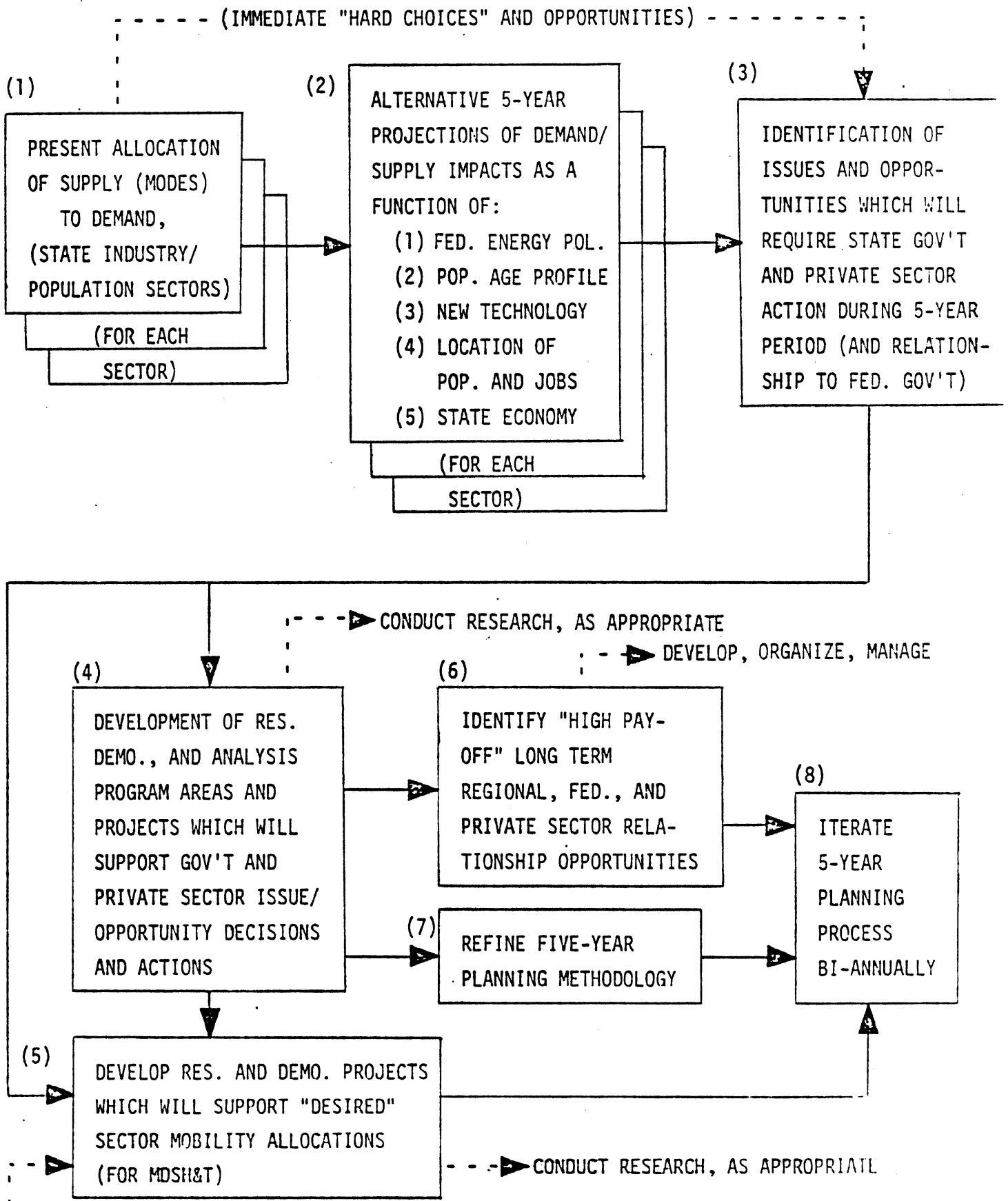
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planning and implementation. Developed transfer mechanisms would be employed and modified as may be necessary. MTRP would be prepared to assist in the transfer of this experience to other regions in the United States.

FIGURE 1.

FLOW CHART - FIVE-YEAR MICHIGAN MOBILITY RESEARCH PLAN METHODOLOGY
(Anticipating "Hard Choices" and Opportunities)



ONGOING MTRP ACTIVITIES



Michigan Transportation Research Program

Highway Safety Research Institute
The University of Michigan
2901 Baxter Road
Ann Arbor, Michigan 48109

September 22, 1977

MEMO TO: L. E. Newland
FROM: Nancy E. Wallace
SUBJECT: Interest of Washington State University faculty in the
organizational structure such as the MTRP.

During the week of September 4-10, I participated in several informal conversations with Professors Kenneth Casovont, William Sulo, and Fred A. Inaba from the Department of Economics of Washington State University. These individuals and others at the nearby University of Idaho expressed considerable interest in the organizational structure of the Michigan Transportation Research Program. The State Legislature in Washington has just approved the creation of the Washington State Department of Transportation (subject to formal creation with 90 days of the bill's passage, approximately late December) and the economics and transportation planning faculty at Washington State University is very interested in the research needs which will be generated by the new state DOT.

It was the expressed hope among these researchers from the economics and transportation planning faculty that a needs assessment or research institute might be organized there at the University. Such a research organization would be the new department of transportation and structured to serve and to better tap the transportation planning expertise which currently exists in the state. The individuals mentioned above have requested that information about the MTRP be forwarded to them. Their hope is that information about the organizational structure of the MTRP may afford them a better sense of possible organizational designs and possible funding through state and Federal channels.

The requested information will be forwarded as of September 24, 1977 and further communication will be furnished to you upon request.

NEW/ucn

MINUTES

Meeting of the Southeastern Michigan Chapter
of Delta Nu Alpha,
The Michigan Transportation Research Program,
and the Industrial Development Division,
Institute of Science and Technology,
The University of Michigan

May 31, 1977

The meeting was opened at 10:00 a.m., May 31, 1977 at the Host International Hotel at the Detroit Metropolitan Airport, Romulus, Michigan.

The following persons were present:

Dr. Larry Crockett
Industrial Development Division (IDD)
The University of Michigan

Mr. Michael Conboy
Industrial Development Division (IDD)
The University of Michigan

Mr. Keith Foster
United Airlines

Mr. Charles J. Netzel
Moore McCormack Lines

Mr. Robert D. LaTour
Hoover NSK Bearing Company

Mr. John Spalding
The Ford Motor Company

Mr. John W. Selkman
The Roehl Company
President
Delta Nu Alpha Chapter 92

Mr. Leonard E. Newland
Staff Manager
The Michigan Transportation
Research Program (MTRP)

Mr. James L. Dries
Research Associate
The Michigan Transportation
Research Program (MTRP)

The general discussion centered on ways that the MTRP and IDD could support the research needs of Michigan's logistical transportation industry.

It was noted that the movement of goods to manufacturers, wholesalers, retailers,

and consumers has major effects on the lives of all of the state's citizens. In the light of rising transportation costs and projected energy shortfalls, it was felt that research was needed to improve the cost effectiveness and efficiency of the transportation procedures now in use.

Major areas for consideration were noted as:

- The provision of improved multi-modal transportation services to industrial plants. Discussion on this topic included a discussion of regulatory and labor barriers, economic movement volumes and freight documentation between modes.
- Increasing energy costs and decreasing energy availability. The effects on industrial transportation were discussed in terms of future limitations, governmental actions which could be taken and their impacts on industrial transportation.
- The use of transportation systems as an industrial development tool. The group discussed the development of intermodal facilities, local freight delivery organizations, air freight terminals and regional seaport developments.

Specific project topics discussed included:

- Improvements to general and intermodal freight documentation to include enhanced expediting and tracing, automated preparation of bills of lading and standardization of documentation between modes and carriers within modes.
- Investigation of the competitive effects of government subsidies provided to selected modes and carriers.
- Allocation methodologies which could reduce empty mileage and waiting times for transport equipment, particularly railcars.

May 31, 1977

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- Investigation of demurrage rates necessary to achieve better equipment utilization by eliminating equipment use for materials storage.
- Impacts of consolidation of local Great Lakes ports into regional ports.
- Comparison of U.S. and foreign shipbuilding and operating costs and standards. Implications of higher costs on the U.S. flag shipping industry.
- Investigation of the impacts of state taxes on inventories on manufacturers' transportation and production policies.

It was agreed that the proceedings of the meeting would be summarized in the form of minutes and that the minutes would be provided to all participants. It was further agreed that another meeting, to discuss possible specific research topics and needs of Delta Nu Alpha would follow. The Southeastern Michigan Chapter will solicit ideas and needs from the Eastern and Western Michigan Regional Chapters' members at the next meeting (within two weeks of May 31, 1977).

The meeting was adjourned at 12:15 p.m., May 31, 1977.