

UMTRI-90-21

EVALUATION PLAN

JACKSON COUNTY COMPREHENSIVE TRAFFIC SAFETY PROGRAM

L.D. Filkins

May 1990

The opinions and recommendations expressed in this publication are those of the author and not necessarily those of the Michigan Office of Highway Safety Planning nor the U.S. Department of Transportation, National Highway Traffic Safety Administration.

Prepared in cooperation with the
Michigan Office of Highway Safety Planning
and
U.S. Department of Transportation,
National Highway Traffic Safety Administration
through Highway Safety Project MTR-89-004A

Technical Report Documentation Page

1. Report No. UMTRI-90-21		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Evaluation Plan: Jackson County Comprehensive Traffic Safety Program				5. Report Date May 1990	
				6. Performing Organization Code	
7. Author(s) Fitzkins, L.D.				8. Performing Organization Report No. UMTRI-90-21	
9. Performing Organization Name and Address The University of Michigan Transportation Research Institute 2901 Baxter Road Ann Arbor, MI 48109-2150				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. MTR-89-004A	
12. Sponsoring Agency Name and Address Michigan Office of Highway Safety Planning 300 S. Washington Square, Suite 300 Lansing, MI 48913				13. Type of Report and Period Covered Final October 1, 1988- September 30, 1989	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract <p>An evaluation plan for the Jackson County (Michigan) Comprehensive Traffic Safety Program is presented, and the program is reviewed briefly.</p> <p>The overall evaluation strategy recommended for the program consists of three parts. The first part comprises performance evaluations of each of the individual countermeasure projects participating in the program. The second part is a performance evaluation of the entire program to determine whether the overall goals of the program (other than reduction in the frequency and severity of crashes) have been achieved. The final part consists of an effectiveness evaluation of the entire program to determine the long-term, bottom-line impact on crashes. Recommendations are presented for the crash and exposure databases to be used, for the comparison counties, and for the variables and time periods to be analyzed.</p>					
17. Key Words Comprehensive traffic safety program, effectiveness evaluation plan, performance evaluation plan				18. Distribution Statement Unlimited	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 35	22. Price

CONTENTS

1. INTRODUCTION	1
2. THE JACKSON COUNTY COMPREHENSIVE TRAFFIC SAFETY PROGRAM	3
3. PERFORMANCE EVALUATION OF THE JCCTSP	5
3.1 Evaluation of General Issues	6
3.2 Evaluation of Problem Identification Subcommittee Priorities	8
4. EFFECTIVENESS EVALUATION OF THE JCCTSP	9
4.1 Crash Database	9
4.2 Exposure Database	10
4.3 Comparison Counties	11
4.4 Variables, Time Periods, and Analytic Issues	11
APPENDIX A: REGULATION GOVERNING EVALUATION OF COMPREHENSIVE PROGRAMS	15
APPENDIX B: COMPREHENSIVE COMMUNITY TRAFFIC SAFETY PROGRAM DESCRIPTION	23
APPENDIX C: Extract from INFORMATION FOR OFFERORS	29

1. INTRODUCTION

This report sets forth a recommended evaluation plan for the Jackson County Comprehensive Traffic Safety Program (JCCTSP). The rationale for the plan is developed, and relevant parts of the program itself are reviewed. Component parts of the evaluation are also presented in some detail.

Several purposes are to be served by the evaluation. From the broadest perspective, the overall purpose of the evaluation is to improve the JCCTSP and similar programs that may be undertaken in the future. From another point of view, a basic purpose is to determine whether the concept, goals, and objectives for Comprehensive Community Traffic Safety Programs, as set forth by the Michigan Office of Highway Safety Planning (OHSP), are sound. In this sense, Jackson County is serving as a test bed. To make this assessment it is necessary to judge whether the county implemented the OHSP concept effectively. The final part of the sequence is to establish whether the program reduced the frequency or severity of traffic crashes in Jackson County.

If the program is finally found to be successful (in terms of bottom-line impact on crash experience), then we can conclude that both the concept and its implementation were sound. But what if the program achieves only part of its goals? Then how are we to decide whether it was a faulty program concept or the faulty implementation of a good concept that was responsible for the outcome?

The way we approach this is by determining, as completely as possible, how well the program concept was implemented. This calls for a carefully conducted *performance evaluation* of the program as an entity. (Performance evaluations are defined and discussed in Appendix A.) If we find that the implementation was well done but had no positive effect on crash experience, then we would conclude that the concept was flawed. If we find inadequate program implementation, then we would try to determine whether the root cause was an unrealistic program concept from the beginning or an unsatisfactory effort at the local level. In the latter case the question of the validity of the program concept is left unresolved. Finally, if a poor program coincides with reduced frequency or severity of crashes, then we look for more global influences at the county or state level to account for the improved crash experience.

The overall evaluation strategy recommended for the program consists of three parts. The first part comprises performance evaluations of each of the individual countermeasure projects participating in the program. The second part, as developed above, is a performance evaluation of the entire program to determine whether the overall goals of the program (other than reduction in the frequency and severity of crashes) have been achieved. The final part consists of an *effectiveness evaluation* of the entire program to determine the long-term, bottom-line impact on crashes.

The plan presented here addresses only the second and third parts of the overall evaluation strategy. The requirements for performance evaluations of individual projects are contained in the document *REGULATION GOVERNING EVALUATION OF COMPREHENSIVE COMMUNITY TRAFFIC SAFETY PROGRAMS AND PROJECTS*. The regulation, effective October 19, 1988, assigns responsibility for conducting individual performance evaluations to local project management; it appears as Appendix A.

The evaluation plan presented here does not call for effectiveness evaluations of all individual projects forming part of the program. Several reasons enter into this judgement. The most important is that separating the contributions of individual countermeasures on bottom-line crash experience is a formidable, if not impossible,

evaluation exercise. This is particularly true when the countermeasures operate at the same time in the same county and many are directed to the same target groups. Another is that some of the projects are modest in scope with limited goals. Such projects, although worthwhile as part of a total program, will probably have such small impacts as individual entities as to be immeasurable.

Additionally, the cost of carefully conducted evaluations must be weighed against the cost of the project being considered for evaluation. There is limited sense in spending traffic safety resources on effectiveness evaluations of small projects with minimal impact unless such projects are to be repeated in the future. Finally, some of the Jackson projects, such as those designed to upgrade crash and other traffic records, fall into the "system support category." These are not designed to have a direct influence on the severity or frequency of crashes and thus are not appropriate candidates for effectiveness evaluations. For these reasons, it has been concluded that effectiveness evaluations of all component projects are not necessary.

Some individual projects, however, may be of sufficient importance that they become candidates for effectiveness evaluations. OHSP and JCCTSP program management should jointly decide which projects fall into this category. They then should consult with evaluation specialists to determine the technical feasibility and cost of conducting effectiveness evaluations for the selected projects before deciding whether to proceed. It has already been decided, for example, to carry out a limited effectiveness evaluation of efforts to increase safety belt use, and a pre-program survey of belt use has been conducted.

The remaining parts of this plan deal with evaluation of the total program as an entity. Section 2 presents background material—the concept, goals, and objectives of the program—which form the basis of the performance evaluation recommendations presented in Section 3. The final section is devoted to the recommended effectiveness evaluation of the program. Appendix A contains the evaluation regulation cited above. The evaluation activities called for in the regulation form an integral part of the total plan. Appendix A also contains a number of definitions and references pertinent to performance and effectiveness evaluations. Appendixes B and C, generated at the start of the program, contain material that describes OHSP's program concept and goals.

2. THE JACKSON COUNTY COMPREHENSIVE TRAFFIC SAFETY PROGRAM

Comprehensive Community Traffic Safety Programs have been evolving throughout the country over the last several years. The concept and basic structure of the Michigan program were formulated by an OHSP Task Force established for that purpose. The Task Force reviewed the characteristics of communities throughout the state and identified three counties believed capable of implementing the comprehensive program. These three were invited to submit competitive proposals to undertake the program. Jackson County was awarded the program and began establishing its administrative structure in the fall of 1987.

The program, as formulated by OHSP, is described in the document *COMPREHENSIVE COMMUNITY TRAFFIC SAFETY PROGRAM DESCRIPTION*, reproduced as Appendix B. Additional information about OHSP's expectations is contained in *INFORMATION FOR OFFERORS*, relevant parts of which are reproduced in Appendix C. These documents were part of the package of materials sent to the three communities soliciting a proposal to undertake the program.

The key features of the program, as expressed in these materials and in briefings to local community leaders, are the following:

- * Many sectors of the community were to be involved.
- * The program and traffic safety efforts throughout the community were to be fully coordinated and managed efficiently.
- * A highway safety management process (planning, programming, implementation, monitoring and review, and evaluation) was to be adopted at all levels and used to manage the program.
- * The program was to be designed to be long-term and supported by local resources when OHSP funds were no longer available.
- * There was to be close cooperation between project management and OHSP in all phases of the program.
- * OHSP intended to support the program financially for five years.

Jackson County responded positively to the proposed program. Many segments of the community—governing bodies of the county, city, and township jurisdictions, law enforcement, traffic engineering, education, health services, and the business community—demonstrated their interest by submitting letters of endorsement.

A key element of the Jackson proposal was their unique approach to administration and management. A four-tiered management structure was proposed, modelled after organizational structures claimed to have been used successfully in other programs in the Jackson area. The first tier, the policy-making body, is a Comprehensive Traffic Safety Commission. It is comprised of ten representatives from the following: Education, Medical, Engineering, Law Enforcement, Jackson County Board of Commissioners, Jackson City Commission, Township and Village managers/presidents, Criminal Justice, OHSP, and a citizen at large.

Tier II consists of a funded Project Director position. The Director implements Commission policy and serves as the overall coordinator for the program.

The third tier consists of voluntary coordinators from the Criminal Justice, Engineering, and Education/Medicine fields. They are chosen from agencies eligible to receive OHSP program funds and act as information sources and liaison for the local implementing agencies and the Project Director.

Tier IV of the management structure consists of managing directors of the actual implementing agencies. The agencies are responsible for applying for funds from the Commission to implement traffic safety programs.

The Jackson proposal was largely responsive to the OHSP request. Each of the nine points detailed in Appendix C was explicitly addressed. The requirement for implementation of the Highway Safety Management Process (2.2.2) was not covered as adequately as the others, but neither was it completely ignored. Several of its component parts—particularly problem identification, program development, implementation, and evaluation—were discussed in various paragraphs throughout the proposal.

3. PERFORMANCE EVALUATION OF THE JCCTSP

The primary purpose of the performance evaluation recommended here is to assess whether, and to what extent, the comprehensive program has been implemented and is functioning as designed. Much of this assessment will be a matter of judgement and reasoned conclusion rather than application of a rigorous statistical methodology. Determining the effectiveness of program administration and management is a case in point. Further, although some of the measures to be employed are quantitative, considerable judgement will be needed to interpret them. We may be able to measure, for example, a change in OUIL (Operating Under the Influence of Liquor) arrests from the pre-program period. Whether the measured change is meaningful will have to be established in the context of many program variables, such as the priority afforded alcohol-related countermeasures and the resources devoted to OUIL enforcement. Other non-program factors, such as the economic climate affecting the amount of alcohol consumption, might also influence the number of OUIL arrests.

This consideration, together with the fact that another important purpose of a performance evaluation is to use the results to improve program performance, dictates that Jackson program management personnel have a central role in conducting the evaluation. OHSP is expected to be heavily involved as well. And, since results of the effectiveness evaluation have to be integrated with those from the performance evaluation, the organization selected to conduct the effectiveness evaluation should also be involved in this aspect as well. It is recommended, therefore, that all three organizations plan to participate in the performance evaluation, with Jackson program management assigned principal responsibility for its execution.

In serving program management and improvement purposes, evaluation activities should be conducted on a continuing basis and integrated with OHSP's schedule for Progress Reports. The progress reports are currently required at 4-month intervals, an adequate reporting frequency for evaluation purposes. From the perspective of determining whether the long-term goals of the program are being met, however, the sixth and subsequent years should be emphasized. Those years are important because OHSP financial aid is scheduled to end after five years.

The material is presented in two parts. The first part addresses the broad issues under consideration; these parallel directly the proposal evaluation criteria appearing in Appendix C. Each issue is accompanied by a number of questions, answers to which will assist in performing the required assessment. It will be appreciated that many of the issues are closely related, and the questions associated with one issue may apply to other issues as well. This underscores the fact that this part of the evaluation plan is intended to provide overall guidance rather than a detailed set of evaluation instructions.

The second part deals with evaluation of the program in addressing priority areas resulting from problem identification work. Problem identification was accorded a high priority and undertaken shortly after the program began. This work resulted in establishing priority areas, and the intent is to determine whether those priority areas were addressed.

3.1 EVALUATION OF GENERAL ISSUES

3.1.1 Administration and Management

- What is the status of the JCCTSP Commission?
- Is it a permanent part of local government?
- How does it function?
- Is it fulfilling its oversight role?
- Is it fulfilling its coordinating role?
- How often does the Commission meet?
- What is its current membership?
- Are Commissioners active, or do they just attend meetings?
- Are Commissioners traffic-safety advocates within the community or profession they represent?
- How many traffic safety dollars does the Commission control annually?
- What is the source of those dollars?
- What is the status of the JCCTSP Project Director position?
- Do the citizenry and traffic-safety professionals support the idea and implementation of a county-wide traffic-safety coordinator?

3.1.2 Highway Safety Management Process

- Is it an integral part of the Commission's way of considering traffic safety issues? – the JCCTSP Project Director's? – managers of traffic safety projects throughout the county?
- Is the process actively being used to manage traffic safety resources throughout the county?
- Is the process in use, but under a different name, or no name?
- Is the administrative/management job being handled adequately?
- Is a different management model in use?

3.1.3 Agency Support

- Are the traffic engineering agencies that serve the county—state, county, and city—actively participating in and supporting the program?
- Are police agencies throughout the county participating in the program?
- Do the various police agencies coordinate their road patrol activities?
- What progress has been made toward creating and sharing a common database of traffic safety records and information, such as citation, crash, and traffic engineering data?
- Has traffic safety been accorded a higher priority since the program began?
- What are the various police agencies doing about traffic safety they were not doing before the program started?
- What other agencies, for example, the Health Department, are active in traffic safety issues?
- Do agencies have a PI&E activity as part of their regular traffic-safety work?
- Are traffic-safety topics included in the general K-12 curriculum? Is a separate traffic-safety component in place?

3.1.4 Long-term Traffic Safety Program

Does the program contain a component addressing its continuation?
Is there agency support for the program in the sixth and subsequent years?
Is there community support for the program in the sixth and subsequent years?
How many of the original five-year program activities have survived into the sixth year without OHSP financial assistance?

3.1.5 Performance Evaluations

Have performance evaluations been conducted regularly for all individual projects?
Have the results been reported periodically (currently three per year) in the Progress Reports submitted to OHSP?
Have performance evaluations been conducted and reported, on the same schedule, for the entire program?
What is the quality of these evaluations?
Are the evaluation results being used to improve project and program performance?
Does the Commission regularly review the evaluations?

3.1.6 Community and Media Support

Do newspapers throughout the county cover the program?
Do they regularly cover traffic safety activities?
Do they regularly publish traffic safety statistics, e.g. data regarding OUIL offenders?
What programming is provided by radio and TV stations to promote traffic safety?
Do they run public service announcements dealing with traffic safety issues?
Does the JCCTSP feed into the media and other community organizations? If so, how?
Is the process formal and regular or informal and sporadic?
How many dollars are appropriated by local units of government for traffic safety purposes?
How do these compare with pre-program dollars?
What new or expanded traffic safety activities and programs are being conducted by non-governmental agencies such as the Red Cross, MADD, SADD, and local businesses?

3.1.7 OHSP-JCCTSP collaboration and coordination

Is there an OHSP representative on the JCCTSP Commission?
Does the representative attend meetings regularly?
Does the JCCTSP Project Director meet regularly with the OHSP representative(s)?
Does the JCCTSP Project Director attend state/national meetings?
Are the JCCTSP Project Director and the Commission aware of significant developments at the state/national levels?
Are such developments under consideration for incorporation into the JCCTSP?

3.1.8 Participation in evaluations

Are the results of project and program performance evaluations reported to OHSP?
With whom are the evaluation data shared?
Is the JCCTSP program directorate cooperating with OHSP and the agency conducting the effectiveness evaluation?
Are local agencies providing traffic records data as needed to the evaluation agency?

3.1.9 Cooperation with other communities

Does the JCCTSP Project Director answer inquiries from other communities?
Does the JCCTSP Project Director attend state and regional traffic safety meetings to present the results of the Jackson experience?
Are materials generated by the program organized?
Is a catalog of materials available?
What provisions have been made for lending materials?
What provisions have been made for duplicating and distributing program materials?
Is there evidence that other communities are incorporating parts of the Jackson experience into their traffic safety efforts?

3.2 EVALUATION OF PROBLEM IDENTIFICATION SUBCOMMITTEE PRIORITIES

The problem identification function of the Highway Safety Management Process was given a high priority from the outset. A subcommittee was established to carry out problem identification activities and met frequently during the early part of the program. Its work resulted in the identification of five priority areas: alcohol countermeasures, occupant protection, engineering, emergency medical services, and public awareness projects. Innovative projects were to be encouraged as well. These priorities were approved by the Commission at its September 18, 1988 meeting.

The priority areas have since been modified and refined. Education, enforcement, traffic records, and school bus safety have been added as priority topics. The public awareness focus is no longer considered a priority topic. Instead, a PI&E component is now to be included in all projects.

The following questions need to be considered to determine whether the priority areas established by the Problem Identification Subcommittee have been addressed:

What needs within the priority areas were identified?
What projects were planned and initiated to respond to the identified needs?
What is the status of the new projects? Are they being sustained? Are they being updated? Will they continue after OHSP funding ends?

Note that activities directed to the questions above form part of the performance evaluation of the overall comprehensive program. It is true that they are concerned with individual projects within the program, but here the emphasis is on such projects as components of the entire program to determine whether the problem identification function is working as planned. It is also the case that each individual project also should be subjected to a performance evaluation; the requirement is spelled out in Appendix A.

4. EFFECTIVENESS EVALUATION OF THE JCCTSP

The final part of the recommended evaluation plan is an *effectiveness evaluation*. Its purpose is to determine the long-term, bottom-line effects of the program on crash experience in Jackson County. Included are recommendations for the crash and exposure databases to be used, recommended counties whose crash experience is to be compared to Jackson, and the variables and time periods to be analyzed. Some of the analytical issues are also discussed.

The recommended design monitors selected crash rates and frequencies over time and compares these variables over the pre-program, program, and post-program time periods within Jackson County. It is recommended that the same variables be monitored in four comparison counties and the state as a whole and compared with the Jackson crash experience.

4.1 CRASH DATABASE

The official database of traffic crashes maintained by the Michigan Department of State Police for the entire state is the clear choice to use for the evaluation. It has been in existence for many years, and thus pre-program/post-program comparisons within Jackson County are easily conducted. A vital consideration, from an evaluation perspective, is that the Jackson crash experience can also be compared with that of other counties; so far as known, only this database permits such comparisons.

Jackson County police officials have observed that the MSP database is known to not contain all of the eligible crashes occurring in the county in recent years. Whether this presents a serious problem for the evaluation is unknown at the present. Some of the factors relevant to this question follow:

How large is the difference between the existing database and a complete database?
Is the difference biased on variables to be used in the evaluation, such as crash severity, time (year, month, time of day), driver age, or alcohol involvement?
If biases exist, are they stable, or do they vary from year to year?

If the difference is small, then it is unlikely that the evaluation would be affected. Even moderate differences can be tolerated if they are relatively constant from year to year. In an evaluative sense, the change from the baseline is more important than its absolute value.

However, a large change in the percentage of Jackson crashes entered into the MSP database could compromise an effectiveness evaluation. Such a change might result from implementation of a different way of processing crash data. For example, the initiatives of OHSP and the Jackson Traffic Records Subcommittee to establish a local database of crashes might increase the percentage of UD-10 Police Reports reaching Lansing. In this case an unreal, and probably unknown, increase in any of the evaluation variables could occur, thus obscuring changes caused by the program itself. Therefore, the processing of crash data should be monitored closely to guard against incorrect inferences caused by artifactual changes in the data being analyzed.

4.2 EXPOSURE DATABASE

The lack of good exposure data, with detail and accuracy approaching that of crash data for important analytical variables, has hampered safety analyses throughout the country for many years. Jackson County is no exception. Nonetheless, it is recommended that several crash rates be formulated and analyzed using available exposure measures as normalizing factors. These rates, given subsequently, will prove useful in comparing Jackson's crash experience to that of other jurisdictions. They will also be useful in tracking the Jackson experience over time. Clearly, however, none of the crash rates using the recommended exposure variables will be individually definitive in assessing program value.

Vehicle Miles Traveled. Vehicle Miles Traveled (VMT) is a widely used exposure measure, and its use is recommended in the effectiveness evaluation. However, there is an open question about the quality of the locally available VMT data. Local traffic engineers acknowledged at the beginning of the project that their traffic data, specifically including VMT, were dated. Accordingly they undertook a project to purchase traffic counters and related equipment to obtain the needed traffic counts. The data generated will undoubtedly be useful for traffic engineering studies requiring VMT data, but they will probably not be useful, at least initially, for evaluation purposes. The reason is that there are not any pre-program VMT gathered under similar conditions to use for comparison purposes.

Therefore, it is recommended that VMT estimates generated by the Michigan Department of Transportation be used in the evaluation. MDOT has traffic flow models using a variety of inputs to estimate VMT for the five legal systems for each Michigan county. Their updated data are provided to UMTRI annually and the files, dating to 1983, are available for immediate use.

Registered Drivers. The number of registered drivers is another useful normalizing measure. One helpful feature is that driver registration data, unlike VMT, can be subset by age and sex. These data are available from the Michigan Department of State for individual counties. Like VMT data, the registration data are provided to UMTRI and are available immediately.

Population data, highly correlated with driver registration data, are frequently used as normalizing measures. Since driver registration data are available for all of the comparison counties to be used in the evaluation, population data are not needed. However, they might prove useful if it becomes desirable to compare the Jackson experience with states not having driver registration data available.

Induced Exposure. Induced exposure is a technique for estimating the at-risk population from the distribution of drivers assumed to be not at fault in an accident population. Although not fully validated (and there is an open theoretical question as to whether it can be), it has been used with confidence by researchers in Michigan as well as in other states and countries. Induced exposure has many attractive features, but the development and data processing needed to apply it have not occurred for the counties to be used in this evaluation. Further, it is not clear whether Jackson County has enough crashes to satisfy statistical criteria for application of the induced-exposure technique. Therefore, it is recommended that induced exposure not be included in evaluation planning at the present. However, it is also recommended that induced-exposure developments in Michigan be monitored to determine whether there is sufficient progress so that this technique might prove practical in the future.

4.3 COMPARISON COUNTIES

In an ideal experimental design, the important variables would be controlled in the jurisdictions selected for comparison. However, in this situation—as in most traffic-safety environments—the ideal is far from realizable. Experimental control of traffic safety activities in other counties obviously is not possible. Analytical control is not practicable because there are too many variables, with unknown affects and interactions, that influence traffic safety. Further, the extended time frame of the experimental and evaluation phases effectively rules out the latter approach.

Michigan is highly diverse from one end of the state to the other on many factors that influence traffic safety. Macomb, Oakland, and Wayne counties in the urban southeast part of the state differ markedly from the rural counties in the upper peninsula or the northern part of the lower peninsula. This situation indicates that a judgmental selection, rather than random sampling, is preferred in choosing the comparison counties.

Candidate variables for choosing comparison counties include VMT, population, number of registered drivers, and number of road miles. VMT is considered the best of these candidates for the purposes of this evaluation.

Accordingly 1988 VMT's, obtained from the Michigan Department of Transportation, were examined for all counties. Eight counties—Bay, Berrien, Calhoun, Livingston, Monroe, Muskegon, Ottawa, and St. Clair— have VMT's within 20% of Jackson's 1300 million vehicle-miles. Jackson has 55% of its VMT on trunklines, 26% on county majors, 6% on county locals, 10% on city majors, and 3% on city locals. Therefore the eight counties were examined further for the distribution of VMT on the same classes of roadway. Bay, Berrien, Calhoun, and Ottawa counties individually match Jackson within a few percentage points on each of the five roadway classes. In the aggregate, the percentages of travel for the four counties combined on the five classes are 55%, 25%, 5%, 12%, and 3%. Therefore these four counties—Bay, Berrien, Calhoun, and Ottawa—taken together are recommended as the comparison unit in the effectiveness evaluation.

It may also prove worthwhile to compare separately the Jackson experience with that of each of the four counties alone. If the crash experiences of the four counties are similar to each other, then such comparisons will not differ much from those with the four counties taken in the aggregate. On the other hand, if large differences are found among the individual comparisons, it may prove difficult to conclude whether the differences arise from activities in Jackson or those in the comparison counties. Nonetheless, summary crash statistics for the five counties should be examined and compared, and then more detailed analyses undertaken if warranted by the initial findings.

4.4 VARIABLES, TIME PERIODS, AND ANALYTIC ISSUES

The depth and extent of the effectiveness evaluation will likely be limited by the availability of resources rather than by the availability of interesting questions worthy of investigation. It is desirable to differentiate between a minimal set of core analyses essential to the evaluation and many other analyses that fall into the “it would be nice to have” category.

Therefore, the following subsections first identify the variables and time periods appropriate to a minimal evaluation. It is also true that further questions will present themselves when the analytic work is actually conducted. Other variables which may be relevant, particularly in light of program developments as they occur, are also given. Some of the analytic issues that will have to be considered later are also discussed.

4.4.1 Variables

The following variables should be analyzed for Jackson County, the four comparison counties, and the state as a whole.

- All crashes.
- Fatal crashes.
- Injury crashes.
- Casualty crashes.
- Property-damage crashes.
- All crashes/vehicle mile traveled.
- Fatal crashes/vehicle mile traveled.
- Injury crashes/vehicle mile traveled.
- Casualty crashes/vehicle mile traveled.
- Property-damage crashes/vehicle mile traveled.

Additional variables that should be considered as the program develops include the following:

- All alcohol-related (a-r) crashes and a-r crashes subset by accident severity.
- Number of drivers in crashes subset by crash severity.
- Number of drivers in crashes subset by age and/or sex.
- Number of drinking drivers in crashes subset by crash severity and/or age and/or sex.

It may also prove worthwhile to analyze the variables above involving numbers of drivers in terms of their rates per driver in the given classes.

4.4.2 Time Periods

Jackson County was officially awarded the first CCTSP on October 30, 1987. Although no commitment was made, OHSP's initial plan was to support the program for five years. Hiring of the Project Director was announced May 25, 1988 and became effective July 1, 1988. The fall of 1988 was spent preparing for start-up of the first projects on February 1, 1989.

However, in spite of the definite dates given above, the actual start-up dates are not sharply defined. First, there is always a gradual build-up of project activities. Second, not all projects are designed to have a bottom-line impact; their affect is definitely long-term. Finally, it is expected that various projects designed to impact specific target groups will begin at different times.

The period into the future over which the bottom-line impact should be evaluated depends in part on the progress of the program itself. A long-term, continual traffic safety effort has been stressed as a primary goal of the CCTSP concept. If this goal is met, there really will not be a well-defined post-program period. In this case it clearly makes sense to evaluate the outcome over a long-term, but currently unknown, period as well.

Together these considerations blur the usual pre-program, program, and post-program time distinctions considerably. However, these designations will probably continue to be useful, particularly in viewing the entire program as a whole. It is recommended that the following time periods be adopted initially and that the effectiveness evaluation analyses cover the time spans below. The pre- and post- periods may have to be extended if there are insufficient data points for the analytic techniques finally selected for the evaluation.

Pre-program : 1983 – 1989.

Program : 1990 – 1993.

Post-program: 1994 – 1998.

The evaluation activities should, however, start forthwith. The required datasets should be assembled, initial analyses started, and the data monitored to provide an ongoing appraisal of program progress.

4.4.3 Analytic Issues

The first step in the analytic phase of the evaluation is to monitor and compare the trends of the selected data for Jackson County with those for the comparison units over the time periods given above. This process should result in identifying differences in the crash experience. Next, a determination needs to be made whether any differences, if found, are operationally meaningful. Finally, statistical significance, or the lack of it, needs to be established for operationally meaningful differences.

Time-series analysis is the preferred technique for examining trends in the crash data. Whether the frequencies of the selected variables in Jackson County are large enough to permit time-series analysis is an open question at the present that will have to be resolved later.

When the data are subset—by accident severity, for example—the potential for insufficient frequencies rises even further. It is highly likely, therefore, that other techniques for determining statistical significance of meaningful differences in the outcome measures will be required. One such technique that has been used in the past and may prove useful here is that of partitioning the chi-square statistic into its degrees of freedom along a time axis. [Maxwell, A.E., *Analysing Qualitative Data*, Methuen & Co. Ltd., London, 1961, Chapter 3.] This, and other techniques as well, should be explored further when the analytic requirements become clearer.

Appendix A

**REGULATION GOVERNING EVALUATION OF COMPREHENSIVE
COMMUNITY TRAFFIC SAFETY PROGRAMS AND PROJECTS**

Michigan Office of Highway Safety Planning
Authorized for immediate use October 18, 1988

- | | |
|----------------|---------------------------|
| 1. Summary | 6. Procedures |
| 2. Purpose | 7. Reporting Requirements |
| 3. Policy | 8. Glossary |
| 4. Background | 9. Bibliography |
| 5. Definitions | |

1. SUMMARY

A yearly, written Performance Evaluation is required for each project forming part of a Comprehensive Community Traffic Safety Program (CCTSP), including the overall management project. The report is the direct responsibility of Project Management. Its general content and format must receive prior approval from CCTSP Management and from the Office of Highway Safety Planning (OHSP). The report is due within one month of the closing date of the project. It must be submitted to CCTSP management for review and approval and for forwarding to OHSP for its review and approval.

A quarterly Performance Evaluation report, in the same format as the yearly report, is also required for each CCTSP project.

An Effectiveness Evaluation is required only for the CCTSP as a whole and for designated projects.

2. PURPOSE

This regulation establishes OHSP policy and requirements for evaluation of OHSP-funded CCTSPs. It defines Performance and Effectiveness Evaluations, describes their purposes and contents, and sets forth requirements for conducting and reporting the results to OHSP.

Instructions for conducting evaluations are not contained in this regulation. A number of texts deal with this subject, some of which are listed in the Bibliography.

3. POLICY

OHSP encourages appropriate evaluations at all levels of highway safety activity. Performance Evaluations are required for the majority of OHSP-funded projects. The use of grant funds for evaluation is acceptable. In conducting evaluations, OHSP recommends that project management adopt an unbiased, experimental attitude, evaluate project activities objectively, and use the results to improve project performance. OHSP is prepared to assist project management in setting up appropriate evaluations.

Performance Evaluations are required for all projects forming part of a CCTSP and funded wholly or in part by OHSP. Each project, including the overall management project, must be evaluated and the results reported in accord with the criteria and requirements for Performance Evaluations set forth herein.

An Effectiveness Evaluation is required for each CCTSP taken in its entirety. OHSP will work with overall program management in designing, conducting, and reporting this evaluation.

Effectiveness Evaluations are not required for individual projects forming part of a CCTSP unless explicitly designated. Management of such projects will be informed of applicable requirements prior to project planning and implementation. However, management of each project should be prepared to supply data and information about its project to the organization conducting the overall Effectiveness Evaluation.

4. BACKGROUND

Evaluation of traffic safety programs and projects is vital in the continuing effort to maximize the return on safety investments. It forms part of Federal and State traffic safety policy in the form of directives and orders. A number of manuals and guidelines specific to safety issues have been prepared to assist agencies in conducting appropriate evaluations. Many research efforts have been devoted exclusively to program evaluation in recognition of the need to determine the worth of traffic safety efforts. This need continues, and evaluation is recognized as the principal tool for fulfilling this need.

Evaluation is formally recognized as one of the five functions (along with Planning, Programming, Implementation, and Monitoring and Review) forming the Highway Safety Management Process (See, for example, [4] in Section 9.) The process is an effective management technique for traffic safety efforts at national, state, and local levels. In this process evaluation is the key function that provides feedback for improving existing programs and for planning improved programs to be implemented in the future.

5. DEFINITIONS

Two forms of evaluation are commonly recognized: (1) Performance Evaluations and (2) Effectiveness Evaluations. This regulation deals primarily with the former in that a Performance Evaluation is required for each project forming part of a Comprehensive Community Traffic Safety Program. Effectiveness Evaluations are also discussed to help distinguish the differences between the two evaluation forms.

The Glossary reproduces four definitions of Performance Evaluations from the highway safety literature. The words "performance" and "administrative" are used interchangeably; here "performance" is preferred in that it more nearly conveys the intended sense. (Similar definitions, although not specific to highway safety, will be found in other sources contained in the Bibliography.) The Glossary also defines Effectiveness Evaluations.

The emphasis in a Performance Evaluation is on the countermeasure activities themselves, on what is happening, and on how what is happening compares to pre-project activities and to those planned for the operational phase of the project. If the

actual countermeasure activities fall short of the planned activities, a complete evaluation will also include an assessment of why such a condition exists. This assessment, in turn, should lead to recommendations for rectifying the offending situation, or possibly for modifying project goals.

Four definitions of Effectiveness Evaluations, frequently identified as impact or outcome evaluations, are also given in the Glossary. An Effectiveness Evaluation attempts to establish a quantitative relationship between the application of a countermeasure program and changes in the frequency or severity of accidents. The emphasis is on the effect, impact, or outcome on accidents attributable to the countermeasure. Effectiveness Evaluations generally require computer-based analyses of accident and exposure databases and frequently rely on statistical techniques. Since evaluation specialists are usually needed to conduct them properly, Effectiveness Evaluations are not routinely required by OHSP. Project management will, however, be asked to provide data for those projects designated for Effectiveness Evaluations.

6. PROCEDURES

Evaluation planning should be integrated, from the outset, with other project planning activities. This holds particularly for the setting of goals and objectives. Evaluation should be considered an integral part of each project and given as high a priority as any other activity needed for successful conduct of a project. A Performance Evaluation and the Monitoring and Review function of the Highway Safety Management Process are both concerned with assessing program activities, and the two should also be integrated from the beginning.

Performance Evaluations are the direct responsibility of project management. For many projects the Project Director will assemble, organize, and analyze the required data. For larger projects a project coordinator, or the staff person in charge of planning, might be delegated to conduct the evaluation. In either case, however, review and endorsement of the final evaluation by higher administrative authority is required to assure that the evaluation function receives the attention that it merits from the executive level.

In general terms, Performance Evaluations should be designed and conducted primarily to satisfy local needs. However, OHSP and FHWA/ NHTSA requirements for data and information usually included in a Performance Evaluation should also be addressed. Local project management will be informed of any unusual requirements early in the planning phase.

Performance Evaluations focus on measurement of project activities. Therefore specific data elements to be included will necessarily be dictated by the nature of those project activities. However, many of the applicable data elements will be the same, or at least highly similar, for similar projects in different communities. Specific data to be included in Performance Evaluations should be defined locally and submitted to OHSP for review and approval.

7. REPORTING REQUIREMENTS

All projects forming part of a Comprehensive Community Traffic Safety Program must have a Performance Evaluation conducted annually. Projects lasting less than one year must have an evaluation conducted at the end of the project. A written report

containing the results of the evaluation must be prepared and submitted, via the overall Comprehensive Program management, to OHSP for review and approval. The report is due within one month of project completion.

The data contained in Performance Evaluations are similar to those currently required in OHSP's quarterly progress reports. The requirements for data descriptive of current operations are essentially the same, and the need to compare current data to baseline data is common to both as well. Therefore, written quarterly Performance Evaluations, with prior approval of OHSP with respect to content and format, will be required and accepted in place of quarterly progress reports. The report, due by the 15th of the month following the quarter being reported on or as otherwise specified in the Project Orientation Meeting, shall be submitted to CCTSP management and forwarded to OHSP for review and approval.

8. GLOSSARY

Performance Evaluations

“Administrative (Performance) Evaluation— Administrative evaluation is concerned with measuring the operational efficiency of task activities as they relate to the accomplishment of established goals and objectives. In measuring actual task activities, it compares them to: (a) the baseline or pre-task levels of the same activities; (b) the targeted levels of activity established for the task; and (c) the planned use of funds.”

Source: 23 CFR Ch. II (4-1-88 Edition) 1204.4, Supp. B, p.472.

Administrative Evaluation

Administrative evaluation involves an assessment of the operational efficiency of Highway Safety Plan (HSP) activities as they relate to the accomplishment of goals and objectives. Activities are compared to:

Baseline Levels—Changes in countermeasure activity after a program is implemented, measured against activity before the program began.

Planned Level—The level of countermeasure activity originally planned during program selection and development.

Level of Funding—The total cost of personnel, materials, equipment, facilities, etc. required to obtain the level of countermeasure activity.”

Source: [5], p.6.

Administrative evaluations:

- a) Involves the assessment of the performance of activities undertaken during the implementation component (use HSIP diagram).

- b) Measures include resource expenditures in manpower, time and cost of scheduling, designing and constructing highway safety improvements.”

Source: [12], p.33.

“Administrative Level Evaluation

A judgement of value or worth based on comparisons of actual task accomplishments or activities to performance goals established. In addition, where possible there will be an assessment of unit cost and operational efficiency.”

Source: [7], p.VI-8.

Effectiveness Evaluations

“Effectiveness (Impact) Evaluation—A determination of the extent to which task operations and activity have contributed to the achievement of an objective related to crash involvement. Three aspects of an impact evaluation are:

1. Determination of the change in crash involvement.
2. Determination of the relationship of task activities to achieving this change.
3. Determination of the relationship of costs to benefits derived from the task activities and accomplishments.”

Source: 23 CFR Ch. II (4-1-88 Edition) 1204.4, Supp. B, p.472]

“Impact Evaluation

An impact evaluation involves a determination of the extent to which task operations have contributed to a reduction in the number and/or severity of accidents. It provides the ultimate test of the contribution of a countermeasure activity to the overall highway safety program. As such, it allows highway safety program managers to distinguish effective from ineffective programs and thereby to improve the overall value of the highway safety program. There are three aspects to impact evaluation:

Measure of Change—The degree of accident reduction resulting from a countermeasure program.

Identification of Cause and Effect—Identification of specific elements of a countermeasure program leading to accident reduction.

Cost-Effectiveness Measure—The measure of the relationship between the degree of accident reduction and cost.”

Source: [5], p.7.

“Effectiveness (impact or outcome) evaluations:

- a) Determining whether and to what extent a safety improvement reduced accidents. The criteria in this case is changes in accident frequency, rate, and severity.

- b) If changes in accidents are unacceptable as criteria, due to low frequencies or because improvements were made to reduce hazard potential, changes in non-accident safety measures may provide insight to the value of the improvement (e.g., encroachments, traffic conflicts, speeds, etc.).”

Source: [12], p.33.

“Impact Level Evaluation

A determination of the extent to which task operations and activity have contributed to the achievement of an objective related to crash involvement. The three basic aspects of an impact evaluation are: 1) determination of impact ; 2) determination of the relationship of project activity or accomplishment to documented impact, and 3) determination of the relationship of cost to impact.“

Source: [7], p.VI-9.

9. BIBLIOGRAPHY AND REFERENCES

- [1] *Highway Safety Management Process: PLANNING AND PROGRAMMING MANUAL*, National Highway Traffic Safety Administration, November 1980, DOT HS 803 634, HSRI-45300.
- [2] *Highway Safety Program Manual*, Volume 102, National Highway Traffic Safety Administration, Federal Highway Administration, NHTSA/FHWA Order 960-2/7510.3, February 24, 1978, HSRI-42337.
- [3] *Highway Safety Program Management Guide*, Office of Highway Safety, Federal Highway Administration, FHWA Order M 7560.3, February 18, 1976, HSRI-37349.
- [4] *Highway Safety Management Process Guidelines*, National Highway Traffic Safety Administration. September 1978, DOT HS 803 565. HSRI-42009.
- [5] *Highway Safety Management Process: EVALUATION MANUAL*. National Highway Traffic Safety Administration, November 1980, DOT HS 803 633, HSRI-45299.
- [6] *HIGHWAY SAFETY EVALUATION: Procedural Guide*, FHWA-TS-81-219, Federal Highway Administration, (Prepared by Goodell-Grivas, Inc.), November 1981, HSRI-47344.
- [7] *Management and Evaluation Handbook for Demonstration Projects In Traffic Safety*, Traffic Safety Programs, National Highway Traffic Safety Administration, (Prepared by Teknekron, Inc.), February 1977, DOT HS 802 196, HSRI-37441.
- [8] *THE EVALUATION OF HIGHWAY TRAFFIC SAFETY PROGRAMS: A Manual for Managers*, National Highway Traffic Safety Administration, (Prepared by Institute for Research in Public Safety, Indiana University), July 31 1975, DOT-HS-4-00883-7, HSRI-36499.
- [9] Campbell, Donald T. and Julian C. Stanley, *Experimental and Quasi-Experimental Designs for Research*, Rand McNally, 1966. HSRI-13643.

- [10] Cook, Thomas D., and Donald T. Campbell, QUASI-EXPERIMENTATION: Design & Analysis Issues for Field Settings, Houghton Mifflin Company, 1979.
- [11] Epstein, Irwin and Tony Tripodi, Research Techniques for Program Planning, Monitoring, and Evaluation, Columbia University Press, 1971.
- [12] Goodell-Grivas, Inc. for Federal Highway Administration. HIGHWAY SAFETY EVALUATION: Instructor's Guide, U.S. Department of Transportation, March, 1981. HSRI-47251.
- [13] Planek, T.W., K. Race, A. Hoskin, J.A. Bryk, T. Miller, Symposium on Traffic Safety Effectiveness (Impact) Projects, National Safety Council, August 1981. DOT HS-806 050. HSRI-46423. (This document mainly describes the Symposium.)
- [14] Planek, T.W., editor, Symposium on Traffic Safety Effectiveness (Impact) Projects, sponsored by Office of Program and Demonstration Evaluation, Traffic Safety Programs, National Highway Transportation Administration, U.S. Department of Transportation, prepared by National Safety Council, August 1981. HSRI-46720. (This document contains the papers presented at the Symposium.)
- [15] Posavac, Emil J. and Raymond G. Carey PROGRAM EVALUATION: Methods and Case Studies, Second Edition, 1985, Prentice-Hall, Inc. 355 p.
- [16] Rossi, Peter H., Howard E. Freeman, and Sonia R. Wright, EVALUATION: A Systematic Approach, 1979, Sage. (Archit. H 62 .R6661).
- [17] Suchman, Edward A., EVALUATIVE RESEARCH: Principles and Practice in Public Service & Social Action Programs, Russell Sage Foundation, New York, 1967. HSRI-10928.
- [18] Tripodi, Tony, Phillip Fellin, and Irwin Epstein, SOCIAL PROGRAM EVALUATION: Guidelines for Health, Education, and Welfare Administrators, F.E. Peacock Publishers, Inc., 1971.
- [19] Weiss, Carol H., EVALUATION RESEARCH: Methods of Assessing Program Effectiveness, Prentice-Hall, 1972. HSRI-19770.

Appendix B

COMPREHENSIVE COMMUNITY TRAFFIC SAFETY PROGRAM DESCRIPTION

Introduction. This document describes the essential features of Comprehensive Community Traffic Safety Programs. The program concepts arise from OHSP's (Office of Highway Safety Planning) conviction that community traffic safety efforts are needed. OHSP also believes that a cooperative effort with OHSP is the preferred way to undertake them. Comprehensive programs are likely to receive increased emphasis in the future, both in Michigan and elsewhere. Before funding such programs on a broader scale, OHSP plans to conduct a pilot study in a single community. OHSP will participate in several phases of the pilot study so it can assist other communities undertaking similar programs.

The OHSP staff has established a set of characteristics desired in the pilot site. It has also compared all Michigan communities with those characteristics. Genesee, Jackson, and Muskegon Counties are best suited to participate in the pilot study. Each is being invited to submit a competitive proposal to determine initial participation. A separate document, **INFORMATION FOR OFFERORS**, contains guidelines for preparing proposals. Recipients should be able to prepare their proposals without extensive reference to other documents. They may obtain further information, if required, from OHSP.

This description begins with the reasons why OHSP believes such programs are necessary. The Office presents its view of the organization and management of successful programs. It also describes the program scope and content. The desired interactions between OHSP and the selected community are also included.

Rationale. Several reasons lie behind the current desire to undertake problem-driven, community-specific traffic safety programs. One is that despite many decades of conscientious effort, traffic crashes continue to inflict tremendous personal and economic tolls. This alone justifies continuing and innovative efforts to reduce their frequency and severity.

What kind of efforts are needed? Prior safety activities have identified and addressed the really obvious problems. (This does not mean, of course, that safety specialists have solved all of these problems. The degree of resolution depends on the particular problem under consideration.) The remaining traffic safety problems are complex and diverse. Unfortunately, they do not yield to easy, narrowly focused solutions.

Another important consideration is the geographic diversity of the accident problem. Problems in southeastern Michigan, for example, differ from those in the U.P. Responses to those problems should also differ.

Finally, solutions to problems do not always lie in a frontal attack on the problem itself. Increased vehicle crashworthiness, for example, has lessened the affects of all kinds of crashes, whatever the causes. Programs based on identification of local issues are more likely to uncover comparable accident prevention strategies than those committed to a specific type of intervention from the outset.

For these reasons OHSP is encouraging communities to undertake comprehensive traffic safety programs. OHSP hopes that local traffic safety leadership will share its appraisal that sustainable, broadly-based, cooperative efforts are needed.

What is a comprehensive community traffic safety program? The Federal view of these programs is a useful starting point. Their Goal statement, from one of the early informational documents (Reference 1), is:

The goal of comprehensive programs is to achieve long term, community-based, self-sustaining comprehensive programs statewide, addressing high priority areas, especially alcohol, occupant protection, traffic records, police traffic services, emergency medical services, motorcycle safety, pedestrian safety, and safety construction and operational improvements. Their definition, from the same document, is:

A comprehensive Community Traffic Safety Program is a program which implements an Operational Plan at the community level to solve major traffic safety problems in a coordinated manner, based on problem identification and program assessment.

OHSP agrees with these concepts. It has expanded them further as seen in the following. A successful comprehensive traffic safety program:

- * Coordinates with all appropriate local, state, and federal agencies and appropriate private-sector organizations. This includes those whose input can contribute to success or whose lack of input might contribute to failure.
- * Addresses that community's traffic safety needs, both long-term and short-term.
- * Is commensurate in size, scope, and cost with available resources.
- * Includes a highway safety management process in its structure.
- * Monitors and evaluates program components regularly. Thus management retains and strengthens successful components and modifies or discards unsuccessful components.
- * Documents successful program components for use in other jurisdictions.
- * Contains an explicit component directed to program continuation.

How is a comprehensive program administered and managed? Well-conceived and executed administration and management are critical components of a successful program. The key here is that management follows a highway safety management process, basically similar to that depicted in Figure 1. The specific organizational structure is not an overriding concern, and it will vary from community to community. Management must, however, acknowledge and carry out its five major functions appearing in Figure 1. OHSP finds that programs are more likely to succeed if an individual coordinates activities within the community and with OHSP. Management should hire a Coordinator from the outset, and grant monies will pay for this position.

The figure makes clear that highway safety management is a circular, repetitive process. At any particular time one of the five major functions may be receiving more emphasis than the others. A mature program, however, applies the overall process all of the time. A logical starting place for a community beginning a comprehensive program is the PLANNING function, particularly Problem Identification. OHSP puts heavy emphasis on the importance of this activity. As developed later, OHSP expects to work closely with communities undertaking comprehensive programs under its auspices.

What types of traffic safety activities do comprehensive programs include? OHSP will not require any particular safety activity or countermeasure. Rather, the results of the Problem Identification work should guide the formulation and implementation of specific program components. However, the problem identification process itself requires some structure and organization. Useful categories of safety problems from the past, such as alcohol and occupant protection, will help here. Many resource documents are similarly structured.

OHSP will neither require nor preclude any specific countermeasure activities. Identifying problems and having them guide the formulation of program activities is essential. OHSP anticipates that problem identification will uncover several classes of problems requiring long-term attention. The program probably will encompass several types of activities. Thus the program will not focus on only a few activities, such as police traffic services.

What is the anticipated scope of comprehensive programs? Ideally a safety program should be comprehensive enough to address all of a community's safety problems all of the time. Realistically, however, management must acknowledge limitations on resources and the need to distribute those resources among competing programs. Therefore goals and programs have to be consistent with the resources available immediately and in the future.

General guidelines appear below. Definitive answers will not be available until OHSP selects the pilot community and the highway safety management process is established. Then problem identification can begin. Choosing countermeasures will depend on identified problems and the combined community-OHSP resources available. OHSP recognizes that considerable planning will be needed to carry out a comprehensive program. Countermeasure activities will probably start over a period of many months. OHSP wishes to avoid a poorly conceived, poorly coordinated across-the-board effort. It strongly prefers careful planning, implementation, and evaluation of a few countermeasure activities, particularly at the beginning of the program.

OHSP will provide Federal funds under its jurisdiction to assist the pilot site in conducting the comprehensive program. The amount is not now known.

What is OHSP's expected participation in the program? OHSP expects to take an active, cooperative role in several phases of the program. Its goals are twofold. The first is to assist the community in planning and implementing a successful program. The second is to capture all aspects of the program experience so it can better assist other communities undertaking similar programs. Providing financial resources as discussed earlier is, of course, an important OHSP role. OHSP's participation in the problem identification, program planning, and evaluation functions is equally important.

Problem identification. This is the initial step in the management process. Problem identification typically proceeds along two complementary lines. The first is analysis of existing accident and exposure data to characterize the local problem as accurately as possible. This part of problem identification attempts to obtain answers to the following kinds of questions. When, where, and on what kinds of roads do the majority of accidents occur? What are the ages of the involved drivers? Are they overrepresented in the accident population with respect to their numbers in the exposed population? Do data exist to show how many miles various age groups drive? How large is the alcohol-related crash problem? Is it concentrated in time or area? Is there a pedestrian accident problem of significance?

This first phase of problem identification—determining the size and kinds of safety problems—is largely analytical. Local organizations may have the facilities and personnel to conduct the required investigations. More likely they will require access to Michigan's central accident database. To this end OHSP will help arrange cooperative data analysis efforts with qualified organizations. The Traffic Services Division, the U-M's Transportation Research Institute (UMTRI), and the MDOT will be considered.

The second phase of problem identification is more general in nature. What is being done about safety problems and by whom, and what obstacles exist to more effective action? On a more detailed level, it addresses the following kinds of issues. To what extent do police agencies investigate traffic crashes? When and where do road patrols occur? Are there alcohol abuse programs in place in the community? To what groups are they directed? Is there a problem among local courts in processing traffic offenders? Are emergency medical services adequate? Are there significant roadway or traffic engineering problems that require attention?

Clearly local personnel will obtain answers to almost all of above kinds of questions. (Analysis of Michigan's drunk-driving audit data is a possible exception. This can assist in determining the effectiveness of local prosecution and adjudication of drunk-driving cases.) However, OHSP anticipates that it can help to structure and organize the required review and to make existing survey instruments available.

In summary, OHSP considers problem identification a critical component of a comprehensive program. Accordingly, it will insist upon a thorough review of traffic safety problems and what is being done about them. It will assist this review with whatever resources it has available and will coordinate the participation of other agencies as needed.

Program planning. This is another highly important function in a comprehensive program, and it follows naturally from the problem identification activities. Local management and administration will conduct, by far, the bulk of the planning work. OHSP will provide knowledgeable persons from its staff to assist in the planning function. Their participation will also provide a mechanism for OHSP to capture the local planning experience. OHSP will also help to identify and provide resource materials useful in the planning process.

Program evaluation. In its simplest terms, program evaluation involves the following steps. Describe the program completely, compare actual program activities with planned activities, and determine which program components work and which don't. These steps are all quantified to the extent possible. Evaluation is a vital program function in the management process. OHSP accords it high priority and will strongly encourage a similar perspective at the project management level.

Performance evaluations basically describe what is happening and compare program activities with pre-program and planned activities. OHSP will require them on a regular basis. The Office will define the minimum requirements and will assist in creating and implementing an evaluation plan. The majority of the data and information required in a performance evaluation are collected and organized in the Monitoring and Review function. This forms part of the overall HIGHWAY SAFETY MANAGEMENT PROCESS shown in Figure 1.

Effectiveness evaluations assess the “bottom-line” intent of traffic safety programs. This is usually reducing the number or severity of traffic crashes. They are inherently more complex than performance evaluations. Evaluation specialists not directly associated with the program usually conduct these evaluations. Thus program management will neither conduct nor assume responsibility for complete effectiveness evaluations. However, OHSP places a high priority on this activity. Therefore program management must plan to cooperate fully with the evaluation specialists that will conduct these evaluations.

Summary. Comprehensive programs will receive increasing attention from federal and state officials in future years. Such programs will be characterized by the presence of a highway safety management process. OHSP will encourage local communities to install and operate this process. It will assist communities undertaking comprehensive programs financially and by providing various forms of technical assistance. OHSP is undertaking a pilot study to test the key program concepts. It will take an active role in the pilot program in preparing to assist other communities in the future.

Reference: *A GUIDE FOR COMPREHENSIVE COMMUNITY TRAFFIC SAFETY PROGRAMS*, Traffic Safety Programs, National Highway Traffic Safety Administration, January, 1985.

Appendix C

(The following material is taken verbatim from *INFORMATION FOR OFFERORS*, undated. The document accompanied the solicitation letter and the companion document *COMPREHENSIVE COMMUNITY TRAFFIC SAFETY PROGRAM DESCRIPTION*.)

2.0 PROPOSAL CONTENT AND EVALUATION CRITERIA

An initial grant will be awarded to the community that OHSP judges is best able to plan, implement, and evaluate the program described in the document *COMMUNITY TRAFFIC SAFETY PROGRAM DESCRIPTION*. Two complementary purposes are to be served: (1) to initiate and sustain a well-planned traffic safety effort designed to reduce the personal and economic consequences of traffic crashes in the selected community and (2) to enable OHSP to increase its capabilities to assist other communities in undertaking similar endeavors in the future.

OHSP will evaluate proposals on nine specific factors related to these purposes. These factors, which offerors should address in their proposals, are weighted equally (ten percent) and are given on page two. The remaining ten percent will be reserved for evaluating other concepts or factors related to the community which the offeror believes will contribute to the success of the program.

2.1 FACTORS RELATED TO PROGRAM IMPLEMENTATION

- 2.1.1 An effective and efficient administrative and management structure will be implemented.
- 2.1.2 Overall program management, and the management of agencies that will subsequently implement countermeasure activities as well, understands and is committed to creating and exercising the Highway Safety Management Process described in the PROGRAM DESCRIPTION.
- 2.1.3 Agencies and organizations traditionally concerned with traffic safety, such as law enforcement and traffic engineering, support the program concept and possess capabilities to implement likely program activities arising during the planning phase of the program. (It is neither desirable nor necessary to identify and describe specific traffic safety activities that may be initiated during the program.)
- 2.1.4 Program management is willing to work toward creating and maintaining a long-term traffic safety program that continues beyond the period when direct OHSP financial assistance is available.
- 2.1.5 Program management is willing to conduct thorough, regularly scheduled performance (administrative) evaluations of all significant program activities throughout the life of the program and will use their results to improve performance.

- 2.1.6 There exists substantial community and media support in undertaking a Community Traffic Safety Program. Letters of endorsement from key community leaders and traffic safety specialists should be included as evidence of such support.

2.2 FACTORS RELATED TO INTERACTING WITH OHSP

- 2.2.1 Program management will collaborate with OHSP throughout the life of the program, particularly during the PLANNING and PROGRAMMING activities.
- 2.2.2 Program management will participate in and provide data for effectiveness (impact) evaluations and will report the results of its performance (administrative) evaluations to OHSP on a quarterly basis.
- 2.2.3 Program management is willing to make its program experience and materials available to OHSP and other communities.