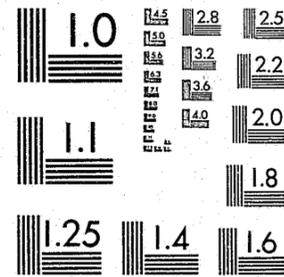


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STATE OF MICHIGAN

X
 SECONDARY ROAD PATROL PROGRAM
 SECOND EVALUATION
 1981 ACTIVITIES

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CREDITS

The Office of Criminal Justice acknowledges the participation and cooperation of the following:

- Michigan Sheriffs' Association
- Michigan State Police - Bureau of Traffic Safety
- Michigan State Police - Uniform Crime Reporting Section
- Michigan Department of Transportation

Special acknowledgement is extended to the Sheriffs, fiscal officers, and their staffs of the following counties for their cooperation and assistance in data collection:

- | | |
|-----------|-------------|
| Allegan | Macomb |
| Benzie | Monroe |
| Branch | Montcalm |
| Cheboygan | Montmorency |
| Clare | Oakland |
| Delta | St. Clair |
| Genesee | Tuscola |
| Ingham | Washtenaw |
| | Iron |

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SECONDARY ROAD PATROL EVALUATION

INTRODUCTION

This is the second annual evaluation of the Sheriffs' Secondary Road Patrol program required by Act No. 94, Public Acts of 1981, as amended. The first evaluation was issued in 1982 and covered the first two full years the program was in operation, 1979 and 1980. The act states ". . . the Office of Criminal Justice shall conduct an impact and cost effectiveness study which will review state, county, and local road patrol and accident prevention efforts." The program is commonly referred to as the PA 416 Secondary Road Patrol program because it was originally established by Act No. 416, Public Acts of 1978.

This evaluation is limited to comparing the sheriffs' 1981 program activities with 1978 (the base year) and 1980. The data are based on calendar year rather than the state's fiscal year, October 1 to September 30, which is the basis for funding. The evaluation reflects less than three years experience with the program. Most counties did not get started in the program until the second or third quarter, January 1979, or April 1979, of the first fiscal year. Five counties did not participate the first year and, therefore, had completed only one year in the program by 1980.

The findings of the first year evaluation resulted in some changes in the way the Office of Criminal Justice (hereafter referred to as OCJ) administers the program, helped some sheriffs to better understand program goals, and gave state officials a better insight as to how the program is being implemented.

The evaluation will examine data at two levels. Activity data are based on data collected on-site from seventeen randomly selected counties, and accident and crime data are data reported by all 83 counties. The activity data for last year were collected from 13 counties and this year from 17 counties. These additional counties strengthen the representation of counties in the 100,000-300,000 and 300,000 and over population categories.

The evaluation this year will address the issue of cost benefit by comparing the cost of a county supported deputy with the cost counties are charging the state for Secondary Road Patrol deputies.

Detailed background information reported in the first evaluation will not be repeated in this edition. Reviewers not familiar with the history of the program should obtain a copy of the first evaluation.

I. PROGRAM BACKGROUND SUMMARY

A. The program was created by Act No. 416, Public Acts of 1978, and provided for the following:

1. The sheriff's department is the primary agency responsible for providing certain services on the county primary and local roads that are outside the boundaries of cities and villages. The sheriff also provides these services on any portion of any other highway or road within the boundaries of a county park.

2. The following services are to be provided:

a. Patrolling and monitoring traffic violations.

b. Enforcing the criminal laws of the state which are observed by or brought to the attention of the sheriff's department while providing the services required by the act.

c. Investigating accidents involving motor vehicles.

d. Providing emergency assistance to persons on or near a highway or road patrolled as required by the act.

3. The sheriff can provide these services on secondary roads within a city or village, if the legislative body of the local unit of government passes a resolution requesting the services.

4. How the funds can be spent:

a. Employing additional personnel.

b. Purchasing additional equipment.

c. Enforcing laws in state and county parks.

d. Providing traffic safety information and education programs that are in addition to those provided before the effective date of the act, October 1, 1978.

5. How the funds are to be allocated under the act:

Counties are to receive the same proportion of the total of Act 416 funds they receive of the road maintenance funds under Section 12 of P.A. 51, less funds designated for snow removal and engineers.

6. The counties are required to maintain their local financial effort.

A county is required to maintain expenditures and the level of services it was providing prior to the enactment of this bill unless, due to economic conditions, the county is required to reduce general services. If reductions become necessary, the county is required to obtain a concurrent resolution adopted by a majority vote by the Senate and House of Representatives.

7. The counties are required to enter into the following contractual arrangement.

The Act specified that counties must enter into a contract with the Department of Management and Budget to receive the funds.

B. Subsequent amendments to the bill have resulted in the following changes:

1. The program administration was changed.

OCJ was given the responsibility and authority to enter directly into contract with the sheriffs.

2. An additional activity was authorized.

Sheriffs could provide selective motor vehicle inspection programs.

3. The maintenance of local effort (MOE) clause was amended.

If a county found it necessary to reduce expenditures or the level of service they provided prior to October 1, 1978, they are required to report this to OCJ who will determine if the reduction meets the requirements of the act. (Authority to resolve MOE issues was originally with the legislature.)

4. Program evaluation was added.

OCJ will submit an annual impact and cost effectiveness study to the Senate and House Appropriations Committees by April 1 of each year.

C. Funds appropriated to the program over a five fiscal year period:

| <u>Fiscal Year</u> | <u>Appropriation</u> | <u>Available to Counties¹</u> | <u>Amount Expended By Counties</u> |
|--------------------|----------------------|------------------------------------------|------------------------------------|
| 1978-79 | \$8,700,000 | \$8,700,000 | \$7,400,299 ² |
| 1979-80 | \$8,700,000 | \$8,613,000 | \$7,865,792 |
| 1980-81 | \$6,400,000 | \$6,336,000 | \$5,780,021 |
| 1981-82 | \$6,500,000 | \$6,435,000 | \$6,177,158 ³ |
| 1982-83 | <u>\$6,500,000</u> | <u>\$6,435,000</u> | N/A |
| | \$36,800,000 | \$36,519,000 | |

1. After FY78-79 1% was deducted for administrative costs of the program.

2. Five counties did not apply for funds.

3. All final expenditures were not received prior to preparation of the report.

II. EVALUATION METHODOLOGY

The program was evaluated on the basis of two types of information: Seventeen county sample data and statewide (83 county) data.

A. Sample Data

Activity and salary information was obtained from seventeen counties. The first-year sample was a sample of thirteen counties. The sample was as proportionately representative of each population group as could be provided, however, it only had three counties representing counties of 100,000 and over. Thus, four counties were added in this size category. Two counties are in the 100,000 to 300,000 population category and two in the 300,000 and over. The seventeen-county sample represents 20 percent of the total number of counties (83) but 36 percent of the 1981 population.

The sample counties were randomly selected and stratified by size. The random process allowed for replacement and duplication was resolved by selecting another random number using the same methodology. The sample has limitations. It cannot be assumed the figures given for the various size categories or the total sample represent the actual averages if data were collected for all counties in the state. The sample must be allowed a flexibility of ± 10 percent. Table 1 gives a listing of the counties, their 1981 populations, and the percent of total population, and Figure 1 shows the geographic location of each sample county.

B. Total State Data

The accident data are the annual totals for all 83 counties. The data are collected annually from each jurisdiction by the Michigan State Police.

The determination of activities is done with data from the seventeen county sample, but the accident count and analysis of program effectiveness is done with data that include all 83 counties.

TABLE 1

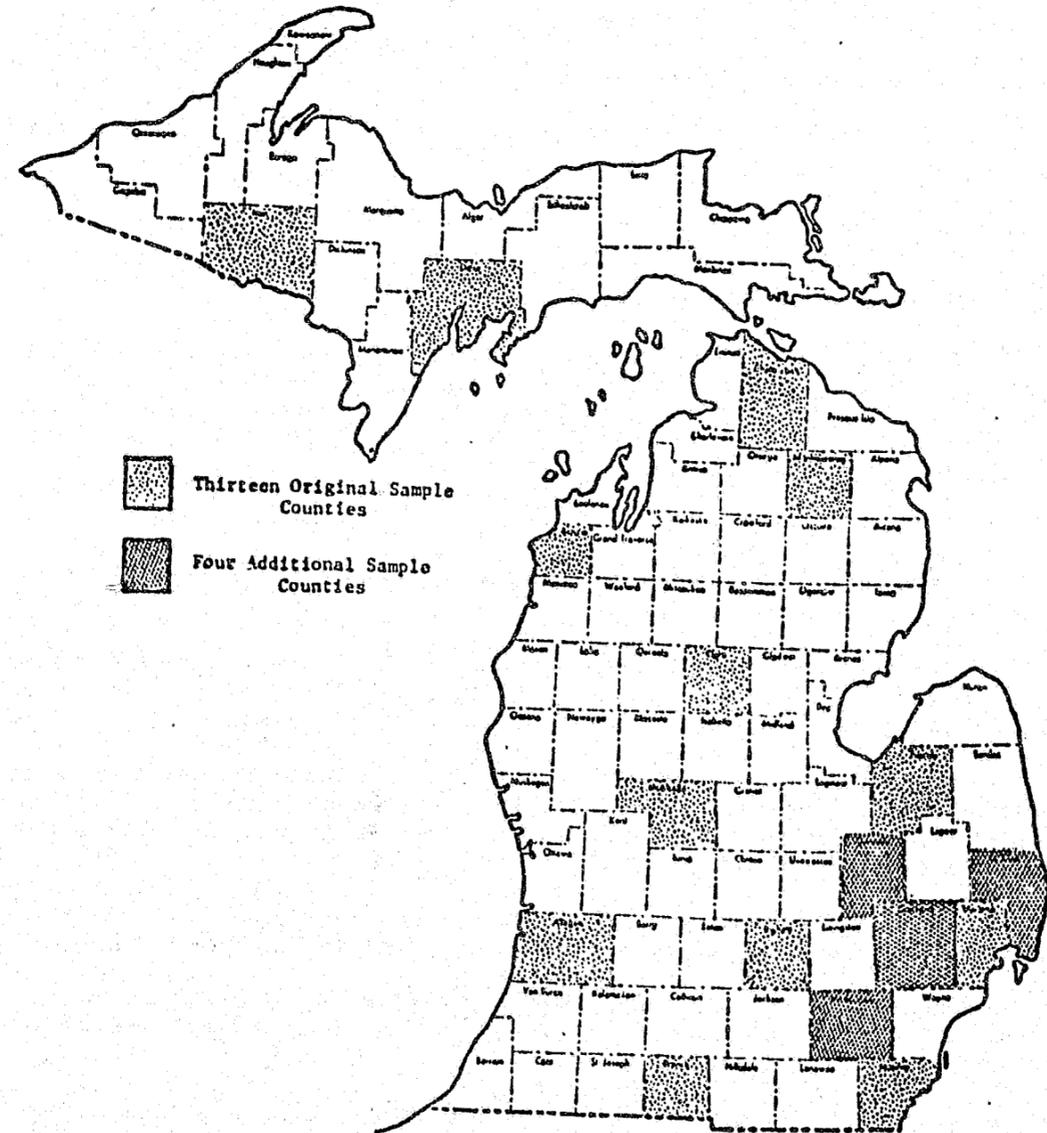
SAMPLE COUNTIES

| Counties and Population Categories | Number of Counties | | | Population ¹ | | |
|------------------------------------|--------------------|-----------|-----------|-------------------------|------------------|-----------|
| | Sample | State | % Total | Sample | State | % Total |
| 0 - 30,000 | 5 | 38 | 13 | 77,987 | 607,293 | 13 |
| Benzie | | | | 11,445 | | |
| Cheboygan | | | | 20,847 | | |
| Clare | | | | 24,377 | | |
| Iron | | | | 13,721 | | |
| Montmorency | | | | 7,597 | | |
| 30,000 - 100,000 | 5 | 27 | 19 | 268,387 | 1,480,386 | 18 |
| Allegan | | | | 82,600 | | |
| Branch | | | | 40,216 | | |
| Delta | | | | 39,247 | | |
| Montcalm | | | | 49,387 | | |
| Tuscola | | | | 56,937 | | |
| 100,000 - 300,000 | 4 | 13 | 31 | 817,611 | 2,260,501 | 36 |
| Ingham | | | | 277,956 | | |
| Monroe | | | | 133,367 | | |
| St. Clair | | | | 266,996 | | |
| Washtenaw | | | | | | |
| 300,000 and Over | 3 | 5 | 60 | 2,157,833 | 4,921,820 | 44 |
| Genesee | | | | 450,861 | | |
| Macomb | | | | 693,698 | | |
| Oakland | | | | 1,013,274 | | |
| Totals | 17 | 83 | 20 | 3,321,818 | 9,270,000 | 36 |

¹ 1981 Estimated population, Department of Management and Budget.

FIGURE 1

SECONDARY ROAD PATROL EVALUATION
SEVENTEEN SAMPLE COUNTIES



III. DATA COLLECTION AND DEFINITIONS

A. Data Collection

The activity data were collected by two OCJ staff members at the sheriffs' offices in the 17 sample counties. Data collection occurred from October through December, 1982. Information was obtained directly from official documents including the daily activity records for the Secondary Road Patrol deputies. Data collection was complicated by the diversity of data formats and related definitions. Some estimating was done to make the data more complete, but the exclusion of these estimates would not significantly change the statistical outcome of the evaluation.

Wage and fringe benefit information for deputies was obtained from the person responsible for the financial accounting system.

B. Data Definitions

Following are definitions for the variables used in this report and sources if other than the sheriff's department:

1. **Citations** - All violations of either a state law or local ordinance, i.e., moving violations, improperly maintained safety equipment, improper drivers license or lack of registration and/or proof of insurance and alcohol related offenses. This includes tickets issued to drivers of automobiles, trucks or motorcycles.

2. **Arrests** - Criminal arrests, either felony or misdemeanor.

3. **Accident Investigation** - Response to reported accidents, initial investigation and evidence collection.

4. **Criminal Complaint Responses** - The response to any situation where a citizen reports that a crime (felony or misdemeanor) was committed or is in progress, the initial investigation and the discovery of crime.

5. **Law Enforcement Assistance** - Assisting a law enforcement officer of a different department (state and local) or of the same department. This includes Department of Natural Resources officers, Liquor Control Commission personnel, etc.

6. **Motorist Assistance** - Assisting citizens who need help. This is primarily where an automobile becomes inoperative and the citizen is stranded.

7. **Crime** - Felony and misdemeanor crimes that have been reported to the Michigan State Police Uniform Crime Reporting System by state, county, and city as substantiated crimes.

8. **Accidents** - Motor vehicle accidents that have been reported to the Michigan State Police by state, county, and local law enforcement.

9. **Vehicle Miles Traveled** - The estimated number of miles traveled for all vehicles using a specified road system as reported by the Michigan Department of Transportation. This figure takes into consideration the

10. **Alcohol Related Accidents** - One or more of the drivers involved in the accident had been drinking. Information obtained from the accident data reported to the Michigan State Police.

11. **Vehicle Registration** - The number of registered vehicles reported by the Michigan Secretary of State. This includes automobiles, trucks and motorcycles.

12. Rural

Traffic Accidents - Accidents that occurred in townships and jurisdictions of less than 1,000 population that were investigated by Michigan State Police, Sheriff's Department, or Township Police.

This definition is slightly different from last year. Last year the data were the accidents investigated by sheriffs, state police, and township police in townships and jurisdictions of 2500 or less.

IV. EVALUATION GOALS

1. To ascertain whether the counties are continuing to maintain the support of their county supported road patrol at a level comparable to or greater than the base-line period, October 1, 1978.

2. To determine if the Secondary Road Patrol Program has maintained the high level of productivity recorded in 1980.

3. To report what the state paid for a Secondary Road Patrol deputy and determine whether this was the same or different from the cost of a county supported deputy.

4. To find out whether the secondary roads had the same accident trend as the other roads of the state during 1981 or was higher or lower than the others.

V. SECONDARY ROAD PATROL PROGRAM

A. Services Provided

When the program began a number of counties used some of the funds for vehicle inspection and traffic safety education programs. The number of these programs has declined considerably and the main focus has become traffic law enforcement. The vehicle inspection program has been replaced by stopping cars where it is obvious that certain safety equipment is in need of repair and issuing a repair and report citation. This means the citation is voided when the owner returns with the vehicle and can prove the defective equipment has been repaired or replaced.

B. Personnel

The largest expenditure of PA 416 funds was for for personnel and automobile expenses, as would be expected. The percentage of total secondary road patrol expenditures in FY 80/81 for personnel was 88 percent and for automobile operation 8 percent. The automobile expenditure represents purchasing gasoline, repairs and replacement vehicles.

Table 2 shows the number of deputies employed by the program each fiscal year from FY 78/79 through FY 82/83. These deputies represent new hires. Strong measures have been taken by OCJ to assure that secondary road patrol funds are used to supplement, not to supplant (or replace) county funding. Counties participating in the Secondary Road Patrol Program are forbidden by law to reduce the level of their county supported road patrol effort unless they can prove economic hardship and are forced to reduce general services. Act No. 94 Public Acts of 1981, Sec. 77, Paragraph (1) "... An agreement entered into under this section shall be void if the county reduces its expenditures or level of road patrol below that which the county was expending or providing immediately before October 1, 1978, unless the county is required to reduce general services because of economic conditions and is not merely reducing law enforcement services." This provision is referred to as "maintenance of effort."

Counties are required to report the number of deputies they have at the beginning of each funding year and the previous year's expenditures. These figures are compared with those reported for October 1, 1978. If the county has fewer county supported deputies, they must either replace the personnel, prove economic hardship, or be denied funds.

Since October 1, 1978, ten counties have reduced their county road patrol and have pled economic hardship. Nine of these counties have been approved for funding and one is pending. The first county to use this provision was Genesee County. The entire county supported road patrol, 21 deputies, was eliminated. Under Act No. 416 Public Acts of 1978, Sec. 77, prior to amendment, counties that reduced their county supported effort had to receive a concurrent resolution adopted by a majority vote of the Senate and House of Representatives. Genesee County documented its case and received a concurrent resolution.

Wayne County also eliminated its road patrol and was able to substantiate a 44 percent reduction in general funds. The other seven counties that were approved had reduced the road patrol manpower below the 1978 level, but did not eliminate their road patrols.

The data for the 17 county sample demonstrates that all the population categories either remained the same or increased in the number of county supported deputies, except for the 300,000 and over category, which reflects the decrease of 21 deputies in Genesee County. Table 3 shows the data for the sample.

TABLE 2
SECONDARY ROAD PATROL DEPUTIES

Number of Deputies Employed with Secondary Road Patrol Funds

N = 83 Counties

| Fiscal Year | Program Year | Number of Deputies |
|-------------|--------------|--------------------|
| 78/79 | 1st | 287 |
| 79/80 | 2nd | 291.3 |
| 80/81 | 3rd | 215.4 |
| 81/82 | 4th | 197.6 |
| 82/83 | 5th | 200.7 |

TABLE 3
MAINTENANCE OF EFFORT

Regular Patrol Strength and Financial Support

FY 78-79 and FY 80-81

N = 17 Counties

| Population Category | County Supported Deputies* FY 78-79 | County Supported Deputies* FY 80-81 | Financial Support FY 78-79 | Financial Support FY 80-81 |
|---------------------|----------------------------------------|----------------------------------------|-------------------------------|-------------------------------|
| 0 - 30,000 | 32.5 | 32.5 | \$ 638,500 | \$ 896,300 |
| 30,000 - 100,000 | 78 | 79 | 1,759,500 | 2,364,400 |
| 100,000 - 300,000 | 217 | 247 | 6,534,400 | 10,068,800 |
| 300,000 - Over | 214 | 203** | 4,602,500 | 4,490,400 |
| Total Sample | 541.5 | 561.5 | \$13,534,900 | \$17,819,900 |

* Taken from reports submitted by the counties.

* Includes all road patrol certified personnel.

** Genesee County reduced by 21 deputies due to reduction in general funds.

C. Activities

Sheriffs primarily use the Secondary Road Patrol to patrol county local and primary roads, monitor for traffic law violations, and investigate accidents. However, a deputy observing a criminal law violation while patrolling, will make an arrest; a deputy may take a criminal complaint if the sheriff's department brings to his attention a crime in the patrol area. Also, deputies help motorists, assist other law enforcement officers and patrol in county and state parks. A few of the larger sheriffs' departments in the sample had written directives that did not permit secondary road patrol deputies to respond to crime scenes or assist other law enforcement officers unless they were in the immediate area.

The OCJ evaluation team collected the following data relative to the major activities of the seventeen counties in the evaluation sample:

1. Citations

It is evident that citation writing is the highest priority of the Secondary Road Patrol. The limitations placed on the utilization of Secondary Road Patrol deputies makes it possible for them to spend a large portion of their time monitoring speed and the condition of safety equipment on automobiles. The evaluators who collected data at the seventeen sheriffs' departments did not have time to count the number of each type ticket, but it was obvious in reviewing and counting citations that these two types outnumbered any other.

The previous evaluation showed that Secondary Road Patrol deputies had a high productivity averaging in 1979, 335 citations per officer, and in 1980, 333 per officer. The productivity was even higher in 1981, 510 per officer. Three of the four population categories surpassed 1980. The category that did not, 300,000 and over, was 12 percent under last year, yet they still had the largest number per officer, 696 citations per officer. Their citations per officer were 32 percent above the next highest category.

Compared with the County Supported Road Patrol, the Secondary Road Patrol officers wrote over 380 percent more citations per officer. The County supported deputies averaged 106 per deputy. However, the data show the Secondary Road Patrol officers spent more time patrolling. The Secondary Road Patrol Officers averaged 25,674 miles on patrol in 1981, while the County Supported Road Patrol had only 20,036 miles per officer. The Secondary Road Patrol officers drove 28 percent more miles than the County Supported Road Patrol. Table 4 shows the citations per officer for both Secondary Road Patrol and County Supported Road Patrol for each population category and Table 5 shows the mileage. Figure 2 gives a comparison of the citations per officer and Figure 3 compares the percentage of total deputies the Secondary Road Patrol represents and the contrasting percentage of total citations.

TABLE 4

AVERAGE CITATIONS PER OFFICER 1981

County Supported Deputies and Secondary Road Patrol

Number = 17 Counties

| Population Category | Number of Counties | County Supported Deputies | Secondary Road Patrol Deputies |
|---------------------|--------------------|---------------------------|--------------------------------|
| 0 - 30,000 | 5 | 79 | 204 |
| 30,000 - 100,000 | 5 | 83 | 271 |
| 100,000 - 300,000 | 4 | 106 | 526 |
| 300,000 - Over | 3* | 128 | 696 |
| Total Sample | 17 | 106 | 510 |

* County Supported has data for only two counties - Genesee does not have a County Supported Road Patrol.

TABLE 5

AVERAGE MILES DRIVEN ON PATROL PER OFFICER 1981

County Supported Deputies and Secondary Road Patrol

Number = 17 Counties

| Population Category | Number of Counties (Number) | County Supported Deputies (Average) | Secondary Road Patrol Deputies (Average) |
|---------------------|-----------------------------|-------------------------------------|------------------------------------------|
| 0 - 30,000 | 5 | 31,609 | 33,041 |
| 30,000 - 100,000 | 5 | 22,127 | 25,026 |
| 100,000 - 300,000 | 4 | 12,901 | 21,497 |
| 300,000 - Over | 3* | 27,801 | 26,708 |
| Total Sample | 17 | 20,036 | 25,674 |

* County Supported has data for only two counties -- Genesee does not have a County Supported Road Patrol.

FIGURE 2

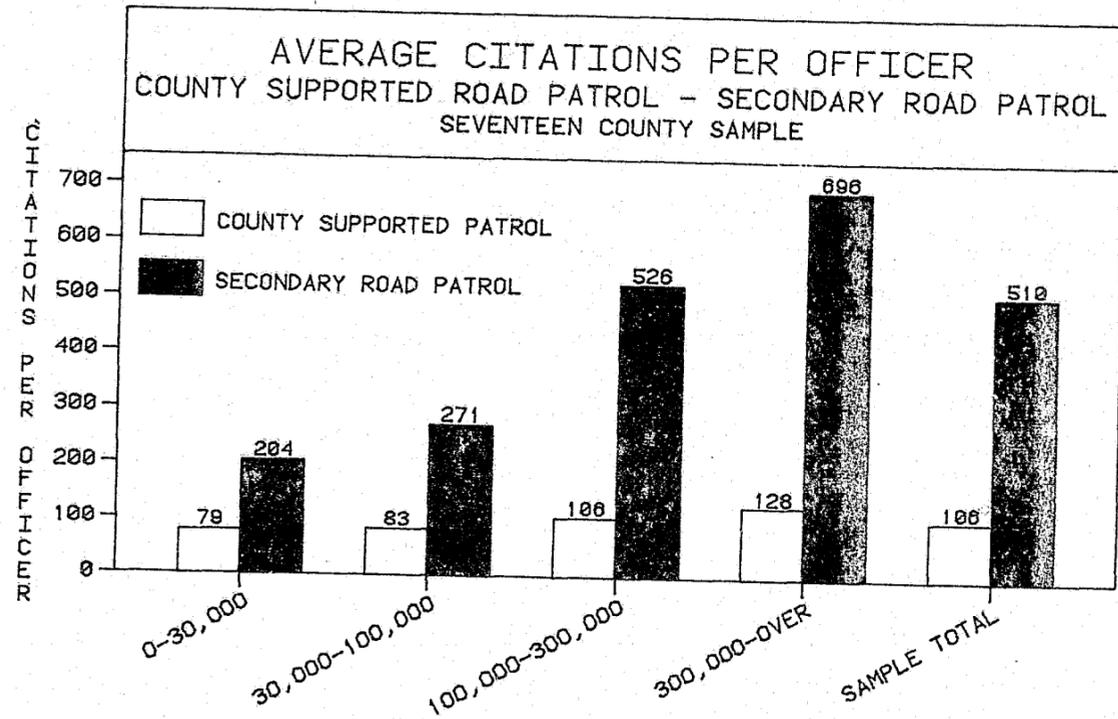
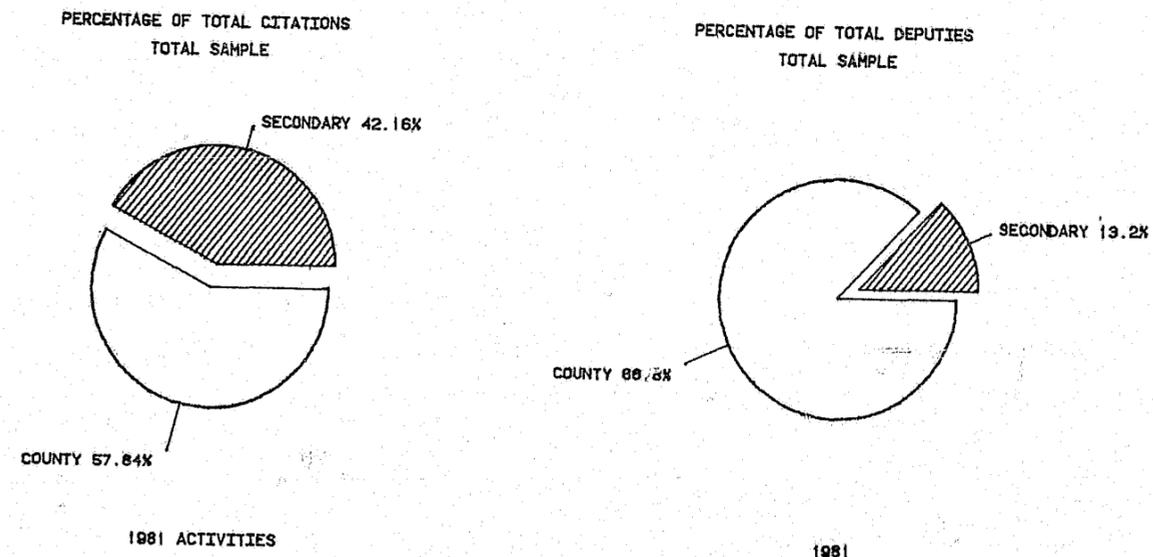


FIGURE 3



2. Accidents

Secondary Road Patrol deputies investigate accidents that occur on county local and primary roads (secondary roads) but not all of them. The County Supported deputies investigate the largest percentage of accidents investigated by the sheriff's department. The data show the population categories 30,000-100,000 and 100,000-300,000 increased the average accidents investigated per officer while the other two categories decreased. The overall average for the sample total decreased by 25 percent.

TABLE 6

ACCIDENTS INVESTIGATED BY SECONDARY ROAD PATROL

Comparison of 1980 and 1981
(Average Per Deputy)

| Year | 1980 N = 13 Counties | | | | 1981 N = 17 Counties |
|------------------------|----------------------|----------------|-----------------|--------------|----------------------|
| | 0-30,000 | 30,000-100,000 | 100,000-300,000 | 300,000-Over | Total Sample |
| | Average Per Deputy | | | | |
| 1980 | 57 | 54 | 54 | 189 | 92 |
| 1981 | 48 | 72 | 86 | 62 | 69 |
| % Change | -16% | +33% | +59% | -67% | -25% |
| | Actual Data | | | | |
| Accidents Investigated | 323 | 884 | 1413 | 1572 | 4192 |
| Number of Deputies* | 6.8 | 12.3 | 16.4 | 25.5 | 61 |

* Includes only deputies and sergeants.

3. Motorist Assistance

Secondary Road Patrol deputies offer their assistance when they come upon motorists who are stalled, off the road, or in need some other kind of aid. An average of 41 persons per deputy were helped in 1981 in the 17 county sample. Table 7 gives the number of motorists assisted per officer for the population categories and 17 county sample total.

TABLE 7
MOTORISTS ASSISTED BY SECONDARY ROAD PATROL
Comparison of 1980 and 1981
(Average per Deputy)

| | 1980 N = 13 Counties | | 1981 N = 17 Counties | | Total Sample |
|--------------------------|----------------------|----------------|----------------------|--------------|--------------|
| Year | 0-30,000 | 30,000-100,000 | 100,000-300,000 | 300,000-Over | |
| | Average Per Deputy | | | | |
| 1980 | 35 | 23 | 57 | 39 | 38 |
| 1981 | 38 | 92 | 42 | 15 | 41 |
| % Change | + 9% | +40% | -26% | -62% | + 8% |
| | Actual Data | | | | |
| Motorists Assists 1981 | 257 | 1133 | 695 | 390 | 2475 |
| Number of Deputies* 1981 | 6.8 | 12.3 | 16.4 | 25.5 | 61 |

* Includes only deputies and sergeants.

4. Law Enforcement Assists

Secondary Road Patrol deputies may be called upon to assist other officers from their own department, a local township or village, the State Police, Natural Resources Department, Liquor Control Commission, etc. In 1981, the average number of assists per deputy was 53. See Table 8 below for a breakdown by population for the 17 county sample.

TABLE 8
LAW ENFORCEMENT ASSISTS BY SECONDARY ROAD PATROL
Comparison of 1980 and 1981
(Average Per Deputy)

| | 1980 N = 13 Counties | | 1981 N = 17 Counties | | Total Sample |
|---------------------|----------------------|----------------|----------------------|--------------|--------------|
| Year | 0-30,000 | 30,000-100,000 | 100,000-300,000 | 300,000-Over | |
| | Average Per Deputy | | | | |
| 1980 | 28 | 48 | 9 | 18 | 31 |
| 1981 | 19 | 44 | 119 | 24 | 53 |
| % Change | -32% | - 8% | +1200% | +33% | +71% |
| | Actual Data | | | | |
| Number Assists | 127 | 536 | 1957 | 602 | 3222 |
| Number of Deputies* | 6.8 | 12.3 | 16.4 | 25.5 | 61 |

* Includes only deputies and sergeants.

5. Drunk Driving Arrests

The number of drunk driving arrests made by the Secondary Road Patrol deputies was not collected last year, but was this year. The 17 county sample Secondary Road Patrol deputies arrested 22 percent of the total number reported by the 17 sheriffs. They averaged 15 per deputy while the County Supported deputies averaged 7, or the Secondary Road Patrol deputies averaged 114 percent more arrests per officer. Table 9 shows the total number of arrests and compares the County Supported and Secondary Road Patrol deputies in the 17 county sample.

TABLE 9

DRUNK DRIVING ARRESTS FOR 1981

Comparison of County Supported Road Patrol and Secondary Road Patrol

| Type Patrol | 1981 N = 17 Counties | | | | |
|-----------------------------------------------------|----------------------|--------------------|---------------------|------------------|-----------------|
| | 0- 30,000 | 30,000- 100,000 | 100,000- 300,000 | 300,000- Over | Total Sample |
| Average Per Deputy | | | | | |
| County Supported Arrests per Officer | 3 | 3 | 8 | 10 | 7 |
| Secondary Road Patrol Arrests per Officer | 8 | 12 | 25 | 13 | 15 |
| Actual Data | | | | | |
| <u>Number of Arrests And Number of Officers</u> | | | | | |
| County Supported | | | | | |
| Arrests * | 80 | 264 | 1347 | 1196 | 2887 |
| Officers * | 28 | 77 | 176 | 120 | 401 |
| Secondary Road Patrol | | | | | |
| Arrests * | 53 | 145 | 405 | 329 | 932 |
| Officers * | 6.8 | 12.3 | 16.4 | 25.5 | 61 |

* Includes only deputies and sergeants.

6. Crime Related Activities

Act 416 states that one of the functions of the Secondary Road Patrol is enforcing the criminal laws of the state, violations of which are observed by or brought to the attention of the sheriff's department while patrolling and monitoring. Some sheriffs in the 17 county sample consider crime response as a low priority for the Secondary Road Patrol. They require the County Supported Patrol to respond unless a crime is in progress and a Secondary Road Patrol deputy is in the immediate area. This is primarily true in the larger population counties where they have a larger force of County Supported deputies. Smaller population counties usually have only one deputy, either a County Supported or a Secondary Road Patrol deputy, in any section of the county. If the Secondary Road Patrol deputy did not respond, it would result in many extra miles of travel for the County Supported Patrol deputies and would result in lost deputy time, and would leave sections of the county uncovered.

The crime related activities include taking criminal complaints and making criminal arrests. The evaluation staff counted only those arrests made at the crime scene or when Secondary Road Patrol deputies stopped individuals reported as wanted as suspects in a crime. Warrant arrests were not counted. OCJ has encouraged sheriffs' departments to dispatch County Supported deputies to take the report of crimes not in progress and to set the highest priority on traffic monitoring on the secondary roads for the PA 416 deputies.

a. Crime Complaint Reports

Table 10 shows the average number of crime reports taken per deputy by Secondary Road Patrol deputies in 1981 and compares this with 1980 and the number per deputy for the County Supported Road Patrol deputies in 1981. The average number of complaints taken per deputy by the Secondary Road Patrol decreased from 139 in 1980 to 108 in 1981, -22 percent. However, the percentage of total complaints increased from 10 percent in 1980 to 12 percent in 1981. Secondary Road Patrol deputies handled a slightly lower percentage of total complaints, 12 percent, than their percentage of total deputies, 13 percent, in the 17 county sample.

TABLE 10

CRIME COMPLAINT REPORTS HANDLED BY SECONDARY ROAD PATROL DEPUTIES

Comparison 1980 and 1981 and Percent of Total Complaints Received by Sheriff
(Average Per Deputy)

| Year and Patrol Unit | 1980 N = 13 Counties | | | | 1981 N = 17 Counties | | | |
|-------------------------------------------------------|----------------------|--------------------|---------------------|------------------|----------------------|-----|--|--|
| | 0- 30,000 | 30,000- 100,000 | 100,000- 300,000 | 300,000- Over | Total Sample | | | |
| Average Per Deputy | | | | | | | | |
| Secondary Road Patrol 1980 | 109 | 219 | 160 | 27 | 139 | | | |
| 1981 | 125 | 215 | 126 | 39 | 108 | | | |
| Percent Change | +15% | -2% | -21% | +44% | -22% | | | |
| Percent of Total Complaints | | | | | | | | |
| Percent of Total Complaints Received by Sheriff | 1980 | 15% | 50% | 9% | 1% | 10% | | |
| | 1981 | 17% | 34% | 11% | 4% | 12% | | |
| Actual Data 1981 | | | | | | | | |
| Number of Crime Complaints | 853 | 2,649 | 2,070 | 994 | 6,566 | | | |
| Number of Officers | 6.8 | 12.3 | 16.4 | 25.5 | 61 | | | |

b. Criminal Arrests

The Secondary Road Patrol increased the average number of Arrests per deputy by 33 percent in 1981 than in 1980. The percentage of arrests they made of total arrests made by the sheriffs' departments in the sample decreased to 19 percent from 23 percent in 1980. The arrests per officer for the County Supported Patrol were equivalent to 23 per deputy in 1981; 9303 arrests and 401 deputies. The Secondary Road Patrol arrests per deputy were 24 percent greater than the County Supported Road Patrol.

TABLE 11

SECONDARY ROAD PATROL

Comparison 1980 and 1981 and

Percent of Total Arrests Reported by the Sheriff
(Average Per Deputy)

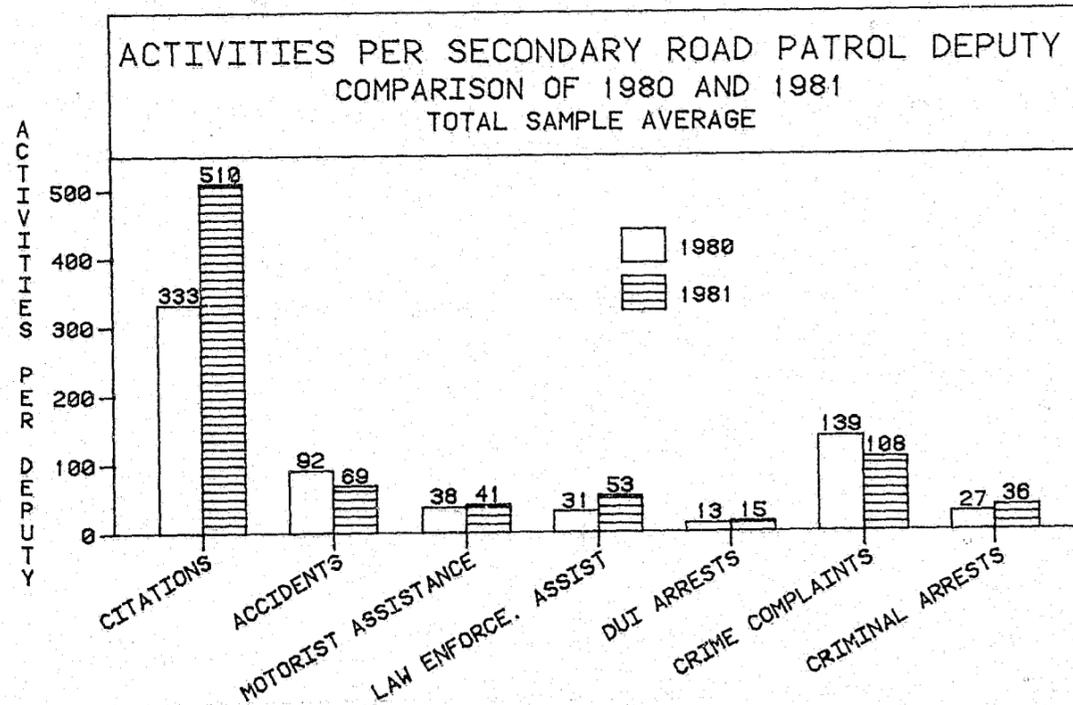
| Year | 1980 N = 13 Counties | | | | 1981 N = 17 Counties | | | |
|----------------------------------|----------------------|--------------------|---------------------|------------------|----------------------|--|--|--|
| | 0- 30,000 | 30,000- 100,000 | 100,000- 300,000 | 300,000- Over | Total Sample | | | |
| Average per Deputy | | | | | | | | |
| 1980 | 33 | 32 | 13 | 32 | 27 | | | |
| 1981 | 23 | 35 | 62 | 23 | 36 | | | |
| Percent Change | -28% | +9% | +377% | -28% | +33% | | | |
| Percent of Total Sheriff Arrests | | | | | | | | |
| 1980 | 29% | 46% | 6% | 32% | 23% | | | |
| 1981 | 29% | 30% | 17% | 16% | 19% | | | |
| 1981 Actual Data | | | | | | | | |
| Number Arrests | 158 | 431 | 1,013 | 578 | 2,180 | | | |
| Number Deputies | 6.8 | 12.3 | 16.4 | 25.5 | 61 | | | |

D. Secondary Road Patrol Activities Summary

The activity with the highest volume for Secondary Road Patrol deputies is the issuance of traffic citations. The average number of citations in 1981, 510 per deputy, was 53 percent above 1980, 333 citations. Compared with the County Supported Road Patrol average number of citations per officer, 106, the Secondary Road Patrol deputies wrote over 380 percent more citations. The concentration on citation writing is consistent with the objective of Act 416 to patrol secondary roads (county, local and primary) to reduce accidents.

Other activities that increased in average number per deputy over 1980, were motorist assists, 8 percent increase; law enforcement assists, 71 percent; and criminal arrests, 33 percent. The activities that were down were accident investigations, 25 percent; and crime complaint reports, 22 percent. Figure 4 shows a comparison of activities in 1981 with 1980.

FIGURE 4



Regarding activities where Secondary Road Patrol could be compared with the County Supported Road Patrol, the Secondary Road Patrol deputies had a higher average volume than the County Supported deputies. As pointed out in the last evaluation, this can be accounted for partly by the fact that County Supported Road Patrol deputies have additional duties. They must transport jail prisoners, provide backup support for the jail personnel, and serve warrants and subpoenas.

During the evaluation, several sheriffs in counties which are in the 0-100,000 population category expressed the concern that their officers were patrolling as they have in the past but are not seeing as many violations. One sheriff said he has monitored the traffic speeds on the secondary roads and found the average speed is down. He attributes this to the presence of his officers and the number of tickets they (County Supported and Secondary Road Patrol) have issued over the past three years. It is evident the officers were out patrolling because the mileage data show a high number of patrol miles per officer (see Table 5).

It is possible that the population of drivers who violate the law has an upper limit, and that this population size will decrease as people receive citations and know the road is being patrolled. The citation data show a progression in the number of citations per officer as the population increases. This is true for both County Supported and Secondary Road Patrol. It is possible smaller counties with a high citation rate may have reached the peak number of citations per officer. If this is true, all counties could reach this point.

The number of citations per registered vehicle for the year 1981 was analyzed. The citation figure used for this analysis is the combined number of citations for County Supported and Secondary Road Patrol. A comparison was made across population categories of the rate per 100 registered vehicles. This calculation makes an assumption that during the course of a year each registered vehicle in the county traveled the secondary roads and was exposed to the deputies; each vehicle received only one ticket during the year; and only county residents traveled these roads. None of these assumptions are true. However, the rate does give a feel for the potential impact the volume of tickets have had on the given population. In reviewing the citations we found that a high percentage of those ticketed in most counties were residents. It must be remembered that the PA 416 deputies have been writing a large number of tickets each year for a three-year period.

Table 12 displays the data for the population categories. As would be expected, the smaller population categories had the largest percentage of resident vehicles with potential for being ticketed.

TABLE 12
NUMBER OF CITATIONS PER 100 REGISTERED VEHICLES

| Item | 1981 | | | | Sample Total-- |
|---------------------------------------|----------|----------------|-----------------|--------------|----------------|
| | 0-30,000 | 30,000-100,000 | 100,000-300,000 | 300,000-Over | |
| Citations Per 100 Registered Vehicles | | | | | |
| Rate Per 100 Vehicles | 6.2 | 5.2 | 5.2 | 2.2 | 3.2 Average |
| Actual Data | | | | | |
| Registered Vehicles | 57,753 | 187,087 | 526,742 | 1,507,831 | 2,279,413 |
| Total Citations | 3,591 | 9,715 | 27,362 | 33,130 | 73,798 |

VI. COST EFFECTIVENESS

The issue to be examined in this section is whether the Secondary Road Patrol Program is cost effective. This analysis is based on data from the 17 county sample. It was not possible to do a detailed analysis because of time and limited personnel. Sufficient data are not kept by many counties to do a detailed analysis. This section will be confined to comparing the basic cost of a County Supported deputy and some of the operating costs with the price being charged to the program for a Secondary Road Patrol deputy.

A. Comparison of Deputy Costs

The decision was made to limit the cost analysis this year to the following cost factors for the County Supported Patrol deputies:

Deputy salary - The salary includes the average base salary for the County Supported deputies plus overtime and court time. The method used was the annual gross amount paid each deputy aggregated and divided by the number of deputies. The records used for this computation were those used to generate the individual W-2 forms.

Payroll Taxes and Fringe Benefits - If a county could provide the percentage of gross pay that fringe benefits represent, this percentage was used. If a percentage was provided by the financial officer, some verification of the figure was done by the evaluation staff. If a percentage could not be provided, the types of fringe benefits provided were determined and their cost obtained from the financial officer.

Supervision - The first level of supervision, sergeants, is the only supervision included in the cost. Sergeants normally spend about half of their time on administration matters and the balance of their time on the road supervising and performing duties similar to those of the deputies. The total annual gross salary of each sergeant was added together, divided in half, and divided by the number of deputies. Only half of a sergeant's pay was used, because only half was considered direct cost.

Transportation - It was impossible to determine the cost per mile of operating a patrol vehicle for each county without an involved cost analysis. The option was to use the cost per mile used by the Department of Management and Budget. The average for the 1981 calendar year was 18.25 cents per mile. This cost is probably low for some counties. The objective was to keep the estimated cost realistic and to err on the low side rather than the high.

The Secondary Road Patrol cost was obtained from the FY 80-81 and FY 81-82 final expenditure documents submitted to OCJ. Costs could only be determined by general categories such as personnel and travel. Since automobiles are purchased for most of the counties, a factor of \$2833 was added to the cost per deputy to cover depreciation, based on 1981 prices. This cost depreciates the car over a period of three man years. This is about the average life of a Secondary Road Patrol car based on information in the contracts.

The County Supported deputy costs should be considered a statistical figure with an estimated error factor of \pm 3 to 5 percent. In most cases, the actual cost will be higher rather than lower. While every attempt was made to be as accurate as possible, it was difficult to work with data from some

counties. Miscellaneous expenses for equipment other than automobiles and other items were not considered in the cost of a deputy so the included items would be consistent in both groups.

B. County Supported Deputy and Secondary Road Patrol Cost Analysis

Table 13 and Figure 5 compares the average cost of a County Supported deputy and a Secondary Road Patrol deputy. In the total sample, average cost to the state for a Secondary Road Patrol deputy is 87 percent of the cost for a County Supported deputy. The greatest difference exists at the lowest population category and decreases as the population increases.

TABLE 13
AVERAGE COST OF A COUNTY SUPPORTED DEPUTY
Compared with
AVERAGE COST PAID BY THE STATE FOR A SECONDARY ROAD PATROL DEPUTY
(Based on 1981 Data)

| | | N = 305 Deputies County Supported | | | | N = 61 Secondary Road Patrol |
|-----------------------------------------------|--------------|-----------------------------------|----------------|-----------------|--------------|------------------------------|
| Road Patrol Type | No. Counties | 0-30,000 | 30,000-100,000 | 100,000-300,000 | 300,000-Over | Sample Average |
| County Supported 15* | | | | | | |
| Average Per Deputy | | | | | | |
| Salary (Including Overtime) | | \$16,233 | \$19,155 | \$23,104 | \$26,478 | \$22,972 |
| Fringes and Benefits | | 5,702 | 6,324 | 7,512 | 10,473 | 8,213 |
| Total Personnel Costs | | \$21,935 | \$25,479 | \$30,616 | \$36,951 | \$31,185 |
| Supervision | | 4,594 | 4,458 | 3,814 | 2,412 | 3,493 |
| Transportation | | 5,398 | 4,874 | 3,392 | 5,388 | 4,602 |
| Total | | \$31,927 | \$34,811 | \$37,822 | \$44,751 | \$39,280 |
| Secondary Road Patrol | | | | | | |
| Total Salary Cost | | \$18,746 | \$22,657 | \$27,495 | \$36,379 | \$29,258 |
| Transportation | | 4,569 | 4,557 | 4,546 | 5,626 | 5,002 |
| Total | | \$23,315 | \$27,214 | \$32,041 | \$42,005 | \$34,260 |
| Secondary Road Patrol % of County Road Patrol | | 73% | 78% | 85% | 94% | 87% |
| Difference | | (27%) | (22%) | (15%) | (6%) | (13%) |

* One county does not have a County Supported Road Patrol and the data from another could not be used.

FIGURE 5

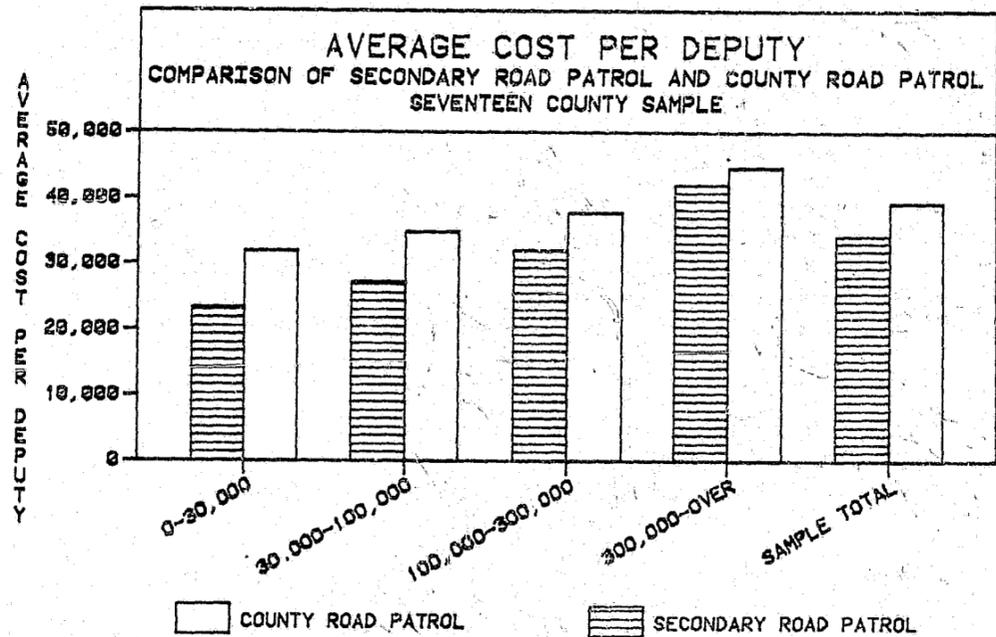


Table 13 shows that counties are contributing to the program, although this does not apply to every county. Several appeared to be charging a rate per mile for transportation that included automobile depreciation and in addition, some are buying automobiles with grant money. Counties doing this are mainly in the population category over 100,000. The evaluation has caused a review of this to be undertaken.

Many counties only charge the base salary (no court and overtime) and no fringes and benefits. Some charge very little for transportation costs. Some undercharging resulted as the allocation of funds was cut; smaller counties did not want less than a full-time deputy and thus, supplemented the cost. Some mid-size counties did not reduce the number of deputies because that might jeopardize program effectiveness. Many sheriffs, judges and other county officials believe the program is essential.

Aside from the 13 percent difference in the actual basic cost of the program, the Secondary Road Patrol Program is receiving other services such as dispatching free as well as indirect costs of management and administration.

C. Cost Effectiveness Conclusion

Based on the low cost of a Secondary Road Patrol deputy and his high productivity, the state is receiving a larger value of service than the price the state pays. This results from direct and indirect local contributions.

VII. SECONDARY ROAD ACCIDENTS

The evaluation thus far, with several exceptions (mainly Secondary Road Patrol expenditures and number of officers) has used data collected from a random sample of seventeen counties. In this section, data came from all 83 counties. Secondary Roads accident trends, accident type, accident characteristics and alcohol related accidents will be compared with those of other road types. 1978 is one of the comparison years because it was the year the secondary program was authorized; it is thus the logical base year for testing impact. The program did not get under way until early 1979.

A. General Accident Trends

The analyses of secondary road accidents will cover a five-year period. Table 14 gives the number of accidents and percent change 1980-81 and 1978-81. Figure 6 shows the total accidents for the state, secondary roads and trunklines and a five-year trend line for each for the period 1977-1981.

TABLE 14
TOTAL ACCIDENTS 1977-1981

| Total State - Secondary Roads - Trunklines | | | | | | | |
|--------------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| N-83 Counties | | | | | | | |
| Road Type | 1977 | 1978 | 1979 | 1980 | 1981 | %Change | |
| | | | | | | 1980-81 | 1978-81 |
| Total State | 347,751 | 389,193 | 366,435 | 314,594 | 302,831 | -3.7 | -22 |
| Secondary Roads | 80,378 | 83,663 | 78,847 | 73,053 | 70,549 | -3.4 | -16 |
| Trunklines | 50,157 | 53,200 | 49,443 | 42,166 | 42,022 | + .3 | -21 |

Table 14 shows 1981 secondary road accidents were decreased by 3.4 percent from 1980, which was very close to the reduction in total state accidents, 3.7 percent. The rural trunkline accidents were up slightly, .3 of one percent. However, when the accidents are looked at in relation to vehicle miles driven, secondary road accidents were actually up by 3 percent from 1980. State total accidents were down 4 percent and rural trunklines showed no change. Accidents on county and local roads (including city streets) were down 4 percent.

TABLE 15

ACCIDENT RATES PER MILLION VEHICLE MILES DRIVEN

Comparison of Total State Accidents - Total Trunklines
- Rural Trunklines - Secondary County Roads

1978 - 1980 - 1981

| Road Type | Estimated Vehicle Miles Traveled (in Billions) | | | Total Accidents (in Thousands) | | | Accident Rate (per Million VMT) | | | % Change | |
|--------------------------------------------------|------------------------------------------------|------|------|--------------------------------|-------|-------|---------------------------------|------|------|----------|-------|
| | 1978 | 1980 | 1981 | 1978 | 1980 | 1981 | 1978 | 1980 | 1981 | 80-81 | 78-81 |
| Total State (all roads) | 67.4 | 61.5 | 62.0 | 389.2 | 314.6 | 302.8 | 5.8 | 5.1 | 4.9 | -4 | -16 |
| Total Trunkline | 33.8 | 31.2 | 31.7 | 121.2 | 96.3 | 94.0 | 3.7 | 3.1 | 3.0 | -3.2 | -19 |
| County & Local (all county roads & city streets) | 34.4 | 30.3 | 30.3 | 268.0 | 218.3 | 208.8 | 7.8 | 7.2 | 6.9 | -4 | -12 |
| Rural Trunklines | 19.6 | 18.4 | 18.5 | 53.2 | 42.2 | 42.2 | 2.7 | 2.3 | 2.3 | 0 | -15 |
| County Secondary | 21.3 | 21.3 | 20.5 | 83.7 | 73.1 | 70.5 | 3.9 | 3.4 | 3.5 | +3 | -10 |

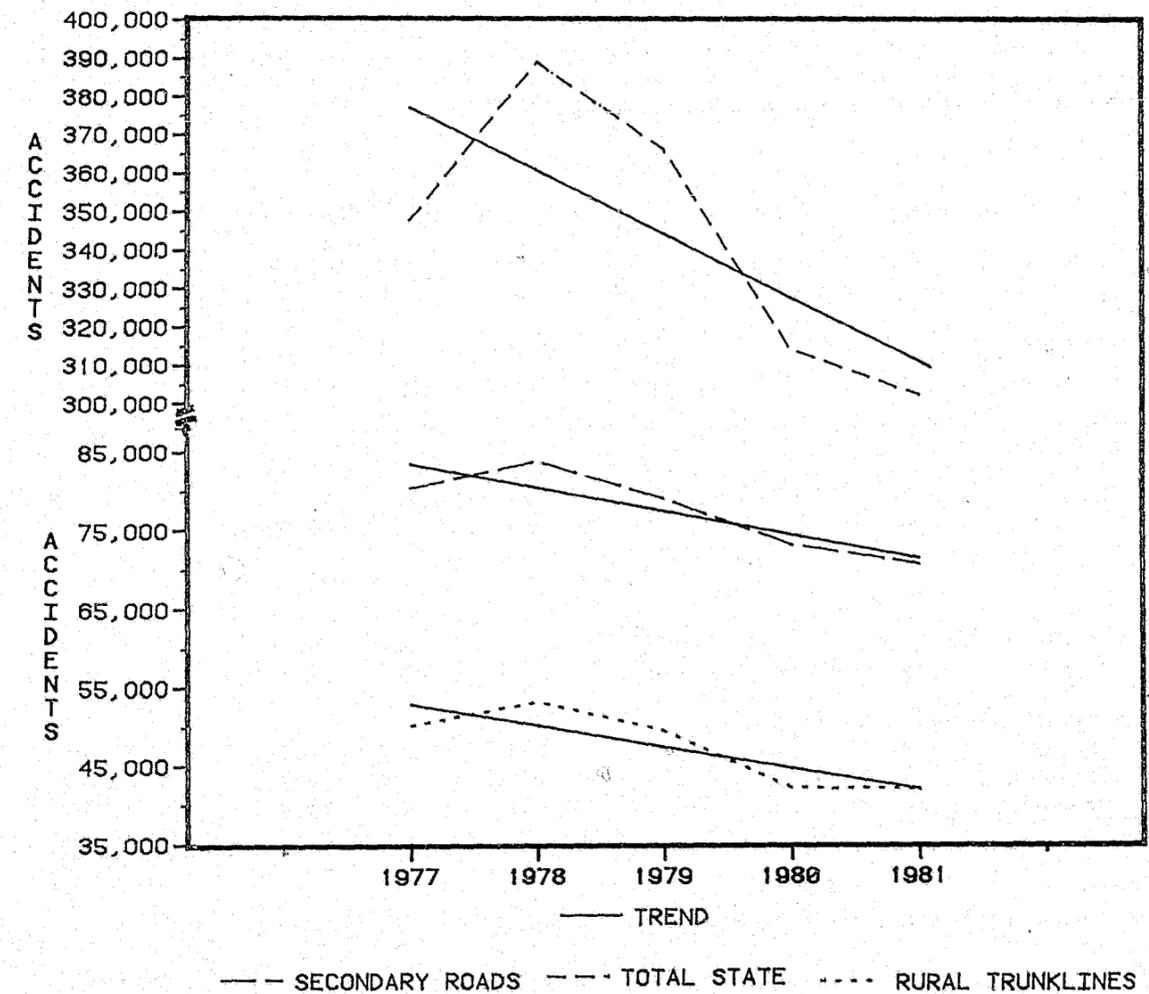
*Estimates by Michigan Department of Transportation

The accident trend from 1978 to 1981 shows secondary roads had the lowest percentage of decrease, 10 percent, followed by county and local roads with 12 percent, compared to a decrease of 16% for all roads.

Figure 6 plots the accidents from 1977 to 1981 for total state, rural trunklines and secondary roads. The five-year trend was determined by the "least squares" method, the most reliable method for determining a trend. Five years of data is not sufficient to determine a future trend, but it does show the trend of the past five year. It will be noted that while neither secondary roads nor rural trunklines are similar to the total state, they are very similar to each other. Rural trunklines were slightly above or on the trend line in 1981, but secondary roads were one percent below. The two road types started the five-year period below the trend (rural trunklines were 5 percent below while secondary roads were 4 percent below). But the period ended with rural trunklines above the trend and secondary roads below. In fact, 1981 was the first year when the two roads did not follow the same trend either both above the trend or both below.

FIGURE 6

ACCIDENT TRENDS 1977 - 1981
TOTAL STATE - SECONDARY ROADS - RURAL TRUNKLINES



B. Fatal, Personal Injury and Property Damage Accidents

1. Five-year Trend

Table 16 displays the five-year data for fatal, personal injury and property damage accidents for total state, rural trunklines and secondary roads.

Comparing 1981 with 1980, secondary roads had a smaller percentage reduction in fatal and property damage accidents than did total state or rural trunklines. However, secondary roads had the largest reduction in personal injury accidents, 7 percent, which was one percent above the total state and four percent above rural trunklines. Secondary roads had the smallest decrease in all accident types from 1978 to 1981.

TABLE 16

FATAL - PERSONAL INJURY - PROPERTY DAMAGE ACCIDENTS

Total State - Rural Trunklines - Secondary Roads
1977-1981

| Road and Accident Type | 1977 | 1978 | 1979 | 1980 | 1981 | % Change | |
|-------------------------|---------|---------|---------|---------|---------|----------|-------|
| | | | | | | 80-81 | 78-81 |
| Total State | | | | | | | |
| Fatal | 1,741 | 1,833 | 1,662 | 1,582 | 1,453 | - 8 | -21 |
| Personal Injury | 109,609 | 112,259 | 108,569 | 96,763 | 91,388 | - 6 | -19 |
| Property Damage | 263,401 | 275,101 | 256,204 | 216,249 | 209,990 | - 3 | -24 |
| Rural Trunklines | | | | | | | |
| Fatal | 493 | 509 | 461 | 427 | 373 | -13 | -27 |
| Personal Injury | 14,944 | 16,032 | 15,075 | 12,726 | 12,329 | - 3 | -23 |
| Property Damage | 34,720 | 36,659 | 33,907 | 29,013 | 29,320 | - 1 | -20 |
| Secondary Roads | | | | | | | |
| Fatals | 614 | 645 | 594 | 560 | 533 | - 5 | -17 |
| Personal Injury | 25,036 | 25,805 | 25,005 | 23,518 | 21,911 | - 7 | -15 |
| Property Damage | 54,728 | 57,213 | 53,248 | 48,975 | 48,105 | - 2 | -16 |

2. Accident Types Percent of Total Accidents

There are two ways reductions in accidents can be judged: The reduction in total number of accidents; and/or a reduction in the proportion of fatal and personal injury accidents. Previously, the evaluation examined the trend in total accidents, and fatal, personal injury, and property damage accidents. Now the ratio of fatal, personal injury and property damage accidents to total accidents will be examined.

Table 17 gives the percentage of total state accidents that rural trunklines and secondary roads represent. Table 18 shows what percentage fatal, personal injury and property damage accidents are of total accidents for the designated road type.

Table 17 shows secondary road decreased their proportion of the total state's personal injury accidents from 1980 to 1981 but increased in all other categories. The data show secondary road proportion of total accidents increased as did all other categories from 1978 to 1981. The rural trunklines decreased their proportion of fatal and personal injury accidents but increased in the proportion of total accidents and property damage from 1978 to 1981.

Review of Table 18 shows the proportion of fatal accidents from 1978 to 1981 on secondary roads remained the same. There was a small increase, one percent, in personal injury accidents and a small decrease, .3 percent, in property damage accidents. Total state fatal accidents, also remained the same from 1978 to 1981, but personal injury accidents increased 4.9 percent and property damage accidents decreased by 2 percent. Secondary roads fared better than the state as a whole by having only a one percent increase in personal injury accidents compared with a 4.9 percent increase for the state. However, rural trunklines showed a 10 percent decrease in the proportion of fatals, a 2.7 percent decrease in the proportion of personal injury accidents, and a 1.3 percent increase in the proportion of property damage accidents.

Figure 7 shows that even though changes occurred between 1978 and 1981, the changes were not significant.

TABLE 17

FATAL - PERSONAL INJURY - PROPERTY DAMAGE ACCIDENTS

Rural Trunklines and Secondary Roads
As Proportion of Total State Accidents
1977-1981

| Road and Accident Type | 1977 | 1978 | 1979 | 1980 | 1981 | % Change | |
|-------------------------|------|------|------|------|------|----------|-------|
| | | | | | | 80-81 | 78-81 |
| Rural Trunklines | | | | | | | |
| Total Accidents | 13.4 | 13.7 | 13.5 | 13.4 | 13.9 | +3.7 | + 1.5 |
| Fatals | 28.3 | 27.8 | 27.7 | 27.0 | 25.7 | -4.8 | - 7.6 |
| Personal Injury | 13.6 | 14.3 | 13.9 | 13.2 | 13.5 | +2.3 | - 5.6 |
| Property Damage | 13.2 | 13.3 | 13.2 | 13.4 | 14.0 | +4.5 | + 5.3 |
| Secondary Roads | | | | | | | |
| Total Accidents | 21.4 | 21.5 | 21.5 | 23.2 | 23.3 | + .4 | + 8.3 |
| Fatals | 35.3 | 35.2 | 35.7 | 35.4 | 36.7 | +3.7 | + 4.3 |
| Personal Injury | 22.8 | 23.0 | 23.0 | 24.3 | 24.0 | -1.2 | + 4.3 |
| Property Damage | 20.8 | 20.8 | 20.8 | 22.6 | 22.9 | +1.3 | +10.1 |

FIGURE 7

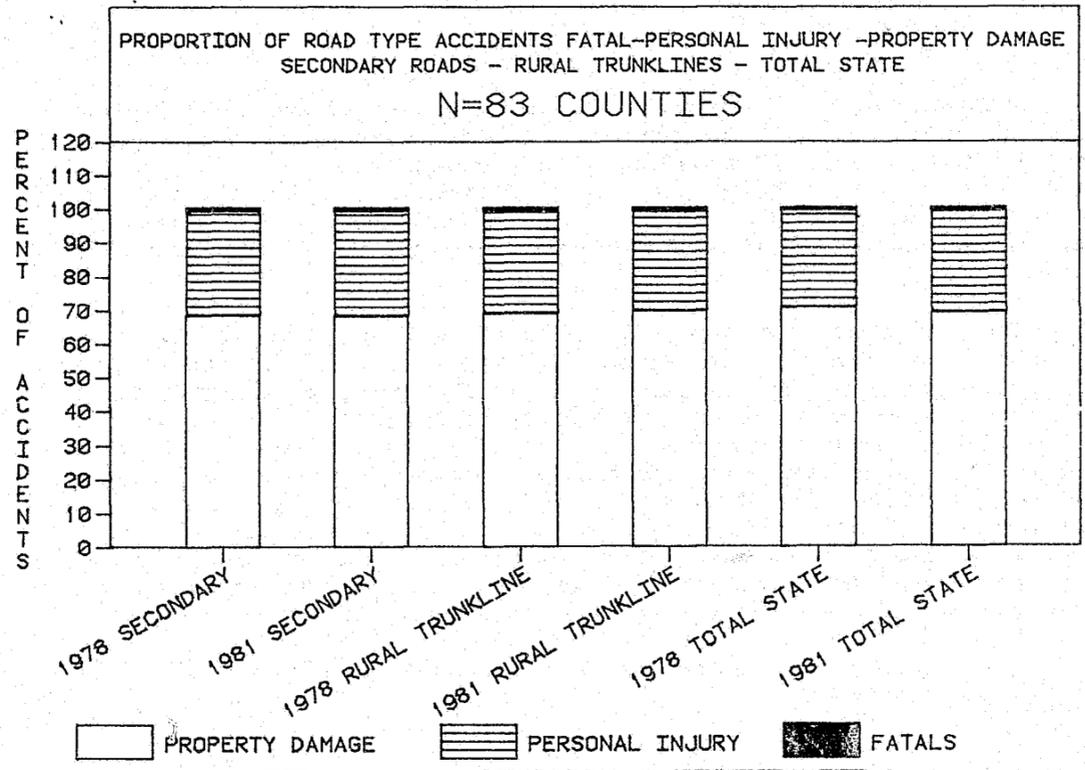


TABLE 18

FATAL - PERSONAL INJURY - PROPERTY DAMAGE ACCIDENTS

Percent of Road Type Total Accidents
Total State - Rural Trunklines - Secondary Roads

| Road and Accident Type | | | | | | % Change | |
|-------------------------|------|------|------|------|------|----------|-------|
| | 1977 | 1978 | 1979 | 1980 | 1981 | 80-81 | 78-81 |
| Total State | | | | | | | |
| Fatal | .5 | .5 | .5 | .5 | .5 | 0 | 0 |
| Personal Injury | 29.2 | 28.8 | 29.6 | 30.8 | 30.2 | - 1.9 | + 4.9 |
| Property Damage | 70.3 | 70.7 | 69.9 | 68.7 | 69.3 | + .9 | - 2.0 |
| Rural Trunklines | | | | | | | |
| Fatal | 1.0 | 1.0 | .9 | 1.0 | .9 | -10 | -10 |
| Personal Injury | 29.8 | 30.1 | 30.5 | 30.2 | 29.3 | - 3 | - 2.7 |
| Property Damage | 69.2 | 68.9 | 68.6 | 68.9 | 69.8 | + 1.3 | + 1.3 |
| Secondary Roads | | | | | | | |
| Fatal | .8 | .8 | .8 | .8 | .8 | 0 | 0 |
| Personal Injury | 31.1 | 30.8 | 31.7 | 32.2 | 31.1 | - 3.4 | + 1 |
| Property Damage | 68.1 | 68.4 | 67.5 | 67.0 | 68.2 | + 1.8 | - .3 |

Totals of the percentages for a year within an accident type may not total 100% due to rounding.

3. Alcohol Related Accidents

Alcohol related accidents on the secondary roads decreased 10 percent, 1980 to 1981. Alcohol related fatalities were down 1.5 percent, personal injury down 11.8 percent and property damage down 9.1 percent. The rural trunkline alcohol related accidents were also down but not as much as those on the secondary with the exception of fatalities which were down 16 percent. Rural trunkline total alcohol related accidents were down 6 percent, personal injury down 5 percent and property damage down 5.8 percent. The rural trunklines had a higher percentage of decrease in alcohol related accidents from 1978 to 1981; trunklines decreased 21 percent and secondary roads 11 percent. State total alcohol related accidents decreased by 9.4 percent from 1980 to 1981 which made the secondary road decrease greater than the state average. Secondary roads also had a larger decrease in personal injury accidents, 11.8 percent compared with 9.1 percent. The secondary road decrease in property damage was slightly behind the state average, 9.1 percent compared with 9.7 percent. However, the statewide decreases were larger than those of secondary roads for the period 1978-1981. The rural trunklines had the largest decreases, 1978-1981, in every category. Table 19 has the alcohol related data for the total state, rural trunklines and secondary roads.

TABLE 19

ALCOHOL RELATED ACCIDENTS 1977-1981

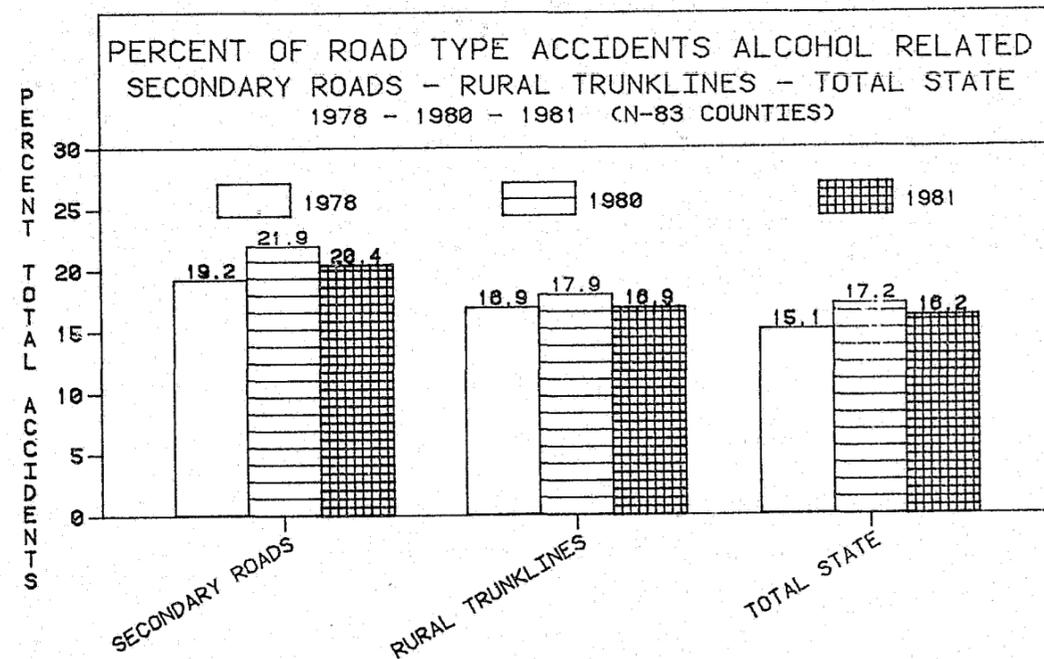
Total State - Secondary Roads - Rural Trunklines

| Road and Accident Type | | | | | | % Change | |
|-------------------------|--------|--------|--------|--------|--------|----------|-------|
| | 1977 | 1978 | 1979 | 1980 | 1981 | 80-81 | 78-81 |
| Total State | | | | | | | |
| Total State | 56,017 | 58,636 | 58,127 | 49,042 | 49,042 | - 9.4 | -16.4 |
| Fatal | 853 | 933 | 901 | 900 | 814 | - 9.6 | -12.8 |
| Personal Injury | 23,933 | 25,294 | 25,872 | 24,331 | 26,119 | - 9.1 | -12.6 |
| Property Damage | 31,231 | 32,409 | 31,354 | 28,917 | 26,119 | - 9.7 | -19.4 |
| Secondary Roads | | | | | | | |
| Secondary Roads | 15,623 | 16,076 | 15,734 | 16,031 | 14,394 | -10.2 | -10.5 |
| Fatal | 314 | 346 | 347 | 328 | 323 | - 1.5 | - 6.6 |
| Personal Injury | 7,107 | 7,280 | 7,402 | 7,539 | 6,650 | -11.8 | - 8.7 |
| Property Damage | 8,202 | 8,450 | 7,985 | 8,164 | 7,421 | - 9.1 | -12.2 |
| Rural Trunklines | | | | | | | |
| Rural Trunklines | 8,120 | 8,972 | 8,604 | 7,554 | 7,120 | - 5.7 | -20.6 |
| Fatal | 243 | 259 | 260 | 246 | 207 | -15.9 | -20.1 |
| Personal Injury | 3,640 | 4,039 | 3,987 | 3,509 | 3,333 | - 5.0 | -17.5 |
| Property Damage | 4,237 | 4,674 | 4,357 | 3,799 | 3,580 | - 5.8 | -23.4 |

Figure 8 compares the proportion of total accidents that were alcohol related for each of the road types. Secondary roads consistently had the highest rates of alcohol related accidents. Figure 9 shows the proportion of total fatal, personal injury and property damage accidents that were alcohol related for 1978, 1980 and 1981. Again, in each accident category, secondary roads had a slightly higher proportion than the other roads.

The data clearly show that the probability of being killed or injured is higher for the drinking driver who has an accident than for the non-drinker, particularly on the secondary roads. Statewide 16 percent of the total accidents were alcohol related in 1981. Yet such accidents account for 56 percent of the fatalities, 24 percent of the personal injury accidents, and 12 percent of the property damage. The secondary roads were even worse: alcohol related accidents were 20 percent of the total accidents, 61 percent of the fatalities and 30 percent of the personal injury accidents.

FIGURE 8



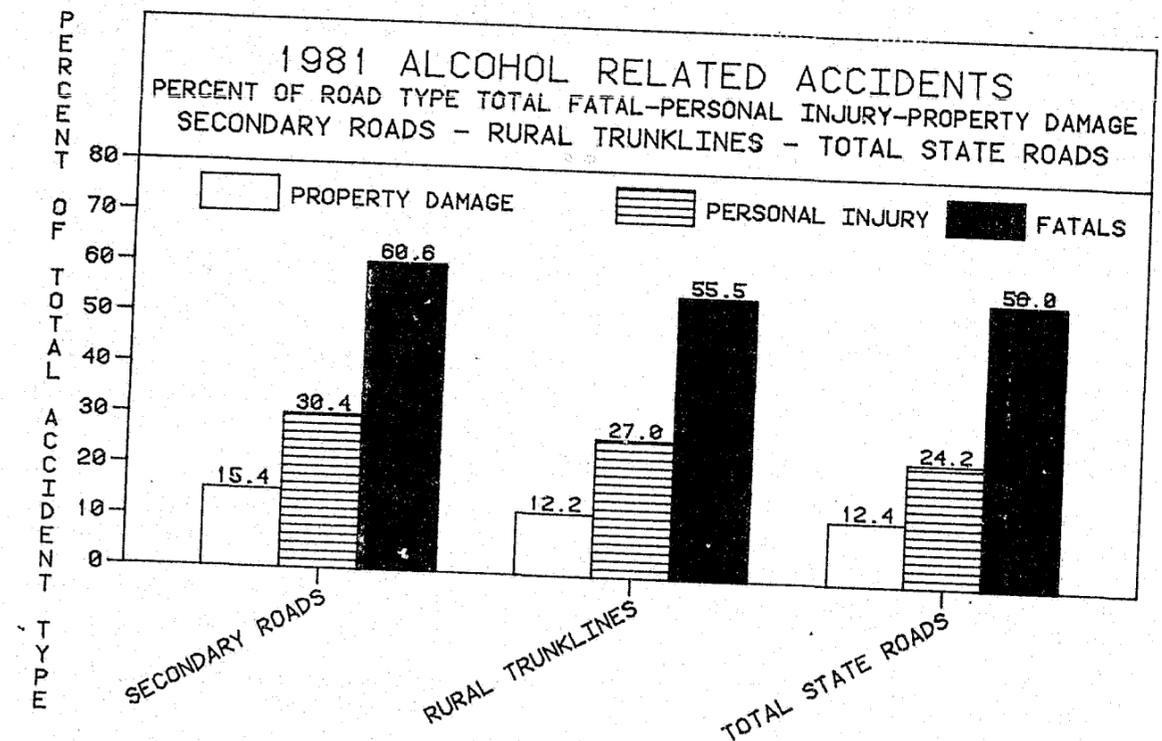
4. Summary

In volume, traffic accidents on the secondary roads were down 3.4 percent, which was slightly below the state average decrease of 3.7 percent. The secondary road decrease was much higher than the rural trunkline decrease of only .3 percent. However, when adjusted by estimated vehicle miles driven, the accident rate per million vehicle miles driven was 3 percent above last year. On rural trunklines the rate was the same as in 1980, and for the state as a whole the rate was down 4 percent.

Keep in mind that the vehicle miles driven figure is an estimate; it has different degrees of error for the various road types. The most accurate estimates is the trunkline mileage. The county secondary road vehicle mileage is not gathered each year. The last estimate calculated by the Michigan Department of Transportation was for 1976 mileage; it was released in 1977. The evaluation staff adjusted 1976 with a formula that includes an estimated mileage per vehicle and the number of registered vehicles in the state. When the number of registered vehicles was increasing each year, it was felt the figure was reasonably close. However, the Secretary of State reported over 430,000 fewer registered vehicles in 1981 than in 1980. This reduction in

registered vehicles dramatically reduces the estimated number of vehicle miles traveled on the secondary roads. There is no sure way of knowing how this reduction in vehicles actually affected travel on the secondary roads. If the estimate used in 1980 were used in 1981, the accident rate would be 3.3 per million miles traveled - a 3 percent reduction. The actual result is probably somewhere between an increase of 3 percent and a decrease of 3 percent.

FIGURE 9



The change in volume of accidents on secondary roads in 1981 looks much different than in 1980. In 1980, secondary roads had a 7 percent reduction but rural trunklines and the total state had twice that reduction at over 14 percent. This year secondary roads had a reduction almost comparable to the total state while rural trunkline accidents were up .3 percent.

Fluctuation in the number of accidents on the secondary roads is best compared with rural trunklines, by examining trends. Between 1977 and 1981, the two sets of roads followed the same trend for four of the five years. In the fifth year, secondary roads went down while the rural trunklines had a slight increase. Rural trunklines and secondary roads are not fully comparable. The secondary roads are not as well repaired or engineered as the trunklines. This tends to make them more dangerous than the trunklines, since many drivers attempt the same speed on them as on the trunklines.

Evidence suggests that the secondary roads are either traveled by more drinking drivers or drinking drivers have a more difficult time negotiating the roads. Secondary roads, over the period, 1977-1981, had a higher

percentage of total accidents that were alcohol related than either the state average or the rural trunklines. Over 20 percent of the 1981 accidents on the secondary roads were alcohol related, compared to a state average of 16 percent, and 17 percent on the rural trunklines. Secondary roads had the largest decrease in alcohol related accidents in 1981, 10 percent, compared to a 9 percent reduction in the state total and a 6 percent reduction on rural trunklines.

This study cannot demonstrate either that the reduction in total accidents, or the reduction in the number of alcohol related accidents, is the direct result of the Secondary Road Patrol Program. However, one might conclude that the volume of citations written by Secondary Road Patrol deputies and County Supported deputies over the period of this evaluation may have had an impact on driving behavior.

VIII. EVALUATION FINDINGS AND CONCLUSIONS

A. Most counties have maintained the same number of county supported deputies they had in 1978 or increased the number, but ten counties reduced their county supported road patrol. These counties pled economic hardship as provided for in the act. The case of each county was carefully reviewed by OCJ, and nine counties were approved for funding. The case of one county is still pending. The first county to use this provision was Genesee County. Genesee County found it necessary to eliminate its entire road patrol. The law, at the time, required a county to obtain a concurrent resolution adopted by majority vote of the House and Senate, which was done. The law has been amended and OCJ can now approve such requests.

In FY 78-79 the counties in the seventeen county sample had 541.5 county supported deputies; in FY 80-81, there were 561.5 deputies. The FY 80-81 figure does not include 21 Genesee County deputies that are shown in the FY 78-79 data. The added Secondary Road Patrol deputies represent new hires and not the shifting of County Supported deputies to state grant funding.

B. The 83 counties had a total of 215.4 Secondary Road Patrol deputies in FY 80-81. This was down from 291.3 in 1979-80. This was the result of a \$2.3 million reduction in funding as well as inflation.

C. The counties in the seventeen county sample basically maintained or surpassed the level of productivity recorded in 1980, in most activities.

1. Citations per officer were up 53 percent from 1980. In 1980, the counties in the sample recorded 333 per officer and in 1981, 510 per officer. This reflects the high priority on citation writing consistent with the goal of reducing accidents on the secondary roads. Secondary Road Patrol represents 13.2 percent of the deputies in the seventeen county sample, but their citations are 42.1 percent of the total citations.

2. The number of accidents investigated by the Secondary Road Patrol decreased from 92 per officer in 1980, to 69 per officer in 1981.

3. Motorists assisted increased from 38 per officer in 1980 to 41 in 1981, an 8 percent increase.

4. The number of times Secondary Road Patrol deputies were called upon

to assist other law enforcement officers increased 71 percent, from 31 per officer in 1980 to 53 per officer in 1981.

5. The drunk driver arrests made by Secondary Road Patrol deputies represented 15 per officer which was up 15 percent from the 1980 13 per officer. The County Supported deputies made an average of 7 per officer in 1981.

6. The number of crime complaints taken by Secondary Road Patrol deputies decreased from 139 per officer in 1980, to 108 in 1981, a 22 percent reduction. However, it was noted that in 1980, the Secondary Road Patrol handled 10 percent of the complaints received by the sheriffs' departments in the sample. In 1981 this was 12 percent.

7. Criminal arrests were up in 1981, to 36 per officer from 27 in 1980. However, the Secondary Road Patrol accounted for 23 percent of the arrests made by the sheriffs' departments in the sample in 1980 while the comparable figure for 1981 was only 19 percent.

The counties in the sample have maintained the high level of productivity recorded in 1980. The 1980 level of activities designed to impact on accident prevention (citation writing and drunk driver arrests) was exceeded.

D. The cost charged the state for a Secondary Road Patrol deputy is lower than the cost counties are paying for their County Supported Road Patrol deputies. The study used the base salary, fringes and benefits, transportation and direct supervision costs for the analysis. The base salary figure used in the study includes court time and overtime. The cost for a County Supported Road Patrol deputy was \$39,280 while the state has been charged an average of \$34,260 for a Secondary Road Patrol deputy, or 13 percent less.

On factors of cost and productivity, the Secondary Road Patrol Program appears cost effective. It was found that most counties are supplementing the Secondary Road Patrol grant with their own funds. Several exceptions were found where either a county was charging approximately the actual cost or, in two cases, possibly overcharging. Some counties are not charging for employee benefits and for some transportation. The study recognized, also, that the Secondary Road Patrol was receiving free services such as supervision, in the case of 15 sample counties, dispatching, telephone and most indirect administrative services.

E. Secondary road accidents decreased by 3.4 percent between 1980 and 1981. The average for the state in 1981 was down 3.7 percent from 1980. The rural trunklines had a small increase of .3 percent. An analysis of the five-year trend for 1977-1981 shows that while the rural trunklines were slightly above or on the overall trend line in 1981, the secondary roads were slightly below. Thus, the secondary road overall accident picture was better in 1981 than in 1980, since secondary roads had a 7 percent reduction in 1980 while the total state and rural trunklines had a reduction of about 14 percent.

The secondary roads did not have as large a reduction in fatalities as did the total state or rural trunklines. Statewide fatalities were reduced 8 percent in 1981, and rural trunklines 13 percent; secondary road fatalities came down only 5 percent. However, secondary roads had a larger decrease (7 percent) in

personal injury accidents. The state was down 8 percent and rural trunklines, 3 percent.

Alcohol related accidents had a higher reduction on the secondary roads than did the state or rural trunklines. Secondary road alcohol related accidents were down 10.2 percent while the statewide reduction was 9.6 percent and the rural trunkline 5.7 percent.

Secondary roads had the smallest percentage of total accident reduction between 1978 and 1981. Secondary road accidents decreased 16 percent between 1978-1981, while the state total accidents went down 22 percent. Rural trunkline accidents declined by 21 percent.

Thus, the secondary road overall accident picture was better in 1981 than in 1980, since secondary roads had a 7 percent reduction in 1980 while the total state and rural trunklines had a reduction of about 14 percent.

F. Conclusion

The Secondary Road Program has evolved since the last evaluation from being viewed as a funding replacement program for the 83 counties to a fully accepted accident prevention program. Most of the sheriffs in the seventeen county sample believe the program is successful and they have high expectations for the Secondary Road Patrol deputies. Fewer sheriffs see the program only as a funding mechanism.

The data cannot prove a conclusive relationship between accident rates and the activity of the Secondary Road Patrol Program. More action is being taken to prevent secondary road accidents than ever before, but those involved in the program must be careful not to set their expectations too high. They must keep in mind the number of deputies being funded versus the large area of Michigan traversed by county secondary roads.

Sheriffs must increasingly recognize personnel limitations and target Secondary Road Patrol resources to those segments of secondary roads where the accidents occur disproportionately. More targeting of this type was observed this year than last, but there are still some sheriffs' departments that are not selectively deploying their Secondary Road Patrol deputies. This becomes even more important if the funds for this activity are restricted as part of general limitations on state appropriations.

END