



MONTGOMERY COUNTY, MARYLAND

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279-1932

MEMORANDUM

April 4, 1978

TO: County Council

FROM: Andrew Mansinne, Jr., Director, Office of Legislative Oversight

SUBJECT: Police Department Personal Patrol Vehicle (PPV) Program
Evaluation, dated March 31, 1978

1. Pursuant to Council request in Resolution No. 8-1418, FY 78 Work Program of the Office of Legislative Oversight, the following analysis of subject PPV program is submitted. A copy of the subject Police Department evaluation is attached as Exhibit A.

2. Background: Council requested an evaluation of the PPV program in the FY 78 Appropriation Resolution No. 8-1323 so that Council could determine the benefits and costs of the program. The PPV program was initiated in 1973. Today, 251 personal patrol vehicles are assigned to sworn officers, primarily in the Field Services Bureau. In FY 79, the program is to expand over to 350 applicants. !

3. The Police Department evaluated the PPV program against seven program objectives. These objectives, with comments of this writer follow:

a) Increased visibility: It is agreed that there is an increase in police visibility because there are more police vehicles and additional exposure in off-duty driving.

b) Police community relations: Again it is agreed that the added visibility and increased contact with the community enhances the police departments image.

c) Deter crime: With the possible exception of traffic related incidents, the Police Department evaluation does not make a convincing argument that increased visibility will decrease the actual or reported number of crimes committed. At best, the argument that the PPV program deters crime is only a presumption; and there appears to be no way of proving that the reported crime rate has either stabilized or been reduced as a result of a PPV program.

d) Decrease in response time: Agree that response time is reduced, especially for calls in the general vicinity where officers in the PPV live and commute, and definitely with PPV officer generated events.

e) Quicker response time for off-duty personnel for emergency call-back: Agree. It can also be argued that the PPV program probably increases flexibility in officer patrol assignment.

f) Increased incentive and higher morale of PPV program officers: Agree. One could also add that the PPV program enhances recruitment capabilities. In the opinion of this writer, the benefit to those in the PPV program has such a high morale impact that anything less than full scale implementation could have a negative morale effect and result in a feeling of discrimination by those who do not have a PPV.

g) Greater longevity for the vehicle with a reduction in maintenance costs: Agree. Because the vehicle is operated less hours per day and by the same driver, this is probably correct.

4. There are four areas relating to the Police Department evaluation which deserve comment. These areas are: a) Patrol productivity of the PPV programs as compared to hiring additional police; b) Alternatives within the PPV program; c) Geographical distribution of take home vehicles; and d) Detailed costs of the PPV program.

a) Patrol Productivity: The PPV program clearly increases productive man-hours of patrol, an increase largely due to responding to calls and initiating activities during off-duty.. The Police Department discusses productivity under Program Benefits (pp. 4-7 of Exhibit A)--citing 1977 data, for the time spent responding to 12,289 calls for service or incidents and for 1,648,191 miles of off-duty driving exposure. The total cost benefit of these services is computed to be \$465,326. Nowhere in the evaluation is this total program benefit evaluated in comparison to costs for additional officer hire. Such a comparison would probably demonstrate that the PPV program is more cost effective, but this evaluation does not address such a comparison.

b) Alternatives within the PPV program: The Police Department evaluation discusses a total PPV program in comparison to fleet patrol operations. The evaluation does not evaluate or present a cost analysis of alternatives within the PPV program. One such alternative which, in this writer's opinion, could have been examined is a take home vehicle program which permits personal use of the police vehicle only for commuting to and from work. Although the evaluation of this modified PPV program could have concluded that it would be less beneficial to the community than the current program (an adjacent County has such a program), it is considered a feasible alternative and deserving of evaluation. Another alternative would be a PPV

program for only specific police operations (patrol, traffic, etc.). This evaluation is non-specific in how far the PPV program is going to be implemented. In this writer's opinion any planned expansion of the program to other activities, for example investigations, should have been commented upon in the report.

c) Geographic distribution of take home vehicles: Since the PPV program was initiated in 1973, there have been comments and print media criticism that the PPV program is weakened because take home police vehicles are concentrated in the up-county communities where lower real estate prices attract police officer families. In this writer's opinion, the criticism could probably be convincingly dispelled; however, the program evaluation does not address the issue of geographical distribution.

d) Detailed costs of the PPV program: The Police Department evaluation contains various cost data which, in the absence of some explanation, is difficult to follow. To assist Council in reviewing the report, this writer has included both clarifying and commentary notes on the report at Exhibit A. One general comment concerns a matter discussed in a previous report from the Office of Legislative Oversight--Report 78-2 on Administrative Vehicles. That comment concerns computing fixed and operating costs for vehicles and equipment. OLO Report 78-2 recommended that charge-back criteria and rates should more closely approximate actual costs. The report also commented that a newly acquired computerized maintenance management system called Mainstem should greatly assist in more accurately analyzing maintenance and fuel costs. To date, sufficient Mainstem data has not been generated on police take-home vehicles to accurately estimate program costs. In reviewing the Police Department evaluation of the PPV program the fixed and operating data used in the report does not in every instance accurately reflect actual costs. However, in coordination with the DOT Equipment Section, the Police Department used the best data available until Mainstem experience can generate more accurate cost data. Future evaluations should utilize Mainstem generated operating and maintenance data.

5. Conclusion: The Personal Patrol Vehicle Program evaluation did not contain specific conclusions or recommendations, although a covering memorandum from the Director, Department of Police stated, "The report reflects that the benefits of the program are significant and I recommend continuation and expansion of the program." Although the evaluation could have included additional information (See Paragraph 4 above) in this writer's opinion, the report makes the case for continuing the program.

AM:cls

Attachment

cc: Chief Administrative Officer
Director, Police Department
Director, Department of Transportation: Att: Equipment Section
Mr. McDonnell

MEMORANDUM:

TO: Mr. William Hussmann
Chief Administrative Officer

FROM: Chief Robert J. di Grazia, Director
Department of Police

DATE: March 31, 1978

SUBJECT: 1977 PPVP Evaluation

Attached please find the Personal Patrol Vehicle Program evaluation for calendar year 1977. The report reflects that the benefits of the program are significant and I recommend continuation and expansion of the program.

RJdiG/mab

Attachment:

DEPARTMENT OF POLICE
PERSONAL PATROL VEHICLE PROGRAM
EVALUATION

ISSUED BY
CHIEF ROBERT J. diGRAZIA
DIRECTOR OF POLICE

PREPARED BY
MANAGEMENT SERVICES BUREAU

MARCH 31, 1978

EXHIBIT A

PERSONAL PATROL VEHICLE PROGRAM EVALUATION

1977

The Personal Patrol Vehicle Program which began in 1973 with 27 vehicles has increased to include 251 participants today. There were several objectives stated at program inception and the achievement of these objectives has been the justification for continuation and expansion of the program. The purpose of this report is to analyze the data provided by the participants and the MAINSTEM automated system to evaluate the program.

The program objectives are:

1. To increase police protection in Montgomery County by increased visibility of police vehicles on the highways and in residential neighborhoods.
2. To promote police community relations through personal contacts and services performed by police officers in transit as well as within their resident neighborhoods.
3. To deter crime by limiting the opportunity of the criminal to commit the act by the presence of more marked police vehicles.
4. To decrease response time to certain calls for service and thereby prevent loss of life, serious injury, loss of property and increase the probability of apprehending the criminal.

5. To provide quicker response time for off-duty personnel for emergency call-back.
6. To provide increased incentive and higher morale within the department.
7. To provide greater longevity for the vehicle with a reduction in maintenance costs.

Rather than review all of the data for the past four years of the program, this report will limit itself to the data provided in calendar year 1977. As mentioned previously, the program presently has 251 participants, however, the program was halfway through the year before the last 96 vehicles were added to the program. The statistical data (Appendix A) should be viewed with this in mind.

Program Cost for Calendar Year 1977

(Note a)

The cost of the Personal Patrol Vehicle Program is determined by the number of vehicles in the program multiplied by:

- (A) The initial cost of the vehicle and its equipment for vehicles added to the police fleet during the year and assigned to the program.
- (B) The fixed monthly rate which covers depreciation, insurance and Equipment Section overhead.
- (C) The cost per mile to operate times the number of miles driven off-duty.

The cost of the additional 96 vehicles added during 1977 is:

Cost of vehicle -	\$8,850 X 96	= \$849,600	
Fixed Monthly Rate -	\$190 X 96 X 4 mos (average)	= 72,960	
Mileage Costs per mile -	\$0.12 X 282,040 (off-duty mi.)	= 33,844	(Note b)
		<u>\$956,404</u>	

(These paranthetical notes are added by OLO as explanation.)

Note a: The figures presented here are a combination of actual FY 77 cash outlays with FY 79 programmed fixed and mileage costs. Although confusing, the mixing of these data does not seriously distort the purpose of presenting the cost data.

Note b: On-duty and off-duty mileage is recorded daily on MCP form 520 (See paragraph 5, Appendix A).

The remaining 155 vehicles would not have a comparable cost for CY 77 as they were purchased in previous years.

The remaining vehicles would generate the cost in fixed monthly rate and mileage as follows:

Fixed Monthly Rate - $190 \times 155 \times 12$ monthly = \$353,400

Mileage Rate - $\$0.12 \times 1,366,132$ (off-duty mi.) = $\frac{163,963}{\$517,363}$ (Note b)

Total Program Cost for CY 1977 = \$1,473,767

The department would have to retain 140 of the vehicles (Note c) if there were no Personal Patrol Vehicle Program to provide for sufficient patrol coverage. The cost of retaining 140 vehicles in fleet status computes as follows:

Fixed Monthly Rate - $\$275 \times 140 \times 12$ = \$462,000

Mileage Rate $\$0.13 \times 1,689,139$ (on duty mi.) = $\frac{219,583}{\$681,583}$

The on-duty mileage (1,689,139) is determined by dividing the total on-duty miles operated (2,256,217) by the total number (Note b) of vehicle months. Vehicle months are defined as the number of vehicles participating in a given month. The total number of vehicles months for calendar year 1977 (2244) is arrived at by multiplying 155×12 and 96×4 and adding together. The quotient (1005) is multiplied times the number of vehicles (140) which must be retained times 12 months. The figure 1,689,139 is representative of 74% of the total on-duty miles operated. A strong argument could be made to include the cost of the remaining 26% on-duty miles since it could be assumed they all would be operated were there no PPVP.

Note c: The 140 vehicles is an assumption based on required patrol coverage. An explanation of how this figure was determined would strengthen the evaluation.

The gross cost to operate the Personal Patrol Vehicle Program for CY 77 is determined by subtracting the total cost \$1,473,767 by \$681,588 to = \$792,179.

To project future costs attributed to the program add \$12,187 for each new vehicle added to the program and \$3,337 annual cost for existing vehicles in the program.

These figures are arrived at by adding:

(A) New vehicle and equipment costs	=	\$8,850
(B) Fixed Monthly Rate \$190 X 12	=	2,280
(C) Mileage costs \$0.12 per mile X 8814 mi.	=	<u>1,057</u>
		New Vehicle Cost - \$12,187
		Add B & C for an existing vehicle = \$ 3,337

(Note d)

Program Benefits

During 1977 program participants responded to 12,289 calls or activities. Calls are defined as request for police service generated by citizens. Activities are officer-generated events such as traffic stops, providing citizen assistance and certain miscellaneous events. Appendix B provides a list of event and activities responded to and the number of participants who responded. The average time required on an event or activity varies. Multiplying the average time out-of-service by the total number of responses in each category and dividing by 60 minutes provides the total number of man-hours delivered by participants in off-duty status. The types of activities and time out of service on each computes as follows:

Note d: The Department used an average off-duty mileage figure (from FY 77 data) of 734.5 miles per month (734.5 miles x 12 months = 8814 mi/yr.)

Traffic	2586 X 15	mins ÷ 60 mins =	646.5 man-hours
Disabled Vehicle -	1449 X 21.5	mins ÷ 60 mins =	519.0 man-hours
Misc. Calls -	3647 X 21.5	mins ÷ 60 mins =	1307.0 man-hours
Criminal	<u>4607</u> X 30	mins ÷ 60 mins =	<u>2303.5</u> man-hours
TOTALS	12,289		4776.0 man-hours

To place a dollar figure the total man-hours are multiplied by \$8.9715 which is the average hourly rate for police officers participating in the program (Private to Sergeant). (Note e)

$$4776 \times \$8.9715 = \$42,848$$

In addition to the service delivered on actual responses, the participants operated 1,648,191 miles in off-duty status. While there is no definite way to measure the value of police visibility one assumption can be made. Criminals commit crime for two reasons. First, the desire to break the law or engage in criminality must exist. Secondly, the opportunity to violate the law must also exist. The police cannot eliminate a criminal's desire to engage in criminality but they can remove the opportunity. This is true both for criminal acts and potential traffic violators. An example of this is a person in a hurry to drive from one location to another. The desire to exceed the speed limit exists and if police are not visible the opportunity is available. But if a police vehicle is sighted by the potential speeder, the opportunity is eliminated even though the desire continues to exist. In this way crime is deterred thereby achieving objectives (1) and (3).

For purposes of calculating the value of visible patrol in man-hours, the average speed of thirty-five miles per hour is used.

$$1,648,191 \text{ miles} \div 35 \text{ (mph)} = 47,091 \text{ man-hours}$$

Note e: This hourly wage equals an annual salary of \$18,660, which appears low.

To determine the cost benefit the same hourly rate of \$8.9715 is multiplied times the total man-hours:

$$47,091 \times \$8.9715 = \$422,476$$

The total cost benefit of the program in terms of actual activity or visible patrol is:

Activity and Event Responses -\$ 42,848

Visible Patrol- 422,476

TOTAL BENEFIT \$465,324

The net cost of the PPVP is determined by subtracting the program benefits from the gross costs: \$792,179

- 465,324

Net Program Cost \$326,855

Per Capita Costs (Based on 1977 Population of 592,000)

Gross Costs - $\frac{\$792,179}{592,000} = \1.338

Net Costs - $\frac{\$326,855}{592,000} = \0.55

RESPONSE TIME

During 1977 the average response time by PPVP participants from notification of a call or event to arrival on the scene was 2.10 minutes. The county-wide average response time for all calls during 1977 was 7.33 minutes. (In many cases the PPVP participants were the first unit on the scene of a serious event). The county-wide average response time for emergency or Code 3 calls for 1977 was 3.17 minutes.

During 1977 the PPVP participants began monitoring Citizen Band radio Channel 9 which accounted for 268 responses by police officers. In addition the traditional methods, ie., on view, radio,

and citizen complaints, accounted for 12,021 responses. Channel 9 is the emergency Channel and use is restricted to requests for assistance, report of accidents, or similar incidents. During 1977 the Maryland State Highway Administration posted signs on the interstate highways informing motorists that the county police would monitor Channel 9. With the ever increasing number of CB radio users this has put the police in closer contact with the public. The CB radios were placed in the personal patrol vehicles at the participants' expense which suggests an increase in morale and motivation.

POLICE COMMUNITY RELATIONS

The second objective, to promote police community relations, has definitely been achieved as indicated by the number of disabled vehicle responses reported (1449) and reports of assistance rendered to citizens or miscellaneous events (3647). The term "reported" is emphasized since experience indicates an estimated equal number of similar responses are not reported by participants. The absence of documentation is not necessarily a lack of interest by participants since reports are submitted on more serious responses. The less time consuming and less serious incidents such as these are so commonplace to participants they apparently overlooked reporting them even though the activity reports were reduced in size in an effort to encourage submission.

MOTIVATION AND MORALE

The objective to increase morale and incentive is difficult to measure since this requires a comparison of participants with non-participants. A major concern of most eligible officers is to become a program participant. Whether this is indicative of viewing

the program as a fringe benefit, which cannot be ignored, or an incentive toward motivation is debatable. The fact that participants respond to calls while in off-duty status indicates motivation. As in the past, a major concern expressed by the members of the department is the accelerated implementation of the program.

MAINTENANCE AND VEHICLE LONGEVITY

The last objective is aimed toward increasing the life of each vehicle and reducing maintenance costs. The data provided by the Equipment Section DOT indicates the vehicles assigned to the PPVP cost an average of .026 cents per mile to maintain compared to .046 cents per mile for a comparable fleet assigned vehicle. These figures reflect a sampling of 1977 Plymouths in which sixteen vehicles were selected from each class. A comparison of 1976 Plymouths is unrealistic as only three were placed in the program and they indicate a cost of .024 cents per mile to maintain. The 1976 Plymouths in the fleet are costing an average of .073 cents to maintain per mile traveled.

A comparison of 1975 Fords, is not available since all fleet vehicles have been replaced due to high mileage. Seventy-seven 1975 Fords are still in service in the PPVP.

Comparing 227 PPVP vehicles in Field Services Bureau with 113 vehicles assigned to fleet use in the same bureau, indicates a savings of .046 cents per mile to maintain for the PPV's.

(Note f)

COST/COMPARISON

This final chart indicates cost comparison for PPV/Fleet

Note f: This saving of almost 5¢ per mile is, in the opinion of this writer, "soft." It should be noted that the Police Department evaluation does not defend the program on the basis of this cost savings. The reasons it is soft are several, among them: insufficient historical data from Mainstem because it is a new system and lesser mileage on relatively newer PPV cars in comparison to fleet patrol cars.

vehicles. This chart compares five personal patrol vehicles with two fleet vehicles. These figures are used since five officers are required to cover on patrol beat during a 24-hour period. If the PPVP were totally implemented five vehicles would be assigned to a patrol beat. Without the PPVP, two fleet vehicles would be required since the department works an overlapping shift of four hours.

(Note g)

. Commuting time equals 1.1 hours per day for a PPVP participant to drive to and from work.

. Off-duty visibility averages 17.5 hours per day for 5 PPV's. (Note h)

. Service hours equal total incidents X 22 minutes ÷ 60 minutes.

Special Notation:

This evaluation covers the 1977 Calendar Year.

The PPV rates were not delineated until Mid-CY 1977, therefore the department elected to use the proposed FY 79 rates for PPV's and Fleet vehicles. These are inflated rates to determine the cost estimates.

Note g: It should be noted that scheduling discussions require either 5 - PPV or 2 - fleet vehicles per 24-hour shift.

Note h: 17.5 hours visibility is based on assumption that of 5 PPV's!

	<u>Visible Hours</u>
1 PPV on day shift duty	0
1 PPV off duty - officer sleeping	0
1 PPV going on PM duty	1.5
2 PPV off duty - (8 hours each)	16.0
	<u>17.5</u>

INFORMATION CHART

Item	Personal Patrol Vehicle	Fleet Vehicle (Intermediate)	
Fixed Rate (Month)	\$ 190.00	\$ 275.00	(Note i)
Mileage Rate	\$ 00.12	\$ 00.13	
Average Miles/year (Driven)	23,000 miles	33,000	
<u>Yearly Cost PPV</u>			
12 Months X \$190/mo. =	\$2,280	\$3,300 = \$275/mo X 12 mo.	
\$ 0.12 per mile X 23,000 miles =	2,760	4,290 = 33,000 miles X \$.13/mile	
Yearly TOTAL Cost	\$5,040	\$7,590 = TOTAL	

COST PER 24 HOUR SHIFT

Item	PPV	Fleet	
<u>Number of Vehicles Required</u>	5	2	
<u>Number of Hours of Service</u>			
Work Hours (28 X 365)	10,220 hours	10,220 hours	
Commuting Time (to and from work)	1,200 hours	-0-	(Note j)
Off-Duty Visibility	6,388 hours	-0-	(Note k)
Off-Duty Service Hours	120 hours	-0-	(Note l)
Total	17,928 hours	10,220 hours	
TOTAL COST (Mileage & Flat Rate)	\$25,200.00	\$15,180.00	
COST / SERVICE HOUR	\$ 1.406	\$ 1.485	

FROM COST PER 24 hour SHIFT

PPV Cost/hour	\$1.406
Fleet Cost/hour	1.485
Difference	\$.079 hour

SAVINGS OF PPV OVER FLEET
(per car basis)

Fleet	\$ 7,590
PPV	5,040
	\$ 2,550 or 2,550/7,590 = 33.597%

Note i: These are programmed FY 79 fixed and mileage charges with an average miles per year based on actual mileage reports. It should be noted the figures used by the Police Department vary in some areas than those used by the Equipment Section to compute some fixed charges.

Note j: 1200 hours are computed as follows: 365 days/yr. x average of 3 officers on-duty per day x 1.1 miles commuting) = 1205.

Note k: 6388 hours are computed as follows: off duty visibility average/day for 5 PPVs = 17.5 x 365 days/yr. = 6387.5.

Note l: 120 hours computed as follows (using 1977 data) 12,289 calls/incidents : by 2244 vehicle months x 12 months x 22/60 min x 5 PPV = 120.48 hours.

Appendix A

Personal Patrol Vehicle Statistical Report

1. Officer Responded to Scene by:	✶ Calls
On view -	6662
Radio monitored -	3858
Citizen complaint -	1501
CB monitored -	268
	<u>12,289</u>
2. Action Taken:	
Assisted on duty car -	3093
Handled incident -	8263
Stand by for on duty car -	827
Assign to on duty car -	106
	<u>12,289</u>
3. Number of Arrest/Warnings/Order:	
Felony arrests -	82
Misdemeanor arrests -	168
Traffic arrests -	1070
Warning notices -	900
Equipment repair orders -	95
4. Average response time per radio call	2:10 mins.
5. Mileage:	
	Miles
On Duty -	2,256,217
Off Duty -	1,648,191
Total -	<u>3,904,408</u>

<u>Event and Activities</u>	<u>Number of Responses</u>
0100 - Homicide -	12
0200 - Rape -	14
0300 - Robbery - Citizen	47
0300 - Robbery - Commercial -	63
0400 - Agg. Assault -	65
0500 - Burglary - Commercial -	68
0500 - Burglary - Residential -	179
0600 - Larceny -	116
0700 - Auto Theft -	40
0800 - Assault - Other -	95
1400 - Vandalism -	55
1700 - Sex Offense -	44
2100 - Juvenile Offense -	58
2400 - Disorderly -	592
2600 - Suicide -	25
2716 - Bomb Threat -	12
292X - Alarm - Burglary -	557
292X - Alarm Robbery -	243
2933 - Disabled Motor Vehicle -	1449
2936 - Ill Person -	46
2937 - Injured Person -	29
2948 - Traffic Complaint -	2586
2952 - Suspicious Person or Vehicle -	710
2991 - Other Miscellaneous Calls -	3647
53XX - Accident - Fatal -	52
54XX - Accident - Personal Injury -	394
55X1 - Property Damage -	994
55X2 - Accident - Hit and Run -	97

