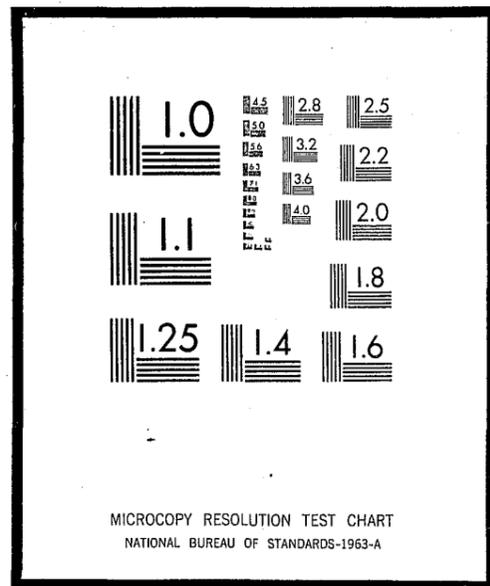


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U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
NATIONAL CRIMINAL JUSTICE REFERENCE SERVICE
WASHINGTON, D.C. 20531

Date filmed 10/8/75

WASHINGTON OPERATIONS

.38 CALIBER WEAPON
EFFECTIVENESS

JUNE 1973

Equipment Systems Improvement Program Report
prepared for



U.S. DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION
NATIONAL INSTITUTE OF LAW ENFORCEMENT
AND CRIMINAL JUSTICE

MITRE

14961

THE EQUIPMENT SYSTEMS IMPROVEMENT PROGRAM

Following a Congressional mandate* to develop new and improved techniques and equipment to strengthen law enforcement and criminal justice, the National Institute of Law Enforcement and Criminal Justice under the Law Enforcement Assistance Administration of the Department of Justice established the Equipment Systems Improvement Program. The objectives of the Program are to determine the priority needs of the criminal justice community to help in its fight against crime, and to mobilize industry to satisfy these needs. A close working relationship is maintained with operating agencies of the criminal justice community by assigning systems analysts to work directly within the operational departments of police, courts and corrections to conduct studies related to their operational objectives.

This document is a research report from this analytical effort. It is a product of studies performed by systems analysts of the MITRE Corporation, a not-for-profit Federal Contract Research Center retained by the National Institute to assist in the definition of equipment priorities. It is one of a continuing series of reports to support the program decisions of the Institute relative to equipment development, equipment standardization and application guidelines. Comments and recommendations for revision are invited. Suggestions should be addressed to the Director, Advanced Technology Division, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice, Washington, D. C. 20530.

Gerald M. Caplan, Director
National Institute of Law
Enforcement and Criminal Justice

* Section 402(b) of the Omnibus Crime Control and Safe Streets Act of 1968, as amended.

THE MITRE CORPORATION

WASHINGTON OPERATIONS

WORKING PAPER

WP- 10301 _____
No. Vol. Series Rev. Supp. Corr.

CONTROLLED DISTRIBUTION

Subject: .38 Caliber Weapon Effectiveness

To: W. E. Holden

Contract No.: F19628-73-C-0001

Sponsor: LEAA

From: Sy Roth

Project No.: 8160

Dept.: D-38

Page 1 of 31 Pages

Date: 19 June 1973

Approved for MITRE Distribution:

William E. Holden

W. E. Holden

ABSTRACT:

The effectiveness of police .38 caliber weapons in preventing an assailant from continuing an attack is discussed from the police viewpoint. There are strong feelings in the police community that a more effective weapon is needed to counteract a rising threat. There is an adverse reaction on the part of the public to more lethal weapons leading to the recommendation that alternative techniques be considered in addition to lethal weapons.

THIS INFORMAL PAPER PRESENTS TENTATIVE INFORMATION FOR LIMITED DISTRIBUTION.

officials. Other approaches which may be alternatives or complementary are:

- protective body armor,
- training in the handling of aggressive suspects,
- training in when and how to shoot, and
- use of other incapacitating means (chemical sprays, batons, Judo, stun guns, etc.).

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1. INTRODUCTION

The .38 caliber service revolver is the weapon commonly employed by law enforcement agencies throughout the United States. There are serious feelings among police officers concerning the effectiveness of the .38 in preventing an assailant in the process of an attack from continuing that attack. We have been requested, by the NILECJ through our field sites, to investigate this matter. The requesting letters are included in Appendix I.

The MITRE Police Field Site representatives were asked to provide relevant information from their host departments. This document is an analysis of the responses in conjunction with background data on weaponry and police injury statistics. The issues surrounding the use of lethal weapons (versus less lethal weapons) are presented but no value judgments are made.

2. BACKGROUND

The characteristics most desired for a police weapon are:

- . stopping power,
- . penetration,
- . reliability and ease of maintenance, and
- . accuracy.

Accuracy has purposely been placed last in the order, since it is more a function of the user than of the weapon itself.

The characteristic of most concern to the officer is the stopping power (incapacitation capability) of the weapon-ammunition combination. The weapon is mainly employed in defense of his person, the defense of a citizen, or the apprehension of a fleeing suspect. It is in the defense of himself or another that the stopping power is of major concern. Most attacks take place at short range (less than 25 yards), and the purpose of firing the weapon is to so incapacitate the assailant that the threat of harm is eliminated. It is here that the question of the effectiveness of the .38 caliber weapon is raised. There are strong feelings in the police community that a .38 caliber weapon with steel-jacketed or ball ammunition does not provide the degree of incapacitation required to prevent the assailant from continuing the attack. Both the more powerful weapon and hollow-point ammunition have been proposed to provide greater stopping power.

Penetration is a measure of the depth to which a bullet is forced into any substance. This characteristic is mainly desired where a suspect is in an automobile or seeks protection behind a shield. In the case of automobiles, the objective of the weapon fire may be to disable the vehicle rather than to injure the suspect. High

penetration is achieved with high muzzle velocity (powerful weapon) and jacketed bullets.

Reliability and ease of maintenance combine to provide the desired weapon performance at the time it is needed. Most officers do not have a need to fire their weapons often in the line of duty; however, when they do fire, it is usually in a critical situation. The reliability requirement is obvious. Burdensome maintenance requirements would tend to make some officers less likely to provide the required service to their weapons. It is for reliability and ease of maintenance reasons that the majority of police weapons in use are revolvers rather than automatics. The automatics fire more rapidly, with less trigger pressure than revolvers, but in general, are considered less reliable and more difficult to maintain.

3. FIELD SITE FINDINGS

The MITRE Police Field Site Representatives were asked to provide any relevant information from their host departments. It must be recognized, prior to this discussion, that in many areas the use of larger weapons and hollow-point ammunition (sometimes referred to as dum-dums) is a sensitive public issue. Hollow-point ammunition usually causes greater body damage, and the wounds are much more difficult to repair surgically than the wounds from round-nosed bullets. The discussion becomes one of humanitarian, moral issues rather than a purely technical one.

3.1 Los Angeles Field Site Response

The Los Angeles Field Site representatives (Al Milbert and Jay Parness) responded with the official policy statement of the Department as issued in "The Chief's Message":

AUTHORIZED AMMUNITION

There have been questions raised regarding a recent decision by the Board of Police Commissioners not to approve a hollow-point type ammunition for use in our service revolvers. In reaching this decision, the Board acted on data compiled and evaluated by this Department during an extensive testing process of several types of commercially available ammunition.

This is not to imply, however, that a decision was, or could be, rendered solely on the basis of technical data. In determining the proper type of ammunition, many social and moral factors must be considered. I am committed very strongly, as I believe a majority of our officers are, to the moral stand that no officer should attempt in any situation to deliberately take a human life. Our sole regard in firing a deadly weapon at a suspect must be to cause that suspect to cease his illegal

activity, which in most cases would be the endangering of the life or safety of the officer or other persons.

During the study, two significant facts were developed. First, the testing of the currently authorized high-velocity ammunition revealed little or no evidence of it being ineffective for field situations. Secondly, after extensive review of the test data and results, competent medical authorities indicated that the hollow-point bullet caused greater body damage and the wounds were more difficult to surgically repair than a wound from the conventional round-nose bullet. The severity of body damage is of paramount concern to us when we review the recent instances of officers being shot with their own revolvers, both by suspects and accidentally. Obviously the serious consequences of being shot by a more deadly type of round cannot be minimized.

In view of the compiled facts and considerations, it appears appropriate then, at this time, to maintain our presently authorized high-velocity ammunition. You may be assured, however, that this Department will continue to re-evaluate our field experience in its attempt to provide officers with the best possible equipment, consistent with the law and Department policy.

Any factory-loaded, round-nose ammunition with a muzzle velocity less than 1,000 feet per second is approved for use in service revolvers.

They also provided a survey of Southern California law enforcement agencies with fifty or more sworn personnel on their authorized use of hollow-point ammunition. This survey is included in Appendix II. It shows that many of the smaller departments, in that region of the country, are authorized to use hollow-point ammunition (52 out of 72 responding agencies).

3.2 Indianapolis Field Site Response

Dr. Robert Pfefferkorn, the Indianapolis Police Department (IPD) Field Site Representative, provided the following report which is reproduced verbatim:

The standard issue IPD handgun is the .38 caliber four inch model 15, Smith and Wesson. The local community is against the use of hollow-point ammunition and its use is not permitted by IPD. The department is authorized to use operationally only 158 grain, round nose, lead ammunition.

This weight standard has been agreed to in cooperation with local hospitals to aid them in determining whether all lead has been removed during a bullet removal operation.

The IPD rules and regulations authorize a policeman to fire his weapon in defense of his life or the life of another, in apprehension of escaping known felons, or in destroying animals. It is recognized that the standard weapon and load are over-sufficient for some uses and under-sufficient for others. Nevertheless, on the average, IPD believes these standards to be the best available choices for application in a city like Indianapolis (population over 500,000). In this environment, most firings occur within a 0-25 yard range; the average is about 7 yards. For applications involving less population density and longer ranges, lighter, higher velocity ammunition and weapons better designed for use of such ammunition might be a better choice.

Realistic evaluation of the end-effects of ammunition to reach conclusions concerning applicability for police operations is regarded to be a very difficult task. There is probably no optimum solution

because of the widely varying environmental circumstances under which police need to use their weapons. There is continuing controversy concerning the incapacitation effects of slower-heavier versus faster and lighter ammunition, with modern thinking favoring the latter. The case for either is difficult to establish since incapacitation effects are largely a result of fortuitous circumstances, e.g., impact location, velocity at entry, entry angle, impediments encountered as the bullet passes through the body, and nervous system and vital organ damage. In view of these considerations, carefully researched case histories of the circumstances surrounding and the end-effects resulting from the use of various kinds of ammunition at various locations might provide useful information to augment findings from laboratory tests.

Officials at IPD believe that the selection of the most appropriate weapon and load is a third-order problem. The primary problem is one of training policemen in when to shoot and, secondarily, in how to shoot. If policemen only shoot their weapons when necessary to defend life or to apprehend known felons, then the public is more likely to accept the use of whatever ammunition is proved best for incapacitating the law breaker. If policemen hit their targets appropriately, the danger of injuring innocent parties is lessened considerably.

3.3 Michigan State Police Field Site Response

David Cox and John Bard, the Michigan State Police (MSP) Field Site Representatives interviewed Sgt. Bernard Schrader of that organization and submitted the following report:

Sgt. Schrader was identified by Michigan State Police personnel as the most experienced person concerning .38 caliber weapons. The .38 special is the MSP service revolver (i.e., the revolver required

to be carried in the uniform holster). A .357 Magnum can be carried in place of the .38 special with permission of the local post commander. Sgt. Schrader's unit has the responsibility of assisting in firearm training for the trooper academy and the maintenance of firearms. In this responsibility, Sgt. Schrader has considerable experience with the daily operations of MSP troopers with firearms.

Based upon the discussion with Sgt. Schrader, several points can be made concerning MSP experience with the .38 special relative to the statements in the LWL letter:

1. Accuracy in hitting target (critical areas) is more important in achieving incapacitation than increased bullet velocity.
2. Increasing bullet velocity and/or mass decreases accuracy because of mental and physical affects on officers (e.g., greater recoil, sound, and flash). A more powerful revolver (e.g., the .357 Magnum) which provides this performance results in problems during training and subsequent field duties for some troopers. The greater recoil has two effects: (1) the mental reaction of the person which tends to decrease his accuracy, and (2) the physical movement of the revolver such that rapid fire performance is decreased (accuracy and speed). Sgt. Schrader is of the opinion that movement of the revolver due to recoil during the instant of firing does not affect accuracy (i.e., the bullet has left the gun barrel before recoil movement). He was not aware of any experimental data which quantifies this effect.
3. The .38 special incapacitation effectiveness problem can be solved by changing to hollow-point bullets (MSP policy presently prohibits use of hollow-point bullets). A test program is being planned by Sgt. Schrader to determine the comparative penetration effectiveness of the .38 caliber round-nose (1050 fps) and hollow-point (1350 fps) bullets.

4. Penetration ability is important to MSP because of required firings at occupants in automobiles (MSP uses .38 caliber round-nose 1050 fps bullets). This requirement precludes the use of tumbling bullets or low velocity bullets.

3.4 Columbus Field Site Response

The Columbus, Georgia, Police Department Field Site Representatives, Larry Gunn and Tom Bercal, conducted a limited survey of officers at their site to determine the weapons and ammunition used and the officers' preferences. A copy of the questionnaire is included in Appendix III. The results summarized are:

- . 70 percent (14) use .38 caliber weapons,
- . 60 percent (12) are standard issue,
- . 75 percent (9 out of 12) of those using standard issue weapons would prefer the .357 Magnum,
- . 30 percent (6) use .357 Magnums,
- . 30 percent (6) respondents use hollow-point ammunition, and
- . 20 percent (2 out of 10) of the standard ammunition users would prefer hollow-point ammunition.

The results should be interpreted in terms of the Columbus Police Department (CPD) operating rules, which are:

- . Standard issue weapon is:
 - .38 caliber service revolver (blue steel)
- . Standard ammunition is:
 - 158 grain, ball ammunition
- . Other weapons can be used, with the chief's permission, provided they can fire standard issue ammunition.
- . Officers can use other than standard ammunition if they purchase it on their own.

The preference is clear for the larger weapon and more "effective" ammunition. Some officers have demonstrated this preference by purchasing weapons and ammunition with personal funds. Only two of the twenty responders (10 percent) were satisfied with the standard weapon/ammunition combination.

There were no specific questions on the questionnaire relating to maintenance or accuracy; however, a significant number of responses referred to these issues. Seven responders referred to maintenance problems with blue steel weapons, preferring stainless steel or chrome-plated weapons. Three responders referred to the lack of adjustable sights on the standard issue weapon which affect the accuracy of that weapon.

The responses carried a strong feeling of the need for a more effective weapon in threat situations. One response to question 7 is indicative of the general feeling:

Question

"Do you feel that a difference in weapons carried by the patrolman has a significant psychological effect on that officer?" "Please explain."

Answer

"Yes." "Most police officers feel that this pistol is their most important tool in life and death situations. Officers feel that the more knock down ability of the .357 Magnum is a psychological necessity."

3.5 Hollow-Point Ammunition

A variety of bullets are in use by law enforcement agencies. Some of the more common ones are:

- . Jacketed - fully incased point
- . Semi-jacketed - partially incased point - lead tip exposed
- . Ball - fully exposed lead tip
- . Hollow-point - fully exposed lead with a small hole in the tip

The list is in increasing order of expandability (stopping power). The hollow-point bullet tends to expand upon entering a target causing greater local damage, creating a larger opening but not penetrating as deeply as a jacketed bullet. The jacketed bullet, at the top of the list in penetrating capability, would tend to make a small opening and penetrate completely through the target.

The hollow-point bullet has two advantages in addition to its greater stopping power:

- . it is less likely to ricochet and strike an undesired target, and
- . it is less likely to penetrate the target and strike an unintended target.

In close quarters, these can be important advantages. The issue on which objections to expanding ammunition are based is the greater body damage caused by these bullets. There is no question that expanding bullets have greater stopping power and that they do cause greater body damage. The questions that are raised are of the following type.

- . Is this greater stopping power needed in defense of law enforcement officials?
- . Are there more humane alternatives?
- . Will the offender community respond with greater counterforce?
- . Is the rise of lethal force justified in the exercise of normal police functions?

It is beyond the scope of this work to answer these questions which involve value judgments. The foregoing only highlights the issues.

3.6 Nature of Threat

It is apparent that the law enforcement officers feel that there is a threat which they must defend themselves against. Some statistics from the Uniform Crime Reports for 1971 give an indication of the extent of this threat. Figure 1 shows the number of officers killed in each year from 1962 through 1971. There is a marked increase in killings in the past few years. The reported assault rates for police officers and the general public are as follows:

ASSAULTS PER 100,000* POPULATION

Assaults against officers	-	18,700
Assaults against officers (with injury)	-	6,600
National assault rate	-	177

*For police, the population is the number of sworn officers: figures are for 1971.

It can be argued that the assault rates for police and the general public are not comparable. The police are continually in contact with elements of the population where the assault probability is higher. The general public population includes the young, the elderly, and other citizens who are not likely to be targets for assault. In addition, the reporting accuracy for the general public is not as high as for the police. However, the rate of injuries, due to assault, of 6.6 per 100 for police officers, is sufficiently high to show that there is a significant threat.

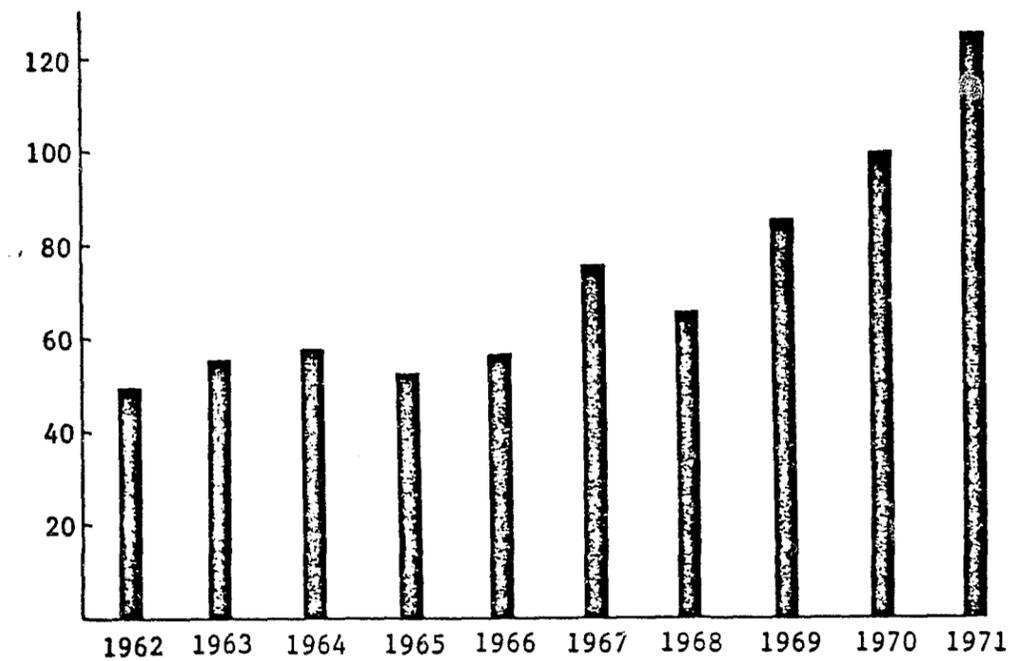


FIGURE 1
LAW ENFORCEMENT OFFICERS KILLED 1962-1971

The nature of the threat for all police assaults is shown as follows:

- . Firearms - 6.7 percent
- . Knife or cutting instrument - 3.3 percent
- . Other dangerous weapons - 8.9 percent
- . Hands, fists, feet - 81.1 percent

This would indicate that a majority of the threats are not deadly in intent.

APPENDIX I
EFFECTIVENESS OF .38 CALIBER WEAPONS
(NILECJ/U. S. Army Requesting Letters)

4. CONCLUSIONS

There is a strong feeling in the rank and file of the police community that more powerful weapons are needed. This is supported by the reviews of weapons and ammunition being undertaken by police agencies and, where allowed, the exercise of the option by police officers to procure larger weapons and hollow-point ammunition. The deficiency cited is the inability of the .38 caliber service revolver, using standard ball ammunition, to prevent an attacker at close quarters (less than 25 yards) from continuing that attack. Hollow-point bullets and/or more powerful weapons (.357 Magnum, for example) will provide more stopping power. This is achieved at the cost of greater body damage to the target. There is a reaction by a substantial part of the public against the use of more powerful weapons and ammunition. The rising rate of police officers killed in the line of duty and the high assault-with-injury rate against police tend to support police feeling of need for greater defense.

Quantitative evaluation of the effects of more powerful weaponry in police-offender encounters would be a very difficult task due to the widely varying circumstances and the emotional stress under which these events occur.

UNITED STATES DEPARTMENT OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMINISTRATION

WASHINGTON, D.C. 20530



NATIONAL INSTITUTE OF LAW ENFORCEMENT
AND CRIMINAL JUSTICE

November 28, 1972

5. RECOMMENDATIONS

The problem which emerges from this review of weapon effectiveness is the desire of the police officer for additional protection in the direct offender encounter situation. A natural response from the police community is the desire for additional firepower. Given the nature of their task, this certainly should be given consideration. A substantive laboratory and application evaluation of weaponry, such as is being considered by the ESIP Program, is recommended. Such a program should also include evaluation of characteristics such as accuracy, reliability, and maintainability. The weapon, however, is only one facet of the problem of providing protection to a police officer in a physical attack situation. Other approaches should be considered in addressing this problem. Included are:

- . Protective body armor;
- . Tactical training in the handling of aggressive suspects;
- . Training in when and how to shoot (If police only shoot under the most necessary circumstances with high effectiveness, the public is more likely to accept weaponry recommended by the police.); and
- . Use of other incapacitating means - Mace, Batons, Judo, etc.

Mr. William E. Holden
The MITRE Corporation
Westgate Research Park
McLean, Virginia 22101

Re: Effectiveness of .38 Caliber Weapons

Dear Mr. Holden:

Attached is a letter from the Land Warfare Laboratory concerning some information which they have developed about the effectiveness of the .38 caliber police weapon.

Please query the appropriate field people to determine whether they may have any relevant information at this time. Also let them know that we are interested in this topic on a continuing basis and that they should send us any additional information as they find it.

Sincerely,

Marc A. Nerenstone
Program Manager, Analysis
Research Administration Division

Attachment

cc: Kochanski
Shubin
Shollenberger
ESIP File F-1
Inst.
RAD Chron
- Nerenstone



DEPARTMENT OF THE ARMY
U. S. ARMY LAND WARFARE LABORATORY
ABERDEEN PROVING GROUND, MARYLAND 21005

RDLW-RAO

14 November 1972

Director
National Institute of Law Enforcement
and Criminal Justice
Law Enforcement Assistance Administration
ATTN: Mr. Marc Nerenstone
633 Indiana Avenue, NW
Washington, DC 20530

Dear Sir:

Reference is made to:

- a. LEAA/LWL Inter-Agency Agreement No. J-LEAA-IAA-014-72.
- b. Meeting held at LEAA on 10 Nov 72 attended by personnel from LEAA, Aerospace Corp, Mitre Corp, and USALM/L.

In the course of our analysis of the .38 cal police weapon as a baseline for comparison of less-lethal weapons, the following observations have been made:

- a. The more frequently encountered situations in which the police revolver might be used require incapacitation of the target to be complete and to occur within a few seconds at short ranges.
- b. A brief summary of data on hospitalized persons who have been wounded by .38 cal revolvers reveals that quite a few of these persons have been shot several times during the incident. This could indicate that the shooter did not believe the target to be incapacitated to the proper degree in the required time period. On the other hand, this may be an invalid conclusion drawn from the small sample investigated. Additional work on this question could produce a quantitative answer to the question.
- c. At least three major police departments with which we have had personal contact have on their own initiative reviewed the effectiveness

RDLW-RAO
Law Enforcement Assistance Administration

2

14 November 1972

of their police revolver. These reviews have considered both weapons and ammunition. Of significance is the fact that they have had pressure from the individual police members to increase the effectiveness of their weapons.

d. As part of our work on Task I under Reference 1a, some experiments have been run using the standard 158-grain, round-nose, .38 cal bullet. These tests, although very limited, show that the bullet (at 750 fps) generally gives complete penetration with little or no tumbling. In fact, exit wounds were so small that some went undiscovered until in the necropsy room. According to our scenarios and other statistics, the ranges of interest are short; therefore, complete penetration of a target has no value and may in fact increase the hazard to other nearby persons. Although penetration of a vital organ such as the liver or kidney is indeed damaging (or fatal), hits on these organs and or less critical areas may not produce the desired incapacitation in sufficient time to avoid lethal return fire on the officer. Although it would appear that a quick incapacitation could be achieved by increasing the force or decreasing the time of action (increased bullet velocity), it may actually be more beneficial to decrease velocity and stability of the bullet which may, in turn, shorten the onset time of incapacitation. Based on some analysis of pistol firing one might also conclude that the probability of hitting the target could be increased by lowering the recoil shock. Although all of this is somewhat speculative, a limited number of tests could certainly clarify many of these questions to some degree.

The above observations are personal and based on limited data analysis. However, as stated at the referenced meeting, a program of 75K would go a long way toward determining the physiological effects of the .38 cal bullet and not much has been done along these lines. The basic question of effectiveness could also be investigated in the field if the Mitre Corporation establishes some operational teams.

Any changes to the conclusions drawn to date will be forwarded to you either under separate cover or in our bimonthly progress status report.

Sincerely,

DONALD O. EGGER
USALM/L Project Leader

APPENDIX II

SURVEY OF SOUTHERN CALIFORNIA LAW ENFORCEMENT AGENCIES WITH
FIFTY OR MORE SWORN PERSONNEL

Are you authorized to use hollow-point ammunition?

	<u>YES</u>	<u>NO</u>
Alhambra Police Department	X	
Anaheim Police Department	X	
Arcadia Police Department	X	
Azusa Police Department	X	
Bakersfield Police Department		X
Baldwin Park Police Department	X	
Beverly Hills Police Department	X	
Brea Police Department	X	
Buena Park Police Department	X	
Burbank Police Department	X	
Chula Vista Police Department	X	
Compton Police Department	X	
Costa Mesa Police Department	X	
Covina Police Department	X	
Culver City Police Department	X	
Cypress Police Department	X	
Downey Police Department	X	
El Cajon Police Department	X	
El Mente Police Department		X

	<u>YES</u>	<u>NO</u>
El Segundo Police Department	X	
Escondido Police Department	X	
Fullerton Police Department		X
Gardena Police Department	X	
Garden Grove Police Department	X	
Glendale Police Department	X	
Hawthorne Police Department	X	
Huntington Beach Police Department	X	
Huntington Park Police Department		X
Imperial County Sheriff's Department		X
Inglewood Police Department	X	
Kern County Sheriff's Department	X	
Laguna Beach Police Department	X	
La Habra Police Department	X	
La Mesa Police Department	X	
Long Beach Police Department	X	
Los Angeles Police Department		X
Lynwood Police Department	X	
Manhattan Beach Police Department		X
Monrovia Police Department	X	
Montebello Police Department	X	
Monterey Park Police Department	X	
National City Police Department		X

	<u>YES</u>	<u>NO</u>
Newport Beach Police Department	X	
Oceanside Police Department		X
Ontario Police Department	X	
Orange Police Department		X
Orange County Sheriff's Department		X
Palm Springs Police Department	X	
Pasadena Police Department	X	
Pomona Police Department	X	
Redlands Police Department	X	
Redondo Beach Police Department	X	
Riverside County Sheriff's Department		X
Riverside Police Department	X	
San Bernardino County Sheriff's Department		X
San Bernardino Police Department	X	
San Diego Police Department		X
San Diego Sheriff's Department	X	
San Luis Obispo Sheriff's Department	X	
Santa Ana Police Department		X
Santa Barbara Police Department	X	
Santa Barbara Sheriff's Department		X
Santa Monica Police Department		X
Seal Beach Police Department	X	
South Gate Police Department	X	

	<u>YES</u>	<u>NO</u>
Torrance Police Department	X	
Ventura County Sheriff's Department		X
Ventura Police Department	X	
Vernon Police Department		X
West Covina Police Department		X
Westminister Police Department	X	
Whittier Police Department	X	
TOTAL	52	20

APPENDIX III

SURVEY OF POLICE OFFICERS - COLUMBUS, GEORGIA

This is a survey to determine why officers in this department use the type of revolver they use, and with what type of service revolver they would feel more confident. Please answer all of the following questions as carefully as possible. If you do not have sufficient space to answer the question, please use an additional sheet of paper.

1. What type of revolver do you presently carry on patrol?
 - a. .38 caliber service revolver
 - b. .38 caliber personally owned revolver
 - c. .357 magnum revolver
 - d. Other, please specify
2. What type of ammunition do you presently use on patrol and why? If you use more than one type of ammunition answer this question for each type.
3. What type of weapon would you like to see the department issue as a service revolver?
 - a. .38 caliber revolver (presently issued)
 - b. .357 magnum revolver
 - c. Other, please specify
4. Please state why you chose the weapon you did in question #3.
5. What type of ammunition would you like to see the department issue as service ammunition and why?

SURVEY (Continued)

6. Placed in a situation which would require the incapacitation of a target to be complete and to occur within a few seconds at a short range, do you feel....
 - a. that a .38 caliber pistol with standard ball ammunition would have the desired effect?
 - b. that a .38 caliber piston with a different ammunition would have the desired effect? What type of ammunition?
 - c. that a .357 magnum pistol with standard ammunition would have the desired effect?
 - d. that a .357 magnum pistol with a different type of ammunition would have the desired effect? What type of ammunition?
 - e. that another type of revolver would have the desired effect? What type of ammunition?
7. Do you feel that a difference in weapons carried by the patrolman has a significant psychological effect on that officer? Please explain.
8. Please expound on any aspects of service revolvers that you feel are pertinent and were not covered above.

END