RESOURCE ALLOCATION
IN THE POLICE SERVICE

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Introduction

Responding to growth in crime rate, population, motor vehicles and legislation, chief officers have gone to their Police Authorities to ask for increases in manpower to combat growing complexities of policing. However, the recent and present financial restrictions on public spending have forced a rethink on the way to tackle the problems.

Fortunately, or perhaps because of this, there has been a growing use of quantative management techniques in relation to police work. The result is that senior officers are now having to look at ways of improving the productivity of personnel already employed before asking for an increase in establishment.

Unfortunately, the new and sometimes obscure terminology of the management techniques and the use of seemingly complex equations has meant that operational police officers have been reluctant to accept this system. Other problems have been the misunderstanding of which technique to use and the significance or otherwise of the end result. Consequently some of the applications have been to say the least, sloppy and the end results have been inconclusive if not misleading. There has also been the acceptance of some people that the end result is a concrete answer and when they discover that in fact all they are given is an indicator, they dismiss the entire science as a waste of time. It is hoped that these misconceptions can be dispelled in the following chapters.

The policing function itself is rooted in law and as such it is and always has been, relatively easy to state the broad objectives of the police. The defining of the police role in relation to the objectives is a much more elusive task and is subject to many pressures, especially where the social service role of the police is involved. This aspect of policing appears to have grown over recent years. This is inspite of the proliferation of social service workers and it would be inappropriate for police officers to assume roles in this field for which they are neither trained nor have a mandate.

This changing role of the police means that it is no longer possible to rely solely on the definition of the Police given by Sir Richard Mayne, first Commissioner of the Metropolitan Police:-

"The primary object of the Police is the prevention of crime, the next that of detection and the punishment of offenders when crime is committed; to these ends all efforts of the police must be directed."

Whilst this is still a valid objective, there is a need to look at the actual needs of the community and then try to match these needs as realistic as possible with the available police resources.

"In future, police must abandon strategies which prevent extensive contact with citizens. They must direct their attention to improving the quality of police citizen interaction and to developing approaches to policing that reduce citizen fear."[1]

Given the obvious increase in demand for police service without a similar increase in resources, the problem is how to relate the two without any diminution of the quality of the service.

To answer this problem, one must venture into the field of productivity, a much misunderstood and misused word but it is merely the relationship between inputs and outputs. Most people are of the opinion that it is a concept which can only be used in areas where there is an easily identifiable end product. This is not so, as long as one has measures which can be used as indicators as to output, then it is possible to use the concept of productivity. Whilst one cannot transfer the concept as it is straight from the producing type of industry, one can use it in at least the following ways:-

First by allocating resources to activities which give the greatest return for each unit spent. To do this effectively it is necessary to audit the different departments within a police force and act accordingly, e.g. it might be that the efficiency and effectiveness of a traffic patrol department would not be affected by reducing the department by one vehicle and the officers needed to keep that vehicle on the road, the resultant savings could then be used as a road safety unit which could be shown to have positive results. This is merely a hypothetical situation but the theory and application applies across the entire spectrum of the police function. The main catalyst is that senior officers ask whether the force is doing the right things as well as doing things right.

Second by updating and improving current police practices to the best level known thus securing an increase in performance without a proportionate increase in costs. This means that it is necessary to ensure that not only are police officers performing their duties but that they are performing them as well as the best current practices permit, also that they are spending as much time on their main designated duty as possible, e.g. a detective officer who has to spend a considerable period of time filling out complex reports, and administrative functions is not performing his main task of investigating crime. By reviewing and if possible reducing the reports, both in number and complexity and by spreading the administrative functions to an administrative area that has some spare capacity, one is freeing the detective and quite possibly having the administrative work done more efficiently.

Third by full utilizing the talents of police officers, for not only are officers expensive to train for their particular duty, the majority of them also bring into the service an expertise gained in an occupation prior to joining the police service; e.g. an officer who has trained and has experience in accountancy would be an asset in a large fraud investigation. Additionally, the experience an officer gains in some off duty activity may be relevant to a particular aspect of police work, the example which springs readily to mind is the officer who is a scuba diver, by placing him in an underwater search unit. Both of the examples given have the advantage of using the expertise of the officer without paying for him to gain it. Another facet of this aspect of productivity increase is the identifying of an officer' strengths at an early stage in his career so that he can be guided in career development as soon as possible which as well as being a benefit to him, will also benefit the force by enabling senior officers to plan ahead in staff placement. To ensure that the maximum information is available to senior officers responsible for staff placement it is necessary to have a good staff appraisal system which is easily accessible with various level of reference and cross reference.

Fourth by establishing and maintaining a good management information system, to enable officers at all levels to cope with changes in the situation as they occur. This applies in the administrative area e.g. preventing the printing of a large amount of a particular form just before it is superceded by a new form; as well as the operational area, where senior officers can, by careful analysis of all available data, more accurately predict when trends are beginning and patterns of incident occurring thus deploying personnel where they will most likely be needed.

Two terms that have been used in the previous paragraphs need further explanation for they are the constituents of the productivity theme. They are efficiency and effectiveness. Too many people use these words indiscriminately and indeed transpose them without fully understanding their meaning. Throughout this report, the term efficiency will be used to indicate the achieving of a given result with the minimum expenditure of resources, the main emphasis being on the resources consumed. Effectiveness will be used to indicate meeting defined objectives or goals without regard to the amount of resources consumed to meet them, the main emphasis being on achieving results.

Given the above factors there are two ways that productivity can be demonstratively be seen to increase:- first by increasing outputs, that is calls for service, arrest rates, crimes cleared up, etc. without the proportionate increase in resources and second by maintaining the same level of service and reducing costs. This way is very unlikely given the present rate of inflation, indeed if the service can be maintained at the same level for two years running without any increase in costs, can be said to meet this criteria. The main point is that the service is maintained at a given level, or improved, whilst the costs are reduced, or maintained at the same level, this obviously being a potent argument in favour of further research and commitment to the concept.

The first step, as in any major operation, is to provide a framework to fit or compare the chosen system or systems. The most difficult part of this framework is the setting of objectives, for these must be specific and not the normal wide sweeping type normally used, e.g. the objective to 'reduce crime' is difficult to meet because it is wide ranging and includes all crime, whereas with the stated objective being to reduce burglary within a certain area it is much easier to establish the success or otherwise of any programme developed to cope with the problem.

One must also take cognizance of the fact that there are several levels of meeting a given objective and a level must be selected in drawing up the framework in order that a clearly defined target can be established.

Finally there should be enough flexibility to allow for any unexpected occurrance yet firm enough to maintain the programme as originally defined.

It is also a good idea to follow through a set pattern of steps whether the programme is for a major change or merely a shift of emphasis, the normal type of pattern can be shown schematically as follows:-

Steps   Constituents

| Needs | Should include citizen perceived, as well as police perceived |

| Objectives | Should be closely defined and capable of meeting needs |

| Alternatives | Should include all alternatives no matter how unrealistic |

| Plans | Full plans should be drawn up for the desired scheme |

| Implementation | Should include consultation with officers responsible for working the scheme |

| Monitoring | Should be an ongoing process from the start |

| Review | To establish whether the desired objective has been achieved |

By following such a pattern, a system of management information develops enabling senior officers to be fully aware at all stages of the programme and how it is progressing instead of having to rely on instinct.

This point is of vital importance, for without productivity measurement it is not possible to have productivity improvement. Whilst at first, this may seem an extreme statement logic puts it into perspective, for without measurement how is one to know what areas are in need of improvement before they become crises.

The early identification of potential problems is a benefit of productivity measurement. In addition one needs to know how recently implemented programmes are progressing and if in fact there is any benefit to be gained. It must be remembered that productivity measurement is not an end in itself, it merely provides another aid to senior officers to enable them to make better decisions and utilize resources in areas that will benefit most.

There are several levels at which productivity can be measured, each one growing more complex owing to the increase in scale. They can be summarised as follows:-

1. The productivity of individuals, be they police officers or civilians.
2. The productivity of reliefs, sub divisions, special patrol groups etc.
3. The productivity of departments such as Criminal Investigation Department, Traffice Department, etc.
4. The productivity of the Force as a whole.

Of these levels it is probably that those most used will be levels 2 and 3, for level 1, except in special circumstances, would be too time consuming and level 4 will generally be too complex.

Several of the systems, programmes and concepts which will be discussed later have been developed in the United States of America and Canada, they should not be dismissed because of this. The United Kingdom Police Forces should drop their insular attitude. It would be to their advantage to seek answers to their problems over a wide ranging field, be it commerce, industry or foreign police forces. This way they will gain the best solutions and thus become leaders in the race to improve and not followers. By using and adapting ideas and systems developed elsewhere, costs will be kept to a minimum whilst benefits will increase out of proportion.

Sources

Introduction

1. George L. Kelling – Police Field Services and Crime – Crime and Delinquency April, 1978.

Patrol

The most visible, obvious and greatest consumer of the police manpower resource is the patrol function. The primary emphasis being uniform patrol which has been used to establish police visibility and presence in a community as a means of deterring crime, providing a speedy response to calls for service and dealing with incidents as they occur. This patrol aspect of policing is nearly as old as the police concept itself and whilst the Scottish police have the function incorporated in statute, thus:-

a)   to guard, patrol and watch so as-
1)   to prevent the commission of offences against the law.
2)   to preserve order
3)   to protect life and property;[1]

The English and Welsh Police Service have their role incorporated in the unwritten development of the modern police service. This is shown by the use of the term traditional preventive patrol to describe the role of the patrol usage within the police function which has been long enough established to be termed traditional.

Traditional preventive patrol is the obvious place to start an examination of the patrol function not only because of its long use but also because a great deal of time, effort and money has been poured into research into the effect and validity of such patrol.

This type of patrol has been defined as the routine movement of uniformed officers by vehicle or on foot through delineated geographic areas.[2] This reference to area is important for this is the first area of possible improvement. It will be dealt with more fully later, but it is necessary to mention here that in some forces beats remain constant over a large period of time, without any regard to change in circumstance within those areas.

Divisions within a force tend to be drawn up along Petty Sessional boundaries in order that they fit in with petty sessional court areas. This may be advantageous administratively but it sometimes leads to operational difficulties which outweigh the advantages.

Different experts and authorities may disagree in the ranking order of the goals of patrol but it is generally agreed that they consist of:-

- deterrence of crime
- apprehension of criminal offenders
- satisficing of public demands for non crime services
- providing the community with a sense of security and feeling of confidence in its police force

and to a lesser extent:-

- the recovery of stolen property[3]

These goals, whilst they are not all encompassing, do cover the greater proportion of areas of the police and community perception of what patrol is expected to achieve. The way in which they fit in to the expected duties of a patrolling constable is shown by the following duties:-

1) the maintenance of order;
2) the prevention and detection of crime;
3) the protection of life and property;
4) the control of traffic;
5) the dealing with street occurrences, nuisances, dangers and offenders[4]

One can see that one field of duty performance may provide inputs into more than one of the stated goals at the same time it may take the inputs of several fields of duty to satisfice one goal. This is an important factor which shows the complexity and difficulty of the application of the productivity concept to the police service. There is very rarely a simple answer so one must be constantly aware of peripheral matters as well as the main theme whenever one is involved in the various stages of any scheme or application.

The goals themselves need fuller explanation if one is to try and influence the police impact on fulfilling them.

Deterrence

This term is usually linked with prevention, but the two are distinct areas, for deterrence involves the performance of some activities which give rise to the increased likelihood of apprehension in the mind of the potential criminal, whilst prevention is aimed at making the criminal task more difficult regardless of the likelihood of apprehension.

Deterrence as a patrol goal should be regarded as the most important, but one should not overlook the opportunity to provide prevention advice, whether it be crime or non crime as the occasion arises. The concept of deterrence is probably responsible for the development of the uniformed police officer or the marked police car, for the use of a highly visible police presence is traditionally reckoned to be the main form of deterrence.

This is the idea that in the offenders perception the greater the police presence the more likely his apprehension will be. This was the argument used by senior officers to gain increases in establishment. Indeed the cry of politicians and citizens alike whenever a need arises is to put more policemen on the street. This view is held by some experts as being very relevant. I. Erlich, a noted American sociologist, whilst discussing the deterrent effect of capital punishment in the American Economic Review stated that he believed that the number of offences was inversely proportional to the likelihood of detection and the amount of deterrence.

However, this assumption of the deterrent effect of high visibility in patrol has been questioned recently by such research as the Preventive Patrol Experiment in Kansas City. There is disagreement over the validity of the results of this experiment and also the interpretation of the results. Even so, the facts have to be considered, for if it is found that there are no benefits accruing from high visibility patrol, then one can disregard it when looking at patrol effectiveness.

Briefly, the complete results are contained in a 960 page report, the facts of the experiment were: fifteen of the beats in Kansas City were randomly divided into three groups, in one group routine preventive patrol was eliminated and officers were told to respond only to calls for service; in the second group routine preventive patrol was maintained at the previous level; in the third group preventive patrol was increased to two or three times the previous level. Special measures were taken to insure the objectivity of the experiment. The researchers found that in all three groups there was little or no variation in the following factors:-

Numbers of burglaries, car thefts, thefts of car accessories
robberies and vandalism
Rates of crime reported to the police
Citizen fear of crime, attitude towards police services
satisfaction with contact with police officers
Actual and citizen satisfaction with response time.

Whilst, as has already been stated, this experiment has its critics, it does show that there is room for change within the accepted pattern of patrol without having any adverse effects on crime rate or citizen satisfaction with the police service. It also shows that there is a great need to look at all assumptions within the police service with a view to validating or rejecting them as the case may be.

Even though deterrence is thought to be the major goal of patrol there has been very little attempt to obtain direct measurements, for how does one measure the number of crimes that have not been committed, or incidents that have not occurred because of the police presence? The main indicators that managers have to rely upon are secondary ones which include:-

1) changes in crime rate
2) reduction in police response time
3) increase in crime arrests

These three indicators alone show the difficulties in using secondary measurements e.g. changes in the crime rate, may be a result of the deterrent factor, but it could be that an increase is due to an increase in police visibility 'persuading' more citizens reporting crime so the increase is in fact due to a change in reporting rather than in actual crime rates.

Also a large proportion of reported crime is not preventable, that is it occurs in circumstances and situations which are not possibly affected by a visible police presence.

Reduction in response time may be a result of a change in traffic conditions; increase in crime arrests may be the result of increases in the CID. It also presumes that the would be criminal approaches his criminal act rationally with up to date arrest rates.

Even allowing for these difficulties, because of the past assumption of the importance of the deterrence effect of patrol, it is imperitive that efforts be continued to identify legitimate and usable measures which will indicate the validity or otherwise of this assumption, because a high percentage of resources are committed to this.

Apprehension

This is generally thought to be the second goal of the patrol function and it, as has
already been indicated is closely related to deterrence, in fact some authorities state
that the certainty of apprehension is the most important deterrent factor. It is
commonly assumed that by increasing the number of officers on patrol will lead to
a greater number of persons arrested because of the increase in the chance of inter-
cepting an unlawful act in progress, empirically there is no basis for this assumption
but at the same time the evidence to suggest the opposite is also lacking.

The most important fact to be taken into consideration when looking at arrest rates
is not just the quantity but also the quality. This can be difficult because one has to
resort to subjective judgements. It is necessary however, because the number of
arrests can be pushed up, if too great an emphasis is placed on this goal, by a
minimal type of arrest.

This is an arrest where either there is a power of arrest but the circumstances are
such that it is normally dealt with in another way or the circumstances do not include
all the conditions necessary to take the offender before a court and he/she is released
without charge. Neither is an unlawful arrest, but because of the emphasis on
apprehension as an objective or a measure of success this leads to an insufficient
screening procedure before a decision is made to arrest.

One should also take cognizance of the fact that, as a measure, arrest rates should not
be used on their own, but must be looked at in conjunction with other measures, such
as reported crime rates, to establish whether any change in arrest rate is proportionate
to the changes in other rates. Or, if it is the only variable, with the other measures
remaining static.

Provision of Non Crime Related Services

The provision of non crime related services is a growing consumer of police resources
and as has already been stated, it is a continually growing provision. The list of these
activities is phenominal. One American survey included over 3,000 different
activities which were performed on a regular basis by police officers.[5] The activities
range from all aspects of traffic control, crowd control to assisting persons who
have lost their way.

Also because of the fact that the police service is a constantly available service, police officers are called upon to perform tasks during unsocial hours, night times and weekends, which are normally performed by other services. The acceptance, by the police service as a whole, of the service provision role has grown through time because it has been seen to be a contributory factor in the police public relations improvement role. Also, it has been felt that it in no way detracts from the general effectiveness of patrol.

However, as the need for such services has increased, as well as the increase in crime rates, greater publicity and public awareness of various aspects of crime has called into question the provision of such services.

The main argument for the continued use of the police to supply the service provision is that they alone have the facilities and capabilities for the provision, therefore they can do it more efficiently than any other agency. It is also thought that the public now expect the police to continue to perform this duty. The arguments against this are also persuasive, the main one here being that the need to provide police res urces to answer non crime related calls reduces those available to service the crime related duties. The latter are seen to be the most important goal by some experts.

This diminuation of resources is then seen as a lowering effectiveness of the police in their primary role and it has been used as an argument for using expensive police resources only for crime related tasks and provide less expensive resources to deal with non crime related tasks.

To a certain extent, this has already been done in several field, most notably by the provision of traffic wardens who have, in most major cities in the U.K., taken over the responsibility for traffic parking and movement thereby freeing police officers for crime related tasks and also absorbing some of the antagonism of the motorist.

In Rochester, New York, police officers can call on trained social workers to attend domestic disturbances, if the problem is going to need some time spent on it.

Another suggested method that attempts to make the non crime related tasks subordinate to crime related tasks is the establishment of a priority system of dispatch in relation to the calls for service.

This is now a common practice in the North American Continent. It has a lot to commend it and the development and implementation of such a system is dealt with later. Basically however, it means that the first priority contains calls for crimes in the process of being committed, officer requiring assistance, etc. and such things as noisy dogs, found or lost property etc. being relegated to lower priority.

Providing a sense of community security and confidence in its police force

This goal is assumed to be dependent upon the previous goals, for it is thought that a high level of deterrence, apprehension and the provision of non crime related services will be perceived by the community and will be translated by them into security and confidence in its police force.

Because of this assumption, very little effort has been put into establishing its exact relationship within the entire patrol function. With the recent recognition of the importance of this goal on its own, it has been realised that some other factors, unrelated to the previous goals, such as the demeanour of the patrol officers; their characteristics such as language skills, sex, etc. It has also been found that the level of police corruption, known and perceived, is an important factor in relation to this specific goal. Because of the newsworthy aspect of police corruption it receives considerable media publicity and therefore presents a biased view to the community, for good policemen being the majority are not so newsworthy.

If one accepts the concept that police officers actually perform their duties only with the consent of the community, then one realises just how important it is to take a more positive role in relation to this goal achievement. This can be by the creation of specialist community relations units or special training for patrol officers, or can be extensive as in the Santa Ana, Los Angeles Community Oriented Team Policing Plan where it is stated that "Team Policing, is aimed at building a closer working relationship between the public and the police."[6] It goes on to state further that "A very efficient team might control or occasionally reduce crime within their assigned district without community involvement. However, significant and consistent reductions can only be achieved through the development of a correlated community involvement programme, and the establishment of mutual police and community objectives to resolve specific problems as they arise."[7]

In the U.K. this problem has been recognised by the development of community
relations teams, school liaison teams, race relation teams and juvenile liaison teams.
The creation of such teams is a considerable consumer of resources and is possibly
counter productive in so much as it reduced the manpower available for patrol, which
has been thought to be the most important progenitor of community security. A more
effective way to achieve this goal may be to change the emphasis in training to make
each patrol officer his own community relations officer.

Recovery of Stolen Goods

This goal is, again in general, dependant on, and a consequence of, satisficing the
first 3 goals, probably the main exception is the recovery of stolen motor vehicles.
Because of the peculiarities of this type of crime, the majority of stolen motor vehicles
are taken to provide the offender with transport and thereafter abandoned, means that
it is up to officers to spot these abandoned vehicles whilst they are on patrol.

The bulk of the rest of recovered property is generally recovered by the CID during
the course of their investigations, but by aggressive proactive patrol using selective
vehicle and person checks, patrol officers can be responsible for the recovery of a
considerable amount of stolen property. This can enhance the effectiveness of the
patrol force.

These then are the recognised goals of the traditional preventive patrol system but
it would be wrong to leave them without looking fully at the assumed interrelationships
one with another. For simplicity these are summarised and given in list form as
follows:-

Deterrence

Goal Reinforcement	Goal Interference
Apprehension.	

The higher level of apprehension the greater the deterrent effect of patrol.

1. While high visibility may enhance the deterrent effect of patrol, it may also detract from the apprehension effect by diminishing the probability of intercepting a crime in progress.

2. The greater the commitment of patrol resources to investigate activities, the lower the level of deterrent effect. The obverse also applies.

Provision of Non Crime Related Services.

Service provision affords a heightened opportunity to develop citizen support and co-operation thereby enhancing the deterrent capability of the patrol force.

The greater the level of service provision, all else equal, the lower the level of resources available for patrol and the lower the level of deterrence. The obverse also applies.

Community Security and Satisfaction.

The higher the level of deterrence, the greater the feeling of security and the greater the level of citizen satisfaction with the police.

1. The higher the level of aggressive patrol activity, the higher the level of deterrence, but the lower the level of citizen satisfaction.

2. As the level of citizen satisfaction and security may derive more from the provision of non crime services then from the deterrent effect of patrol, the greater the resource commitment to deterrence, the lower the level of citizen satisfaction.

Recovery of Stolen Goods.

1. The higher the level of deterrence, the less the need to recover goods.
2. The more aggressive the patrol activities, the more likely the recovery of stolen goods (but not necessarily prompt return to rightful owner).

1. Time spent on deterrent activity may decrease the ability of the force to recover stolen goods, and vice versa.
2. Time spent on aggressive patrol activities may alienate the community and interfere with the flows of information which may enhance the capability to recover stolen goods.

Apprehension

Goal Reinforcement

Goal Interference

Provision of Non Crime Related Services.

Service provision affords a heightened opportunity to develop citizen support and co-operation thereby enhancing the apprehension capability of the patrol force.

The greater the level of service provision, the less time for patrol activities and the lower the apprehension level. The obverse also applies.

Community Security and Satisfaction.

The higher the level of apprehension effected by patrol, the greater the level of felt security and satisfaction.

1. The higher the level of aggressive patrol activity the higher the level of apprehension, but the lower the level of citizen satisfaction.
2. As the level of satisfaction and security may derive more from the provision of non crime services then from the apprehension effect of patrol, the greater the resource commitment to apprehension the lower the level of citizen satisfaction.

Stolen Goods Recovery.

The higher the level of apprehension
the higher the level of goods recovered
(but not necessarily prompt return to
rightful owner).

All else equal, attainment of goals of
goods recovery and apprehension do not
interfere with one another.

Provision of Non Crime Related Services

Community Security and Satisfaction.

The higher the level of non crime related
service provision, the higher the level
of felt security and satisfaction.

As the levels of apprehension and deterrence
may have more of an impact on citizen
satisfaction and felt security than does the
level of service provision, the greater the
commitment of resources to service pro-
vision, the lower the level of felt security
and satisfaction.

Stolen Goods Recovery.

Service provision affords a heightened
opportunity to develop citizen support
and co-operation thereby enhancing the
recovery and capability of the patrol

The more resources committed to the
recovery of stolen goods, the less
resources available for the provision of
services. The obverse also applies.

Community Security and Satisfaction

Stolen Goods Recovery.

The higher the level of goods recovery,
the higher the level of felt security and
satisfaction if and only if the goods are
promptly returned to the rightful owner.

As the recovery and return of stolen goods
may have less an impact on felt security
and satisfaction than the deterrence,
apprehension and service provision activit-
ies, all else equal the more resources
expended on goods recovery, the lower the
level of felt security and satisfaction.

The apparent contradictions in these assumed relationships are indications of the massive problems facing the senior officers who have to deploy officers to patrol functions. They have very little or no guidance as to the relevance of the different goal achieving programmes which they wish to implement. It is no wonder then that the application of modern quantitative management techniques has been difficult and the mistique of the policing function has been maintained, for it appears that nothing is quantifiable and one can use the assumptions to back up one's arguments regardless of what they are.

Fortunately, the prevailing tactical and strategic assumptions of the intermediate objections are a greater help as indicators of achievement of desired goals. Even so, one must remember that current research is tending to show that some of these long held assumptions are incorrect, but because of the length of time that the assumptions have endured, it is difficult for police officers to accept the diametrically opposed ideas as they become apparent from the research. Therefore they look for any inadequacy in the research methodology to explain the discrepancy. If the same effort was put into looking into the relevance and strength of traditional assumptions very few, if any, would be acceptable.

The intermediate objectives are easier to meet than the total goals, therefore the senior officers can plan to directly affect these objectives by changes in the utilization of resources. These assumptions, again taken from Traditional Preventive Patrol, include items which in general are not normally recognised as having a strong influence on patrol goal achievement in the U.K. but it is felt that they are in fact relevant. The list with the given assumption, and if applicable the counter assumption, in relation to the general goals of patrol are:-

Objective - <u>Level of Preventive Patrol</u>
Goals Deterrence.

The higher the level of preventive patrol, the greater the deterrent effect of the patrol force. The more aggressive the activity of the patrol, the higher the deterrent effect due to the communication of increased presence and attentiveness to duty.

Apprehension.

The higher the level of aggressive activity, the greater the level of apprehension.

Provision of Non Crime Related Services.
All else equal the greater the level of aggressive activity, the less time available for the provision of non crime related services.

Community Security and Satisfaction.
Counter assumptions held equally are:- 1. The greater the level of aggressive activity, the greater the level of security and satisfaction, due to the increased level of attainment of the goals of deterrence, apprehension and goods recovery. 2. The greater the level of aggressive activity, the more dissatisfied the general public as they come to view the police as a hostile force.

Stolen Goods Recovery.
The more aggressive the patrol force, the greater the level of goods recovery, (though not necessarily the prompt return to the rightful owner).

Level of Visibility

Deterrence.
The higher the level of visibility, the greater the deterrent effect of the patrol force.

Apprehension.
The higher the level of visibility, the less likely the patrol officer is to intercept a criminal in the act of a crime.

Provision of Non Crime Related Services. (N.C.R.S.)
Visibility has little effect on service provision all else being equal. The effect which does exist derives from the enhanced ability of the citizen to hail an officer on patrol.

Community Security and Satisfaction.
The higher the level of visibility the greater the sense of felt security and satisfaction with the police.

Stolen Goods Recovery.
Through its impact on apprehension, the level of visibility effects goods recovery.

Level of Predictability of Movement

Deterrence.
The less able the would be criminal is to predict the presence of the patrol unit, the higher the deterrent effect of the patrol activity.

Apprehension.
The less predictable the movement of the patrol unit, the more likely that the unit will intercept a crime in progress and apprehend the perpetrator.

Provision of N.C.R.S.
The level of predictability of movement has no effect on service provision, all else equal.

Community Security and Satisfaction.
The level of predictability of movement has an indirect effect on felt community security and satisfaction through its direct impact upon deterrence and apprehension.

Stolen Goods Recovery.
Through its impact on apprehension, the level of predictability affects the level of goods recovery.

Level of Response Time

Deterrence.
The lower the response time the greater the deterrent effect of the patrol operation as the would be perpetrator perceives a heightened probability of apprehension.

Apprehension.
Particularly with regard to responding to criminal acts in progress, the lower the response time, the higher the probability of apprehension.

Provision of N.C.R.S.

The lower the response time, the more rapidly the service can be performed. With regard to emergency medical situations and to other circumstances which could escalate into criminal acts, response time is critical to effective service provision.

Community Security and Satisfaction.

The lower the response time to any and all calls for service, the greater the level of felt security and community satisfaction (We note however, that a step function exists with regard to perceptions of elapsed time). Therefore, small reductions in time are likely not perceived.

Stolen Goods Recovery.

Through its impact on apprehension, the level of response time affects the level of goods recovery.

Level of Service Provision

Deterrence.

All else equal, the higher the level of non crime related service provision, the lesser the availability of units for preventive patrol and the lower the deterrent effect of the force.

Apprehension.

All else equal, the higher the level of non crime related service provision the higher the response time to crime related calls for service and therefore the lower the probability of apprehension. In addition, non crime related services detract from the time available to enforce local ordinances.

Provision of N.C.R.S.

Community Security and Satisfaction.

The higher the level and quality of service provision, the greater the level of felt security and satisfaction with the police.

Stolen Goods Recovery.

Through its impact on apprehension, the level of service provision affects the level of

goods recovery. In addition, the amount of time the unit spends out of service affects the time available to check for stolen cars.

Level of Officer Compatibility with Community (Similarity of Race & Language Skill)

Deterrence.
Counter assumptions held equally:
1. Compatibility has no effect on deterrence.
2. Compatibility enhances respect for the officer and thereby respect for the law, increasing the deterrent effect of patrol.
3. The higher the level of compatibility, the greater the likelihood of officer corruption and, therefore, the lower the deterrent effect.

Apprehension.
Counter assumptions held equally:
1. Compatibility has no effect upon apprehension
2. Compatibility improves apprehension level as it engenders increased community co-operation with the police.
3. Compatibility increases the likelihood of corruption and thereby has a negative effect upon apprehension of those so protected.

Provision of N.C.R.S.
The greater the level of officer compatibility, the more efficiently and adequately the officer is able to provide non crime related service.

Community Security and Satisfaction.
The greater the level of officer compatibility, the greater the level of felt security and citizen satisfaction.

Stolen Goods Recovery.
Through its impact on apprehension, the level of compatability effects the level of goods recovery.

Level of Officer Knowledge about the Community

Deterrence.
Counter assumptions held equally:

1. The level of officer knowledge does not affect the level of deterrence (assuming a random patrol model).

2. The higher the level of officer knowledge, the more thorough the patrol of areas at times of high crime opportunity and, therefore, the greater the deterrent effect.

Apprehension.

Counter assumptions held equally:

1. The level of officer knowledge has no effect on the level of apprehension.

2. The greater the knowledge, the more likely the officer will intercept crimes in progress, and the more likely to be able to find a fleeing or hiding suspect and search an area.

Provision of N.C.R.S.

The greater the level of knowledge, the more able the officer to provide effective and efficient services.

Community Security and Satisfaction.

The greater the level of knowledge, the better able to tailor the patrol activity to the perceived needs of the residents, thereby enhancing their level of felt security and satisfaction.

Stolen Goods Recovery.

Through its impact on apprehension, the level of community knowledge will affect the level of goods recovery, and thus the assumptions are contradictory. Note in addition, the level of knowledge enhances the ability to conduct a search for stolen cars in particular.

Level of Officer Corruption

Deterrence.

The lower the level of corruption, the greater the deterrent effect of the patrol force.

Apprehension.

The lower the level of corruption, the greater the apprehension level of the patrol force.

Provision of N.C.R.S.

The lower the level of corruption, the greater the equity of service provision.

Community Security and Satisfaction.
The lower the level of corruption, the greater the level of felt security and satisfaction
due to the increased level of attainment of all other goals.

Stolen Goods Recovery.
The lower the level of corruption, the greater the level of goods recovery (though not
necessarily the prompt return to the rightful owner).[9]

Now we have looked at the five goals of patrol and at the eight intermediate objectives
which go to the realisation of the goals. It might be said that they are all so obvious
that all senior officers are aware of them. This may be so, but because of the inter-
actions, one needs to be constantly aware of the entire field as one plans any change
and it is because one needs to be aware of all aspects that they have been presented in
the form that they have been.

Having carried out an examination into traditional preventive patrol it is now a logical
point to examine the ways that senior officers have attempted to improve the impact
of the patrol officer in relation to the overall picture. For all that the number of
different schemes is considerable, it is felt that all schemes can fall into one or both
of the following categories:-

Split level patrol
Team Policing.

Examples of such variations can be found in policing both in the U.K. and the North
American Continent. Some of the variations have been an unqualified success and
other similar variations have been failures. Often the reasons for this difference can
be found in the implementation methods used, the lack of the formation of definite
objectives, and by the failure to correctly match the needs to the objectives.

Split Level Patrol

Basically, the Split Level patrol concept incorporates the reduction of the normal
patrol force and using the resources thus freed to form a tactical patrol group. This
group is then given specific roles and objectives and freed from the need to answer
calls for service. This need for a tactical patrol force has been described thus:-

"In addition to the routine preventive patrol which is basic to all good police service, many departments need auxiliary mobile striking forces which can be called upon to meet the unusual situation or the concentration of criminal activity. These forces can be sent rapidly in the case of an emergency or their activities may be planned ahead as a result of study of incidents which because of their repetitive pattern may be expected to recur."[10]

To this extent, this method tends to separate the community initiated calls for service provision and the police initiated deterrence and apprehension provision. Such as the anti vandal patrol initiated by Cleveland Police in their Stockton Division which reduced the incidences of vandalism in that Division.

To some this appears to be a panacea for all problems and indeed it can be beneficial if carefully planned and implemented, starting initially with the selection of officers to man the patrol group, through to the evaluation of results. As with all systems there are potential advantages and disadvantages with the creation of a specialized patrol group, the problems that have to be faced in the planning and implementation stages are summarised as follows:-

Potential Advantages

1. Clear placement of responsibility, specialization places the responsibility for the performance of specific tasks and the achievement of specific objectives with a particular group of officers.

2. High levels of morale and Esprit de Corps, specialized patrol units are usually comprised fairly small groups of officers who are freed to do what they believe is "real police work" and as a result develop a sense of enthusiasm and pride in their work.

3. Improved training and skill development, specialization in a narrow area of police work allows for more intensive training than is economically feasible for the entire patrol force.

4. High level of staff commitment to assigned responsibilities, officers in specialized patrol units frequently develop a strong sense of pride in their unit's ability to handle its assigned responsibilities.

5. Positive public interest, specialized patrol operations frequently arouse a considerable amount of positive public interest and media attention.

Potential Disadvantages

1. Problems of co-ordination and co-operation between specialized units and the general patrol force, in general, by dividing up the responsibility for performing different facets of patrol, specialization can create problems in determining who is responsible for what and can develop into situations whereby the two groups are working independently or even at cross purposes with one another.

2. Negative effects on morale of the general patrol force, the creation of a specialized, often elite, unit can have a negative effect on the morale and job satisfaction of the vast majority of the patrol force which remains on general patrol duties.

3. Problems of maintaining unity of command, the generally accepted principle of unit of command asserts that one, and only one, individual should be in command of each police operation. This can be difficult with the loyalty to the specialized unit.

4. Reduction in general patrol coverage, specialization may detract from the total amount of resources devoted to patrol and may result in less intensive general patrol coverage.

5. Empire building by specialized units. These units may constantly attempt to expand their size, status, share of resources and areas of responsibility beyond initial intentions and because of initial success may actually be encouraged to do so.

6. Interference with officer development, officers assigned to specialized units usually develop high levels of expertise in narrow aspects of police work. Whilst this leads to excellent performance of immediate tasks it can interfere with long term development.

7. Negative public attention, whilst public reaction is generally favourable the use of specialized units as an aggressive shock troop force can lead to alienation by sections of the community and if offensive tactics are used, to the majority of the community.[11]

Specialized units have been formed under various names and job descriptions but in reality in relation to the patrol force these units could be grouped under the following:-

Uniform Tactical Patrol (U.T.P.)
Location Oriented Patrol (L.O.P.)
Perpetrator Oriented Patrol (P.O.P.)

or a combination of any of these.

Uniform Tactical Patrol Force

The greatest proportion of units fall within the first group and they range from the large riot police force in Japan, to withdrawing 2 or 3 men from general patrol and forming them into a temporary specialist unit to deal with a specific temporary problem.

As the title suggests, this is meant to be a highly visible patrol force and it may be either reactive or proactive as the circumstances dictate. In general these units are formed to deal with crowd control and unusual problems, from the riot situation to the visiting public figures, from the armed barricaded person to traffic control at large gatherings.

Consequently, the training for such units concentrates on crowd control situations and developing the unit into a cohesive term, as has already been mentioned, training can be intensive because of the relatively small unit and it is often argued that this training is a key factor in the effectiveness of specialized patrol.

For the greater period of time most of the Special Patrol Groups in the U.K. fit into this category. Over the past few years, there has been the development of the Police Support Unit, comprising an Inspector, 3 Sergeants and 30 Police Constables which can be formed at short notice and sent to where they are needed within the force area or to other forces. This is an example of the temporary uniform tactical patrol force

and invariably they are used for crowd control. An American example of this temporary force is the well known Special Weapons and Tactical (S.W.A.T.) teams which in most forces are drawn from officers, albeit specially trained, performing general patrol duties, as the occasion arises.

Location Oriented Patrol

Whilst the U.T.P. is a highly visible deterrent force, both L.O.P. and P.O.P. are covert apprehension forces. L.O.P. as the name suggests, concentrates on likely geographical areas which may range from a specific building to an area covering several streets.

Staff for L.O.P. is normally drawn from the general patrol force, although because of availability, staff for a short period of time are sometimes drawn from U.T.P., indeed if the U.T.P. is large enough then they will regularly perform L.O.P.

In the U.K. there is a greater tendency to rely on the deterrent aspect of U.T.P. for there is not the incidence of robbery that there is in the U.S.A. and Canada. However, the most publicised form of L.O.P. has been in New York where heavily disguised officers patrolled the streets where a large number of muggings and purse snatches were occurring. In a reasonable proportion of these instances one of the officers presented himself/herself as a target to the potential criminal. There is a possibility that such tactics would be regarded as unacceptable in the U.K. but there is a precedence for all forces have used police officers as targets especially when a series of indecency offences is taking place.

Another successful application of L.O.P. is Dallas where just prior to Thanksgiving Day likely robbery targets are selected in order of priority. For the past 3 years up to 10 targets have been selected and within a week each year there has been a robbery at one of the targets. The resulting publicity has been attributed to the fact that there has been no increase in the pre Christmas robbery rate. In the U.K. the stake out type of L.O.P. is usually performed by members of the C.I.D. on receipt of 'good' information that an offence will be committed at that location. Whoever performs the L.O.P. the main goal still remains that of placing officers in high, or likely, crime areas to make arrests by intercepting criminals in the act of committing a crime.

Perpetrator Oriented Patrol

This tends to be the most covert of all the specialized patrols and as a result the officers are usually selected from those most experienced in this type of work, therefore they tend to be C.I.D. officers. The main goal of such a patrol is the surveillance of individuals and associates suspected of being actively involved in criminal activity, quite often referred to as 'target criminals'. That this form of patrol is successful there can be no doubt. At one point in 1971 a 6 officer Robbery Squad and their 14 officer support squad in Wilimington, Delaware, were responsible for the arrest of 210 out of 418 prisoners resident in Delaware Adult Prison.

However, one of the advantages of this type of patrol is not the arrest rate but the information gathered as a result of surveillance, this information is beneficial to the rest of the force. It is essential that these officers are given credit for information that leads to arrests. This will ensure that the information is distributed and not retained for personal use. Limited resources can be utilized to greater effect if the "wheel model" established in the Kansas City, Missouri, P.O.P. experiment[12] can be used.

This is when a person, place or thing becomes the hub of the wheel attracting groups of perpetrators to them. Once the hub is established then it is possible to concentrate on that. Criminal intelligence units have been operating for a considerable period of time in the U.K. They have basically been C.I.D. oriented but recent extention of the Crime Information Bulletins in London to the provision of a mug shot booklet of 100 active criminals to patrol officers has re-emphasised the observing, if not surveillance ability, of the general patrol force.

Even so, the mobility of criminals means that if surveillance has to be carried out there must be a force created to match the mobility of the criminal.

During the Kansas City, Missouri experiment, comparisons between L.O.P. and P.O.P. in 6 prior decided criteria of 1. Apprehension effectiveness; 2. Techniques involved in making arrests; 3. Arrest quality; 4. Disposition of target arrests; 5. Information generation; 6. Citizen complaints revealed that L.O.P. appears to be more effective in the first few areas, only in greater information generated and a smaller number of citizen complaints was P.O.P. more effective. L.O.P. produced more target crime arrests per officer hour expended, and a greater percentage of

these arrests for the more serious crime of robbery and also more charges being laid for target crimes.[13]

Team Policing

After a period of time when it appeared that everyone thought 'big was beautiful' and amalgamations of police forces in the U.K. were carried out in the name of efficiency and effectiveness in so much that the bigger units would be able to provide better and more services to the community; there is now a trend to try and emulate the police public relations indicative of the village bobby system by devising schemes to redevelop the police citizen interface by creating small units called teams, putting the police officer into the community.

Team policing itself is not a new concept. It was used quite extensively during World War II in the U.K. when there were serious manpower problems and even further back in the history of policing in the 13th century constables were appointed for and to work in their own parish and they organised the watchmen, served summons, inquired into offences etc.

Team policing has been defined theoretically as "the practice and process of structuring organisational change through team building at the management, supervisory and operational levels," and operationally as the "deployment of patrol resources into teams serving a recognised community or zone on a 24 hour per day basis under the command of a team leader .... (and) is an integrated and co-ordinated approach to the deployment of traffic, investigative and combining where appropriate, and formalized co-ordination and expansion of police constable and supervisory roles."[14]

This is the total view and as with other systems there are varying levels of team policing with the emphasis being placed on different goals, these levels are generally given as:-

1. Basic Patrol Teams
2. Patrol/Investigative Teams
3. Patrol/Community Service Teams
4. Full Service Teams

this gives the range from merely a different approach to the organisation of the general patrol force to the undertaking of all service provisions.

Basic Patrol Team policing is seen by forces that have implemented it as an organizational format which could possibly deliver basic patrol services to the community more efficiently. They see as the obtainable goals the improved manpower allocation, reduced response time and the quick clearance of service calls.

Patrol/Investigative Team policing as the name suggests is the delegation of the follow up as well as the preliminary investigation of all but the serious crime. In some cases detective officers are part of the team and retain this responsibility and in others the patrol officers are responsible.

Patrol/community Service Team policing is the addition of community relations to the basic responsibilities of patrol and again this can be achieved by the introduction of a specialist community relations officer to the team or by each officer of the team dealing with the problems or incidents as they arise.

Full Service Team policing is the most complex as it involves the decentralization of the patrol, investigation and community relations to the team. Occasionally some traffic duties have even been delegated to the teams. This type of policing can also be divided into the specialist and the generalist approach which have already been mentioned.

When one examines these different levels it is easy to see that the U.K. system of breaking a force area up into divisions and then sub divisions, with their own level of command is virtually an extention of the team policing system, yet just 10 years ago it was felt that there was a need to become more closely involved with the community and the Unit Beat Policing (U.B.P.) system was implemented. It was a system that was to provide, through two levels of patrol, a rapid response to calls for service and a personal police public interface.

This system promised a lot but eventually was regarded as unsuccessful and the reasons were various but included:-

1. Because of the complexities of policing it is very difficult to implement and the same system to every force and every area within that force, one needs to be aware of the peculiar needs of the community, both density and composition and adapt to meet those needs. In the U.B.P. system there was a blanket attempt to implement it country wide.

2. One cannot expect a system to be successful if one continually interferes with
   an integeral part of it, in U.B.P. resident beat officers were used as a reserve
   of officers who could be utilized when needed, a very low priority level was
   placed on their role. Consequently the police/public interface aspect was
   constantly disrupted. Additionally a higher priority level was placed on the rapid
   response aspect to calls for service and again this was maintained at the expense
   of the resident beat officer. As a result of all this, complaints came from members
   of the community that they only saw a police officer 'flashing' by in a car.

3. Before one can change the role or the areas of emphasis of a police officer, it is
   necessary to provide at least a modicum of training and guidance if the officer is
   to successfully adapt. In addition he must be made aware of the roles of other
   members of the system and his place in the system. Whilst a considerable amount
   of planning went into the U.B.P. system in relation to beats etc., the training of
   the officers was limited, for as it has been explained " the emphasis .... has to
   be on the person. The model won't work unless we have the understanding and the
   participation of the people involved."[15]

As has already been indicated lack of proper planning and implementation can be a
cause of failure of team policing and in a review of team policing in the U.S.A.[16]
three diverse departments, New York City; Dayton, Ohio; and Holyoke, Mass; found
that the major cause of failure was lack of implementation of the basic elements of
team policing.

One other reason for failure which is not often recognised is that of success. That is
the imbalance of success in one area at the expense of the entire programme. Several
officers, from supervision to patrol in Vancouver Police Department, British Columbia,
Canada, which has implemented full service specialist team policing throughout the
force area, stated that their success with the community relations aspect was so good
that there has been an increase in the calls for service, consequently an increasingly
greater proportion of time is spent responding to calls for service. Members of the
community have lost the reserve and now feel that they can legitimately call for a
patrol officer no matter what the circumstances. This is not surprising when one
considers that the general response from a police officer to a member of the public
who has proclaimed his hesitancy at calling the police, has been don't hesitate call us
no matter how trivial the incident.

This review has up to now not considered either the patrol officer characteristics or the patrol mode, whilst both are of vital importance to the patrol model it is only possible to look at them briefly because, first, it is not possible to change the characteristics of the officers already in service and with the average length of service being relatively short and growing shorter all the time means that the bulk of officers have a long period of service in front of them and second the patrol modes whilst limited in type need a complete review of their implications and impacts upon the patrol system and it is not possible to do so.

Taking the officer characteristics first the most important point is to try and improve the status of both the patrol and the patrol officer and thus encourage some of the better type of officers to remain in the patrol area. This is very important as in the past any officer who has shown any promise has been encouraged to move into one of the specialist departments. This has denuded the patrol department of the cream of the officers in a force area leaving, in general, the average and below average officer to man the patrol department.

It must be remembered that, practically without exception, all police officers must start their service in the patrol department it means that the officers providing the examples and the practical in-service training to the new recruits are not the best. Therefore in forces where this happened there is a need to encourage some of the best officers to remain in the patrol department in the U.K. This can only be done by improving the status of the patrol officer by improving his/her standing in relation to the other departments within the force.

The first step can be by removing the impression that a lateral move out of the patrol department is a form of improvement of position and a lateral move into the patrol department from a specialist department is a retrograde step.

In the U.S.A. and Canada they can use financial rewards to increase the status of the patrol officers and this is happening in several forces. In one, Santa Ana, California, they have created the position of senior patrol officer who is paid more than a detective officer of that rank and this extra emolument is only paid to those officers engaged in patrol. Experience there shows that after several years in patrol, most officers want,

and are given the opportunity, to move into the C.I.D. but after two or three years a good proportion wish to return to the patrol department, thus the patrol department benefits from the return of these experienced officers and the C.I.D. benefits from having officers on patrol who are aware of the problems and requirements of the department.

As to the patrol mode, that varies from foot patrol to fixed wing aircraft patrol and each type has benefits in a variety of circumstances, with the foot patrol being the cheapest but the least mobile and the aircraft, fixed wing and helicopter, being very expensive but extremely mobile.

In the U.K. the use of helicopters and fixed wing aircraft has been limited to very few crowd control situations because of cost and even in the U.S.A. it is mainly the large forces who maintain their own helicopters or fixed wing aircraft. The interesting point to come out of the mechanisation of the U.S.A. has been recently the return in some forces to the use of pedal cycles. In Los Angeles Police Department, an experiment of putting eight police officers in plain clothes on pedal cycles for an experimental period was so successful that it has been retained as a permanant mode of patrol. This is in addition to the 17 helicopters and the 1 fixed wing aircraft they possess at the other end of the scale.

With reference to foot patrol which is relatively rare in the U.S.A., in Portland Police Department, Oregon, the reintroduction of foot patrol officers in the down town area resulted in a reduction in crime. This apparent reacceptance of the old tried and tested methods of patrol shows that there are benefits from all modes and there needs to be careful analysis of all the modes and the circumstances where they can be used to the best advantage.

Patrol

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Call Priority and Response Time

The way in which a police force views and deals with its calls for service work load
is becoming more critical as the calls increase and resources remain limited. The
calls for service have become, in most forces, the major mechanism for directing
patrol operations and the response time the main measure of effectiveness of those
operations.

However, calls for service are only part of the total work load and as such they should
be viewed in perspective. A call for service should not have priority over all other
activities merely because it is a call for service but because of its type. It is
obvious that some calls for service require an immediate response whilst others
can be delayed and others can even be dealt with by telephone.

At the present time, experienced communications personnel informally carry out
this priority listing of calls but as the situation becomes more complex and the level
of experience of the staff falls there is a need to review and formalise the procedure.

In the North American Continent most police forces have developed a system of
priorities for calls for service and the response to these calls, a typical example
is that of Kansas City

Table 1

KANSAS CITY, MISSOURI, CALL PRIORITIZATION GUIDELINES

Type of Call	Type of Response	Type of Call	Type of Response
Homicide		**Intoxicated Person**	
Homicide	Immediate		
Suicide/ Attempt	Immediate	Person Down, Injured	Immediate
Dead Body	Immediate	Intoxicated	Delay
Sex Offences		**Disturbance**	
		Disturbance	Immediate
Rape/Attempt	Immediate	Investigate Trouble	Immediate
Molestation	Walk/Phone In	Mental	Immediate
Indecent Act	Walk/Phone In	Noise (specify)	Delay or refer to City Prosecutor's Office.
Robbery			
		Traffic	
Robbery/ Attempt	Immediate		
Strongarm/ Attempt	Delay	Handle Traffic	Delay
		Check Traffic Lights and Barricade	Immediate or Notify Public Works
Assaults		Obstruction in Street	As above
Shooting	Immediate	Illegally Parked	Delay
Cutting	Immediate		
Other Assault	Walk/Phone In	**Traffic Accident**	
Burglary			
		Accident, Property Damage	Walk/Phone In or Delay
Residence	Delay		
Non-Residence	Delay		
Larceny		Investigate, Injury	Immediate
		Fatality	Immediate
Larceny/ Attempt	Walk/Phone In		
Holding Person for	Immediate	**Alarm**	
Purse Snatch/ Attempt	Walk/Phone In	Holdup	Immediate
		Burglar	Immediate

Type of Call	Type of Response	Type of Call	Type of Response
Auto Theft		**Self-Initiated Duties**	
Stolen/Attempt	Walk/Phone In		
Attempt to Locate	Walk/Phone In	Traffic Violation	Immediate *
Recovered	Delay	Assignments	N/A
Stolen		Building Check	Delay
		Car Check	N/A
Misc. Report		Foot Patrol	N/A
		Warrant/Subpeona	Delay
Animal Bite	Delay		
Loss	Walk/Phone In	Car Chase	N/A
Recovered	Delay	Listing	Delay
Property		Pedestrian Check	N/A
Destruction of Property	Walk/Phone In	Residence Check	Delay
Open Door or Window	Immediate		
Fraud	Walk/Phone In	**Juveniles**	
Suspicious		Lost Juvenile	Immediate
		Disperse Group	Delay
Person	Immediate	Holding	Immediate
Prowler	Immediate		
Car Prowler	Immediate	**Miscellaneous**	
Occupant, Parked Car	Immediate	Check Abandoned Car	Delay
Ambulance		Wires Down	Immediate
		Explosive Device	Immediate
Investigate Need	Immediate	Gambling Game	Delay
Ambulance En Route	Immediate	Target Shooters	Immediate
		Animal	Delay
Fire Or Disaster		Lost/Senile	Immediate
		Assist Motorist	Delay
		Open Fire	Delay
Explosion	Immediate	Hydrant	Delay
		Fireworks	Delay

* All calls marked 'Delayed' will be answered immediately if the incident is in progress, suspects are in the area or are known, and there is danger to human life or of property destruction.

On this list the type of response is of 3 types, immediate, delay or walk/phone in. In the latter case, the person reporting is told to go to the nearest police station or telephone the appropriate department. Some forces even provide a position in the communications room for all phone in reports to be transferred to. The report is taken and then sent onto the appropriate station for administrative purposes.

The responses marked N/A are not dealt with by the communications department and those referred to other agencies are small in number compared to most systems in use.

This break down of calls into a) immediate response; b) delayed response and c) no police officer response necessary; can greatly aid the senior officer who wants to provide some form of pro-active patrol for it makes available "blocks of time" which are of sufficient length of time to be useful. A breakdown of calls for service for a U.K. police force is:-

Type a)   47.8%
Type b)   28.9%
Type c)   23.3%

The estimate for type a) calls in the U.S.A. is 10% to 20% which is much lower than the U.K. figures. Even so, the figures for the U.K. show an immediate saving in time of nearly one quarter with over a quarter of the calls being delayed thus allowing for manipulation of over half of the time spent in dealing with calls for service.

At all the 3 levels of response there are possible savings in resource allocations, but as with all systems there are several factors which need careful consideration before the implementation of any form of priority system. Taking the system as described with calls broken down into 3 groups the areas of saving and consideration can be summarised as follows:-

Type a) These calls must have an immediate response but savings can still be made by ensuring that the correct number of units needed to deal with the call are dispatched and only those units dispatched actually attend.

Police officers usually try to get involved in incidents especially during quiet periods. The dispatch procedure must be defined and rigidly adhered to, not only to provide better utilization of resources but also to enable the dispatchers to provide cover for units actively engaged at an incident.

Basically these time critical dispatches are where the police officer can carry out some form of preventive, apprehension or deterrent action or other emergency service. By priority listing calls for service the objective of immediate response can be achieved much easier for only those calls for service warranting immediate response and not all calls for service are in this dispatch category.

Type b) This type of dispatch policy is the one that will probably cause most controversy, the usual reaction being that the public will not accept a delay in response to their calls for service. However, experience in the U.S.A. has shown that the public not only accepts this delay but are satisfied with the service providing that a police officer attends within the time period specified.

Indeed in some cases it can prove beneficial because of citizen perception and expectation of public response time, for it has been found that citizens are generally more dissatisfied if they expect a police response time of 5 minutes and the perceived time was 10 minutes, than if they expect a response time of 60 minutes and perceived that it took 65 minutes. This is because the delay after the expected police arrival in the latter case is a much smaller proportion of the expected police response time.

The major problem is how long can calls be delayed. St. Louis, Missouri delay some calls for up to 90 minutes whilst Kansas City have adopted a maximum of 40 minutes delay. Whatever delay period is chosen it should be regarded as the maximum delay time and not as the norm so that the stacked calls can be dispatched when the work load is low or the directed patrol is completed.

Type c) This is the area where the biggest savings can be made in patrol force allocation by freeing the patrol force from responding to these calls, although most forces state that if the caller insists on the attendance of a police officer then one will attend.

There are three types of responses in relation to these calls for service, first the calls can be referred to in more appropriate service, e.g. Water Board, Local Authority etc.

However great care must be exercised to avoid giving the impression to the citizen of merely shunting aside the request especially if the call to the police was made as a last resort.

Furthermore, the police service have to rely heavily on the co-operation of the public and this co-operation may be adversley affected by non response in all cases; second the calls can be dealt with by telephone with reports being taken over the telephone rather than have an officer attend. This can be done by transferring the call to the appropriate station or by having a dedicated report taking position in the communications centre.

Thirdly, the citizen can be asked to go to the nearest police station to make out the report or he may be provided with a form which they fill in and forward to the appropriate police station. The savings in resources can be seen from the following table from Phoenix, Arizona for the years 1971 to 1975.

Table 2

Number of Calls Dispatched Compared to Total Calls For Service.

Year

1971 — 52% of calls dispatched to field

1972 — 49%

1973 — 46%

1974 — 38%

1975 — 40%

Dispatched Calls   Non-Dispatched Calls

15,000   30,000   45,000   60,000   75,000   90,000

Average Monthly Volume of Calls
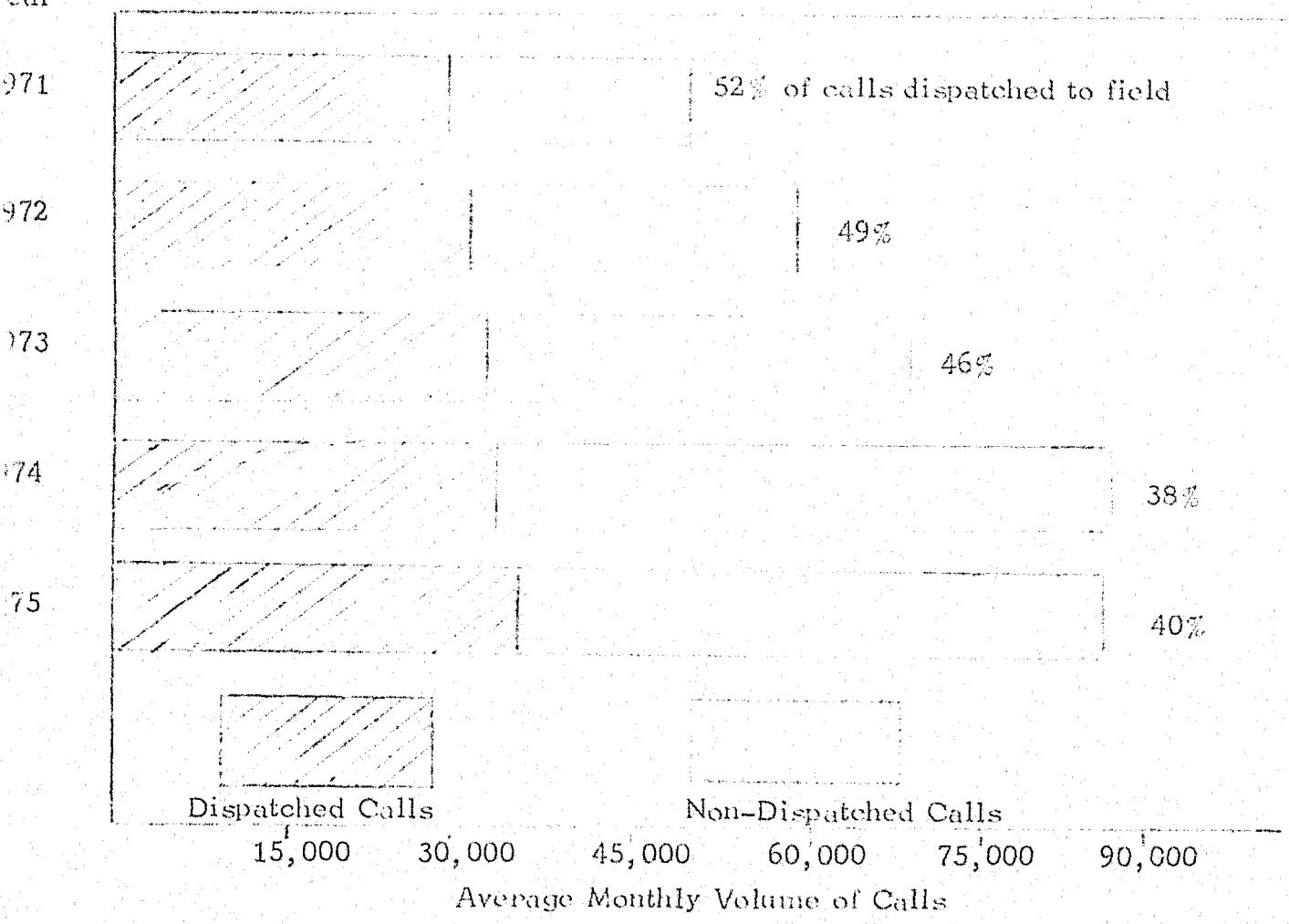
This system has been further developed by the Edmonton City Police Department, Alberta, Canada where they have drawn up a list classifying calls into five groups as follows:

Table 3

High	Priority	Service	Non-Dispatch	Referral
Bomb Threat. Crimes in Progress.	Disturbance (Noisy Parties in Progress)	Animal Complaints	Found Person	Animal Complaints
Major Disasters.	Disturbed Person	Bites/Vicious Dogs (All others to pound).	Property Damage	At large Barking
Aircraft Explosion Industrial Train	Escapee (Mental)	Assist RCMP	Insurance Purposes Self Report Stolen Auto/ Property	Other Agency Garbage Complaints
Emergencies	Family Trouble	Abandoned Autos	Not in Prog- ress.	Gas Smell
Power lines down.	Fire Calls (at Fire Dept., Request Only)	Anonymous Complaint	Self Report	N.W. Utilities Fire Dept.
Injury/Fatal Accident Personal Emergency.	Neglected Child	Remove from system if queued for > 30 minutes.		
Escapee (Criminal)	Hit and Run	Common Assault		
Member in Trouble	Impaired/ Dangerous Driving	Drug Complaint		
Serious Crime Report	Lost Child (Uprate to High if necessary)	1. Drug Squad 2. Task Force 3. Dist. Car		
Suspicious Person	Medic-Aid Calls (At request of Fire Dept. Only)	Drunken Person		
Weapon Complaint	Shoplifters	Escort		
	Traffic Accident	Juvenile Witness		

/continued

High	Priority	Service	Non-Dispatch	Referral
°	Heavy Damage Block Main Thoroughfare Criminal Offence. Central Problem Trouble not Known etc.	Fraud, Meal, Lodging, Transport, Credit Card. Gasoline Spill etc.		

3

This in itself is not unusual. What is, is the fact that they have developed a dispatch algorithm to systemize the selection of units for dispatch as follows:-

Table 4

Dispatch Guidelines

Complaint Dispatch Levels and Dispatch Rule

Complaint	Criteria	Dispatch Policy
High	Protection/ Preservation of Life Crimes in Progress	Call For Service

1. Crime in Progress Alert

2. Incident District Car Available?

  Yes ———— Dispatch

  No

3. Adjacent District Car Available?

  Yes ———— Dispatch

  No

4. Tactical Cars Available?

  Yes ———— Dispatch

  No

5. Emergency Alert to all Cars*

6. Any Uniformed Vehicle in Zone Available?

  Yes ———— Dispatch

  No

7. Any non-Uniformed Vehicle ** in Zone Available?

  Yes ———— Dispatch ***

  No

8. Closest Car Adjacent Zone

Priority   Measured
                           Urgency | Call For Service |

1.   Incident District Car
      Available?

                Yes ——— Dispatch

      No

2.   Adjacent District Car
      Available?

                Yes ——— Dispatch

      No

3.   Tactical Car
      Available?

                Yes ——— Dispatch

      No

      Queue Call

Service   Routine Police
                           Function | Call For Service |

1.   Incident District Car
      Available?

                Yes ——— Dispatch

      No

2.   Adjacent District Car
      Available?

                Yes ——— Dispatch

      No

      Queue Call
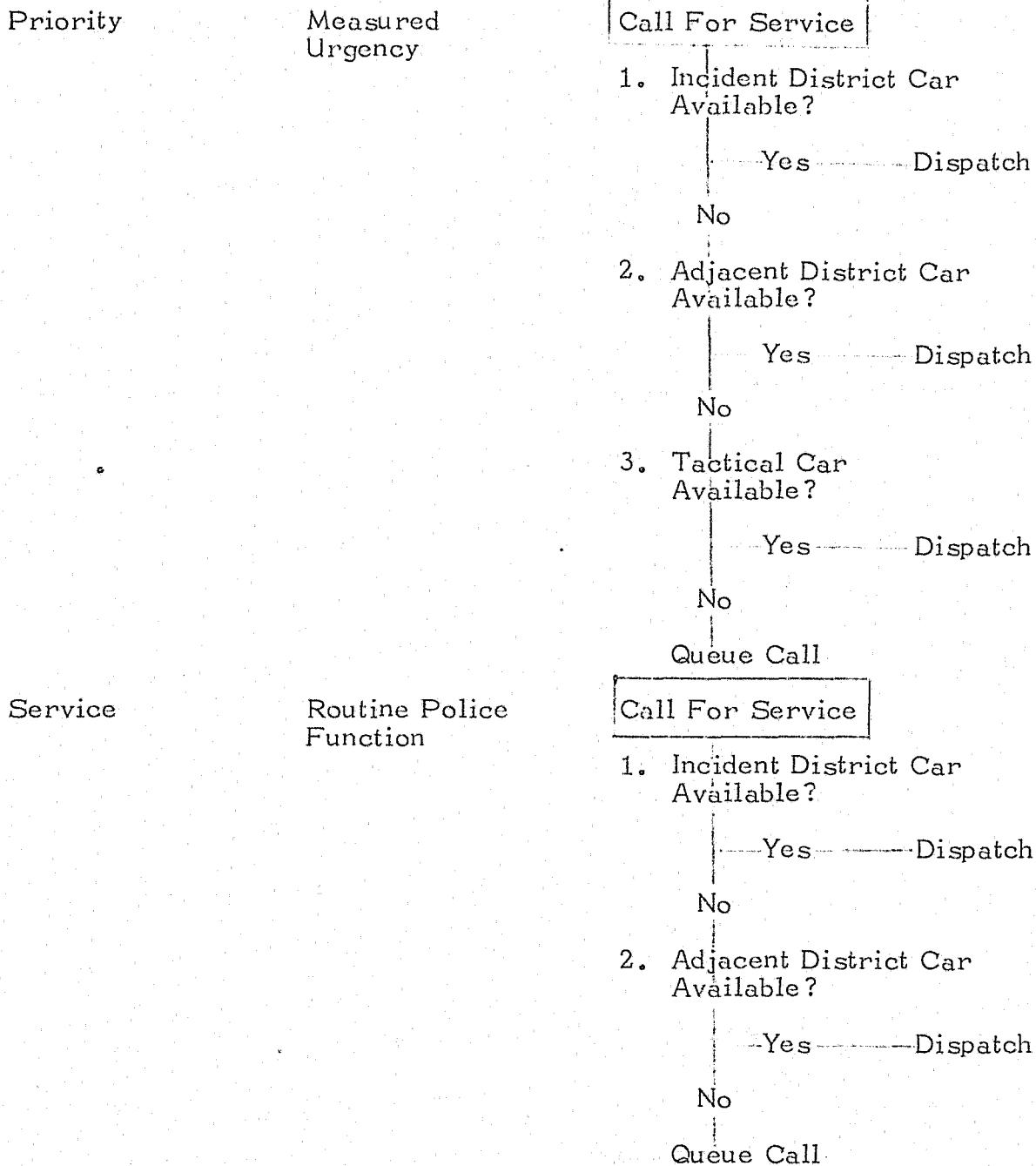
Recommended Procedures for Patrol Unit Selection Dispatch Guidelines.

*   Beat Car, Sgt. Car, S/Sgt. Car, Task Force Car, Traffic Car, Warrant Car, Summons Car.

**   such as CID, Task Force

***   Broadcast non-uniformed personnel responding

So not only are they priority listing the calls they are providing a system of patrol allocation which minimises the random dispatch of units, for it has been found that this random dispatch increases travel time and distance.

Very much related to this call priority is response time, for one of the aims of prioritization is making available resources to respond quickly to emergency and urgent calls. It has been a traditional belief that lower response times to such calls increase the probability of a satisfactory conclusion to such calls and to try and achieve lower response times, considerable time, effort and money has been consumed, whilst there has been very little empirical evidence to indicate efficiency of quicker response time.

Before one can examine the effectiveness or otherwise of quicker response times, one needs to break the response time into its separate segments. These are:-

1. Reporting Time)
2. Dispatch Time) Response Time
3. Travel Time)

Each of these times is significant in their own way with each having a distinct bearing on the result of the total response time.

Reporting Time : This area of time can be broken down into two distinct areas. First the time between the commission of the incident and it coming to the notice of the person reporting, and second, the time between it coming to the notice of the person reporting and that person reporting the occurrance to the police.

It is obvious that if there is a considerable elapsed time in either or both of these periods then no matter how quickly a police officer goes to the scene of the incident, subsequently there will be no impact on the end result.

Dispatch Time: this again can be broken into two segments, first the time taken to report the incident due to delays in the telephone system and second the period from when the report of the incident is received by the police service and a police officer being dispatched to the scene of the incident.

In the former the delay should be in seconds rather than minutes and in the latter case

it will depend upon the number of calls in the queue, but again in relation to an incident in progress this delay may be critical.

Travel Time: this simply is the time it takes for an officer to get to an incident after being told about it. There are, however, several variables. These include:-

1. Type of call
2. Officers activity at time of receiving call
3. Time elapsed before officer initiates response
4. Distance to Call
5. Driving Speed

All of these factors are ones which the police service have some direct control and which therefore can be dealt with in different ways thus affecting the end result.

One of the most exhaustive studies into response time indicates the elapsed time for each of the varying segments.

From these given in Table 5 it can be seen that in all cases the greatest portion of time in both categories is the reporting time which has been said has a major bearing on the need for a quick response time.

Table 5

Time statistics in hours, minutes seconds, for response time intervals for the categories of involvement crimes and discovery crimes.

Crime Category		Reporting	Dispatch	Travel	Total
Involvement Crimes	Min.	1:04	0:16	0:06	2:24
	Max.	48:00:53	43:31	30:13	48:05:13
	N	338	344	352	339
	%	44.5	22.3	33.2	100.0
Discovery Crimes	Min.	1:05	0:32	0:26	3:52
	Max.	*999:00:10	53:48	30:07	999:10:58
	N	580	587	586	579
	%	50.2	20.2	29.6	100.0

* Actual reporting delay exceeded 999 hours in one incident of discovery larceny. 999 was used for computational purposes.

To show the actual relationships of these time factors within the analysis of response time a model has been developed, Table 6, this also indicates the effects on the various and result factors.

Table 6
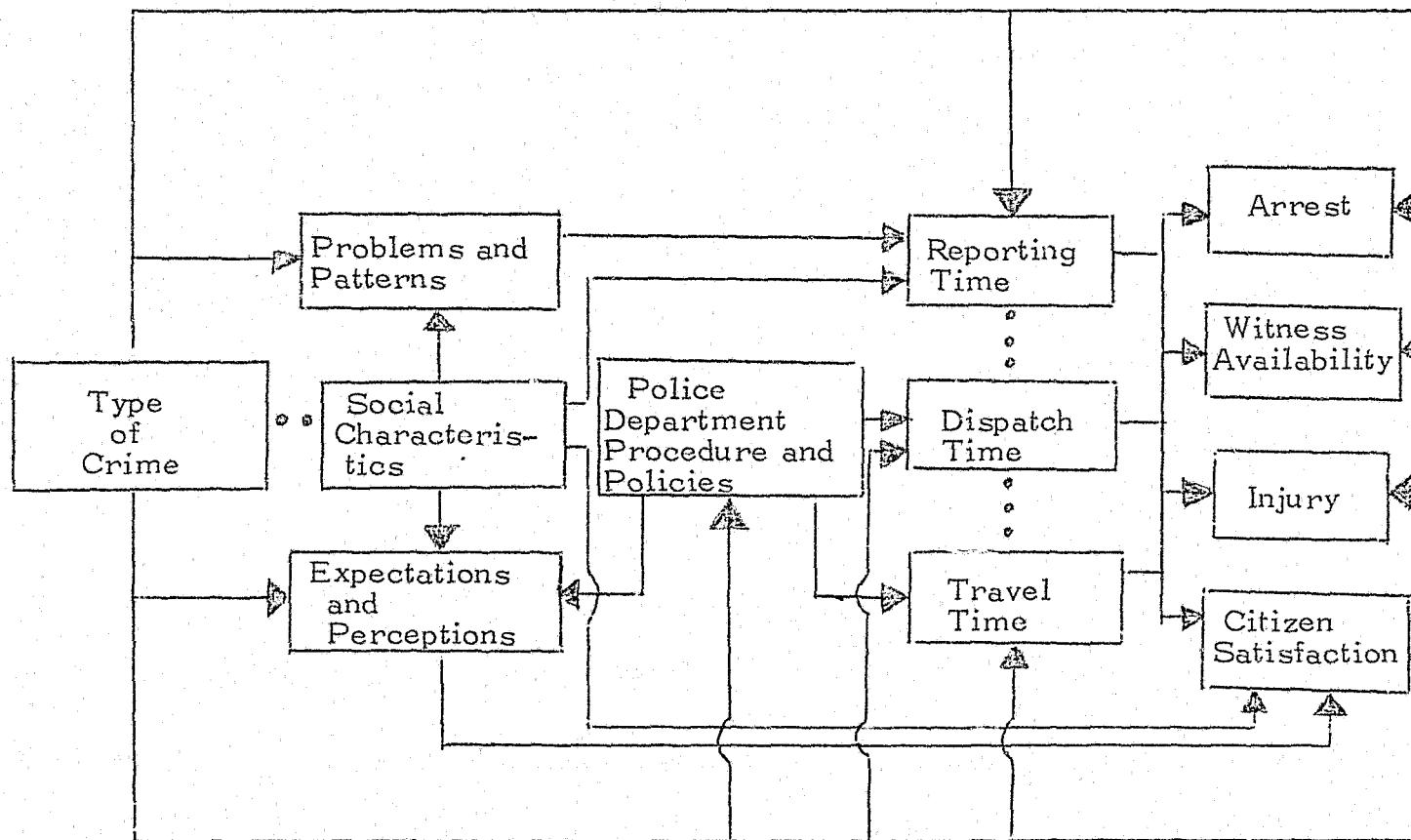
Model for analysis of response time

Taken from Kansas City Response Time Study.

Of these end result factors, most emphasis has been placed on arrest for this is seen by police departments to be the main objective. Apart from an early study conducted in 1966 in Los Angeles the first major study into the relationship of response time and arrest rates was carried out in Seattle Police Department between 1974 and 1975, by two authorities in this field, Calvin Clawson and Samson K. Chang.

Their study related to 2,530 crime in progress calls, taken from over 25,000 calls for service having an identifiable response time, resulting in 507 arrests. Their conclusions were "This study does demonstrate that shorter response times and travel times are related to a higher percentage of on-scene arrests. However it does not indicate that quicker response times cause or bring about more arrests."[7]

It must also be said that this study involved only the dispatch time and travel time and took no account of reporting time so a very significant portion of response time has been excluded and may have considerable bearing on the end result.

The most recent study was carried out in Kansas City between March 1975 and January 1976 where instead of relying on historical data they analysed incidents as they occurred. Again the incidents examined were related only to serious crime and can therefore only be accepted within this fairly narrow field.

However this was a very thorough piece of research which came up with the following facts:-

Number of Crimes	949
Number of Incidents with arrests	113
Number of incidents with response related arrests	35[8]

Thus in this study it was shown that less than 4 per cent of the incidents resulted in arrests that could be related to response time. Additionally, of the 113 incidents resulting in arrests, 78 could not be directly related to response time. So here for the first time there appears to be evidence that response time is an important factor in only a small proportion of incidents.

However that is not the end of the matter, for there are other factors to be considered. One factor was citizen satisfaction with response time and in this study the following facts emerged:-

86.8 per cent were satisfied with the remainder expressing some degree of dis-satisfaction. In relation to the importance of response time there was citizen comment in 826 cases, of these 707 indicated that they felt a faster response time would not have altered the result. The reasons given were:

1. The crime had already been committed and the suspects were gone (64.7%)
2. The incident had gone undetected for a period of time (15.4%)
3. Response was already fast enough (7.5%)*

In the remaining 119 calls the reasons given why a faster response could have affected the outcome were:

1. A suspect might have been apprehended (74.8%)
2. The presence of the suspect warranted a faster response (5.0%)
3. The length of response gave the suspect time to flee (3.4%)*

*(In the remaining cases, the reasons were unspecified, ambiguous or contradictory)[9]

From these it would appear that there is a high level of general citizen satisfaction with the present response time. It will take a comparison study to establish the level at which citizen satisfaction increases or decreases and therefore the standard to be set and maintained.

Another reason given for the need for rapid response time is that it is a means of reducing the severity and frequency of citizen injury. It has been assumed that officers who arrive at the scene of an incident quickly may intercept a violent crime in progress or settle a dispute before it escalates into an injury producing confrontation. Whilst it was found that there was no significant relationship between response time and the degree of injury in the Kansas City study the small sample of persons injured makes the result unreliable. It is possible that a wider study involving road traffic accidents and other casualty calls may find a significant relationship that will justify this quick response.

The final end result factor is witness availability, here the main determinant in
the study was the type of crime. In relation to involvement crime there was at least
one witness, other than the victims, in 48.6% of the cases, whilst in non involvement
this occurred in only 4.4% of the cases.

Whilst it was shown that there was a relationship between response time and witness
availability it was felt that "the extent of the officers efforts to search for witnesses
may affect the witness - response time relationship."[10]

From this study then it would appear that the need for a rapid response time is only
necessary in a limited number of cases. There is obviously a need for much more
research into the field covering all calls for service. However, one cannot now rely
on previously held assumptions as to the importance of response time.

Call Priority and Response Time

1. Improving Patrol Productivity, Vol 1, Routine Patrol; William G. Gay et al; NILECJ and LEAA: 1977; Page 75.

2. Police Program Analysis and Review: Summary and Program Alternatives; Charles E. Hill et al; Unpublished Phoenix Police Department, Phoenix, Arizona; 1976; Page 155.

3. Patrol Operations: Performance Measurement and Improvement; W.J. Brown et al; Canadian Police Chief; Vol. 66 No. 3 July 1977, Page 21.

4. Ibid Page 23.

5. Response Time Analysis, Vol. 11, Analysis; Marvin L. Van Kirk; Kansas City Police Department; 1977; Page 22.

6. Response Time Analysis, Vol 1, Methodology; Marvin L. Van Kirk; Kansas City Police Department; 1977; Page 15.

7. The Relationship of Response Delays and Arrest Rates; Calvin Clawson and Samson K. Chang; Journal of Police Science and Administration; Vol. 5 No. 1; 1977; Page 66.

8. Response Time Analysis Vol 11; Page 31.

9. Ibid Pages 122 - 123

10. Ibid Page 75.

Crime Analysis

"It is unfortunate that we in the field of criminal justice have spent a great deal of time, effort and money maintaining records of various sorts, but have spent relatively little time, effort and money using these records."[1]

Most police officers will recognise the validity of the above statement made in America in 1973 but in a lot of cases still applicable today. Recently there has grown up the awareness of the vast amount of information contained in these records and attempts are being made to utilize this information for the benefit of the police service through analysis.

The term crime analysis evokes the image in most police officers minds of masses and masses of figures that can be manipulated as Andrew Lang said "like a drunken man uses lamp-posts - for support rather than illumination", thus statistics have gained a poor reputation for reliability and therefore poor tools to use in anything close to practical applications.

This attitude has led to regarding even the thought of introduction of crime analysis with suspicion and even hostility. This is wrong, for crime analysis is a worthwhile tool that is much broader than merely the compilation of masses of figures. Standard 4.2 of the National Advisory Commission on Criminal Justice Standards and Goals entitled "Crime Analysis Capability" is:- "Every police department should improve its crime analysis capability by utilizing information provided by its information system within the department. Crime analysis may include the utilization of the following:

1. Methods of operation of individual criminals;
2. Pattern recognition;
3. Field interrogation and arrest data;
4. Crime report data;
5. Incident report information;
6. Dispatch information; and.
7. Traffic reports, both accidents and citations.

These elements should be carefully screened for information that should be routinely recorded for crime analysis."[2] (Field interrogations are suspects stopped and questioned where there is no arrest or summons issued, and traffic citations are summons or process).

From this list it can be seen that the entire range of police data information systems are utilized and though it seems an impossible task to use all this information the collator system in the U.K. provides an excellent starting point and the growing use of computers make it much easier to implement.

One should remember however, that the main objective is crime analysis, for given the two objectives of crime deterrence and apprehension it is only logical that one examines the factors involved. These are, the crime itself, the victim or target and finally the offender. If one is going to plan strategies to reduce crime then it is necessary to gather and use as much information on these three basic elements as possible.

The level on which this analysis is carried out can vary from the informal analysis by the patrol officer, which most conscientious officers already do, to highly sophisticated computerised analysis systems.

The position of crime analysis in relation to the planning and deployment scheme can best be shown in the flow chart from the 'Integrated Criminal Aprehension Program' (I.C.A.P.) developed by the Law Enforcement Assistance Administration (L.E.A.A.) in the U.S.A.

(Data Collection ———→ Analysis ----→ Planning ———→ Service Delivery)
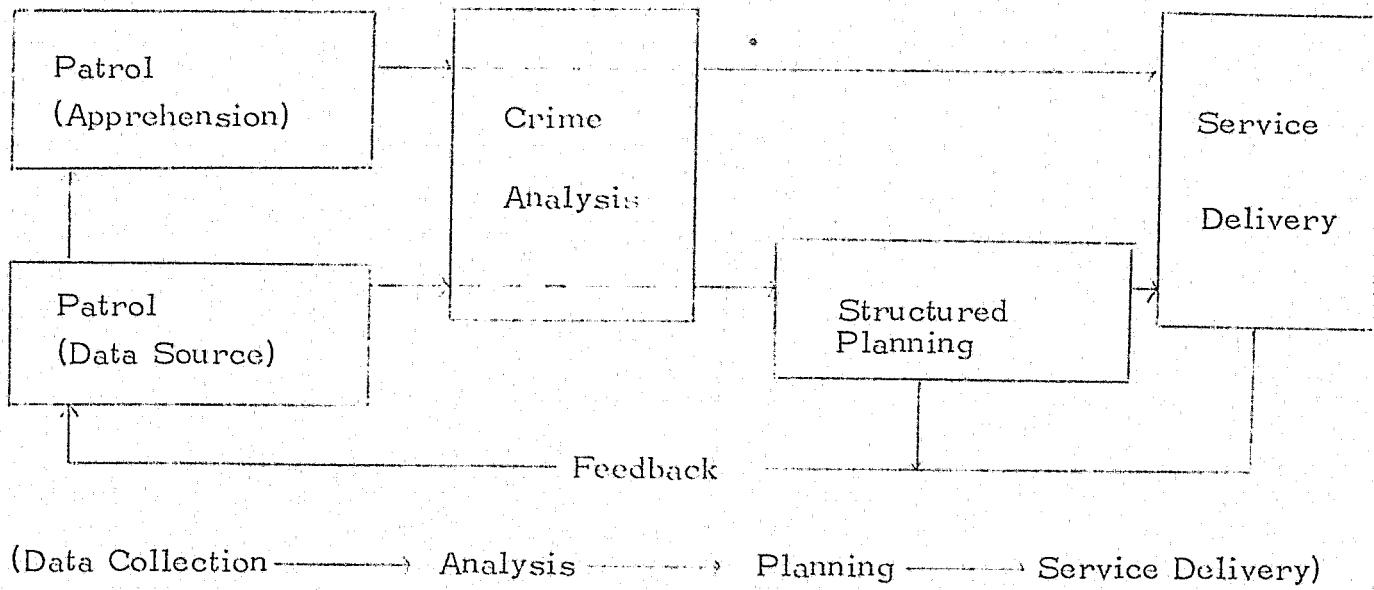
With the following aims:-

Data Collection to improve timely records management support.

Analysis to improve 1) analysis for strategic, tactical and operational planning purposes; 2) analysis of crime patterns, offenders and Modus Operandi; 3) increase the identification of serious offenders among arrested persons or suspects; 4) completeness and accuracy of known offender file.

Planning to improve 1) the planning process by establishing links from analysis; 2) the decision making process; 3) increase the use of crime analysis in deployment planning; 4) informal feedback to operational officers.

Service Delivery to improve 1) police procedures at the scene of crime in relation to the evidence, victim, witnesses; 2) timely initiation of investigative follow up of serious crimes; 3) the screening and allocation of cases; 4) the continuity of criminal investigation of serious reported crime; 5) the efficiency and timeliness of warrant service; 6) increase the number and proportion of patrol officers making good arrests for serious offences; 7) the use of feedback information on case disposition and case preparation.

Data Collection

The result of any analysis, and this includes crime analysis, is only as good as the data on which this analysis is based and the major source of this data are the patrol officers through the routine reports submitted, observations and personal contacts made. However, all this data is useless unless it is properly channelled and used. Collators, as has already been indicated are one of the prime parts of the Unit Beat Police system, the collator, already provides the vehicle and machinery for the data collection. It is also necessary though that it is not merely a collection agency, but that information is sifted and the relevant and reliable portions of it abstracted for use, for a system can fold up through too much material as well as too little, especially if a large proportion of that material is irrelevant and unreliable.

As well as this validation and reliability testing it is important that information is passed to the collection centre as quickly as possible to ensure that it can be processed and disseminated whilst it is still current.

These are not the only sources of information, even though they are the major source. Others include court results, recently released prisoner lists, information from other forces and what has been termed as "soft intelligence," i.e. information from informants, rumour, officer observations and perceptions. Whilst this latter source appears to be in the realms of the unreliable, its importance to police officers was shown in the compilation of a list of target criminals from suspects names provided by the Crimes against the Person Unit, Crimes against Property Unit, Special Operations personnel and members from General Patrol as well as a computer generated list of persons with 3 arrests for specific offences during the previous year, in Kansas City, Missouri.

Eventually only 2 names from the computer generated list were placed on the final master list of most active criminals, the officers arguing that only the most inept criminal would be arrested 3 times in a year, the real professionals would manage to avoid some arrests.

Analysis

This is the section that causes most consternation among police officers for they see it as consisting of pages and pages of incomprehensible formulae which is used by the experts to confuse them. Whilst this is certainly a part of analysis it is a comparatively small part, for initial analysis is intuitively performed at the scene of every crime and present day analysis is a continuation of the old with the addition of new mathematical models and methods.

The limitations of these mathematical models of operation used are well recognised by the researchers and analysts who, "necessarily limit ourselves to aspects of operation that are quantifiable and conducive to abstraction. This obviously directed focus is not sufficient when implementing changes. For instance, command judgement, which derives from many years of experience as a police officer, is not likely to be replaced by any mathematical formalism."[3]

This dissertation will concentrate on the methods rather than the formula but any formula used will be in literal descriptive form rather than the mathematical form.

The systems in use vary from the simple tabulation and listing of reported offences, mapping of offences to sophisticated computer systems such as the Dallas Police Departments', Real Time Tactical Deployment Programme or the Los Angeles Police Departments', Pattern Recognition and Information Correlation (P.A.T.R.I.C.) system, or combinations of all these levels. They can be offence location or offender orientated or again there can be a mix of systems, which in effect is an attempt to establish a link between the different variables. This is basically what the analyst does when using the correlation and regression techniques.

Crime Analysis Mapping System

The offences that crime analysis is concerned with are mapped separately to reflect the type of information needed in the analysis function. All occurrences relating to the monitored crimes are mapped as to place, date, time and crime type.

The maps give the analyst a spatial relationship of crime activity and facilitates the early identification of crime patterns.

Known Offender Map

The known offender map is a graphic illustration of burglary, robbery and fencing suspects which can assist the analyst in correlating crime patters with offenders place of residence.

Criminal Intelligence Information

Criminal intelligence information was obtained from police reports and by contacting individual patrol officers. Emphasis was placed on:

addresses
m.o.
associates
vehicles

By contacting patrol officers, the following advantages were derived:

1) Produced the largest amount of operational suspected offender information in the shortest period of time.

2) Assured that the information was current.

3) Familiarized patrol officers with crime analysis.

Map Description

The known offender map is covered by a clear polythene overlay. The overlay allows the analyst to plot and relocate suspects without damaging the map. The map is 8' x 10' and is sub divided by zero patrol districts. Every 5th street is numbered for easy reference.

Map Plotting

Offenders are posted by place of residence using self adhesive colour coding labels which indicate type of offender:

1) Burglary Suspect - yellow
2) Robbery Suspect - red
3) Fence Suspect - green

If the suspected offender is a burglar and robber or a burglar and a fence, a yellow label is used and is partially coloured either red or green.

Offender Retrieval

Labels are numerically coded using a computer assigned number. This allows for an expedient and accurate system for suspect retrieval. A back-up manual system is maintained by the assigned computer numbers and is used when the computer is not operational.

Profiles

The known offender map is consulted on every profiled identified crime pattern. An attempt is made to correlate known suspects who live in the area of the crime patterns. Special attention is given to suspected offenders who match suspect descriptions listed in offence reports and/or those who have committed a similar crime using a similar M.O.

Criminalistics

When the crime analyst is notified that latent prints have been lifted at the scene of a robbery or burglary, the crime analyst will survey the known offender map for possible suspects and forward those identified for print comparison based on proximity of the suspect's residence to the offence and/or the M.O. utilized.

Suspected Offender List

The suspected offender list was developed from suspect information contained on the known offender map. The list was broken down by precincts with an alphabetical suspect listing by district. Suspect histories included:

alias
sex, race
dob.
height/weight
hair colour
home address
offender computer number (if appropriate)
CRO number
M.O.
associates
vehicles

Upon request, officers received a copy of the list which pertained to their respective beat. If officers worked on districts bordering beat boundaries, copies of both beats could be obtained upon request from the crime analyst. Officers who received this document assumed the obligation for the upgrading and updating of possible suspect information.

Burglary Map

The burglary map is broken down by patrol districts. Crimes are plotted monthly on a clear polythene map overlay by location of occurrence. Yellow and red coding labels are used to signify month of occurrence. The blue label signifies that prints were

obtained from the scene of a burglary. The labels contain the following information:

1) If a line is drawn through the middle of a label, the place of occurrence was a business, school or a church. If there is no line, the place of occurrence was a residence.

2) Date of Occurrence

3) Shift of Occurrence
   A - (Afternoon)
   N - (Nights)
   M - (Mornings)
   X - (time of occurrence occurred over three shifts or is unknown)

4) If an arrest was made, an X is marked through the label.

Two clear polythene overlays are used to plot three months of crime data. One overlay contains two months of information and the other contains one month. At the end of each three month cycle, the two month overlay is removed and stored for future reference. The overlay with one month's data is then plotted for an additional month and at the completion of the month clean polythene is placed over the previous two month overlay.

The primary purpose for this mapping overlay procedure is to give the Crime Analyst a monthly comparison of robbery.

Vehicle Theft Map

The vehicle theft map monitors the stolen vehicle activity within the city. Stolen autos are mapped at stolen and recovery locations with a connecting line drawn. This is done to show basic movement. It also illustrates stolen and recovery patterns.

The process is accomplished by placing a self-adhesive yellow dot at location where stolen, with case number printed on it. Then a red dot is placed at the location of recovery with a blue connecting line drawn between the two locations. The analyst then makes a geographic comparison to discover patterned activity of stolen and recovered

vehicles. When a pattern is discovered a profile is written.

The mapping id done on a clear polythene overlay on a month by month basis. The preceding month's polythene is removed at mid-way point of the present month. This gives approximately a two week overlap of activity.

Auto Theft Suspected Offender Map

A separate suspected offender monitoring map is maintained for auto theft cases. All suspected active vehicle thieves are tracked as to their residence. A dot, with the suspects computer number printed on it, is placed on the map at his last known place of residence.

Through this the analyst derives a relationship between stolen and recovered patterns and where the known offenders are now living. Information regarding each vehicle theft suspected offender is typed on a suspect card and placed in the general suspect file. (This system is in use in Portland, Oregon).

The basic analysis of geographic and temporal crime patterns is not a particularly difficult task. It does not generally demand a great deal of effort or special expertise. The following observations have to be born in mind though whilst one is involved in the analysis field:-

First, artificial geographic units such as beats should not be used for pattern analysis, this is because crime does not necessarily occur uniformly throughout that specific area. This leads to the distortions of patterns e.g. a small portion of a beat may have a high level of crime while the rest of the beat is relatively free from crime, and in an effort to overcome the problem, extra resources are spread out over the entire beat that has the crime problem.

Second, most crime analysis represents an attempt to forecast the general locations, dates and times of criminal offences and in some cases the characteristics of likely offenders and suspects for offences already committed. Whilst it is still a relatively

new science, successes show that there are benefits from the field. During the early
months of 1975 the Crime Information Centre in Miami Police Department predicted
a robbery at a given time in a given area by 5 juvenile offenders which were named.
This prediction was completely accurate and 4 out of the 5 suspects were arrested;
during the next few months the Centre made 10 further similar predictions of which
7 were successful.

In the summer 1977, Dallas Police Department had a number of robberies, the des-
criptions of the offender were male, possibly Mexican, 5'2" - 5'6", 20 - 25 years
old and in the final robbery a witness saw a bird tattoed on the man's forearm. Using
their own stand alone micro computer system and their search factors, the analysts
came up with a ranked list of 4 suspects, within hours of the last robbery the number
1 suspect was arrested and eventually admitted all the offences.

These examples are not given as the expectation of what crime analysis should accom-
plish on a regular basis, but what they can achieve given skilful and systematic use
of available data.

Third, crime analysis should be a continuous ongoing process, with awareness of the
displacement effect as well as the emergence of new crime patterns. There should
also be flexibility so that the sudden emergence of a serious crime problem can be
dealt with quickly. Impact of the patrol strategies should also be monitored so that
resources can be redeployed when a problem has been resolved.

Finally, it should be borne in mind that the crime data that crime analysis uses is
merely reported crime and not committed crime. In most crime categories, victim-
ization surveys shows that reported crime is in some cases only one tenth of the
committed crime so that the analyst should be aware that the data he uses is only a
partial indicator of the problem.

Another area, often overlooked, is that analysis is the initial auditing of crime
incidents, which can indicate whether the incident warrants any follow up investigation
or not.

Researchers have found that "Our data consistently reveal that an investigator's time is largely consumed in reviewing reports, documenting files and attempting to locate and interview victims on cases that experience shows will not be solved."[4]

In 1973 the Stamford Research Institute in the U.S.A. published a report that included a technique that could "change the investigative function" in coping with burglary cases. The researchers looked at the amount and type of information needed by detectives to clear burglaries. They then developed the following of "information elements" with numerical weights:-

Burglary Case Disposition Decision Rule[5]

Information Element	Weighting Factor
Estimated range of time of occurrence	
Less than 1 hour	5
1 to 12 hours	1
12 to 24 hours	0.3
More than 24 hours	0
Witness's report of offence	7
On view report of offence	1
Usable fingerprints	7
Suspect information developed description or name	9
Vehicle description	0.1
Other	0
Total	————

Instructions

1. Circle the weighting factor for each information element that is present in the incident report.

2. Total the circled factors

3. If the sum is less than or equal to 10, suspend the case; otherwise, follow up the case.

An explanation of the information elements is given:-

"Time of Occurrence   This is an estimate of the time elapsed between the occurence of the burglary and when the patrol officer arrives on the scene of the burglary and collects information for the incident report. If the incident report gives a time range, use the mid point to determine appropriate time interval to designate.

Witness's Report   This item should be designated if there is one or more witnesses to the incident. Witnesses can include victims, but not police officers. (see On-View report).

On-View Report   Designate this item if a police officer is the first person to notice the burglary scene, whether or not the offender(s) is/are present.

Usable Fingerprints   This item should be designated if fingerprints are recovered and:- 1.They do not belong to the victim; investigating patrol officer, or any other person whos prints would legitimately be found in that place; 2. They are not smudged; and 3. They have enough points to distinguish them from other prints.

Suspect Information   Designate this item if the incident report form contains the offender's name or description. A name can be complete, a portion of the suspect's name, or nickname. The description can include physical characteristics (e.g., height, weight, sex, race, age), spoken words of a suspicious person, mannerisms, or an address.

Vehicle Description   This item should be designated if there was a report of a suspicious vehicle in the crime scene area at any time before, during, or after the time of the burglary. A licence number must be complete enough to allow subsequent identification of the vehicle.

Other   All other information in the incident report form receives no points. If the officer feels this information is important he should indicate fully why it is."[6]

The potential of this system can be seen in the research results and tests carried out by other police forces, in the initial research 208 burglary case files were selected at random from 3 police forces in California and the decision rule was applied and the

subsequent results were compared with actual results and the success rate was as follows:-

Police Force	No. of cases examined.	% accurate predictions
Fremant Police Department	91	82%
Haywood Police Department	105	90%
Union City Police Department	12	67%

Further tests by the researchers on 300 past burglary cases from the Oakland Police Department were accurate in 92% of the cases.[7]

In Peorja Police Department, New York, whilst testing the accuracy of the decision rule predictions in early 1977 using 500 cases, 93% of the actual results were predicted. An interesting fact arising out of this test was that 2 detective officers were selected to evaluate the cases and were given 250 cases each in the final result one had an 82.8% accuracy and the other 93.2% accuracy.[8]

In all testing it was stressed that the success of the system depends upon:-
1. The quality of the patrol officers initial on the scene report; and
2. The procedures used to investigate the cases;

Whilst it is not suggested that this system should be adapted without change in the U.K., obviously some form of organised screening would aid a better reorganisation and allocation of resources. The way this concept can be developed is indicated by the system evolved after implementation and use for 1 year by the Multnomah County Department of Public Safety, (Sheriffs Department) Oregon, for their team policing. Briefly the system is in two parts, 1. the priority aspect; and 2. the case monitoring aspect; and it is the former that is of interest. This priority aspect has been broken down into the four major variables that it was felt contributed most to the overall priority of a case. They are:-

"1. Gravity of offense (American spelling). A major factor in any criminal case is the legal gravity of such an offense. For any given case, the following scoring system is used: felony - 4 points: misdemeanor - 3; victimless crime (drugs, gambling, prostitution) -2: and violations/status offences (juvenile curfew, runaway, etc.) - 1. The total of possible points is 4.

2. Probability of solution ...... Our system takes this important variable into account by placing the greatest emphasis and commitment of resources where there is greater likelihood of success by considering the probability of solution based on whether there are: 1) suspects 2) witnesses 3) physical evidence or 4) undeveloped leads. This category one point for each factor present .... with 4 being the total possible.

3. Urgency for action. Urgency for immediate investigative action is interpreted by 4 factors: danger to others - 4 points: immediate action is required - 3 points: consideration of psychological impact on the victim - 2: and crime pattern/frequency of crime in geographic area - 1. The total number of points possible is 10.

4. Supervisory judgement. Because individual cases arise in a context of general field work load and manpower considerations .... The supervisor, in light of his personal experience and knowledge of officer work loads and available resources, considers: 1) department policy, 2) totality of circumstance, and 3) the investigators case load ..... The total possible is 4 points."

The points are then totalled up "to derive the final priority of the case."[9]

This system is flexible enough to be applied to all incidents of crime not just the burglary offence as the previous research did and it provides an input to the system from the experience of the police officer.

This is obviously a very complex system developed for, and by, a specific police force. At the other end of the scale, Rochester Police Department, New York, have a screening system, but they do not use weighting, they merely take the factors present or absent and total them up each factor having the same weight. In a survey in 1977 among 49 police forces in the U.S.A., serving areas ranging from in excess of 1 million population down to $\frac{1}{4}$ million population, 71% were using some type of system for priorities for criminal cases. These included early case closure," "case screening", and "solvability assessment."[10]

Crime Analysis

1. The Utilization of Criminal Justice Statistics. Review of Public Data Use; M.J. Hindelong; 1973 Vol 1 Page 30.

2. National Advisory Commission on Criminal Justice Standards and Goals, Criminal Justice System; Washington D.C. 1973 Page 56.

3. Urban Police Patrol Analysis; Richard C. Larson; M.I.T. Press, Cambridge, Mass.; 1972; Page 6.

4. The Criminal Investigation Process, Volume 1; Summary and Policy Implications; P.W. Greenwood et al; Road Corp; Santa Monica, California; 1975.

5. Enhancement of the Investigative Function, Volume 4: Burglary Investigation Checklist and Handbook; Bernard Greenberg, et al; Stamford Research Institute, Merlo Park, California; 1973; Page 11.

6. Ibid Pages 21 - 25

7. Ibid Pages 13 and 14.

8. Untitled and unpublished mimes describing the Peoria Accuracy Test; Marcella Brown; Peoria Police Department, Illinois; 1977; Pages 53 - 54.

9. Management of Criminal Investigation; Dennis Brand et al; The Police Chief magazine, International Association of Chiefs of Police; September 1976; Page 66.

10. Police Practices, The General Administrative Survey; John F. Heaply; Police Foundation; 1978; Page 17.

Temporal Distribution

One subject that raises more arguments than any other among police officers is that related to shifts. Because of the 24 hours per day police service, provision obviously requires a proportion of police officers working what are termed unsocial hours.

Man has developed a cycle of daytime work and night time sleep. Any changes in this circadian cycle, as it is called, lead to changes in the efficiency of performing the work task.

Several studies of the three eight hour shift system, have shown that efficiency is reduced by between 10% and 40% during the night shift, with the highest rate of errors occurring approximately 6 hours after the start of the shift.[1] The problem is establishing how long it takes to overcome these changes and to adapt to the new routine. Various studies have shown that most people can adapt within a week or less provided that the external surroundings change in step, as happens when one travels across the time zone boundaries. However, if the surroundings remain in the old rhythm, as in the normal shift working, then adaptations even over two weeks is only partial.

In the U.K. in general, there is a continuous system with either alternating or rotating eight hour shifts whereas a good proportion of the police departments in the U.S.A. work a continuous system with stabilized shifts, that is the same officers work the same shift when on duty and an increasing number are working ten hour shifts. Each system has benefits and disadvantages so that it is not possible to categorically state that one is more advantageous than the other. It depends upon the particular circumstances, but whatever system is employed, senior officers should take account of the physiological factors and monitor sickness, absenteeism and other indicators of problems in the system so that changes can be made if necessary.

Shift systems in the U.K., as with the beat configurations, have received very little attention apart from reductions in the working week which have resulted in more rest days per week. Consequently, the shift pattern generally follows that in use 40 to 50 years ago. It may be that it is the best system but until other systems are examined this will not be known.

The simplest of the eight hour shift system is the division of the patrol force into 4 equal units, with 3 units working and 1 unit on rest day. Given fairly typical shifts starting and finishing times of: 0600 - 1400, early shift; 1400 - 2200, late shift; and 2200 - 0600, night shift. One can develop of 4 weekly pattern of rotating shifts for a single shift as follows:-

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Week 1	N	N	N	N	N	N	N
Week 2	RD	RD	L	L	E	E	E
Week 3	L	L	RD	RD	L	L	L
Week 4	E	E	E	E	RD	RD	RD

(N= Night Shift; L= Late Shift; E= Early Shift; RD= Rest Day).

Whilst administratively this is a simple system, the only complication being the allocation of an additional rest day to bring it to a 40 hour week, it has the disadvantage of having an equal number of officers available regardless of the need for those officers, although moving a limited number of officers 4 hours forward or back does provide a degree of flexibility. It has also been shown that this system leads to an average shift misallocation, that is the over or under allocation of manpower relative to the workload of 50.6%.[2] It is this misallocation that has brought senior officers to look for new shift scheduling systems but it is not possible to look in isolation, for it is necessary to ensure that officers are on duty when there is a requirement for them. Therefore, one must examine the work load distribution before one tries to establish a more complex shift scheduling system which will match the peaks and troughs of the work load. This is called proportional manning.

There are, however, factors that need to be considered which are applicable to the shift itself, e.g. if starting and finishing coincide with rush hour, then patrol officers are going to have to leave their beats earlier to reach the police station for finishing time; officers are going to take longer to travel from home to work; the shifts are changing at a busy work load time thus if the shift going off duty deal with the incoming work then overtime will accrue and if the shift coming on duty deals with this work, then there will be delays in responding to calls for service. If the starting and finishing times of the shift coincide with periods when there is no public transport then this can cause problems for officers getting to and from work.

As has been stated, the majority of police departments in the U.S.A. work a stabilized system of shift scheduling. This has led to an increasing adaptation of the 4/10 plan, that is ten hour shifts four days per week. Choice of shift is by officer seniority or personal preference rather than departmental allocation and deployment.

This has the disadvantage of an imbalance of experienced officers on the different shifts, with the majority of officers with a considerable amount of service opting for the day shift and the less experienced officers having to work the late or swing shift and the night or graveyard shift, the very times when there is a need for the guidance of more experienced officers.

Several departments are trying to have departmental allocation but they are having problems because the seniority system is firmly entrenched, but because they can offer financial reward for the less desirable shifts means that they can provide some inducement.

Whilst it is necessary to divide the total patrol force into more units, by providing 30 man hours of work per day for each officer on the 3 shifts means that there are 6 hours available for overlap when 2 shifts will be on duty simultaneously, thus having greater flexibility. This gives a shift pattern that can fit in with the work load and a typical example is:-

```
|_____ Day Shift 0630 - 1630 _____|
                    |____ Swing Shift 1600 - 0200 _____|
                                        |___ Graveyard Shift 2100 - 0700 _____|
|____ 
|_____
0630                          1830                                    0630
```

Other variations have a 1, 2 and 3 hour overlap between Graveyard and Day, Day and Swing and Swing and Graveyard shifts but the permutations are considerable.

Other advantages include a reduction in man availability time, i.e.:-

	Minutes
Meal break	45
Start and finish of shift maintenance and check	20
Briefing time	15
Personal necessities	20
Issue and return of personal radios	5
Travel to and from beats	30
Total minutes	135

5 day/8 hour week = 40 hours

so at 135 minutes per day x 5 days

= 675 minutes or $11\frac{1}{4}$ hours per man per week.

4 day/10 hour week = 40 hours

so at 135 minutes per day x 4 days

= 540 or 9 hours per man per week -

which is an increase of patrol time of $2\frac{1}{4}$ hours per man per week or the equivalent of one additional officer for every eighteen officers on patrol duty.

One police department, Huntington Beach, California, has been using the 4/10 system since 1970 and report that there has been significant decreases in response times, an increase in the number of felony arrests, a decrease in commercial burglaries and half as much overtime. Whether these changes can be attributed entirely to the 4/10 system is debatable but it is probable that it has some effect. The major advantage accruing from this system is the increase in the number of rest days for patrol officers, which has been found to improve morale and reduce sickness.

The health effects of shift work have already been mentioned. Research has also shown that there are adverse effects of extending the working day beyond 8 hours. The most comprehensive research, that can be directly related to police patrol, was a study of lorry and bus drivers prepared for the United States of America Department of Transport. The study included the following results:-

1. Significant decreases in psycho-physiological
arousal, an objective measurement of fatigue
and alertness, occurred within ten hours. Effects
showed as early as the fourth hour with significant
deterioration after seven hours.

2. Performance did not improve after rest breaks.

3. The adverse effects were pronounced for drivers over 45 years.[3]

With all these restrictions in mind, this is an appropriate point to examine the methods of deciding how many officers are required on each shift to provide the most equitable service to the community. Whilst as yet there is no single foolproof system of patrol deployment, the work load system based on calls for service and crime analysis provides a tool for both normal patrol allocation and crime specific and specialized patrol.

However, it must be remembered that one is dealing with historical data so the system will require constant monitoring to maintain accuracy and relevancy. Also, it is a very simple system that can be worked manually but can be uprated as computer facilities become available by the use of more variables, such as response times, dispatch delays, service time etc., thus becoming more accurate.

Crime analysis has already been discussed so at this point the simple work load analysis will be examined. The first step is to establish the rate and flow of calls for service. This is normally done for 1 hour segments for a 24 hour or 168 hour period, with the 168 hour period being the better of the two, for it doesn't need any analysis to recognise that different days of the week have different distribution of calls for service.

Taking the 24 hour period first when one has established the average hourly rate, this can be for the previous month or week, one then works out the percentage these hourly rates are of the 24 hour rate, then this is consolidated into 4 hour and 8 hour blocks to coincide with the different shifts. This can be shown in graph form or table form as in table 1.

Table 1

Hour	Number of	Hourly Distribution	4 Hour Distribution	8 Hour Distribution
07.00	28	1.5%		
08.00	49	2.6%	11.6%	
09.00	79	4.2%	216 calls	
10.00	60	3.2%		24.2%
11.00	51	2.7%		451 calls
12.00	56	3.0%	12.6%	
13.00	59	3.2%	235 calls	
14.00	69	3.7%		
15.00	67	3.6%		
16.00	85	4.6%	18.8%	
17.00	94	5.0%	351 calls	
18.00	105	5.6%		41.6%
19.00	10.4	5.6%		777 calls
20.00	103	5.5%	22.8%	
21.00	100	5.4%	426 calls	
22.00	119	6.4%		
23.00	147	7.9%		
24.00	188	10.0%	27.8%	
01.00	119	6.4%	519 calls	
02.00	65	3.5%		34.2%
03.00	45	2.4%		639 calls
04.00	35	1.9%	6.4%	
05.00	18	1.0%	120 calls	
06.00	22	1.1%		

Small errors are due to rounding to 1 decimal place but they are not significant.

From this table it is easy to see how this procedure can aid the allocation problem by breaking the work load into proportion so that one can break the work force into similar proportions. This is shown graphically in table 2 with a total of 48 officers available for duty and without establishing the average time taken to deal with each call for service but taking it merely as a proportion of time available to answering calls for service.

<u>Table 2</u>

Number of
officers on duty

	Equal Staffing —————	
	Proportional Staffing — —— — —	
	20 officers	
16 officers	16 officers	16 officers
12 officers		16 officers
24.2%	41.6%	34.2%

Hours of the day   0600   1400   2200   0600

An even better result can be obtained if one uses the 4 hour distribution blocks and dividing the on duty officers into 4 groups and providing an overlap shift as in table 3.

Table 3

No. of officers
on duty
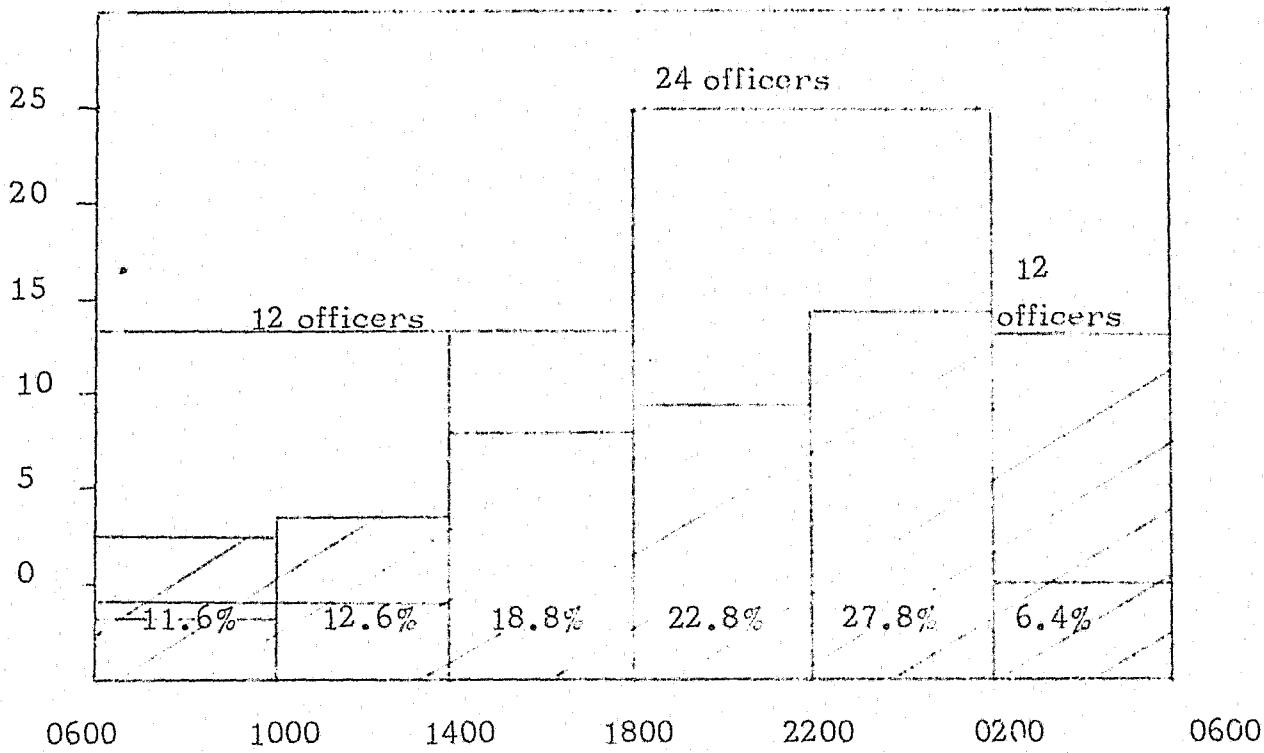
Hour of the day

This is admittedly a very simplistic approach and it is not projected as a total answer. It is merely the first step in the process of providing on equitable distribution of police officers to watch the work load, and the information is already available on daily occurrance and activity logs for senior officers to carry out this procedure.

One needs to establish a time factor for calls for service then go through the same procedure for directed duty, e.g. school crossing points, traffic points, escort duties, etc; so that one is in possession of total work load time. Thus one has the total demand time. It is reasonable to assume that calls for service will include reported crime, add to this the personal and administrative time, i.e. meal breaks, report writing, briefing, etc., and one has the total committed time. What is left out of the tour of duty is the uncommitted time.

This uncommitted time mainly used for undirected random patrol is seen as the main area for improved productivity. So this system of work load distribution analysis has a valuable additional spin off in addition to the staff allocation objective.

The percentage distribution system has the advantage of being simple, therefore capable of completion with paper and pencil, with no complicated equation to baffle the non-numerate person. Another way in which this method of distribution determination can be used is in determining geographic allocation i.e. which beats need to be manned and when.

As has been mentioned, the 24 hour distribution pattern is merely a first step, the next being to establish a 168 hour distribution pattern. Whilst this is no more complex than establishing a 24 hour pattern, it is much more time consuming, for it takes 7 times the breaking of work load into hourly blocks and it is recommended that a minimum of six months figures be used with, or if possible, a full year used to account for any seasonal variations.

The best way to show their distribution appears to be with graphs. Table 4 shows this first of all with a 24 hour graph and then the 168 hour graph drawn up from figures for calls for service taken from a section of a British Police Force. This graph shows that whilst the daily patterns are similar, patterns for each day have different levels of peaks and troughs. However, this graph is impractical to use because the rapid variations and acute changes make it difficult to match work load to resources accurately.

It is possible to overcome this difficulty by using a technique called moving averages. This is a very simple technique where one takes the average of a given number of figures, moving forward to the next set of figures and dropping the first all the time so that the number to be averaged remains constant e.g. using some of the figures used to make up the graph and averaging 4 figures at a time.

```
Original              Moving
Numbers               Average
 10     ────────────┐
 12.25  ──────────┐ │
 12.25  ──────┐   │ │
 10.5   ─┐┌┼──┼───┘    11.25
 9.25   ─┼┼┼──┼──────  11.1
 11.25  ─┼┼───┼──────  10.8
 17.25  ─┴┴───┴──────  12.1
```
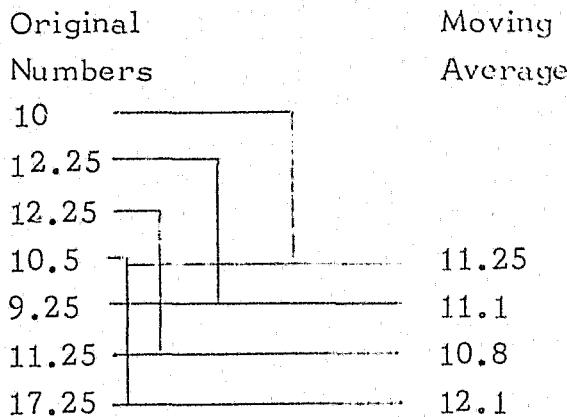
By using this technique, one is able not only to average out the rate of change
thereby producing a smoother graph, as shown in table 5, which is produced from
the same set of figures as the graph in Table 4. One also takes account of the fact
that a certain proportion of calls for service are not completely dealt with in the
period when they arrive but take time in the succeeding periods.

For table 5, a 4 period average was used so that the number of calls for service
arriving in one period affected the 3 succeeding periods. The number of periods
one uses in the moving average obviously depends upon the time taken to completely
deal with the bulk of calls for service. However, one needs to use common sense
and keep the period within reasonable proportions, for it is accepted that some calls
for service will take several days, if not longer, to complete. If one uses this
time scale period then the averages obtained will not fully reflect that day's pattern.

Using these figures and the present staffing of 36 officers, the distribution of these
officers on an equal shift staffing is shown in table 6 by the broken line. However,
by breaking up the officers into smaller groups, one is more able to match the work
load. This is shown by the double line in table 6. There is also the additional
advantage of providing flexibility in relation to the shift patterns and move away
from the 4 week early, late, night shift cycle.

The new shift pattern is shown in table 7. It gives a 5 day break and 2 x 5 day
working periods within the pattern as well as other welfare benefits, thus providing
benefits for the officers as well as the service.

TABLE 4

Number of Calls for Service.

- 81 -

39

36

33

30

27

24

21

1̶9̶

15

12

9

6

3

55

48

24 Hour   Monday   Tuesday   Wednesday   Thursday   Friday   Saturday   Sunday
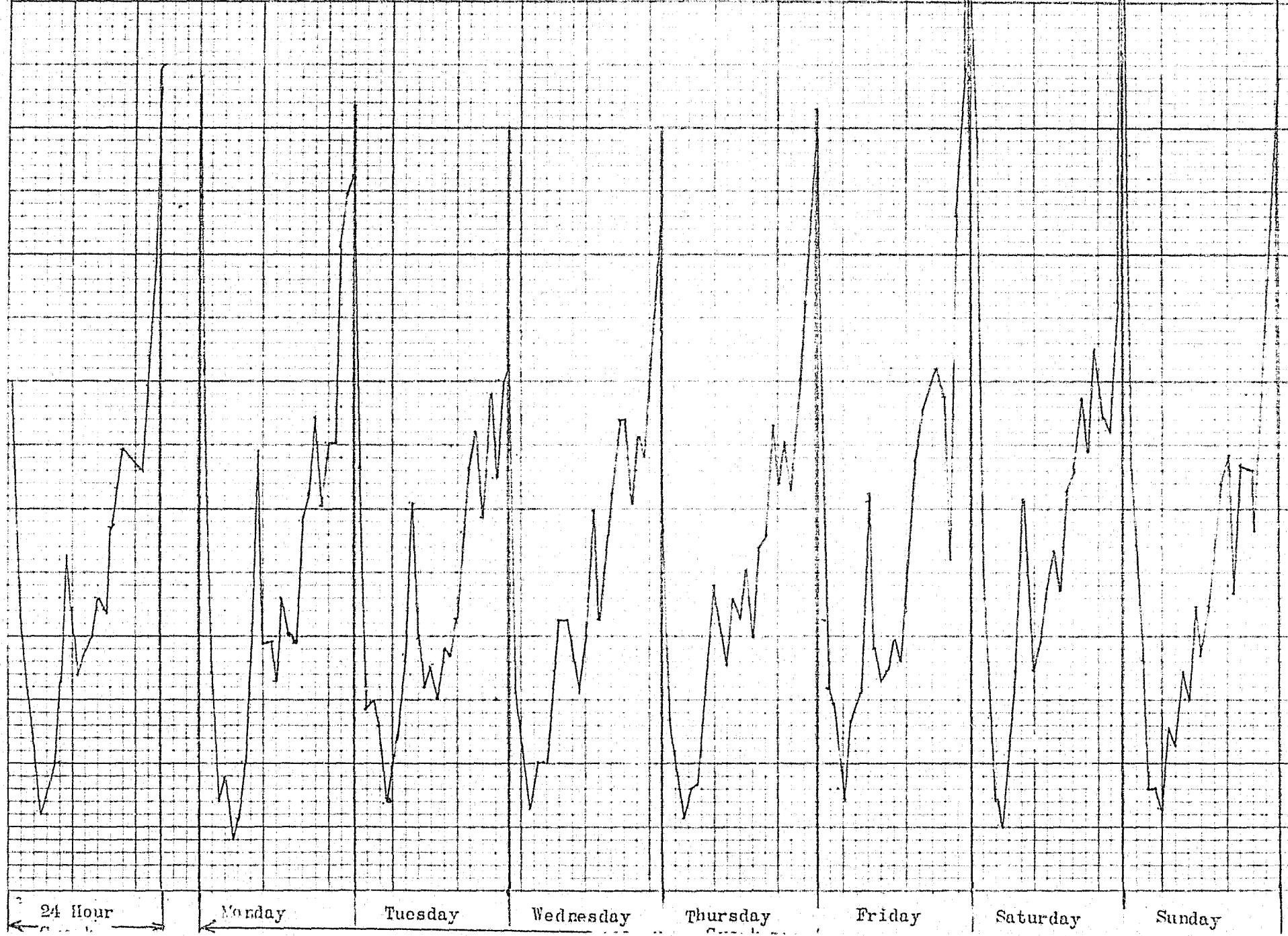
TABLE 5

Number of Calls for Service

24 Hour ┆ Monday ┆ Tuesday ┆ Wednesday ┆ Thursday ┆ Friday ┆ Saturday ┆ Sunday

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TABLE 6

Number of Calls for Service (left axis): 39, 36, 33, 30, 27, 24, 21, 18, 15, 12, 9, 6, 3
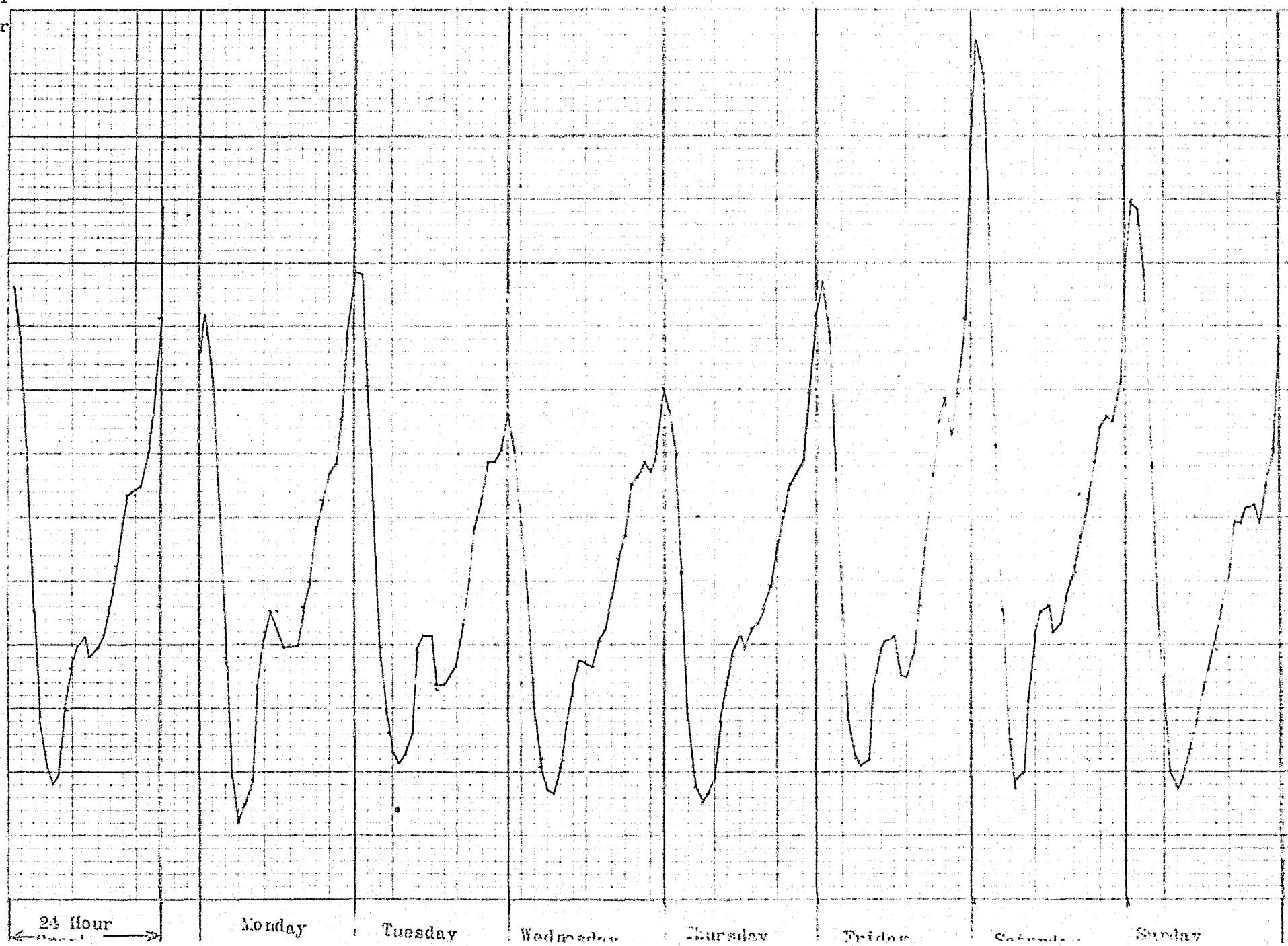
Number of Officers on Duty (right axis): 12, 10, 8, 6, 4, 2

- - - - - - Equal Shift Staffing
————— Workload Related Staffing

24 Hour Graph — Monday — Tuesday — Wednesday — Thursday — Friday — — Sunday

- 83 -
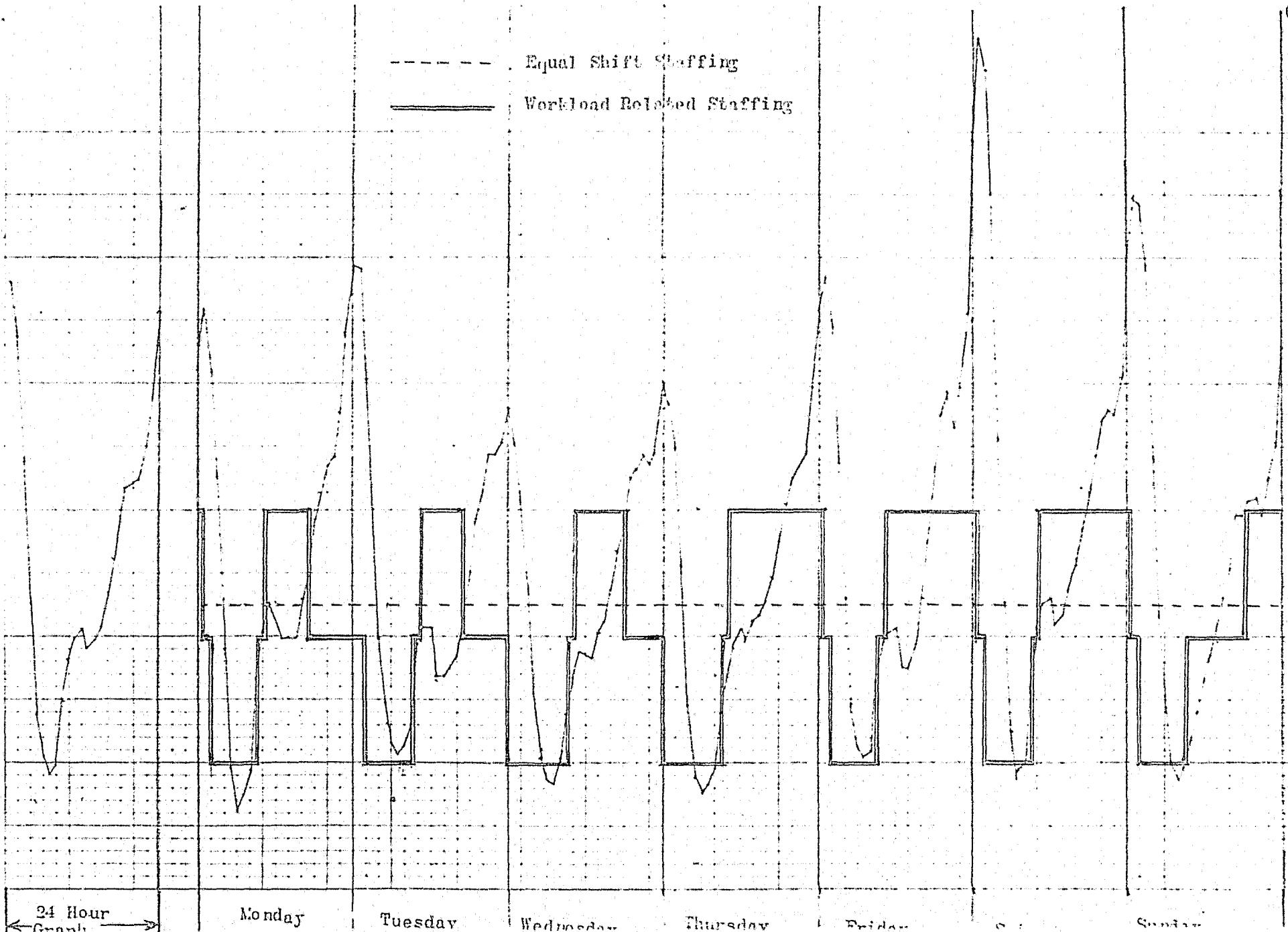
Table 7

Week \ Day	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.
1	10 pm – 6 am	10 pm – 6 am	10 pm – 6 am	WRD	WRD	WRD	WRD
2	WRD	2pm – 10 pm	2 pm – 10 pm	2 pm – 10 pm	2 pm – 10 pm	2 pm – 10 pm	2 pm – 10 pm
3	2 pm – 10 pm	WRD	WRD	6 pm – 2 am	6 pm – 2 am	6 pm – 2 am	6 pm – 2 am
4	6 pm – 2 am	WRD	WRD	6 am – 2 pm	6 am – 2 pm	6 am – 2 pm	6 am – 2 pm
5	6 am – 2 pm	6 am – 2 pm	6 am – 2 pm	WRD	WRD	5 pm – 1 am	5 pm – 1 am
6	10 am – 6 pm	10 am – 6 pm	10 am – 6 pm	10 am – 6 pm	10 am – 6 pm	WRD	WRD
7	WRD	5 pm – 1 am	5 pm – 1 am	5 pm – 1 am	5 pm – 1 am	10 am – 6 pm	WRD
8	WRD	9 am – 5 pm	9 am – 5 pm	9 am – 5 pm	9 am – 5 pm	9 am – 5 pm	9 am – 5 pm
9	9 am – 5 pm	WRD	WRD	10 pm – 6 am	10 pm – 6 am	10 pm – 6 am	10 pm – 6 am

WRD = Weekly Rest Day

Temporal Distribution

1. Hours of Work and the Twenty Four Hour Cycle of Rest and Activity; R. Wilkinson; from Psycology at Work; edited by Peter B. Warr; Penguin Education; 1971; Pages 48 - 49.

2. Patrol Operations: Performance Measurement and Improvement; W.J. Brown et al; Canadian Police Chief; July 1977; Page 24.

3. A Study of the Relationships among Fatigue, Hours of Service and Safety of Operations of Truck and Bus Drivers; W. Harris et al; Human Factors Research, Goleta, California; 1972.

Geographical Areas

One of the first reviews that a senior officer should make on taking over the command of an area is that of the beats. In most areas, beats remain the same as they were when they were designed as the area that could be patrolled by an officer on foot, with very little regard to work load, crime patterns, calls for service, etc. This view is not new as the following report published in 1926 indicates:-

" .... police forces are faced with the fact that under their present scheme of distribution, uniformed patrols are inadequate in number. Rising police costs render personnel increases inexpedient and undesirable. But this survey shows that the effect of a substantial increase can be secured if outworn schemes of distribution are abandoned and the patrol force distributed not according to conditions which existed a generation ago, but in line with conditions today."[1]

One of the reasons for the emphasis on geographic areas at the present time is the increasing use of computers in the police service field and the need to provide the data for the computer in as precise a mode as possible. Another is the aformentioned development in crime analysis which also needs precise information if it is to be meaningful and accurate when geographic analysis is involved.

Finally the recognition that conditions are changing and the need to have historic data that will indicate these changes has created the need for specific geographic areas that are small enough to precisely reflect the changes within that area.

In addition to the above, the breaking down of patrol areas into small units has the following operational functions:-

1. Decentralizes a total problem into small units.
2. Provides for an equitable distribution of work load.
3. Equalises response time.
4. Locates preventive and suppressive patrol in areas where needed.

These units are of a smaller area than a beat, indeed a good number can go into making up a beat and they remain constant even when the need arises to change the beat boundaries it can be done by the addition or removal of these small units.

In the U.K. the units traditionally used have been beats and occasionally the general 6 figure grid reference. As has been indicated, normal beats are too large to be

meaningful and in the 6 figure grid reference system even a small error can be proportionately large in relation to the area. In both the Glasgow and Birmingham Management Information System the grid reference system wr... used to plot locations of incidents.

In the North American Continent, considerable work has been carried out in plotting these units both normally and by computer. These units have been variously named, "atoms" or "reporting areas", and recently in the U.K. as "readily identifiable areas." Regardless of the name, these units are invariably polygons and the drawing up of them follows the same general pattern, although there may be minor modifications or differences. Problems can also occur in trying to fit the systems developed for the regular street layout of the North American towns and cities to the irregular street layouts of the U.K. towns and cities.

Bearing in mind this limitation the following do's and don'ts, taken from a workshop on Patrol Car Allocation at the Canadian Police College, Ottowa on 31st May, 1978, provide a good framework for anyone involved in breaking down police areas into small units.

"Do
- use major through streets as boundaries
- keep shopping centres, parks, low rental areas or areas of reported problems as one atom
- keep hospitals as one atom if possible
- atomize all major features, e.g. if a river goes through an area give it an atom number
- use major geographical features as boundaries; e.g. railway tracks, rivers, motorways
- use an entire university campus as an atom if possible
- try to keep the atoms about the same size, however the town centres will have smaller atoms than the suburbs
- enlist the help of patrol officers in designing the atom system
- try to number the atoms logically
- consult your local university or polytechnic to see what expertise they have in computers, geography and engineering
- enlist at least two people to carry out the entire atom project (this helps to keep human errors to a minimum)

Don't   --   let the number of atoms deter you. Leave the number open
- break up geographical entities
- break up city blocks if possible
- design the system by oneself, get help from senior patrol supervision
- be afraid to alter the system. Give oneself at least a month to consider and alter the atom map."[2]

In addition one is advised to draw the atoms freehand on the map of the area, using different colours for atom and beat boundaries. Once this has been done an atom directory should be prepared using large scale maps because streets may fall into more than one atom and the range of address must be included in the atom directory.

The atom system in Ottowa was developed for the original computer installation so "that the computer applications could be designed and programmed on an orderly basis" and now with the development of Computer Aided Dispatch and Records Entry (CADRE) the same system of atoms is still used, indicating that properly planned, developed and implemented atomization can be used for succeeding more sophisticated equipment and programmes.

Another interesting factor was that the Ottowa Police Force had the assistance of members of the National Research Council for Canada, including Dr. F.R. Lipsett, one of the foremost authorities on this form of geocoding in the development of their atom system.

The growth of computer capacity and availability has led to the development of computer programmes which can draw the atoms and can utilize them in interactive analysis. To do this it is necessary first of all to make up a data set of uniquely numbered points or reference points from the map it is desired to use. These numbers are then entered in sequence, with the first number being re-entered again last to close up the border into the computer. This is different from the usual system of having photographic slides in so much as that any point on the map can be indicated by the use of the unique numbers that have gone into making up the map, thus increasing the flexibility of the mapping applications.

In the U.S.A. and Canada recent developments in the applications in this field have been based on the census tract information available in these countries from their respective Census Bureaus. This gives the advantages of "census data that are available at the block, block group and tract level are extremely useful for evaluating the environmental context in which crime occurs and also for constructing crime rates

based on actual population figures."[3] Thus one is further refining the analysis by
quantifying a previously unquantifiable variable in the crime analysis field and
showing more specifically the relationship between the criminal act and the immediate
population in the vicinity of that act. In the U.K. there are also moves to try to
establish this link. In 1977 Gordon Turnbull of the Police Scientific Development
Branch stated that research had commenced to try "to relate occurrence of incidents
and crimes collected by a Command and Control system in a given area to a demo-
graphic characteristics of that area, i.e. rateable value, average earnings, social
standing, average age. .... one of the major problems has been to collect the
social data on the same location basis as incident, crime and traffic data."[4]

Once the area has been broken up into units, then one needs to look at the make up of
the beats and whilst one is bound by natural boundaries, e.g. rivers, railway lines,
motorways, etc. there can be a considerable amount of flexibility in the adjustment
of beat boundaries. However, it should be remembered that the adjustment must not
be made in isolation for changes in beats can alter the work load, balance, response
time and the need to respond to calls for service in adjacent beats. There has been
a considerable amount of work into developing computer models that can be used to
analyse the effect of different beat configurations on performance and service provision,
but it is not necessary to have a computer to carry out any beat reviewing provided
that the following points are borne in mind:-

1. Beat area and In-Beat Travel Time. In general, it has been shown that the travel
   time average within any area, this includes a beat, is proportional to the square
   root of the area; thus a beat twice as big as another will have travel times only
   1.4 times as great. There is also a conflict between work load balance and travel
   times in cases where some beats have a high population density and others have a
   low populations density, it is up to the designer of the beats as to whether work
   load balance or travel time has the priority.

2. Beat Shape:- Bearing in mind the constraints of natural boundaries, the beat
   designer will want to provide good police accessibility. This usually dictates a
   fairly compact shape in which the long dimension is no more than twice the wide
   dimension. If a planner is concerned with the worst possible situation he should
   determine the longest possible travel time and use this as an element in his beat
   design.

3. Travel Speeds. Travel speeds may differ in different directions so the beat should be designed to be longer in the faster direction to equalize the travel times.

4. Number of Out of Beat Dispatches. Both experience and computer models show that dispatches which involve a patrol unit that is not the one in whose beat the incident is located increase in number as the work load of the area increases. This in general is equal to the proportion of busy time, i.e. if the calls for service take up 25% of time available then out of beat dispatches will be 25% of all dispatches.

5. Work Load. Since patrol units spend some of their time answering calls outside his own beat then the work load of a unit is different to the work load of a beat. To work out the exact relationships of these two work loads is best left to a computer, the main thing is that the designer is aware of this fact.

6. Burden of Central Location. A patrol unit in a beat that is centrally located will be the nearest candidate for out of beat dispatches in more than half of the beats surrounding it and therefore will be subject to more out of beat dispatches than any other unit.[5]

It is not suggested that adherence to the above points will provide the optimum beat, what they will do is make one aware of the different aspects involved and thereby result in at least a more complete planning of beat location and size.

Geographical Areas

1. Missouri Crime Survey; The MacMillan Co; 1926; Pages 46 - 47.

2. Ottowa Police Force Description of the TOPCOPS System; Ottowa Police Force; Page 20.

3. A Crime Analysis Research Package (CARP): A Strategy for the Display and Analysis of Spatially Referenced Crime Data; Perry O. Hanson et al; Paper presented at Proceedings of the Workshop on Mapping and Related Applications of Computers to Canadian Police Work; 13 - 14th April, 1977; Page 82.

4. United Kingdom Practice in the Use of Location Information; Gordon Turnbull; Ibid; Page 15.

5. Based on Patrol Force Allocation for Law Enforcement - an introductory planning guide; R.L. Sohn et al; Jet Propulstion Laboratory, California Institute of Technology, California; 1976; Pages 26 - 27.

Measures of Performance

Measurement of police activities is complicated by the absence of easily quantifiable goals and objectives. However, this should not be used as a reason for not attempting to measure police activities. Goals can be agreed upon and certain activities are important enough to warrant measurement per se. There is, in fact, a feeling that careful measurement and analysis will produce a better understanding of the relationships between specific police activities and the broad police and community goals.

A development which has tended to alienate police officers in relation to police activity measurement has been the use by mathematicians of mathematical terminology e.g. standard deviation, correlation coefficient, linear regression etc. Whilst it is accepted that this is a necessary part of the development and proving, of quantitative measurement techniques their use, and that of complicated equations, is sufficient to discourage police officers from examining the literature and becoming aware of current developments.

Therefore, it would be better if everyday terms were used and equations used only when absolutely necessary and again with the various parts set out in full in normal language.

Regardless of what means are used, the principle purpose of measurement must be to provide information that is sufficiently precise to enable senior police officers to examine all aspects of their particular command area. However, it must always be borne in mind that measurement should be the servant and not the master. It should assist the senior police officer in making decisions and not dictate the courses of action he should take. It should be an ongoing system so that changes, not only in unlawful activities but also the citizen perception of police responsibilities, are identified and steps can then be taken to meet these changes at an early stage.

The objectives of measurement, for the senior police officers, should be:-

1) Evaluation of the performance of their command area.
2) Identification and diagnosis of problems.
3) Design of solutions and improvements.

The two areas of measurement are:- 1) Input, and 2) Output, and they can be used separately or together to provide relevant information. Again, however, in common with most service industries it is easier to measure input than output. The problem is further compounded by the fact that straightforward quantitative measures need to be further evaluated to provide indicators which show:-

1) Efficiency
2) Effectiveness
3) Quality

In an attempt to show the relationships of the various components in respect of the patrol function a Patrol Performance Model is shown in Fig. 1.

Fig 1

Patrol Performance Model

Department Objectives

System Inputs

Costs

Man years
Captial costs
Vehicles
Hardware
Support serv-
ices

Others

Operational Strategies

Tactics

Tactical cars
One two man car mix
Dispatch guidelines
Patrol area realign-
ment
Shift schedules

Others

Society

Interaction

Of

Elements

System Outputs
(Efficiency Measures)

Performance Indicators,
Dispatch/Queue delay,
Travel time
Service time
Utilization factor
Amount prev. patrol
Self generated work load
Others
Overtime

External factors indicators

Inflation rate
Unemployment rate
Criminal justice system,
Operations
Court decisions
Gaol population
Others

Program Outputs
(Effectiveness measures)

Performance Indicators,
Degree of Crime Prevention,
Degree of Deterrence
Degree of Apprehe-
nsion.
Clearance rates
Quality of service
Citizen satisfaction
Feeling of security
Others

It is obvious that the 'External Factors Indicators' are not measures of police activity but they may be indicators of future or present police problems e.g. an increase in the unemployment rate may precede an increase in the crime rate.

In the preface to the 1977 Northumbria Police Annual Report, the Chief Constable, S.E. Bailey, Esq., Q.P.M. stated, "Unemployed people were responsible for the commission of 38% of all detected crime in the first half of 1977; an increase of 50% on the same period for 1975."[2]

This period corresponded with an increase in the area in the level of unemployment. However, the remainder of the model is within the ambit of the police service, even the interaction of elements in relation to society. Objectives have already been discussed. Whilst costs are the most easily defined and tactics are ongoing policy decisions. Some of the system outputs and programme outputs have already been discussed but the following measurements can be used in conjunction with the systems already described or on their own.

Police Patrol Measurements

Increasing Patrol Time.
1. Measure to help determine the ability of management to make manpower available for patrol:

Patrol Officers Assigned to Street Patrol Work
Total Patrol Officers

This measure does not indicate whether the patrol officers thus assigned are accomplishing anything useful. It is an indication of the department's success in making sworn officers available for more directly patrol-related activity.

2. Measure to indicate the extent to which patrol time out in the field is being committed to patrol activities:

Man-Hours of Patrol Time Spent on Activities Contributing to Patrol Objectives
Total Patrol Man-Hours

Time can be "lost" by performing non-patrol tasks during duty hours. Examples are filling out unnecessary forms, servicing vehicles, running errands, and spending

unnecessarily long hours waiting for court appearances. As noted for the previous measure, this measure does not indicate whether the time made available is put to good use. It does measure success in making more time available, which can be turned to good use.

Maximizing the Impact of Patrol:
Deterrence

In the absence of a direct measure of deterrence, three types of substitutes were used:

3. Existing reported crime indices, used with discretion.
4. Victimization surveys.
5. Quantitative measurement of activities which professional judgement suggests contribute to deterrence.

Maximizing the Impact of Patrol:
Patrol Response Time

6. **Number of Calls of a Given Type Responded to in Under "X" Minutes**
   Total Calls of That Type

"X" minutes is used in the numerator to indicate that different response times are appropriate for different types of calls. The value of "X" would depend on whether the call was an emergency or non-emergency call, or whether the call was about a crime in progress, suspicious activity, or previously committed crime. Additional break down by type of crime may also prove helpful. A call about a bank robbery, for example, may require a more rapid response than a larceny in progress. In each case the department must determine for itself what is a desirable response time ("X") for a particular kind of call, based upon the considerations noted above.

7. **Number of Calls Responded to in Under "X" Minutes**
   Resources Devoted to the Response Function

To the extent that measures 6 and 7 reveal inefficient resource use, it would help, in diagnosing the problem, to divide response time into three segments: Dispatching delay, queue delay, and travel delay.

The note under measure 6 also applies here.

8. Measure of response effectiveness in leading to arrests:

$$\frac{\text{Arrests Where a Person is Charged or Reported Resulting From a Response to a Crime Call}}{\text{Crime-Related Calls for Service}}.$$

Again, this measure should be applied to appropriate categories of arrest and be calculated separately for each major type of call.

Maximizing the Impact of Patrol:
Apprehension of Criminal Offenders

9. Measure for apprehension productivity:

$$\frac{\text{Arrests Resulting from Patrol where a Person is Charged or Reported}}{\text{Total Patrol Man-Years}}$$

10. Measures of the ultimate disposition of arrests, which provide an additional check on the quality of apprehensions and post-arrest activities:

$$\frac{\text{Convictions}}{\text{All Arrests Made by Patrol Force}}$$

11.

$$\frac{\text{Convictions}}{\text{Arrests Resulting From Patrol where a person is Charged or Reported}}.$$

Measures 10 and 11 also may be calculated separately for each arrest category to provide more detailed information.

Provision of NON-Crime Services

12.

$$\frac{\text{Number of Non-Crime Calls for Service Satisfactorily Responded to}}{\text{Man-Hours Devoted to Non-Crime Service Calls}}$$

Here the number of calls includes both emergency and non-emergency situations.

13. Calculating the measure separately for major categories of non-crime service calls. This would be useful. For example:

Medical Emergency Calls That Emergency Room Personnel Evaluate as Having
Received Appropriate First Aid
Total Medical Emergencies

Managing Human Resources

14. Number of Complaints against the police (perhaps only those clearly supportable)
Total Number of Department Personnel

Several types of complaint and disciplinary actions can be lodged against officers;
for example, for illegal search, illegal detention, illegal confiscation of property,
and other acts of criminal and unethical conduct against the public, for for violation
of departmental policies and regulations, ranging from insubordination to sleeping on
duty.

15. Number of Man-Days Lost During the Year Due to Illness, Disciplinary Action,
And Injury
Total Number of Man-Days Served During the Year

16. Total Turnover During the Year
Total Number of Department Personnel

These measures may appear to be simplistic, irrelevant or too easy to be valid.
This is not so, e.g. for measurement 2, one would have to carry out an activity
analysis of the officers involved. The relevance of these measures is shown by an
activity analysis for a division in a U.K. police force where they found that preventive
patrol took up 23.8% of the time of all uniformed police officers in the division whilst
patrol officers are able to devote 43.3% of their time on preventive patrol and 26.5%
on task work.[4]

From this, it would appear that nearly one third of the patrol officer's time is taken up
with non relevant work, whilst it is accepted that some non relevant work is unavoidable
any reduction must be looked for.

However, one must beware of the varying effects that any changes in procedures have
on the productivity of the police service. One must recognize the types of change and
also the rate of change. These rates of change are two of the readily quantifiable
aspects of police measurement, providing the goals have been set realistically, e.g.

reduction in residential burglaries within a specific area. Through a procedure termed 'time series analysis' i.e. the use of measurements taken at different times, before, during and at the end of a particular type of policing. The advantages of such a procedure are that one has measurements and figures for a period of time before the intervention of any change in policing also it is normal practice to maintain ongoing measurements whether there is any change or not, therefore one is not requiring any additional effect on the part of the police service.

The types and rates of change can best be shown graphically as follows with (I) being the intervention point and the time scale reading from left to right.

A   Abrupt change in level   (I)

B   Delayed change in level   (I)

C   Temporary change in level   (I)

D   Abrupt change in direction   (I)

E   Delayed change in direction   (I)

F   Temporary change in direction   (I)

G   Accelerating change in direction   (I)

5

From these very simple diagrams, one can see that it is imperative not to make early judgements on the success or otherwise of a scheme one must allow a reasonable period of time to elapse. There is a need to monitor all programmes, whether newly introduced or established practices so that any changes in effectiveness or efficiency are recognised as soon as possible. This will enable senior officers to look for the causes in the change and, if detrimental, change or adapt them and if good, enhance them and use them in other situations if possible.

It would be wrong to look at performance measurements and not examine the traditional performance measurements of the police service, recorded crime and detected crime. These crime figures are probably responsible for the distrust of statistics that has grown up within the police service. They are still used for the establishment of man-power levels, make up the bulk of Chief Constables Reports and the changes are widely reported by the media as a reflection on the effectiveness or otherwise of the police service.

The major area of concern is the crimes reported to the police, the estimates of crimes committed which eventually are recorded, range from 15 per cent by Leon Radzinowicz to 25 per cent by Howard Jones.

These are for all crime and it is obvious that there are differences between offences. Even so, the number of offences committed is always greater than the number reported. Another way in which the number of crimes reported are reduced by the recording system is the way in which the police downgrade or fail to record on crime. The following figures are a comparison between the police and legal classification of robbery in London in 1957.

Police Classification			Legal Classification	
	Number	%	Number	%
Aggravated Robbery	280	70.4	400	95.5
Other Robbery	118	29.6	19	4.5
Totals	398		419	

6

Here a total of 21 crimes were lost and the proportion of the less serious offences in the eyes of the police were much greater.

Thus when one is using crimes recorded and detected as indicators one is talking of a very small number in relation to crimes committed. Given the highest estimate of 25% for every 100 crimes committed one is only aware of 25 and if it is taken further with a good detection rate of 50% what it means in reality is a 12.5% detection rate of crimes committed. This very conservative estimate shows the dangers of relying on the present crime statistics for evaluation purposes.

Another danger is that changes in police procedure can indicate a wide fluctuation in crime whereas in reality it is merely a change in recording. A re-organisation of New York City Police Department in 1950 led to a recorded increase of 400% in robberies, 200% in assaults and 700% in thefts over the previous 2 years.[7] Less spectacularly but equally relevant was the fact that it was estimated that only 13% of the increase in the recorded crimes of violence between 1949 and 1960 was due to changes in recording procedures.[8]

The final danger is the fact that each crime recorded is the equivalent of the other crimes regardless of the gravity or complexity of the offence and the subsequent enquiries. Whilst it is recognised that it is difficult to apply weighting factors to crimes one must attempt to be realistic when examining crime statistics and look at a breakdown of types as well as total figures. This way it will be possible to at least make an informed estimate of resources consumed.

Having outlined these inherent problems does not necessarily mean rejecting the crime statistics as compiled at present as a method of measurement in relation to the effectiveness and efficiency of a department. In most cases these are the only measures available. It merely means that one must be constantly aware of the restrictions.

Measures of Performance

1. Patrol Operations: Performance Measurement and Improvement; W.J. Brown et.al; Canadian Police Chief; July 1977; Page 20.

2. Chief Constable's Report, Northumbria Police: S.E. Bailey, Esq., Q.P.M., Northumbria Police; 1977.

3. Opportunities for Improving Productivity in Police Services; Report of the Advisory Group on Productivity in Law Enforcement.

4. The Analysis of a Territorial Division, P.J. Arkell; Police Research Bulletin; H.M.S.O., Summer 1975 Pages 15 and 16.

5. Special Police Units in Michigan - An Evaluation; R.G. Lewis; Criminal Justice Systems Centre, Michigan; 1977; Page II 54.

6. Robbery in London; F.H. McClintock et al; Macmillan, London; 1961; Page 5.

7. Crimes of Violence, M.E. Wolfgang; Presidents Commission on Law Enforcement; 1967; Page 33.

8. Crimes of Violence; F.H. McClintock; Macmillan, London; 1963; Page 66.

Community Involvement

'A constable is a citizen locally appointed .....' thus starts the definition of what a police constable is. The key term is the fact that he/she is a citizen, a member of that community in which he/she serves and not set apart.

This is the crux of policing in a democratic society, it is policing by the consent of the community. In the recent past, this factor has been overlooked and the police service has tended to concentrate its efforts to the narrow enforcement reactive type of policing. The proactive policing has been neglected and as a result a vast majority of the community have felt the police service moving away from the original concept of integration. Fortunately, this neglect has been recognised and police forces in the U.K. and abroad are doing more and more to lower the barrier between the police officers and the community they serve.

This ranges from the setting up of community involvement or community relations teams, to fully integrated Community Oriented Team Policing. In relation to this latter system it has been said: "A very efficient team might control or occasionally reduce crime within their assigned district without community involvement. However, significant and consistent reductions can only be achieved through the development of a correlated community involvement programme, and the establishment of mutual police and community objectives to resolve specific problems as they arise."[1]

So everything that has been already discussed would have greater effect if coupled with a good community involvement type of programme. To devise and set up such a programme, however, requires a great deal of dialogue and planning.

The community involved has to be brought into the scheme at a very early stage and they have to be participants at all stages. It is useless to think that the police service can merely devise a programme and impose it on the community. The police service will have to learn to listen to what the public have to say, not merely the minority groups either, it will be necessary to go out and solicit the opinions of all members of the community.

This will invariably need the compilation of a form of questionnaire. This will be a costly programme but initially the cost can be kept down by aiming at those people who have requested the services of the police and who can therefore make authoritative comments. Two such questionnaires which were developed in Edmonton, Canada and

Kansas City, Missouri, U.S.A. are given in Appendix 'A'. It must be borne in mind however, that this will be a limited sample and not a true population sample. What it will be is a start, a means of gauging public attitudes in relation to all the facets of police work.

Once this starting point is established then one can review the organisation, it is not suggested that the police service falls in line with all the changes indicated by the public response. We ourselves must educate the public where, in our opinion, their perceptions of what is at fault are wrong. It is important not to lose sight of the proper objectives when developing this police community dialogue which are to anticipate, identify and resolve problems. This will not happen if we bow to all pressures and lose our identity neither must we be so dogmatic that everyone must fall in with our dictates.

There must be a recognition that as well as mere policing by consent there is now a need for joint action and the community recognise that they will have to give active support to the police service. The increase in crime and disorder has stretched police resources to the limit and if the community does not want to face phenominal increases in costs then they are going to have to contribute.

This can be by simply taking more care of their own property making it much more difficult to steal, also, not taking risks with their own or other peoples lives, especially when driving and finally by exercising more parental control over their children. It is this latter factor that is causing most concern for it would appear that a considerable number of parents operate on the principle of 'out of sight, out of mind' and are most surprised when their children are involved in crime, vandalism or disorder, stating that they were unaware that the child was where he was, doing what he was doing.

The police service is now doing its little bit in trying to get closer to the children through school liaison and community involvement teams and the setting up of voluntary cadet schemes. There are also a considerable number of individual police officers who, in their own time, organise youth clubs, sporting teams and other social activity. These are the children we can get to who would be unlikely to get into serious trouble, though what is needed is a means of getting to those children most at risk, the ones who see the police as symbols of authority and the establishment. As their attitude is generally anti authority and establishment, police officers are, to say the least, viewed with suspicion.

This is obviously an area where the community, either through individuals or collectively, can try to provide a means of guiding the activities of these youngsters in the right direction.

However, only so much can be done by outsiders. The main area of control is still the family and parental control, and example are still the best ways of inculcating children with good social behaviour and habits.

One area in which the police service can direct the community at large in ways of aiding them is by instructing them on what to observe. By co-opting the community to act as additional eyes and ears for them, then the effectiveness of the police service is greatly increased. The following is a copy of some of the instructions on a leaflet from an American Police Force:-

What is Suspicious?

Your Police Department cannot function effectively without the concerned assistance of responsible citizens. We are depending on you to call and report all suspicious persons or actions.

Some people fail to call us simply because they are not aware of what seemingly innocent activities might be suspicious. Others may notice suspicious activity and be hesitant to call for fear of seeming a "nosy neighbour" or a "crank". Still others take it for granted that someone else has already called.

Call the police immediately about all suspicious activity and do it yourself. Do not worry about "bothering" us because this is what we are for. Do not worry about being embarrassed if your suspicions prove unfounded. Think instead about what could happen if you do not act.

Information Most Often Needed

What happened? When did it happen? Where did it happen? Was anyone hurt?

Description of persons: (include clothing). When describing suspects, notice age, race, sex, height and weight. Compare your own weight and height with the suspects. Pick out some unique characteristics (scars, noses, jewellery, etc.) that will help you

identify the suspect in the future if need be.

Description of vehicle: License number, make, model, colour, any noticeable damage and direction of travel.

"Obvious things to watch for"

Basically, anything that seems even slightly "out of place" or that is occurring at an unusual time of day could be criminal activity. Some of the most obvious things to watch for and report include:

A stranger entering your neighbour's house when it is unoccupied, may be a burglar.

A scream heard anywhere may mean robbery or assault.

Offers of merchandise at ridiculously low prices could mean stolen property.

Anyone removing accessories, license plates or gas from a car should be reported.

Anyone peering into parked cars may be looking for a car to steal or for valuables left displayed in the car.

Persons entering or leaving a business place after hours could mean burglars.

A sound of breaking glass or loud explosive noises could mean an accident, burglary, or vandalism.

Persons loitering around schools, parks, secluded areas or in the neighbourhood could be sex offenders.

Persons around the neighbourhood who do not live there could be burglars.

"Some Not So Obvious Things to Watch For"

Not every stranger who comes into your neighbourhood is a criminal by any means. There are many perfectly legitimate door to door salesmen, repairmen, and servicemen moving around our neighbourhoods all the time. But criminals do take advantage of this by assuming the guise of legitimate business representatives. After all, if a

criminal looked like a criminal, no one would have any trouble spotting him.

Check identification of all solicitors, meter readers and repairmen, prior to allowing entry into your home. Be suspicious of an alleged deliveryman with a wrong address or asking if someone else lives there. Some of the not so obvious things to watch for are:

Someone going door to door in your neighbourhood: Watch for a while. If, after a few houses are visited, one or more of the persons tries a door to see if it is locked, looks into windows, or goes into a back or side yard, it could be a burglar. Such action is even more suspicious if one person remains in the front when this occurs or if there is a car following a few houses away. Call the police department immediately; do not wait for the person to leave.

One or more juveniles walking casually through the neighbourhood looking into automobiles, backyards etc.

Anyone forcing entrance to, or tampering with a residence, business or vehicle.

A person running, especially if carrying something of value.

Someone carrying property: If it's at an unusual hour or in an unusual place or if the property is not wrapped as if just purchased.

A person exhibition unusual mental or physical symptoms: May be injured, under the influence of drugs or otherwise needing medical or psychiatric assistance.

Human traffic to and from a certain residence: Is not suspicious unless it occurs on a daily or very regular basis; especially during late or unusual hours. It could possibly be the scene of vice activities or a fence operation.

Any persons taking a shortcut through a backyard: May have just broken into your neighbour's home.

Any vehicle moving slowly and without lights or following a course that appears aimless or repetitive in any location: But particularly so in areas of schools, parks and playgrounds. Occupants may be looking for places to rob or to burglarize, or they

could be drug pushers or sex offenders.

Parked, occupied vehicles containing one or more persons: If it is an unusual hour they could be possible lookouts for a burglary in progress, even if the occupants appear to be legitimate.

Vehicles being loaded with valuables if parked in front of a closed business: Or unattended residence -- even if the vehicle is a legitimate looking commercial vehicle. More and more professional thieves are taking the time and trouble to customize their vehicles with special signs in order to move more freely without suspicion.

Apparent business transactions conducted from a vehicle: Especially around schools or parks. If juveniles are involved, it could mean a possible drug sale.

Persons being forced into vehicles: Especially if juveniles or females may mean a possible kidnapping.

An abandoned vehicle parked on your street: May be a stolen car.

Continouous repair operations at non-business locations: Could mean stolen property is being stripped, repainted or otherwise altered.

Open or broken doors or windows at a closed business or residence: Whose owners are absent could mean a burglary in progress or already completed.

A beam from a flashlight in a neighbour's home: Especially if they are away.

Persons wearing or carrying bloody clothing: Could be a suspect or victim or a serious crime.

Persons making a quick change of vehicles: May be attempting to elude the police or abandoning a stolen vehicle.

While some, if not all, of the suspicious situations described could have innocent explanations, the Montgomery County Police Department would rather investigate a crime-prone situation than be called when it is too late. Your call could save a life, prevent an injury or stop a criminal act. Be Alert!

Another more simplified approach is the 'Ten Steps for Safety' used in the Community Oriented Policing in Santa Ana. These steps are:-

Ten Steps for Safety

1. Know your neighbours.

2. Assist your neighbours by watching their property.

3. Ask your neighbours to watch your property.

4. Instruct your family on how to answer a door with safety in mind and how to answer the telephone.

5. If you live near a school, establish rapport with school officials.

6. Be suspicious.
   a. Report suspicious salesmen.
   b. Report suspicious cars.
      1) Get full description and license number if possible or report a suspicious activity.
   c. If it is unusual to you, then it is suspicious.

7. Attend scheduled neighbourhood meetings and keep informed of community problems and crime trends.

8. Know your police officers.

9. Learn what you can about the police need when you contact them in regard to crimes or suspicious activity.

10. Investigate.
    a. If your dog is barking, see why.
    b. If someone screams, see why.
    c. Don't take action, just determine if there is a possible problem.
    d. Don't take a chance, don't be a hero, we pay the police to take the chances.
    e. Don't take the law in your own hands! Help the police to make your neighbourhood safe! Be a concerned citizen.

3

The claims for the success of this type of approach is given in a leaflet given to members of the public which states that in 1976 major crime decreased by 18.03% with burglary down by 21.03% and rape down by 47.15%. This leaflet also states that "One of the major benefits of this programme is that it frees the officers so they can spend part of their time in activities designed to prevent crime rather than simply responding to crime after it has been committed."[4]

The police service will also have to become more open in its approach. This 'open book' policing will remove some of the mistique and misconceptions. One must always be bound by rules of privacy and official secrets but there are areas that the public can have access to. The major area that interests the public in general is the actual physical police work. This is done in most police forces in the North American Continent by means of 'Ride Along' programmes.

These programmes enable members of the public to accompany the patrol officer in his car during his tour of duty. The major provisor being that the members of the public must sign a Waiver of Liability before they go along. Additionally, senior officers have an absolute right to refuse or approve the persons who can participate.

Finally, it will be necessary to try to dispel the myth that what is required is a greater presence of uniformed police officers. That it is a myth is recognised by senior officers. One, Mr. C.J. Dear, Assistant Chief Constable of Nottinghamshire Police stated that when asked what they required of the police, the public response was "Crime prevention and detection was hardly mentioned. Instead, the requirement was for a greater presence by uniformed patrolling policemen, with all the illusions of safety that it embodies. Illusion it almost certainly is for unless patrolling levels are maintained at an unrealistic saturation density; it has been almost conclusively proved both at home and abroad that overt patrolling does little to either raise or lower the crime rate. It is, however, what most people require."

As has already been stated, it is only through the joint efforts of trained police officers, and concerned and involved citizens that the crime problem will eventually be resolved.

This was summed up by John Alderson, Chief Constable of Devon and Cornwall Police in a radio programme File on Four, "There are three ways for this job of policing a modern democratic society to go: one is to a kind of restless anarchy and turbulence where nobody quite knows what to do; the other is more repressive powers to press down on and subjugate the liberty that has been worked for over the decades; and thirdly is an enlightened way where the police and the public enter int a partnership and together help to reduce the growth of delinquency by working at the seedbeds of crime."

Community Involvement

1. Community Oriented Team Policing – Implementation Plan; Raymond C. Davis; Santa Ana Police Dept; 3rd Edition 1976; P.3.

2. Untitled Crime Prevention Handout; Montgomery County Department of Police, Maryland.

3. Community Oriented Policing – A Training Manual; Raymond C. Davis; Santa Ana Police Dept; 1975; Page 2.

4. Community Oriented Policing, An Information Leaflet; Raymond C. Davis; Santa Ana Police Dept; 1977; Page 4.

Summary

The foregoing systems, concepts and ideas have been presented in order to stimulate thought in the field of law enforcement. They have not been presented as answers to problems, merely as steps and indicators on the way to reaching an answer. As aids for experienced senior officers and not as replacements for their experience.

The presentation of these systems may appear to some as very simplistic, this is only so far as those experienced in the field of operations, research and other related management science fields. The aim has been to present these complex topics in plain language to encourage more people to become involved in the discussions. It could be that the utilization of one or more of the systems described could be the catalyst that is needed to change a passable force, department, division or station into an exceptional one.

The police service is, to a large extent, unique and as such is under constant scrutiny. This has resulted in an insular attitude and a conservative approach to change. One should always beware of 'change for changes sake' but one must be open minded enough to accept change which can be for the benefit of the service and the community.

There is also the need to be aware of the participants involved in any change. "Productivity improvement invariably arouses serious concerns among workers and managers alike. Fear of the unknown and the implied threat to job security are but two of the concerns which often cause apparent defensiveness. Those who are to be affected by changes deserve the opportunity to understand the program, express their ideas and concerns and have them taken into account in the planning and be adequately trained and prepared for any change in their jobs. The difficult challenge, then, is to create a co-operative environment in which methods of improvement and work measurement can be utilized to the fullest potential."[1] This is true whether the participants are police officers, civilian employees or members of the community.

One also needs to be aware of changes in the computer field. This field is undergoing an ever increasing rate of change. Whilst computer applications have only been mentioned in passing, it is felt that their greater use will not supercede the systems previously described but will utilize them. It merely means that a lot of the tedious complicated mathematical processes will be completed much quicker and more accurately.

That this is so can be seen by close examination of computer programmes now available. Systems such as Hypercube Modelling Simulation or Law Enforcement Manpower Resource Allocation System (LEMRAS) all contain several if not all of the following:-

1. Geographic Distribution
2. Temporal Distribution
3. Crime Analysis
4. Call Priority
5. Workload Analysis
6. Measures of Performance

It therefore follows that an understanding of such concepts will make it easier when computer applications are widespread throughout all levels of the police service. It will also remove the computer from the realms of the magic machine as a considerable number of people regard them. It shows them for what they are, equipment which is capable of performing logical functions very quickly.

As times change then it is necessary for an organisation to change with them. As an organisation the police service is in a better position than most in so much as it is comprised of personnel who have been selected from the pool of people of above average physical characteristics and average and above mental ability.

The future of the police service will always be assured, but only by utilizing the abilities of all the personnel, adaptation and adoption of new technology and the judicious use of new systems can it become the leader in the field of service provision.

Summary

1. Improving Municipal Productivity: Work Measurement for Better Management; Patrick Manion; The National Commission on Productivity and Work Quality; November 1975; Page V.

Appendix 'A'

OPERATION CITIZEN PARTICIPATION

Dear Edmonton Resident:

Could you take a small amount of time to help your City's Police Department. We understand that you recently requested police assistance and we are interested in your feelings about the incident. All that is required is for you to complete the enclosed questionnaire and return it, using the self-addressed, postage paid envelope.

The Edmonton Police Commission and the Edmonton Police Department are reviewing service delivery methods in an effort to find ways to provide better protection and service to you. What we desire from you on the questionnaire is your impression of the way your call was handled by police telephone operators, an accurate estimate of the amount of time it took for police to respond to your complaint, and an appraisal of the way your complaint was handled by the police at the scene.

While your name has been chosen by chance, the method of selection makes it important that your opinions be obtained to help insure the accuracy of the results. No individual involved in the survey will ever be named or otherwise identified with the results of the questionnaire. Each reply is kept in strict confidence, but the statistical results of replies will be carefully considered.

We look forward to your co-operation, and thank you for your assistance. If you have any questions, please contact Mr. Bill Brown or Mr. Bruce Butler of our Operations Analyses Section at 428-3920.

Sincerely,
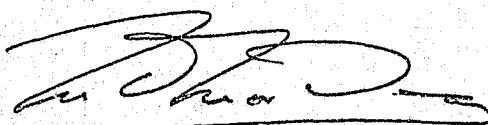
M. D. MacDonald
Chairman
Edmonton Police Commission

OPERATION CITIZEN PARTICIPATION

QUESTIONAIRE

All Questions Refer Only To Your Request For Assistance On

, 19

COMPLAINT EVALUATION

We are interested in your definition of the complaint as well as your impressions of the way your call was handled by police telephone operators. Please circle or check the appropriate response or write your answer where requested.

1. How would you describe your request for police assistance? (please circle only one)

    Life or death emergency/crime in progress 1

      OR

    Urgent 2

      OR

    Routine 3

2. What was the time interval from your observation of the problem until you contacted the police telephone operator?

    Called immediately 1

    Please write the time in minutes here . . . . . _____

    Don't remember 2

3. Please indicate your feelings about the time taken by the police operator to answer the phone.

    (please circle only one)

    There was no answer, phoned later 1

    Don't remember 2

    I was satisfied with the time taken to answer the phone   3

    I was dissatisfied with the time taken to answer the phone 4

4. How would you describe the police operator's attitude dûring the conversation? Please check one box only for each of questions a, b, and c on scale of 1 to 7.

    a.   FRIENDLY | | | | | | | | HOSTILE
                     1 2 3 4 5 6 7

                        AND

    b.   INDIFFERENT | | | | | | | | INTERESTED
                        1 2 3 4 5 6 7

                        AND
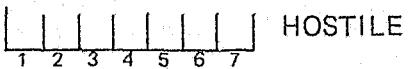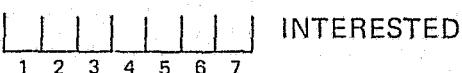
    c.   COURTEOUS | | | | | | | | RUDE
                      1 2 3 4 5 6 7
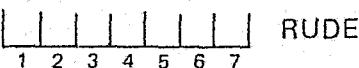
5. Do you feel the police operator understood your complaint?

    YES 1

    NO 2

6. Were you satisfied with the action taken by the operator?

    YES 1

    NO 2

    If NO, why not?

RESPONSE EVALUATION

We are interested in your estimate of the time period from conversation with the telephone operator until the arrival of the police. Please circle the appropriate response or write your answer where requested.

If this section is not applicable check here and continue to next section

7.   What is your estimate, to the nearest minute, of the time taken for the police to respond to your complaint?

Please write the number of minutes here . . ._____

Don't remember   1

8.   What do you consider to be a satisfactory response time for this complaint?

Please write the number of minutes here . . . _____

No opinion   1

9.   Were you satisfied with the time taken to respond to your complaint?

YES   1

NO   2

If NO, why not?

ON-SCENE SERVICE EVALUATION

We are interested in your opinion of the way in which the police dealt with your complaint. Please circle or check the appropriate response, or write your answer where requested.

If this section is not applicable check here and continue to next section ☐

10. How would you describe the attitude of the police? Please check one box only for each of questions a, b, and c on scale 1 to 7.

a. FRIENDLY |__|__|__|__|__|__|__| HOSTILE
1 2 3 4 5 6 7

AND

b. INDIFFERENT |__|__|__|__|__|__|__| INTERESTED
1 2 3 4 5 6 7

AND

c. COURTEOUS |__|__|__|__|__|__|__| RUDE
1 2 3 4 5 6 7

11. Please indicate how well your complaint was investigated. Please check one box only on scale 1 to 7.

THOROUGHLY |__|__|__|__|__|__|__| SUPERFICIALLY
1 2 3 4 5 6 7

12. Were you satisfied with the action taken by the police?

YES 1

NO 2

If NO, why not?

GENERAL

Now we would like to ask you a few questions about yourself; while answers to any or all of the following are, of course, **optional**, your response will permit a more complete analysis of our methods of police service delivery. As mentioned, each reply is kept in strict confidence, but the statistical results of replies will be carefully considered. Please circle the appropriate response or write your answer where requested.

13. How long have you lived in Edmonton?

    Please write the number of years/months here . . . . _____

14. Excluding the most recent, have you had any other contact with the Edmonton Police for **any** reason in the past **twelve months** (a call for assistance, a crime report, stopped by the police, etc.)?

    Yes, one contact   1

    Yes, two contacts   2

    Yes, three contacts   3

    Yes, four or more contacts   4

    No   5

15. What is the highest level of education that you have completed? Please circle the appropriate response.

    (please circle only one)

    No schooling   1

    Elementary incomplete   2

    Elementary complete   3

    High school incomplete   4

    High school complete   5

    College or technical school   6

    Bachelor's degree   7

    Graduate degree   8

16.   Please write your age in years here . . . . _____

17.   Your sex, please.

Male 1

Female 2

18.   Please indicate your marital status.

Single 1

Married 2

Divorced 3

Separated 4

Common-law 5

Widowed 6

19.   Please indicate the sum total from all family members in household.

(please circle only one)

Under $2000 1

$2000 — 3999 2

$4000 — 5999 3

$6000 — 7999 4

$8000 — 9999 5

$10000 — 11999 6

$12000 — 13999 7

$14000 — 15999 8

$16000 — 17999 9

$18000 — 19999 10

$20000 — 21999 11

$22000 — 23999 12

$24000 — 25999 13

$26000 — 27999 14

$28000 — 29999 15

$30000 — 35000 16

over $35000 17

20. Do you have any additional comments?

THANK YOU

KANSAS CITY, MISSOURI NORTHEAST DIRECTED PATROL SURVEY
CRIME VICTIMIZATION/RDD STUDY

INITIAL CONTACT FORM - <u>POLICE DISTRICT NORTHEAST SAMPLE</u>

My name is _____ and I'm calling for
the Kansas City, Missouri Police Department.

We're conducting a survey and we'd like your help.
Could I speak to the man or lady of the house. (REPEAT INTRO
IF NECESSARY)

Could you tell me what area of the city you live in?

If   Belton
       Independence   TERMINATE - I'm sorry to have
       Lee's Summit   bothered you, we're only inter-
       Raytown   viewing Northeast Kansas City
       Richards-Gebaur AFB   residents. Thank you for your
       Unity Village   time.

If   Kansas City   PROBE - Do you live <u>north</u> of
                               Blue Parkway/Sni-A-Bar (or 52nd
                               Street), <u>east</u> of Prospect, <u>south</u>
                               of the Missouri River, and <u>west</u>
                               of Blue Ridge Boulevard.

LEAD-IN: Could you tell me how many persons twelve and older
           live in this household? # _____

GO TO HOUSEHOLD RESPONDENT QUESTIONNAIRE

(1)   Deck number: ____K____

(2-5)   Household number: _____

(6)   Person number: _____

(7-10)   Date of Interview: _____

(11-15) Time of Interview: _____ AM-1
                                          PM-2

(16-17) Interviewer number: _____

(18-24) Telephone number: _____ - _____

1. I'd like to ask you a few questions related to subjects which seem
    to be of some concern to people. Within the past year or two, do
    you think that crime in your neighborhood has increased, decreased,
    or remained about the same?

    (25)   1. Increased
             2. Same
             3. Decreased
             4. Don't know
             5. Haven't lived here that long

2. How safe do you feel or would you feel being out alone in your
    neighborhood AT NIGHT -- very safe, reasonably safe, somewhat safe,
    or very safe?

    (26)   1. Very safe
             2. Reasonably safe
             3. Somewhat unsafe
             4. Very unsafe

3. How about DURING THE DAY - how safe do you feel or would you feel
    being out alone in your neighborhood?

    (27)   1. Very safe
             2. Reasonably safe
             3. Somewhat unsafe
             4. Very unsafe

4. Would you say, in general, that your local police are doing a good job, an average job, or a poor job?

   (28)   1. Good
          2. Average
          3. Poor
          4. Don't know

5. Now, I'd like to ask some questions about crime. They refer only to the last 12 months, between _____ and _____ . During the last 12 months, how many times has anyone broken into your (apartment/home), garage, or another building on your property?

   (29)   How many times? _____

6. (Other than the incident(s) just mentioned) how many times have you found a door jimmied, a lock forced, or any other signs of an ATTEMPTED break in?   .

   (30)   How many times? _____

7. How many times was anything at all stolen that was kept outside your home, or happened to be left out, such as a bicycle, a garden hose, lawn furniture, motor vehicle, or parts of motor vehicle? (Other than any incidents already mentioned?)

   (31)   How many times? _____

8. How many times have you had your (pocket picked/purse snatched;?

   (32)   How many times? _____

9. How many times has anyone tried to take something (else) directly from you by using force, such as by a stickup, mugging or threat?

   (33)   How many times? _____

10. How many times have you been beaten up, attacked or hit with something, such as a rock or bottle? (Other than any incidents already mentioned?)

    (34)   How many times? _____

11. Did anyone TRY to attack you in some other way? (Other than any incidents already mentioned?)

          1. Yes
          2. No

    (35)   (If YES) How many times? _____

12. During the last 12 months, did anyone steal things that belonged to you from inside any car or truck, such as packages or clothing?

       1. Yes
       2. No

(36)   (IF YES) How many times? _____

13. (Other than any incidents you've already mentioned . . .)
Was anything (else) stolen from you during the last 12 months?

       1. Yes
       2. No

(37)   (IF YES) How many times? _____

14. Did you find any evidence that someone ATTEMPTED to steal something that belonged to you? (Other than any incidents already mentioned?)

       1. Yes
       2. No

(38)   (IF YES) How many times? _____

15. Did you call the police during the last 12 months to report something that happened to you which you thought was a crime? (Do not count any calls made to the police concerning the incidents you have just told me about.)

       1. No
       2. Yes - What happened? _____

                _____

_____

CHECK ITEM A: Was a household member twelve or older attacked or threatened, or was something stolen or an attempt made to steal something that belonged to him?

       1. No
(39)   2. Yes - How many times? _____

16. Could you tell me what your address is?

                         CHECK CODER:
_____ Census Tract: _____ (40-43)

_____ Census Block: _____ (44-47)

END