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In the past, the Department of Public Safety has determined the need for manpower on the knowledge gained through experiences or by the use of averages compared to other States.

Although experience is an indicator in determining needs to specific and general problems, it does not, in this case, identify the quantity of manpower needed. Nor does it justify the need in quantitative terms.
$i$
By using national averages or averages from other States we are in effect inheriting their problems. Since few states, if any at all, have the number of personnel needed to provide maximum service, then the average is below the amount needed from the outset. An informative conversation with most of the representatives from other states will usually yield the fact that they too are to a point where tiny are not able to provide sufficient service in some areas to meet minimum expectations.

In view of what has previously been mentioned, the Department of Public Safety has attempted to develop quantitative criteria which can be used to identify on a post and statewide basis, the needs in the area of field erforcement personnel.

This effort was in itself unique and difficult since little has been published in the area of manpower formulas for the establishment of personnel needs.

Even though some data used and methods incorporated may be questionable, we feel that it offers more justification than has been provided in past studies in this area.

We also realize that after taking an overall statewide view of the enforcement needs of the Georgia State Patrol in terms of manpower, one must take into consideration various points in order to achieve a fair and realistic approach.

1. Of the 159 counties througiout the State, seven (7) do not require assistance in the area of traffic or crime control as do the others. The main factor influencing this is that the counties or cities in the counties maintain sufficient or near sufficient enforcement personnel capable of dealing with the needs associated with traffic and criminal activity enforcement. Therefore the counties of Bibb (Post 15); Clayton, Dekalb and Fulton (Post 9); Chatham (Post 42); Mu cogee (Post 2); and Richmond (Post 25) ; will not be viewed with the same criteria as the other counties throughout the State.
2. The counties in Post 9's territory are all in the category listed above and will therefore be viewed entirely different than the other post territories.
3. The territory in Post 35 , Jekyll Island, is maintained as a different function as compared to the other posts in that it has full jurisdiction over traffic and criminal. activities, thus constituting a different approach in view of the manpower needs for its operation.
4. With respect to certain geological, social and economic differences between each county, it is hopeful that a uniform format can be used to determine the needs in terms of manpower and equipment. Several fectors must be considered for each county and on a statewide basis so as to insure a fair sample of requirements and expectations placed under the direct and/or indirect control of the Department of Public Safety.
5. Keeping in mind \#4 above, certain facts of the Departinent's operation wil,I be dealt with separately since they are directly assoliated with the enforcement function. An example of this is the role of Communication Officers throughout the State. If 24-hour communications is to be maintained at each post, then it is relevant to the manpower needs since any difficiency in communications personnel would have to be made up with field enforcement personnel. Therefore the communications function will be considered as a part of the manpower needs, yet separate from the enforcement function.
6. Due to the inconsistency in information, the data used will be, for the most part, from the activities of the Georgia Department of Public Safety.

This will be especially true in those areas where information is gathered ir-respective of agency, when the only way to determine the responsibility of local. agencies is to subtract the data collected exclusively by the Department of Public Safety.

In order to more clearly identify methods used, footnotes, exhibits, and appendices will be used to explain the methods and source of results on data where feasible.

## Page

INTRODUCTION ..... iii
$\therefore$ :
I. Current Activities
A. Organization. ..... 1
B. Responsibility ..... 9
C. Operations ..... 15
II. Needs for Improvement
A. Methodology ..... 23
B. Needs ..... 26

* Communications. ..... 28
* Enforcement. ..... 31
C. Additicnal Needs ..... 37
D. Allocation of Needs ..... 46
III. Plan for Achievement
A. Communications ..... 53
B. Enforcement ..... 54
C. Total Committment ..... 59
CONCLUSION ..... 60
Appendix
A. Definitions and Formulas ..... A1
B. State Patrol Activity - 1975 ..... Bl
C. Comparative Factors. ..... Cl
D. Computations and Correlations ..... D1
References ..... RI
Page
Department of Public Safety Organizational Chart
Georgia State Patrol Division Organizational Chart ..... I-A2
Georgia State Patrol Troop and Post Designations ..... I-A3
Staff Services Division Organizational Chart
Treasurer's Division Organizational Chart ..... I-A. 5
Georgia State Patrol - Posts $\mathrm{I}-\mathrm{Cl}$ ..... 16
Georgia State Patrol - Troops I-C2 ..... 17
Projected GSP Activity I-C3 ..... 19
II
Statewide Manpower Needs (Enforcement) - Base II-BI ..... 34
Statewide Manpower Needs (Enforcement) - Total II-Cl. ..... 45
Allocation of Enforcement Needs byResponse Time, by Rost, by TroopII-DI47
20-Year Plan for Enforcement TTT-RI ..... 55
Plan Year Chart III-C. ..... 60

ORGANIZATION:

The Department of Public Safety is composed of three Divisions, each of which are depenaent upon the other. The three Divisions each has its own directional goals and each has its own function within the Department, both as a separate Division and as a part of the whole Department.

The Georgia State Patrol is primarily considered the Uniform Division empowered to enforcement of the laws set forth in the Department's responsi= bility of service.

The Staff Services Division is charged with the responsibility of support to the internal operations of the Department. This consists of the services requiring data processing, accounting, printing, and payroll.

The Treasurer Division is responsible for the maintenance of Departmghtal property, inventory, and approval of Departmental expenditures.

The present organizational chart for the Department of Public Safety to the Division levels is shown in Exhibit I-Al.

## Georgia State Patrol Division

This Division is comprised of the six Troop areas made up of individual Patrol Posts which provide territorial enforcemert of laws as set forth in State and Federal Legislation.

This Division, shown in Exhibit I-A2 is comprised primarily of sworn uniform officers. The non-sworn positions are concentrated in the sections and units which are responsible for the issuance of drivers license, dispatching or communication services, and various units providing direct support to the Uniform Division.

The Troop areas are composed of from six (6) to eight (8) posts as shown in Exhibit I-A3. It is these posts which we shall address in terms of manpower needs. The needs will be directed to a post by Troop by statewide basis in the area of Troopers and Radio Operators.

As mentioned previously, several posts will be dealt with on a different basis due to the type of service expected from each.

On the State operations as a whole, several factors must be taken into consideration in the area of obligated day-to-day service and service which is not obligated but required.

The requirements for the field enforcement units will be defined in the Operations Section of this Chapter.




GEORGIA STATE PATROL,
DIVISION




## Staff Services Division

The Staff Services Division provides a support function for the Department and consists of mostly unsworn, or civilian, personnel.

Exhibit I-A4 shows the three Sections within this Division. Although the Division is not involved in the enforcement of laws as the Georgia State Patrol Division, it is the primary Division providing the functions of accounting, data processing, payroll, printing, and personnel services. These functions are directly supportive of the other two Divisions and require close association from all levels within the Department.

## Treasurer's Division.

This Division is charged with providing the services in the area of transportation, supply, property, and maintenance as seen in Exhibit I-A5.

The Treasurer is also responsible for the approval of expenditures made by the Department of Public Safety in accordance with the guidelines set forth by the state and the Department.

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## EXHIBIT I-A4



EXHIBIT I-A5

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\therefore m_{i} i
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## 5

Responsibility

The enactment of legislation in 1937 created the Georgia Department of Public Safety for the primary function of

> Saving lives --- that is the vital objective of all the activities of the Highway Patrol and of the laws under which it operates. Its purpose and its policy are not to make trouble for drivers, but to save them from the sort of trouble that ends in disaster and death. It is a friendly area of government, bringing first aid to accident victims but striving above all to prevent accidents by removing their causes.

The function of the Patrol as set forth in 1937 was directed toward the area of traffic safety. However, after four months of operation, December 26, 1937, the Georgia State Patrol had recovered 29 stolen vehicles, saved a home from burning, and had assisted local officials in breaking up several small crime rings.
I. Atlanta Constitution, 1937 (No other Date).

The function at the present date has not changed to any degree through legislation, except in specific areas, nor has the purpose. The demand and expectations, has however, necessitated the need for a more specialized Department with an increased force equipped with modern technological equipment.

The demand has forced the Department to change, its tactics in enforcement, recruiting and training, but the one thing which has not changed is the need for a sufficient number of manpower.

The fulfillment of this need is vital if the Department is to adhere to
its duties as set forth in the following, taken from Sections of Georgia Laws:

92A-239. DUTIES OF STATE PATROL.--It shall be the primary duty of the Uniform Division of the Department of Public Safety to patrol the rural and public roads and highways throughout this State, to prevent, detect and investigaぇe criminal acts, and to arrest and apprehend those charged with committing criminal offenses appertaining thereto, and to safeguard the Iives and property of the public. (Acts 1937, pp. 332 , 337)

92A-240. DUTY TO ENFORCE LAW AS TO SIZE, ETC., OF MOTOR VEHICLES.--It shall be the further duty of said
( Georgia State Patrol to strictly enforce the statute laws of this state as to the length, size and weight of motor vehicles and trailers upon the highways.
(Acts 1937, pp. 322,339 )

92A-241. COOPERATION WITH LAW OFFICERS.--They are empowered to act in cooperation with any other law enforcement agency of this state or of any city, county, or other division thereof, but shall not cooperate with local authorities in preventing the commission of criminal offenses, except on property owned by the state or its departments, bureaus, commissions, or Authorities, other than traffic violations on the roads and highways and related offenses, nor in detecting and apprehending, off of the roads and highways, those charged with other than traffic and related offenses against the criminal laws of this, or any other state, or the United States, without specific authority and direction of the Director of Public Safety. (Acts 1937, pp. 322, 337; 1956, p.

92A-24'2. ARRESTS: ASSISTANCE TO AUTHORITIES.--They shall not exercise any power of arrest, with the exception herein provided for arrest powers and general law enforcement authority on property owned by the State or its departments, bureaus, commissions, or Authorities, except for offenses arising from violation of the traffic laws, or laws regulating the use, ownership, and control of motor vehicles, or for offenses committed upon the highways of the state: Provided, that upon request of the governing a thorities of any municipality, or of the sheriff of any county or of the judge of the superior court of any county of this State or the Governor of this state, the Director of public Safety, in unusual circumstances, may, and in the case of an order from the Governor of Georgia shall, direct members of the Georgia state Patrol to render assistance in any other criminal case, or in the prevention of violations of law, or in detecting and apprehending those violating any criminal laws of this, or any other State, or the United States.

Notwithstanding the foregoing, it shall be the duty of members of the State patrol and agents of the Bureeu of Investigation to enter any county or incorporated municipality for the purpose of making arrests and otherwise enforcing any law of this state requiring segregation or separation of the white and colored races in any manner or activity, when request therefore is made by any citizen or official of such county or municipality. (Acts 1937, pp. 322, 337; 1950, pp. 77, 78; 1956, pp. 495, 605; 1970, p. 577) 6

92A-243. ARREST OF FUGITIVES.--The Uniform Division of the Department of Public Safety shall not, however, usurp any of the duties or authority of the sheriffs of this State, or of the police of any incorporated village, town or city, but they shall have the right to make arrests within the corporate limits of any village, town or city in this state where the person or persons committing, or suspected of committing a criminal offense is a fugitive or is likely to be a fugitive on account of a crime committed and the assistance of the officers of the municipality cannot be readily obtained before the escape of the fugitive. (Acts 1937, pp. 322, 337)

92A-244. JURISDICTION: RIOT DUTY: STATE PROPERTY.-The Uniform Division of the Department of Public Safety shall have jurisdiction throughout the State of Georgia and in any county thereof, but they shall not exercise
any power to suppress rioting or labor strikes or picketing, as provided by law within the limits of an incorporated municipality, or in any county of this State, except upon direction of the Governor of this State on request made by the governing body of such municipality or county.

They are authorized and empowered (a) to arrest any person or persons violating the criminal laws of this state on property owned by the state or its departments, bureaus, commissions, or Authorities; (b) to serve and execute warrants on property owned by the State or its departments, bureaus, commissions, or Authorities; and (c) to enforce in general the criminal laws of this state on property owned by the State or its departmenti, bureaus, commissions, or Authorities. (Acts 1927. pp. 322, 338; 1970, p. 577).

The extent of compliance to these duties and charges are directly related to the resources available to the Department of Public Safety.

The type of service expected from this Department changes very little from year to year.

However, the denand is directly related to the need, in most cases, requested by local agencies. It is in this area that the Department is lacking to the greatest degree.

It seems unrealistic to attempt to fulfill every need on the local level which can not be met by the local agency. However, to be in a position where the major needs of the people can not be sufficiently dealt with by some agency is of itself against the very purpose for which the Depairment, and to a degree, what all law enforcement agencies were created.

Even though the responsibility of the "Patrol" appears to be the procedure of riding through a section to observe activity and then control those factors which are in violation of existing laws, However, O. W. Wilson stated, as we have realized through experience, that "the patrol function embraces many other
activities beyond the physical act of patrolling the street. Patrol work involves extensive crime prevention, contacts and duties, criminal investigation, traffic enforcement, and an element of any other line activity carried out by field personnel". ${ }^{2}$

We have found, as did Wilson, that the requirements extend far beyound the apprehension of a violator or the issuance of a ticket.

This point is made with additional value by Raymond E. ©lift, formerly a member of the Cincinnati Police Department and the Executive Director of Greater Cincinnati Safety Council. Clift stated:

Police work, like all service that relates closely to people, is made up of a number of little things, and we should keep these in mind in our patrol activity. We should remember, for example, that major crime is often only the culmination and the end result of a number of minor infractions that have been allowed to go uncorrected, possibly over a number of years. If an alert patrolman had been "on the job" earlier in these matters, perhaps the graver offerses would never have occurred...
...there is another reason we should constantly review and appraise the objectives of our patrol effort. This is related simply to the matter of economics. Police ( work is expensive today ... we must reexamine our patrol objectives and methods to be sure that we are getting a return on the investment.

The right objective in all patrol matters ... is the development of a spirit of helpfulness on the part of the public. People must be induced to voluntarily comply with the law for it will never be possifle to hire enough policemen to "make" them obey. Moreover, the citizen should be conditioned to acknowledge the authoxity of the police agency itself, and to give to it the kind of support it needs in a democratic society. ...
2. O. W. Wilson, Police Administration, McGraw-Hill Book'Company, New York, N.Y., 1972, p. 319.

> Only a police patrol close to the people, and one which concentrates on stopping the trouble before it starts, can do that ... and that's what we need most in police work today. 3

This type of approach is probably ideal in many ways and the same can most likely hold true for traffic problems related to enforcement.

Thru all the research available on the patrol function and responsibility, it is a basic understanding that the responsibility is definable, and yet it is not, it is specific, yet it is general.

The Department of Public Safety's responsibility is no exception, not only on a statewide basis, but also within the activities of each post.

It is for this reason that we must define through quantified means, the extent of our responsibility throughout the state, as well as for each individual post area.

1

[^0]The present operations of the Georgia State Patrol Division throughout the State is varied, and yet uniform.

However, each post territory has within, its own unique problems and expectations requiring flexibility in the operation of each Post.
(
The posts, shown in Exhibit I-Cl, are elements of six Troop areas throughout the State, shown in Exhibit I-C2.

Taking into consideration the limits of authority and magnitude of responsibility which must be adhered to, the post operation is the vehicle of the Department of Fublic Satety for the compliance of directives set forth to and by the Department.

Within the post operations, the patrol function is the primary Eool used to carry out the day-to-day duties. Incorporated in this function is the con-


tacts made with the public and obligated activities required either on a day by day basis or as a response to a specific incident.

The basic determinant of the patrol is experience in the area to be patrolled.

The types of patrols conducted are set forth at the post level unless the function is directed on a Troop or Statewide basis.

The Patrol provides for the visibility of a parrol unit, which acts as a "•" source for response, prevention, and deterance.

When viewing the nature of traffic and criminal activities, it seems rational to state that the presence of a visible. symbol of enforcement reduces the opportunity and desire to commit an offense knowingly.

However, when the visibility factor is restricted to one location or section, then the preventive factor is also reduced to that particular area. This is to say, that a moving unit has a much larger visibility area than the unit which is continuously at one point for extended periods of time, as is the case when the unit available in a post territory is on patrol working one 1 wreck after another and not having another unit to provide the moving patrol function.

This problem also extends to the point of safety. At the present, if only one unit is on patrol at any one time, then there is an increase in response time to incidents involving the public, and also an increased hazard factor to the Trooper if he is in a situation requiring a back-up unit.

By extending the operations of the Georgia state patrol to a 24 -hour per day service, the number of Troopers per shift in each Post is decreased. This not only decreased in Troopers, or patrol force for each shift, but also de-
creased the number of Radio Operators, or Communication Officers.

The indicators for the present enforcement service are collected in the form of monthly activity reports on a Post by post basis. By reviewing these factors a picture can be developed as to the type of activities existing throughout the state and the degree of involvement on the part of the Georgia State Patrol.

Exhibit I-C3 shows the projected activity for the six Troop areas for calendar year 1975. This information is based on 8 months of collected data projected for 12 months.

The indicators of service responsibility exists in the following factors. The first figure is the number of incidents and the second figure is hours required.

EXHIBIT I-C3

1. Response Incidents
a. Acciコents 20,878 31,277
b. Aid to other Officers 1,214 2,277
c. Aid to Travelers $\quad$ 2,466 079
d. Civil Disorder $\quad \mathrm{N} / \mathrm{A} \quad 2,338$
e. First Aid 10965
f. Criminal Activity $\quad 1,640 \quad 3,527$
g. Disaster Response $\quad \mathrm{N} / \mathrm{A} \quad 6,518$
h. 'Relay Blood Medicine 2,323 2,856
i. Security Hours $N / A$ 4,387
j. Traffic Regulations $\quad$, 2,060 757
2. Enforcement Contacts and Obligations
a. Traffic Complaints 1,342 1,751
b. Arrests 179,165 N/A
c. Warnings

152,347
N/A
d. Pedestiran Enforcements

1,708
N/A
e. Court Duty

N/A
6,540
f. License Pick-up

3,556
3,989
g. License Hearings 511 554
h. Searches 233 3,122
i. Patrol Activity $12,745,678 \mathrm{mil} \quad 628,670$
j. Partner Activity

N/A 63,921
k. Standby Houss N/A 12,962

1. Escorts 1451,088
m. Radio Operator Hours N/A 342,294
n. Road Check Hours N/A 14,492
2. Administrative Duty Requirements
a. Employment and Personnel Investigation $\quad 869 \quad 2,839$
b. Administrative, Supervisory and Office Hours
$\mathrm{N} / \mathrm{A} \quad$ 123,662
c. Car and Radio Repair Hours

N/A 2,402
d. Relay Persons and Packages 1,601 2,451
e. Staff Hours

N/A $\quad 3,552$
E. Training Hours

N/A $\quad 38,858$
g. Other Hours

N/A
72,456
h. Other Miles

1,126,226
N/A
i. Drivers License Detail Hours

N/A
144,401
j. Inspectional Hours

N/A Total Hours on Duty
7,619
$1,538,704$

The "response incidents" are factors which are not predictable as such. They are factors, or incidents which must be answered, often as soon as possible by the units.

The average number of enforcement personnél available throughout the state for 1975 was 532. This only includes Trooper Cadets, Troopers, Corporals and Sergeants. It does not include Radio Operators, License Examiners, or Troop Officers.

The "enforcement contacts and obligations" are those incidencs and factors relevant to the enforcement of traffic and eriminal activities. These factors are now met on an "as time allows" basis. Some of the factors are met in the 6 performance of other duties, while others come during routine assignments.

The "administrative duties" are supportive to the activities in the field and relevant to the required response and enforcement functions.

Whatever the factors are, the complexity of operations is continuously increasing, and the deand for faster and more complete operation is stronger.

The shift from a basic two (2) shift per day operation to a three (3) shift per day operation has resulted in an increased workload on the part of local law
enforcement officials and officers. The officials, and officers, were in need of additional assistance prior to the transformation to 24 -hour patrol. Now the strain on the local level has increased in that they are having to provide on their own those services once conducted by the state patrol. In addition, the response by the State Patrol has been reduced since the number of units which once answered calls per shift have decreased due to the inclusion of an additional shift of patrol operation.

The maintenance of the present level of service, with the increase in demand continuing, will result in a further reduction in efficiency and effectiveness on the part of the Georgia state Patrol and local law enforcement agencies.

At the present time 487 uniform members, not counting the Post Commanders, are divided among 45 Patrol Posts and expected to maintain 24 -hour patrol and be available for response to emergency incidents. Approximately 71 of these are required to operate the radio since an adequate number of communication officers are not employed. Therefore, there are only approximately 416 Troopers available for deployment on three shifts per day, per year.
!
With 45 Patrol Posts throughout the State, an average of 9.24 Troopers can be assigned per post. This would allow for 5.63 men to be available per 24-hours with the factor of 1.64 used as a means of measuring availability (sick, leave, vacation, etc.). This would enable 1.63 men to be available per shift per post, 24-hours per day. Or, 73.35 men working statewide per shif/t. This, in effect, would mean that each Trooper would he responsible, on a average, for 2.16 countiea or an average of $1,222.08$ miles of roadway, 788.91 square miles, 66,351.39 people, 46,432.67 registered vehicles, responsive to an average of 4.71 possible accidenfs, which occur per day and also perform other duties als required per shift, if time allows.

This task is not as harsh as portrayed since approximately 9,115 local law enforcement officers are assigned throughout the state. However, 41 out of 159 counties have 10 or less law enforcement officers and if you do not count the metro counties of Fulton, Gwinnett, Cobb, Dekalb, Clayton, Bibb, Muscogee, Chatham, Dougherty and Richmond, a total of 4,029 local law enforcement officers are available in 149 counties which averages out to 27.04 per county or 9.01 per shift. Using the relief, or availability factor this decreases to 5.49 men per county, per shift. This includes personnel who are sworn that are assigned to jail duty, the county sheriffs, police chiefs, and the majority working within City fimits which are presently not being worked by the State Patrol in some cases. This is primarily true in larger municipalities. However, the need for service exists outside the boundaries and it is there that the number of local law enforcement personnel is at its lowest, the number of roadway miles are the greatest and the number of manpower needed is most evident.

Although this need includes specialized functions, the basic enforcement is the concern at the present, and anything specialized would be above this need. 1

The sum of the present operation is effective to the point that it only operates at a very minimum basis. Service is provided with an average response time of 39.38 minutes from post notification and 33.73 minutes after the patrol unit receives the call (see Appendix D).

The factors used irom each post territory is in Appendix $C$ along with descriptive information which influences each Post's operation.

Methodology

The most difficult part of this report was the decision on an approach.

It was our hopes to develop a formula which could be used with relevant data collected from each post territory and produce an amount which would be justified based on the individual factors. However, we have not been able to develop a formula which could be used as such, but we were able to obtain the basic factors needed to compute the needs.

The first phase was to determine what factors could be used on the basis of what data was available, and to attempt to provide quantitative amounts for each factor. This was not possible in all cases, since some points could not be given a numeric value, i.e., some impacting factors.

Correlations were then done on those factors which appeared to have a relationship to various components (see Appendix D). This gave us the information
needed to provide "weights" or "degrees" to each factor. For example, if a low correlation was obtained between a factor and number of accidents, then there would be little value placed on the factor in terms of needs.

This portior of the total concept enables a distribution factor for post personnel to be established, unless the post is unique to the degree that it does not conform to the same procedures as the majority, i.e., Jekyll Island, Atlanta, etc.

The next step was to determine the factor, or factors, which would best indicate the needs for each post in terms of manpower, thus defining the needs on a statewide basis.

Although the factors used may not be ideal based on the data available, the choices were limited.

The functions provided by the Georgia State Patrol are usually dependent upon two factors. Eirst, observation or report of an incident, and second, the arrival upon the scene to provide the service.

The actual observation of an incident is only accomplished if a Trooper is in a position'to do so - Patrol. The report of an incident is uncontrollable as far as the Trooper is concerned. This is to say that these reports are not predictable and come at irregular times for inconsistant reasons.

The controlled or predictable factor is the response. Although more patrol will produce more observed incidents, it is not a factor which can presently be quantified. The only one which can is response time. It is for this reason that we have chosen it, and of all the factors available, it is probably the most impacting.

Another consideration in determining needs in manpower exists when at least a certain number of personnel must be available during a certain period of time. This is the approach which will be used in the determination of communications needs for each Post.

Needs

The needs will be developed on a statewide basis and then set forth by post according to the methoas stated in the methodology portion of this section.

Several points, however, should be made:

1. A total of 45 Patrol Posts are in operation throughout the state.
2. 24-hour patrol is essential and must be continued if at all possible.
3. Before a unit can be dispatched, a call must be received by a Communications facility.
4. Responsibility and demands for service may differ from county to county and post to post.
5. Zacts used are from sources listed, if available, and the elinination of "guess work" has been attempted and hopefully achieved.
6. Several post have factors present which are not relevant to other posts and shall be identified as such.

Two facets, or levels, will be involved in the determination of needs. First, the need for adequate Commications Officexs to relieve Troopers now being used in that capacity. Second, Troopers needed for the performance of duties set forth in their responsibility and to meet with the demands made by the public they service.

## $\star$ Communications

The communications center is an integral part of any operation which relies on input from an outside source. This is especially true in the case of an organization which operates with a responsibility to serve upon demand.

This function requires that the incoming request or demand is understood and relayed to the appropriate unit. This makes it almost imperative to have the operation staffed with personnel familiar with the activities and skilled in the task expected to be performed. This holds true for the communication function of the state. Patrol. A certain amount of expertise and skill is mandatory if the public is to be understood and the needed information is to be obtained. Once an incident has been identified, priorities must then be set to enable proper dispatching according to need. Oftentimes, this ability or skill comes with the continuous work within the activity and experience obtained through the day-to-day events associated with the duties.

It is for this reason that having trained Communications Officers on duty 24 hours per day is so important. The operation may be jeopardized if someone vaguely familiar is placed in this setting and finds that he can not efficiently and effectively respond to the situation.

The communications operation of each post is the only tie between that post and a patrol unit, whether by radio or telephone.

To establish the amount of manpower needed to perform this function statewide, the following formula is incorporated:

A (number of personnel per shift) X B (number of Posts) X C (number of shifts) X 1.64 (availability factor) $=$ Number of Personnel Required to have "A" Men on Duty per Shift in "B" post.

The need in 44 posts statewide (not including Post 9) is to maintain 24-hour communications to all GSP units and provsde the coordination of communication activities in the post territory as set forth in the responsibility of the function.

This would require at least one (1) communications officer per shift, per post for the specified 44 posts.

That is,

I (per shift) X 3 (shifts) X 44 (posts) X 1.64 (availability factor) $=216.48$ Communcations Officers Needed for 44 Posts.

The need for the communications center in Atlanta (Post 9 - Headquarters) is somewhat different. Since all of the traffic going out on a statewide basis is handled through this system and since the majorit. $\dot{y}$ of "searches" into files goes through this system, additional manpower is needed per shift.

At least two (2) comunications officers are needed during the afternoon and early morning shift and three (3) are needed during the day shift.

Thus,

> 2 (per shift) X 2 (shifts) X 1.64 (availability factor) X 1 (post) +3 (per shift) X 1 (shift) X 1.64 (availability factor) $=11.48$ (number communications officers needed at the communications center in Headquarters).

Therefore, a total of 227.96 or 228 communications officers are needed to operate the 45 communication facilities statewide. Note: This does not include the number needed for spacial units under the Department.

An additional number will be required for supervision on a Troop level and on a state level. This would require one (1) Senior Communications Officer per Troop Area, one (1) for the Headquarters Center and one (I) to be the Supervisor of Statewide Communications. (This position is presently filled with a Sergeant,
and felt that one (1) is adequate on a statewide basis.)

Therefore, the total needs for the 44 post communication facilities, the Headquarters comunication facility, and supervision on troop and state levels is as follows:


The Supervisor for Statewide Communications mentioned is not included in the available positions or the deficiencies.

The need for enforcement in an adequate force has been a cry from law enforcement agencies for years past and will more than likely continue. This deficiency is also in existance in the Georgia State Patrol.

The means by which to identify these needs are many, but few are able to specifically define accurate problems with result factors. We have found that it is one thing to determine the need and another to state what the fulfillmente will accomplish.

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*F. :
```

After consideration and analysis of the available information, it was felt that the most influential indicator was response time. This factor not only affects the time itt will take a Trooper to respond to an incident involving citizens of the State, but also the amount of backup which a Trooper will be able to depend on receiving.

Now, a Trooper working a territory alone may need assistance and have to wait on a unit to travel through two or more counties to reach him. This factor also exists in responses to accidents and other activities Troopers are requested to respond to.
(
If this degree of efficiency is continued, the degree of confidence will surely decrease on the part of local citizens as well as local law enforcement officers. It is this confidence which must be firmly established and maintained if the Department is to continue to have an impact upon the problems in the area of traffic and crime.

The rationale used in the choosing of response times is thus:

1. Any action taken against an offense is done upon the arrival of an officer.
2. Proper control of emergency incidents can only be conducted after the arrival of qualified personnel.
3. Life and death situations are often determined by the occurrences in time periods of seconds, more so than hours.
4. Response to emergency incidents is a dependent factor on the events which follow.
5. Response time to an incident where facts must be obtained, i.e., accidents, murders, etc., is critical and the longer the time period is from occurrence to response, the greater the chances for facts, or evidence, to be destroyed or distorted.
6. Response time is often the determining factor in the capturing of the violator.
$\therefore \therefore \therefore$
7. The shorter the response time the more time allowed for preventive patrol and other activities, and
8. The most accurate information available which could be used as a determinant was response time.

From the computations conducted for this study, it was determined that it takes an average of 33.73 minutes to respond to an incident once a call has been dispatched to the patrol unit (See Appendix D).

This means that on an average $18,878.11$ man hours were spent this year in response to 33,581 incidents by 532 Troopers. These Troopers worked approximately 936,320 man hours during a years time on response incidents and spent 2.01 percent i above this time in response to the incidents.

The goal for response time is no more than 15 minutes and less would be more ideal. This would mean having patrol units able to respond to a scene within 15 minutes after receipt of the call at any time during the day.

If a $\mathfrak{m o o p e r}$ is abie to average 40 miles per hour in non-emergency responsa, then he could respond at a rate of 40 miles per hour, or 0.67 miles per minute. If, per square mile, there is one mile of roadway, then the Trooper should be able to respond to any point in that square mile area within 2.11 minutes (See Appendix D). With the use of this constant a Trooper should be able to respond within 15
minutes from any point within a seven (7) square mile area if there is one (1) mile of roadway per square mile. This would hold true in extremes.

Based on the present level of service the Georgia State patrol is responsible for $86,392.34$ miles of roadway (excluding Post 9 and Bibbs County). This roadway is incorporated throughout 56,871 square miles for a density of 1.52 miles of roadway per square mile. This territory is presently enforced with 514 Troopers (532 Troopers - 18 Post 9 Troopers $=514$ working statewide except Post 9 territory).

Assuming that these Troopers are divided between three (3) shifts, then one Trooper is responsible for 544.37 square miles of area and 826.95 miles of roadway at an average density of 1.52 miles per square mile.

At a response of 33.73 minutes in an area of 826.95 miles of roadway, then the response factor is presently 24.52 miles of roadway per minute, or he is able to respond at a rate of 16.14 square miles per minute.

This figure may appear misleading since it is hardly practical to respond at a speed of $1,471.20$ miles per hour. However, this does not take into consideration the portion maintained by local law enforcement agencies.

The figure does, however, give an indicator, or base, from which to move in the direction of a response time reduction.

Based on these computations an area of 242.10 square miles and 356.80 roadway miles should be accessible within 15 minutes by a Trooper.

Thus for the 43 Posts (excluling Post 9 and Post 35) the manpower needs for the following response times are:

## EXHIBII II-BI

| Response Time | Miles Roadway | (Area Sq. Mil) | Needed | Manpower |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Deficiency |  |  |  |  |  |
| 30 Minutes | 735.60 | 482.20 | 578 | 67 |  |
| 25 Minutes | 613.00 | 403.50 | 693 | 182 |  |
| 20 Minutes | 490.40 | 322.80 | 867 | 356 |  |
| 15 Minutes | 367.80 | 242.10 | 1,156 | 645 |  |
| 10 Minutes | 245.20 | 161.40 | 1,734 | 1,223 |  |

Where, 24.52 miles of roadway is allotted per minute and 16.14 square miles are allotted per minute as obtained thus,
$a=$ (Response Time Desired)
$b^{*}=$ (area)

* Miles of roadway may be used.
and,
b
(16.14 sq. mi./mile roadway or $24.52 \mathrm{miles} / \mathrm{minute}) \mathrm{x}$ a $=$ Number of men per shift X 1.64 (relief factor) X 3 (shifts) = Manpower Needed.

Manpower Needed - Present Force $=$ Deficiency in Trooper Force

Where the area or length of roadvay is divided by the desired response time $x$ (16.14 or 24.52 ) respectfully.

Example: The statewide need for a response time of 30 minutes would be:
$86,392.34$ Miles of Roadway
24.52 miles/minute X 30 minutes $=117.45$ men per shift X 1.64 (relief factor) X 3 (shifts) $=577.83$ or 578 (number of men needed) - 511 (present force) $=67$ (deficiency in manpower)

In addition to these needs are Post 9 and Post 35 , which are in classes ertirely separate from the additional posts.

## Post 9

The territory of Post 9 - Headquarters covers three metropolitan counties - Clayton, Dekalb, and Fulton. Due to the type of enforcement services provided and responses requested, at least twelve (12) Troopers are needed per day. This would allow for the relays provided 24 hours per day and for the protection need at the Capitol and on other state property.

The present level does not adequately enable the Posts to provide preventive patrol. This need (12 per day, or 20 Troopers) would allow for response to incidents but would not increase to a great degree' the amount of patrol.

If additional manpower was provided, then an increase could be seen in enforcement patrol in and around Atlanta, especially on the Interstates. (See Appendix $C$ for further information on Post 9).

Present force - 18 Troopers.

Post 35
1

The Jekyll Island post is responsible for the enforcement of criminal and traffic violations. It is the only law enforcement agency on the Island and maintains both uniform personnel and personnel who are sworn, but also work investigations. (See Appendix C for further details).

The need at post 35 is based on the following:
A. 24 hour service,
B. Three (3) 8-hour shifts per day, 365 days per year,
C. 2 Officers per shift, uniform,
D. 1 Investigator, additional for one shift per day. (Investigator to be a Trooper).

Thus,

3 Shifts X 2 Troopers X 1.64 (relief factor) +1 Shift X 1 Trooper X 1.64 (relief factor) $=$ Number of Troopers Needed or 11.48 (12).

Present force - 6 .

$$
\because 5
$$

1

Additional Needs

Although needs have been identified on the basis of response time in the other 43 posts, other considerations should also be used based on additional workloads in specific post territories. The following needs are based on information found in Appendix $C$.

## (

Post 1

None.

Post 2

Post has West Point Reservoir which is presently an all seasonal resort with primary traffic flow in the sumer months.

Additional need is for one additional Trooper in post territory to be added per shift to allow for scheduling according to area need. This would allow for two (2) additional Troopers on the first shift (8:00 A.M. to 4:00 P.M.) and one (1) on the afternoon shift.

Manpower needed in addition is thus,

```
3 Troopers per day X 1.64 (relief factor) = 4.92 (5)
Additional Troopers.
```

Post 3

None - although the area is metropolitan.

## Post 4

Territory includes West Georgia College and I-20. 'Also major thoroughfare to Alabama used excessively for fleeing criminals.

Additional needs of three (3) Troopers per day for traffic flow and roadblock capabilities. Area also contains commuter populations increasing traffic flow.

```
Need = 3 Troopers X 1.64 (relief factor) = 4.92 (5)
Additional Troopers.
```

Post 5

Due to the density in population and the high percentage of accidents worked by Post 5, an'additional three (3) Troopers are needed each day.

$$
\begin{aligned}
& 3 \text { Troopers X } 1.64 \text { (relief factor) }=4.92 \text { (5) Additional } \\
& \text { Troopers }
\end{aligned}
$$

Post 6

Need for one (1) aaditional Trooper for assistance during traffic flow peak periods. Flow due to Lake Lanier traffic during summer and mountain tourists during fall and winter.

Additional Troopers Required $=$ One (1) Trooper X 1.64 (relief factor) $=1.64$ (2) Additional Troopers

## Post 7

Need at least one (1) additional Trooper per shift to cover the response time factor due to terrain of territory and also to enable control to be maintained during peak tourist traffic flow year-round. Also traffic to and from Lake Hartwell.

Additional Troopers Needed $=3$ Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

## Post 8

"5.

None.

Post 9

Previously stated.

Post 10

None.

Post 11

Post terititory includes a portion of the East Coast which attracts tourists and import populations.

```
Additional Needs = 2 Troopers X l.64 (relief factor)
= 3.28 (3) Additional Troopers.
```

Post 12

None.

Post 13

None.

## Post 14

None.

Post 15

One (1) additional Trooper per shift to maintain control over through traffic flow and de ity of flow in and out of Bibb County, even though GSP support is not required in Bibb County.

```
3 Troopers X l.64 (relief factor) = 4.92 (5) Additional
```

Troopers.

Post 16

None.

Post 17

Additional persomel needed to control traffic associated with Clark Hill.

Needs $=1$ Additional Trooper per day $\times 1.64$ (relief factor) $=1.64$ (2) Additional Troopers.

Post 18

None.

Post 19

None.

Post 20

None.

One additional Trooper per day to control heavy flow of traffic on U.S. 301.

1. Trooper X 1.64 (relief factor) $=1.64$ (2) Additional Troopers.

Post 22

One additional Trooper per shift to provide added protection in area of rural criminal activities. Increase would also offset disiance between boundaries. **
$\cdot 3$ Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 23

Post territory includes the Port City of Brunswick and also an increased traffic flow to and from Jekyll Island.

> Additionai 3 troopers Needed per day to Handle workload $=$ 3 Troopers x 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 24
<
Needs additional Troopers due to traffic flow on I-85 and thoroughfares between LaGrange and Carrollton and Newnan.

Post 24 also works 79.54 percent of the accidents which occur in Post Area.

2 Troopers Additional X 1.64 (relief factor) $=3.28$ (3) Additional Troopers.

Post 25

Additional Troopers needed per shift to maintain control of high traffic volume

3 Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 26

None.

Post 27

Need one (1) additional Trooper per day due to tourism associated with ":
mourtain tourism.

1. Trooper X 1.64 (relief factor) $=1.64$ (2) Additional Troopers.

Post 28

None.

Post 29

None.

## 1

Post 30

None.

Post 31

None.

Post 32

Need additional one (l) Trooper per shift due to University of Georgia.

3 Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

None.

Post 34

None.

Post 35

Previously stated.
$\therefore \therefore$
Post 36

None.

Post 37

One (1) additional Trooper per shift per day to control traffic flow due to metropolitan setting of area.

3 Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

## Post 38

\}

One (1) additional Trooper per day to control flow in and out of Rome. Also traffic associated with through traffic.

```
I Trooper X 1.64 (relief factor) = 1.64 (2) Additional
Troopers.
```

post 39

Need two (2) additional Troopers to work traffic associated with Walter F. George Reservoir and tourism year-round.

2 Troopers X 1.64 (relief factor) $=3.28$ (3) Additional Troopers.

None.

## Post 41

Two (2) additional Troopers needed due to major thoroughfares leading to and from State. Also to maintain control over traffic flow due to tourism yearround.

```
    2 Troopers X l.64 (relief factor) = 3.28 (3) Additional
- Troopers.
```

Post 42

Need two (2) additional Troopers per day to work'traffic associated with the Port City of Savannah and traffic associated with tourism.

2 Troopers X I. 64 (relief factor) $=3.28$ (3) Additional Troopers.

Post 43

Additional manpower needed above base since the base computation allows for the increase in Interstate enforcement, but not at an effective proportion.

3 Additional Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.
post 44

None.

Post 45

None.

Note: Problems associated with traffic problems such as flow and congestion, also relates to criminal activity, thus when traffic flow was used as an indicator previously, other activity is also a factor.

Based on the additional needs defined the amount of manpower needed statewide including Post 9 and Post 35 is as follows:

EXHIBIT II-Cl

| Desired <br> Response Time | Base Manpower Needed* | Present Force | Deficiency | Additional Manpower | Total Deficiency |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 30 Minutes | $.610 \quad 3$ | $\therefore \quad 532$ | 78 | 80 | 158 |
| 25 Minutes | 725 | 532 | 193 | 80 | 273 |
| 20 Minutes | 899 | 532 | 367 | 80 | 447 |
| 15 Minutes | 1,188 | 532 | ' $656{ }^{\text { }}$ | 80 | 736 |
| 10 Minutes | 1,766 | 532 | 1,234 | 80 | 1,314 |

* Post 9 and Post 35 include this column.

The area (square miles) and roadway miles associated with each desired response time is consistant with Exhibit II-Bl since Post 9 and Post 35 were not defined in terms of the two factors stated above.

Allocation of Needs

Establishment of statewide needs is but one facet of the process. We realize that there is 2 statewide need and we also realize that there are needs above and beyond these, as previously stated.

The base need is the accumulated sum of the base need for each post, and the total neeḑ is the accumulated sum of the base need and the additional need for each post territory.

The establishment of the base need was provided by the computation of response time in relation to area and roadway miles. This computation must also enter into the allocation of needs on a post by post basis. However, there are other factors which must also be considered.

Certain activities are more critical in some posts than in others, i.e., some posts work the majority of the accidents which occur and others have very


ALIOCATION OF NEED BY RESPONSE TIME, BY POST AND BY TRODP 25 Minutes 20 Minutes 15 Minut/3s 10 Minutes Addit. Total Base Addit. Total Base Addit. Total Base Adat. Total

| 1 | 11. | -- | 11 | 13 | -- | 13 | 17 | -- | 17 | 22 | -- | 22 | 34 | - | 34 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | 10 | 5 | 15 | 12 | 5 | 17 | 15 | 5 | 20 | 20 | 5 | 25 | 30 | 5 | 35 |
| 3 | 18 | -- | 18 | 21 | -- | 21 | 27 | -- | 27 | 36 | -- | 36 | 53 | -- | 53 |
| 4 | 14 | 5 | 1.9 | 18 | 5 | 23 | 23 | 5 | 28 | 31 | 5 | 36 | 46 | 5 | 51 |
| 5 | 11 | 5 | 16 | 13 | 5 | 18 | 17 | 5 | 22 | 22 | 5 | 27 | 34 | 5 | 39 |
| 6 | 16 | 2 | 18 | 19 | 2 | 21. | 24 | 2 | 26 | 32 | 2 | 34 | 48 | 2 | 50 |
| 7 | 15 | 5 | 20 | 18 | 5 | 23 | 22 | 5 | 27 | 30 | 5 | 35 | 45 | 5 | 50 |
| 8 | 17 | -- | 17 | 20 | -- | 20 | 25 | -- | 25 | 34 | -- | 34 | 50 | -- | S |
| 9 | 20 | -- | 20 | 20 | -- | 20 | 20 | -- | 20 | 20 | -- | 20 | 20 | -- | 20 |
| 10 | 14 | -- | 14 | 16 | -- | 16 | 20 | -- | 20 | 27 | -- | 27 | 41 | -- | 41 |
| 11 | 9 | 3 | 12 | 11 | 43 | 14 | 14 | 3 | 17 | 18 | 3 | 21 | 28 | 3 | 31 |
| 12 | 20 | -- | 20 | 24 | 4 | 24 | 29 | "- | 29 | 39 | -- | 39 | 59 | -- | 59 |
| 13 | 12 | -- | 12 | 15 | -- | 15 | 18 | -- | 18 | 25 | -- | 25 | 36 | -- | 36 |
| 14 | 24 | -- | 14 | 17 | -- | 17 | 21 | $\cdots$ | 21 | 28 | -- | 28 | 42 | -- | 42 |
| 15 | 18 | 5 | 23 | 22 | 5 | 27 | 27 | 5 | 32 | 36 | 5 | 4.1 | 55 | 5 | 60 |
| 16 | 16 | -- | 16 | 19 | -- | 19 | 24 | -- | 24 | 32 | -- | 32 | 47 | -- | 47 |
| 17 | 14 | 2 | 16 | 16 | $?$ | 18 | 20 | 2 | 22 | 27 | 2 | 29 | 41 | 2 | 43 |
| 18 | 15 | - | 15 | 19 | -- | 19 | 23 | -- | 23 | 31 | -- | 31 | 46 | -- | 46 |
| 19 | 13 | -- | 13 | 15 | -- | 15 | 19 | -- | 19 | 25 | -- | 25 | 38 | -- | 38 |



| Post | 30 Minutes |  |  | 25 Minutes |  |  | 20 Minutes |  |  | 15 Minutes |  |  | 10 Minutes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Base | Addit. | Total | Base | Addit. | Total | Base | Addit, | Total | Base | Addit. | Total | Base | Addit. | Tota |
| 42 | 14 | 3 | 17 | 17 | 3 | 20 | 22 | 3 | 25 | 29 | 3 | 32 | 43 | 3 | 4 |
| 43 | 6 | 5 | 11 | 8 | 5 | 13 | 9 | 5 | 14 | 11 | 5 | 16 | 17 | 5 | 2 |
| 44 | 7 | -- | 7 | 9 | -- | 9 | 11 | -- | 11 | 1.4 | - | 14 | 21. | -- | 2 |
| 45 | 10 | -- | 10 | 12 | - | 12 | 15 | -- | 15 | 20 | -- | 20 | 29 | -- | 2 |
| TOTAL | 610 | 80 | 690 | 725 | 80 | 805 | 899 | 80 | 979 | 1,188 | 80 | 1,268 | 1,766 | 80 | 1,84 |
| A | 75. | 15 | 90 | 90 | 15 | 105 | 111 | 15 | 126 | 148 | 15 | 163 | 223 | 15 | 23 |
| B | 83 | 21 | 104 | 97 | 21 | 118 | 121 | 21 | 142 | 164 | 21 | 185 | 246 | 21 | 26 |
| C | 96 | 13 | 109 | 112 | 13 | 125. | 138 | 1.3 | 151 | 176 | 13 | 1.89 | 255 | 13 | 26 |
| D | 124 | 12 | 136 | 148 | 12 | $160^{\circ}$ | 186 | 12 | 198 | 248 | 12 | 260 | 371 | 12 | 38 |
| E | 11.6 | 3 | 119 | 138 | 3 | 1.41 | 171 | 3 | 174 | 231 | 3 | 234 | 344 | 3 | 34 |
| F | 116 | 16 | 132 | 140 | 16 | 156 | 172 | 16 | 188 | 221 | 16 | 237 | 327 | 16 | 34 |
| TOTAL | 610 | 80 | 690 | 725 | 80 | 805 | 899 | 80 | 979 | 1,188 | 80 | 1,268 | 1.766 | 80 | 1,84 |

little requests to work accidents. This is also true in other functions which the state patrol is involved.

It is for this reason that more than one factor must be considered. At this point the correlations are necessary since they show the strength of the relationship between different factors of the State patrol's functione.

The formula used is as follows:

$$
\frac{\% \text { Area }+\% \text { Roadway Miles }+\% \text { Weight }}{3}=\% \text { of Manpower Needed }
$$

Where, the $\%$ weight $=\%$ population $+\% M V M T+\%$ accidents worked $+\%$ patrol hours $+\%$ patrol miles $+\%$ registered vehicles $\div 6=\%$ weight to be used toward each response factor listed in Exhibit II-Cl, page. 45..

The use of these eight (8) factors is based upon the dependent variables of each territory and those variables which project the performance of the post.

The two strongest variables used are the area and roadway miles since they are the base factors for the determination of state needs. The other major variable, weight, allows for the activities and factors which are provided by each post on an individual basis.

The following Exhibit shows the results of equated factors by post and troop along with the additional needs.

Note: Needs for Post 9 and 35 were not derived by this method, see page 35 .

Several points must be made concerning the previous Exhibit in order to clarify areas where questions may appear.

First, the allocation by Troop Area is probably more justified than those listed by post. This is due to the inconsistancy in activities from post to post. It is therefore haphazard and unfair to try to ration, or allocate manpower from a base to individual units with thly the information which was available for analysis. However, with the information which we did have, it is felt that the distribution is fair since the same criteria was used for all the post; (except Post 9 and Poist 35). Plus the additional needs should"provide for added duties required by the affected post.

It is therefore recommended that the majority of confidence be placed in the needs by troop rather than by post.

Second, the response time is based upon the present level of service. If one feels that additional manpower will warrant additional workload, it may be a fair analogy. However, if the workload is increased in proportion to, or near, the increase in manpower, then efficiency will not change. It would be hard to say the same for effectiveness, but to increase the solution by the same degree the problem is increased, dóes not necessarily produce change.

This point can not be stressed too much. As new avenues are opened for the Georgia state Patrol, new problems arise, and with them an increase in responsibility and a need for additional men, equipment and suppoit.

Once an effective level of service can be provided for the present expectation, then we will be prepared to venture into other areas of enforcement on the post level. Eor, to do this now would be to spread what personnel we now have much thinner and decrease the present level of efficiency and effectiveness.

This too illustrates the need to seek methods to increase service with what we now have and to use it to the best way possible in our efforts to fulfill our goals as set forth by the people of Georgia.
$\therefore$ A

$$
\therefore \therefore
$$

It is hopeful that the needs have been defined in terms which are stable and factual.

Although it would be ideal to obtain the maximum number of personnel needed at once, it is not very practical, above all possible.

It is also impractical to request more personnel than can be trained within a given period of time. It is for this reason that the following time table is set for each need established, i.e., Communications Officers and Troopers.


Communications Officers

The requirements for initiating a Communications Officer are far removed from those for Troopers.

Although training is required to familiarize a Communications Officer of his duties and instruction in the area of procedure and performance, much of this centers
around on-the-job training. The length of time required in the formal training (classroom) for a Communications Officer is one week and the time needed on-thejob usually takes no more than six months, above the formal training, before the Communcations Officer is able to function to his full level of efficiency.

It is for this reason that the full need can be inserted into the present force without endangering efficiency or effectiveness. We feel that this process can be completed within a 12 -month period, if funds can be obtained.

The request for 69 additional Communications Officers has been submitted for FY 77 budget. If this is approved, then the deficiency will be (3). It is hopeful that the needs can be totally met by the end of FY 78.

The results will yield a 24 -hour per day comminications operation in 45 different communication centers throughout the state, manned with qualified Communications Officers. This will relieve the Troopers who are not required to "fill in" on tine radio. Also, it will allow for more consistency in the communications program of the Georgia state Patrol.

This will hold true even when the turnover rate is considered.

Enforcement

The annual turnover rate for Troopers is approximately six (6) percerit. This factor is to be considered in the projection of total personnel to be trained per year.

If additional manpower is added, a total of three l6-week trooper training schools can be provided with an enroliment of 30 troopers per school. Therefore at least 90 Troopers can be trained in a given 12 -month period if funds are provided.

With this in mind the following proposal is presented as a plan for the achievement of manpower needed to produce an acceptable level of service.

## EXHIBIT III-BI

Plan Year

## Present Year

a. Employed: 532
b. Replacement*: 32
c. Requested: ..... $N / A$
d. Balance: ..... 532
e. Need Training: ..... 32
Plan Year - 1 ..... ** *
a. Employed: ..... 532
b. Replacement*: ..... 32
c. Requested: ..... 60
c. Balance: ..... 592
e. Need Training: ..... 92
Plan Year - 2
a. Employeã: ..... 592
b. Replacement*: ..... 32
c. Requested: ..... 60
d. Balance: ..... 652
e. Need Training: ..... 92
Plan Year - 3
a. Employed: ..... 652
b. Replacement*: ..... 33
c. Requested: ..... 60
d. Balance: ..... 712
e. Need Training: ..... 93
1
Plan Year - 4
a. Employed: ..... 712
b. Replacement*: ..... 32
c. Requested: ..... 60
d. Balance: ..... 772
E. Need Training: ..... 92

## $\underline{\text { Results }}$

Response Time: 23.32 Minutes

## Plan Year - 5

a. Employed: ..... 772
b. Replacement**: ..... 31
c. Requested: ..... 60
d. Balance: ..... 832
e. Need Training: ..... 91
Plan Year - 6
a. Employed: ..... 832
b. Replacement**: ..... 33
c. Requested: ..... 60
a. Balance: ..... 892
e. Need Training: ..... 93
Plan Year - 7
a. Employed: ..... 892
b. Replacement**: ..... 36
c. Requested: ..... 60
a. Balance: ..... 952
e. Need Training: ..... 96
Elan Year - 8
a. Employed: 952
b. Replacement**: ..... 38
c. Requested ..... 60
d. Balance: 1,012
e. Need Training: ..... 98
Plan Year - 9
a. Employed: $1_{i} 012$
b. Replacement**: 40
c. Requested: ..... 60
d. Balance: ..... 1,072
e. Need Training: ..... 100
Plan Year - 10
a. Employe: ..... 1,072
b. Replacement**: 43
c. Requested: $75(15)^{1}$
d. Balance: 1,147 (13)
e. Need Training***: ..... 118
Response Time: 21.57 Minutes
Response Time: 20.07 Minutes
Response Time: 18.76 Minutes
Response Time: 17.61 Minutes
Response Time: 16.60 Minutes
a. Employed: 1,147
b. Replacement**: 46
c. Requested: ..... 75 (15)
d. Balance: 1,222 ..... (30)
e. Need Training***: ..... 121
Plan Year - 12
a. Employed: ..... 1,222
b. Replacement**: ..... 49
c. Requested: ..... 75 (15)
d. Balance: 1,297 ..... (45)
e. Need Training***: ..... 124
Plan Year - 13
a. Employed: ..... 1,297
b. Replacement** ..... 52
c. Requested: ..... 75 (15)
d. Balance: 1,372 (60)
e. Need Training***: ..... 127
Plan Year - 14
a. Employed: ..... 1,372
b. Replacement**: ..... 55
c. Requestied: ..... 75 (15)
a. Balance: 1,447 (75)
e. Need Training***: 130
Plan Year - 15
a. Employed: ..... 1,447
b. Replacement**: 58 ..... 58
c. Requested: ..... 80 (5)
d. Balance: 1,527 (80)
e. Need Training***: ..... 138
Plan Year - 16
a. Employed: 1,527
15.3
Response Time: 14.15 Minutes
Response Time: 13.48 Minutes
Response Time: 12.88 Minutes
Response Sime: 12.20 Minutes
Response Time: 11.55 Minutes
b. Feplacement**: ..... 61
c. Requested: ..... 80
d. Balance: 1,607 ..... (80)
e. Need Training***: ..... 1.41
a. Employed: 1,607
b. Replacement**: $64 \quad$ Response Time: 10.96 Minutes
c. Requested: 80
d. Balance: 1,687 (80)
e. Need Training***: 144

Plan Year - 18
a. Employed: 1,687
b. Replacement**: 67
c. Requested: 80
d. Balance: 1,767 (80)
e. Need Training***: 147

Plan Year - 19
a. Employed: 1,767
b. Replacement**: 71 Response Time: 10.00 Minutes
c. Requested: 80
a. Balance: 1,847 (80)
e. Need Training***: 131

Plan Year - 20
a. Employed: 1,847
b. Replacement* 74 Response Time: 10.00 Minutes
c. Requested: ~0-
d. Balance: 1,847 (80)
e. Need Training: 74

Response Time: 10.43 Minutes
$\because \because$
合


#### Abstract

$\rightarrow \infty$

5 Total Committment

If the 20-year plan is adopted, or followed, then the projected force of sf. ${ }^{\circ}$ the Georgia State Patrol (Troopers and Communications Officers in the 45 Patrol Posts) will be as shown in Exhibjet III-Cl.

This plan will allow for the Department to incorporate additional men into the present operations without adversely affecting its opexation.

The impa=t resulting from this plan will be evident in the activities frovided by the field and also in the support functions at Headquarters.

It should also be noted that the projections are not firm, since an increase in responsibility will also increase the needs. However, based on today's expectations, the needs could be met with the stated projections. But if an increase in manpower is achieved, then an increase in effectiveness and efficiency should also be seen; as a result, increased expectations are also projected. For this reason, along with priority revisions, the twenty year plan is by no means the magic proposal. It is a base from which to work, and a goal to continually strive to achieve.


We are hopeful in achieving the manpower needed to provide the service demanded in a manner which is effective in problem areas and efficient in operation.

Systematic results' will be a result of systematic allocations.


APPEMDIUES

## DEFINITIONS AND FORMULAS

1. Availability Factor - This factor is used as a constant to allow for $\therefore: ~: ~$ availability of manpower. It accounts for time off or time an officer is not available for duty due to sick leave, annual leave, days off, etc. The factor shows that to have one man available for a tour of duty year-round you actually need to employ 1.64 men.

For Example: To have one Trooper on duty 24 hours per day (3 shifts) you would have to have:

1 Trooper X 3 Shifits X $1.64=4.92$ (5) Troopers
2. Correlation Coefficient - Is defined as a sample of $\eta$ pairs of $x, y$ values as:

$$
\Gamma=\frac{\Sigma x^{2} y}{\sqrt{\Sigma x^{2} \Sigma y^{2}}}
$$

Where $\Gamma$ shows the relationship between the values of $x$ and $y$ on a scale between -1.0 to 0.0 to +1.0 . The strength of the relationship increases as the value of $\Gamma$ approaches $\pm 1.0$ and decreases as it approaches 0.0 .

The following Exhibit $A A l$ sumarizes the relationship between $\Gamma, \Gamma^{2}$, and $1-\Gamma^{2}$ where $\Gamma^{2}$ is interpreted as the proportion of the total variance in $y$ that is explained by the correlation it shares with $x$, and $1-\Gamma^{2}$ represents the proportion of the total sum of squares that is unexplained by the independent variable.

RELATIONSHIP BETWEEN $\Gamma, \Gamma^{2}$, AND $1-\Gamma^{2}$

| value <br> of I' | $\Gamma^{2}$ : Pexcent of Explained Variance | 1- $\mathrm{r}^{2}$ : Percent of Unexplained Variance | Strength of the Linear Regression |
| :---: | :---: | :---: | :---: |
| . 0 | . 00 | 1.00 | None |
| . 1 | . 01 | . 99 | Very Weak |
| . 2 | . 04 | . 96 |  |
| . 3 | . 09 | . 91 | Weak |
| . 4 | . 16 | . 84 |  |
| . 5 | $.25$ | . 75 | Moderate |
| . 6 | . 36 | . 64 | Strong |
| . 7 | . 49 | . 51 | - |
| . 8 | . 64 | . 36 | Very Strong |
| . 9 | . 81 | . 19 |  |
| 1.0 | 1.0 | . 00 | Perfect |

From the table it is seen that when $\Gamma<.3$, more than 91 percent of the variance in one variable is still left unexplained.

Marascuilo also states that the iabeling of correlations as shown in the above table is not universally accepted by statistician or behavioral researchers. It is merely a convenience and should be used with care.

A correlation of .9 would show that as $y$ increases so does $x$. If $\Gamma$ was -.9 then as $y$ decreases $x$ increases.

Fiabert M. Blalock, Jr., Social Statistics, McGraw-Hill Book Company, New York, N.Y., 1972, P. 378.

Leonard A. Marascuilo, Statistical Methods for Behavioral Science Research, McGrawHill Book Company, New York, 1971, P. 433.
3. Intercept i - Is the point at which the regression line crosses the $y$ axis and $x$ is 0 .
4. Mean - The Arithmetic Mean is defined as the sum of the scores defined by the total number of scores in a sense it is the average for a group of scores as defined where:

$$
\bar{x}=\frac{x_{1}+x_{2}+x_{3}+\ldots+x_{n}}{n}
$$

Where $n$ is the number of scores used in the numerator.

$$
\therefore \therefore
$$

5. Regression Line Equation - Is defined as -

$$
y_{c}=a+b x ;
$$

where $a$ is the $y$ intercept and $b$ is the slope of the. line.

$$
\begin{aligned}
\text { Example: } & \quad a=1.5 \text { ( } y \text { intercept) } \\
& b=1 \text { (slope) }
\end{aligned}
$$

Using the formula when $x=0$, then $y=1.5$ and when $x=10, y=11.5$, thus we have:

6. Response Time - This is defined as the time required between the moment a call is received by a patrol unit and the moment the unit arrives at the incident.
-
7. Slope m - J.s defined as the constant that specified the magnitude of the increase in the dependent variable for each unit increase in the independent variable.

It is equated as follows:

$$
\therefore \text { slope } m=\frac{y-b}{x-0}
$$

where,
and,


$$
\begin{aligned}
\mathrm{mx} & =y-b \\
y & =m x+b, \text { and } b=y \text { intercept }
\end{aligned}
$$

8. Respones Time - A sample of a sample was used to determine the average response time for a patrol unit (GSP) to travel from a present position to the location of an accident.

The reports sampled did not reflect as to the urgency of response since a sample of "10-18" incidents would not be a true indicator of overall response time.

A total of 300 reports were used at random out of a group of random sampled reports from GSP posts throughout the state. The group of reports were in the neighborhood of 1,000 in number.

Three (3) factors were used to determine response:

1. Time Notified - This is the time that the Department, or Dispatcher, was notified that there was an accident.
2. Received Call - This is the time when the Dispatcher notified a Patrol Unj.t to respond tio tine accident location.
3. Time Arrived at Scene - This is the time when the Trooper arrived at the scene of the accident.

The three elements were used to determine the following:
(a) Average time from Post notification (1) to Patrol Unit Notification $(2)=5.65$ minutes.
(b) Average time from Patrol Unit notification (2) to Trooper arrival at scene $(3)=33.73$ minutes.
(c) Average time from Post notification (1) to Trooper arrival at scene $(3)=39.38$ minutes .


|  | PROJECTED AGTIVITY |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Georgia State Patrol |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | A | B | C | D | E | F | Total |
| INVESTIGATIONS |  |  |  |  |  |  |  |
| Ascidents Rural No. | 4,589 | 2,899 | 4,336 | 2,697 | 3,761 | 1,730 | 20,012 |
| Accident Rural Hrs. | 5,777 | 3,761 | 6,158 | 4,488 | 5,466 | 4,248 | 29,898 |
| Cidents Urban No. | 220 | 119 | 234 | 111 | 209 | 73 | 866 |
| Accidents Urban frs. | 127 | 164 | 340 | 188 | 311 | 249 | 1,379 |
| Employment: Inv. No. | 88 | 32 | 396 | 44 | 124 | 37 | 721 |
| Employment Inv. Hrs. | 292 | 220 | 576 | 180 | 892 | 185 | 2,345 |
| Pers. Complaints Inv. No. | 32 | 16 | 24 | 28 | 0 | 48 | 148 |
| Pers. Complaints Inv. Hrs. | 60 | 104 | 90 | 56 | 0 | 184 | 494 |
| Stolen Property No. | 36 | 4 | 4 | 28 | 0 | 200 | 272 |
| Stolen Property Hrs. | $112^{\prime \prime}$ | 4 | 6 | 76 | 0 | 624 | 822 |
| Ien Veh. Recovered No. | 62 | 29 | 114 | 38 | 56 | 31 | 330 |
| Stolen Veh. Recovered Hrs. | 158 | 24 | 67 | 49 | 57 | 43 | 398 |
| Traffic Complaints No. | 760 | 56 | 55 | 264 | 132 | 75 | 1,342 |
| Traffic Complaings Hrs. | 356 | 36 | 64 | 276 | 180 | 339 | 1,751 |
| total Investigation hrs. | 7,382 | 4,313 | 7,301 | 5,313 | 6,906 | 5,872 | 37,087 |




| Activity | Troop |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | D | E | $F$ | Total |  |
| Road Check Hrs. | 2,081 | 1,654 | 3,936 | 2,923 | 2,407 | 1,491 | 14,492 |  |
| Searches No. | 2 | 19 | - 8 | 75 | 84 | 45 | 233 |  |
| Searches Hrs. | 373 | 122 | 813 | 509 | 905 | 400 | 3,122 |  |
| Security Hrs. | 72 | 205 | 1,692 | 2,306 | 63 | 49 | 4,387 |  |
| Staff Meetings Hrs. | 171 | 600 | 548 | 838 | 593 | 802 | 3,552 |  |
| Supervisory Hrs. | 3,598 | 5,494 | 5,098 | 4,930 | 5,776 | 2,330 | 27,226 |  |
| Tornado Hrs. | 0 | 0 | 0 | 41 | 3 | 41 | 85 |  |
| Traffic Regulations No. | 267 | 99 | 560 | 192 | 252 | 690 | 2,060 |  |
| Traffic Regulations Hrs. | 736 | $559$ | 1,759 | 626 | 1,303 | 774 | 5.757 | ¢ |
| Training Hrs. | 5,206 | 5,396 | 5,853 | 6,715 | 7,013 | 8,675 | 38,858 | $\bigcirc$ |
| Other Hrs. | 15,019 | 4,864 | 19,283 | 9,007 | 13,426 | 10,857 | 72,456 |  |
| TOTAL OTHER DUTY HRS. | $123,521$ | 102,935 | 143,631 | 142,200 | 149,691 | 136,152 | 798,130 |  |
| GOROL INFORMATION |  |  |  |  |  |  |  |  |
| Patrol Hrs. | 94,477 | 80,787 | 120,101. | 115,326 | 111,256 | 106:723 | 628,670 |  |
| Partner Hrs. | 26,879 | 4,728 | 13,700 | 7,828 | 7,468 | 3,318 | 63,921 |  |
| Patrol Miles | 1,813,046 | 1,636,136 | 2,407,124 | 2,594,859 | 2,211,803 | 2,083,710 | 12,746,678 | \% |
| Other Miles | 147,598 | 189,638 | 222,278 | 154,169 | 270,927 | 141,616 | 1,126,226 |  |
| TOTAL HOURS ON DUTY | 254,059 | 194,244 | 286,432 | 272,936 | 277,235 | 253,798 | 1,538,704 |  |

## COMPARATIVE FACTORS

The following information is provided as a post by post view of specific factors used in the comparison and analysis of each post activity.

The sources of each item are listed in the factor explanation.

Also listed are the formulas used in computing rates and percentages for each factor.

The narrative portion, or explanation, is a guide to the form describing each post.

1. Population -

Figures used were obtained from the "Annual Estimate of Population for the State of Georgia" by Office of Planning and Budget, Division of State Planning, State Data Center, July, 1975.
2. $\%$ (Percent) - Represents the percent of population the area has in relation to the state total population of 4,884,200.

Formula: $\%$ of Population $=\frac{\text { Rost Area Population }}{\text { State Population }} \times 100$
3. Total Roadway Miles - .rFigures obtained from "Mleage of Public Roads in Georgia by County, Road System, and Surface iype as of September 1, 1974", Department of fransportation, Division of Planning and Programming in cooperation with U.S. Department of Transportation, Federal Highway Administration.

Note: This does not include miles of local city streets or any projected roads.
4. \% (Percent) - Represents the percent of roadway miles in the post area as to the state total of $89,958.70$ miles.

Formula: \% of Roadway Miles $=\frac{\text { Miles in Post Area }}{\text { Miles in State }} \times 100$
5. Interstate Miles - Figures obtained from source listed in \#3 above. Mileage includes Federal Aid Interstate System miles by post in urban and rural areas.
6. \% (Percent) -

Represents the percent of interstate miles in post area to the total roadway miles in the post area.

Formula: \% of Interstate Miles $=\frac{\text { Miles of Interstate in Post Area }}{\text { Miles of Roadway in Post Area }} 100$
7. Federal Aicl Primary - FAP roadways generally are heavy traveled arteries within areas which receive federal aid. These roadways are defined in accordance with the guidelines set forth by the U.S. Department of Transportation.

[^1]8. (Percent) - Represents the percent of FAP roadway miles in the post area to the total roadway miles in the post area.

Formula: $:$ of FAP Mile $=\frac{\text { FAP Miles in Post Area }}{\text { Total Raadway Miles in Post Area }} \times 100$

9. Federal Aid Secondary - The FAS Roadway System is usually a less traveled roadway system used mostly for local travel. It is defined by guidelines set forth by the U.S. Department of Transportation.
10. : (Percent) - Represents the percent of FAS roadway miles in "the post area to the total roadway miles in the post area.

Formula: $\%$ of FAS Roadway Miles $=\frac{\text { FAS Miles in Post Area }}{\text { Total Roadway Miles in Post Area }} \times 100$
11. Non Fedexal Aid - This system is defined as a roadway system which does not receive any federal aid for construction and usually is local roadways with little traffic flow volume.
12. \% (Percent) - Represents the percent of NFA roadway miles in the post area to the total roadway miles in the post area.

$$
\text { Formula: } \% \text { NFA Miles }=\frac{\text { NFA Miles in Post Area }}{\text { Total Roadway Miles in Post Area }} \times 100
$$

13. Area (Sq. Miles) - The figures used for the area are in square miles as obtained from the Standard Reference Map and Guide of Georgia, Rand McNally, Chicago, Ill. 1972 D. 5-8.
$\begin{aligned} & 14 . \text { (percent) - } \\ & \text { Represents the area of the post in relation to the } \\ & \text { total state area of } 58,073 \text { square miles. }\end{aligned}$ total state area of 58,073 square miles.

$$
\text { Formula: } \% \text { Area }=\frac{\text { Area of Post Territory }}{\text { State Area }} \times 100
$$

15. Population/Square Mile - This represents the density of population per square
mile in each post area.

Formula: Population/Sq. Mile $=\frac{\text { Population of Post Area }}{\text { Area (Sq.Mi.) of Post }}$,
and is to be defined as the number of people per square mile in a specified area. Note: This is an average.
16. Roadway/Square Mile -

This is decermined in a manner to show the density of soadway (miles) per square mile of area.

Formula: Roadway/Sq. Mile $=\frac{\text { Total Roadway Miles in Post Area }}{\text { Area (Sq.Mi.) of Post }}$,
"多
and is to be defined as the number of roadway miles per square mile in a specified area. Note: This is an average.
17. Population/Roadway Mile- This represents the population density per mile of total roadway per post area.

Formula: Population/Roadway Mile $=\frac{\text { Population of Post Area }}{\text { Total Roadway Miles per Post Area }}$,
and is defined as the population density per one mile segment of roadway. Note: This is an average.
18. Million Vehicle Miles - This is defined as the number of annual vehicle Traveled miles traveled (in millions) in a specified post area. These figures were derived by the use of gasoline sold by county where the average miles per gallon is 11.4. The gallons of gasoline sold per county was obtained from the Georgia Department of Revenue.

Formula: Annual Vehicle Miles Traveled (AVMT) =
Gallons of Gasoline Sold per post area per Year 11.4 Miles per Gallon
where,

Million Vehicle Miles Traveled (MVMT) $=\frac{\text { AVMT }}{1,000,000}$

$$
\text { Mililon venicie miles mavelea (mvir) }=\overline{1,000,000}
$$

Thus, if MVMT is .89 then the AVMT would be 890,000 and is thus converted to say .89 million vehicle miles traveled per year per specified post area.
19. \% (Percent) -

Represents the percent of MVMT in a post area to the MVMT for the state (31,809.294 MVMT).

Formula: $:$ MVMT $=\frac{\text { MVMT in Post Area }}{\text { MVMT in State }} \times 100$
20. MVMT/Roadway Mile -

This is defined as million vehicle miles traveled $\therefore$ per year per roadway mile in a specified post area.

Formula: MVMT/Roadway Mile $=\frac{\text { MVMT in Post Area }}{\text { otal Roadway Miles in Post Area }}$
21. Accidents -

The figures used for accidents were obtained from the Accident Feporting function of the Georgia Department of Public Safety and includes reports from all agencies throughout the state who report to the Accident Reporting Unit. Information obtained from the Department of Public Safety 1974 Annual Report, DOAS Pirint Shop, 1975, P. 75-78 (as provided by the Accident Reporting Unit of the Georgia Department of Public Safety).

Note: Figures used under the column for Responsibility were obtained from the Activity Reporting system in use by the Georgia state Patrol based on projections as defined under the Activity Project in section of this study.

| 22 | \% (Percent) - | This represents (both columns) the percent of accidents occurring in each specified area in relation to the state Total. |
| :---: | :---: | :---: |
|  | Eexmiluai | $\text { : Auciuents }-\frac{\text { Accidents per Fost Area }}{\text { Accidents in State }} \mathfrak{X} \text { IUU }$ |
| 23 | Tnjuries - | This represents the total injuries in accidents. It does not indicate the number of injury accidents. This information was obtained from source stated in \#2l (Department of Public Safety 1974 Annual Report). |


| 24. | \% (Percent) - | Represents the percent of injuries in post area to the total injuries incurred throughout the State. |
| :---: | :---: | :---: |
|  | Formula: | $\%$ Injuries $=\frac{\text { Injuries in Post Area }}{\text { Injuries in State }} \times 100$ |
| 25. | Fatalities - | This information represents the number of fatalities (traffic accident related) which resulted from the total accidents in the specified post area. This does not represent the number of fatal accidents. This information was obtained from the source listed in \#21 (Department of Public Safety 1974 Annual Report.). |
|  |  |  |
|  | $\%$ (Percent) - | This is defined as the percent of fatalities resulting in total accident for a post area to the total number of fatalities in the state. |
|  | Formula: | $\text { Fatalities }=\frac{\text { Fatalities in' Post Area }}{\text { Fatalities in State }} \times 100$ |
| 27. | Fatalities/MVMT - | This is defined as the number of fatalities per million vehicle miles traveled per specified post area. This is a density, or volume factor to determine the rate of fatalities per MVMI. |
|  | Formula: | $\text { Fatalities } / \mathrm{MNM}=\frac{\text { Fatalities in Post Area }}{\text { MVMT in Post Area }}$ |
|  |  | and is understood as the number of fatalities per million vehicle miles. |
| 28. | Injurjes/MVMT - | This represents the number of injuries in a post area in relation to MVMT per post area. |
|  | Formula: | $: \quad \text { Injuries } / M V M T=\frac{\text { Injuries in Post Area }}{\text { MWMT in Eget Area }}$ |
|  |  | where, it is understood as the number, or rate, of injuries per million vehicle miles traveled for a specified post area. |

# CONTINUED 

$10 F 3$

Is defined as the number of accidents in a post area per million vehicle miles traveled.

Formula: Accidents/MVMT $=\frac{\text { Accidents in Post Area }}{\text { MVMT in Post Area }}$,
where, the results is the rate of accidents per million vehicle miles traveled for the specified post area.
30. Accidents/Fatality -

Is defined as the number of accidents occurring per one fatality in the specified post area. $\therefore$ s

Note: This is to a degree erroneous since it does not take into consideration those accidents which are fatal accidents, but only the number of fatalities as a result to all accidents.

Formula: Accidents/Fatalities $=\frac{\text { Acciderts in Post Area }}{\text { Fatalities in Post Area }, ~}$
31. Accidents/Injury - This is defined as the number of accidents per injury for a spedific post area.

Note: The erroneous factors are similar to those in \#30.

Formula: Accidents/Injury $=\frac{\text { Accidents in Post Area }}{\text { Injuries in Post Area }}$,
where, the result is understood as the average number of accidents per one injury for the specified patrol area.
32. Local Law Enforcement - This information was obtained from the Georgia Officers

Where, the result shows the number of accidents, on the average, per one fatality witnin a specified pos¿ area. Peace Officer Standards and Training Council as a result of a survey taken of each Area Planning and Development Commission territory. The accuracy of these figures is set as of September, 1975. The figures are the number of local lave enforcement officers who are of sworn status and are employed by either a city, county or state institution with primary duties directed toward
the enforcement of municipal, state and federal laws directed toward the control and enforcement of traffic and eriminal activity.
33. \% (Percent) -

This is defined as the percent of local enforcement officers per specified post area in relation to the total number of local law enforcement officers in the state.

Formula: $\%$ Local Law Enforcement Officers (LLEO) =
LreO in Post Area
LIEO in State $\times 100$
$\because=$
34. Trooper Force - This is defined as the present Trooper line force per specified post on an average for the past year. The force will include Post Commanders, Corporals, and Troopers. It will not include Communication Officers, License Examiners, or those Troopers assigned to special functions, ie, MVI, MCSU, Safety Education, etc.
35. Population/Enforcement - This represents the population number per one law Officers enforcement officer both local and GSP (\#32 plus \#34).

Formula: Population/Enforcement Officers
Population in Post Area
Law Enrorcement Officers in Post Area
where, the result is the number of people in the area per one law enforcement officer.
36. Part I crimes Index - Is defined as the total number of Part I crimes in the post area as defined by the Federal Bureau of . Investigation's statistical section. The crimes used are: murder, rape, robbery, assault, burglary, larceny, and auto theft. The figures used were furnished by the FBI as of september, 1975 for the calendar year 1974. The figure represents the number of reported offenses irrespective of convictions.
37. \% (Percent) -

Is defined as the percent of Part I Crimes reported in a specified post area to the total number reported in the state.
38. Crime Rate (100,000) - The crime rate is defined as the number of Part I offenses occurring per 100,000 population.

Formula: Crime Rate $=\frac{\text { Part I Crimes in Post Area }}{\text { Population in Post Area }} \times 100,000$
39. Arrest Moving Hazardous - Is defined as the number of moving hazardous arrests (M/H) GSP
40. Arrest Other GSP -
41. Warnings Moving Hazardous GSD
separated per post on the GSP Activity Report and projected on a yearly basis. It does not include arrests made by other law enforcement agencies. Moving hazardous arrests are those arrests for violations as set "Forth in the Laws of the State of Georgia and other laws governing the types of violations in this category.

Is defined as those arrests by GSP personnel fas set forth in $\% 40$ ) which are not moving hazardous. The source of information is the GSP Activity Report.

This information represents the number of warnings given by GSP personnel for moving hazardous violations and does not include any warnings issued by other law enforcement officers. Source is the GSP Activity Report.

This information represents the number of warnings given by GSP personnel for non-moving hazardous violations and does not include any warnings issued by other law enforcement officers. Source is the GSP Activity Report.

In defined as the miles traveled by the GSP while on patrol duty or status. This does not include any miles traveled by other law enforcement officers.

Represents miles traveled on an official function not of a patrol nature. The miles are only for those logged on official State vehicles. The source of this information is the GSP Activity Report.

This figure indicates the number of registered vehicles in the post area for 1974. Source: Department of Revenue, State of Georgia.
46. Patrol Hours -

Impacting Factors -
mhis figure represents the number of hours involved in patrol by the Georgia State Patroi. Source: GSP Activity Report.

This category represents any factor in a patrol area which may have an affective bearing on the duties performed by the GSP in its enforcement function, ie, recreation areas, major tourist attractions, certain institutions or other factors which are impacting. These factors will also include other elements which would determine the state Patrol's function to be different than is the majority of the State. An example of this would be Jekyll Island and the Headquarters Patrol Post.
$\therefore=3$


[^2]TROOP $\qquad$

COUNTIES IN TERRITORY:
Butts
Henry
Spalding


* Whara Applicabla


[^3]

|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 273,000 | 636 |
| 2. | \% (Percent) | 5.59 |  |
| 3. | Total Rondway Miles | 2,176.92 |  |
| 4. | \% (Percent) | 2.42 |  |
|  | Insorstata Milas | 51.75 |  |
| 6. | \% (Pareant) | 2.38 |  |
| 7. | Federal Ald Primary | 125.79 |  |
| 8. | \% (Parcent) | 5.78 |  |
| 9. | Federal Aid Secondary | 391.57 |  |
| 10. | \% (Parcent) | 17.99 |  |
| 11. | Nan Fodoral Aid | 1,607.81 |  |
| 12. | \% (Parcant) | 73.86 |  |
| 13. | Area (Sq. Milys) | 804 |  |
| 14. | \% (Parcent) | 1.38 |  |
| 15. | Population/square mi. | 339.55 |  |
| 16. | RGadway/square mi. | 2.71. |  |
| 17. | Population/roadway mi. | 125.41 |  |
| 18. | Million Vehicte Miles Traveled | 1,674.470 |  |
| 19. | \% (Parcent) | 5.54 |  |
| 7. | MVMT/Roadway mi. | 0.769 |  |
| 21. | Accidonts | 20,024 | 636 |
| 22. | \% (Parcent) | 7.91 |  |
| 23. | Injuries | 2,492 |  |


|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| 24. | \% (Parcent) | 7.08 |  |
| 25. | Fatalitios | 72 |  |
| 26. | \% (Porcent) | 4,66 |  |
| 27. | Fatalitios/MVMT | 0.043 |  |
| 28. | Injurios/MVMT | 1.488 |  |
| 29. | Accident/MViMT | 5,986 |  |
| 30. | Accidents/Fatalities | 139.222 |  |
| 31. | Accidents/Injury | 4.023 |  |
| 32. | Local Law Enforesment Officars | 539 |  |
| 33. | \% (Percent) | 5.91 |  |
| 34. | Trooper Forco | 13 |  |
| 35. | Population/Enforcement Officers | 506,49 |  |
| 36. | Part I Crimes Index | 11,612 |  |
| 37. | $\%$ (Porcent) | 6,08 |  |
| 38. | Crime Rats (100,000) | 4,253,48 |  |
| 39. | Arrest Moving Haxardous - GSP |  | 2,712 |
| 40. | Arrest Other - GSP |  | 434 |
| 41. | Warnings Moving Hazardous - GSP |  | 5,242 |
| 42. | Warnings Other - GSp |  | 355 |
| 43. | Patrol Milas - GSP |  | 285,746 |
| $4{ }^{4}$ | Other Milas - GSP |  | 25.286 |
| 45. | Motor Vehicle Registration | 222,975 |  |
| 46. | Patral Hours | 24 | 13,205 |

*Where Applicabla


- Whare Applicabla


A

LOUNTIES IN TEARITORY:
Catoosa ( $1_{2}$ )
Murray
Whitfield

|  | Factor | Total | Responsibility* | 24 | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| . 1. | Population | 91, 850 |  |  | \% (Parcent) | 1.85 |  |
| 2. | \% (Parcent) | 1.88 |  | 25. | Fatalitios | 24 |  |
| 3. | Total Roadway Milos | 1,320.27 | 1,294.99 | 28. | \% (Parcent) | 1.55 |  |
| 4. | \% (Parcent) | 1.47 | 1.50 | 27. | Fatallies/MVMT | 0.035 |  |
| د. | Intarstata Miles | 25.28 | 0.00 | 28. | Injuries/MVMT | 0.940 |  |
| 6. | \% (Parcant) | 1.91 | 0.00 | 29. | Accident/MVMT | 3.455 |  |
| 7. | Federal Aid Primary | 95.57 | 95.57 | 30. | Accidents/Fstalities | 99.833 |  |
| 8. | \% (Parcent) | 7.24 | 7.38 | 31. | Accident3/Injury | 3.675 |  |
| 9. | Fedaral ald Sacondary | 246.36 | 246.36 | 32. | Local Law Enforcament Officers | 111 |  |
| 10. | \% (Porcent) | 18.66 | 19.02 | 33. | \% (Farcant) | 1.22 |  |
| 11. | Non Foderal Aid | 953.06 | 953.06 | 34. | Trcoper Force | 15 |  |
| 12. | \% (Porcent) | 72.19 | 73.60 | 35. | Population/Enforcement Officers | 827.48 |  |
| 13. | Araa (Sq. Milas) | 707 |  | 36. | Purt I Crimes Index | 2,841 |  |
| 14. | \% (Parcent) | 1.22 |  | 37. | \% (Patamit) | 1.49 |  |
| 15. | Population/squars mi. | 129.92 |  | 38. | Crime Sate (100,000) | 3,093.09 |  |
| 16. | Roadway/square mi. | 1.87 |  | 39. | Arrost Moving Haxardous - GSP |  | 3,655 |
| 17. | Population/roadway mi. | 69.57 |  | 40. | Arrest Other \% GSP |  | 1,255 |
| 18. | Million Vahicla Milas Travelud | 693.484 |  | 41. | Warnings Moving Hazardous - GSp | = | 5,479 |
| 19. | \% (Parcent) | 2.30 |  | 42. | Warnings Othar - GSP |  | 849 |
| $\bigcirc$. | MVMT/Roadway mi. | 0.525 |  | 43. | Patrol Miles - cs ? |  | 263,818 |
| 21. | Accidents | 2,396 | 1,203 | 44. | Other Milas - GSP |  | 21,094 |
| 22. | \% (Parcent) | 1.89 |  | 45. | Motor Vehicle Registration | 58,861 |  |
| 23. | Injurias | 652 |  | 46. | Patrol Hours | " | 14,688 |

*Where Applicable



[^4]

[^5]
ost $\qquad$ 3
rgoop $\qquad$ D

COUNTIES IN TERRITORY:

Greene
Jasper
Morgan
Newton
Walton


[^6]

|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 1,172.300 |  |
| 2. | \% (Pricent) | 24.00 |  |
| 3. | Total Roadway Milibs | 3,111.92 |  |
| 4. | \% (Percont) | 3.46 |  |
| - | Intarstata Miles | 143.92 |  |
| o. | \% (Parcant) | 4.62 |  |
| 7. | Foderal Aid Primary | 248.28 |  |
| 8. | \% (Parcant) | 7.98 |  |
| 9. | Federal Ald Secondary | $6: 39.50$ |  |
| 10. | \% (Parcent) | 21.19 |  |
| 11. | Non Foderal Aid | 2,060.22 |  |
| 12. | \% (Parcent) | 66.20 |  |
| 13. | Arga (Sq. Miles) | 948 |  |
| 14. | \% (Parcant) | 1.63 |  |
| 15. | Population/squars mi. | 1,236.60 |  |
| 16. | Roadway/anuara mi. | 3.28 |  |
| 17. | Population/roadway mi. | 376.71 |  |
| 18. | Million Vahicto Milas Travalad | 5,971.632 |  |
| 19. | \% (Percent) | 19.77 |  |
| ). | MVMT/Roadway mi. | 1.92 |  |
| 21. | Accidents | 39,949 | 58 |
| 22. | \% (Parcent) | 31.51 |  |
| 23. | Injuries | 9,344 |  |


|  | Factor | Total | Rasponsibility* |
| :---: | :---: | :---: | :---: |
| 24. | \% (Parcent) | 26.56 |  |
| 25. | Fatalitios | 221 |  |
| 26. | \% (Parcant) | 14.30 |  |
| 27. | Fatalities/MVMT | 0.037 |  |
| 23. | Injuries/MVMT | 1.565 |  |
| 29. | Accidant/MVMT | 6.690 |  |
| 30. | Accidents/Fatalitios | 180.765 |  |
| 31. | Accidents/Injury | 4.275 |  |
| 32. | Local Law Enforcament Officers | 2,820 |  |
| 33. | \% (Parcant) | 30.94 |  |
| 34. | Trooper Force | 18 |  |
| 35. | Population/Enforeornant Officers | 415.71 |  |
| 36. | Part I Crimes Indax | 80,560 |  |
| 37. | \% (Parcest) | 42.17 |  |
| 38. | Crime Rata ( 100,000 ) | 6,871.96 |  |
| 39. | Arrast Moving Hazardous-Gsp |  | 6,430 |
| 40. | Arrast Other - OSP it |  | 1,807 |
| 41. | Warnings Moving Hazardous - GSP | - | 1,056 |
| 42. | Warnings Other - GSP |  | $2 \sqrt{7}$ |
| 43. | Patrol Milas - GSP | " | 207,926 |
| 44. | Oithar Milas - GSp |  | 142,603 |
| 45. | Motor Vohicio Registration | 796,621 |  |
| 46. | Patrol Hours* |  | 11.628 |

[^7]

- Whara Applicabla

COUNTIES IM TERRITORY:
Liberty
Long
McIntosh

|  | Factor | Total | Rasponsibility* |  | Factor | Total | Responsibility** |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\because 1$. | Population | 29,700 |  | 24. | \% (Porcent) | 0.51 |  |
| 2. | \% (Parcant) | 0.61 |  | 25. | Fatalities | 18 | , |
| 3. | Total Roadway Miles | 807.90 |  | 25. | \% (Parcent) | 1.17 |  |
| 4. | \% (Parcant) | 0.90 |  | 27. | Fatalitios/MVMT | 0,052 |  |
| 3. | Intarstata Milos | 58.40 |  | 38. | InJurios/MVMT | 0,516 |  |
| 6. | \% (Parcant) | 7.23 |  | 29. | Accidents/MVMT | 1.241 |  |
| 7. | Foderal Aid Primary | 54.23 |  | 30. | Accident/Fstalitios | 23,778 |  |
| 8. | \% (Parcent) | 6.71 |  | 31. | Accidents/Injury | 2,405 |  |
| 9. | Federal Aid Sacondary | 252.63 |  | 32. | Local Law Enforcement Officers | 46 |  |
| 10. | \% (Parcent) | 31.27 |  | 33. | \% (Parcant) | 0,51 |  |
| 11. | Non Fodoral Aid | 442.64 |  | 34. | Trooper Forco | 12 |  |
| 12. | \% (Parcent) | 54.79 |  | 35. | Population/Enforcement Officers | 645,65 |  |
| 13. | Area (Sq. Miles) | 1, 342 |  | 36. | Part 1 Crimes Index | 528 |  |
| 14. | \% (Parcent) | 2.31 |  | 37. | \% (Parcent) | 0.28 |  |
| 15. | Population/squars mi. | 22.13 |  | 38. | Cirme Rate ( 100,000 ) | 1,777.78 |  |
| 16. | Roadway/squars ini. | 0.60 |  | 39. | Arrost Moving Hazardous - GSp |  | 4,245 |
| 17. | Population/roadway mi. | 36.76 |  | 40. | Arrest Other - GSP |  | 557 |
| 18. | Million Vehiche Miles Travaled | 344.878 |  | 41. | Warnings Moving Hazardous - GSP |  | 2,538 |
| 19. | \% (Parcent) | 1.14 |  | 42. | Warnings Othar - GSP |  | 666 |
| J. | MVMT/Roadway mi. | 0.427 |  | 43. | Patrol Miles - GSP |  | 255,156 |
| 21. | Accidents | 428 | 298 | 44. | Othar Milas - GSP |  | 10,11,8 |
| 22. | \% (Percent) | 0.34 |  | 45. | Motor Vehicle Registration | 16,756 |  |
| 23. | Injurias | 178 |  | 46. | Patrol Hours |  | 14,297 |

[^8]TROOP E

COUNTIES IN TERRITORY:
Colquitt
Grady
Mitchell
Thomas


- Whare Applicable



[^9]TROOP D

COUMTIES IN TERRITORY:
Bibb
Bleckley
Houston
Macon
Peach
Pulaski

| Fagtor | Total | Rasponsibility* |
| :---: | :---: | :---: |
| Population | 266,800 | 121,100 |
| \% (Parcont) | 5.46 |  |
| Tatal Rosdway Miles | $2,591.74$ | 2,137,30 |
| \% (Parcant) | 2.88 | 2.40 |
| Interstata Miles | 72.92 | 29.65 |
| \% (Parcent) | 2.8 .2 | 1.39 |
| Fedaral Aid Primary | 347.80 | 257.29 |
| \% (Parcent) | 13.42 | 12.04 |
| Fodaral Aid Secondary | 579 „64 | 492.19 |
| $\%$ (Parcent) | 22.36 | 23.03 |
| Non Fadoral Aid | 1,591.38 | 1,358,17 |
| \% (Percent) | 61.40 | 63.55 |
| Area (Sq. Miles) | 1,660 | 1,405.00 |
| \% (Porcent) | 2.86 | 2.47 |
| Population/square mi. | 160.72 | 86.13 |
| Roadway/square mi. | 1.56 | 1.52 |
| Population/roadway mi. | 102.94 | 56.66 |
| Million Vehicta Miles Traveled | 1,613.581 | 825.787 |
| \% (Parcant) | 5.34 |  |
| MVMT/Roadway mi. | 0.623 | 0.386 |
| Accidents | 5,647 | 449 |
| \% (Percent) | 4.45 |  |
| Injuriss | 1,408 |  |


|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| 24. | \% (Percent) | 4.00 |  |
| 25. | Fatallitios | 76 |  |
| 25. | \% (Percent) | 4.92 |  |
| 27. | Fatalitios/MVPAT | 0.047 |  |
| 28. | Injurias/MVMT | -0,873 |  |
| 29. | Accidents/MVMT | 3.500 |  |
| 30. | Accidents/Fatalitios | 74.303 |  |
| 31. | Accidents/Injury | 4.011 |  |
| 32. | Local Law Enforcement Officars | 537 | 215 |
| 33. | \% (Parcent) | 5.89 | 2.36 |
| 34. | Troopar Force | 14 |  |
| 35. | Population/Enforcement Officers | 496.83 | 563.26 |
| 36: | Part 1 Crimes Index | 11.,097 | 2,944 |
| 37. | \% (Parcent) | 5.81 | 1. 54 |
| 38. | Crime Rate ( 100,000 ) | 4.159 .30 | 2,431.05 |
| 39. | Arrest Moving Hazardous - GSP | . | 4,824 |
| 40. | Arrest Other - GSP |  | 1,778 |
| 41. | Warninga Moving Hazardous - GSP |  | 1,451 |
| 42. | Warnings Other - GSP |  | 669 |
| 43. | Patrol Milas - GSP |  | 405,878 |
| 44. | Other Miles - GSP |  | 7,03.7 |
| 45. | Mator Vehicle Registration | 170,584 | 80,449 |
| 46. | Patrol Hours |  | 18,845 |

[^10]

[^11]

Elbert
Lincoln
Oglethorpe
raliaferro
Wilkes

* Whers Applicabla

TROOP
F

COUNTIES IN TERRITORY:
Appling
Evans
Tattnall
Toombs


[^12]为

## D

COUNTIES IN TERRITORY:
Emanuel
Jefferson
Treutlen

|  | Factor | Total | Rasponsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 42,500 |  |
| 2. | $\%$ (Parcent) | 0.87 |  |
| 3. | Total Roadivay Milos | 2,240.59 |  |
| 4. | \% (Parcant) | 2.49 |  |
| . | Interstate Milas | 10.66 |  |
| 6. | $\%$ (Parcant) | 0.48 |  |
| 7. | Fodaral Aid Primary | 188.91 |  |
| 8. | \% (Parcent) | 8.43 |  |
| 9. | Foderal Aid Sacondary | 525.80 |  |
| 10. | \% (Porcent) | 23.47 |  |
| 11. | Non Faderal Aid | 1,515.22 |  |
| 12. | \% (Porcsmi) | 67.63 |  |
| 13. | Araa (Sq. Milas) | 1,410 |  |
| 14. | \% (Percent) | 2.43 |  |
| 15. | Population/square mi. | 30.14 |  |
| 15. | Roadway/squars mi. | 1.59 |  |
| 17. | Population/roadway mi. | 18.97 |  |
| 18. | Million Vahicto Milas Travaled | 286.995 |  |
| 19. | \% (Parcent) | 0.95 |  |
| 0. | MVMT/Roadway mi. | 0.128 |  |
| 21. | Accidents | 346 | 264 |
| 22. | \% (Parcent) | 0.27 |  |
| 23. | Injuries | 179 |  |


|  | Factor | Total | Rasponsibility* |
| :---: | :---: | :---: | :---: |
| 24. | $\%$ (Parcent) | 0.51 |  |
| 25. | Fatalitios ${ }^{\text {a }}$ | 15 |  |
| 26. | \% (Percent) | 0.97 |  |
| 27. | Fatallitiss/MVMT | 0.052 |  |
| 28. | Injuries/MVMT | 0.624 |  |
| 29. | Aceidents/iMVMT | 1.206 |  |
| 30. | Accidento/Fstalitios | 23.067 |  |
| 31. | Accidants/Injury | 1.933 |  |
| 32. | Local Law Enforcement Officars | 67 |  |
| 33. | \% (Parcant) | 0.74 |  |
| 34. | Traoper Force | 12 | * |
| 35. | Population/Enforcomont Officers | 634.33 |  |
| 36. | Part I Crimes Indox | 885 |  |
| 37. | \% (Parcant) | 0.46 |  |
| 38. | Crime Rate ( 100,000 ) | 2,082.35 |  |
| 39. | Arrest Moving Hazardous - GSP | " | 1,934 |
| 40. | Arrest Other - GSP |  | 55]. |
| 41. | Warnings Moving Hazardous - GSP |  | 1,280 |
| 42. | Warnings Other - GSP |  | 11.9 |
| 43. | Patrol Milas - GSP | $\bigcirc$ | 262,557 |
| 44. | Other Miles - GSP |  | 22,148 |
| 45. | Motor Vehicle Registration | 27,419 |  |
| 46. | Patrol Hours | * | 12,359 |

[^13]

TRODP $\qquad$

COUNTIES IN TERRITORY:
Johnson
Laurens
Twiggs
Washington
Wilkinson

|  | Factor | Total | Fesponsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 75,600 |  |
| 2. | \% (Porcent) | 1.55 |  |
| 3. | Total Roadway Milos | 3,671.34 |  |
| 4. | \% (Percent) | 4.08 |  |
| i. | Intarstata milios | 56.24 |  |
| 6. | \% (Parcant) | 1.53 |  |
| 7. | Federal Aid Primary | 337.49 |  |
| 8. | \% (Parcent) | 9.19 |  |
| 9. | Foderal Aid Secondary | 837.13 |  |
| 10. | \% (Parcent) | 22.80 |  |
| 11. | Non Foderal Aid | 2,440.48 |  |
| 12. | \% (Parcent) . | 66.47 |  |
| 13. | Area (Sq. Miles) | 2,618 |  |
| 14. | $\%$ (Parcent) | 4.51 |  |
| 15. | Population/squars mi. | 28.88 |  |
| 16. | Roadway/square mi. | 1.40 |  |
| 17. | Population/roadway mi. | 20.59 |  |
| 18. | Million Vehicto Miles Traveled | 525.908 |  |
| 19. | \% (Parcant) | 1.74 |  |
| '0. | MVMT/Roadway mi. | 0.143 |  |
| 21. | Accidents | 622 | 476 |
| 22. | \% (Porcent) | 0.49 |  |
| 23. | Injurias | 279 |  |


-Whers Applicabla


[^14]

THOOP $\qquad$ F

COUNTIES IN TERRITOAY:
Bacon
Brantley
Charlton
Clinch
Pierce
Ware


[^15]


[^16]

TROOP

COUNTIES IN TERRITORY:
Coweta Fayette Heard


[^17]



[^18]


[^19]
## A

## COUATIES INTERRITORY:

Cherokee
Forsyth
Pickens

|  | Factor | Total | Rosponsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 69,400 |  |
| 2. | \% (Parcent) | 1.42 |  |
| 3. | Total Roadway Milos | 1,771.32 |  |
| 4. | \% (Percant) | 1.97 |  |
| 5. | Interstate illies | 0.00 |  |
| 6. | \% (Parcmet) | 0.00 |  |
| 7. | Federal Aid Primary | 92.34 |  |
| 8. | \% (Parcent) | 5.21 |  |
| 9. | Factural Aid Sacondary | 424.28 |  |
| 10. | \% (Percant) | 23.95 |  |
| 11. | Non Federal Aid | 1,254.70 | * |
| 12. | \% (Parcant) | 70.83 |  |
| 13. | Area (Sq. Miles) | 858 |  |
| 14. | \% (Parcant) | 1,48 |  |
| 15. | Population/square mi. | 80.89 |  |
| 15. | Roadwa/squary mi. | 2.06 |  |
| 17. | Population/rcadway mi. | 39.18 |  |
| 18. | Million Vehicte Miles Travaled | , 379.246 |  |
| 19. | \% (Parcent) | 1.26 |  |
| 0. | MVMT/Roadway mi. | 0.214 |  |
| 21. | Accidents | 1,118 | 826 |
| 22. | \% (Percent) | 0.88 |  |
| 23. | Injuries | 524 |  |



[^20]

[^21]

[^22]


- Whare Applicabla
(

POST 33

TROOP D

COUNTIES IN TERRITORY:
Baldwin
Hancock
Jones
Putnam

|  | Factor | Total | Rasponsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 66,100 |  |
| 2. | $\%$ (Parcent) | 1.35 |  |
| 3. | Total Roadway Milos | 1.891.60 |  |
| 4. | \% (Parcent) | 2.10 |  |
| - | Interstate Miles | 0.00 |  |
| б. | \% (Parcent) | 0.00 |  |
| 7. | Federal Aid Primary | 250.46 |  |
| 8. | \% (Parcent) | 13.24 |  |
| Q. | Fadsual Aid Sumondiry | 414.60 |  |
| 10. | \% (Parcent) | 21.92 |  |
| 11. | Non Fadoral Aid | 1,226.54 |  |
| 12. | \% (Parcant) | 64.84 |  |
| 13. | Area (Sq. Milas) | 1,474 |  |
| 14. | \% (Percent) | 2.54 |  |
| 15. | Population/square mi. | 44.84 |  |
| 16. | Roadway/squara mi. | 1.28 |  |
| 17. | Population/roadway mi. | 34.94 |  |
| 18. | Million Vehiclo Miles Traveled | 347.279 |  |
| 19. | \% (Porcent) | 1.15 |  |
| 0. | MVMT/Roadway mi. | 0.184 |  |
| 21. | Accicisnts | 609 | 399 |
| 22. | \% (Porcent) | 0.48 |  |
| 23. | Injuries | 313 |  |



[^23]
## TROOP C

COUNTIES IN TERRITORY:
Marion
Meriwether
Talbot


[^24]POST
Atkinson
Ben Hill
Coffee
Irwin

|  | Factor | Total | Rasponsibility* |  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\because 9$. | Population | 53,000 | - | 24. | \% (Parcant) | 1.25 |  |
| 2. | \% (Parcant) | 1.09 |  | 25. | Fatalitios | 21 | \% |
| 3. | Total Roadway Miles | 2,443.67 |  | 28. | \% (Parcant) | 1.36 |  |
| 4. | \% (Parcent) | 2.72 |  | 27. | Fatalitios/MVMT | 0.080 |  |
| j. | Intarstata Milos | 0.00 |  | 28. | Injuries/MVMT | 1.683 | ${ }^{*}$ |
| 6. | \% (Parcant) | 0.00 |  | 29. | Accidents/MViht | 4.024 |  |
| 7. | Faderal Aid Primary | 198.73 |  | 30. | Accidents/Fatalitios | 50.000 | " |
| 8. | \% (Porcent) | 8.13 |  | 31. | Accidents/Injury | 2.392 |  |
| 0. | Fedaral Aid Seeonuary | 490.07 |  | 32. |  | 144 |  |
| 10. | \% (Porcant) | 20.05 |  | 33. | \% (Porcont) | 1,58 |  |
| 11. | Non Federal Aid | 1,754.87 |  | 34. | Trooper Force | 10 |  |
| 12. | \% (Parcunt) | 71.81 |  | 35. | Population/Enforcoment Officors | 368.06 |  |
| 13. | Area (Sq. Miles) | 1,557 |  | 36. | Part I Crimes Indax | 1,274 |  |
| 14. | \% (Parcent) | 2.68 |  | 37. | \% (Parcant) | 0.67 |  |
| 15. | Population/square mi. | 34.04 |  | 38. | Crime Rata 1100,000$)$ | 2.403 .77 |  |
| 16. | Roadway/squarn mi. | 1.57 |  | 39. | Arrest Moving Haxardous - GSP |  | 1,697 |
| 17. | Population/roadway mi. | 21.69 |  | 40. | Arrest Other - GSP |  | 45.1 |
| 18. | Million Vahicho Elilles Travaled | 260.903 |  | 41. | Warnin¢s Moving Hazardous - GSP |  | 2,178 |
| 19. | \% (Parcent) | 0.86 |  | 42. | Warnings Other - GSP |  | 198 |
| ? 0. | MVMT/Roadway mi. | 0.107 |  | 43. | Patrol Miles - GSP |  | 265,140 |
| 21. | Accidents | 1,050 | 374 | 43. | Other Miles - GSP |  | 51,878 |
| 22. | \% (Parcent) | 0.83 |  | 45. | Motor Vehicle Registration | 36,757 |  |
| 23. | Injuries | 439 |  | 46. | Patrol Hours | " | 12,548 |

[^25]
2. Roadway Miles ( $y$ ) on Aceidents ( $z$ )

```
                                    Run 1(10/29/75)
                                    Correlation Coefficient (\Gamma) = 0.2131
                                    Slope m = 1.9436
                                    Intercept i = -1,091.9088
                                    n=44
```


## Interpretation:

The $\Gamma$ for $y$ and $x$ is weak in this correlation in that only $21.31 \%$ or the change is explained. This is to say that some increase is seen in accidents with an increase in total roadway miles.
3. Area - Square Mile (x) on Accidents (z) Run $2(10 / 29 / 75)$

Correlation Coefficient $(\Gamma)=-0.1435$
Slope $m=-0.0133$
Intercept $i=1,358.0483$
$\mathrm{n}=\mathrm{A}^{\prime}$. .

## Interpretation:

This comparison yielded a very slight $\Gamma$ which can be interpreted as a nonexistance in relationship between the post area and number of accidents.
4. (Million Vehicle Miles Traveled - MVMT ( $y$ ) on Accidents ( $z$ )
$4 \quad$ Run $2(10 / 29 / 75)$
Correlation coefficient $(\Gamma)=0.9900$
Slope $m=6.8750$
Intercept $i=-1,838.3519$
$\mathrm{n}=44$

## Interpretation:

The $\Gamma$ of MVMT on accidents yielded a coefficient which explains $98 \%$ of the change. This is to say that an increase in MVMT yiekts a near proportional increase in accidents.
5. Accidents ( $x$ ) on Registered Vehicles ( $y$ )

```
                                    Run 1(11/18/75)
                                    Correlation Coefficient: (\Gamma) = 0.9881
                                    Slope m = 19.0569
                                    Intercept i = 22,761.7931
                                    n = 44
```

Interpretation:
The above $\Gamma$ relates that 98.81 percent of the results are explained. Thus an increase in registered vehicles produces a near proportional increase in accidents.
6. Area within Square $\operatorname{Min} \hat{e}$ : A square mile is considersd as a cubical (square) with each of the four sides being a length of one (1) mile as shown:

- The use of the equation, $c^{2}=a^{2}+b^{2}$, gives the diagonal distance from one corner to the other,
thus where,

$$
\mathrm{a}=1 \text { mile and } \mathrm{b}=1 \text { mile, then } \mathrm{c}=1.41 \text { miles }
$$

as shown:
7. Response Time per Square Mile: Based on a speed of 40 MPH it is anticipated that a Trooper can travel through one square mile in approximately 2.11 minutes,
where,

$$
\begin{gathered}
\text { Miles } \div\left(\frac{M P H}{60 \text { Minutes }}\right)=\begin{array}{l}
\text { time, in minutes required to travel } \\
\text { stated distance in miles. }
\end{array} \\
1.41 \text { miles } \div \frac{40 \mathrm{MPH}}{60 \text { Minutes }}=\frac{141}{.66 \mathrm{MPM}}=2.11 \text { minutes to travel } \\
1.41 \text { miles. }
\end{gathered}
$$

## COMPUTATIONS \& CORRELATIONS

$$
\therefore \dot{B}
$$

The following correlations were derived by comparative analysis of specified data for each post in the State. The exception of the 45 Posts was Jekyll Island (?ost 35) where information concerning the majority of the factors was not available for computation. However, the amounts which are listed under Post 23 include the factors for Jekyll Island since the Island is within Glynn County and counted as such unless otherwise stated.

The formula used for the calculation of the correlation coefficient, slope and $i$ intercept are found in Appendix $A$. The rationale behind these measures is found in Appendix A.

1. Population ( $x$ ) on Accidents ( $z$ )

Run $1(10 ; 29 / 75)$

Correlation Coefficient ( $\Gamma$ ) $=0.9917$
Slope $m=28.0174$
Intercept $i=30,262.7468$
$n=44$

## Interpretation:

The above I relates that 99.17 percent of the results are explained. This is to state that for an increase in population we also get an almost proportional increase in accidents.


- Where Applicable


[^26]

[^27](
$\qquad$

TROOP $\qquad$

COUNTIES IN TERRITORY:
Bryan
Chatham
Effingham


| Factor | Total | Respansibility* |
| :---: | :---: | :---: |
| \% (Parcent) | 4,07 |  |
| Fatalities | 41 |  |
| \% (Percent) | 2,65 |  |
| Fatalitios/MVMT | 0,035 |  |
| injuries/MYMT | 1.236 |  |
| Accidents/MYM | 7,364 |  |
| Accidants/Fatalitios | 207.902 |  |
| Accidants/lijury | 5,957 |  |
| Local Law Enforcmant Officars | 482 |  |
| \% (Parcent) | 5.29 |  |
| Trooper Forcs | 9 |  |
| Population/Enforcement Officers | 429.05 |  |
| Part I Crimes Index | 11,744 |  |
| \% (Parcent) | 6,15 |  |
| Grimsa Rata (100,000) | 5,678,92 |  |
| Arrest Moving Hazardous - GSP | . | 5,148 |
| Arrest Other - GSP |  | 558 |
| Warnings Moving Hazardous - GSP |  | - 3,183 |
| Warnings Other - GSP |  | 266 |
| Patrol Miles - GSP |  | 232,079 |
| Other Miles. GSP |  | 17,625 |
| Motor Vehicla Registration | 132,168 |  |
| Fatrol Hours |  | 10,22.1 |

* Whera Applicable

*Whare Applicabla

-Whar's Applicable


*Wharo Applicabla

APPEMDICES

## DEFINITIONS AND FORMULAS

1. Availability Factor - This factor is used as a, constant to allow for availability of manpower. It accounts for time off or time an officer is not available for duty due to sick leave, annual leave, days off, etc. The factor shows that to have one man available for a tour of duty year-round you actually need to employ 1.64 men.

For Example: To have one Trooper on duty 24 hours per day ( 3 shifts) you would have to have:

1 Trooper X 3 Shifts X 1.64 = 4.92 (5) Troopers
2. Correlation Coefficient - Is defined as a sample of $n$ pairs of $x, y$ values as:

$$
\Gamma=\frac{\Sigma x y}{\sqrt{\Sigma x^{2} \Sigma y^{2}}}
$$

Where $\Gamma$ shows the relationship between the values of $x$ and $y$ on a scale between -1.0 to 0.0 to +1.0 . The strength of the relationship increases as the value of $\Gamma$ approaches $\pm 1.0$ and decreases as it approaches 0.0 .

The following Exhibit $A A 1$ summarizes the relationship between $\Gamma, \Gamma^{2}$, and $1-\Gamma^{2}$ where $\Gamma^{2}$ is interpreted as the proportion of the total variance in $Y$ that is explained by the correlation it shares with $x$, and $1-\Gamma^{2}$ represents the proportion of the total sum of squares that is unexplained by the independent variable.

| Value of $\Gamma$ | $\Gamma^{2}$ : Percent of Explained Variance | $1-\Gamma^{2}$ : Percent of Unexplained Variance | Strength of the Linear Regression |
| :---: | :---: | :---: | :---: |
| . 0 | . 00 | 1.00 | None |
| . 1 | . 01 | . 99 | Very Weak |
| . 2 | . 04 | . 96 |  |
| . 3 | . 09 | . 91 | Weak |
| . 4 | . 16 ~\% | . 84 |  |
| . 5 , | : 25 | . 75 | Moderate |
| . 6 | . 36 | . 64 | Strong |
| . 7 | . 49 | . 51 |  |
| . 8 | . 64 | . 36 | Very Strong |
| . 9 | . 81 | . 19 |  |
| 1.0 | 1.0 | . 00 | Perfect |

From the table it is seen that when $\Gamma<.3$, more than 91 percent of the variance in one variable is still left unexplained.

Marascuilo also states that the labeling of correlations as shown in the above table is not universally accepted by statistician or behavioral researchers. It is merely a convenience and should be used with care.

A correlation of .9 would show that as $y$ increases so does $x$. If $\Gamma$ was -. 9 then as $y$ decreases $x$ increases.

Hubert M. Blalock, Jr., Social Statistics, McGraw-Eill Book Company, New York, N.Y., 1972, P. 378.

Leonard A. Marascuilo, Statistical Methods for Behavioral Science Research, McGrawHill Book Company, New York, 1971, P. 433.
3. Intercept $i$ - Is the point at which the regression line crosses the $y$ axis and $x$ is 0.
4. Mean - The Arishmetic Mean is defined as the sum of the scores defined by the total number of scores in a sense it is the average for a group of scores as defined where:

$$
\bar{x}=\frac{x_{1}+x_{2}+x_{3}+\ldots+x_{n}}{n}
$$

Where $n$ is the number of scores used in the numerator.

$$
\therefore a
$$

5. Regression Line Equation - Is defined as -

$$
y_{c}=a+b x
$$

where $a$ is the $y$ intercept and $b$ is the slope of 'the'line. 1

Example: $\quad a=1.5$ ( $y$ intercept)

$$
b=1 \text { (slope) }
$$

Using the formula when $x=0$, then $y=1.5$ and when $x=10, Y=11.5$, thus we have:

6. Response Time - This is defined as the time required between the moment a call is received by a patrol unit and the moment the unit arrives at the incident.
7. Slope m - Js defined as the constant that specified the magnitude of the increase in the dependent variable for each unit increase in the independent variable.

It is equated as follows:

$$
\text { slope } m=\frac{y-b}{x-0}
$$

where,
and,


$$
\begin{aligned}
m x & =y-b \\
y & =m x+b, \text { and } b=y \text { intercept }
\end{aligned}
$$

8. Respones Time - A sample of a sample was used to determine the average response time for a patrol unit (GSP) to travel from a present position to the location of an accident.

The reports sampled did not reflect as to the urgency of response since a sample of "10-18" incidents would not be a true indicator of overall response time.

A total of 300 reports were used at random out of a group of random sampled reports from GSP posts throughout the state. The group of reports were in the neighborhood of 1,000 in number.

Three (3) factors were used to determine response:

1. Time Notified - This is the time that the Department, or Dispatcher, was notified that there was an accident.
2. Received Call - This is the time when the Dispatcher notified a Patrol $\therefore$ "
Unit to respond to the accident location.
3. Time Arrived at Scene - This is the time when the Trooper arrived at the scene of the accident.

The three elements were used to determine the following:
(a) Average time from Post notification (1) co Patrol Unit Notification (2) $=5.65$ minutes.
(b) - Average time from Patrol Unit notification (2) to Trooper arrival at scene $(3)=33.73$ minutes.
(c) Average time from Post notification (1) to Trooper arrival at scene $(3)=39.38$ minutes.



| Activity | Troop |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | D | E | F | Total |
| ROUTINE DUTY |  |  |  |  |  |  |  |
| Arrests M/H Total | 18,650 | 16,303 | 32,602 | 32,817 | 20,299 | 22,258 | 142,929 |
| Arrests Other Total | 6,442 | 4,613 | 8,201 | 81164 | 5,894 | 2,922 | 36,236 |
| Warning M/H Total | 32,755 | 12,431 | 22,876 | 22,334 | 17,979 | 22,279 | 130,654 |
| Warning Other Total | 4,682 | 3,265 | 6,520 | 2,266 | 1,929 | 3,031 | 21,693 |
| Aid to Other Officers No. | 260 | 141 | 220 | 185 | 180 | 228 | 1,214 |
| Aid to Other Officers Hrs. | 400 - | 237 | 404 | 501 | 303 | 432 | 2,277 |
| Aid to Travelers No. | 1,108 | 216 - | 752 | 560 | 1,158 | 1,672 | 5,466 |
| Aid to Travelers Hrs. | 343 | 130 . | 451 | 416 | 394 | 345 | 2,079 |
| Ped. Enforcement No. | 101 | 19 | 147 | 115 | 971 | 355 | 1,708 |
| TOTAL ROUTINE DUTY HRS. | 743 | 367 | 855 | 917 | 697 | 777 | 4,356 |
| COURT DUTY |  |  |  |  |  |  |  |
| TOTAL COURT DUTY HRS. | 057 | 1,114 | 844 | 1,352 | 1,217 | 956 | 6,540 |
| Administrative Hrs. | 31 | 97 | 93 | 64 | 70 | 239 | 594 |
| Call-Standby Hrs. | 1,836 | 1,850 | 1,228 | 2,898 | 2,880 | 2,270 | 12,962 |
| Car Repair Hrs. | 233 | 236 | 203 | 259 | $\therefore 190$ | 351 | 1,472 |
| Civil Disorder Hrs. | 32 | 122 | 1,612 | 378 | 99 | 95 | 2,338 |
| Criminals Apprehended No. | 188 | 45 | 385 | 117 | 156 | 147 | 1,038 |
|  |  | . |  |  |  |  |  |
|  |  |  | $\cdots$ |  |  |  | -1 |


| Activity | Troop |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | D | E | F | Total |
| Criminals Apprehended Hrs. | 348 | 92 | 701 | 438 | 268 | 460 | 2,307 |
| Disaster Hrs. | 1,294 | 1,110 | 1,989 | 1,490 | 327 | 223 | 6,433 |
| Driver Lic. Detail Hrs. | 23:415 | 20,345 | 20,391 | 24,990 | 29,330 | 25,930 | 1.44,401 |
| D/L Hearing No. | 204 | 67 | 46 | 108 | 38 | 48 | 511 |
| D/L Hearing Hrs. | 220 | 69 | 46 | 119 | 43 | 57 | 554 |
| escorts No. | 28 | 23 | 68 | 8 | 8 | 10 | 145 |
| Escorts Hrs. | 112 | 730 | 540 | 52 | 40 | 184 | 1,088 |
| First Aid Rendered No. | 7 | : 8 | 59 | 4 | 7 | 24 | 109 |
| First Aid Rendered Hrs. | 5 | 5 | 21. | 8 | 21 | 5 | 65 |
| Inspectional Hrs. | 953 | 473 | 1,173 | 1,326 | 1,479 | 2,215 | ,7,619 |
| Lic. Picked Up No. | 830 | 688 | 342 | 568 | 433 | 695 | 3,556 |
| Lic. Picked Up Hrs. | 1,078 | 538 | 322 | 793 | 554 | 704 | 3,989 |
| Office Hrs. | $16,681$ | 12,041 | 14,544 | 16,771 | 18,491 | 17,314 | 95,842 |
| - Mdio Operator Hrs. | 49,809 | 46,550 | 58,467 | 63,869 | 64,077 | 59,522 | 342,294 |
| Radio Repair Hrs. | 56 | 100 | 351 | 204 | 70 | 149 | 930 |
| Rélay Blood/Medic. No. | 119 | 127 | 1,276 | 233 | 135 | 433 | 2,323 |
| Relay Blood/Medic. Hrs. | 125 | 167 | 1,523 | 334 | 157 | 550 | 2,856 |
| Relay Pers/Packages No. | 35 | 57 | 994 | 141 | 91 | 283 | 1,601 |
| Relay Pers/Packages Hrs. | 37 | 96 | 1,445 | 302 | 106 | 465 | 2,451 |


| Activity | Troop |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | C | D | E | F | Total |
| Road Check Hrs. | 2,081 | 1,654 | 3,936 | 2,923 | 2,407 | 1,491 | 14,492 |
| Searches No. | 2 | 19 | 8 | 75 | 84 | 45 | 233 |
| Searches Hrs. | 373 | 122 | 813 | 509 | 905 | 400 | 3,122 |
| Security Hrs. | 72 | 205 | 1,692 | 2,306 | 63 | 49 | 4,387 |
| Staff Meetings Hrs. | 171 | 600 | 548 | 838 | 593 | 802 | 3,552 |
| Supervisory Hrs. | 3,598 | 5,494 | 5,098 | 4,930 | 5,776 | 2,330 | 27,226 |
| Tornado Hrs. | 0 | 0 | 0 | 41 | 3 | 41 | 85 |
| Traffic Regulations No. | 267 | 9.9 | 560 | 192 | 252 | 690 | 2,060 |
| Traffic Regulations Hrs. | 736 | $559$ | 1,759 | 626 | 1,303 | 774 | 5,757 |
| Training Hrs. | 5,206 | 5,396 | 5,853 | 6,715 | 7,013 | 8,675 | 38,858 |
| Other Hrs. | 15,019 | 4,864 | 19,283 | 9,007 | 13,426 | 10,857 | 72,456 |
| TOTAL OTHER DUTY HRS. | $123,521_{4}^{4}$ | 102,935 | 143,631 | 142,200 | 149,691 | 136,152 | 798,130 |
| IROL INFORMATION |  |  |  |  |  |  |  |
| Patrol Hrs. | 94,477 | 80,787 | 120,101 | 115,326 | 111,256 | 106,723 | 628,670 |
| Partner Hrs. | 26,879 | 4,728 | 13,700 | 7,828 | 7,468 | 3,318 | 63,921 |
| Patrol Miles | 1,813,046 | 1,636,136 | 2,407,124 | - $2,594,859$ | 2,211,803 | 2,083,710 | 12,746,678 |
| Other Miles | 147,598 | 189,638 | 222,278 | 154,169 | 270,927 | 141,616 | 1,126,226 |
| TOTAL HOURS ON DUTY | 254,059 | 194,244 | 286,432 | 272,936 | 277,235 | 253,798 | 1,538,704 |

## COMPARATIVE FACTORS

The following information is provided as a post by post view of specific factors psed in the comparison and analysis of each post activity.

The sources of each item are listed in the factor explanation.

Flso listed are the formulas used in computing rates and percentages for each factor.

These factors were obtained prior to the Troop reorganization and are not avcurate for some posts.

Figures used were obtained from the "Annual Estimate of Population for the state of Georgia" by Office of Planning and Budget, Division oí State planning, state Data Center, July, 1975.
2. \% (Percent) -

Represents the percent of population the area has in relation to the state total population of $4,884,200$.

Formula: $\%$ of Population $=\frac{\text { Post Area Population }}{\text { State Population }} \times 100$
3. Total Roadway Miles - "Figures obtained from "Mileage of public Roads in Georgia by County, Road System, and Surface type as of Septembor 1, 1974", Department of Transportation, Divi: of Planning and Programming in cooperation with U.S. Department of Transportation, Federal Highway Administration.

Note: This does not include miles of local city streets or any projected roads.
4. \& (Percent) -

Represents the percent of roadway miles in the post. area as to the state total of 89.958 .70 miles.

Formula: of Roadway Miles $=\frac{\text { Miles in Post Area }}{\text { Miles in State }} 100$
5. Interstate Miles - Figures obtained friom source listed in \#3 above. Mileage includes Federal Aid Interstate System miles by post in urban and rural areas.
6. \% (Percent) -

Represents the percent of interstate miles in post area to the total roadway mijes in the post area.

Formula: \% of Interstate Miles $=\frac{\text { Miles of Interstate in Post Area }}{\text { Miles of Roadway in Post Area }} 100$
7. Federal Aid Primary -

FAP roadways generally are heavy traveled arteries within areas which receive federal aid. These roadways are defined in accordance with the guidelines set forth by the U.S. Department of Transportation.
8. \% (Percent) -

$$
\text { Formula: } \% \text { of } E A P \text { Mile }=\frac{\text { FAP Miles in Post Area }}{\text { Total Roadway Miles in Post Area }} \times 100
$$

9. Federal Aid Secondary - The FAS Roadway System is usually a less traveled roadway system used mostly for local travel. It is defined by guidelines set forth by the U.S. Department of Transportation.
10. \% (Percent) -
". Represents the percent of FAS roadway miles in the post area to the total roadway miles in the post area.

$$
\text { Formula: } \% \text { of FAS Roadway Miles }=\frac{\text { FAS Miles in Post Area }}{\text { Total Roadway Miles in Post Area }} \times 100
$$

11. Non Federal Aid -
12. \% (Percent) -

This system is defined as a roadway system which does not receive any federal aid for construction and usually is local roadways with little traffic flow volume.

Represents the percent of NFA roadway miles in the post area to the total roadway miles in the post area.

$$
\text { Formula: \% NFA Miles }=\frac{\text { NFA Miles in Post Area }}{\text { Total Roadway Miles in Post Area }} \times 100
$$

14. \% (Percent: - Represents the area of the post in relation to the total state area of 58,073 square miles.

Formula: $\%$ Area $=\frac{\text { Area of Post Territory }}{\text { State Area }} \times 100$
1.5. Population/Square Mile - This represents the density of population per square mile in each post area.

Formula: Population/Sq. Mile $=\frac{\text { Population of Post Area }}{\text { Area (Sq.Mi.) of Post }}$,
and is to be defined as the number of people per square mile in a specified area. Note: This is an average.
16. Roadway/Square Mile - This is determined in a manner to show the density of roadway (miles) per square mile of area.

Formula: Roadway/Sq. Mile $=\frac{\text { Total Roadway Miles in Post Area }}{\text { Area (Sq.Mi.) of Post }}$,
NF $n$
and is to be defined as the number of roadway miles per square mile in a specified area. Note: This is an average.
17. Population/Roadway Mile- This represents the population density per mile of total roadway per post area.

Formula: Population/Roadway Mile $=\frac{\text { Population of Post Area }}{\text { Total Roadway Miles per Post Area }}$,
and is defined as the population density per one mile segment of roadway. Note: This is an average.
18. Million Vehicle Miles - This is defined as the number of annual vehicle Traveled miles traveled (in millions) in a specified post area. These figures were derived by the use of gasoline sold by county where the average miles per gallon is ll.4. The gallons of gasoline sold per county was obtained from the Georgia Department of Revenue.

Formula: Annual Vehicle Miles Traveled (AVMT) =
Gallons of Gasoline Sold per'Post Area per Year
Il. 4 Miles per Gallon ,
where,

Million Vehicle Miles Traveled $($ MVMT $)=\frac{\text { AVMT }}{1,000,000}$

Thus, if MVMT is . 89 then the AVMT would be 890,000 and is thus converted to say .89 million vehicle miles traveled per year per specified post area.
19. \% (Percent) -

Represents the percent of MVMT in a post area to the MVMT for the State ( $31,809.294$ MVMT).

Formula: $\%$ MVMT $=\frac{\text { MVMT in Post Area }}{\text { MVMT in State }} \times 100$
20. MVMT/Roadway Mile -

This is defined as million vehicle miles traveled "per year per roadway mile in a specified post area.

$$
\text { Formula: MVMT/Roadway Mile }=\frac{\text { MVMT in Post Area }}{\text { Total Roadway Miles in Post Area }}
$$

21. Accidents -

The figures used for accidents were obtained from the Accident Reporting function of the Georgia Department of Public Safety and includes reports from all agencies throughout the State who report to the Accident Reporting Unit. Information obtained from the Department of Public Safety 1974 Annual Report, DOAS Print Shop, 1975, P. 75-78 (as provided by the Accident Reporting Unit of the Georgia Department of Public Safety).

Note: Figures used under the column for Responsibility were obtained from the Activity Reporting System in use by the Georgia State Patrol based on projections as defined under the Activity Project in section of this study.
22. \% (Percent) -

This represents (both colurns) the percent of accidents occurring in each specified area in relation to the State Total.

$$
\text { Formula: } \% \text { Accidents }=\frac{\text { Accidents per Post Area }}{\text { Accidents in State }} \times 100
$$

23. Injuries - . This represents the total injuries in accidents. It does not indicate the number of injury accidents. This information was obtained from source stated in \#21 (Department of Public Safety 1974 Annual Report).


This is defined as the percent of fatalities resulting in total accident for a post area to the total number of fatalities in the State.

Formula: \% Fatalities $=\frac{\text { Fatalities in Post Area }}{\text { Fatalities in State }} \times 100$
27. Fatalities/MVMT - This is defined as the number of fatalities per million vehicle miles traveled per specified post area. This is a density, or volume factor to determine the rate of fatalities per MVMT.

Formula: Fatalities/MVMT $=\frac{\text { Fatalities in Post Area }}{\text { MVMT in Post Area }}$,
and is understood as the number of fatalities per million vehicle miles.
28. Injuries/MVMT - This represents the number of injuries in a post area in relation to MVMT per post area.

Formula: Injuries/MVMT $=\frac{\text { Injuries in Post Area }}{\text { MVMT in Post Area }}$,
where, it is understood as the number, or rate, of injuries per million vehicle miles traveled for a specified post area.

Is defined as the number of accidents in a post area per million vehicle miles traveled.

Formula: Accidents $/ M V M T=\frac{\text { Accidents in Post Area }}{\text { MVMT in Post Area }}$.
where, the results is the rate of accidents per million vehicle miles traveled for the specified post area.
30. Accideits/Fatality - Is defined as the number of accidents occurring Nep one fatality in the specified post area.

Note: This is to a degree erroneous since it does not take into consideration those accidents which are fatal accidents, but only the number of fatalities as a result to all accidents.

Formula: Accidents/Fatalities $=\frac{\text { Accidents in Post Area }}{\text { Fatalities in Post Area }}$,
where, the result shows the number of accidents, on the average, per one fatality within a specified post area.
31. Accidents/Injury - This is defined as the number of accidents per injury for a spedific post area.

Note: The erroneous factors are similar to those in \#30.

Formula: Accidents/Injury $=\frac{\text { Accidents in Post Area }}{\text { Injuries in Post Area }}$,
where, the result is understood as the average number of accidents per one injury for the specified patrol area.

the enforcement of municipal, state and federal laws directed toward the control and enforcement of traffic and criminal activity.
33. \% (Percent) -

This is defined as the percent of local enforcement officers per specified post area in relation to the total number of local law enforcement officers in the state.

Formula: \% Local Law Enforcement Officers (LLEO) =

$$
\frac{\text { LLEO in Post Area }}{\text { LLEO in State }} \times 100
$$

34. Trooper Force -

This is defined as the present Trooper line force per specified post on an average for the past year. The force will include Post Comanders, Corporals, and Troopers. It will not include Communication Officers, License Examiners, or those Troopers assigned to special functions, ie, MVI, MCSU, Safety Education, etc.
35. Population/Enforcement - This represents the population number per one law Officers enforcement officer botli local and GSP (\#32 plus \#34).

Formula: Population/Enforcement Officers =<br>Population in Post Area<br>Law Enforcement Officers in Post Area

where, the result is the number of people in the area per one law enforcement officer.
36. Part I Crimes Index - Is defined as the total number of Part $I$ crimes in the post: area as defined by the Federal Bureau of Investigation's statistical section. The crimes used are: murdex, rape, robbery, assault, burglary, larceny, and auto theft. The figures used were furnished by the FBI as of September, 1975 for the calendar year 1974. The figure represents the number of reported offenses irrespective of convictions.

Is defined as the percent of Part I Crimes reported in a specified post area to the total number reported in the state.
38. Crime Rate $(100,000)$ - The crime rate is defined as the number of part I
offenses occurring per 100,000 population.

Formula: Crime Rate $=\frac{\text { Part I Crimes in Post Area }}{\text { Population in Post Area }} \times 100,000$
39. Arrest Moving Hazardous - Is defined as the number of moving hazardous arrests (M/H) GSP
40. Arrest Other GSP -
41. Warnings Moving Hazardous GSP
42. Warnings Other GSP -
43. Patrol Miles GSP -
44. Other Miles GSP -
45. Motor Vehicle Registration
separated per post on the GSP Activity Report and projected on a yearly basis. It does not include arrests made by other law enforcement agencies. Moving hazardous arrests are those arrests for violations as set . forth in the Laws of the 'State of Georgia and other laws governing the types of violations in this category.

Is defined as those arrests by GSP personnel (as set forth in \#40) which are not moving hazardous. The source of information, is the GSP Activity Report.

This information represents the number of warnings given by GSP personnel for moving hazardous violations and does not include any warnings issued by other law enforcement officers. Source is the GSP Activity Report.

This information represents the number of warnings given by GSP pexsonnel for non-moving hazardous violations and does not include any warnings issued by other law enforcement officexs. Source is the GSP Activity Report.

Is defined as the miles traveled by the GSP while on patrol duty or status. This does not include any miles traveled by other law enforcement officers.

Represents miles traveled on an official function not of a patrol nature. The miles are only for those logged on official State vehicles. The source of this information is the GSP Activity Report.

This figure indicates the number of registered vehicles in the post area for 1974. Source: Department of Revenue, State of Georgia.
46. Patrol Hours -

1
Impacting Factors -

This figure represents the number of hours involved in patrol by the Georgia State Patrol. Source: GSP Activity Report.

This category represents any factor in a patrol area whicb may have an affective bearing on the duties performed by the GSP in its enforcement function, ie, recreation areas, major tourist attractions, certain institutions or other factors which are impacting. These factors will also include other elements which would determine the State patrol's function to be different than is the majority of the State. An example of this would be Jekyll Island and the Headquarters Patrol Post.
$\therefore$

|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| . 1. | Population | 4,884,200 | 4,567,300 |
| 2. | \% (Parcent) | 100 |  |
| 3. | Total Roadway Milos | 89,958.70 | 89,119.94 |
| 4. | \% (Parcent) | 100 |  |
| ( i. | Interstate Milos | 1,121.43 | $1,078.16$ |
| 6. | \% (Parcent) | 1.25 | 1.21 |
| 7. | Faderal Aid Primary | 7,479,51 | 7,323.59 |
| 8. | \% (Parcent) | 8,31 | 8.22 |
| 9. | Faderal Ald Socondary | 20,274.44 | 20,103.90 |
| 10. | \% (Porcent) | 22.54 | 22.56 |
| 11. | Non Foderal Aid | 61,083.32 | 60,614.29 |
| 12. | \% (Parcant) | 67.90 | 68.01 |
| 13. | Araa (Sq. Milas) | 58,073 | 57,599 |
| 14. | \% (Parcent) | 100 |  |
| 15. | Population/square mi. | 84.11 |  |
| 16. | Roadway/squara mi. | 1.55 |  |
| 17. | Population/roarlway mi. | 54.29 |  |
| 18. | Million Vohicto Miles Travelad | 30,209.293 |  |
| 19. | \% (Porcant) | 100 |  |
| 70. | MV/MT/Roadway mi. | 0.336 |  |
| 21. | Aceldants | 126,801 | 20,878 |
| 22. | \% (Porcent) | 100 |  |
| 23. | InJuries | 35,184 |  |



[^28]

[^29]

[^30]rost

TROOP $\qquad$

COUNTIES IN TERRITORY:
Bartow Cobb



[^31]

[^32]


THOOP B

COUNTIES IN TERRITORY:
Banks
Dawson
Hall
Lumpkin
White


## *Whara Applicabla

troof B

COUNTIES IN TERRITORY:
Franklin
Habersham
Hart
Rabun Stephens


|  |  |  |  |  | TROOP $\qquad$ <br> COUNTIES IN <br> Greene <br> Jasper <br> Morgan <br> Newton <br> Walton | D <br> TERRITORY: |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | . . | - |  |  |  |  |
|  | Factor | Total | Piasponsibility* |  | Factor | Total | Responsibility* |
| . 1. | Population | 84,500 |  | 24. | \% (Parcent) | 1.43 |  |
| 2. | \% (Parcent) | 1.73 |  | 25. | Fatalities | 38 |  |
| 3. | Total Roadway Milies | 2,823.20 |  | 26. | \% (Porcent) | 2.46 |  |
| 4. | \% (Parcent) | 3.14 |  | 27. | Fatalitioz/MVMT | 0.059 |  |
| ! ${ }_{\text {b }}$ | Interstato Milos | 68.48 |  | 28. | Injuries/MVMT | 0.783 |  |
| 6. | \% (Porcent) | 2.43 |  | 29. | Accidents/MVMT | 1.615 |  |
| 7. | Fodoral Aid Primary | 215.75 |  | 30. | Accidenta/Fatalitios | 27.237 |  |
| 8. | \% (Percant) | 7.64 |  | 31. | Accidents/Injury | 2.062 |  |
| 9. | Fadaral Aid Secondary | 673.29 |  | 32. | Local Law Enforcement Officers | 143 |  |
| 10. | \% (Porcont) | 23.85 |  | 33. | \% (Porcent) | 1.57 |  |
| 11. | Non Federal Aid | 1,865.68 |  | 34. | Trooper Force | 12 |  |
| 12. | \% (Parcent) | 66.08 |  | 35. | Population/Enforcement Officars | 590.91 |  |
| 13. | Araa (Sq. Miles) | 1.733 |  | 36. | Part 1 Crimes Indax | 1,891 |  |
| 14. | \% (Poreant) | 2.98 |  | 37. | \% (Parcent) | 0.99 |  |
| 15. | Population/square mi. | 45.76 |  | 38. | Crime Rate (100,000) | 2,237.87 |  |
| 16. | Roudway/square mi. | 1. 63 |  | 39. | Arrest Moving Hazardeas = GSP |  | 5,420 |
| 17. | Population/roadway mi. | 29.93 |  | 40. | Arrest Other - GSP |  | 1,181 |
| 18. | Million Vohicto Miles Travalad | 640.901 |  | 41. | Warnings Moving Hazardous - GSP |  | 5,519 |
| 19. | \% (Porcent) | 2.12 |  | 42. | Warnings Other - GSP |  | 452 |
| $1 \quad 0$. | MVMT/Readway mi. | 0.227 |  | 43. | Patrol Miles - GSP |  | 320,633 |
| 21. | Accidents | 1,035 | 372 | 44. | Other Milas - GSP |  | 25,193 |
| 22. | \% (Parcent) | 0.82 |  | 45. | Motor Vehicle Registration | 59,832 |  |
| 23. | Injurias | 502 |  | 46. | Patrol Hours |  | 13,494 |

[^33]

TROOP C

COUNTIES IM TERRITORY:
Clayton
Dekalb
Fulton

|  | Factor | Total | Responsibility* | 24. | Factor | Total | Rasponslbility* |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1. | Population | 1,172.300 |  |  | \% (Percent) | 26.56 | $\cdots$ |
| 2. | \% (Porcent) | 24.00 |  | 25. | Fatalities | 221 |  |
| 3. | Total Roadway Miles | 3,111.92 |  | 26. | \% (Porcent) | 14.30 |  |
| 4. | \% (Parcent) | 3.46 |  | 27. | Fatalitios/wVMT | 0.037 |  |
| 3. | Intarstate Milas | 143.92 |  | 23. | injurias/MVMT | 1.565 |  |
| 6. | \% (Parcent) | 4.62 |  | 29. | Accidents/MVibr | 6.690 |  |
| 7. | Federal Aid Primary | 248.28 |  | 30. | Áccidonts/Fatalitios | 180.765 |  |
| 8. | \% (Parcent) | 7.98 |  | 31. | Accidant3/Injury | 4.275 |  |
| 9. | Federal Aid Secondary | 659.50 |  | 32. | Local Law Enforcament Officers | 2,820 |  |
| 10. | \% (Parcent) | 21.19 |  | 33. | \% (Percant) | 30.94 |  |
| 11. | Non Fectoral Aid | 2,060.22 |  | 34. | Trooper Force | 18 |  |
| 12. | \% (Parcent) | 60.20 |  | 35. | Population/Enforcement Officers | 415.71 |  |
| 13. | Aroa (Sq. Milas) | 948 |  | 36. | Part 1 Crimes Indax | 80,560 |  |
| 14. | \% (Percent) | 1.63 |  | 37. | \% (Percent) | 42.17 |  |
| 15. | Population/square mi. | 1,236.60 |  | 38. | Crime Rate ( 100,000 ) | 6,871.96 | , |
| 16. | Roadway/square mi. | 3.28 |  | 39. | Arrost Moving Hazardous - GSP |  | 6,430 |
| 17. | Population/roadway mi. | 376.71 |  | 40. | Arrest Other - GSP |  | 1,807 |
| 18. | Million Vahiefi mailss Travelad | 5,971.632 |  | 13. | Warnings Moving Hazardous - GSP |  | 1,0560 |
| 19. | \% (Percent) | 19.77 |  | 42. | Warnings Other - GSP |  | $267{ }^{\text { }}$ |
| o. | MiVMT/Roadway mi. | 1.92 |  | 43. | Patrol Miles - GSP |  | 207,926 |
| 21. | Accidents | 39,949 | 58 | 44. | Other Milas - GSP |  | 142.603 |
| 22. | \% (Porcent) | 31.51 |  | 45. | Motor Vehicle frogistration | 796,621 | $\bigcirc$ |
| 23. | Injurias | 9,344 |  | 46. | Patzol Hours |  | 11,628. |

* Where Applicabla


[^34]COUNTIES IN TERRITORY:
Liberty
Long
McIntosh


[^35]
*Whute Applicable


[^36]
*Where Applicable

|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 266,800 | 121,100 |
| 2. | \% (Parcent) | 5.46 |  |
| 3. | Total Roadway Milos | 2,591.74 | 2,137,30 |
| 4. | \% (Parcent) | 2.88 | 2.40 |
| 3. | Interstate Miles | 72.92 | 29.65 |
| 6. | \% (Parcant) | 2.81 | 1.39 |
| 7. | Fegieral Aid Primary | 347.80 | 257.29 |
| 8. | \% (Parcont) | 13.42 | 12.04 |
| 9. | Federal Aid Secondary | 579.64 | 492.19 |
| 10. | \% (Parcent) | 22.36 | 23.03 |
| 11. | Non Foderal Aid | 1,591. 38 | 1,358,17 |
| 12. | \% (Parcent) | 61.40 | 63.55 |
| 13. | Area (Sq. Miles) | 1,660 | 1,406.00 |
| 14. | \% (Parcent) | 2.86 | 2.47 |
| 15. | Population/squara mi. | 160.72 | 86.13 |
| 16. | Roadway/square mi. | 1.56 | 1.52 |
| 17. | Population/roariway mi. | 102.94 | 56.66 |
| 18. | Million Vahicfu Miles Travelad | 1,61,3.581 | 825.787 |
| 19. | \% (Porcont) | 5.34 |  |
| 30. | MVMT/Roadway mi. | 0.623 | 0.386 |
| 21. | Accidents | 5,647 | 449 |
| 22. | \% (Porcent) | 4.45 |  |
| 23. | Injurios | 1,408 |  |



- Wharo Äpplicable.




[^37]

# CONTINUED 

$20 F 3$



[^38]



[^39]

* Whare Applicable



[^40]

- Whare Angtublia

|  | Factor | Total | Rasponsibility* |
| :---: | :---: | :---: | :---: |
| . 1. | Population | 209,400 |  |
| 2. | \% (Percent) | 4.29 |  |
| 3. | Total Roadway Miles | 2,242.68 |  |
| 4. | \% (Parcent) | 2.49 |  |
| * 3. | Interstate Milas | 49.03 |  |
| 6. | \% (Parcent) | 2.19 |  |
| 7. | Fodoral Aid Primary | 202.77 |  |
| 8. | \% (Parcent) | 9.04 |  |
| 9. | Faderal Aid Sacondary | 535.13 |  |
| 10. | $\%$ (Parcent) | 23.86 |  |
| 11. | Noni foderal Aid | 1,455.75 |  |
| 12. | \% (Percont) | 64.91 |  |
| 13. | Area (Sq. Milas) | 1,293 |  |
| 14. | \% (Percant) | 2.23 |  |
| 15. | Population/square ml. | 161.95 |  |
| 16. | rroadway/square mi. | 1.73 |  |
| 17. | Population/roadway mi. | 93,37 |  |
| 18. | Mulion Vohiclo Milas Travelad | 1,139.379 |  |
| 19. | \% (Parcent) | 3.77 |  |
| ( 0. | MVMT/Roadway mi. | 0.508 |  |
| 21. | Accidents | 7,518 | 245 |
| 22. | \% (Porcent) | 5.93 |  |
| 23. | Injuries | 1,776 |  |




[^41]

TROOP
B

COUNTIES IN TERRITORY:
Fannin
Gi.lmer
Towns
Union


[^42]POST

## Cherokee

Forsyth
Pickens

|  | Factor | Total | Responsibility* |
| :---: | :---: | :---: | :---: |
| 1. | Population | 69,400 |  |
| 2. | \% (Parcent) | 1.42 |  |
| 3. | Total Roadway Milos | 1,771.32 |  |
| 4. | \% (Parcont) | 1.97 |  |
| 5. | Intorstate Milos | 0.00 |  |
| 6. | \% (Parcent) | 0.00 |  |
| 7. | Fedoral Aid Primary | 92.34 |  |
| 8. | \% (Percont) | 5.21 |  |
| 9. | Foderal Aid Socondary | 424.28 |  |
| 10. | \% (Parcent) | 23.95 |  |
| 11. | Non Federal Aid | 1,254.70 |  |
| 12. | \% (Parcent) | 70.83 |  |
| 13. | Aroa (Sq. Milas) | 858 |  |
| 14. | \% (Porconi) | 1.48 |  |
| 15. | Populution/squaro mi. | 80.89 |  |
| 16. | Roadway/squars mi. | 2.06 |  |
| 17. | Population/roadway mi. | 39.18 |  |
| 18. | Million Vohicta Mlles Traveled | 379.246 |  |
| 19. | \% (Porsant) | 1.26 |  |
| 20. | MVMT/Roadway mi. | 0.214 |  |
| 21. | Accidents | 1,118 | 826 |
| 22. | \% (Parcent) | 0.88 |  |
| 23. | Injurios | 524 |  |



- Whara Annlirahla

*Wherg Applicable


[^43]


TROOP B

COUNTIES IN TERRITORY:
Clarke
Jackson
Madison
Oconee





[^44]TROOP $\qquad$

COUNTIES IN TERRITORY:
Atkinson
Ben Hill
Coffee
Irwin


[^45]

[^46]TROOP A

COUNTIES IN TERRITORY:
Chattooga
Floyd


[^47]


|  | Factor | Total | Rasponsibility* |
| :---: | :---: | :---: | :---: |
| 24. | \% (Porcent) | 0.49 |  |
| 25. | Fatalitios | 16 |  |
| 26. | \% (Percent) | 1.04 |  |
| 27. | Fatalitios/MVMT | 0.075 |  |
| 28. | Injuries/MVMT | 0.812 |  |
| 29. | Accidents/MVMr | 1.798 |  |
| 30. | Accidents/Fatalitios | 23.813 |  |
| 31. | Accidents/Injury | 2.215 |  |
| 32. | Local Law Enforcament Officers | 49 |  |
| 33. | \% (Parcent) | 0.54 | . |
| 34. | Troopar Force | 10 |  |
| 35. | Population/Enforcement Officors | 861.22 |  |
| 36. | Part I Crimos Index | 822 |  |
| 37. | \% (Percent) | 0.43 |  |
| 38. | Crime Rata (100,000) | 1,947.87 |  |
| 39. | Arrost Moving Hazardous - GSP |  | 1,616 |
| 40. | Arrest Other - GSP |  | 788 |
| 41. | Warnings Moving Hazardous - GSP |  | 2,315 |
| 42. | Warninge Other - GSP |  | 311 |
| 43. | Patrol Mileg - GSP |  | 267,677 |
| 44. | Other Miles - GSP |  | 9,359 |
| 45. | Motor Vohicle Registration | 17,023 |  |
| 46. | Patrol Hours | b | 14,595 |



[^48]

[^49]
rROOP F

COUNTIES IN TERRITORY:
Bryan
Chatham
Effingham


[^50]

rROOP $\qquad$

COUNTIES IN TERRITORY:
Lamar
Monroe

*Whare Applicable


[^51]
## COMPUTATIONS \& CORRELATIONS

$$
\rightarrow \hat{x}
$$

The following correlations were derived by comparative analysis of specified data for each Post in the state. The exception of the 45 Posts was Jekyll Island (Post 35) where information concerning the majority of the factors was not available for computation. However, the amounts which are listed under Post 23 include the factors for Jekyll Island since the Island is within Glym County and counted as such unless otherwise stated.

The formula used for the calculation of the correlation coefficient, slope and i intercept are found in Appendix $A$. The rationale behind these measures is found in Appendix A.

1. Population (x) on Accidents (z)

Run $1(10 / 29 / 75)$

Correlation Coefficient $(\Gamma)=0.9917$
Slope $m=28.0174$
Intercept $i=39,262.7468$
$n=44$

## Interpretation:

The above $\Gamma$ relates that 99.17 percent of the results are explained. This is to state that for an increase in population we also get an alnost proportional increase in accidents.
2. Roadway Miles ( $y$ ) on Accidents ( $z$ )

Run 1(10/29/75)
Correlation Coefficient $\left(\Gamma^{\prime}\right)=0.2131$
Slope m $=1.9436$
Intercept $i=-1,091.9088$
$\mathrm{n}=44$

## Interpretation:

The $\Gamma$ for $y$ and $x$ is weak in this correlation in that only $21.31 \%$ of the change is explained. This is to say that some increase is seen in accidents with an increase in total roadway miles.
3. Area - Square Mile (x) on Accidents $(z)$ Run $2(10 / 29 / 75)$

Correlation Coefficient ( $\Gamma$ ) $=-0.1435$
Slope $m=-0.0133$
Intercept $i_{i}=1,358.0483$
$\mathrm{n}=44$

## Interpretation:

This comparison yielded a very slight $\Gamma$ which can be interpreted as a nonexistance in relationship between the post area and number of accidents.

```
4. Miliion Vehicle Miles Traveled - MVMT (y) on Accidents (z)
    Run 2(10/29/75)
    CorreIation Coefficient ( }\Gamma\mathrm{ ) = 0.9800
    Slope m = 6.8750
    Intercept i = -1,838.3519
    n=44
```


## Interpretation:

The $\Gamma$ of MVMT on accidents yielded a coefficient which explains 98\% of the change. This is to say that an increase in MVMT yields a near proportional increase in accidents.
5. Accidents ( $x$ ) on Registexed Vehicles ( $y$ )

Run 1 (11/18/75)

Correlation Coefficient $(\Gamma)=0.9881$
Slope m = 19.0569
Intercept $i=22,761.7931$
$\mathrm{n}=44$

## Interpretation:

The above $\Gamma$ relates that 98.81 percent of the results are explained. Thus an increase in registered vehicles produces a near proportional increase in accidents.
6. Area within Square Mile: A square mile is considered as a cubical (square) with each of the four sides being a length of one (1) mile as shown:

, The use of the equation, $c^{2}=a^{2}+b^{2}$, gives the diagonal distance from one corner to the other,
thus where,
$a=1$ mile and $b=1$ mile, then $c=1.41$ miles
as shown:

7. Nesponse Time per Square Mile: Based on a speed of 40 MPH it is anticipated that a Trooper can travel through one square mile in approximately 2.11 minutes,
where,

$$
\begin{aligned}
& \text { Miles } \div\left(\frac{M P H}{60 \text { Minutes }}\right)=\begin{array}{l}
\text { time, in minutes required to travel } \\
\text { stated distance in miles. }
\end{array} \\
& 1.41 \text { miles } \div \frac{40 \mathrm{MPH}}{60 \text { Minutes }}=\frac{141}{.66 \mathrm{MPM}}=2.11 \text { minutes to travel } \\
& 1.41 \text { miles. }
\end{aligned}
$$

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$$
\cdots \cdots
$$

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$$
\cdots x^{\prime}
$$

## D

Allocation of Needs

Establishment of statewide needs is but one facet of the process. We realize that there is a statewide need and we also realize that there are aseeds above and beyond these, as previously stated.

The base need is the accumulated sum of the base need for each post, and the total need is the accumulated sum of the base need and the additional need for each post territory.

The establishment of the base need was provided by the computation of response time in relation to area and roadway miles. This computation must also enter into the allocation of needs on a post by post basis. However, there are other factors which must also be considered.

Certain activities are more critical in some posts than in others, i.e., some posts work the majority of the focidents which occur and others have very

ALLOCATION OF NEED BY RESPONSE TIME, BY POST AND BY TROOP

| Post | 30 Minutes |  |  | 25 Minutes |  |  | 20 Minutes |  |  | 15 Minutes |  |  | 10 Minutes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Basc | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total | Base | Adait. | Total |
| 1 | 11 | - | 11. | 13 | -- | 1.3 | 17 | -- | 17 | 22 | -- | 22 | 34 | - | 34 |
| 2 | 10 | 5 | 15 | 12 | 5 | 17 | 1.5 | 5 | 20 | 20 | 5 | 25 | 30 | 5 | 35 |
| 3 | 18 | -- | 18 | 21. | -- | 21 | 27 | -- | 27 | 36 | -- | 36 | 53 | --* | $5 \vdots$ |
| 4 | 14 | 5 | 19 | 18 | 5 | 23 | 23 | 5 | 28 | 31 | 5 | 36 | 46 | 5 | 5] |
|  | 11 | 5 | 16 | 13 | 5 | 18 | 17 | 5 | 22 | 22 | 5 | 27 | 34 | 5 | 35 |
| 6 | 16 | 2 | 18 | 19 | 2 | 21. | 24 | 2 | 26 | 32 | 2 | 34 | 48 | 2 | 5C |
| 7 | 15 | 5 | 20 | 18 | 5 | 23' | 22 | 5 | 27 | 30 | 5 | 35 | 45 | 5 | 5 C |
| 8 | 17 | -- | 17 | 20 | --- | 20 | 25 | -- | 25 | 34 | = | 34 | 50 | = | 50 |
| 9 | 20 | - | 20 | 20 | -- | 20 | 20 | -- | 20 | 20 | -- | 20 | 20 | -- | 20 |
| 10 | 14 | - | 14 | 16 | - | 16 | 20 | -- | 20 | 27 | - | 27 | 41 | -- | 41 |
| 11 | 9 | 3 | 12 | 11 | 03 | 14 | 14 | - 3 | 17 | 18 | 3 | 21 | 28 | 3 | 31. |
| 12 | 20 | - | 20 | 24 | \% - | 24 | 29 | -- | 29 | 39 | - | 39 | 59 | -- | 59 |
| 13 | 12 | -- | 12 | 15 | -- | 15 | 18 | -- | 18 | 25 | - | 25 | 36 | -- | 36 |
| 14 | 14 | -- | 14 | 17 | -- | 17 | 21 | -- | 21 | $28 *$ | -- | 28 | 42 | -- | 42 |
| 15 | 18 | 5 | 23 | 22 | 5 | 27 | 27 | 5 | 32 | () 36 | 5 | 41 | 55 | 5 | 60 |
| * 16 | 16 | -- | 16 | 19 | -- | 19 | 24 | -- | 24 | 32 | -- | 32 | 47 | -- | $\sqrt{47}$ |
| 17 | 14 | 2 | 16 | 16 | 2 . | 18 | 20 | 2 | 22 | 27 | 2 | 29 | 41 | 2 | ${ }_{43}$ |
| 18 | 15 | -- | 1.5 | 19 | -- | 19 | 23 | -- | 23 | 31 | -- | 31 | 46 | -- | 46 |
| 19 | 13 | -- | 13 | 15 | -- | 15 | 19 | - | 19 | 25 | -- | 25 | 38 | -- | 38 |


| Post | 30 Minutes |  |  | 25 Minutes |  |  | 20 Minutes |  |  | 15 Minutes |  |  | 10 Minutes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total |
| 20 | 22 | -- | 22 | 26 | -- | 26 | 33 | -- | 33 | 44 | -- | 44 | 66 | -- | 66 |
| 21 | 14 | 2 | 16 | 17 | 2 | 19 | 22 | 2 | 24 | 29 | 2 | 31 | 43 | 2 | 45 |
| 22 | 23 | 5 | 28 | 29 | 5 | 34 | 36 | 5 | 41 | 45 | 5 | 50 | 70 | 5 | 75 |
| 23 | 13 | 5 | 18 | 16 | 5 | 21 | 20 | 5 | 25 | 26 | 5 | 31 | 39 | 5 | 44 |
| 24 | 11 | 3 | 14 | 13 | 3 | 16 | 17 | 3 | 20 | 22 | 3 | 25 | 3.4 | 3 | 37 |
| 25 | 17 | 5 | 22 | 20 | 5 | 25 | 25 | 5 | 30 | 33 | 5 | 38 | 50 | 5 | 55 |
| 26 | 12 | -- | 12 | 14 | -- | 14 | 18 | - | 18 | 24 | -- | 24 | 36 | -- | 36 |
| 27 | 11 | 2 | 13 | 13 | 2 | 15 | 16 | 2 | 18 | 22 | 2 | 24 | 32 | 2 | 34 |
| 28 | 12 | -- | 12 | 14 | -- | 14. | 17 | -- | 17 | 23 | -- | 23 | 35 | -- | 35 |
| 29 | 8 | -- | 8 | 10 | -- | $10^{\circ}$ | 11 | -- | 11 | 15 | -- | 15 | 23 | -- | 23 |
| 30 | 14 | -- | 14 | 17 | - | 17 | 21 | -- | 21. | 28 | -- | 28 | 42 | -- | 42 |
| 31 | 16 | -- | 16 | 19 | -- | 19 | 24 | -- | 24 | 32 | -- | 32 | 47 | -- | 47 |
| 32 | 14 | 5 | 19 | 16 | 5 | 21 | 20 | 5 | 25 | 27 | 5 | 32 | 41. | 5 | 46 |
| 33 | 13 | -- | 13 | 16 |  | 16 | 20 | -- | 20 | 27 | -- | 27 | 40 | -- | 40 |
| 34 | 11 | -- | 11 | 13 | - | 13 | 17 | -- | 17 | 23 | -- | 23 | 34 | -- | 34 |
|  | 12 | -- | 12 | 12 | -- | 12 | 12 | -- | 12 | 12 | -- | 12 | 12 | -- | 12 |
| 36 | 14 | --- | 14 | 17 | -- | 17 | 21 | -- | 21 | 28 | -- | 28 | 42 | -- | 42 |
| 37 | 13 | 5 | 18 | 15 | 5 | 20 | 19 | 5 | 24 | 26 | 5 | 31 | 39 | 5 | 44 |
| 38 | 10 | 2 | 12 | 12 | 2 | 14 | 15 | 2 | 17 | 20 | 2 | 22 | 30 | 2 | 32 |
| 39 | 13 | 3 | 16 | 15 | $3^{*}$ | 18 | 19 | 3 | 22 | 26 | 3 | 29 | 38 | 3 | 41 |
| 40 | 13 | -- | 13 | 15 | -- | 15 | 19 | -- | 19 | 26 | -- | 26 | 39 | -- | 39 |
| 41. | 10 | 3 | 13 | 12 | 3 | 15 | 15 | 3 | 18 | 21 | 3 | 24 | 31 | 3 | 34 |

Post Base Addit. Total
25 Minutes
20 Minutes

|  | 30 Minutes |  |  | 25 Minutes |  |  | 20 Minutes |  |  | 15 Minutes |  |  | 10 Minutes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Post | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total | Base | Addit. | Total |
| 42 | 14 | 3 | 17 | 17 | 3 | 20 | 22 | 3 | 25 | 29 | 3 | 32 | 43 | 3 | 46 |
| 43 | 6 | 5 | 11 | 8 | 5 | 13 | 9 | 5 | 14 | 11 | 5 | 16 | 17 | 5 | 22 |
| 44 | 7 | -- | 7 | 9 | -- | 9 | 11 | -- | 11 | 24 | -- | 14 | 21 | -- | 21 |
| 45 | 10 | -- | 10 | 12 | -- | 12 | 15 | -- | 15 | 20 | -- | 20 | 29 | -- | 25 |
| TOTAL | 610 | 80 | 690 | 725 | 80 | 805 | 899 | 80 | 979 | 1,188 | 80 | 1,268 | 1,766 | 80 | 1,846 |
| 1 | 75 | 15 | 90 | 90 | 15 | 105 | 111 | 15 | 126 | 148 | 15 | 163 | 223 | 15 | 238 |
| B | 83 | 21 | 104 | 97 | - 21 | 118. | 121 | 21 | 142 | 164 | 21 | 185 | 246 | 21 | 267 |
| C | 96 | 13 | 109 | 112 | 13 | 125. | 138 | 13 | 151 | 176 | 13 | 189 | 255 | 13 | 268 |
| D | 124 | 12 | 136 | 148 | 12 | $160^{\circ}$ | 186 | 12 | 198 | 2.48 | 12 | 260 | 371 | 12 | 383 |
| E | 116 | 3 | 119 | 138 | 3 | 141 | 171 | 3 | 174 | 231 | 3 | 234 | 344 | 3 | = 347 |
| F | 116 | 16 | 132 | 140 | 16 | 156 | 172 | 16 | 188 | 221 | 16 | 237 | 327 | 16 | $34 \%$ |
| TOTAL | 610 | 80 | 690 | 725 | $\underbrace{80}_{8}$ | 805 | 899 | 80 | 979 | 1,188 | 80 | 1,268 | 1,766 | 80 | 1,846 |

Iittle requests to work accidents. This is also true in other functions which the State Patrol is involved.

It is for this reason that more than one factor must be considered. At this point the correlations are necessary since they show the strength of the relationship between diffexent factors of the state Patrol's functions.

The formula used is as follows:

$$
\frac{\% \text { Area }+\% \text { Roadway Miles }+\% \text { Weight }}{3_{A}^{\prime}}=\% \text { of Manpower Needed }
$$

Where, the $\%$ weight $=\%$ population $+\%$ MVMT $+\%$ accidents worked $+\%$ patrol hours $+\%$ patrol miles $+\%$ registered vehicles $\div 6=\%$ weight to be used toward each response factor listed in Exhibit II-Cl, paige 45 .'

The use of these eight (8) factors is based upon the dependent variables of each territory and those variables which project the performance of the post.

The two strongest variables used are the area and roadway miles since they are the base factors for the determination of state needs. The other major variable, weighit, allows for the activities and factors which are provided by each post on an individual basis.

The following Exhibit shows the results of equated factors by post and troop along with the additional needs.

Note: Needs for Post 9 and 35 were not derived by this method, see page 35 .

Several points must be made concerning the previous Exhibit in order to clarify areas where questions may appear.

First, the allocation by Troop Area is probably more justified than those Iisted by post. This is due to the inconsistancy in activities from post to post. It is therefore haphazard and unfair to try to ration, or allocate manpower from a base to individual units with only the information which was available for analysis. However, with the information which we did have, it is felt that the distribution is fair since the same criteria was used for all the posts (except post 9 and post 35). $\therefore$ A Plus the additional needs should provide for added duties required by the affected post.

It is therefore recommended that the majority. of confidence be placed in the needs by troop rather than by post.
second, the response time is based upon the present level of service. If one feels that additional manpower wIII warrant additional workload, it may be a fair analogy. However, if the workloan is increased in proportion to, or near, the int crease in manpower, then efficiency will not change. It would be hard to say the same for effectiveness, but to increase the solution by the same degree the probigh is increased, does not necessarily produce change.

This point can not be stressed too much. As new avenues are opened for the Georgia State Patrol, new problems arise, and with them an increase in responsibility and a need for additional men, equipment and support.

Once an effective level of service can be provided for the present expectation, then we will be prepared to venture into other areas of enforcement on the post level. For, to do this now would be to spread what personnel we now have much thinner and decrease the present level of efficiency and effectiveness.

This too illustrates the need to seek methods to increase service with what we now have and to use it to the best way possible in our efforts to fulfill our goals as set forth by the people of Georgia.

$$
\rightarrow 5 \cdot \hat{i}
$$

Additional Needs

Although needs have been identified on the basis of response time in the other 43 posts, other considerations should also be used based on additional workloads in specific post territories. The following needs are based on information found in Appendix $C$.

## Post 1

None.
-Post 2

Post has West Point Reservoir which is presently an all seasonal resort with primary traffic flow in the summer months.

Additional need is for one additional Trooper in post territory to be added per shift to allow for scheduling according to area need. This would allow for two (2) additional Troopers on the first shift (8:00 A.M. to 4:00 P.M.) and one (1) on the afternoon shift.

Manpower needed in addition is thus,

3 Troopers per day X 1.64 (relief factor) $=4.92$ (5)
Additional Troopers.

Post 3

None - although the area is metropolitan.

Post 4

Territory includes West Georgia College and I-20. 'Also major thoroughfare to Alabama used excessively for fleeing criminals.

Additional needs of three (3) Troopers per day for traffic flow and road3 block capabilities. Area also contains commuter populations increasing traffic flow.

Need $=3$ Troopers X 1. 64 (relief factor) $=4.92$ (5)
Additional Troopers.

## Post 5

Due to the density in population and the high percentage of accidents worked by Post 5, an additional three (3) Troopers are needed each day.

3 Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers

## Post 6

Need for one (1) additional Trooper for assistance during traffic flow peak periods. Flow due to Lake Lanier traffic during summer and mountain tourists during fall and winter.

```
Additional Troopers Required \(=\) One (1) Trooper X 1.64
(relief factor) \(=1.64\) (2) Additional Troopers
```

Need at least one (1) additional Trooper per shift to cover the response time factor due to terrain of territory and also to enable control to be maintained during peak tourist traffic flow yearmround. Also traffic to and from Lake Hartwell.

```
Additional Troopers Needed = 3 Troopers X l.64 (relief
factor) = 4.92 (5) Additional Troopers.
```

$$
\therefore \text { Post } 8
$$

None.

Post 9

Previously stated.

None.
post 11

Post territory includes a portion of the East Coast which attracts tourists and import populations.

Additional Needs $=2$ Troopers X 1.64 (relief factor) $=3.28$ (3) Additional Troopers.

Post 12

None.

Post 13

None.

None.

Post 15

One (1) additional Trooper per shift to maintain control over through traffic flow and density of flow in and out of Bibb County, even though GSP support is not required in Bibb County.

3 Troopers X 1.64 (xęlỉef factor) $=4.92$ (5) Additional Troopers.

Post 16

None.

Post 17

Additional personnel needed to control traffic associated with Clark Hill.

```
Needs \(=1\) Additional Trooper per day X 1.64 (relief factor) \(=1.64\) (2) Additional Troopers.
```

Post 18

None.

Post 19

None.

Post 20

None.

One additional Trooper per day to control heavy flow of tiaffic on U.S. 301.

```
1 Trooper X 1.64 (relief factor) = 1.64 (2) Additional
Troopers.
```

Post 22

One additional. Trooper per shift to provide added protection in area of rural criminal activities. Increase would also offset distance between boundaries. $\therefore$ -

3 Thoopers X l. 64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 23

Post territory includes the Port City of Brunswick and also an increased traffic flow to and from Jekyll Island.

Additional 3 Troopers Needed per day to Handle Workload = 3 Troopers X; 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 24

Needs additional Troopers due to traffic flow on I-85 and thoroughfares between LaGrange and Carrollton and Newnan.

Post 24 also works 79.54 percent of the accidents which occur in Post Area.

2 Troopers Additional X 1.64 (relief factor) $=3.28$ (3)
Additional Troopers.

Post 25

Addjtional Troopers needed per shift to maintain control of high traffic volume
around Richmond County and Clark Hill.

```
3 Troopers X 1.64 (relief factor) = 4.92 (5) Additional
Troopers.
```

Post 26

None.

Post 27

Need one (1) additional Trooper per day due to tounism associated with mountain tourism.

I Trooper X 1.64 (relief factor) $=1.64$ (2) Additional Troopers.

Post 28

None.

Post 29

None.

Post 30

None.

Post 31

None.

Post 32

Need additional one (1) Trooper per shift due to University of Georgia.

3 Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 33

None.

Post 34

None.

## Post 35

Previously stated.

$$
\Rightarrow=. \hat{\theta}
$$

Post 36

None.

## Post 37

One (1) additional Trooper per shift per day to control traficic flow due to metropolitan setting of area.

3 Troopers X 1.64 (relief factor) $=4.92$ (5) Additional Troopers.

Post 38

One (1) additional Trooper per day to control flow in and out of Rome. Also traffic associated with through traffic.

1 Trooper X 1.64 (relief factor) $=1.64$ (2) Additional Troopers.

Post 39

Need two (2) additional Troopers to work traffic associated with Walter F. George Reservoir and tourism year-round.
2 Troopers X 1.64 (relief factor) $=3.28$ (3) Additional. Troopers.

None.

Post 41

Two (2) additional Troopers needed due to major thoroughfares leading tow and from State. iso to maintain control over traffic flow due to tourism yearround.

```
        2 Troopers X 1.64 (rèlief factor) = 3.28 (3) Additional
        Troopers.
```

Post 42

Need two (2) additional Troopers per day to work traffic associated with the Port City of Savannah and traffic associated with tourism.

2 Troopers X 1.64 (relief factor) $=3.28$ (3) Additional Troopers.

Post 43

Additional manpower needed above base since the base computation allows for the increase in Interstate enforcement, but not at an effective proportion.

```
3 Acditional Troopers X 1.64 (relief factor) = 4.92 (5)
Additional Troopers.
```

Post 44

None.

Post 45

None.

Note: Probiems associated with traffic problems such as flow and congestion, also relates to criminal activity, thus when traffic flow was used as an indicator previously, other activity is also a factor.

Based on the additional needs defined the amount of manpower needed statewide including Post 9 and Post 35 is as follows:

EXHIBIT II-CI

| Desired <br> Response Time | Base Manpower Needed* | Present Force | Deficiency | Additional Manpower | Total Deficiency |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 30 Minutes | $610$ | 532 | 78 | 80 | 158 |
| 25 Minutes | 725 | 532 | 193 | 80 | 273 |
| 20 Minutes | 899 | 532 | 367 | 80 | 447 |
| 15 Minutes | 1,188 | 532 | 656 | 80 | 736 |
| 10 Minutes | 1,766 | 532 | 1,234 | 80 | 1,314 |

* Post 9 and Post 35 include this column.

The area (square miles) and roadway miles associated with each desired response time is consistant with Exhibit II-Bl since Post 9 and Post 35 were not defined in terms of the two factors stated above.

END


[^0]:    3. Samuel G. Chapman, Police patrol Readings, Charles C. Thomas, Publisher, Springfield, I11., 1972, p. 50 and 51.
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[^3]:    - Where Appificabla

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[^5]:    *Whero Applicablo

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