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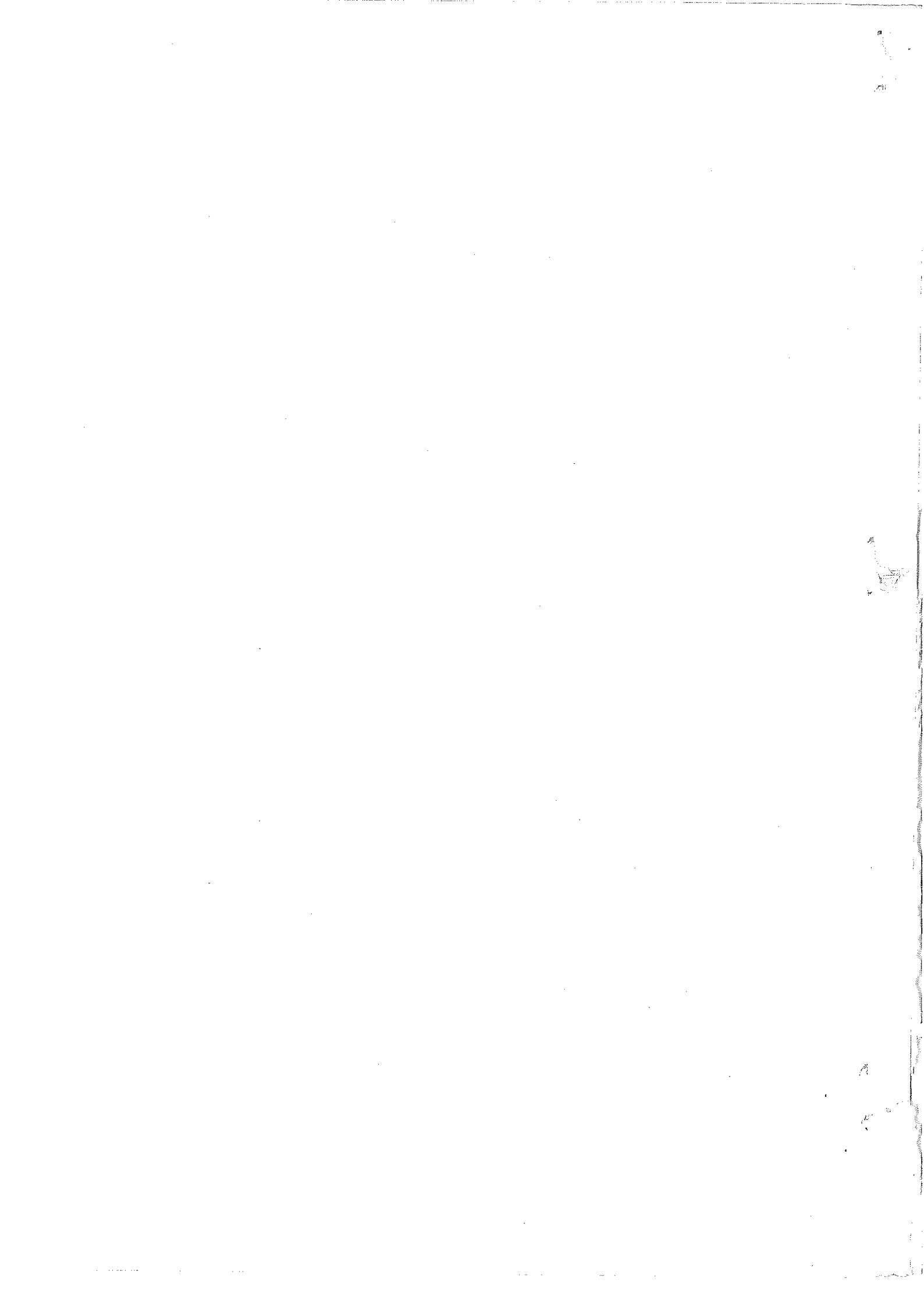
PEDESTRIAN SAFETY AT AN URBAN ROAD

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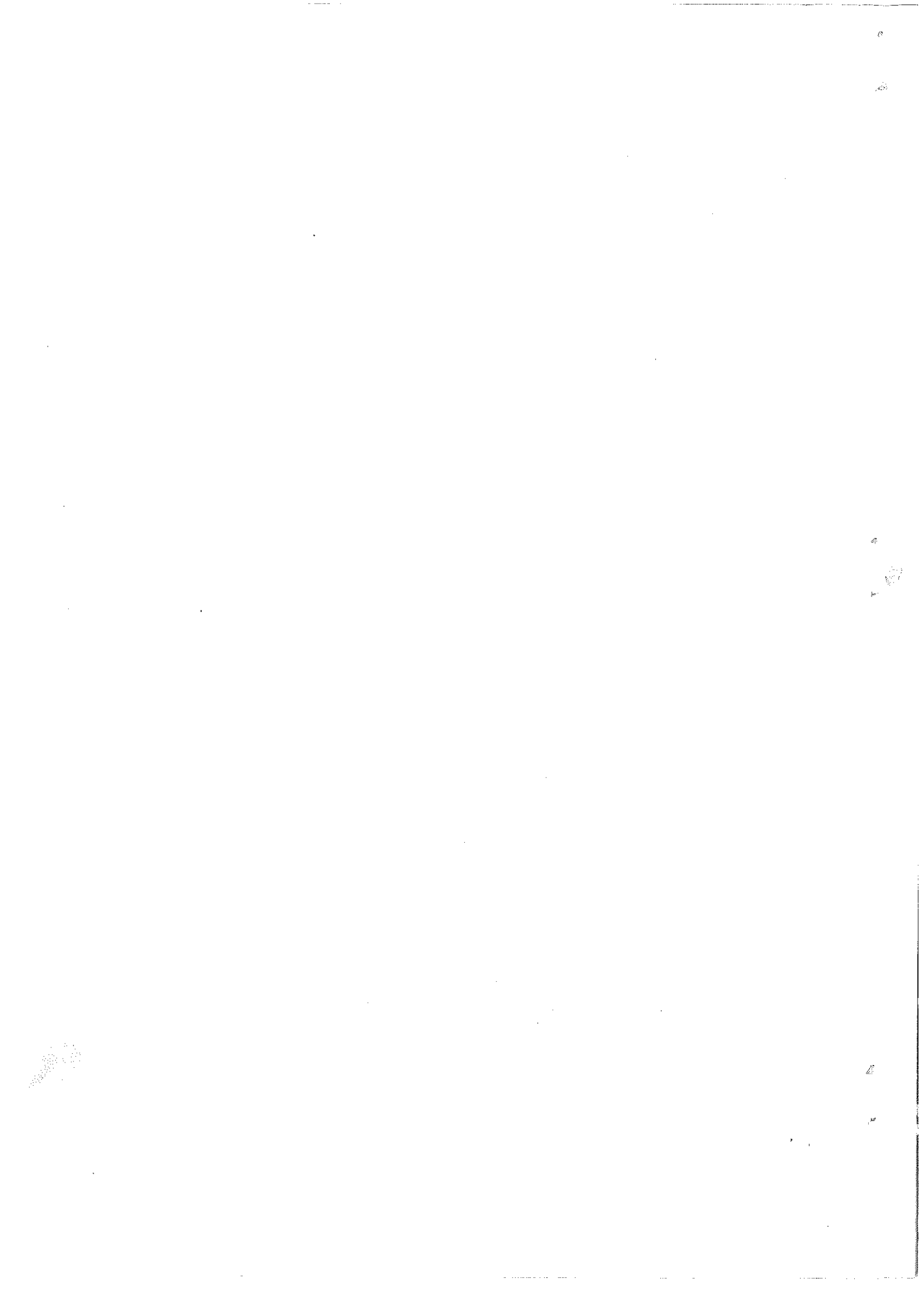
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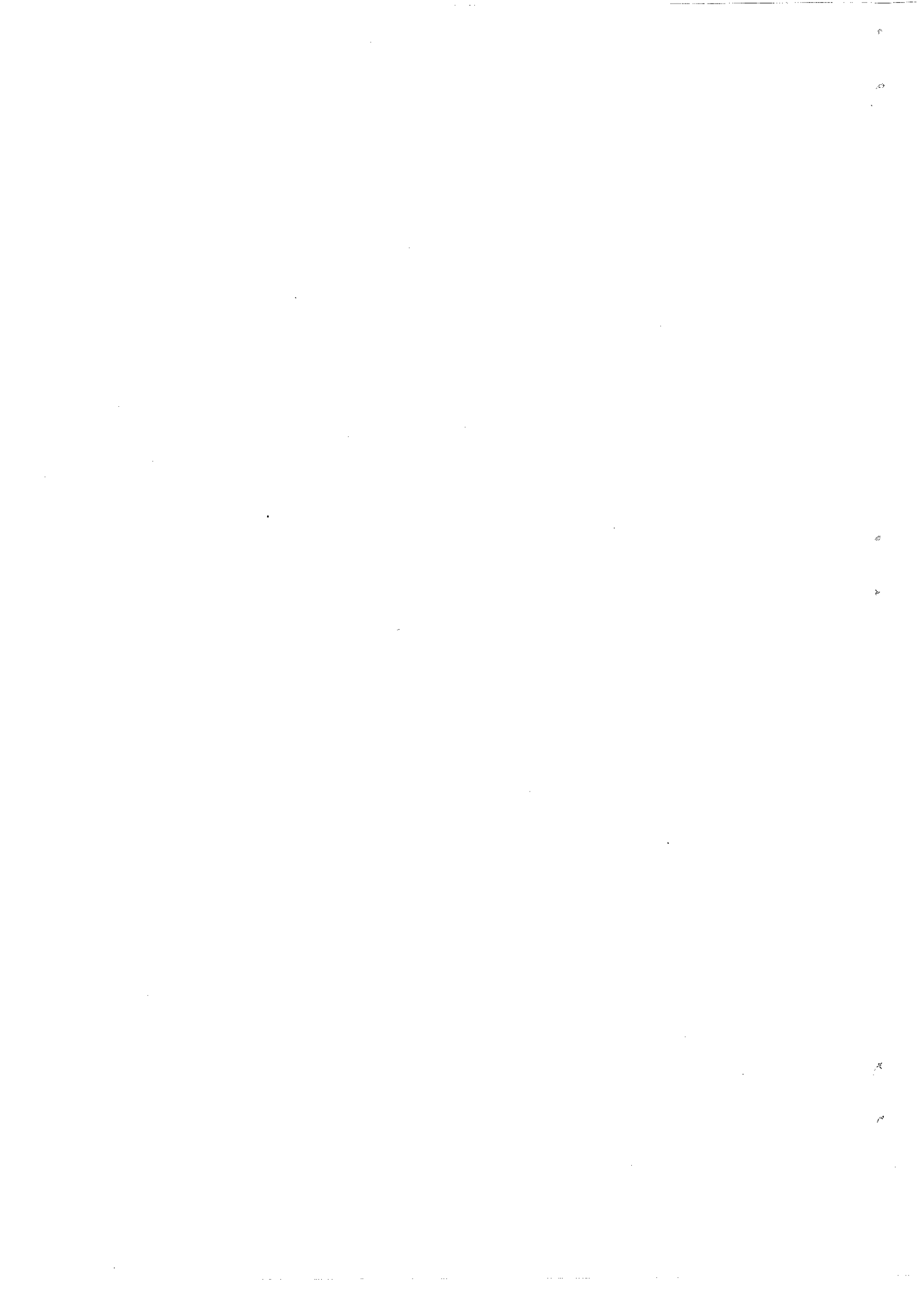


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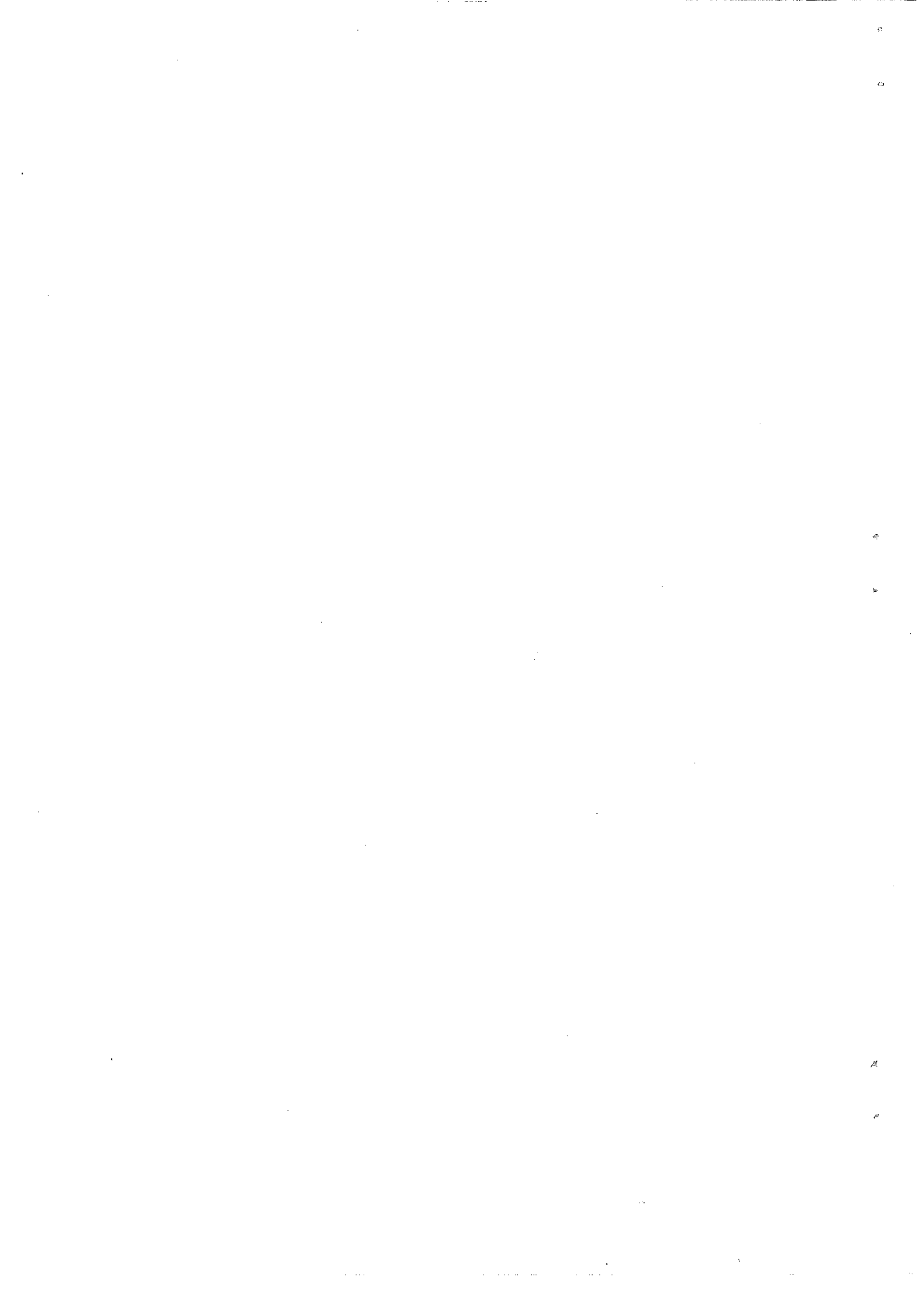
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ACKNOWLEDGEMENT

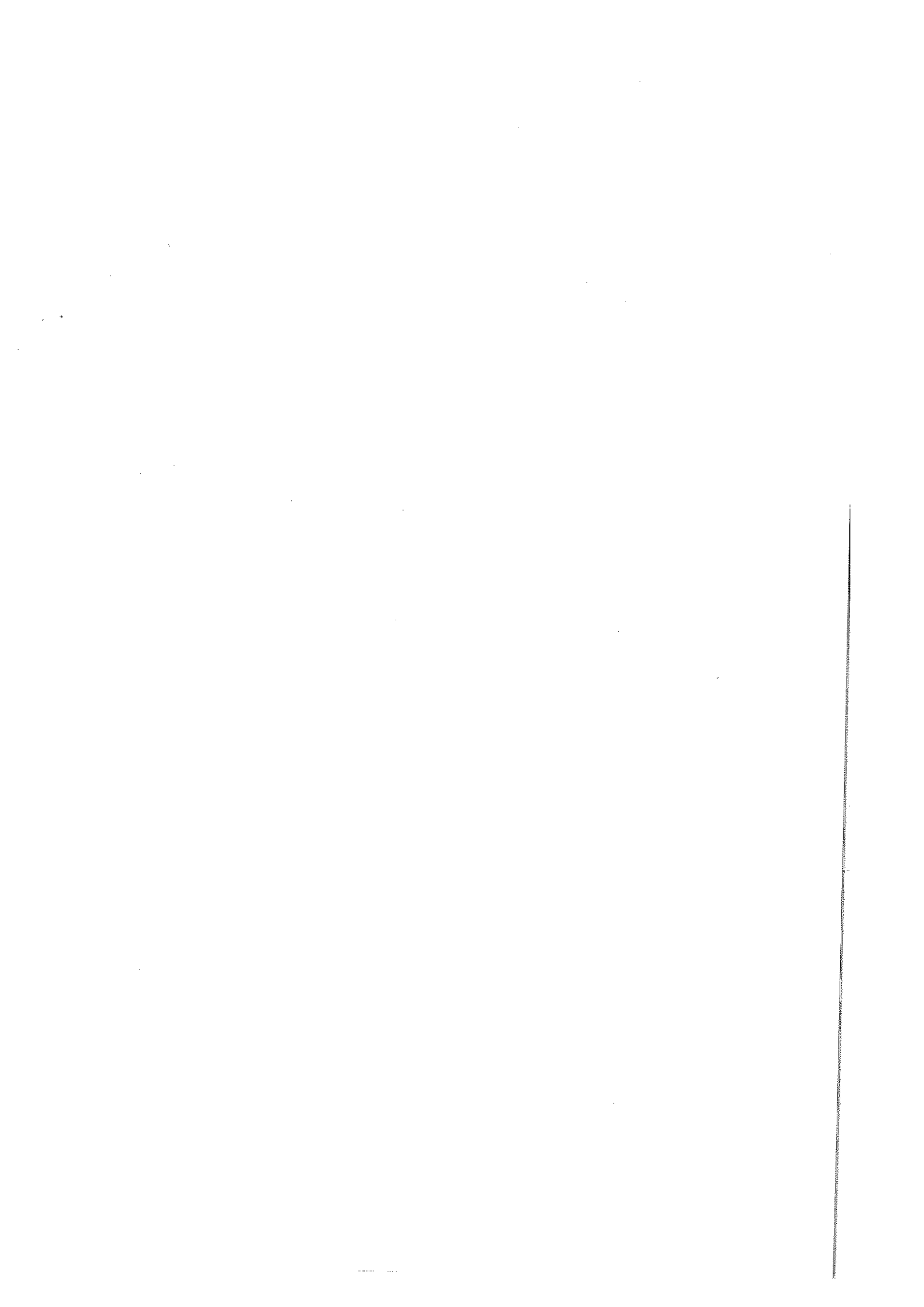
NTRC wishes to acknowledge the efforts of those who have contributed to the preparation of the document "Pedestrian Safety at an Urban Road". NTRC in coordination with All Pakistan Pedestrian Welfare Association (APPWA), Islamabad, Administration, Islamabad Traffic Police and Capital Development Authority has endeavored to mitigate traffic congestion and potential road accidents occurring at T&T Colony

Wagon / Bus Stop on Sharah-e-Sanat-o-Tijarat G-8/4, Islamabad. *Which are not reported to the Police Station but resolved by mutual understanding.*

We are immensely grateful to Mr. M. Sadiq Swati, Senior Chief, NTRC for the preparation of this document whose continuously provide^d advice and guidance for initiating immediate action plan for traffic ^{safety and} management and ^{also to} safety and follow up ^{of the} recommendations proposed in the Greater Islamabad - Rawalpindi Area Transportation System (GIRATS).

We will like to express our thanks to Islamabad Traffic ^{Police} Authorities for continuously monitoring and providing enforcement inspite of resource constraints. Many thanks to the volunteers members of All Pakistan Pedestrian Welfare Association (APPWA) Islamabad who were relentless in pursuing Traffic Police and launching ~~user~~ Road user Education Campaign.

Mr. Muhammad Samie, Stenographer, and Mr. Aamir Ajaz, Stenotypist of the centre are gratefully acknowledged for carrying out field data, computerization and typing of the report. --



EXECUTIVE SUMMARY

Vehicular traffic

Due to the rapid growth in the ~~vehicles~~ and population, pedestrian accidents have assumed alarming proportion in the developing countries. According to most conservative estimates, at least 40 % of road accidents involve pedestrians and almost 70 % fatalities in the road accidents are of the pedestrians.

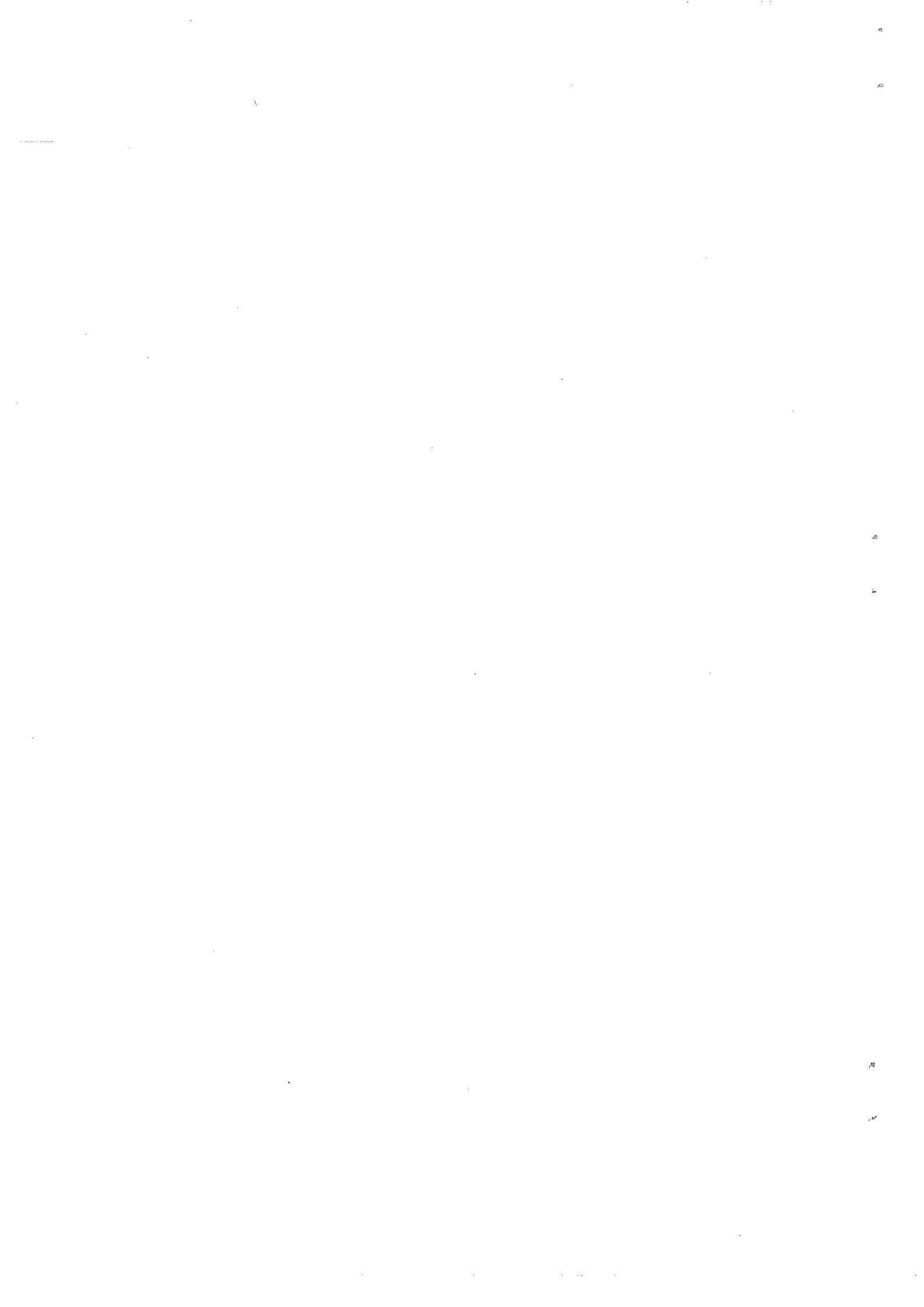
To further investigate the problem, under local conditions, T&T Colony Wagon / Bus Stop situated on Shahrah-e-Sanat-o-Tijarat (Service Road East), G-8/4, Islamabad was selected. A very high volume of vehicular traffic passes through this point, every day.

During morning and evening peak hours a large number of pedestrians also cross the road at this point. But proper facilities for pedestrian crossing and walking along the road are not available at this point. Also the location of wagon stop is not proper.

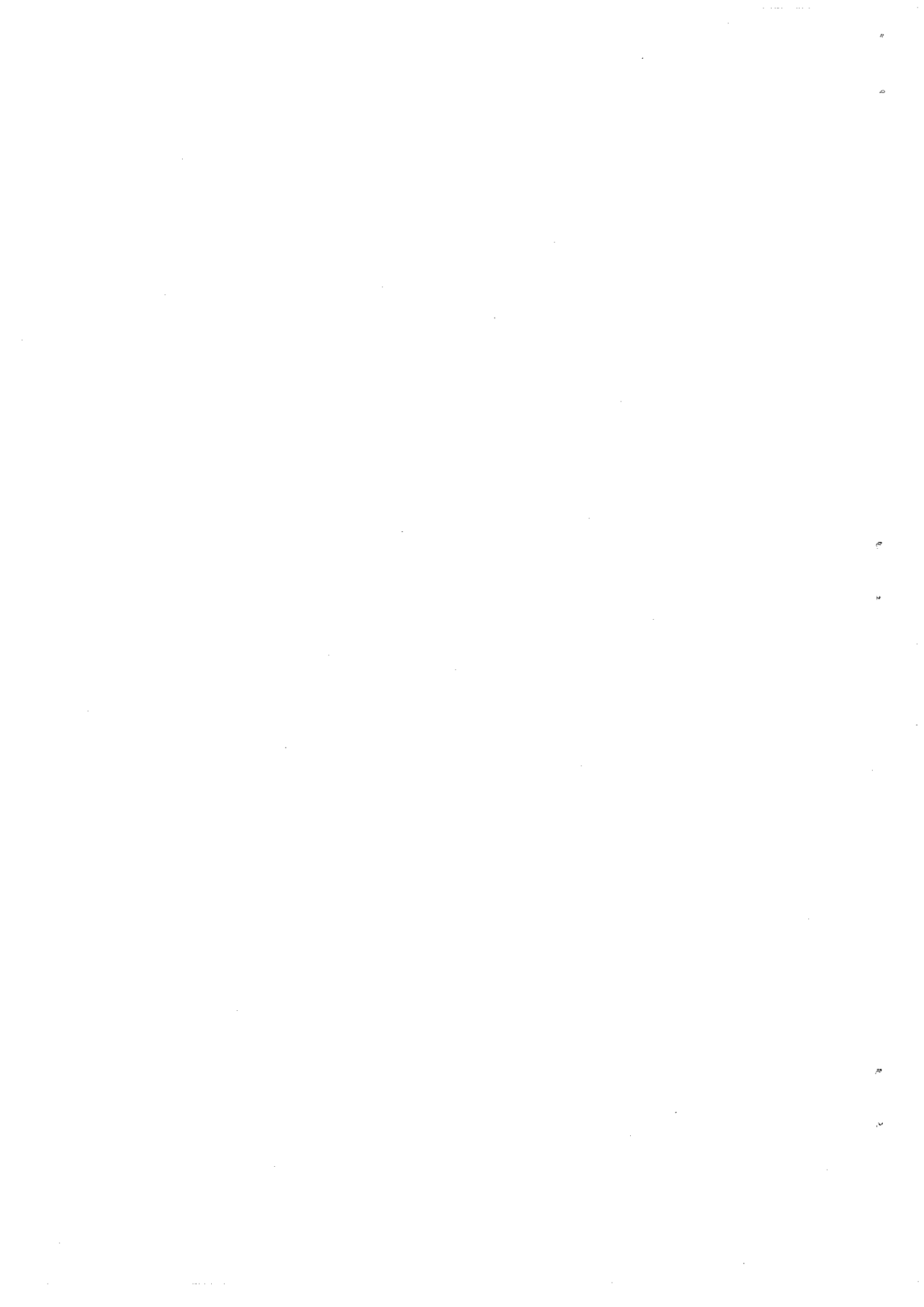
The analysis of traffic and pedestrian data showed that due to high volume of vehicle and pedestrian activity at this point, there was ^{an} urgent need to implement traffic safety education campaign, infrastructure improvement and enforcement measures.

Prior to the launch of education & enforcement campaign, cones were placed for facilitating the pedestrian & vehicular traffic. Extensive education of road users, drivers and enforcement staff was carried out. This was achieved in the co-ordination with volunteers of "All Pakistan Pedestrians Welfare Association" (APPWA), Islamabad Administration, Islamabad Traffic Police, and Capital Development Authority, at the location. During the campaign the Pedestrians and PSV passengers were made aware of the safety precaution^s to be taken by them in their own interest. The PSVs drivers were also given guidance ^{by} about proper stopping at the bay^s & assuring of Pedestrian safety and passenger convenience.

The Safety education campaign was followed by strict enforcement of traffic safety rules by the Islamabad Traffic Police. The results of the campaign were very encouraging. Especially the response of pedestrians was very positive. The movement of PSVs was also very smooth as long as the Traffic Police was present.



Proposed improvement included provision of road side shoulders, shifting of electricity pole from bus stop, provision of passengers shed and street lights on both sides of bus stops, addition of raised pedestrian crossing, road marking, traffic signs and continuing the enforcement activity continuously.



1. INTRODUCTION

Due to the rapid growth in the vehicular and pedestrians traffic, road accidents have long been recognized as a major cause of death in developed countries and considerable resources have been spent in trying to curtail the problems. Currently, many of the countries have placed great emphasis on improving the safety of vulnerable groups, particularly pedestrians.

This general seriousness of the problem in developing countries was first indicated in the studies carried out by the Overseas Unit of the Transport and Road Research Laboratory in the 1970's. With this late start in road safety and with lag behind developed countries in road safety improvements, further delays in taking action have also occurred for three reasons namely:

- a. Reliable information has not been available.
- b. There has been uncertainty about the transferability of developed country solutions to the different conditions found in the Third World.
- c. The improvements have been focused more towards motorists than the pedestrians inspite of the high rates of pedestrians accidents.

The analysis of accidents data carried out by Downing A. J. (1991) of TRL has revealed that 70% accidents of the fatalities in the road accidents comprise of the pedestrians. This high rate of pedestrians in the road accidents is partly due to their large number in the developing countries and the high proportion of walking trips. JICA study has indicated that 52% of the pedestrian trips are made in Lahore. The National Transport Research Centre (NTRC) research shows that 41% pedestrian trips are made in Islamabad / Rawalpindi. Hence lack of pedestrian facilities like footpath, raised zebra crossings, passenger shelters, under



passes, lighting etc. and also little knowledge of traffic rules are major contributory factors for pedestrian accidents in Pakistan.

2. SCOPE

The scope of this study includes the design of Traffic Management Scheme for safety of the pedestrians at a problematic point on a road in an urban area where there is a high flow of pedestrians and vehicular traffic. The design is based on low-cost Traffic Engineering and Management Techniques.

3. OBJECTIVES

The objectives of this scheme are:

- a. To introduce an efficient and safe traffic system for the pedestrians.
- b. To provide appropriate plan for passenger shelter from rain and sunlight
- c. To create sense of security among pedestrians through education.

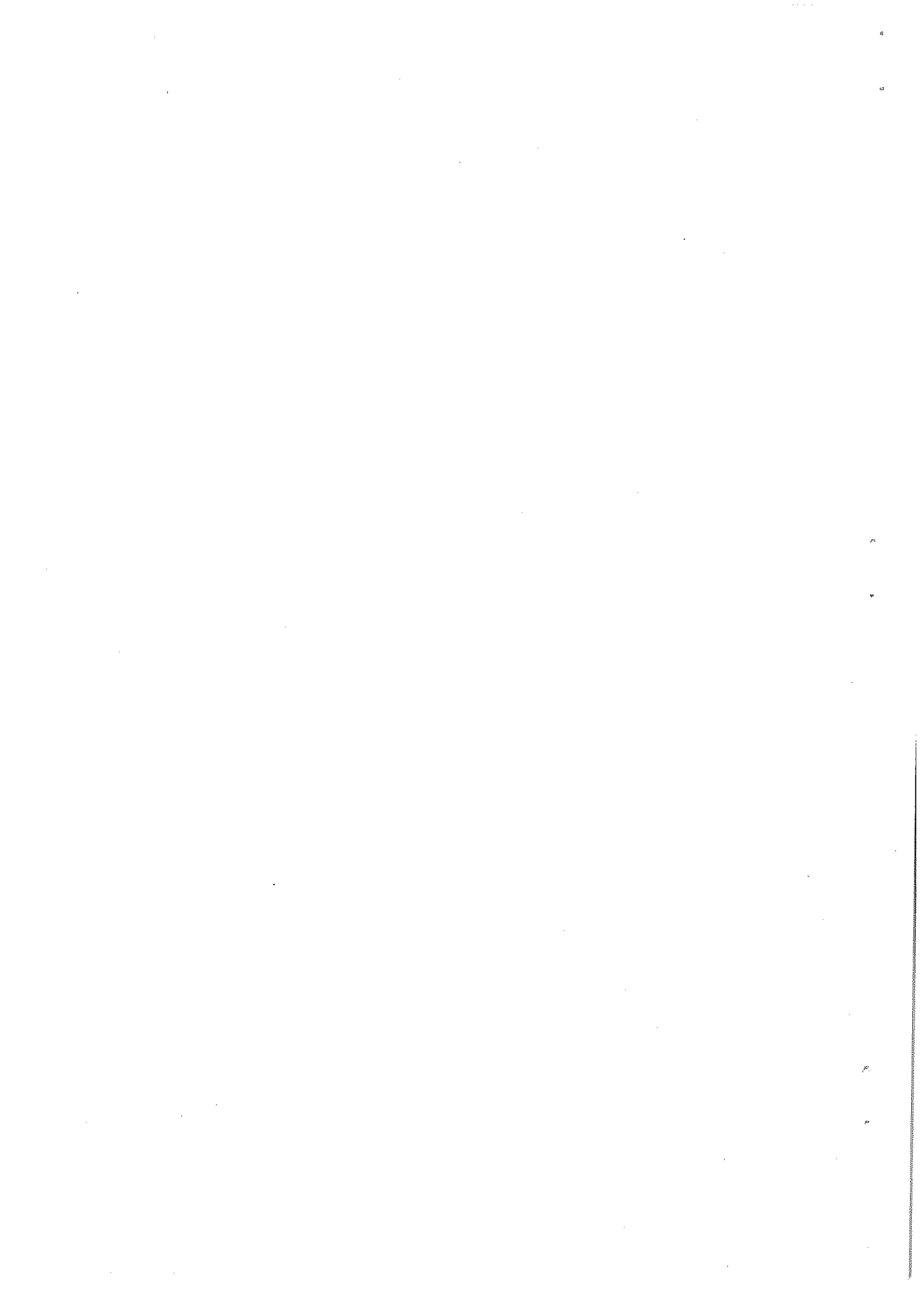
The expected benefits of the objective are:

- a. Mitigation of traffic congestion due to haphazard parking of PSVs.
- b. Safety of pedestrians while walking along the road and crossing the road.
- c. Smoother and disciplined pedestrians and vehicular flow
- d. Reduction in traffic accidents

4. METHODOLOGY

The methodology adopted for this study is as under:

- a. Before and after selection of sites photographs were taken.
- b. Observation of the existing pedestrians and vehicular traffic flow behavior.
- c. Conducted field surveys to count pedestrians and vehicles per hour
- d. Field data were analyzed and appropriate results were obtained.
- e. Recommendations were made on experience & on the results of analyzed data.



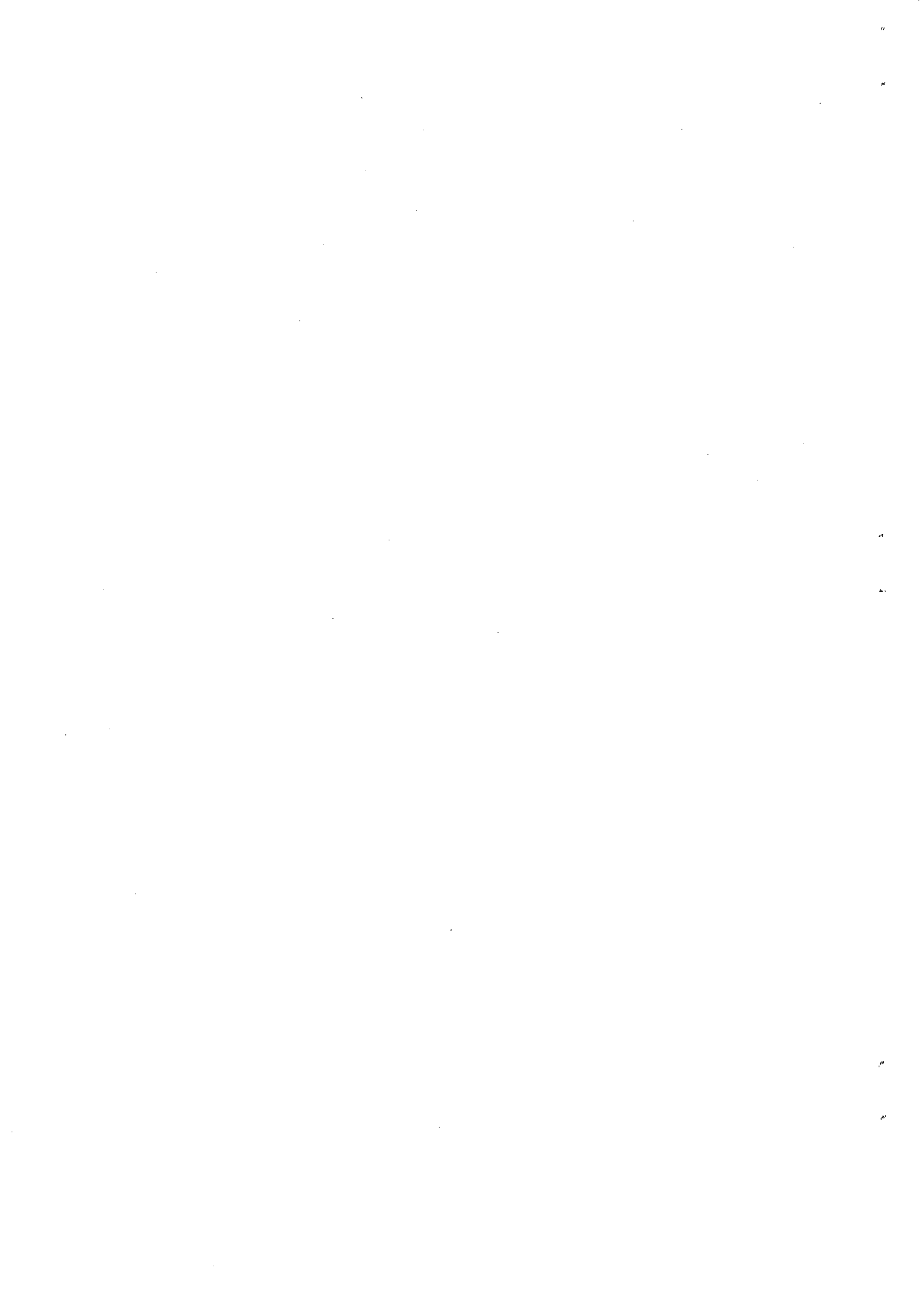
For the above-mentioned field surveys, questionnaires (sample questionnaire are attached at Annexure-I and II) were prepared and staff was trained to carry out these surveys. Field surveys were carried out during morning and evening peak hours on a specific day. The timing was selected between 0730 and 1030 hrs in the morning and between 1530 and 1830 hrs in the evening. The data so obtained was compiled on computer. The results of the analysis of data may be seen at Annexure-III and IV.

5. IDENTIFICATION OF PROBLEMS ON SITE

The problematic point is the wagon stop for the route No. 24, 105 and 111, which is situated on Sharah-e-Sanat-o-Tijarat, G-8/4, (Service Road East) Islamabad. There is T & T colony Park on one side of the road and a mini Zoo on the other side.

A very high volume of traffic generally coming from T&T colony intersection and moving towards AGPR office and I-8 and H-8 sectors via old Saidpur road and vice-versa pass through this point. This high volume of traffic is due to large number of vehicles going to and from H-8 where a number of educational institutions government /private and Al-Shifa Hospital offices are located. Considerable volume of traffic mainly truck and pickups carrying construction materials to I-8 also pass through this point. Similarly on the other side a high volume of traffic flows toward Sector G-9/4, where a number of government offices and some Shopping Centres are situated.

During morning and evening hours a large number of pedestrians walk along the road and cross the road through this point to switch to the zero point bus stop to reach their work places either in Rawalpindi or in Islamabad. The number of persons crossing the road is greater during the morning and evening rush hour and no adequate facility for road crossing



and walking along the road is available at this point.' The pedestrians cross the road at their sweet-will while the vehicle drives do not give way to them, which often ends in a fatal accident. The location of wagon stop is not proper which also adds to the miseries of the road users. As a result there is a great danger to the life and safety of pedestrians and a high probability of accidents. Before situation photographs may be seen at Annexure-V.

5.1 General Traffic Problem

The following traffic problems being faced by the pedestrians at this location are need to be redressed:

5.1.1 Visibility

The wagon stop is situated on a curve as may be seen in Fig-1 (Annexure-V), which makes the visibility angle very poor and narrow. Often the Passengers disembarking from a wagon, crosses a road from anywhere and the incoming vehicle driver does not notice him, which causes accident.

5.1.2 Un-even Road Surface

There is a water drainage gutter on the westbound road below the road surface level such as a ditch, which not only reduces effective width of the road opposite to wagon stop but also causes a sudden jump to the vehicles, which happens to pass over it.

5.1.3 Installation of Light Pole

A single light pole was installed at the middle of the bus bay, which can be seen in the photographs in Annexure-V. It is observed that wagons are not being parked at proper place and picking / dropping of the passengers on the bus bay also causing the traffic hazards for passengers and vehicular traffic. On



the request of NTRC the pole was shifted behind the platform of the bus bay by the CDA.

5.1.4. Speed / Traffic Control

There is no restriction for controlling the speed of the vehicles. As a result over speeding of vehicles have been observed. This ^{can} results in accidents during peak hours when number of vehicles plying on the road and number of pedestrians crossing the road are at the maximum. This not only places the lives of pedestrians at high risk but also increase chance of collision between the vehicles ~~visibly exists~~. There is no arrangement at this point, which can restrain the vehicles and allow the pedestrians to cross the road in a safe manner.

5.1.5 Improper Stopping

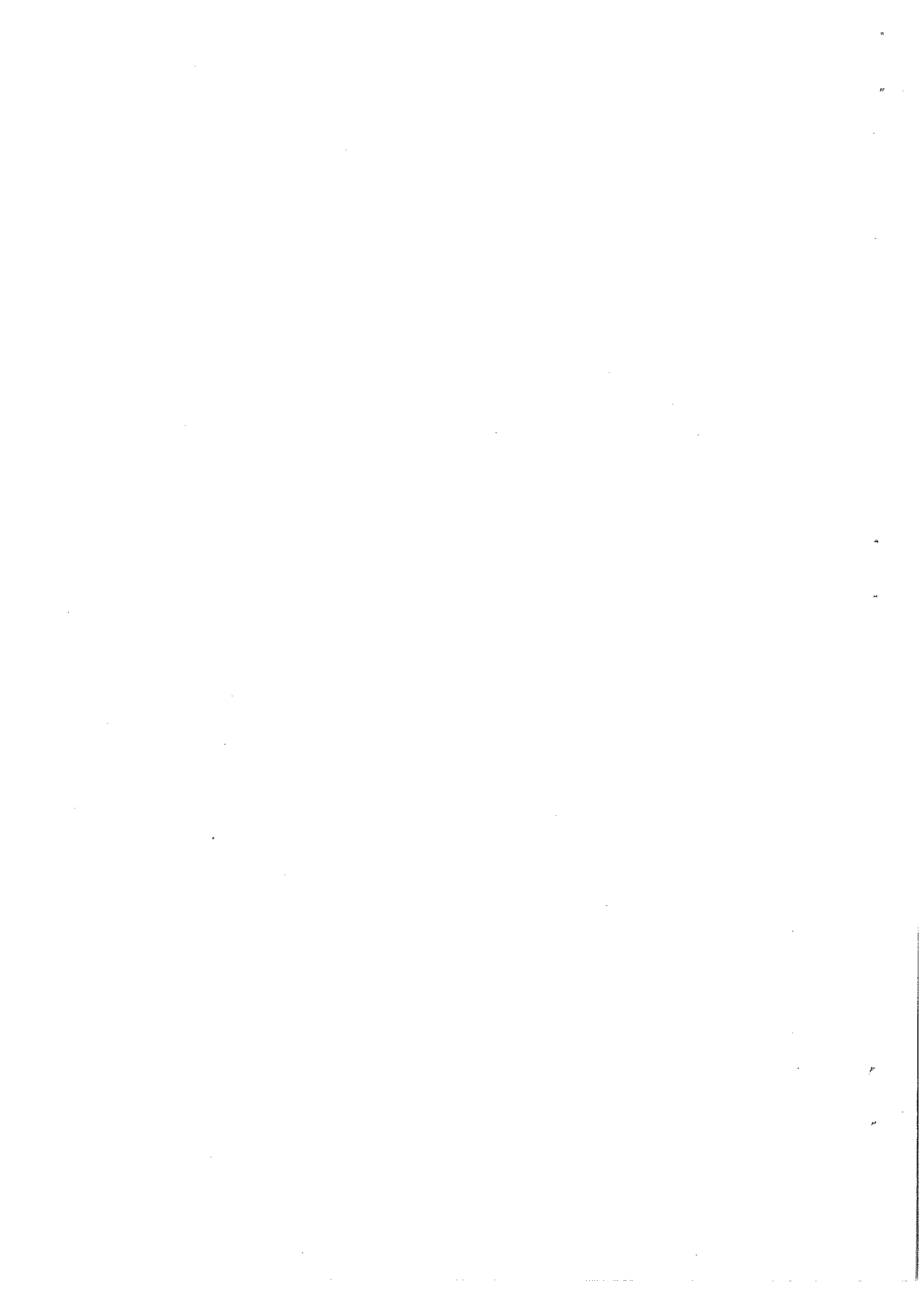
Wagon drivers do not stop their vehicles on the wagon stop; rather they park their vehicles before the wagon stop. Moreover parking of taxis at the wagon stop causes inconvenience to the wagon drivers to stop on the bay.

5.1.6 ^{Absence of} Lane Marking and Traffic Signs.

There are no proper road markings and signboards installed to guide the vehicle drivers and pedestrians to ensure safety.

5.1.7 Absence of Designated Pedestrians Crossings

There is no designated place for crossing the road. People are crossing the road in a range of 100 meters on either side of the wagon stop. This not only endangers the life of pedestrians but also causes great inconvenience to the drivers.



5.1.8 Absence of Bus / Wagon Passenger Shed

There is neither passenger shed at the bus stop nor shelter of trees at the stop. The pedestrians have to wait for the wagon at a distance from the stop under the trees especially in summer and rainy season. Surprisingly CDA has built a passenger shed near T&T Colony Park on Islamabad Highway, which is seldom utilized by PSVs as operating may be seen in Fig-B.

5.1.9 Poor Knowledge of Traffic Rules.

It also appears that vehicle drivers have no knowledge of the traffic rules and rights of the pedestrians and vice versa. Vehicle drivers do not give way to the pedestrians for crossing the road thus violating pedestrian's fundamental rights. Similarly the pedestrians while waiting to cross the road stand in the middle of the road, which create, difficulty for the vehicle drivers and also for the pedestrians.

5.1.10 Absence of Proper Drainage System.

The drainage system is very poor at this location because rainwater continues to stay on the road for days. This has also eroded shoulder of the road, which creates problem for the pedestrians standing at the roadside by reckless driver, that may sprinkle this water on their clothes while passing through.

5.1.11 Absence of Streetlights.

Only one light pole is available at the bus stop. Hence there is not much lighting arrangement for night driving.

5.1.12 Photographs Depicting the Pedestrian and PSV's Drivers Behaviour.

These photographs of Annexure-V show that there is no facility for the pedestrians. There is no waiting shed for the passengers. The light pole fixed in the bus bay. Pedestrians cross the road in a haphazard manner. The PSV's do not use the stopping bay because the taxis are parked at the bay preventing PSV's from using the bay. The PSV's embark and dis-embark the passengers on the main road making them vulnerable to serve accidents. Further, the through traffic also get disturbed. The photograph No. 5 (Annexure-V) shows dangerous overloading by the bus in Peak hours.

6. DATA ANALYSIS

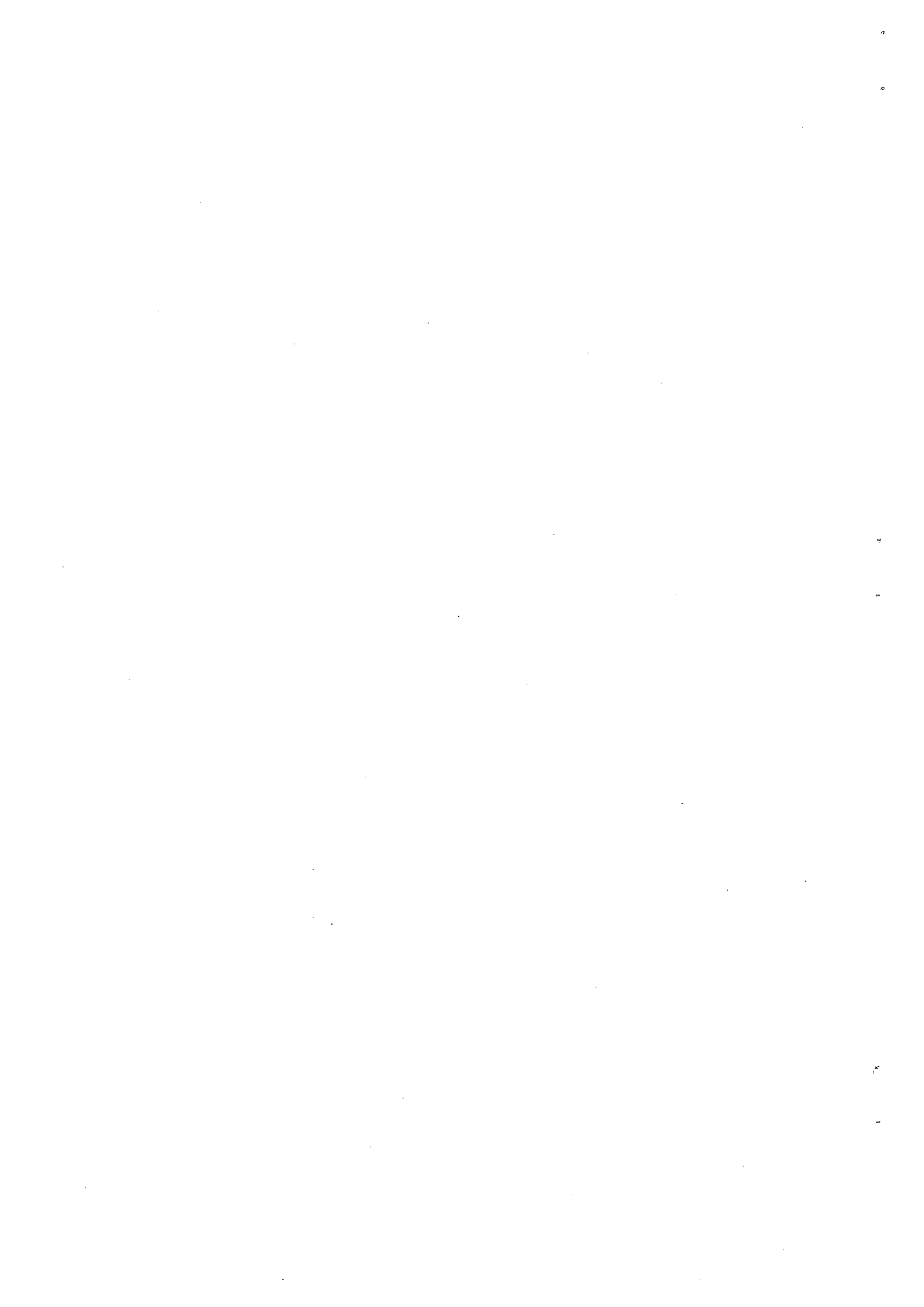
Based on observations the following two surveys were proposed:

6.1 Vehicles Counting

A classified vehicle count was carried out from 0730 Hrs to 1030 Hrs in the morning and from 1530 Hrs to 1830 Hrs in the evening hours with a fifteen minutes interval. The result of this survey shows that a total of 4668 and 3029 vehicles pass through this location in the morning and evening peak hours respectively.

The composition of these vehicles are 44% car jeeps, 25% Motorcycles, 2% buses, 1% truck / tractors and 23% wagons.

The maximum number of vehicles passes from 0830 to 0930 in the morning and from 1630 to 1730 in the evening. The results of the analysis show that due to high volume of traffic activity on this road, there is need to improve Traffic Management Infrastructure and implement enforcement measures.



6.2 Pedestrian s Counting

The Pedestrians counting survey was conducted from 0730 Hrs to 1030 Hrs in the morning and from 1530 Hrs to 1830 Hrs in the evening. A total of 1200 persons cross the road in the morning hours and 900 in the evening hours. A maximum number of 500 pedestrian were found crossing the road from 0815 Hrs to 0915 Hrs. This survey has established the fact that there are fairly a high number of pedestrians crossing the road and as such pedestrian facilities are desperately needed.

26
between
and *and 38 pedestrian were found crossing the road from*
1730
to
1830
hrs

7. TRAFFIC ENGINEERING AND MANAGEMENT MEASURES.

Pedestrians flow pattern shows some similarities to the vehicular traffic stream characteristics, in terms of speed, flow rate and density. As flow rates on the footpath, cross walk, passage way or stair increases, walking speed decreases accordingly. Beyond the maximum flow rate (capacity) density continues increasing towards "Jam Density" while flow and speed drop toward zero. Pedestrians capacity and density depend on the width of the walking area available. This should exclude "Dead" space not used by pedestrians; a strip of about one foot along walls, a similar strip along curb lines if traffic moves or is parked close to the curb, and a wider strip along store windows where person may be standing and thus obstructing flow.

7.1 Shoulder

Hard shoulder on both sides of the road provides road safety area for the vehicle drivers in case of emergency parking, overtaking and emergency stoppage during an accident.

7.2 Traffic Sign

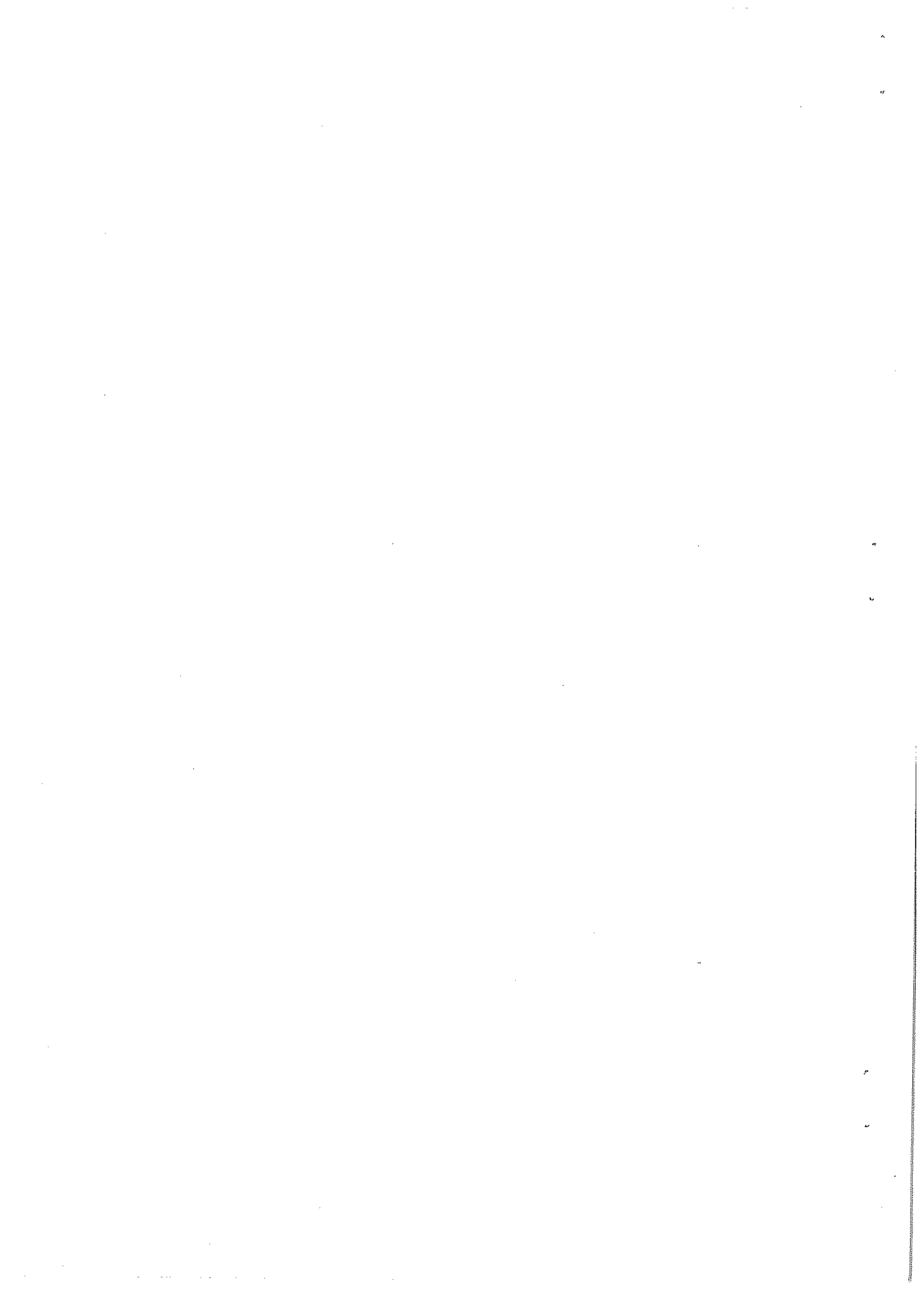
Traffic signs provide guidance to vehicle drivers as well as pedestrians / passengers. The warning signs like reduce speed, bus / wagon stop, raised pedestrian crossing warns the vehicle drivers to driver carefully with controllable speed. The warning signs and raised zebra crossings are two contributory factors towards reducing driving speed for vehicle and alerting the drivers.

7.3 Pedestrians Crossing

Pedestrian's crossings are essential on those road where high volume of vehicular traffic occurs. This facility should be provided at all links and intersections where there is substantial conflict between vehicle and pedestrians movements. In addition, this may also be provided at non-intersectional locations, where there is concentrated pedestrians movement. The facility location of the pedestrians crossing should be located at a point where there is adequate visibility, sufficient space for the waiting pedestrians and free from all obstruction and encumbrances.

7.4 Road and Lane Marking

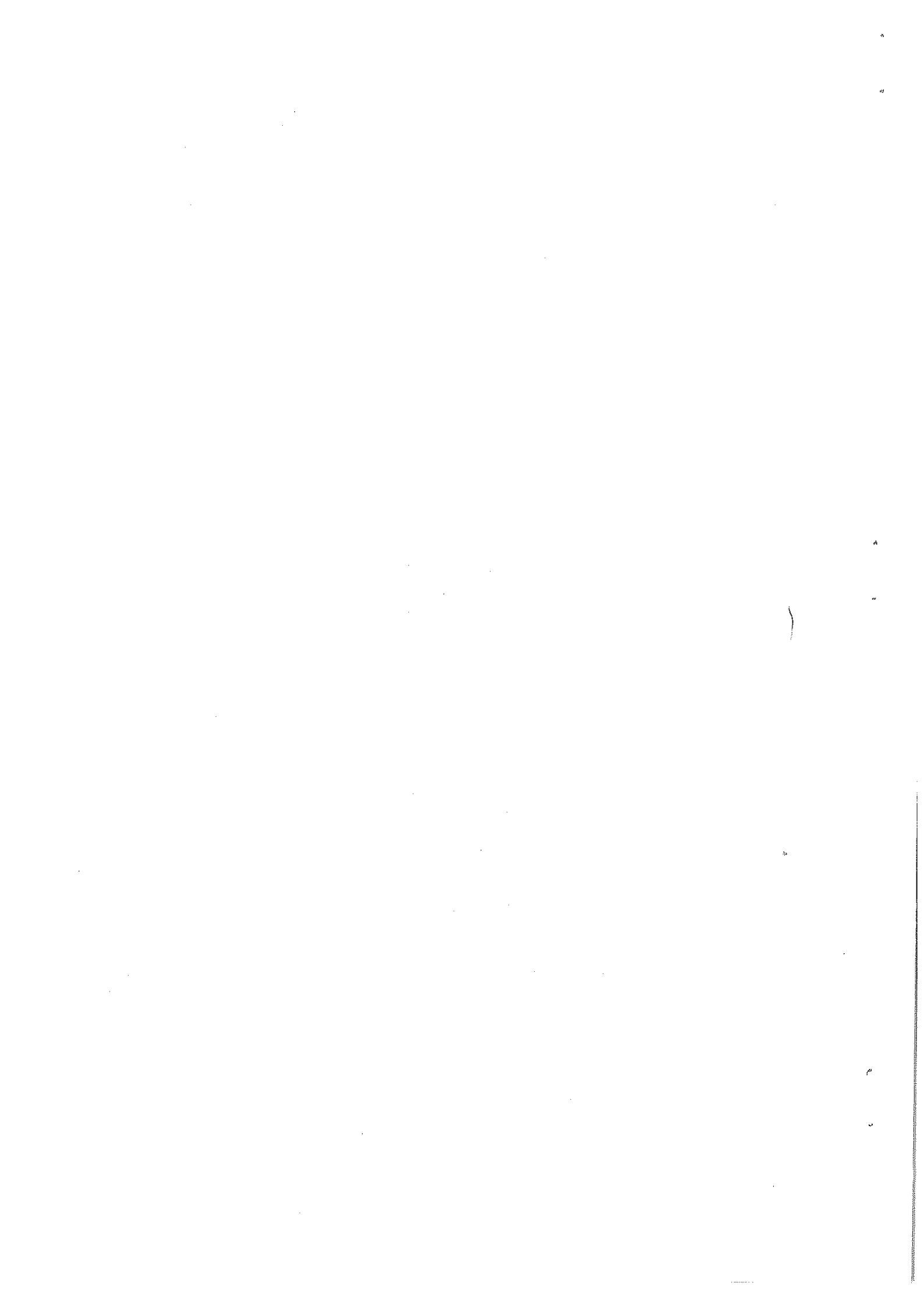
Road marking provides appropriate sense of driving to the road users. The arrows for through (Th), left (L) turning and right (R) turning movements are



marked on the road to help the drivers steer comfortably. Markings are also used to supplement other devices (e.g. signs, signals) or used alone to convey certain regulations or warnings that might not otherwise be understood by the road users. Further other markings are used to: (a) display such as regulation curb markings, no passing zones, etc (b) supplement other devices e.g. STOP bars, cross walks, etc (SIGNALS AHEAD Messages, OBJECT MARKINGS).

7.5 Street Lights

Street lighting and illumination are primarily intended to enable the road users (motorists, cyclists and pedestrians) while driving at night. Further this facility is essential for the road users to accurately see the carriageway and the immediate surroundings in darkness. A large number of the road accidents occur during the night, one of the major reasons being inadequate illumination. The headlights of the vehicle are not enough to provide illumination at night. It is observed that a number of severe accidents took place in the city streets with full light on road. In city streets, there is a need to illuminate carriageway and its immediate surrounding so that the use of headlights can be avoided or minimized. On the other hand, it will rather be too costly to install lighting in rural section of highways and the drivers would have to use the head light for night driving. Improved visibility at night by means of Artificial lighting improves visibility at night and lessens the driving shine ensuring comfort. Further, the drivers feel more confident in their maneuvers and avoid jumps on a bumpy road. Controlled speed of traffic and good lighting arrangements generally improves, traffic flow conditions, and headway and lateral



placements are brought about. Indirect benefits include reduction in crime, promotion of the aesthetic appearance of the surroundings and extension of business hours after sunset. Both road lights and vehicle lights play an important role in ensuring that the driver can see clearly the pedestrian in the darkness. Special attention is required for lighting pedestrian's crosswalks and intersections. Increased visibility of the pedestrians themselves can prevent many accidents.

7.6 Footpaths

Footpath is an essential element in road safety measures particularly for the urban areas. Construction of footpath is in the out straits and some times not economically viable due to difficult terrain in urban areas. In rural areas footpaths are seldom provided, because of the small number of pedestrians as per AASHTO policy of Geometric Design of Rural area.

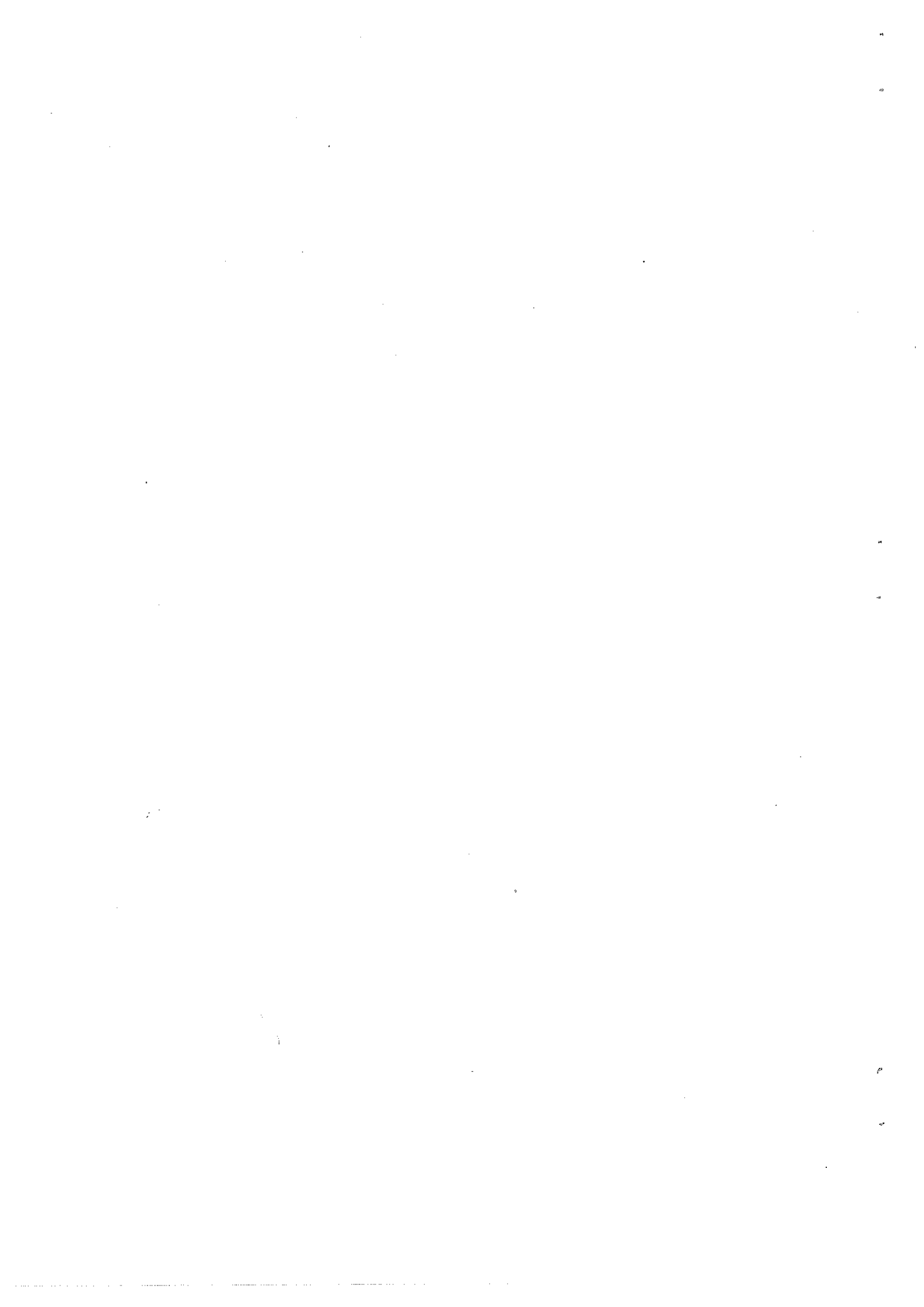
7.7 Education / Enforcement

Effective enforcement is the key element pedestrian safety. It is important that measure should be taken to implement regular enforcement. Further, education campaigning should be launched to make traffic awareness both among the drivers and pedestrians ^{before enforcement campaign} regularly.

AND

8. ROAD USER EDUCATION / ENFORCEMENT CAMPAIGN

In March 2000, an Education / enforcement campaign for road users (i.e. pedestrians and wagon drivers) was launched by NTRC in the co-ordination with volunteers of All Pakistan Pedestrians Welfare Association (APPWA), Islamabad Administration, Islamabad



Traffic Police, and Capital Development Authority Islamabad at T & T Wagon / Bus stop, G-8/4. During the campaign the Pedestrians were given guidance their about safety while crossing and walking along the road. Passengers were educated where to embark and disembark from the Public Service Vehicles. The wagon drivers and conductors were also given instructions for parking their vehicles at designated bus stops. Further, they should keep the wagons doors closed while their vehicle is in motion and they should not pick and drop the passenger while the vehicle is moving. They were also advised to take care of pedestrians while crossing the road or walking along the road. Beside pedestrians and wagon drivers / conductors the taxi drivers were also given advice not to park their taxis in middle of the road and on the bus bay. They should park taxis at the shoulders of the road and pick / drop the passengers from there. The after situation photographs at annexure-VI show the progress of effective education and enforcement campaign for ensuring smooth flow of traffic.

Police role should be incorporated

9. RECOMMENDED ACTIONS FOR THE SCHEME.

The following improvements are recommended:-

9.1 Construction of Shoulders

Properly designed, paved shoulders at both side along the footpaths should be provided for emergency parking of vehicles which would also act as a "buffer" between vehicles on road and pedestrians on footpath. It is important to construct shoulders from the bus stop towards Old Saidpur Road Sector H-8/2.

9.2 Construction of Footpaths

Footpath should be provided from T & T Chowk to AGPR Chowk.

9.3 Installation of Fences.

The fences should be installed on the footpath in front of the garden/park gate so that the pedestrian should be restricted to cross the road through raised pedestrian crossings.

9.3 **Provision of Pedestrian Crossing**

9.4

Raised Pedestrian Crossing should be provided at the beginning of bus stops on both sides.

9.4 **Road and Lane Marking**

9.5

Lane markings should be conspicuous. Continuous line should be painted from T&T Chowk to AGPR chowk to forbid overtaking.

9.5 **Installation of Sign Boards**

9.6

Warning signboards indicating Raised Pedestrian Crossing, bus stop speed limit and information should be erected prior to the road curves.

9.6 **Installation of Light Poles**

9.7

Although the light pole at the bus stop on the road has been displaced on the proposed footpath, at least three more light poles should be installed at the bus stop up to the curve of Mini Zoo.

9.7 **Shifting of Passenger Shed.**

9.8

As mentioned in section 5.1.8 the passenger shed on Islamabad Highway should be shifted to T & T Colony Bus Stop.

9.8 **Enforcement**

9.9

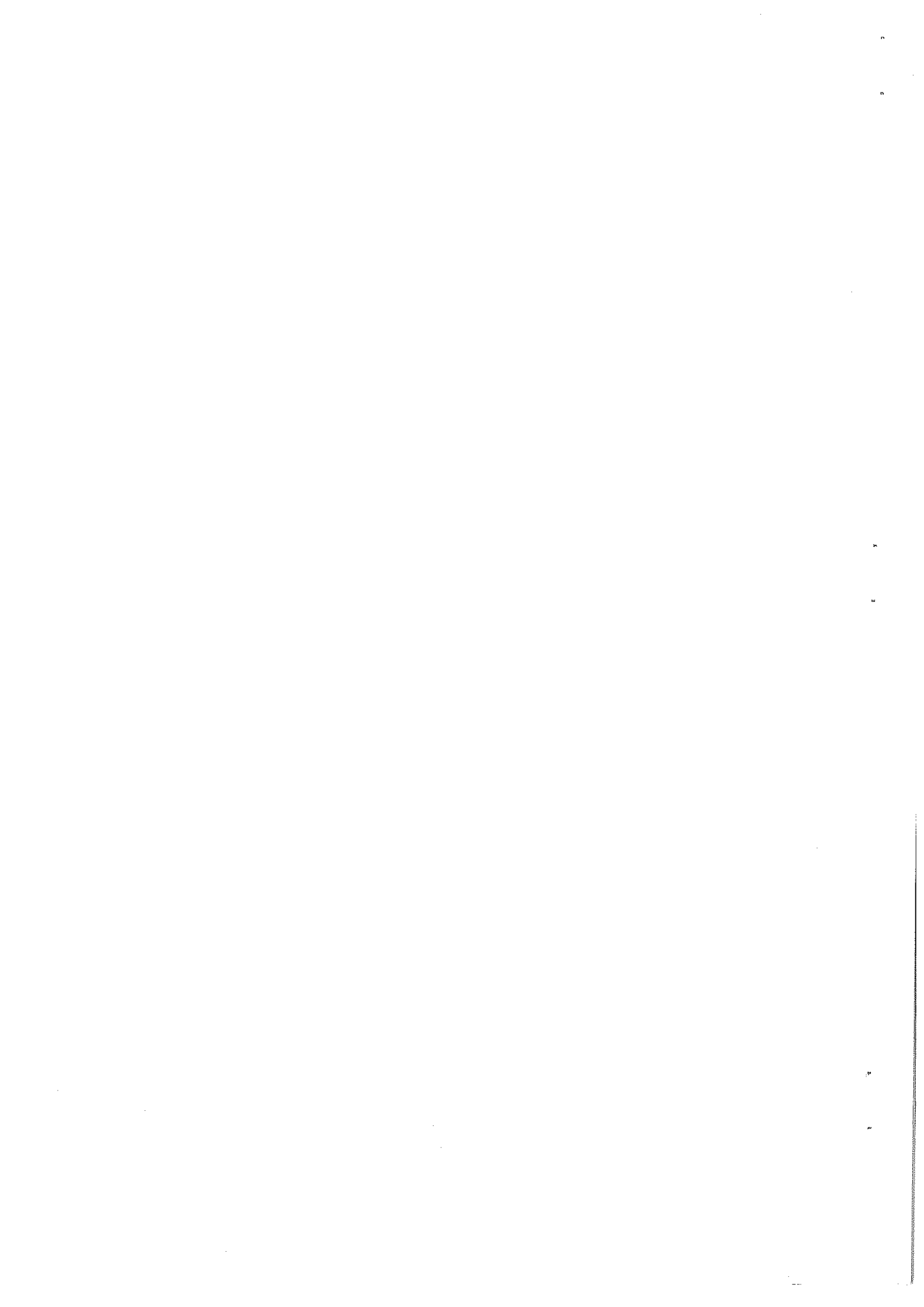
As observed during road user education campaign that enforcement is a key tool to control the PSVs, it is pertinent that at least one traffic police Constable should be permanently deputed at this bus wagon stop to control improper stopping of PSVs.

9.9 **Road level and Drainage System**

9.10

Road surface on T & T colony side should be made even and the level of drainage gutter should be raised upto the road level.

For effective traffic management measures, it is proposed to implement the traffic management plan as shown in Annexure-VII.



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- [i]. Downing A.J, (1991) "Traffic Engineering and Planning", TRL, U.K.
- [ii]. JICA, (1992) "Comprehensive Urban Transportation Study for Lahore", JICA, Japan.

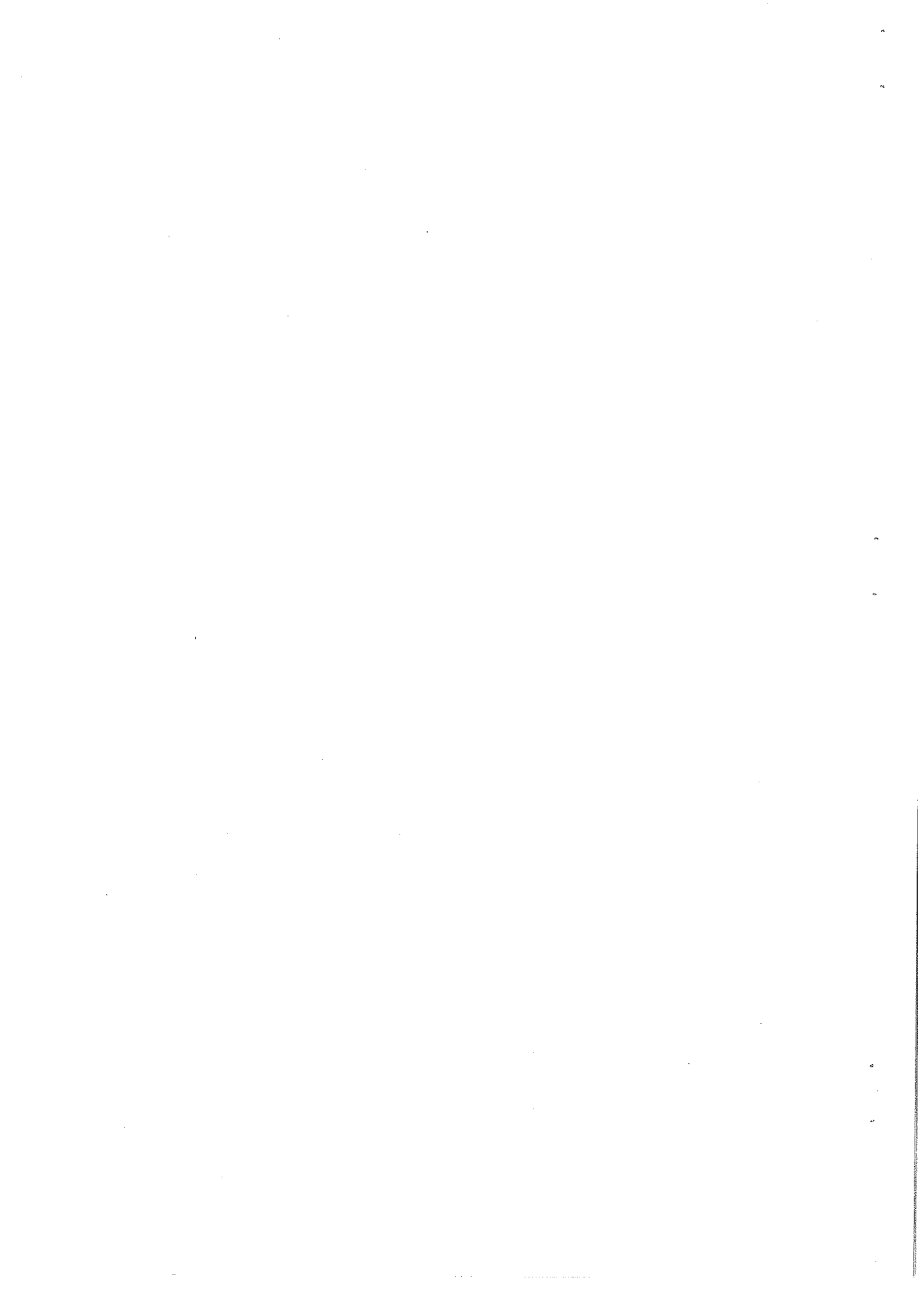
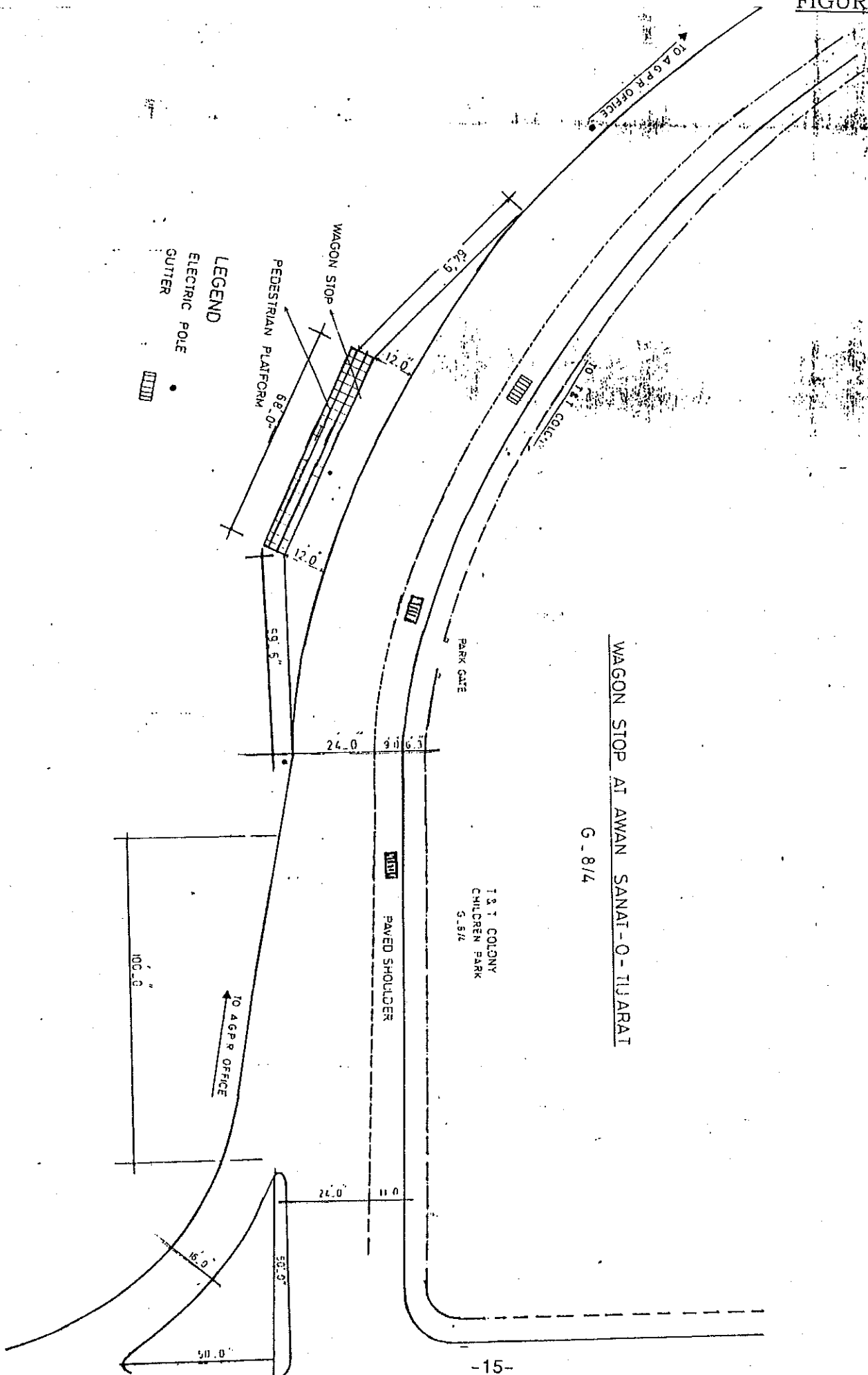


FIGURE - A



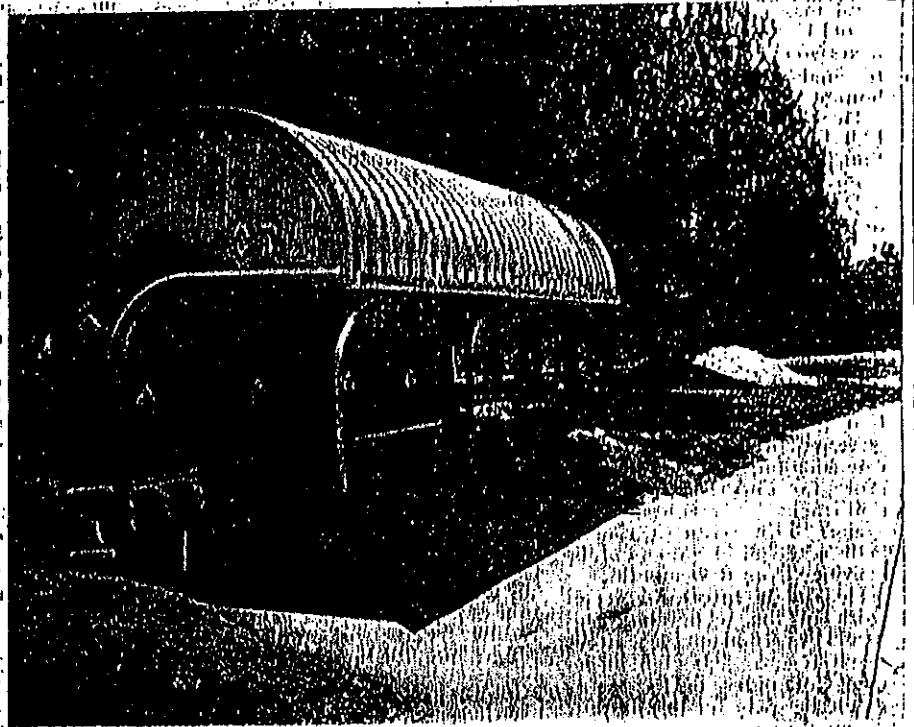
A tale of two cities

Bus stops without buses

WITH constantly blowing horns and risky driving by public transport drivers, it is never a pleasant experience to wait for a bus along the roadside. But it becomes unbearable when one has to face all this in scorching heat. The only thing which is looked for desperately at this moment, apart from the bus or wagon, is a shade. And this blessing can be found in the Capital City only at some bus stops. Otherwise people either have to get up on the shade of a tree or bear the scorching heat. The reason for this is that there are in fact very few designated bus stops at which the CDA has built a structure to provide relief to the commuters from rain or sun. Other stops are created by the people themselves according to their convenience and facilities. They perhaps find distance between the two stops too much to walk so they stand somewhere in between under a shadowy place. On the other hand the properly constructed bus stops mostly are found empty.

This shows that the CDA did not carry out any survey to find as to where to construct bus stops. The other thing they overlooked is the utility of these structures. Firstly the shades made of concrete and cement can accommodate only a few people and secondly these structure cannot serve the purpose of protection from sun or rain. The roof of the waiting place is built on such a angle that it cannot stop rain or sun in winter, sitting on the burning concrete benches can never be thought of. Thus the commuters are again left to bear with heat and huge spendings on this provision.

This time the CDA thought of improving this service and constructed fibre glass shelters. The bright coloured shelters designed by Design Wing of the CDA can be spotted easily and are more comfortable because of the heat resistant quality of the

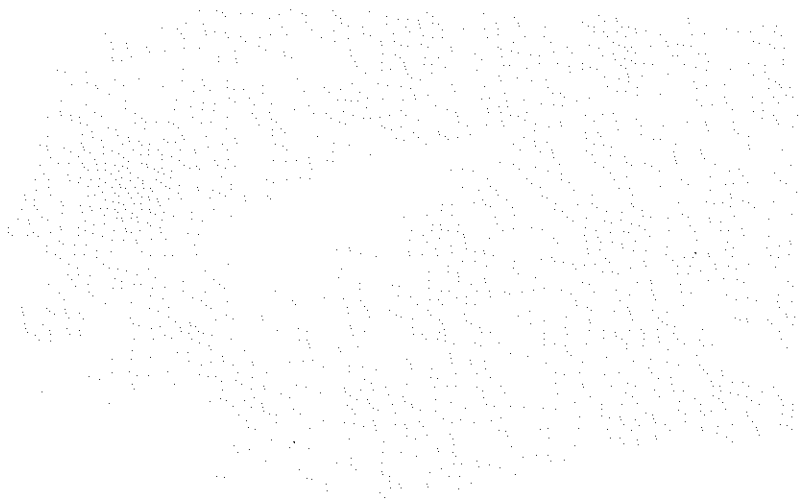


material. It has a seating arrangement for 15 persons separate for ladies and gents.

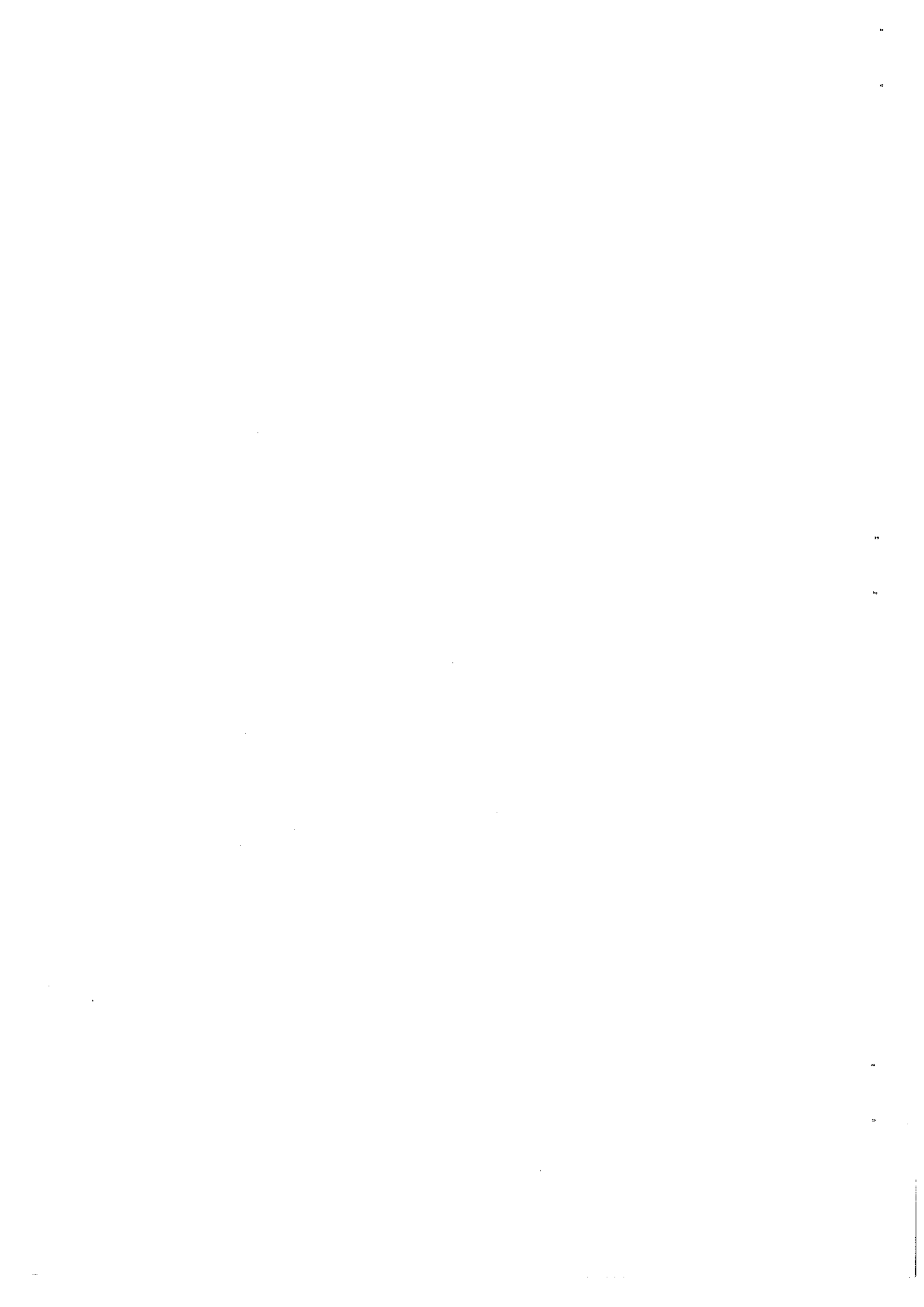
But this time too the authority forgot to construct these shelters at the right place. The only shelter which has yet been constructed and shown in the picture is at Faisal Avenue crossing between G-7/1 and G-8/4. Now it seems quite ridiculous because not a single public vehicle passes by this spot and thus not a single passenger can ever be seen here.

It is expected that the CDA which wants to extend this civic facility to a large number of people will not repeat the mistake and before installing other such shelters, would conduct a survey in order to find the right place and thus provide the facility to the commuters, for whom it is meant to be installed.

—Sumaira Aslam



ANNEXURES



NATIONAL TRANSPORT RESEARCH CENTRE

VEHICULAR TRAFFIC COUNT SURVEY

POSITION: T & T COLONY G-8/4 WAGON / BUS STOP

NAME OF SURVEYOR _____

DATE _____

WEATHER: SUNNY / CLOUDY / RAINY

DIRECTION: X = FROM T&T COLONY CHOWK TO AGPR OFFICE
 Y = FROM AGPR OFFICE TO T&T COLONY CHOWK

MORNING SURVEY TIME 0730 - 1030 Hrs.

15 MINUTES COUNT

S.NO	TYPE OF VEHICLE	X	Y	X + Y
1	Car/Jeep/Taxi			
2	Bus			
3	Bicycle			
4	Wagon/Mini-Bus/Suzuki			
5	Motorcycle			
6	Truck/Tractor Trolley			
	TOTAL			

EVENING SURVEY TIME 1530 - 1830 Hrs.

15 MINUTES COUNT

S.NO	TYPE OF VEHICLE	X	Y	X + Y
1	Car/Jeep/Taxi			
2	Bus			
3	Bicycle			
4	Wagon/Mini-Bus/Suzuki			
5	Motorcycle			
6	Truck/Tractor Trolley			
	TOTAL			

NATIONAL TRANSPORT RESEARCH CENTRE

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NAME OF SURVEYOR _____

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DIRECTION: X = FROM T&T COLONY CHOWK TO AGPR OFFICE
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MORNING SURVEY TIME 0730 - 1030 Hrs.

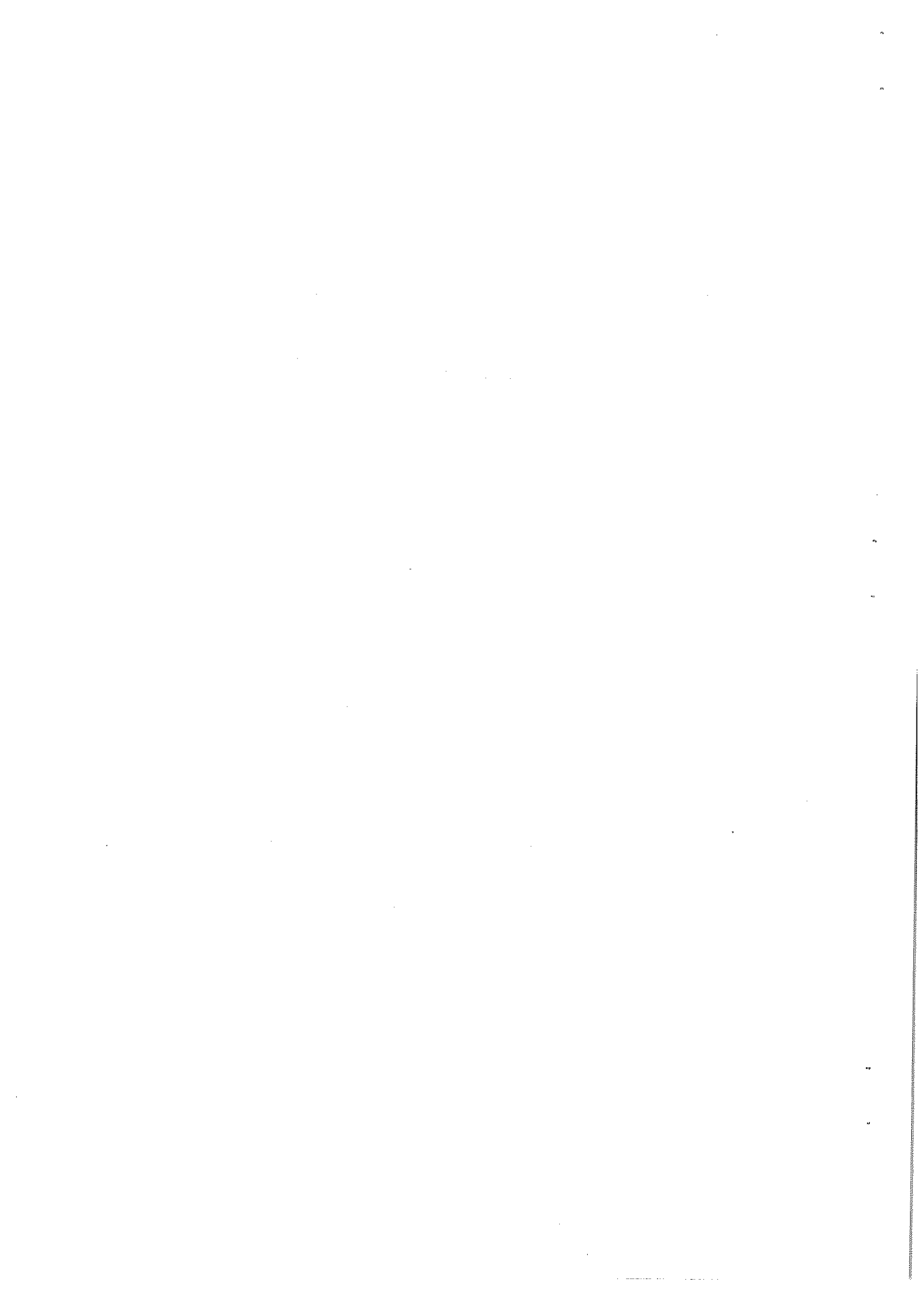
15 MINUTES COUNT

	TIME	X	Y	X + Y
A =	0730 - 0745			
D =	0815 - 0830			
G =	0900 - 0915			
J =	0945 - 1000			
B =	0845 - 0800			
E =	0830 - 0845			
H =	0915 - 0930			
K =	1000 - 1015			
C =	0800 - 0815			
F =	0845 - 0900			
I =	0930 - 0945			
L =	1015 - 1030			
	TOTAL			

EVENING SURVEY TIME 1530 - 1830 Hrs.

15 MINUTES COUNT

	TIME	X	Y	X + Y
A =	0730 - 0745			
D =	0815 - 0830			
G =	0900 - 0915			
J =	0945 - 1000			
B =	0845 - 0800			
E =	0830 - 0845			
H =	0915 - 0930			
K =	1000 - 1015			
C =	0800 - 0815			
F =	0845 - 0900			
I =	0930 - 0945			
L =	1015 - 1030			
	TOTAL			



VEHICULAR TRAFFIC COUNT DATA AT G-8/4 T&T COLONY WAGON / BUS STOP

X = DIRECTION FROM T&T COLONY CHOWK TO AGPR OFFICE BETWEEN 0730 HRS. TO 1000 HRS.
15 MINUTES COUNT

S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
1	Car/Jeep/Taxi	136	240	212	142	88	245	201	145	130	101	61	80	1789
2	Bus	5	5	2	4	9	11	7	5	2	7	9	2	59
3	Bicycle	13	9	15	10	6	6	0	0	0	14	0	7	80
4	Wagon/Mini-Bus/Suzuki	48	28	50	70	77	72	83	73	56	43	37	71	709
5	Motorcycle	33	22	72	59	92	138	126	94	77	79	66	68	926
6	Truck/Tractor Trolley	0	0	4	2	4	3	0	4	4	2	10	7	40
	TOTAL (X)	235	304	355	287	276	475	421	321	269	250	174	235	3602

Y = DIRECTION FROM AGPR OFFICE TO T&T COLONY CHOWK BETWEEN 0730 HRS. TO 1030 HRS.

S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
1	Car/Jeep/Taxi	180	161	109	71	64	105	109	87	95	41	91	72	1224
2	Bus	3	6	4	5	4	3	1	0	0	2	1	0	29
3	Bicycle	15	17	6	9	9	9	10	7	6	3	5	4	100
4	Wagon/Mini-Bus/Suzuki	42	43	43	31	31	25	23	23	38	29	40	38	406
5	Motorcycle	25	17	22	12	12	22	20	32	10	28	15	41	256
6	Truck/Tractor Trolley	2	0	0	2	2	3	1	3	0	1	1	3	18
	TOTAL	267	244	184	130	122	167	164	152	149	144	153	158	2034

X + Y = BOTH DIRECTION VEHICULAR TRAFFIC COUNT DATA

BOTH DIRECTION	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
MORNING (X)	235	304	355	287	276	475	421	321	269	250	174	235	3602
MORNING (Y)	267	244	184	130	122	167	164	152	149	144	153	158	2034
TOTAL (X + Y)	502	548	539	417	398	642	585	473	418	394	327	393	5636
PERCENTAGE	8.9	9.7	9.6	7.4	7.1	11.4	10.4	8.4	7.4	7.0	5.8	7.0	100.0

A= 0730-0745

B= 0745-0800

C= 0800-0815

D= 0815-0830

E= 0830-0845

F= 0845-0900

G= 0900-0915

H= 0915-0930

I= 0930-0945

J= 0945-1000

K= 1000-1015

L= 1015-1030

VEHICULAR TRAFFIC COUNT DATA AT G-8/4 T&T COLONY WAGON / BUS STOP

X = DIRECTION FROM T&T COLONY CHOWK TO AGPR OFFICE BETWEEN 1530 HRS. TO 1830 HRS.

15 MINUTES COUNT

S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
1	Car/Jeep/Taxi	64	82	65	74	109	97	105	145	87	75	70	71	1044
2	Bus	2	6	0	1	1	4	8	84	3	1	3	3	116
3	Bicycle	12	4	10	11	3	5	7	3	4	4	3	2	68
4	Wagon/Mini-Bus/Suzuki	5	9	8	22	14	4	13	4	7	5	7	5	101
5	Motorcycle	26	16	20	35	20	30	22	7	9	7	19	15	324
6	Truck/Tractor Trolley	10	2	2	3	1	1	5	9	2	2	0	0	37
	TOTAL (X)	119	119	105	146	148	141	160	252	112	92	102	96	1592

Y = DIRECTION FROM AGPR OFFICE TO T&T COLONY CHOWK BETWEEN 1530 HRS. TO 1830 HRS.

S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
1	Car/Jeep/Taxi	50	25	29	25	81	100	105	50	75	70	75	60	745
2	Bus	2	3	5	5	3	0	10	10	3	4	1	4	50
3	Bicycle	0	0	0	0	4	0	1	0	0	2	0	0	7
4	Wagon/Mini-Bus/Suzuki	30	21	14	24	27	24	54	48	20	11	25	37	335
5	Motorcycle	37	37	31	19	40	45	91	69	40	34	25	31	499
6	Truck/Tractor Trolley	3	1	1	2	9	3	1	1	4	2	1	4	32
	TOTAL	122	87	80	75	164	172	262	178	142	123	127	136	1668

X + Y = BOTH DIRECTION VEHICULAR TRAFFIC COUNT DATA

BOTH DIRECTION	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
MORNING (X)	119	119	105	146	148	141	160	252	112	92	102	96	1592
MORNING (Y)	122	87	80	75	164	172	262	178	142	123	127	136	1668
TOTAL (X + Y)	241	206	185	221	312	313	422	430	254	215	229	232	3260
PERCENTAGE	7.4	6.3	5.7	6.8	9.6	9.6	12.9	13.2	7.8	6.6	7.0	7.1	100.0

A= 1530-1545

B= 1545-1600

C= 1600-1615

D= 1615-1630

E= 1630-1645

F= 1645-1700

G= 1700-1715

H= 1715-1730

I= 1730-1745

J= 1745-1800

K= 1800-1815

L= 1815-1830

VEHICULAR TRAFFIC COUNT DATA AT G-8/4 T&T COLONY WAGON / BUS STOP

X + Y = BOTH DIRECTION 15 MINUTES INTERVAL VEHICULAR TRAFFIC COUNT DATA BY TYPE OF VEHICLE.

0730 HRS. TO 1030 HRS.

S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL	Avg
1	Car/Jeep/Taxi	316	401	321	213	152	350	314	232	225	186	152	152	3014	100.0
2	Bus	8	11	6	9	13	14	6	5	2	9	1	2	88	100.0
3	Bicycle	28	26	21	19	15	15	10	7	6	17	5	11	180	100.0
4	Wagon/Mini-Bus/Suzuki	90	71	93	101	108	97	106	96	94	72	77	109	1114	100.0
5	Motorcycle	58	39	94	71	104	160	146	126	87	107	81	109	1142	210.0
6	Truck/Tractor Trolley	2	0	4	4	6	6	1	7	4	3	11	10	58	100.0
	TOTAL	502	548	539	417	398	642	585	473	418	394	327	393	5636	100.0

X + Y = BOTH DIRECTION 15 MINUTES INTERVAL VEHICULAR TRAFFIC COUNT DATA BY TYPE OF VEHICLE.

1530 HRS. TO 1830 HRS.

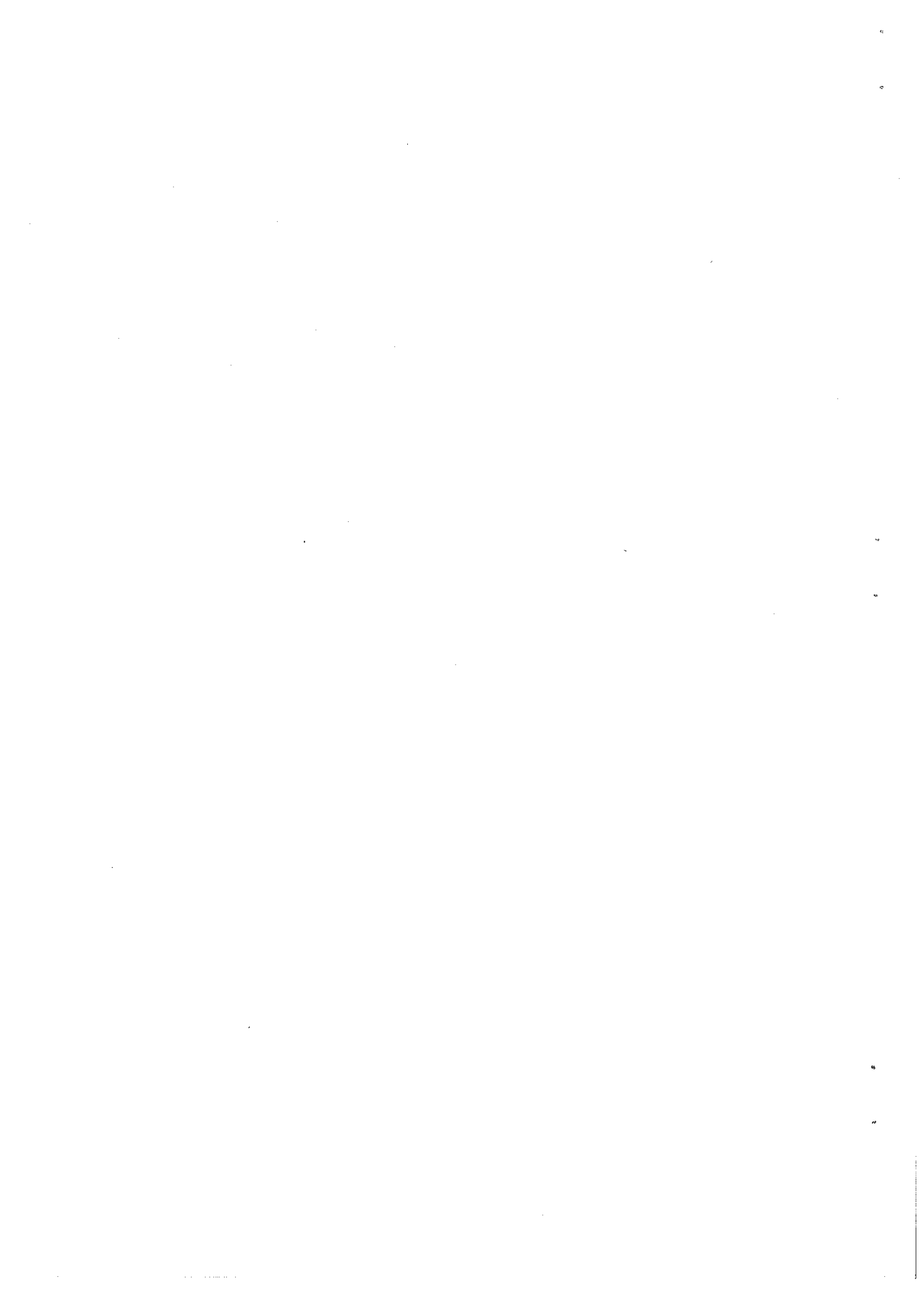
S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL	Avg
1	Car/Jeep/Taxi	114	107	94	99	190	197	210	195	162	145	145	131	1740	100.0
2	Bus	4	9	5	6	4	4	16	94	6	5	4	7	166	100.0
3	Bicycle	12	4	10	11	7	5	6	3	4	6	3	2	75	100.0
4	Wagon/Mini-Bus/Suzuki	35	30	22	46	41	28	67	52	27	14	32	42	436	100.0
5	Motorcycle	63	53	51	54	60	75	113	76	49	41	44	46	725	100.0
6	Truck/Tractor Trolley	13	3	3	5	10	4	6	10	6	4	1	4	69	100.0
	TOTAL	241	206	185	221	312	313	422	430	254	215	229	232	3260	100.0

SUM OF X+Y=BOTH DIRECTION 15 MINUTES INTERVAL VEHICULAR TRAFFIC COUNT DATA BY TYPE OF VEHICLE.

S1	TYPE OF VEHICLE	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL	Avg
1	Car/Jeep/Taxi	430	508	415	312	342	547	524	427	387	331	297	283	4803	54.0
2	Bus	12	20	11	15	17	18	26	99	8	14	5	9	254	2.9
3	Bicycle	40	30	31	30	22	20	18	10	10	23	8	13	255	2.9
4	Wagon/Mini-Bus/Suzuki	125	101	115	147	149	125	173	148	121	86	109	151	1559	17.0
5	Motorcycle	121	92	145	125	164	235	259	202	136	148	125	155	1997	21.0
6	Truck/Tractor Trolley	15	3	7	9	16	10	7	17	10	7	12	14	119	1.3
	TOTAL	743	764	724	638	710	955	1007	903	672	509	556	625	8876	100.0

A = 1530 - 1630
 B = 1545 - 1645
 C = 1600 - 1700
 D = 1615 - 1715
 E = 1630 - 1730
 F

Hourly Sheet is missing



PEDESTRIAN TRAFFIC COUNT DATA AT G-8/4 T&T COLONY WAGON/BUS STOP

X = DIRECTION FROM T&T COLONY TO MINI ZOO BETWEEN 0730 - 1030 HRS.

Y = DIRECTION FROM MINI ZOO TO T&T COLONY BETWEEN 0730 - 1030 HRS.

15 MINUTES COUNT	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
MORNING (X)	19	16	10	23	32	39	40	38	30	22	10	21	300
MORNING (Y)	85	111	80	80	91	121	110	63	38	52	42	47	920
TOTAL (X + Y)	104	127	90	103	123	160	150	101	68	74	52	68	1220

HOURLY COUNT	M	N	O	P	Q	R	S	T	U	TOTAL
MORNING (X)	68	81	104	134	149	147	130	100	83	996
MORNING (Y)	356	362	372	402	385	332	263	195	179	2846
TOTAL (X + Y)	424	443	476	536	534	479	393	295	262	3842
PERCENTAGE	11.0	11.5	12.4	14.0	13.9	12.5	10.2	7.7	6.8	100.0

X = DIRECTION FROM T&T COLONY TO MINI ZOO BETWEEN 1530 - 1830 HRS.

Y = DIRECTION FROM MINI ZOO TO T&T COLONY BETWEEN 1530 - 1830 HRS.

15 MINUTES COUNT	A	B	C	D	E	F	G	H	I	J	K	L	TOTAL
MORNING (X)	41	16	18	24	21	34	23	26	29	35	56	51	374
MORNING (Y)	38	28	37	29	38	34	57	56	59	70	44	36	526
TOTAL (X + Y)	79	44	55	53	59	68	80	82	88	105	100	87	900

HOURLY COUNT	M	N	O	P	Q	R	S	T	U	TOTAL
MORNING (X)	99	79	97	102	104	112	113	146	171	1023
MORNING (Y)	132	132	138	158	185	206	242	229	209	1631
TOTAL (X + Y)	231	211	235	260	289	318	355	375	380	2654
PERCENTAGE	8.7	8.0	8.9	9.8	10.9	12.0	13.4	14.1	14.3	100.0

MORNING 15 MINUTES TIMINGS

A= 0730-0745 B= 0745-0800 C= 0800-0815
D= 0815-0830 E= 0830-0845 F= 0845-0900
G= 0900-0915 H= 0915-0930 I= 0930-0945
J= 0945-1000 K= 1000-1015 L= 1015-1030

EVENING 15 MINUTES TIMINGS

A= 1530-1545 B= 1545-1600 C= 1600-1615
D= 1615-1630 E= 1630-1645 F= 1645-1700
G= 1700-1715 H= 1715-1730 I= 1730-1745
J= 1745-1800 K= 1800-1815 L= 1815-1830

MORNING

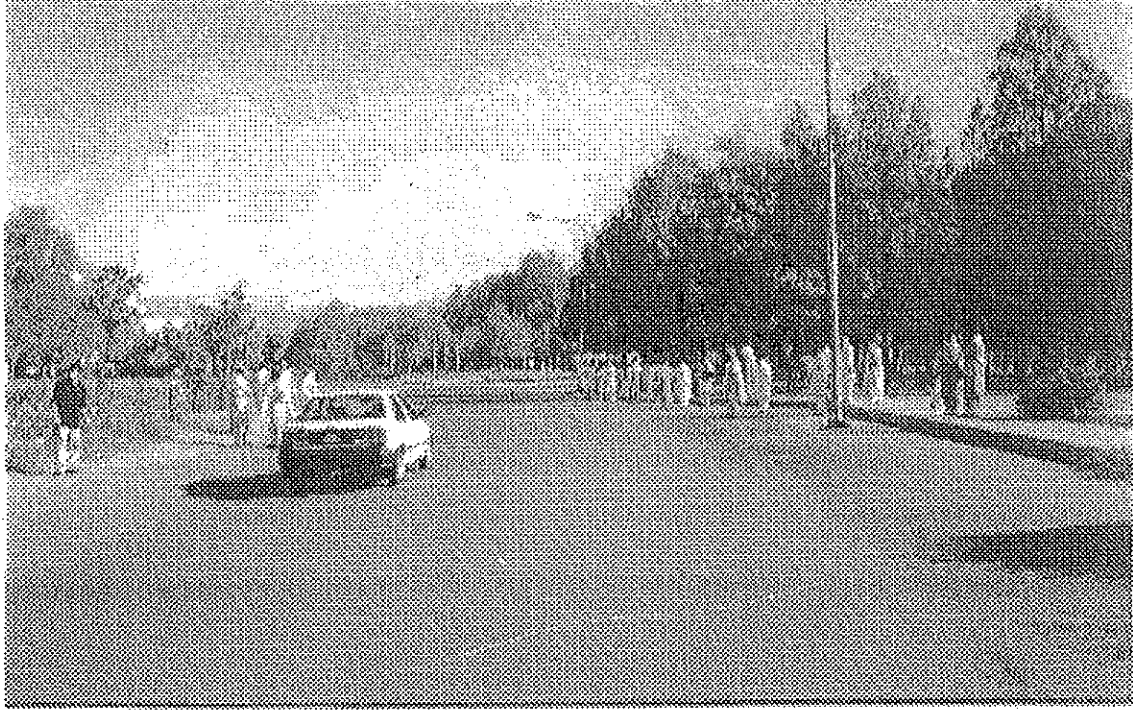
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N=0745-0845
O=0800-0900
P=0815-0915
Q=0830-0930

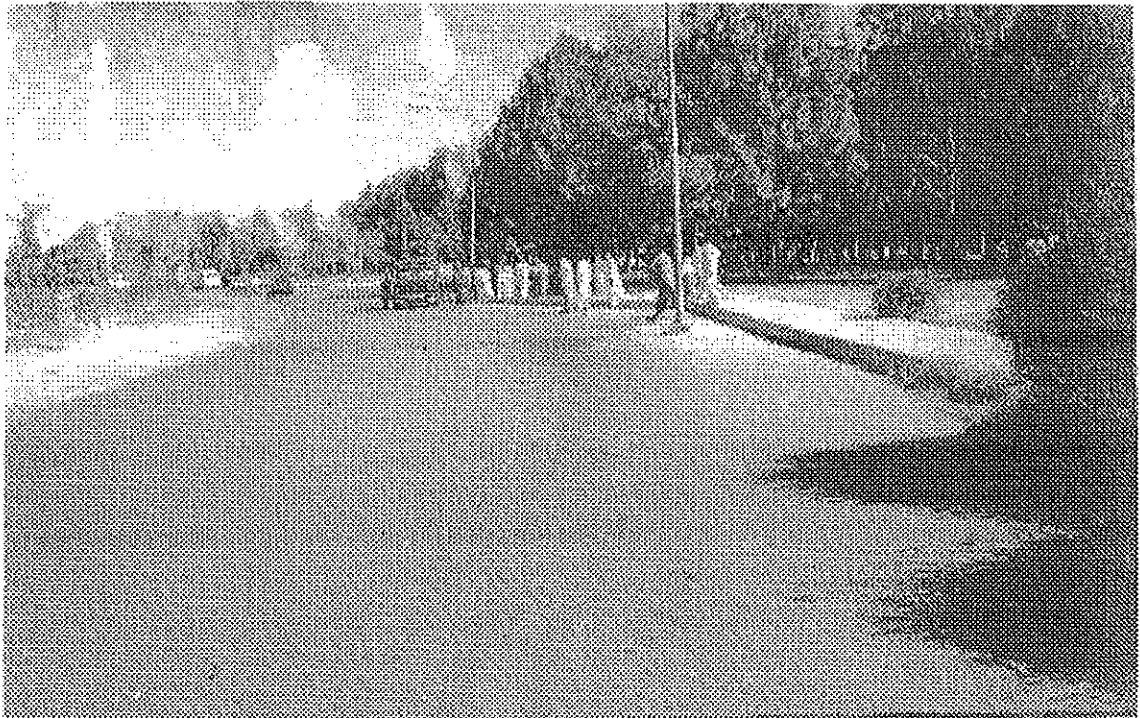
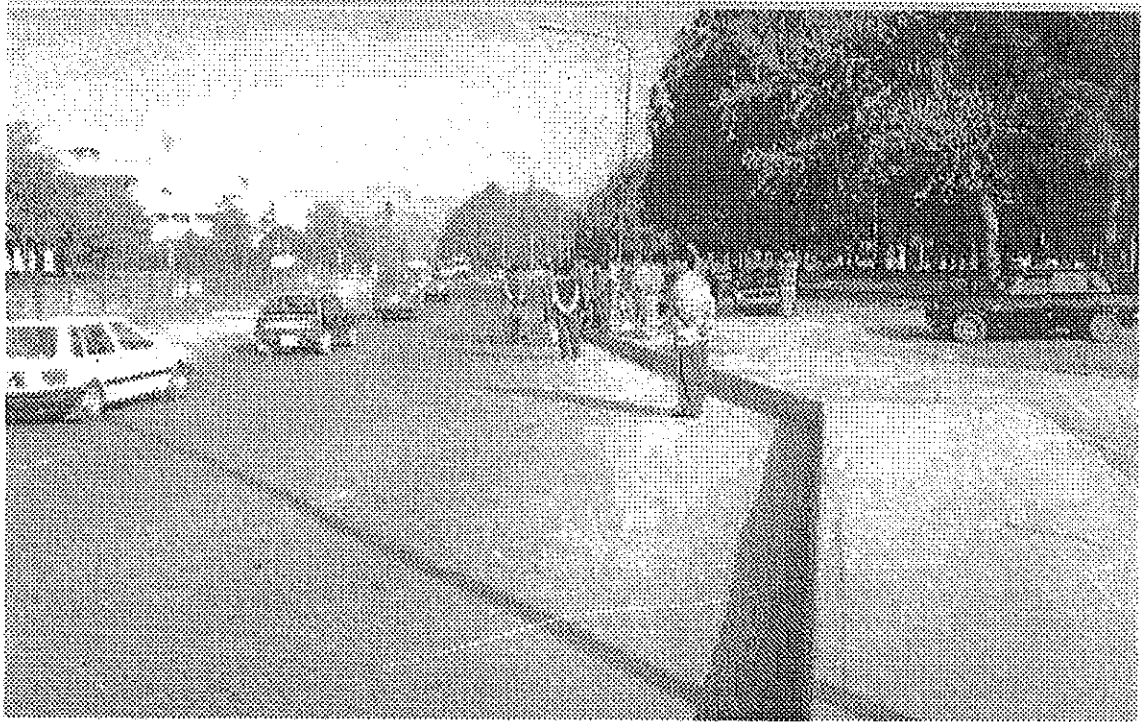
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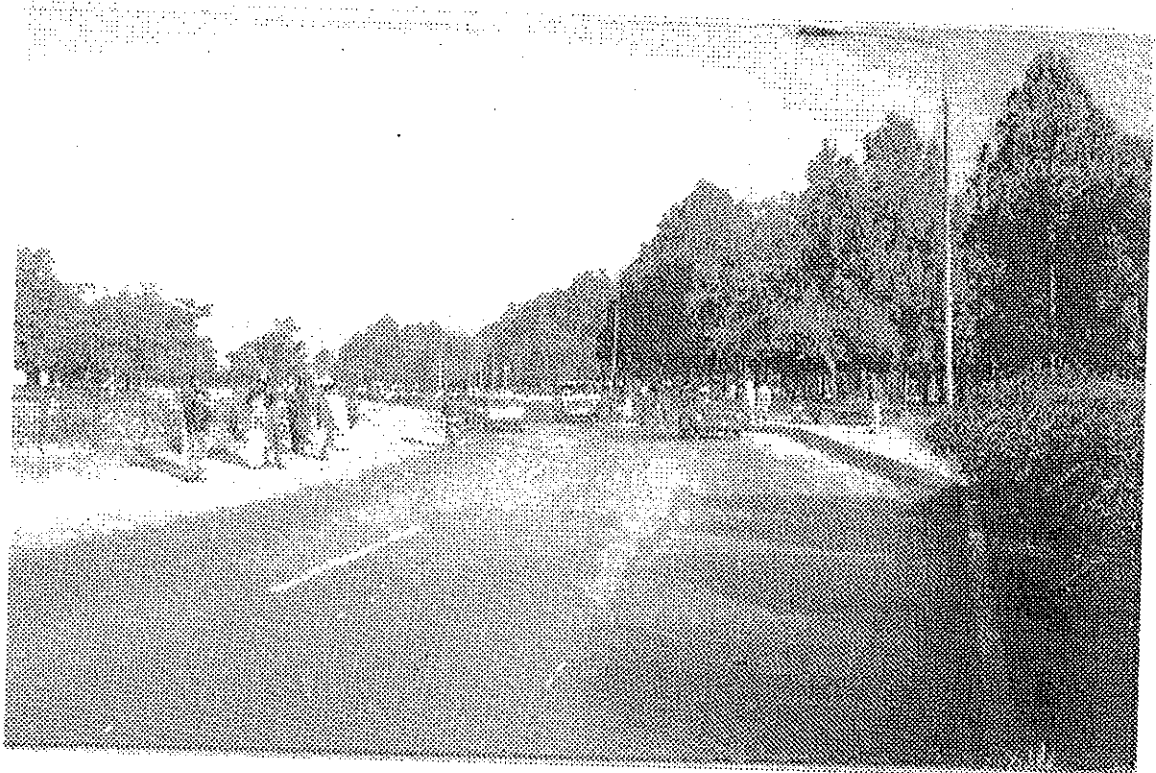
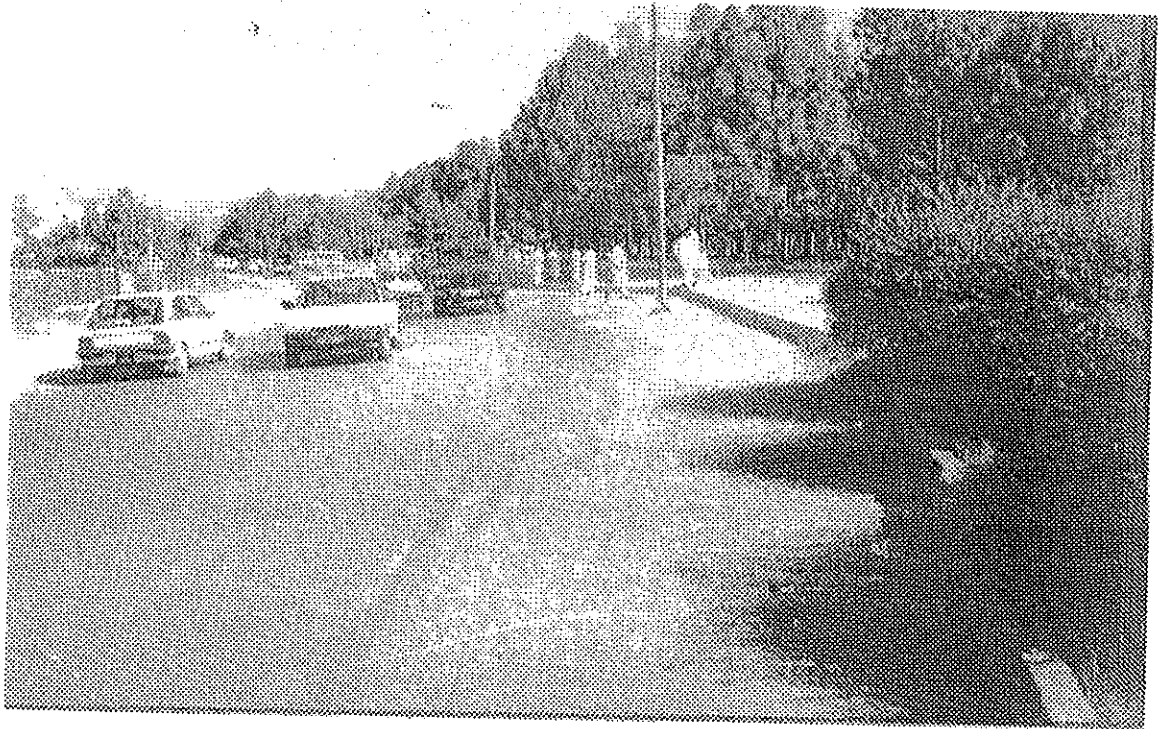
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Before Situation Photographs



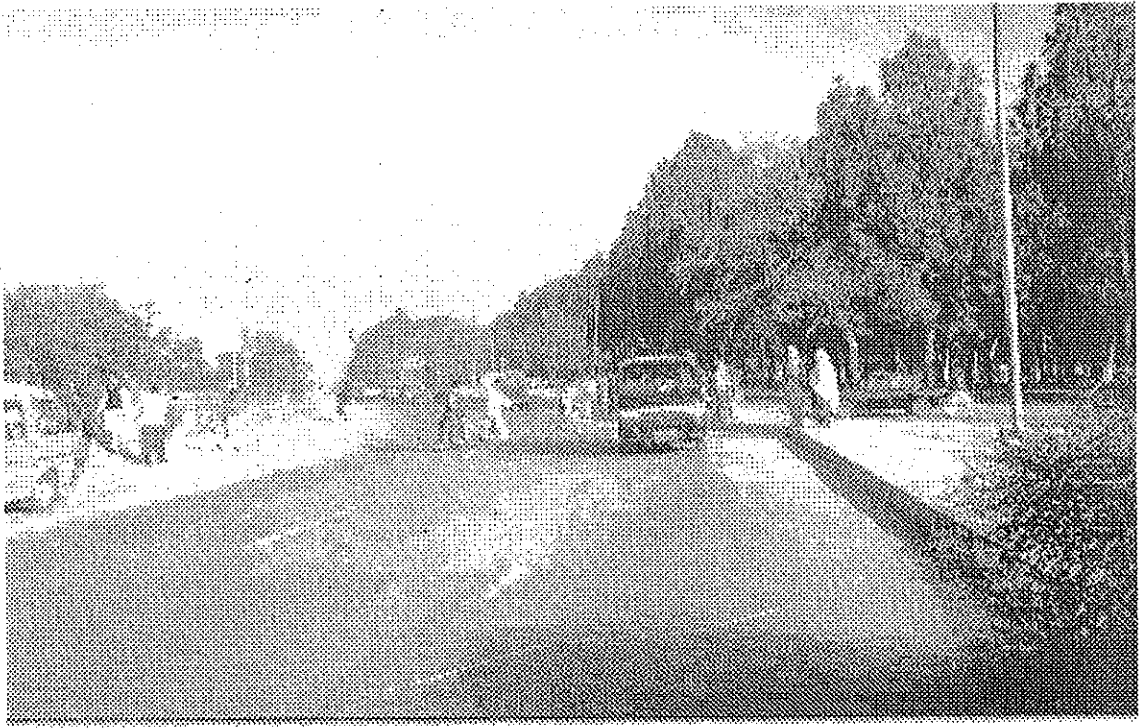


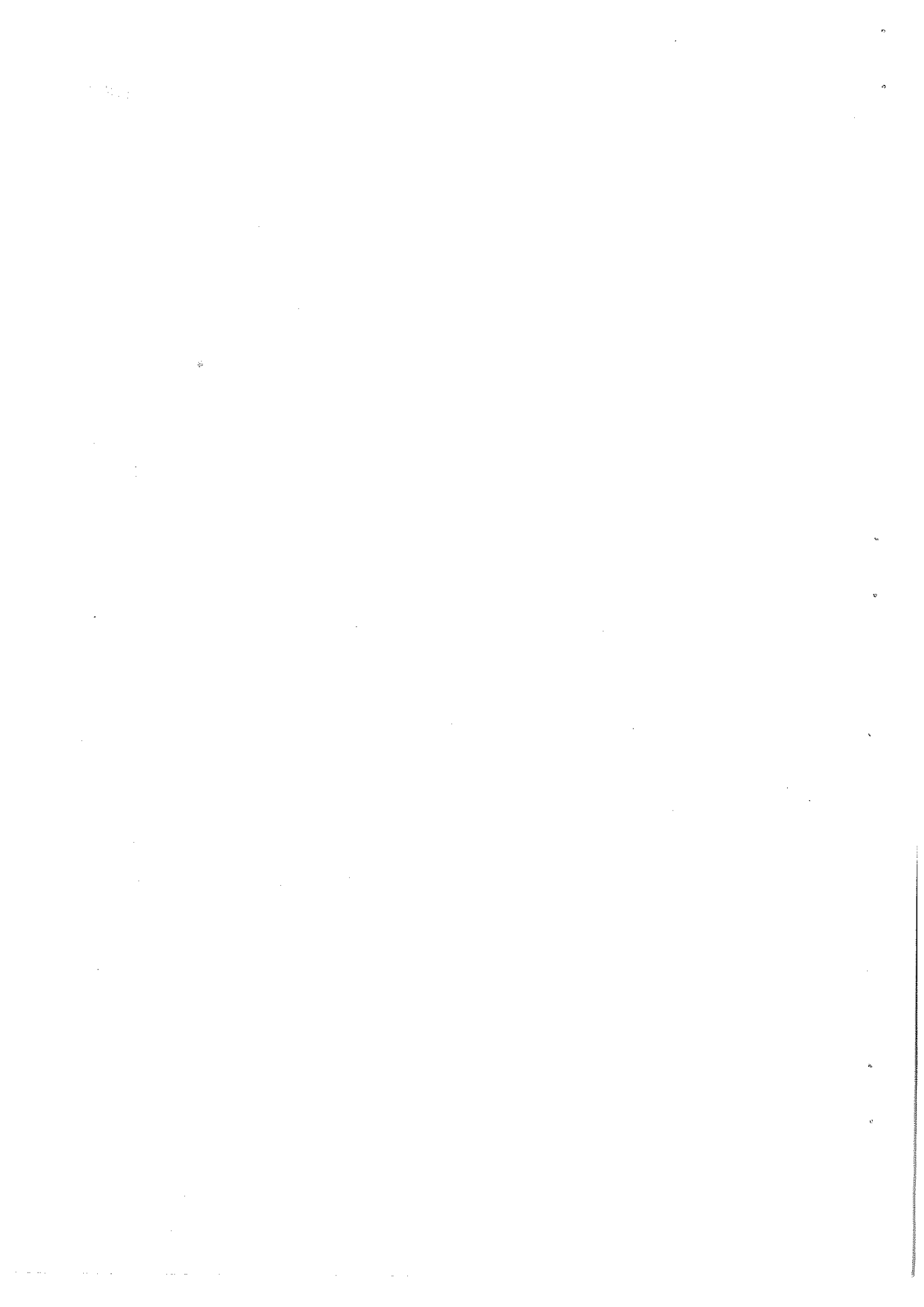


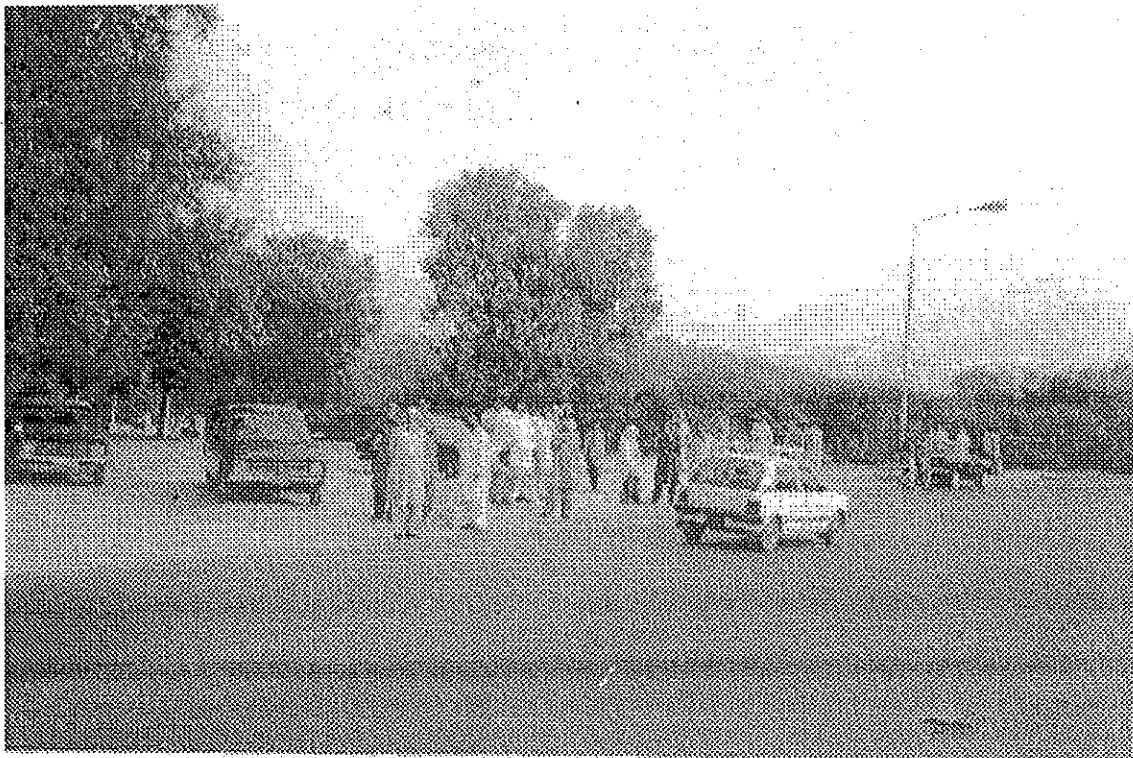
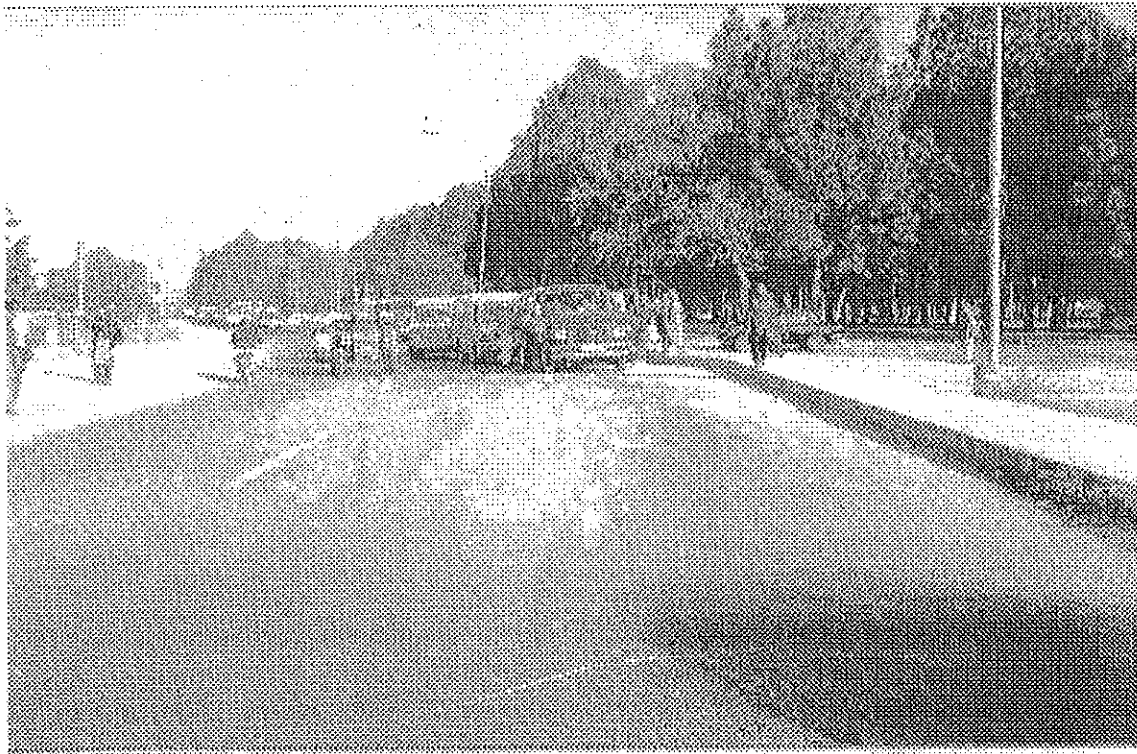
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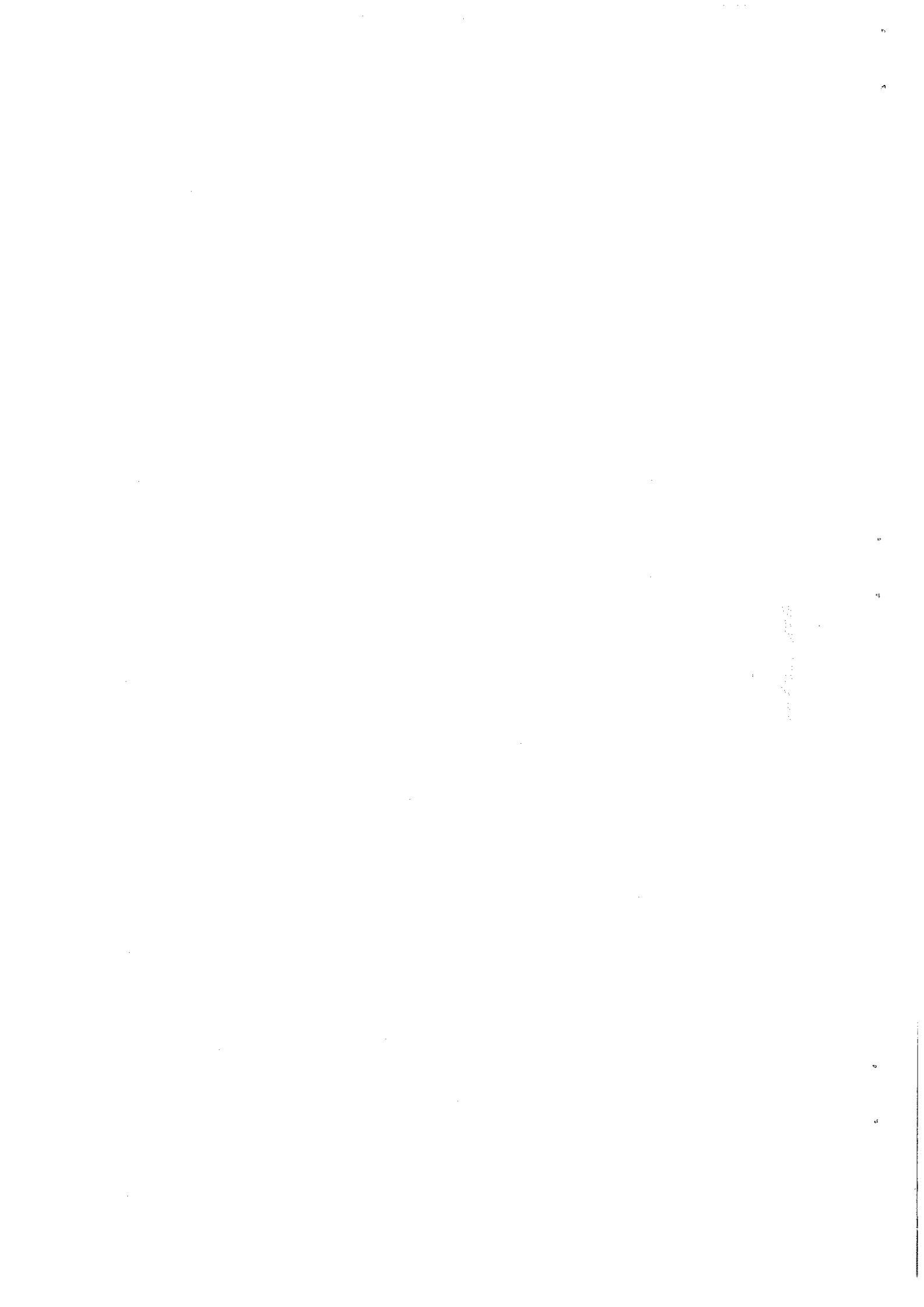
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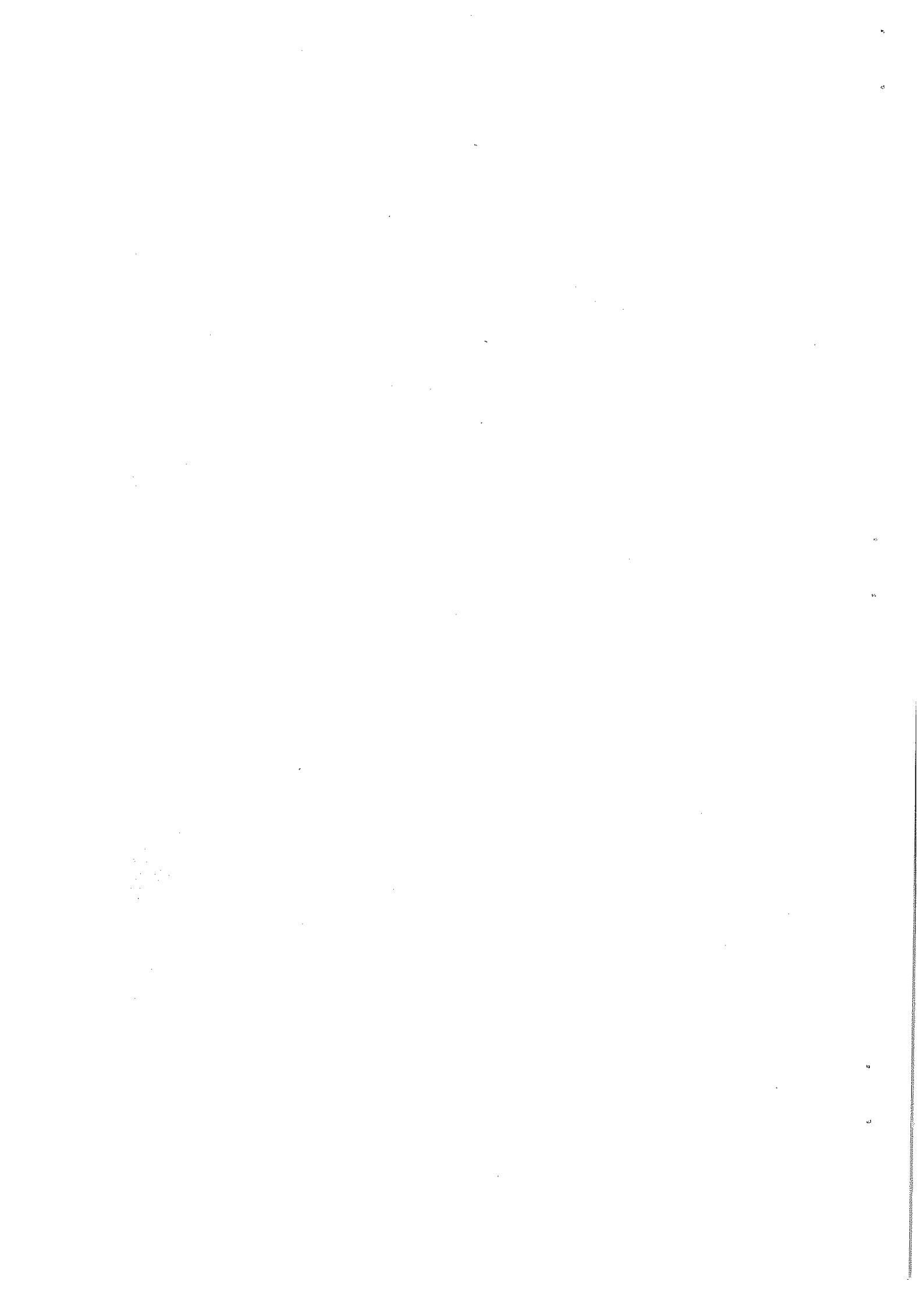




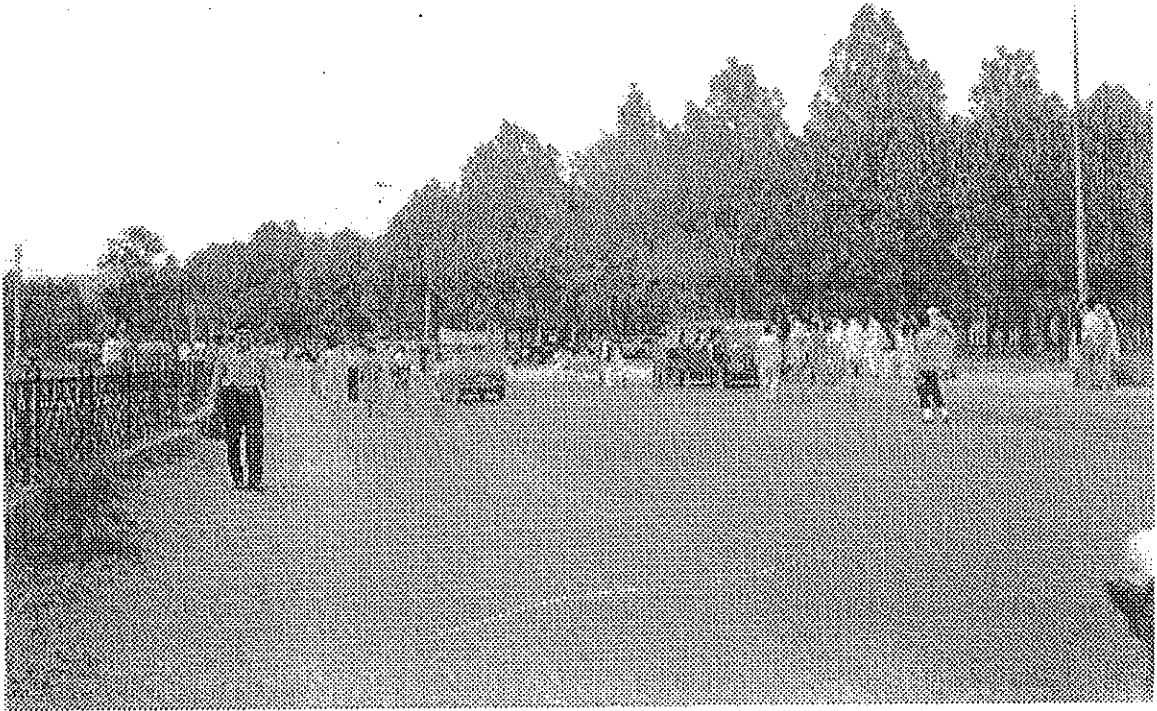








After Situation Photographs

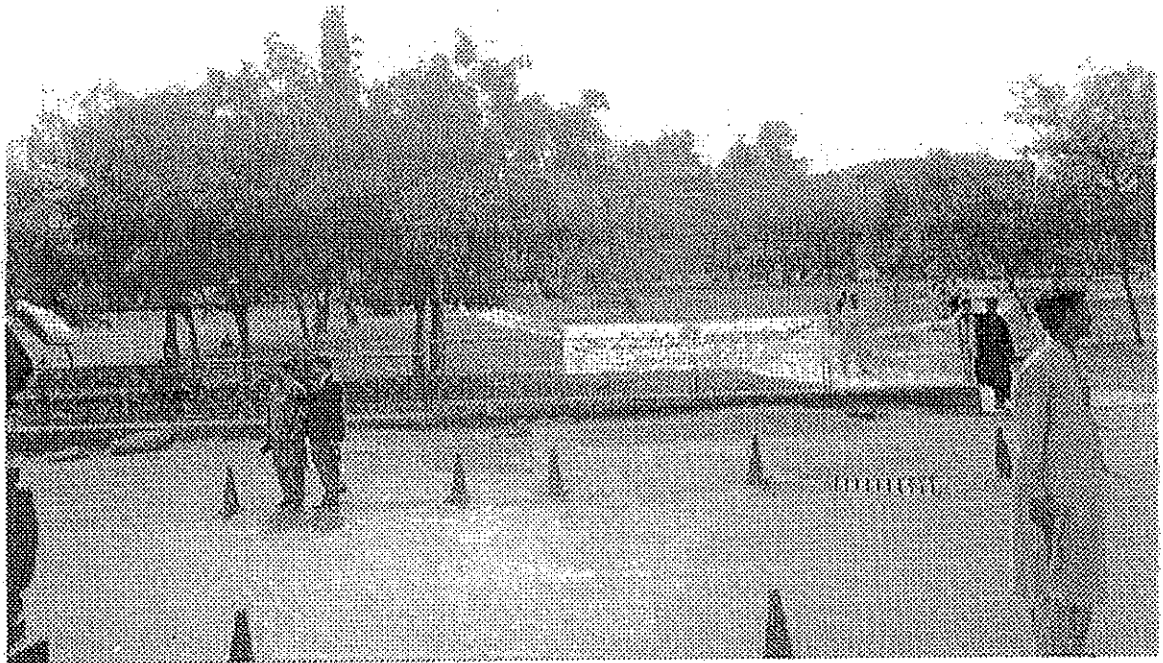
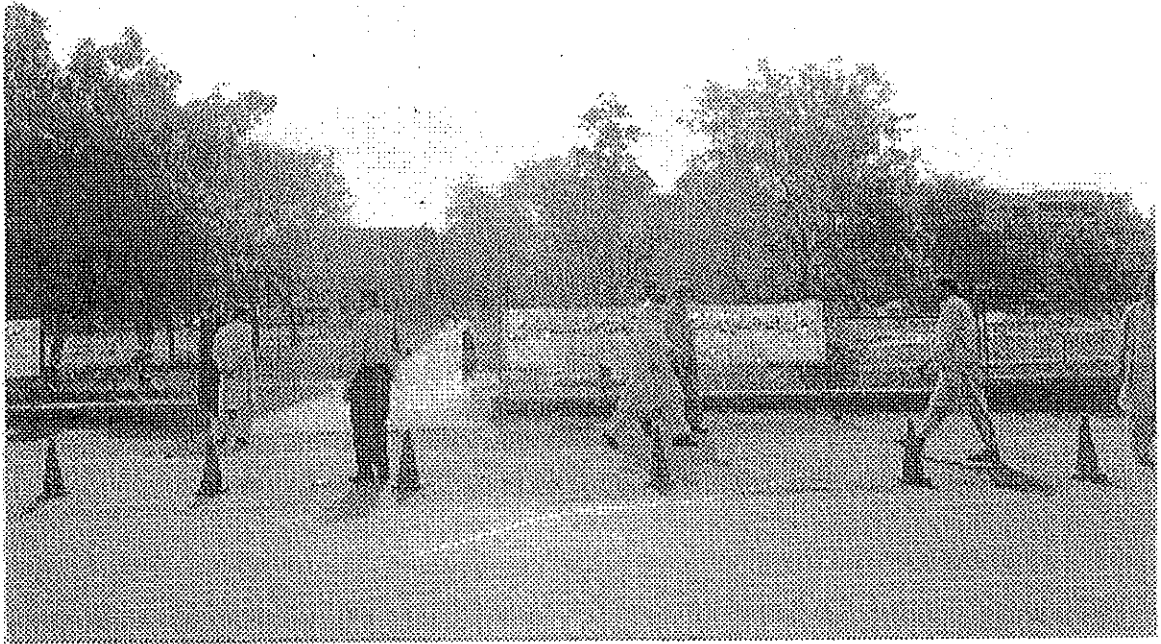


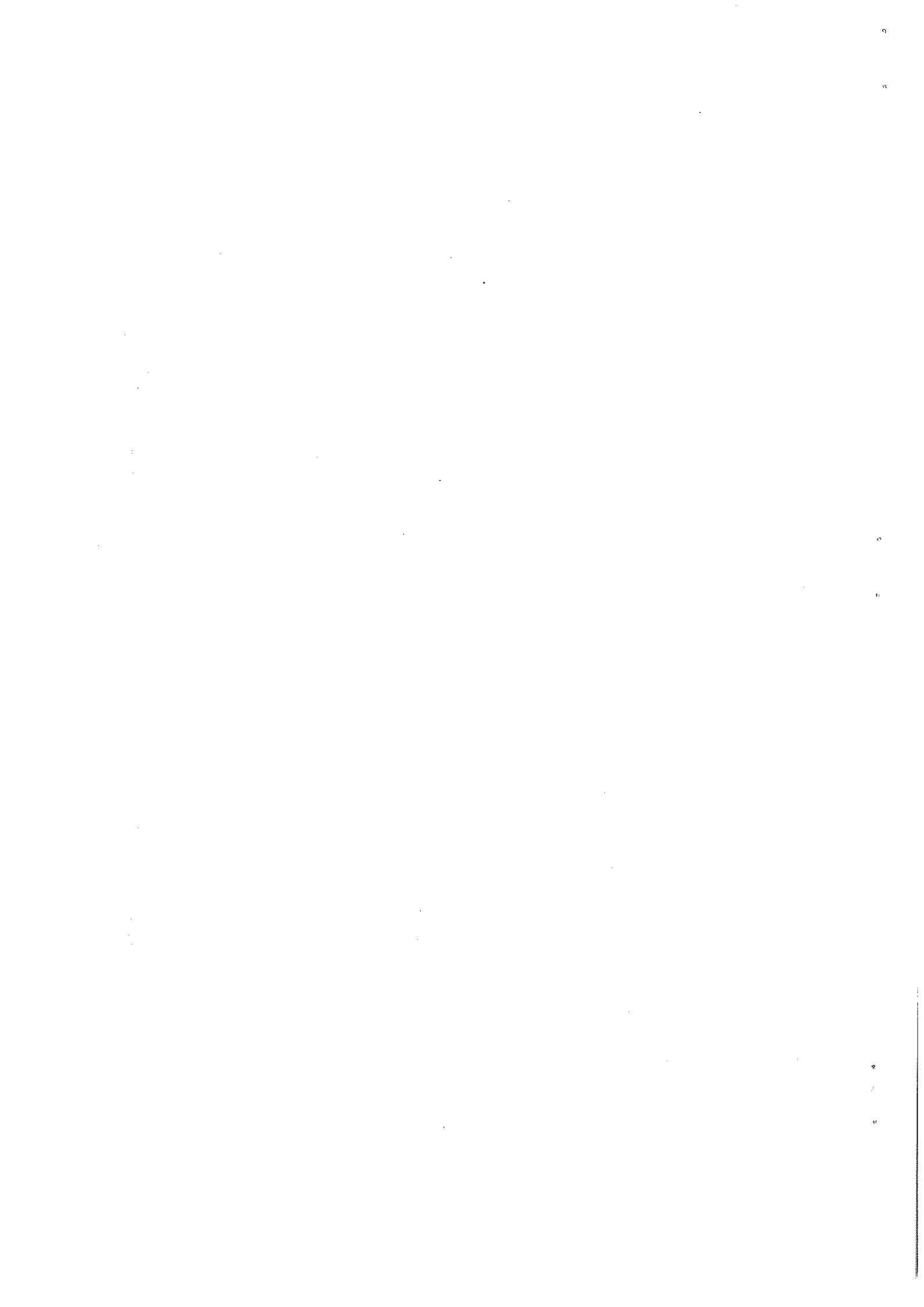
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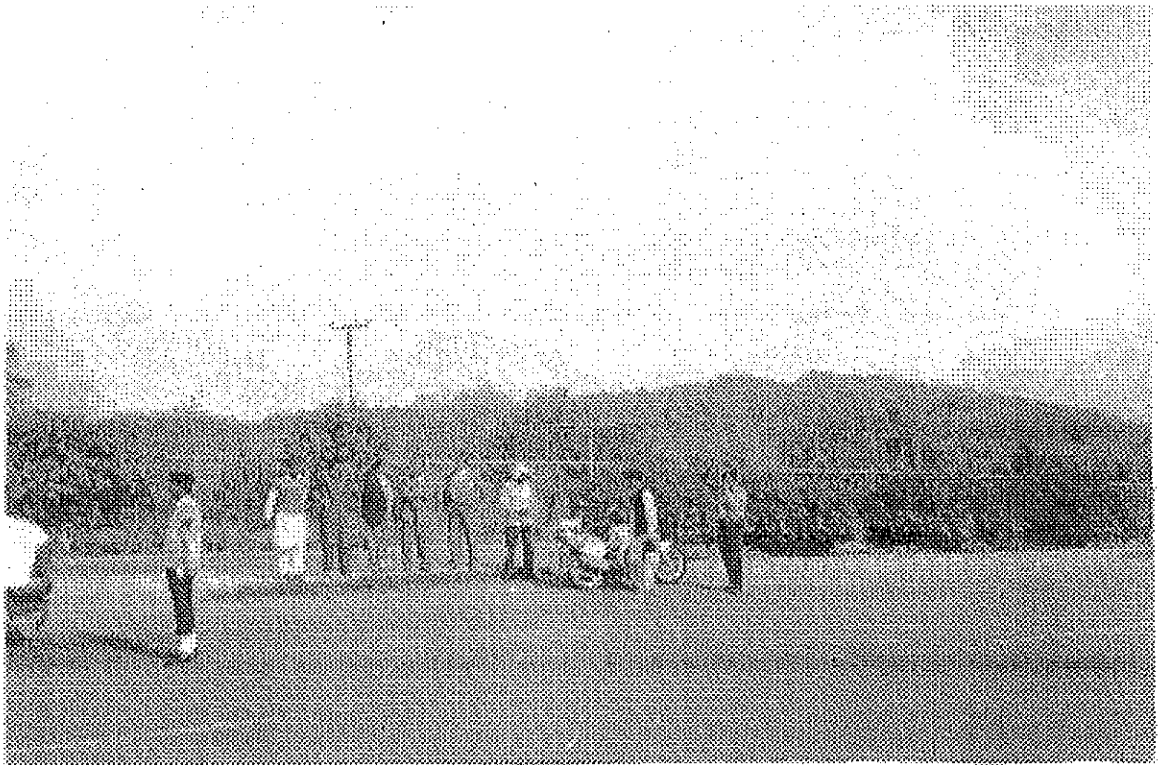
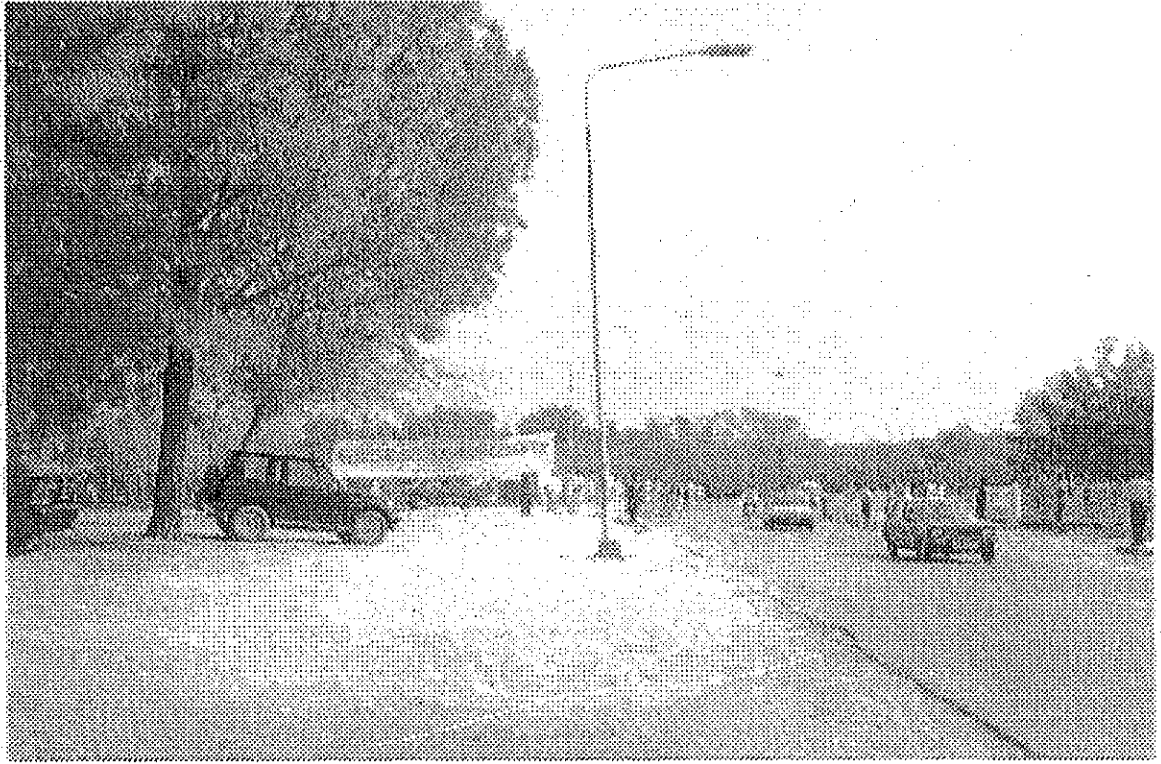
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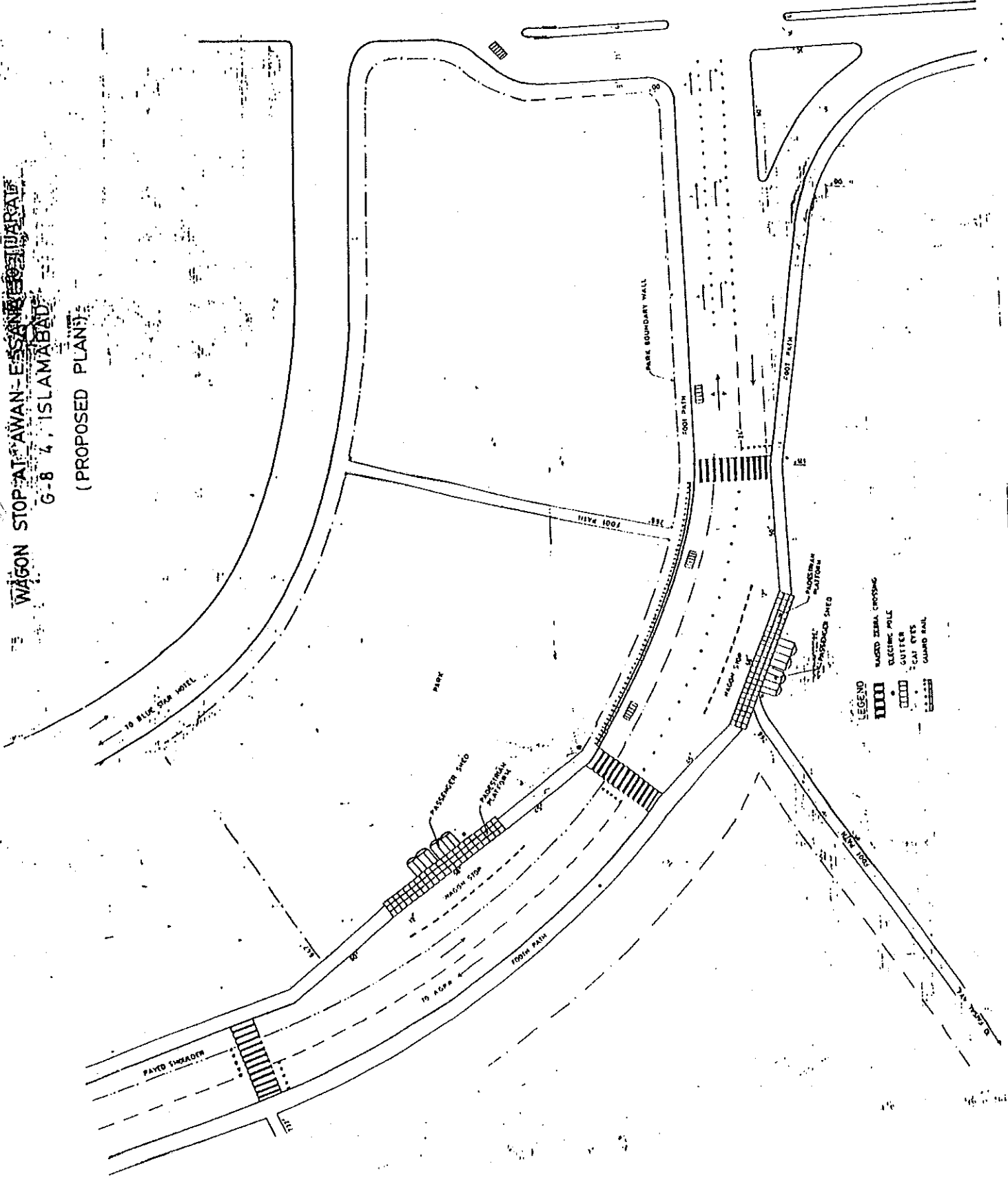








WAGON STOP AT AWAN-ESSA AND BERTAL
 G-8 4, ISLAMABAD
 (PROPOSED PLAN)



- LEGEND
- ▬ WAGON STOP CROSSING
 - ⊥ ELECTRIC POLE
 - ▬ GUTTER
 - ⊙ CALL BOX
 - ▬ GUARD RAIL

WAGON STOP AT AWAN-E-SANAT-O-TIJARAT
 G-8 4, ISLAMABAD
 (PROPOSED PLAN)



- LEGEND
- ▨ RAISED ZEBRA CROSSING
 - ELECTRIC POLE
 - ▤ GUTTER
 - CAT EYES
 - ||| GUARD RAIL